DOCUMENT RESUME

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Microfiche Collection of Clearinghouse Documents Reported in Abstracts of Research and Related Materials in Vocational and Technical Education. (ARM) Winter 1968.

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Documents announced with VT numbers only in the Winter 1968 issue (VT 008 099) of "Abstracts of Research and Related Materials in Vocational and Technical Education" (ARM), are included in this microfiche set. Microfiche availability for these documents is shown on the ARM resume as MF AVAILABLE IN VT-ERIC SET. The microfiche set is arranged in the following sequence: (1) a Vocational Technical (VT) number index to documents in the microfiche collection, (2) the author index, the vocational and supporting services index, and the subject index from ARM, and (3) the full text of documents listed in the VT number index. The texts are filmed continuously in VT number sequence. (BS)

ED027441

Microfiche Collection of Clearinghouse Documents

Reported in Abstracts of Research and Related Materials in Vocational and Technical Education

(ARM)

Compiled and Indexed by The ERIC Clearinghouse
on Vocational and Technical Education

WINTER 1968

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ERIC Clearinghouse
The Center for Vocational and Technical Education
The Ohio State University
1900 Kenny Road, Columbus, Ohio 43210

VT008157

INTRODUCTION

This collection of microfiche constitutes the documents in the local Clearinghouse which are not announced in Research in Education (RIE) but are announced in the Winter 1968 issue of Abstracts of Research and Related Materials in Vocational and Technical Education (ARM). Microfiche for these items is obtainable only through purchase of this set or from agencies who have this set, and who have the capability of reproducing microfiche. The microfiche set includes the following sections:

1. Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Winter 1968.

2. Selected indexes from ARM, Winter 1968.

    a. Personal and Institutional Author Index

    b. Vocational and Supporting Services Index

    c. Subject Index

    The page numbers shown in these indexes refer to the location of the abstracts in ARM, Winter 1968.

3. The full text of documents listed in the Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Winter 1968.

    The documents are arranged in numerical order according to VT numbers. The texts of materials in this microfiche set have been filmed continuously in VT number sequence thereby facilitating the purchase of the texts of VT documents not cited in RIE on microfiche with one order.

The documents identified in the indexes with an ERIC Document (ED) number are usually available as separate documents from the ERIC Document Reproduction Service (EDRS). Information about EDRS service can be found in ARM or RIE. Items not available through EDRS will usually have a source of availability at the end of the abstract.

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VT 006 458

VT Number List of Documents[1] Not in Microfiche Collection

Address Code[2]

A — VT 002 355
Job Training Suggestions for Women and Girls. Women's Bureau (Department of Labor), Washington, D.C. 1965.
Price: (L13.11:40, $.10)

B — VT 003 566
The Nature of Agricultural Occupations, Other Than Farming in Saline County, Missouri. Missouri University, Columbia. Department of Agricultural Education. 1964.
Price: 64-9354, $5.00 microfilm, $17.80 xeroxed copy

B — VT 004 531
Agricultural Offerings in Community Colleges in the United States. Neil Owen Snepp. 1963.
Price: 64-7056, $3.10 microfiche, $10.80 xeroxed copy

B — VT 004 533
Non-Farm Agricultural Employment in West Virginia, With Implications for Vocational Education Programs. Joseph Kenna Bailey. 1964.
Price: 65-5613, $2.80 microfilm, $9.00 xeroxed copy

B — VT 004 537
Guidelines for the Development of Training Programs for Agricultural Technicians. Joseph Ray Clary. 1964.
Price: 65-1169, $4.20 microfilm, $14.65 xeroxed copy

B — VT 004 542
Determination of the Educational Needs of Agricultural Engineering Technicians in Ohio. Jerry Jack Halterman. 1964.
Price: 65-5642, $4.45 microfilm, $15.75 xeroxed copy

B — VT 004 552
A Study of Integrating Biological Principles with Instruction in Vocational Agriculture. John Tull Starling. 1964.
Price: 65-5681, $2.75 microfilm, $7.20 xeroxed copy

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[1]Copies of these documents may be obtained from the source indicated in the citation.

[2]Correct address to obtain cited item is given in the source list, page 4.

VT Number List of Documents Not in Microfiche Collection

Address Code

B

VT 004 669
An Experimental Evaluation of Two Methods for Developing Creative Problem Solving Abilities in an Industrial Arts Course.
Donald Norris Anderson. 1963.
Price: 63-7903, $ 3.00 microfilm, $9.00 xeroxed copy

B

VT 004 721
Educational Requirements for Off-the-Farm Agricultural Occupations in Yuma County, Arizona.
Leon A. Wagley. 1964.
Price: 65-7855, $3.00 microfilm, $6.80 xeroxed copy

Source List for Documents Not in Microfiche Collection

Address Code

A — Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

B — University Microfilms, Inc.
300 North Zeeb Road
Ann Arbor, Michigan 48106

PERSONAL AND INSTITUTIONAL AUTHOR INDEX

ADAMS, SPENCER D.
VT 004 009 — Page 369
The Degree to Which Utah High School Students are Being Oriented as to Vocational and Technical Goals.

ADDISON, ROBERT T. AND OTHERS
VT 005 194 ED 018 666 — 333
A Self-Evaluating Instrument for the Business and Office Education Programs in the Secondary Schools.

AEROSPACE EDUCATION FOUNDATION, WASHINGTON, D.C.
VT 004 590 ED 020 348 — 284
Initial Feasibility Study for Exploration of Three U.S. Air Force Course Materials for Adaptation to Civilian School Systems.

AKRON UNIVERSITY, OHIO
VT 005 195 ED 018 667 — 352
Programmed Shorthand Laboratory for Skill Development.

ALABAMA STATE DEPT. OF EDUCATION, MONTGOMERY. HOME ECONOMICS EDUCATION
VT 005 030 — 338
Furnishings, Equipment, Instructional Materials and Supplies for Floral Design Laboratory.

VT 005 031 — 338
Equipment, Instructional Materials and Supplies for Vocational Home Economics in Alabama High Schools.

VT 005 032 — 338
Furnishings, Equipment and Supplies for Commercial Sewing and Alteration Laboratory.

VT 005 033 — 338
Furnishings, Equipment and Supplies for Child Development Laboratory.

VT 005 034 — 338
Equipment for Quantity Food Preparation and Service Laboratory.

VT 005 035 — 339
Inventory-Evaluation of Equipment and Furnishings for Home Economics Departments in Alabama High Schools.

ALASKA STATE DEPT. OF EDUCATION, JUNEAU. DIV. OF VOCATIONAL EDUCATION.
VT 005 463 — 294
Guideline for Cooperative Education Coordinator.

ALTMAN, JAMES W.
VT 004 363 — 302
A Behavioral View of Vocational-Technical Education.

VT 005 598 ED 019 516 — 297
An Analysis of Cost and Performance Factors in the Operation and Administration of Vocational Programs in Secondary Schools.

AMERICAN ASSN. OF JUNIOR COLLEGES, WASHINGTON, D.C.
VT 002 922 — 279
Paramedical and Health-Related Programs in the Junior College.

AMERICAN COUNCIL ON EDUCATION, WASHINGTON, D.C.
VT 003 698 — 344
Education and a Woman's Life.

AMERICAN INDUSTRIAL ARTS ASSN., WASHINGTON, D.C.
VT 003 411 ED 019 466 — 356
New Directions for Industrial Arts.

AMERICAN INSTITUTES FOR RESEARCH, PITTSBURGH, PA.
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An Analysis of Cost and Performance Factors in the Operation and Administration of Vocational Programs in Secondary Schools.

AMERICAN PERSONNEL AND GUIDANCE ASSN., WASHINGTON, D.C.
VT 005 710 ED 019 520 — 372
Proceedings, National Seminar on Vocational Guidance.

AMERICAN PERSONNEL AND GUIDANCE INTERDIVISIONAL COMMISSION ON GUIDANCE AND VOCATIONAL EDUCATION
VT 005 952 — 372
The Choice of Vocational Education as an Educational Opportunity.

AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS, ST. JOSEPH, MICH.
VT 001 995 — 311
Technician Needs in a Farm Machinery Engineering Group.

AMERICAN VOCATIONAL ASSN., WASHINGTON, D.C.
VT 001 389 ED 020 302 — 392
Research Visibility, 1967-68, Reports on Selected Research Studies in Vocational, Technical, and Practical Arts Education.

VT 001 908 ED 019 416 — 355
Vocational Education for American Youth.

VT 005 710 ED 019 520 — 372
Proceedings, National Seminar on Vocational Guidance.

AMOS, RUTH
VT 005 045 ED 017 735 — 380
A Survey of the Need for Pre-School Teacher Training.

ANDERSON, DONALD NORRIS
VT 004 669 — 387
An Experimental Evaluation of Two Methods for Developing Creative Problem Solving Abilities in an Industrial Arts Course.

VT 004 670 — 387
Resource Materials for Use with an Experimental Evaluation of Two Methods for Developing Creative Problem Solving Abilities in an Industrial Arts Course.

ARNOLD, JOSEPH P. AND OTHERS
VT 004 935 ED 018 661 — 361
Guidelines for the Development of Baccalaureate Technical Teacher Education Programs.

VT 004 936 ED 017 729 — 380
A Summer Institute for the Improvement of Technical Teacher Education Programs.

APPLEGARTH, BOYD
VT 001 382 — 308
A Study of the Relationships Between Employment Opportunities and Vocational Education Programs in Columbia County, Oregon.

ARNOLD, WALTER M.
VT 003 590 — 341
The Federal Government's Role in the Training of Technicians.

ASBELL, BERNARD
VT 004 376 ED 020 326 — 313
New Directions in Vocational Education.

ASHCRAFT, MARION GILBERT
VT 004 769 ED 017 719 — 371
An Analysis of the Effect of the High School Curriculum upon College Achievement.

BAIL, JOE P.
VT 004 948 — 324
Careers in Agriculture, A Guide for High School Students.

BAILEY, JOSEPH KENNA
VT 004 533 — 322
Non-Farm Agricultural Employment in West Virginia.

BALDWIN, THOMAS S.
VT 003 205 ED 018 613 — 330
The Development of Achievement Measures for Trade and Technical Education. Progress Report Number Four.

VT 005 199 ED 018 668 — 333
The Development of Achievement Measures for Trade and Technical Education. Progress Report Number One.

VT 005 200 ED 018 669 — 333
The Development of Achievement Measures for Trade and Technical Education. Progress Report Number Five.

BARNES, BILL
VT 004 661 — 361
Quarterly Progress Report of the Research Coordinating Unit in New Mexico, June 1, 1967-August 31, 1967.

BARNETT, LAWRENCE J.
VT 002 266 ED 020 311 — 300
Curriculum Relevancy and Work.

BARROW, JOSEPH M.
VT 003 446 — 337
The Setting for the Home Economics Program at the Secondary Level-- A New Look.

BATTELLE MEMORIAL INST., COLUMBUS SOCIO-ECONOMICS RESEARCH SECTION
VT 000 886 — 309
The Michigan Power Study. Phase I.

BEAL, GEORGE M. AND OTHERS
VT 002 885 ED 002 [illegible] — 278
The Decision-Making Process of School Districts Regarding Vocational Education and Training Programs.

[illegible], M. [illegible]
VT [illegible] ED [illegible] [illegible]
Leadership Development Seminar, Vocational-Technical Education. [illegible]

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Institute on Critical Issues in Vocational and Technical Teacher Education in Small Colleges and Universities.

BENDER, RALPH E.
VT 001 917 274
Procedures Employed by Teachers in Conducting Off-Farm Cooperative Work Experience Programs.

VT 004 613 ED 020 381 303
Adapting the FFA to a Changing Program of Vocational Agriculture

BENNETT, WILLIAM CLAIR, JR.
VT 003 567 319
Competencies in Soil Management and Use of Fertilizers Needed by Farmers.

BINKLEY, HAROLD
VT 005 721 ED 020 440 298
Demonstration Center at Redland High School.

BJORQUIST, DAVID C.
VT 005 777 390
The Education and Employment of Technicians.

BLAIR, MARGARET AND OTHERS
VT 005 504 ED 019 507 294
A Regional Institute to Aid Improvement of Instructional Practices, Materials and Student Experiences.

BOHLEBER, MICHAEL E.
VT 001 863 ED 017 655 342
Disabilities in Oklahoma--Estimates and Projections.

BOLERATZ, JULIA M.
VT 005 503 ED 019 506 382
An Experience with the Life and Work of the Disadvantaged for the Preservice Education of Home Economics Teachers.

BOOZ ALLEN AND HAMILTON, INC.
VT 003 675 320
An Action Program for Industrial Progress in Idaho.

BOTTOMS, JAMES E.
VT 000 664 270
Development of a Master Plan for Vocational Education in the State of Georgia.

VT 001 913 ED 019 418 366
Conference on Ways the Area School Personnel Worker and the High School Counselor Can Work Together.

BRADEN, PAUL V.
VT 004 918 ED 020 395 288
Occupational Education Beyond the High School in Oklahoma.

[illegible], DALE [illegible]
[illegible] ED [illegible] [illegible]
Proceedings, Inland Manpower Research Conference.

BRIGHAM YOUNG UNIV., PROVO. DEPT. OF INDUSTRIAL EDUCATION
VT 004 [illegible] [illegible]
The Degree to Which Utah [illegible] Secondary Students are Work Oriented as to Vocational and Technical Fields.

BROCK, DON AND OTHERS
VT 000 [illegible] [illegible]
Cooperative, Supervised, Part-Time, Occupational Educational Program in Agriculture.

BRUENER, KEN AUGUST
VT 003 704 271
A Study of Organized Occupational Education in Missouri Institutions of Higher Education.

BRUTON, JOHN C.
VT 003 276 ED 018 620 305
The Effect of Vocational Agriculture Class Enrollment and Farm Experience on Animal Science Knowledge of First Year Students Enrolled in Oklahoma Colleges of Agriculture.

BUCKS COUNTY PUBLIC SCHOOLS, DOYLESTOWN, PA.
VT 002 246 366
What's Your Future in the World of Work?

BUNTIN, L. ANN
VT 003 999 ED 019 [illegible] 351
A Planning Grant for the Establishment of a Center for the Development of Home Economics Instructional Materials.

BUREAU OF LABOR STANDARDS, WASHINGTON, D.C.
VT 004 998 345
State Committee on Seasonal Agricultural Labor.

CAIN, PAUL S.
VT 004 649 323
Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia.

CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO
VT 005 144 291
A Study of Technical Education in California.

CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO. BUREAU OF BUSINESS EDUCATION
VT 001 329 310
Impact of Automation on Office Occupations.

CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO. BUREAU OF INDUSTRIAL EDUCATION
VT 002 368 276
Roadmap for a Decade of Progress in Industrial Education.

CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO. INSTRUCTIONAL MATERIALS LABORATORY
VT 001 [illegible] 309
Science and Engineering Technician Study.

CALIFORNIA STATE DEPT. OF ED[illegible], SACRAMENTO. VOCATIONAL EDUCATION, SACRAMENTO.
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CALIFORNIA STATE POLYTECHNIC COLL., SAN LUIS OBISPO. DEPT. OF BUSINESS
VT 001 [illegible] 274
A Pilot Study of Local Administration and Research Needs in the State [illegible] Report No. 1.

CALIFORNIA UNIV., BERKELEY. SCHOOL OF EDUCATION
VT [illegible] 72
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VT 00[illegible] 131
Group Interview Guide, A Nationwide Study of the Administration of Vocational-Technical Education at the State Level.

CALIFORNIA UNIV., DAVIS
VT 005 028 304
Motivation of Domestic Seasonal Farm Workers.

CALIFORNIA UNIV., LOS ANGELES
VT 002 137 ED 018 609 275
Leadership Development Seminar, Vocational-Technical Education. Final Report.

CAMPBELL, ROBERT E. AND OTHERS
VT 005 952 378
The Choice of Vocational Education as an Educational Opportunity.

CAREY, OMER L. AND OTHERS
VT 003 412 317
Trends in Distribution, Services and Transporation, With Particular Reference to the State of Washington.

CENTER FOR URBAN EDUCATION, NEW YORK, N.Y.
VT 002 266 ED 020 311 300
Curriculum Relevancy and Work.

CENTRAL WYOMING COLLEGE, RIVERTON.
VT 000 856 308
Fremont County Survey of Vocational-Technical Education Needs in Business and Industry.

CHADDERDON, HESTER
VT 001 831 375
Interest in Teaching Home Economics.

CHAMBER OF COMMERCE OF THE UNITED STATES, WASHINGTON, D.C.
VT 003 564 ED 018 633 318
Automation and Unemployment.

CHAMPAIGN COMMUNITY UNIT 4 SCHOOL DISTRICT, ILL.
VT 002 649 344
Occupational Exploration Program Manual of Operations.

CHICAGO BOARD OF EDUCATION, ILL. DEPT. OF VOCATIONAL AND PRACTICAL ARTS EDUCATION
VT 001 435 ED 018 574 328
Survey of Currently Employed Nurse Aides in Chicago.

CHRISTENSEN, VIRGIL E.
VT 003 221 ED 019 481 [illegible]
Strategies for Optimum Use of Application of Media in Vocational and Technical Education Curricula.

CINCINNATI PUBLIC SCHOOLS, OHIO
VT 000 653 340
Disadvantaged Youth Program in Business Education, Clerical Services.

CIVIL SERVICE COMMISSION, WASHINGTON, D.C.
VT 002 947 ED 019 434 311
Job Briefs, Selected Federal Jobs.

CLARK, RAYMOND M.
VT 000 566 306
Training for Off-Farm Agricultural Occupations.

VT 000 568 269
Training for Off-Farm Agricultural Occupations.

CLARY, JOSEPH RAY
VT 004 537 284
Guidelines for the Development of Training Programs for Agricultural Technicians.

CLEMSON UNIV., S.C.
VT 004 780 ED 017 722 352
Improving Procedures for Producing Overhead Transparencies with the Ultimate Aim of Incorporating These Techniques into the Development of a Regional Curricular Materials Center for Vocational Education.

CLOYD, HELEN M. AND OTHERS
VT 000 673 326
Follow-Up Study of Business Education Graduates of Selected High School in Michigan.

COLE, LUCY W.
VT 000 552 306
A Case Study in Trade-Area Development.

VT 000 666 307
A Case Study in Trade-Area Development, A Statistical Supplement.

COLLINS, CHARLIE J.
VT 004 703 286
Study of Industrial Arts Education in Public Secondary Schools of the Southern Appalachian Region.

COLORADO STATE BOARD FOR COMMUNITY COLLEGES AND OCCUPATIONAL EDUCATION, DENVER
VT 005 183 ED 018 664 292
Colorado Master Plan for Community Colleges and Occupational Education.

COLORADO STATE BOARD FOR VOCATIONAL EDUCATION, DENVER
VT 000 527 269
Manual for Young and Adult Farmer Programs.

VT 001 019 336
Recommendations for a Vocational Agriculture Classroom and Farm Mechanics Shop.

VT 001 004 273
Policy and Procedure for Technical Education Under the State Plan for the Vocational Education Act of 1963.

VT 002 945 276
Policy and Procedures for Distributive Education Under the State Plan for the Vocational Education Act of 1963.

COLORADO STATE UNIV., FORT COLLINS
VT 004 177 ED 019 471 301
The Identification of Common Behavioral Factors as Bases for Pre-Entry Preparation of Workers for Gainful Employment.

COLORADO STATE UNIV., FORT COLLINS. DEPT. OF VOCATIONAL EDUCATION
VT 000 527 269
Manual for Young and Adult Farmer Programs.

COLORADO UNIV., BOULDER
VT 005 720 ED 020 439 304
Scientific Secretary Training Program Development.

COLORADO UNIV., BOULDER. BUREAU OF SOCIOLOGICAL RESEARCH
VT 005 051 346
The Colorado Story, Volume II.

VT 005 052 346
The Colorado Story.

COLORADO UNIV., BOULDER. SCHOOL OF NURSING
VT 005 521 ED 020 426 304
Associate Degree Nursing Program Workshop.

VT 005 522 295
Proceedings, Associate Degree Workshop.

COMMONWEALTH EDUCATION LIAISON COMMITTEE, LONDON (ENGLAND)
VT 005 022 ED 020 400 289
Education and Training of Technicians.

CONNECTICUT STATE DEPT. OF EDUCATION, HARTFORD. DIV. OF VOCATIONAL EDUCATION
VT 002 328 337
A Report of a Study of the Need for a Vocational-Technical School in the Milford-Stratford Area.

CONNECTICUT VOCATIONAL EDUCATION RESEARCH COORDINATING UNIT, HARTFORD
VT 005 146 ED 019 495 363
Research Report, 1966-1967.

CONNOLLY, JOHN
VT 003 888 ED 018 645 281
Proceedings of National Seminar on Program Planning, Budgeting, and Evaluation, Vocational-Technical Education.

COOK, FRED S.
VT 001 483 ED 018 583 336
Office Machines Used in Business Today.

COOKE, LOT H., JR.
VT 005 648 ED 019 517 372
Summer Institutes for Vocational Counseling and Guidance Personnel.

CORNELL UNIV., ITHACA, N.Y.
VT 005 534 ED 022 039 359
Concept Formation and the Home Economics Curriculum.

CORNELL UNIV., ITHACA, N.Y. DEPT. OF EDUCATION
VT 004 863 ED 016 660 352
Using Programed Instruction in Occupational Education.

COUNCIL FOR DISTRIBUTIVE TEACHER EDUCATION
VT 001 855 ED 019 412 355
A Philosophy of Distributive Education.

COURTNEY, E. WAYNE
VT 003 614 320
Some Statistical Correlates in Industrial Graphics.

VT 005 190 ED 020 410 363
Research Needs in Vocational-Technical Education.

CRAWFORD, LUCY C.
VT 001 855 ED 019 412 355
A Philosophy of Distributive Education.

CREWS, JAMES W.
VT 002 241 ED 019 433 358
Research Needed in Florida Business Education.

CURTIS, C.M.
VT 000 540 306
Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in the Lake Charles Area.

VT 000 581 306
Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in the Baton Rouge Area.

VT 000 583 307
Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in Alexandria-Pineville Area.

CUSHMAN, HAROLD R. AND OTHERS
VT 005 091 ED 019 494 371
The Concerns and Expectations of Prospective Participants in Directed Work Experience Programs.

DAILEY, JOHN T.
VT 004 454 ED 017 689 302
Development of a Curriculum and Materials for Teaching Basic Vocational Talents.

DAVIS, RENE V.
VT 001 480 ED 018 582 329
Development and Administration of the Youth Opinion Questionnaire.

DEAN, ERNEST H.
VT 000 553 269
Recommendations for the Improvement of Utah's Post-High Schools Vocational Technical Education Program.

DEBLASSIE, RICHARD R.
VT 004 608 351
Pre-Vocational Orientation in Vocational Education for Junior High School Students in New Mexico.

PERSONAL AND INSTITUTIONAL AUTHOR INDEX

DELAWARE OCCUPATIONAL RESEARCH AND COORDINATING UNIT, DOVER
VT 004 923 323
Bibliography of Selected Research in the Field of Occupational Education.

VT 004 991 380
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"Synthesis of Administration of Research in Vocational Education" by C.W. Hill, advances the belief that research and development is the foundation for quality in vocational education. In "Freedom of Researchers," Lloyd J. Phipps gives the researchers' responsibilities to administrators and discusses the freedoms researchers have a right to expect of administrators. "Research and Development, The Foundations for Quality in Vocational Education," by Walter M. Arnold, discusses the needs in vocational education for specific types of research, the deficiencies in the research field, and the implications contained in the Vocational Education Act of 1963 for developing vigorous research programs. In "Utilizing Research in Program Development," by L.T. White, the need for research is presented relative to what is expected of the new educational programs. "Administering Change," by T.J. Jenson, presents a discussion of two phenomena, the processes of administering and of change. "An Action Program for Improving Research in Vocational Education," by Walter R. Williams, Jr., cites the potential of recent vocational education acts to meet new and evolving demands. (SL)

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SYNTHESIS OF ADMINISTRATION OF RESEARCH IN VOCATIONAL EDUCATION

by

C. W. Hill
Professor of Agricultural Education
Cornell University

Long ago it was said, "Knock and it shall be opened unto you. Seek and ye shall find." Over and over it was stated in the seminar that research provides answers to questions. New data and knowledge come from research. It is a means of progress. Research is the new knowledge that you find after you know all the answers. We shall be in business ten and twenty years hence because of the new knowledge that will be used to update current and future vocational education.

New Demands. The economic and social system has made tremendous changes. The world of work continually changes. The product of vocational education must fit into the present structure and functions. Within vocational education some believe we have kept up to date. Others think we have not. Some think we have engaged in acceptable research. Others are quick to say little has been done. Those outside vocational education report there is little research in the journals on vocational education. Regardless of the opinions, the mandate comes through clear, loud, and true -- research is needed in vocational education.

Congress legislated 10 percent of the total money in the Federal Vocational Education Act 1963, must be used for research programs.

Research Priorities. Much emphasis was placed on research that would help vocational education solve the disadvantaged youth problems. In this seminar, areas for research were identified and ranked. Time was too short to identify researchable problems and to state them. A host of areas were identified for research ranging from administration, organization, recruitment, and training of teachers, the kind and number of occupations in which training is needed, curricula problems, and many areas related to the training of the individual and his behavioral characteristics.

Much of the discussion was centered on practical research. A few voices were heard to say, let us do some basic or fundamental research even though it be slower yet it may make a great contribution.

To establish priorities in research requires that individuals have a broad, deep knowledge of vocational education and the problems in the field. Furthermore, individuals must have a penetrating insight into the problems.

In selecting research problems these guidelines were mentioned:

1. What are the big questions?
2. Ask the right questions.
3. Ask answerable questions.

4. What questions will provide data to make significant changes and progress in vocational education?
5. Studies on a small scale are not likely to get the answers.

Procedures for Selecting Research Problems. Two points of view were expressed. One was that the selection of research problems is the prerogative of the researcher, especially so when working on basic research. The second and prevailing view was that some state-wide group or council should be structured and function in the selection of problems and projects. The group should have representatives from the state department of education, universities, colleges, local schools, agencies, and organizations having interest, concerns, and responsibilities in or relating to vocational education. The group could make a state-wide assessment and give guidance and direction in the identification and selection of studies.

Approaches to Research Problems. More descriptive studies have been made than any other kind. The amount of experimental research is very limited. Yet, experirental research will give more certain results. Our field has been slow to initiate projects requiring experimental methods. Grants will more likely be made for experimental research, not because of the method but because of the quality of research and the contribution. The foregoing does not propose to exclude other methods of research such as historical case studies and others when appropriate.

In the designing and conducting research there are many sources of help that can be invaluable. It is a matter of exploring, seeking and asking for assistance.

Financing Research. The funding of research is one of the responsibilities of the administrator. He has the knowledge of the various sources of money and the kind of research that will be supported. Funds under the Federal Vocational Education Act, 1963, will be a major source. The grants approved by the Commissioner of Education will provide "soft" money (Grants for projects). This does not make for security of employment for the good researchers. Nor the planning and conducting of an on-going research program. The participants strongly emphasized that "hard" money (budgeted from state and federal funds) be budgeted off the top of the new or old vocational education funds for research programs. Research staff is needed to plan, organize, identify projects, design, direct and conduct research.

Participants were pleased to learn of other sources of funds for research. A few of these were: U. S. Department of Labor, Cooperative Research, Manpower Development and Training, Agricultural Experiment Stations, Public Health, Vocational Rehabilitation, foundations, state and local school research funds.

Financing research is not and has not been the number one reason for not conducting research. Experiences of researchers in other fields indicate that they begin with small projects, demonstrate their ability and come up with creditable research. As they continue, projects become larger with more funds.

After establishing a reputation they are sought by those who have money, asking the researcher to do research for them. Ford Foundation went to the American Research Institute with the proposal that they study the "Product and Process of Vocational Education."

Administrators will support research projects that: (1) have real substance, (2) seek to find answers to major problems, and (3) have a sophisticated research design, and (4) make a contribution to the field.

Coordination and Cooperation in Research. Much discussion centered around the role of researchers and administrators on the national, regional, and state and local school district level. The administrators and researchers on the national level will do some collection of census and descriptive data. For the most part it would seem that they provide leadership, promote, help, and coordinate research. They could serve a useful purpose in informing people in the states of research in progress and the dissemination of research results.

Regional research has serious limitations because of inadequate financing and personnel. A project of regional scope may be planned and developed in a center when funds are adequate.

Large research projects in a state will involve many people such as state departments of education, university researchers, local schools, and other agencies that may have some interest or contribution that they can make to the project. As proposed earlier in this paper, a state committee, council, or group could serve in developing cooperation and coordinate research projects.

Effective communications would be one of the major objectives of the state group. The structure of the state group would need to be defined as well as the role of each in it.

Establishing an Effective Administrative Climate for Research. The speakers stirred great interest and lively discussions. Many questions were asked and points of view presented. Concern was expressed for research that will give direction in developing revised or new programs in vocational education.

It was evident that we shall need to develop a much better understanding of the contributions research can make and how research is conducted. Effective communications create understandings, interest, involvement and cooperation.

Administrators have the right to expect researchers to use restraint in selecting problems and methodology and to consider the relevance of research and methods of inquiry. The researcher has the right to expect the administrator to understand and respect methods and conditions conducive to research and to support research.

Dr. Walter Arnold presented a philosophy of administration of research by saying, "Help researchers to get done that which it is their business to do."

Developing Research Personnel. An inadequate supply of well qualified researchers is the most critical problem before us. There is a limited number of qualified researchers in vocational education scattered here and there over the country.

One of the challenges before us is to educate and develop more researchers.

A philosophy and knowledge of vocational education is a prime pre-requisite for research. This is needed so as to ask the big questions, the important and critical questions and the questions that provide new knowledge.

Graduate study at the doctoral level lays the ground work and develops competencies. Students should become proficient in statistics, research methodology, measurement, psychology, sociology, and other disciplines as needed. On-going research projects in a department in which students can actively participate along with course work aid greatly in developing research competencies. Graduate students should be adequately financed for a longer period of time so they can take on real and significant research projects.

A true researcher has the interest, aptitude, temperament and insight for research. Not all graduate students or staff have the potential.

Sources of researchers are:

1. Vocational education personnel who are qualified. They would need to be freed from some or all of their present duties.
2. Vocational education staff who could develop competencies on the job and in-service training.
3. Employ competent men from other disciplines.
4. Employ graduates (doctoral) in closely related disciplines to assist in research.

5. Employ research assistants.

6. Graduate research assistants.

Researchers in universities are able to obtain help in research design and analysis from research and computing centers. Much can be learned on the job. Many universities have seminars, workshops, etc., to help researchers develop the ability to perform the job.

Summary. The fast changes and tremendous progress in the economic and social conditions necessitates adjustments, revisions, and new programs in vocational education. These changes present to us new challenges. To make adjustments questions must be answered. We cannot project into the future without new data and knowledge. So problems are forcing a need for research. Money is or will be available to conduct research. Staff, though limited in number, in vocational education is interested, eager and desirous of conducting research. It is recognized that we are at the beginning of a new era in research.

Participants in the seminar came with many questions and much information to share. Good presentations were given that helped to analyze the problems. Also much information was presented that gave greater understanding of the administration of research. Guides for planning and charting research were developed. Participants left with many unanswered questions to be resolved on the state level.

It is recognized that we do not have the structure or organization on the state level with personnel to move fast in a sound, effective research program. This is one of the first

challenges before us. We are eager to achieve significant results immediately. This is good but it must be tempered with good judgement and recognize that it does take time as it has in other fields of endeavor. But, achieve we shall because research and development is the foundation for quality in vocational education.

PANEL: ESTABLISHING AN EFFECTIVE ADMINISTRATIVE CLIMATE FOR RESEARCH

FREEDOM OF RESEARCHERS

by

Lloyd J. Phipps
Chairman, Department of Agricultural Education
University of Illinois

Paul Weiss of the Rockefeller Institute in the January 4, 1964 issue of the Saturday Review conjures as a "horrible spector" the existence of an administrative authority that would prescribe to researchers what to do and what not, and how much, when and how.

If we are to avoid such a "horrible spector" in vocational and technical education research both researchers and administrators must exercise restraint and good judgment.

Researchers' Responsibilities and Freedoms

Administrators have a right to expect researchers to:

1. Use restraint in the selection of problems and in their methodology.
2. Consider relevance of research and methods of inquiry.
3. Attack problems in a disciplined and parsimonious manner.

Researchers' Freedoms

Researchers have a right to expect administrators to:

1. Be supportive and not directors of research. A distinction is needed between administering research and directing research.

   An administrator who dictates that certain vocational and technical education problems shall be attacked by an economist, a sociologist, a psychologist or a combination of persons from these disciplines is directing and not administering research. A research director should be free to use persons from other disciplines and not be forced to use them, or be forced to use certain individuals in these related disciplines.

2. Distinguish among phases of research. Brickell states that education fails to recognize the three phases of change: design, evaluation, and dissemination.[1]

   Administrators should recognize the value of supporting exploratory and basic research, which often must precede "design" research.

3. Distinguish between legitimate external controls and unwarranted internal controls.

   Administrators need to establish machinery to determine whether proposed research is relevant before

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[1]Henry M. Brickell, Organizing New York State for Educational Change, New York: The University of the State of New York. State Education Department, 1961.

funds are allocated. Administrators also need to establish machinery to determine competence of researchers and to determine whether proposed research is to be conducted in a disciplined, responsible and parsimonious manner. These are legitimate external controls. Additional controls often result in unwarranted internal control.

4. Permit them to explore and make mistakes.

   Some funds should be made available and "earmarked" for beginning researchers and for new areas or types of research. Restricting funds (to experienced researchers, to certain institutions, to certain types of research) restricts the freedom of researchers and limits the potential of research.

5. Support both 'program" and project research.

   Project research may provide some researchers with freedom to make their maximum contribution while other researchers are able to make their maximum contribution in program research. Program research is often funded by grants while project research is funded by specific contracts. In contrast research, plans must be submitted in detail in advance. In program research the investigator has more freedom to go in unforeseen directions in following unforeseen findings.

6. Encourage, at least with limited funds, research on problems in which the research worker is most interested and competent.

7. Avoid excessive specificity in determining problems to be studied.

> Gage, Cronbach, and Tyler in their evaluation statement of federal research programs said, "too much specificity leads to the distortion of ideas to get money, moves money into hands that are not best qualified to use it, delays the initiation of desirable programs past the point at which they are ripe for support, continues support beyond the point at which research is still fruitful, and discourages basic research on long-range problems."

8. Avoid asking that research be conducted on non-researchable problems.

> A research study cannot answer what should be done or what is good or bad. What should be done depends on values. For example, a research project may obtain information indicating that the birth rate is lower in a geographic area in which polygamy is prevalent. Whether this is good or bad depends on your value system.

9. Have confidence in the ability of the researcher.

> Requirement that questionnaires be reviewed before being used is obnoxious to most researchers.

10. Have confidence in researchers in vocational and technical education.

The administrator of vocational and technical education who always invites workers in other disciplines to research his problems may be like the cow who always thinks the grass is greener on the other side of the fence. This is a plea for effective <u>freedom</u> for the vocational and technical educator to do research.

11. Avoid expecting "instant yesterday" results.

Researcher has right to expect administrators to be sophisticated enough to appreciate that results cannot be reported as soon as a study gets underway.

In summary, I have found most administrators to be reasonable, just, considerate and sophisticated individuals. I am pleased to have the opportunity to make these remarks and to emphasize the importance of freedom for the researcher because I want them to continue to be reasonable, just, considerate and sophisticated individuals.

RESEARCH AND DEVELOPMENT:

THE FOUNDATIONS FOR QUALITY IN VOCATIONAL EDUCATION

by

Walter M. Arnold
U. S. Assistant Commissioner of Education
for Vocational and Technical Education

I should like to discuss the needs in vocational education for specific types of research, the deficiencies in the research field, and the implications contained in the new Vocational Education Act for developing vigorous research programs.

My remarks are intended for the vocational administrators as well as for the researcher. Indeed, I wish particularly to stress the role of the administrator in research and development.

Although research is not the special province of the administrator, it must begin with him. It is his responsibility to oversee the development of sound vocational education programs. Without the findings that come from well-constructed research studies, how can we know what is sound and what is not sound in educational methods or techniques?

Research and development go hand in hand. Research without development is time-wasting and consequently more damaging than helpful. It is the education administrator's responsibility, therefore, to relate research and development. He must encourage

research in order that he may put the findings to use. His is the practical function of making vocational education effective, and research becomes his basic tool.

New demands upon vocational education have been translated into Public Law 88-210. These new demands have created the expectation that vocational education will be able to help all people who need help to adjust to the great social and economic shifts that characterize this decade. We are being asked to accomplish a miracle -- and probably the expectations transcend the bounds of realism.

Yet I believe vocational education can accomplish at least a little miracle. It can force involvement of our schools in the socio-economic conditions that make up the schools' environment. Without this involvement -- foreign as it may be to the traditional concept of education's role -- without it I foresee a weakening of our whole public school concept.

Here is where research becomes the vital center.

Here is where we can begin to put to the test, scientifically and systematically, some of the precepts we have held sacred for nearly half a century without ever seriously questioning their origins or their current validity.

In the atmosphere of research, we can test the logic of some of our principles: For example, the standards applied to vocational curriculums that arbitrarily determine the number of hours best suited to shop work as contrasted with related studies. It is altogether possible that these standards sometimes hamper rather than help the individual student.

We can test the logic of standards applied to the vocational teaching profession.

We can measure the sincerity of our interest in trying to keep the doors of vocational education closed to the academically deficient -- when many of our communities are crowded with such people who have no hope if there is none in vocational training for employment.

We can test our achievement -- or lack of it -- in keeping vocational education offerings attuned to the changing world of work. Here in particular we can look at agriculture forthrightly and come to honest answers, designing programs that will be economically useful, such as agricultural technology or agribusiness.

We can measure the extent and success of our relationships with education in general and weigh the merits of adding to the academic dimensions of vocational education. Maybe we are shortchanging some of our brighter youngsters in this respect.

We can uncover the little miracles that are being accomplished here and there -- a special curriculum in one locality, a new approach to counseling in another, a shifting of emphases in still another. We can, through research, bring these accomplishments to light, coordinate the work that is now uncoordinated, and thereby compose new directions based on truly nationwide experiences.

These kinds of activities have always been possible in vocational education, and some have been engaged in. But the quality and quantity of research in the field of vocational education has

been far too meager to do justice to the field. The new Act, by providing special funds for research, will make it possible to undertake more research, andto undertake it in organized, coordinated fashion.

The provisions are stated in terms broad enough and general enough to be interpreted as liberally as our vision permits. The sense of the provisions, even more than their terms, suggests deep commitment we will be expected to make.

Research Provisions of Public Law 88-210

Let's examine, in brief, the provisions of Public Law 88-210 that apply to research, or carry implications for research.

First, there is the provision that 3% of the allotments to the states must be used for ancillary services, including research. Now, 3% isn't a great deal of money -- particularly in those states where the population is small and therefore the allotments are relatively small. But the concept of Federal aid is that it should prime the pump. With some funds to get started, it is not too much to assume that the states will contribute the greater part of the funding. In research, particularly, where the need is a cumulative one and activity has been disproportionately small in the past, it would be logical for state efforts to take a market swing upward.

The emphasis upon research in the new Vocational Education Act is particularly highlighted in its special research provision which represents a new departure in Federal vocational legislation.

Ten per cent of the new funds provided under the law are to be reserved by the Commissioner of Education for the awarding of grants for research, training programs, and experimental, demonstration or pilot programs. This would mean, for the fiscal year 1964 -- if we get the full appropriation of $60 million that was authorized -- that $6 million would be held for research and allied purposes. In 1965, the special research funds could total $11.8 million; in 1966, they could be more than $17 million; and in 1967 they could reach a total of $22.5 million.

The ten per cent fund is one which stirs the imagination particularly, so I'd like to describe this provision in some detail.

Grants may be made to colleges and universities and other public or non-profit agencies and institutions, or to State Boards for Vocational Education. They may also be made to local education agencies, with the approval of the State Board. Such grants would be for such purposes as the following:

To pay part of the costs of conducting research and training programs, or experimental, developmental or pilot programs. These programs are to be designed to meet the special vocational education needs of youths, particularly those who live in economically distressed communities and who have academic, socio-economic or other handicaps.

The grants may be used for the support of research training and experimentation in vocational education; for the establishment of centers, institutes and seminars for accomplishing this

purpose; and for disseminating and interpreting research findings, as well as for the research or pilot project operations.

Thus, we have three purposes for which grants may be made by the Commissioner of Education: research, training programs, and experimental or developmental or pilot programs.

With respect to the research-type grants, there is virtually no limitation upon the range of studies that may be undertaken, provided they are aimed at improvement of vocational education.

With respect to training program grants, priority shall be given to projects designed to increase leadership and to activities that reach beyond the geographical area of any single state. Training programs might range from clinics, conferences, institutes, or seminars to full-year institutes. The cost of scholarships, fellowships, or stipends and allowances for participants may be included as a part of the grant.

With respect to experimental, developmental or pilor programs, the grants will be focused on the direction of youth with special needs. Priority will be given to programs for developing curriculums, techniques, materials, and teaching methods for youths who cannot succeed in regular vocational education programs. Support for teacher education, job identification, guidance, placement, follow-up, evaluation and other services necessary to develop effective programs may be included.

4. Vocational Guidance and Counseling:

Vocational guidance and counseling materials and techniques have been developed largely for the college bound student. Approximately one million youth drop out of elementary and secondary schools each year. Some of these individuals could hopefully be retained in school if more emphasis were placed on guidance and counseling for the non-college bound student. Additional information and counselors are needed to assist in solving the problems of the dropout and other disadvantaged persons who are specifically mentioned in the new Vocational Education Act. Research might be directed toward solving such problems as the following:

- A comparison of the direct method and the indirect method of counseling educationally disadvantaged persons for vocational training;
- Selected vocational guidance techniques as they relate to the educationally and occupationally disadvantaged person;
- A follow-up study of dropouts from vocational programs to determine causes.

To accomplish significant research in such areas as these, the quality of research becomes a first consideration -- and quality research can be performed only by a well-qualified person or team. Particularly in the area of vocational education, some of us have felt manacled by the requirement in state plans that the researcher must meet the requirements of the teacher.

Role of the U. S. Office of Education

The fact that the Commissioner of Education will regulate research for grants indicates that the Office of Education will play a significant role in vocational education research under the new Act. At the same time, the long-standing federal-state relationships are maintained, and even enhanced, by the provision that grants to local institutes are to be made with the approval of the State Boards for Vocational Education.

The consultative services always provided vocational education through the Division of Vocational and Technical Education will be maintained. Staffing will be increased to make our services more effective.

Our immediate role may be defined in the following ways:

1. To help establish or determine priorities for research grants.

2. To provide leadership in developing research personnel by formulating guideline criteria, in cooperation with states and institutions.

3. To encourage a greater measure of coordination in research efforts -- that is, to reduce unplanned duplication and extend the area of impact for important local research efforts.

4. To help define the areas in which research can be most universally useful, by identifying the basic problems shared in common by many communities, and by making selections of project proposals on the basis of greatest immediate or long-range significance.

On this point, let me read you an excerpt from a February 7 editorial in the St. Louis Post-Dispatch. This is a newspaper of stature and its editorial comments are not to be taken lightly. The editorial states:

> Research has become an industry in the American university, and those who criticize it are branded as 'anti-intellectuals'. Yet often the shoe really may be on the other foot. Painful illustrations can be found of foundation grants and public fees being paid for bulky 'reports' that may contain little new information and only vague answers to admittedly hard questions.... Education standards are threatened because educators are lured into questionable projects.

Because research possesses an aura of scholarliness -- and is an area in which funds are becoming increasingly plentiful -- there is always the temptation to boondoggle. Boondoggling has not characterized research in vocational education -- but, then, there hasn't been much research activity in vocational education.

All in all, there have been relatively few comprehensive studies, although there have been many small ones, usually limited in scope and somewhat superficial in depth. Some general observations concerning research in vocational education have been made by the Panel of Consultants and appear in its report:

1. Much of the research has been applied rather than developmental.

2. Little attention has been paid to research in the basic sciences and disciplines that underlie vocational education, such as the psychology of learning specific manipulative and technical skills, or human relations in occupational settings.

3. The gathering and classification of data have absorbed so much energy in research that little was left for reflective thinking with respect to the meaning of the data collected.

4. Comprehensive research requires special facilities and adequate financing which have not been readily available.

5. Research activity on the part of many vocational educators has been neglected because their superior officers do not recognize its value and do not give sufficient recognition for work in this field.

We are at the fork in the road right now. We are not being called upon to backtrack, but to forge ahead. We have a choice of routes -- but only one leads to genuine contribution in education. We in the Division of Vocational and Technical Education can attempt to set forth some guidelines. But you who will be directing and conducting the research are the ones who will be credited with the final achievements.

Let's weigh some of the important considerations:

The Areas That Deserve Most Serious Attention

There are long-range goals that we have to keep our sights upon -- but there are also some immediate pay-offs that must be made if vocational education is to fulfill the charge implied in Public Law 88-210.

The overriding long-range goal -- a continuing goal -- is this: to maintain a continual survey of changing occupational opportunities, to be alert concerning directions in which they are moving, and to keep enough ahead of them in program

d elopment to serve vocational students adequately. This implies coordination in our research with personnel who are best equipped to provide us with labor market data.

Other issues that we must face, as part of this overriding one, would include some posed by the Panel of Consultants:

1. What should be taught in the vocational school as compared with what industry and business should teach?

2. What are the special homemaking problems faced by the woman who is employed outside the home and who has family homemaking responsibilities and what can vocational and technical education do to help in meeting these problems?

3. What modifications of teaching methods are desirable in training the unemployed worker, youth with special problems, and other special groups?

4. What technical occupations -- now here or emerging -- are to be found in agriculture, business, industry, the health fields, and other areas of employment for which training programs are not now available?

These are the general areas in which research is needed. But to be more specific, and to pinpoint problems that are urgently in need of solving, let me point to four areas which our Manpower Training Staff has listed as crucial:

1. Basic Adult Education (Literacy):

In 1960 there were approximately three million illiterates and between eight million and ten million functional illiterates in the United States. The following areas deserve immediate attention from research:

- A comparison of different methods used in teaching basic reading to adult illiterates such as the syllabic, word, sentence, story method, etc.;
- A comparison of different methods of teaching basic reading to the functionally illiterate;
- Instructional materials in reading, writing, and arithmetic as they relate to occupational training for disadvantaged persons.

2. Occupational Training:

With rapid change as a constant in business and industry and with the need for intensive instruction in all instructional programs, there is a need for a more scientifically proved format for organizing courses of study. Well designed and developed courses of studies are needed for the development of additional courses of studies at the state and local levels. Research on problems such as the following will be of value:

Content of MDT courses in terms of their relationship to employment needs;

Organization of courses of study in terms of acceptable instructional sequence;

The development and application of programmed instruction for the related sciences and technology associated with vocational curriculums.

3. Occupational Teacher Education:

During the fiscal year 1965, predictions are that more than 250,000 trainees will be enrolled in manpower training programs for the unemployed. Meanwhile, increasing public attention on

vocational education, and the increase of services under the new Act, will increase enrollments in regular programs. We are going to have to recruit craftsmen and other occupational specialists from business and industry to serve as instructors.

To supplement current knowledge in occupational teacher education and to provide for more effective teaching, research should be directed to the following problems:

- The development and use of lesson plans and appropriate instruction sheets for special adult classes;
- Time distribution for manipulative practice and the development of the required skills, knowledges, attitudes, and judgment abilities;
- Criteria for evaluating and recording trainee progress;
- An evaluation of the occupational and professional competence of present instructors, both in MDT and in regular vocational education programs;
- The relationship between class size and teaching mechanical drawing by the conventional method and programmed instruction;
- The effect of class size on teaching the basic operations on three machine tools: the engine lathe, the drill press, and the milling machine;
- The effect of class size on teaching the basic skills and related information in a fifty-two week entry program in auto mechanics, carpentry, electricity, brick-masonry, etc.

This concept of research tends toward in-breeding. Surely it is not conducive to the development of new kinds of education programs to meet the drastically changing needs of individuals as well as society as a whole.

While familiarity with the field of vocational education would seem mandatory for most research efforts, it is equally important to stress the individual's qualifications for research per se. It would be compounding neglect of significant research in vocational education to exclude for research those persons who are grounded in other disciplines. Sociologists, psychologists, economists, public health and welfare specialists, business analysts, occupational analysts, architects, developmental engineers -- all can contribute to the store of know-how that vocational educators must have.

May I strongly urge that state plans for vocational education be flexible enough to permit the hiring of people who are sometimes better qualified than ourselves to work on specialized aspects of the overriding problem: that of relating vocational education to the broader considerations of economic and social environment.

The Structure Necessary for Significant Research

Without some systematized structure, we are likely to fall into the old trap of projects undertaken willy-nilly, with duplication of effort, inadequacy of dissemination of findings, and neglect of important areas.

Above all, we must approach our research scientifically, systematically and with plans for coordinating pieces to fit a whole.

We should be developing projects that give us early, measurable results -- that help us to make up for a decade of minimum effort when we had been needing the maximum.

Some kind of structure within each state is probably feasible. In addition, there appears to be great need for a national center to coordinate research efforts; to service all areas; possibly to be supported jointly by federal, state, institutional, and foundation funds.

However, we also need to talk about immediate and urgent needs in vocational research, to plan methods and structures that can be most swiftly effected with the least expenditure of funds and the simplest mode of operation. Already there are institutions that are devoting extensive attention to particular phases of vocational research -- curriculum, teaching methods, learning processes, motivations, computerized instruction. Greater coordination of current efforts, combined with extension of new efforts, should produce some significant contributions in areas for which we need the early pay-offs.

I should like to conclude with a paragraph from a paper prepared by the Research Committee of the American Vocational Association in 1962:

> The research committee is not optimistic for the future of vocational education if research needs and implications continue to be ignored and by-passed because of supreme concerns for program operation and lack of vision for the magnitude of responsibility

for future programming. It is still further concerned lest research become primarily a crash concern at times of national stress in tangential aspects of the overall occupational education program. Almost half a century of vocational education as we have come to know it in our time verifies the need for research activity in all parts and levels of the total occupational education program. If occupational education has come of age, research must permeate all aspects of its planning, operation, organization, administration, and evaluation. Lacking the contribution of meaningful research, occupational education will play, at best, an impotent hit-and-miss function in the lives and welfare of few citizens.

UTILIZING RESEARCH IN PROGRAM DEVELOPMENT

by

L. T. White
Former Vice President
and Director of Research
Cities Service Petroleum Company

This is a good time for vocational educators and businessmen to meet. We have a common interest in the most popular subject of our time -

- Giving people the skills for the available jobs.

It is an honor to meet with men who approach this project on the largest scale in all history.

Your conference here has already provided a timely, thoughtful and thorough discussion of the administration of research.

Research and Development

To one who has spent years in similar work, this is a privilege. My experience included the two parts of such programs - Research and Development. They brief that to R. & D. now-a-days.

First, my job was to promote the use of services which research organizations had brought forth. Later, I directed both the research and promotion in matters close to your interest as educators.

This was called "Business Research and Education." Through it, I came to know and admire many vocational educators. In my book, you are the most constructive people in our changing economy.

The public is now beginning to repay what they owe you with recognition, respect and rewards. This is the Age of Research!

What Is Research?

Someone says that utilization will only follow understanding. Among parents and taxpayers research is a word which needs explaining.

One restaurant man was asked, "What does research mean?" He had a good practical explanation. He said, "It means watching plates come back from the dining room to see what people did not eat."

The general public, however, will accept research if it is called "taking a second look" - or it is inquiring, experimenting or forward planning. Even better would be to tell parents, "It is preparing the future for our children."

For educators themselves, research is continuing education for adults. It is learning together. In Kansas they say, "It's the best education which comes after you know it all."

Really it is the search for the new truth which educators have always sought. "New" is the right word. As Thomas Edison put it, "There is a better way."

Charles Kettering's Definition

When President Dwight D. Eisenhower announced his "Conference on Research for the Benefit of Small Business" in 1958, the foreword was Charles Kettering's Definition of Research.

It is fitting that we read it tonight because it originated near here. He said,

> "Research is a high hat word that scares a lot of people. It need not. It's rather simple.
>
> "Really it is nothing, but a state of mind. It's a friendly, welcoming attitude toward change.
>
> "It is going out to meet change instead of waiting for it to come to you.
>
> "Research, for practical men, is an effort to do things better. It means staying awake and not being asleep at the switch.
>
> "The research state of mind can apply to anything, personal affairs and business, big and little.
>
> "It's the problem of solving mind in contrast to the 'let well enough alone' mind.
>
> "It's the composer's creative mind instead of the fiddler who plays what he can remember.
>
> "It's the tomorrow mind, not yesterday's mind."

Why the V. E. Act of 1963

When the Vocational Education Act of 1963 seemed sure to pass, one Congressman was asked why it would win by such a big majority.

He said, "Unemployment means more vocational education. We'll change the initials U.E. to V.E."

The need for changing the direction of vocational education was this -

- The production functions of agriculture and manufacturing will use proportionately fewer people hereafter.

- The service functions will use proportionately more people.

Why Grants Specific Research

America places great expectations for the future on research. Tax supported research at 15¢ per tax dollar is the biggest item in the federal budget, except defense. It is three times the farm program and seven times the foreign aid.

But the Vocational Education Act of '63 was a lesson learned by others who have provided large sums for broad new purposes. They specify that a minimum proportion be used for research to insure that the purpose will be reached.

This protects those who provide the funds. The research portion keeps the project going like a self-winding watch. It keeps it on target like a self-guided missile.

The researchers thus are impelled to improve themselves and their methods. Otherwise, they would merely spend the money. Altogether these "built in" incentives avoid criticism from the opposition.

The Need for Research in Education

Stanley Goodman of St. Louis said recently, "It's hard to tell what time it is in Education now-a-days. When I was a boy stress was laid on learning well the lessons of the past. In business, experience used to be desirable. But today, yesterday's

methods will lead you straight into trouble.'

It would be like preparing for World War II when you drive home on some thru-way. You don't drive by looking at the rear view mirror.

In writing to Jack Nix of this conference I said, 'Your plan to lead your State's struggle upward in the economic world is fine.

"In time, and the sooner the better - your schools will teach the humanities and the persuasive skills which have become most essential.'

The New Education

This leads to the question 'What is expected of the new education?" Here are a few things the public wants from you.

"The Attach on Poverty' which neatly puts the consumer's interest above all others, spotlights "equipping the poor with skills for the available jobs."

At the American Bankers' Symposium on Employment, it was said, "A tax cut is not enough. Unemployment is both a low demand and a structural problem. Poor education and joblessness are related. This is most critical among teen-agers. We need to get them back to school. This will make education our biggest industry."

Focus on Change

In its widely read study "Focus on Change", the National Education Association gives a preview of tomorrow's schools.

"They will be different. School administrators will spend more money on research. They will seek maximum value from all expenditures.

"Curricula will be reorganized. Teachers' time will be differently used.

"There will be less emphasis on conformity. There will be more on individuality."

You could describe these pleas for more education for the poor, the young and the individual as subjects for applied research.

Now, let's look at two which require fundamental research.

The Source of Productivity

Two years ago farsighted men were quoted in "Time" Magazine. What they said is more vitally needed today.

"It is ironic that Americans, the most advanced people, technically, mechanically and in education - should be so late.

"They have yet to inquire into the most promising source of greater productivity - "What causes the will to work?'

We could add another subject for basic research - "What causes the will to employ other people?"

Promoting a New Program

Let's talk of ways and means to cause a new educational program to be adopted by the separate school administration in any state.

Let's say a new course is researched and ready - "Business Ownership". This is the most available of all jobs.

Proprietors are the most numerous. There are 6 million of them in the nation - one for each dozen of those in the labor force in your state or school district.

"A firm may have no employees but there's always a proprietor."

Though the "Traits for 4,000 jobs" are available from the Government Printing Office - owner-manager is omitted.

Though we must have more employers, there are no plans to "Raise More Proprietors".

If each of our 4 million firms could and would hire one more employee - unemployment would be ended.

If they would add another employee in each future year, there would be enough available jobs for the coming generations.

Hazards of Promoting Educational Innovations

As we begin to talk "How", we realize we are the modern pioneers. There is risk and we must be adventurous.

What was the fate of the men who proposed high school education in York, Pennsylvania?

What was the fate of the men who urged compulsory high school education subject to public taxes in Kalamazoo, Michigan?

Did Justin Morrill of Burlington, Vermont, die disappointed, thinking his struggle for land-grant colleges was in vain?

But you can be encouraged to take these risks when you realize how these advances in education have justified those efforts.

Should you get to thinking that educators are slow to accept new methods - be advised that they were the first to see the possibilities of the motor bus.

They adopted the school bus to consolidate township schools in the 1920's. By 1930 more than half of all buses in use were operated for school purposes.

This really launched that industry. So educators led business in that venture as they have in thought.

Don't Do It Yourself

Some administrators are inclined to introduce new methods personally. If you can't be warned off, here's some good advice.

(1) Never test your presentation on "Yes" men.

They will agree with you, so you start out with a "we think" approach. This offends men who think for themselves.

Here is another rule which was given me by one of you fellows. "Never start with half-vast information."

(2) Have several prospects.

This widens your chances of making your first sale. Then you're underway. They say the third pitch is the best. That's true - if you make each presentation better than the last one.

(3) Rate each man's attitude - but don't argue.

People respond differently to new ideas. After each presentation, note where you stand.

Then you can navigate the rest of your course from a fixed point.

This is the Du Pont Scale or the "Attitude Indicator". When the respondent tells how he feels about your new program, simply mark his position on this scale.

Attitude Indicator

I won't	10
I can't	9
I don't know	8
I wish	7
I doubt	6
I guess	5
I'll try	4
I can	3
I will	2
I did	1

Have this on a small card. Take it out of your pocket and mark down his relative attitudes.

Then change the subject.

If he asks, "What is that?", tell him you have an attitude indicator" and you made note of his rating from 10 to 1.

This device has been known to change attitudes and receptivity on the spot.

When in Doubt - Delegate

The better way to launch new programs is by delegating the project to a qualified person. This must be a creative man or woman who is a non-conformist and no "Yes" man. He is the sales type.

Relieve him of all routine duties and regular reports. Give him a small office, no secretary but a liberal travel allowance. Tell him what results you want and leave the details to him.

Elementary Utilization Methods

Some of you people here tonight are not the head of vocational education in your states, so this job might be given to you.

How could you begin?

A good beginning is to remember the old question, "What does a ball do when it stops rolling?"

The answer is your first method - "It looks round." Look around and see what others are doing with a research attitude. Be looking for better ways.

This means that you admire - don't envy what is excellent. There is no shame in being ignorant of the impossible - Kettering was glad to say, "I don't know."

Here's one example, Business Week Magazine on February 1st reported the following -

> "New York City allotted $3.8 million of its $500 million school budget (8/10 of 1%) to an educational test project. It provides 290 special teachers and 157 guidance instructors to give useful and cultural enrichment by individual attention."

Finding Who Knows and Can Act

As you go around to strange places looking up men who are doing what you want to know, you may waste time talking to the wrong people.

The rule here is that you'll learn more and get better response if you meet only the top administrators.

All others merely execute plans which have been laid down by the top men in the top positions.

You Are Self-Renewing Men

People whose job it is to confront, change and start others in new directions must have great reserves of courage and faith.

Something is taken out of them in every approach. They are like the starters on automobiles. Their batteries run down and must be re-charged.

If you have appointed such a Research Utilizer, you can provide such regeneration by re-stating the importance of the objective you can give him Euphoria.

If you are the chief administrator of vocational education in your state, your own faith and dedication is your strength.

This Is Your Calling

We close by turning to the question on your minds tonight.

"Is my profession important? Is it appreciated."

These are the words of one educator of creative people.

"If you have within you -

- a hunger for knowing
- a discipline for doing
- a sense of responsibility
- respect for a wide variety of people
- a pulse which beats in tune with these times
- a scorn for the groove
- and a sense of adventure."

This is your calling!

You are a self-renewing man!

ADMINISTERING CHANGE

by

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In the farm community in which I was reared some farmers were discussing the advice given to them by the county agent on application of commercial fertilizers and crop rotation. After considerable talk one of the men opined, "We don't need a county agent to tell us how to farm, we already know how to farm better than we are farming." He was reacting to suggested administered change. The county agent had made a beginning to obtain acceptance of an innovation, a change in farming practice. Just to put your mind at rest, the story has a happy ending. The farmers in the community did adopt new fertilizer techniques and crop rotation methods and were happy with the changes and the results.

The subject of our discussion this morning is administering change. How can we utilize research results in ongoing programs? How can we put what we have learned through research back into the bloodstream of practice as regards administering change? What have we learned and what must be learned about administering change that will make it more effective?

We are discussing two phenomenon - administering and change. By administering we mean managing and providing the leadership

necessary to accomplish desired goals and objectives. Change means to alter by substituting something else for, giving up something else, doing things differently than formerly. These are sufficient definitions for our purposes in this discussion. First, we shall examine some common reasons for doing nothing about change. These should be pretty familiar to most administrators but certainly pertinent to our topic. Secondly, we shall take for granted that change and innovation are desirable, including the assumption that change is not desirable merely for the sake of change, but for distinct values and satisfactions that may accrue through innovation. Thirdly, we shall examine some research findings and considerations relative to the phenomenon of change. Fourth, we shall examine the administrative process as it relates to change, the characteristics of the administrator as a change agent, and some organizational implications involved in change. Fifth, we shall explore some basic principles in the art of persuasion.

One additional assumption is made as we approach this discussion. Administrators and administration are key variables in change and innovation. This assumption has been documented through research and you have probably heard about it in previous sessions of this conference. I shall not dwell on it except to agree that the best efforts for innovation and change on the part of a teacher or a bureaucratic functionary will stand little chance of success against an administration that frowns on new ideas, change or innovation. The State of New York study on school innovation completed a year or so ago clearly substan-

tiates the above contention. In addition there is pretty good evidence that the administrator and administration need not necessarily be negative to innovation and change to have an adverse effect upon it; just taking a neutral position has relatively the same negative effect as being definitely opposed.

Common Reasons for Doing Nothing or Opposing Change

Anytime change or innovation is suggested there are always those who come forth with reasons for doing nothing and opposing the new and different. With no attempt to assign priorities, the following are listed as among the common responses to suggestions for change.

1. It costs too much
2. It will set a new precedent
3. We haven't proven that the old could not be made to work
4. We have no assurance that the new will work
5. Let's wait until it has been tried out elsewhere
6. It is just another fad
7. The situation here is hopeless
8. The time is not ripe for change
9. The idea involves a controversial issue
10. It will not be understood
11. The idea may be good for others but not for us
12. Our people are not prepared to handle a new idea like that
13. There is too much risk involved
14. The idea would disturb our status structure; it's a threat
15. The change benefits one part at the expense of another
16. This is just another 'imposition from on high'; authoritarian

Findings About the Phenomenon of Change

The use of the word findings in the title of this section might indicate that we have a lot of experimental evidence about

the phenomenon of change, when actually this is not the case. Some good research has been accomplished on change in rural sociology, sociology and anthropology; particularly as related to cultural change - diffusion and acculturation. Some contributions have come from business, industrial psychology and allied fields. Some attention has been paid to the theory of change, but very little to the theory of changing. The progress that has been made has helped us to identify aspects of the phenomenon upon which to hypothesize and structure much needed research. Thus the 'findings" presented here are mainly identifications which may be helpful in understanding the phenomenon and the administering of it.

Slowness of Change

Change comes slowly, very slowly, but it does occur. It occurs very slowly at first and then picks up momentum as more and more acceptance is gained for the innovation. The lag is related to a number of variables.

Some innovations that seem to have caught on in education include set theory, team teaching, upgraded organization, new mathematics, new physics, new biology, trimester calendar, testing and so on. As a matter of comparison at least one study indicated that the new math program was diffused more rapidly in a county-sized area than hybrid corn, but more slowly than a new drug. There are also some indications that innovations are seldom installed on their merits alone - other factors entered in.

Acceptance of Change Related to Several Large Classes of Variables

Among the large classes of variables related to the acceptance or rejection of change are the following:

1. Proven quality of the innovation
2. Available information about the innovation and its source
3. The nature of the relationship between induced sources of change and the persons who are being helped to change - confidence
4. Attitudes, cognition, and self-perceptions of persons involved
5. Personal and interpersonal organizational relationships

Levels of Change

Much could be said about levels and combinations of levels of change and innovation, but five levels seem to be more or less definitive:

1. Substitution - one element substituted for another
2. Alteration - slight shifts
3. Perturbation and variation - temporary, often not real
4. Re-structuring - basic social change
5. Value orientation change - whole new values

Change Models

If one could think of clean undistorted models for change and innovation at least three present themselves for consideration:

1. Trouble shooting - Trouble is discovered and something must be done, something changed to take care of the situation.

2. Innovation - Something new is invented and infused into the process, system of organization.

3. Persuasion - The impact of influence which succeeds in some level of change.

Stages of Change

The theory of changing involves consideration of several stages among which are:

1. Design of innovation
2. Development of awareness and interest in the innovation
3. Evaluation of the innovation
4. Actual trial in an operating unit - dissemination
5. Decision to adopt, adapt or reject

Process Implications

Several processes are involved in changing:

1. Innovation - (discovery, invention, development, testing)
2. Dissemination
3. Integration - replacement, utilizing alternatives, contra-change

Individual and Organizational Considerations

A - Individual
- initial acceptors
- later acceptors
  (dissident, indifferent, resentful, dissaffected)
- personal characteristics
  - age, education, security, mental flexibility, managerial ability, attitudes, etc.
- position of individual in communicative structure
- identification with or membership in various types of formal, informal, reference or clique groups

B - Organizational
- group norms in peer associate levels schools, etc.
- inherent characteristics of the innovation - cost, complexity, divisibility, compatibility, etc.
- exposure to media - goldfish bowl vs. sheltered existence
- situational factors related to locus of authority for making decisions
- open or closed organizational mindedness

Characteristics of Administrators as Change Agents

- generally young
- relative high social status
- in contact with or in tune with sources from outside for information
- seeks out other innovators and change agents

- exerts opinion leadership
- think of themselves as "special," somewhat deviant, pioneers, brave new experimentors

The Administrative Process and Change

It has been suggested earlier that the administrator is a key figure in change and innovation. In some similar way the processes employed by the administrator take on key importance. The administrative process consists of a series of related steps by which the administrator hopes to accomplish desired ends. The sequential steps will be identified here and applied to an actual case involving change and innovation.

The case in point involves a large university department facing the problem of instituting a new area of instruction for the training of specialists in curriculum and supervision. Until recently curriculum and supervision courses had been the carefully guarded province of two major areas, the elementary area and the secondary area. The usual personal interest in these courses by professors obtained although everyone agreed in principle that there should be some erasing of duplications and that a strong new area and additional courses at the graduate level should be instituted. After due consideration in the college a coordinator for the new area was named and an ad hoc committee named to assist in the development of the new area and the courses that should be included.

With all deference to a fine university staff in the college involved only one who has worked closely with university professors can fully appreciate the problems of changing or development

of curriculum at the college level in a major university setting. Any change is strongly resisted on many sound bases. All the reasons cited in the first part of this paper as to why nothing should be done come into play. Although college professors may be innovators as regards others and outside of the university they are often "rejectors" when it comes to change or innovation that invades their private domain, their pet courses and the like. After all these are people like farmers, businessmen and others who have had to deal with change.

Two years passed without much progress being made to consummate the new area, arrange for the courses and obtain the necessary sanctions to put the show on the road. An administrator was asked to see what could be done about the faltering situation. His first step was one of DELIBERATION in which a careful assessment of the problem was made. He had to find the answers to why the ad hoc committee had not been able to come up with the desired outcomes. The committee was reminded of its charge and asked to make a written report to be used in the administrator's assessment of the situation. The report was turned in which consisted in part of reasons why it looked impossible to arrange for the new area. The administrator probed deeper and found that one of the serious blocks was the threat that the new area presented to existing areas of instruction. Through interviews it was found that the elementary and the secondary areas felt that the new area for curriculum and supervision was to be carved out of their courses thereby weakening

their offerings rather than providing new strength. This they did not buy - and should not have.

The second step in the administrative process was now at hand, that of DECIDING what should be done about it - decision making. Here the administrator had to invoke his own basic principles of operation which consist in the main of (1) being bold like a lion, (2) following the rats when the water reaches the second dent, and (3) choosing in favor of what is right when it can be discerned. So he did and the decision was to create an area in curriculum and supervision.

The third administrative process step consisted of PROGRAMMING the effort to accomplish the desired results. First, the ad hoc committee's report was rejected by the administrator, turned back to the committee with a reminder of their original charge, and an offer of assistance tendered to the committee to make a new start on the problem.

In the meantime the administrator had already begun the fourth step in the administrative process - STIMULATION. Key persons on the committee were called in for private conferences. Adjustments were suggested to take care of the several difficulties upon which the committee had stalled. Ways were found to involve the elementary area and the secondary area in the main thrust of the new program that really enhanced the programs of each.

COORDINATION, the fifth step in the administrative process now came into play. The administrator arranged for joint meetings of individuals, course outlines for new courses involved,

ways by which minors and majors would be handled in the two old areas and the new one, and the like.

Now it was time for the sixth step in the administrative process to come into play - APPRAISAL. It was time to assess progress and to see what the program would look like if put together on paper. This time the administrator called the meeting of all involved and passed out a carefully prepared report on the new program for the new area showing the relationships of it to all older and other areas. Somehow the earlier "rejectors" of change and innovation had become ACCEPTORS, the report was passed with minor revisions and change had been accomplished. It may be noted that the ad hoc committee's new report was fully accepted by staff, curriculum committees, graduate council, university council on instruction without a hitch and the program is now in operation.

The case just described was used to illustrate the application of the sequential steps in the administrative process as related to the administering of change. It is granted that certain overlaps exist in the sequential steps but it should be pointed out that each needs to be brought into sharp focus at one point or another, else the task is not completed, and once completed the cycle starts over again.

The Process of Persuasion

The administrator plays an important role in all conventional models of change (rouble shooting, innovation, and persuasion), but in a sense persuasion enters into all models

and is therefore worthy of a little special attention. We need to examine the process of persuading. How are people persuaded to change?

In the first place change deals with people, groups and sub-groups in our operations. Unlike the shape of steel, which responds to heat and forging without much reaction from the molecules, people respond and react quite differently. All of you know what I am talking about without further development of this point.

Second, people often have difficulty actually understanding the full implications of a problem. It has to be made crystal clear with all of the details. Too often problems are left at a nebulous state so that no one actually understands the situation or the implications. The persuader must be doubly sure that the problem is made clear.

Third, just to present a clear problem does not move people very far, there are so many of them. With the problem must be presented some clear viable solutions or solution - some way in which the full difficulty can be resolved.

Fourth, the persuader must share the burden of proof that the solution or solutions suggested will work, that such will accomplish the end results desired.

Fifth, and the clincher, the persuader must make it very clear that if the problem is handled as suggested something good will come of it to those participating. Until this is accomplished no commitment can be expected of the participants.

AN ACTION PROGRAM FOR IMPROVING RESEARCH IN VOCATIONAL EDUCATION

by

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During the past five days we have been intimately concerned with many ramifications of research in vocational education. In that time research imperatives, both general and specific, have been discussed. The kinds of data being gathered have been examined and their strengths and deficiencies noted. Areas in which information is needed but is relatively non-existent were identified. New vistas were glimpsed in which the first furrow has yet to be plowed. Some of the limitations imposed upon research activities by other priorities, time, personnel, and finances have been identified and explored. In short, accomplishments and difficulties have been reviewed. Consensus is evident. So much remains to be done.

The Vocational Education Act of 1963 and the amended Manpower Development and Training Act provide the means and the opportunity to look critically at program adequacy and effectiveness. Indeed, their intent is a challenge to do so! But it is a challenge coupled with means for correcting the limitations identified.

Until recently, vocational educators have been almost compelled to direct their concern to particular phases of their responsibility. Merely assisting in the provision of adequate vocational education for a mushrooming high school population, for example, required the expenditure of much time and energy. In addition, a growing number of adults are taking advantage of vocational education as the pace of technology quickens. These, too, have had to be provided for.

Concurrently, instructional and curricular improvement pressed for attention. Moves were attempted on these fronts as well. Of necessity, therefore, an approach - largely pragmatic and empirical - was adopted to the resolution of problems. This, however, did not signify indifference to the need for evidence which had been carefully collected and evaluated. It meant only that preoccupation with the brushfires of collective need and demand precluded satisfaction with anything but relative half measures even though their inadequacy was painfully evident.

The new Acts, however, have a potential for changing this. They underline the importance of expanding vocational education services to meet new and evolving demands. But they also call attention to the importance of cooperative planning in meeting these problems and to experimentation in resolving them. They stress the need to test procedures and evaluate results so that vocational education of the later 1960's and the 1970's may build upon a growing fund of tested experience.

In addition, they provide funds and a general sense of direction for moving into untried areas. These have been discussed at some length in the various meetings. I, for one, am grateful to the respective consultants for the assistance they have given in exploring the many new opportunities for service and for suggestions concerning the agencies which stand ready to assist in these endeavors and the avenues for approaching them.

I. IMPORTANCE OF THE INDIVIDUAL

Three basic ideas appeared to underlie most of the discussions. The first is as old as education itself. Indeed, it is the conviction upon which early education - and modern education as well - was based. It is the conviction that people are important and that what happens to the individual is a major concern of the society, however primitive, of which he is a part. Whether education consisted of training youth in the proper manipulation of a spear-thrower to effect greater accuracy in the hunt or processing animal pelts to achieve maximum warmth with minimum loss of mobility, the education was directed to survival because the individual was important. His contribution was valued and his best effort, particularly in times of stress, was expected. Likewise, today, people are important. If vocational educators were not committed to this belief they would not be educators. People are their clients and patrons. Everything that is done, whether in the classroom or more remotely, is designed to improve services to people.

Conditions have changed vastly from the age of reliance upon spear-throwers. But the sirvival of the individual is just as intimately a concern of the modern educator as of the experienced hunter who tutored the primitive fledgling. True, perhaps, physical survival of the individual is not the major concern. Provisions exist for maintaining him and his family at a minimal level of subsistence. But a vital concern is his psychological survival, and provisions for assisting him to achieve more than a marginal livelihood. In a highly industrial society, the loss of psychological dignity may be the practical equivalent of physical extinction.

It is unfortunate that people are sometimes regarded as lifeless digits in numerical columns. For summary reporting purposes this is probably inevitable. But constant attention must be given to guarding against loss of realization that these numbers are living beings. Each has individual hopes and aspirations and each possesses that precious uniqueness which alone permits a singular contribution.

II. IMPROVED EDUCATIONAL PROCEDURES

A second basic premise which seemed to underlie the discussions was a logical reflection of the first. If the individual is important and every effort should be dedicated to enabling him to develop his unique capacities and potential, then vocational educators must be alert to finding the best ways of meeting this Herculean challenge. The ball, as it were, is being handed directly to this group. It can be dropped or carried,

but it cannot be avoided and the game must go on. In brief, experimentation must be conducted to discover new and better ways of doing many of the things now being done, of serving better the students being served and also those who have been slow, for whatever the reason, or unable to avail themselves of vocational education.

Like most disciplines, vocational education has continued to rely upon conventional methods and procedures. This did not result from conviction that improvement was not possible or desirable. Indeed, even superficial examination revealed much evidence that it was needed. There were numerous reasons, however, why change was slow in coming. Some have been alluded to; others are so familiar they need no repetition. But not the least of the difficulties was lack of a unified plan for promoting experimentation and utilizing experimental findings.

This is not to say that vocational education has been devoid of experimentation. The very nature of its education responsibility is such that change is inevitable. Improvements in the technology of agriculture, for example, released great numbers of workers from the farms to seek other kinds of employment at the same time that staggering food surpluses were being accumulated. Undoubtedly these improvements were prompted, at any rate in part, by the efficiency of vocational agriculture. They have also compelled change which has made of vocational agriculture something quite different from the instruction in row-crop or subsistence farming of earlier decades.

Technical innovations are placing more energy in the control of industrial workers. At the same time they are pressuring a powerful upswing in educational requirements so that full advantage is taken of their potential. Changes in the home, and employment shifts are creating a nation of service, clerical, and sales personnel. These trends are reflected in vocational education today. Instructional emphases, however, may frequently require rethinking; new approaches to program organization undoubtedly are necessary.

Individuals have worked experimentally in relative isolation, attempting to devise means for successfully meeting the problems confronting individual programs. The new Acts, however, emphasize the importance of concerted effort and the need to look more closely at the national implications of vocational education. As vocational educators cooperate with their colleagues from other disciplines in identifying and probing the fundamental concepts supporting education for work and translating these into operational premises, experimentation in instruction, program organization, and related areas will assist in testing the validity of their analyses.

III. CHALLENGE OF THE UNKNOWN

This leads to the third idea upon which discussions were premised, namely that development should not be deterred by fear or reluctance to explore the potential of that which is novel or different.

Initially, this concept appears to have only negative connotations. In reality, however, that is not the case. Scientific and social research provides numerous illustrations of apparent ambiguous results or meaningless investigation which required only additional findings or experience to demonstrate their significance.

Nor is failure synonymous with loss. All researchers dream of the intuitive flash which at one stroke furnishes the key to a brilliant forward thrust. Intuition - the ability to ask the novel question and to recognize the significance of an unanticipated result - plays a part. But most progress occurs methodically. It consists of patiently establishing hypotheses, appropriatepriate testing, and evaluation of results as the basis for establishing further hypotheses.

Looked at in this sense, no properly conducted research ever fails. It may not yield the results anticipated or desired, but it is a necessary step in building the chain of evidence which leads ultimately to fruitful results.

IV. INITIAL STEPS IN AN ACTION PROGRAM

What, then, are certain next steps which should be undertaken if vocational education is to benefit from its research potential? These will vary from state to state. The following suggestions are only representative. In some states they will be innovations; in others they are already established practice. The latter possibility, however, does not preclude their improvement or extension.

1. Making provisions for conducting research

   This may require the establishment of one or more full-time research positions or freeing a portion of the time of one individual to carry on a limited study. But a forward step can be taken.

2. Establishing a research budget

   Research costs may be apportioned over the budgets of the respective vocational services, but a specific research budget provides definite fiscal guidelines within which research activities may be conducted.

3. Establishing a clearing house for research information

   Undoubtedly research and studies of value to vocational educators are being carried on in many schools, school districts, and counties. If interested personnel are aware of these endeavors, efforts may often be pooled and more comprehensive benefits secured.

4. Encouraging research proposals and projects

   Studies and research having more than local implications may be encouraged and profitably conducted if additional funding sources are contacted for critical assessment and support.

5. Encouraging experimentation

   Short steps, however faltering and uncertain, ultimately result in progress. The knowledgeable individual of proved capability in any program who wants to try something new should be encouraged.

Last but not least is the research frame of mind. It is the probing, questing, frame of mind. It constantly raises questions and tests specious answers in unflagging search for another candle to light the unknown.

VT 000 109

VT 000 109
Vocational Home Economics Manual of Operations for Training and/or Retraining Adults for Jobs Requiring Home Economics Knowledge and Skills.

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*OCCUPATIONAL HOME ECONOMICS; *ADULT VOCATIONAL EDUCATION; *PROGRAM GUIDES; OCCUPATIONAL INFORMATION; PROGRAM DEVELOPMENT

This manual was developed to explain and interpret the purposes and programs of adult vocational education oriented toward training in occupations utilizing home economics knowledge and skills. Preparation for employment is a specialized type of program and needs to be sufficiently inclusive and intensive to insure adequate preparation for wage-earning. Subject matter areas in home economics that will contribute to wage earning skills are: (1) child development, (2) clothing and textiles, (3) foods and nutrition, (4) home and institutional management, and (5) home furnishings and equipment. This manual discusses: (1) criteria and procedures for training and retraining programs, (2) reimbursement, (3) qualifications of instructors and of students, (4) curriculum, (5) suggested hours of training, class size, and teaching aids. Descriptions are given for training or retraining programs in the occupations of: (1) child care aide, (2) clothing service worker, (3) drapery, slipcover, and/or upholstery worker, (4) food service worker, (5) homemaker's assistant, (6) visiting homemaker, (7) management aide, (8) hotel and motel housekeeping aide, and (9) nursing and rest home aide. (MS)

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VOCATIONAL HOME ECONOMICS

MANUAL OF OPERATION

FOR

TRAINING AND/OR RETRAINING ADULTS FOR JOBS REQUIRING HOME ECONOMICS KNOWLEDGE AND SKILLS

OHIO STATE BOARD OF EDUCATION

E. E. Holt
State Superintendent of Public Instruction
State Department of Education

Division of Vocational Education

March 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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MANUAL OF OPERATION FOR TRAINING AND/OR RETRAINING ADULTS FOR JOBS REQUIRING HOME ECONOMICS KNOWLEDGE AND SKILLS

This Manual of Operation has been prepared to explain and interpret the purpose and programs of vocational education in home economics for adults. These programs are directed toward training in occupations using home economics knowledge and skills.

The purpose of vocational education in home economics for adults, which is directed toward gainful employment, provides instruction that qualifies individuals to engage in occupations utilizing knowledge and skills in home economics subject matter areas, namely:

- Child development
- Clothing and textiles
- Foods and nutrition
- Home and institutional management
- Home furnishing and equipment

Programs for adults which lead to gainful employment are determined by available job opportunities, needs, and abilities of persons to be trained.

Preparation for employment is a more specialized type of program than one which centers on preparation for home and family living. In other words, the instruction needs to be sufficiently inclusive, and at the same time, intensive enough to insure preparation for wage earning.

Courses may be offered as extension programs of high schools called adult or evening classes. They may also be offered in area schools, community or junior colleges, or in joint vocational schools.

Such programs may be of duration sufficient to achieve specific goals and job skills.

Vocational Home Economics job training programs for adults may be planned to serve the following: out-of-school youth and adults who need training or retraining.

The purposes of the programs for this group is to provide training that will help those who:

-Need new or additional abilities to adjust to technological changes in job areas.

-Have ability to advance in job areas in which they are employed if they receive additional training.

-Are presently employed in jobs which are becoming limited or obsolete as a result of changes.

II. Criteria and Procedure for Training and Retraining Programs to Prepare Drop-out Students and Adults for Occupations in Home and Community Services Utilizing Home Economics Knowledge and Skills.

The following Criteria and Procedure were established to assist local administrative personnel in organizing training and retraining programs of instruction for adults and drop-out students which will develop marketable skills and be sufficiently intensive to insure adequate preparation for wage-earning occupations in home and community services.

A. Criteria to be met in order to initiate a training or retraining program.

1. Evidence of employment needs and existence of occupational opportunities to justify development of a given program(s).
2. Willingness and interest on the part of the administrator, instructor(s), employer(s), drop-out students, and/or adults in participating in a program in preparation for a home-related and community service gainful occupation. Parental consent on the part of the drop-out student would be desirable.
3. Opportunities available within the community and/or school for supervised work experience as part of a training program.
4. Willingness on part of the employer to hire personnel trained under the program.
5. Availability of facilities, including space and equipment, which would be adequate for offering the particular type of training.
6. Instructor(s) with adequate preparation both in the competencies expected of the worker and in the ability to teach. (See instructor qualifications on pages 6-7).
7. Establishment of a local advisory committee is desirable which would be composed of such persons as: local administrator, school board member, teacher(s) involved, employer(s) in field for which workers are being trained, representatives of community

agencies or groups allied with particular field(s), and other local people who could make special contributions. (Recommend that a member of the State Supervisory Staff in Home Economics Education serve as ex-officio member).

8. Agreement by local instructor(s) to help develop curriculum in cooperation with representatives of the State Supervisory Staff which will meet needs of the local situation, and fit into the total plan for state programs.

9. Development of a plan of evaluation by a representative(s) designated by the State Supervisor and based upon objectives of the curriculum developed in "8", and utilized throughout the program.

10. A sufficient number of hours should be provided for organized instruction in the subject-matter areas pertaining to the job and for on-the job supervision by the teacher.

11. Provision for in-service training of teachers is desirable.

B. Procedure for initiating and carrying out a training or retraining program.

1. Either the local school administrator and/or board of education recognizes a need and contacts the State Supervisor of Home Economics, or the State Supervisory Staff of Home Economics recognizes a need for a program in training for a particular home and community service occupation and contacts the local school administrator and/or board of education relative to the possibility of initiating a program.

2. The local school adminstrator and/or school board, with the help of the advisory committee (if one has been formed) studies the local situation and determines the school's ability to fulfill Criteria for initiating a program.

3. A plan is formulated for meeting the Criteria.

4. Financial need [illegible]
with State Supervi[illegible]
instructional purpos[illegible]
by the local [illegible]
5-6).
5. The necessary contract [illegible]
school and returned to the [illegible]
6. The program is put into action [illegible]
7. Affidavits for reimbursement are [illegible]
Department upon the completion of the course.
8. An annual report form will be submitted to the [illegible]
the instructor at the completion of the course. This will be [illegible]
of evaluating the classroom experiences and on-the-job experiences.
Such a form will include suggestions for changes or improvements and
recommendations for additional programs.

III. Reimbursement

A. Instruction and/or promotion

1. Day school programs

a. Reimbursement is made directly to the local school board for the fiscal year which ends June 30.

b. Necessary affidavits must be completed and returned promptly at the close of the classes.

2. City adult programs

a. Reimbursement is made directly to the local board of education for the fiscal year which ends June 30.

b. Necessary affidavits should be completed and returned promptly at the close of the year.

3. Family life programs

a. Reimbursement is made through the local board of education, at the close of the fiscal year which ends June 30.

b. Necessary affidavits should be completed and returned promptly at the close of the year.

The amount of reimbursement for the day school, city adult, and family life programs may vary according to the type of program and amount of federal funds available.

B. Compensation for the drop-out student and/or adults.

1. This agreement shall be reached between the local board of education and employer.

2. Rate of pay shall be close to the rates for the job title in this area, but shall not exceed the rate for a beginning apprentice in the same job title.

IV. Qualifications of instructors

A. Day school

1. Teaching and/or promoting

a. The vocational home economics teacher may teach or promote the class. If she is only promoting the class, the instructor for the course must have recognized ability in the area which she will be teaching and must meet minimum requirements for temporary certification.

B. City adult

1. Teaching

a. The instructor shall have recognized ability in the area of home economics being taught, and must meet minimum requirements for temporary certification which is secured through the local administration.

C. Family life

1. Teaching and/or promoting

a. The instructor in a family life program may teach or promote the course. If she is only promoting the course, the instructor for the course must have recognized ability in the area in which she will be teaching. Information concerning certification requirements may be secured from the State Supervisor.

It is desirable for the instructors in day school, city adult, and family life programs to: (1) Have had successful experience in teaching adults, (2) Be competent in working with the employment agencies, and in securing the assistance of people in areas of specialization in developing the training programs, (3) Have been employed twelve months in an occupation other than teaching or have the equivalent of twelve months homemaking experience.

V. Qualifications of students

A. The student should have good physical and mental health.

B. The student must indicate a real interest in the course and be willing to work under supervision.

VI. The curriculum

A. The course of study will be developed by the local instructor and an outline of the course will be submitted to the State Supervisor of Vocational Home Economics for approval.

VIII. Suggested hours of training.

A. The length of course will be determined by the outline of the course of study developed by the instructor and approved by the State Supervisor of Vocational Home Economics.

VIII Class size

A. The number of students enrolled will be determined by the facilities and the number of employers willing to cooperate in the program. A minimum of ten persons must be enrolled for each course approved for reimbursement.

IX. Teaching aids

A. The local sponsoring agency shall provide textbooks, visual aids, and periodicals pertinent to the area of instruction.

X. Types of training and/or retraining programs.

A. Child Care Aide

1. Program description

a. Instruction will include the study of child care, children's play habits, human relations, food for young children and effective management practices of a nursery school.

b. Students will participate in a nursery school which is supervised by a professionally trained person. They will observe and work with children.

c. Upon completion of the training, the student should be prepared to perform the following duties:

(1) Supervise children in eating, resting, and toileting; supervise play activities and creative activities such as painting, clay molding, and puppet play; help children develop habits of caring for own clothing, picking up and putting away toys and books; help children remove outer garments and put them in designated places; help keep the day-care center clean and attractive; and practice accident prevention.

2. Equipment

a. Each center should have the following facilities:

(1) Indoor and outdoor play space and equipment so that each child may have a variety of things to do each day.

(2) Area and equipment for preparing, serving and storing foods.

(3) Allotted space for washing hands and for toilet routines that is easily available to indoor and outdoor play areas.

(4) Equipment such as cots, rugs, etc. for rest periods.

(5) Space for consultation and keeping records.

b. If the school does not include a nursery school, the observation and particpation in a kindergarten, nursery, or primary grade offer trainees an excellent opportunity to observe and work with children in their activities.

B. Clothing Service Worker

1. Program description

a. Instruction will include the study of clothing construction processes, repair and alterations, textiles, pressing techniques, use of patterns, basic principles of art and design, use and maintenance of sewing machines, and standards of a quality product.

b. Students will participate in supervised activites which include the above techniques. Planned and supervised field trips to dressmakers, department stores, and dry-cleaning establishments would strengthen the program.

c. Upon completion of the training, the student should be prepared to assist with or perform the following jobs:

(1) Dressmaker, clothing alterationist in her home or in a store, seamstress in a dry-cleaning or laundry establishment, tailor's assistant, fabric sales clerk or garment sales clerk, and millinery's assistant.

2. Equipment

a. Tools and equipment may be similar to those found in the clothing laboratory of the local high school. The students shall be responsible for furnishing their own supplies such as fabrics for construction, etc.

C. Drapery, Slipcovers, and/or Upholstery Worker

1. Program description

a. Instruction will include the study of fabrics and their uses, construction techniques, fitting techniques, pattern-making, measurement techniques, and standards of performance.

b. Students will participate in supervised activites which include the construction of slipcovers, and draperies, and the upholstering of furniture.

c. Upon completion of the training, the student should be prepared to perform individually the above activities to a degree of perfection that would produce a marketable product.

2. Equipment

a. Each center should have tools and equipment comparable to those found in the home economics clothing laboratory, plus those items unique to the upholstering of furniture. Students should supply their own materials such as fabrics, etc. in this course.

b. Adequate storage must be provided.

D. Food Service Worker

1. Program description

a. Instruction will include the study of food preparation processes, the use and care of equipment, the planning of menus and the sequence of the work to be done, time and energy-saving methods, application of sanitary procedures, retention of nutritive content of foods, and correct and attractive service of food.

b. Students will participate in supervised activities in the preparation and serving of foods in institutions such as hospitals, homes for the aged, nursing homes, children's homes, day-care centers and restaurants.

c. Upon completion of the training, the student should be prepared to assist with, or perform the following jobs:

(1) Food service worker in the institutions named above, food demonstrator, hostess, waitress, baker's assistant, food caterer, family dinner service aide, and short order cook.

2. Equipment

a. Tools and equipment may be similar to those found in the foods laboratory and cafeteria of the local high school.

E. Homemaker's Assistant

1. Program description

a. Instruction will include the study of employer-employee relationships; time and engergy management; work planning; care and use of household equipment and supplies; daily, weekly, and seasonal cleaning plans for all areas of the home; meal planning and preparation; laundry techniques; child care; and handling home emergencies.

b. When possible, students will participate in directed activities in selected home situations.

c. Upon completion of the training, the student should be able to perform basic housekeeping duties of cleaning all rooms with manual and/or electrical equipment; use appropriate cleaning materials; do simple laundering; prepare and serve faimily meals; take care of children during mother's absence; take telephone messages and meet people at the door; and cope with ordinary emergencies which may arise during homemaker's absence.

2. Equipment

a. The equipment in the home economics department in the local high school may be adequate for this training program. Through visits to the residences of cooperating homemakers, trainees can observe techniques of home management, work simplification, and meal preparation in a family situation. A kindergarten, nursery, and primary grades offer trainees an excellent opportunity to observe children participating in a variety of activities.

b. Field trips to local appliance stores and utility companies to observe appliance demonstrations by trained specialists should enhance the program.

c. Buying techniques in food purchasing can be broadened through planned and supervised visits to local supermarkets.

F. Visiting Homemakers

1. The visiting homemaker performs the same duties as the homemaker's assistant with exception of the fact that she serves in the home on an emergency and temporary basis. She will assist in maintaining normal family life when the mother must be away or the family is under the stress of an emergency; carry out directions from the Welfare or Health Agency which may be in charge; help maintain

family routines and activities; help children have a sense of security through sympathetic understanding; supervise the play and rest of children; prepare or assist family members in preparing simple, nutritious meals; help do light laundry work, and keep the house clean and orderly. The same course of study and equipment may be used for this training program as for the homemaker's assistant.

G. Management Aides in Low Rent Housing Projects (Homemaker's Guides)

1. Program description

a. The managment aide is not a professional worker, but is primarily a "coach" or guide to the homemaker while she is in her home. She does not fit into an emergency situation. She assists managers of local housing authorities in orienting residents in housing projects to living in a new environment. She may be a resident of the housing project. The management aide is screened and carefully selected by the joint approval of the housing authority and cooperating agencies such as education, health and welfare.

b. Instruction would include the study of selecting, buying, storing and preparing food; management of time and money; child care; health and sanitation practices; laundry procedures; simple home decoration; community services available; the use and care of equipment; and the keeping of records and the preparation of reports required by the housing manager.

c. Students will participate in supervised activities using the facilities of the housing project.

d. Upon completion of the training, the student should be prepared to assume the duties and the responsibilities of a management aide.

2. Equipment

a. Equipment should include a variety of cleaning agents, utensils and supplies for food preparation.

b. Facilities in the housing project such as washer, dryer range and refrigerator shall be utilized for instructional purposes.

H. Hotel and Motel Housekeeping Aide

1. Program description

a. Instruction will include the study of the various duties required for cleaning and making up guest rooms and other areas in hotels and motels.

b. The aide performs general cleaning duties in motel or hotel rooms; collects and counts soiled linens; makes beds; empties trash from waste baskets; dusts furniture and woodwork; hangs up clothing; checks for damage to room, furniture or equipment, and reports such items to supervising housekeeper; sweeps or vacuums carpets or rugs; cleans bathroom tub, shower, basin, toilet, floor, mirrors, and medicine cabinets; replenishes stationery, bathroom linens and supplies; removes drinking glasses, replacing them with sanitized glasses; and checks room to be sure everything is in satisfactory condition.

c. Students will observe and participate when possible, in supervised activites under the guidance of the housekeeper, the assistant housekeeper, or the manager of a motel or hotel.

d. Upon completion of the training, the student should be prepared to assume the duties and responsibilities of a hotel-motel houskeeping aide.

2. Equipment

a. Equipment in the home economics room should include a bed or cot, linens, cleaning supplies, bath and toilet facilities, and a variety of wall, floor and furniture finishes.

b. Through visits to cooperating hotels, motels school dormitories, and Y.W.C.A.'s, trainees can observe and practice the techniques and procedures for cleaning rooms, work simplification and similar activities.

I. Nursing and Rest Home Aide

1. Program description

a. Instruction will include the study of food preparation and service; special diets for the elderly; methods, techniques, and equipment used in caring for older people; basic concepts in nursing techniques; human relationships; and personal grooming.

b. Students will observe and participate, when possible, in supervised activities at a nursing or rest home.

c. Upon completion of the training, the student should be prepared to:

(1) Serve as an aide to an elderly or convalescent person, either full-time or part-time; prepare and serve the person's food; answer the telephone; help with correspondence; assist with personal grooming; keep surroundings tidy; help to keep the person occupied by reading, conversing, and playing games; shop and run errands; and, on occasion, accompany the person on walks, on visits to neighbors, to church, or to the movies.

2. Equipment

a. Equipment in the home economics department in the local high school should be adequate for this training program.

b. Visits to a retirement or nursing home, or to a family that is caring for an elderly person, offers trainees an excellent opportunity to observe older people and their activities.

c. The local Red Cross unit may assist in providing the equipment needed to teach home care of the sick.

INSTRUCTIONS FOR COMPLETING THE APPLICATION TITLED
"VOCATIONAL HOME ECONOMICS JOB TRAINING AND/OR RETRAINING PROGRAM FOR ADULTS"

Complete the heading of this form, including a check in the box describing the program for which you are asking reimbursement.

> Type I program is a Vocational Home Economics program for unemployed out-of-school youth or adults, drop-outs, or graduates who need vocational training of less-than-technical level.
>
> Type II program is a Vocational Home Eoonomics program for employed persons. This training and/or retraining program may be on a part-time basis and has as its primary function, the upgrading of the enrollee's skills.

Programs and courses will enroll persons 16 years of age or older. These persons will be taking pre-employment training or retraining for occupaticns using Home Economics knowledge and skills. This type of instruction is not a part of a baccalaureate degree program.

A. Qualifications of instructors will be:

(1) College graduates in Home Economics who hold a Vocational Home Economics teaching certificate or

(2) A high school graduate who has spent a minimum of four (4) years working in the field to be taught; or a high school graduate trained to teach the course. Both would need temporary certification.

B. Program

(1) List the title(s) of the course(s) to be offered. These must be job training courses which utilize Home Economics knowledge and skills.

(2) List the code number(s) from the Dictionary of Occupational Titles.

(3) A minimum of 10 persons must be enrolled for each course approved for reimbursement. On the application form, add the anticipated number of students to be enrolled in each course and place the total in the appropriate box.

(4) List the number of sessions and hours per session to be spent by the teacher in the classroom with the students. Total these sessions and hours and place in the appropriate boxes.

Submit separate applications for each type of job training program. Additional applications can be submitted at later dates as courses are organized. Submit all three copies of the application to the State Supervisor of Vocational Home Economics for approval. One copy will be returned to you.

VOCATIONAL HOME ECONOMICS JOB TRAINING AND/OR RETRAINING PROGRAM FOR ADULTS

Submit 3 copies
School Name_____ Mailing Address_____ Date _____

Check type of program ☐ Day School ☐ City Adult ☐ Family Life

TO: State Department of Education, Division of Vocational Education
Vocational Home Economics Service, Columbus, Ohio 43215

State Office Building - 65 S. Front Street

SUBJECT: APPLICATION FOR APPROVAL OF AN ADULT JOB TRAINING AND/OR RETRAINING PROGRAM IN VOCATIONAL HOME ECONOMICS (Submit separate applications for Type I and Type II programs)

Type I - Pre-employment Vocational Home Economics Job training programs for unemployed out-of-school youth and/or adults.
Type II - Up-grading, part-time, adult Vocational Home Economics job training and/or retraining courses for employed personnel.

Acting on behalf of the _____ Board, I hereby apply for approval to initiate a program(s) of Vocational Home Economics as indicated above.

The assurance of Compliance with Title VI of the Civil Rights Act, dated _____ _____ applies to the application submitted herewith:

_____
Signature

_____
Title

The following information has been obtained to justify consideration of the program in this school district or system.

Instructor and/or Promoter	Holds Voc. Cert.		Holds Temp. Cert.		Applying for Temp. Cert.	
	Yes	No	Yes	No	Yes	No

B. List titles of courses to be offered under this application:
(Submit separate applications for Type I and Type II programs)

1. Course Title(s) & Last Name of Instructor	2. Code No.	Min. Enroll of 10		4. No. of Sessions	5. Hours per Session
		Yes	No		

(If space is insufficient, use above formats on an attached sheet.) TOTALS _____

---------- Do not write below this line----------

APPROVED/DISAPPROVED for reimbursement of $ _____ at $2.50 per hour upon completion of offering and submission of correct affidavit(s).

Date _____ Signed _____

VOCATIONAL HOME ECONOMICS JOB TRAINING AND/OR RETRAINING PROGRAM FOR ADULTS

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Check type of program ☐ Day School ☐ City Adult ☐ Family Life

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		Yes	No		

(If space is insufficient, use above formats on an attached sheet.) TOTALS _____

---------- Do not write below this line----------

APPROVED/DISAPPROVED for reimbursement of $ _____ at $2.50 per hour upon completion of offering and submission of correct affidavit(s).

Date _____ Signed _____

VT 000 206

VT 000 206
Ellis, Jewell Deene
Highlights Basic to Program Development, Interpreting Wage Earning Occupations.

Ohio State Univ., Columbus. The Center for Research and Leadership Development in Vocational-Technical Educ.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Mar66 5p. Speech given before the Seminar for Home Economics Leaders, Ohio State University, March 1966.

*SPEECHES; TEACHER ADMINISTRATOR RELATIONSHIP; *OCCUPATIONAL HOME ECONOMICS; SECONDARY SCHOOLS; ADULT VOCATIONAL EDUCATION; *PUBLIC RELATIONS
*SEMINAR FOR HOME ECONOMICS LEADERS

To be successful, occupational preparation programs must be interpreted to the many persons, agencies and groups that may be involved. Attention is focused on the need for planning ways to interpret occupational training programs, persons for whom interpretation is important, and ways by which interpretation may be carried out over a period of time. Most communities have at least one common factor. There are many new programs available that affect education and employment, and occupational training in home economics is only one of these. Effective methods of interpretation must be used if these programs are to succeed. The key people to include in interpretation efforts are the homemaking teacher, administrators, school boards, guidance counselors, high school students, adult workers, and public and private agencies. Methods suggested are group discussions, oral presentation, personal contacts, counseling, and leaflet distribution. Reinterpretation will be necessary from time to time. For the teachers, this may be best done at inservice meetings on a district or state level. Teacher education groups can do much to make interpretation a continuing process. (MS)

ED027441

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT
IN VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
Columbus, Ohio

Seminar for Home Economics Leaders

Highlights Basic to Program Development

Interpreting Wage Earning Occupations

Jewell Deene Ellis, Itinerant Teacher Trainer,
Murray State College, Murray, Kentucky

My remarks dealing with Interpreting Wage Earning Occupations in Home Economics center around the experiences we in Kentucky have had with getting occupational training programs under way. To date most of our programs have been on the high school level and the adult level. I would like to discuss interpretation from three viewpoints:

1. The need for planning ways to interpret occupational training programs.
2. Persons for whom such interpretation is important.
3. Ideas on ways interpretation might be carried out over a period of time.

Probably most of the communities where we work have at least one thing in common: there are many new programs available that affect education and employment and occupational training in home economics is just one of these. This fact within itself has many implications for interpreting the program. Doesn't this say to us we need to devise and make use of effective methods of interpretation if programs in occupational training are to succeed?

VT000206

When one has had the experience of interpreting occupational training to a busy administrator who may be concerned with projects under the Economic Opportunity Act or the Elementary and Secondary Education Act, you realize that very definite planning for interpreting is necessary. Interpretation in this case needs to be thorough but concise. A mimeographed sheet listing steps to take in starting a program is also helpful after some explanation of the program has been made and can be left for reference.

Because many people and agencies may be involved in any one occupational training program different ways of interpreting are necessary. When doing preliminary planning for some of our programs we found that conferences where explanations were made were good. I believe we will also need to plan for re-interpreting. At least this has been our experience as we work with the programs now under way. We must also realize that unless interpretation is done, we will have little opportunity for getting occupational training programs underway.

There are many persons and groups for whom such interpretation is important, but I will limit my discussion to those persons and groups on the high school and adult level. In thinking of the people involved on the high school level it seems that the homemaking teacher would head the list. She needs to be informed regardless of whether she teaches a class or gives support to a class. In our state a series of regional conferences was held for the purpose of interpreting occupational training to teachers.

Administrators, including superintendents and principals, attended another series of regional conferences on vocational education where occupational training in home economics was explained. How many of

you have thought of interpreting the program to boards of education? In one urban center the superintendent asked the high school teacher of occupational training to come to a regular board meeting and explain in a few minutes the occupational program. The teacher in telling of this activity said, "The board was most interested in the program and I was there over an hour answering their questions."

Another person who can be of help if they know about the opportunities of occupational training is the guidance counselor. This person could be one of the key people for whom interpretation of this program is vital. In some schools where programs are now in progress the guidance counselor has served on advisory committees. After learning about the program this person can be of great service in interpreting the program to many students. The guidance counselor is one person who can make great use of a leaflet describing the occupational program.

To this point the people whom I have mentioned might be called key people as far as interpretation is concerned on the high school level. Another key person is the high school girl who may be a prospective trainee. We have found that preliminary explanations by homemaking teachers, supervisors, and principals have been effective. But may I hasten to say that the person making the explanation must be thoroughly sold on the program and show enthusiasm for the program. In connection with interpretation for high school girls, I would like to relate this story. In one large high school where some preliminary planning was being done an explanation of occupational training was made to several hundred girls. Following the explanation, girls not interested in the program went back to classes but 129 girls stayed to hear more about the program. After further explanation, 89 girls

filled out a survey form indicating their interest in one of three areas. From this one interpretation by an enthusiastic person occupational classes were started in the clothing and child care areas. We have also found that when girls have indicated an interest surveys help to further interpret the program.

Some other people and groups for whom interpretation is desirable are parents, the PTA, women's clubs, extension workers, and agencies and groups where girls may obtain work experience. With some of these groups personal contacts have been most successful. Again, the leaflet which I mentioned earlier could be used.

On the adult level, workers already on the job who can benefit from upgrading their skills need to know about the opportunities of occupational training. In two large urban areas, workers in day care centers have asked for a class in understanding children. These day care centers are also the same day care centers where girls enrolled in high school occupational training classes go for their work experience. In these two situations it seems that both the teacher and the students of occupational training helped to interpret occupational training to people already on the job.

As well as adults on the job knowing about the availability of training to upgrade, many agencies need to be aware of this also. For example, the Child Welfare Department in our State has asked to have classes for workers in day care centers. The Dietics Association has also asked our help in training food service supervisors.

Perhaps some of you are concerned with ways interpretation might be carried on over a period of time. Since the occupational phase is

new and not yet established, we have found that re-interpretation is necessary from time to time.

A leaflet describing the program that can be left with administrators, guidance counselors, other individuals and groups will help to interpret the program over a period of time.

Advisory committee and advisory councils serving a period of time can also help with interpretation.

Interpretation over a period of time for teachers on the job may best be done at in-service meetings on a district or state level.

At this point, I do want to mention one suggestion pertaining to teacher education.

Teacher education committees meeting and working every year can do a great deal to interpret the occupational phase. This year one of the committees suggested some activities related to occupational training toward which college staffs might work.

In summarizing this discussion, I believe that it could be said that if occupational training programs are to be successful, ways for interpreting need to be planned for the many persons, agencies, and groups that may be involved.

VT 000 207

VT 000 207
Gaylor, Barbara
Guidelines for Some Aspects of Program Development, Determining Appropriate Programs and Job Areas.

Ohio State Univ., Columbus. Center for Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Mar66 4p.; Speech given before the Seminar for Home Economics Leaders, Ohio State University, March 1966.

*OCCUPATIONAL HOME ECONOMICS; *PROGRAM PLANNING; *SPEECHES; *GUIDELINES
*SEMINAR FOR HOME ECONOMICS LEADERS

Some of the guidelines that need to be considered in determining appropriate programs for occupational home economics are: (1) Consider some trends in education and what is happening to families and society, together with the changes needed in home economics curriculum, (2) Determine needs of the people in an area for vocational training, (3) Make a survey to determine jobs available and the expectation of persons to be employed in these jobs, (4) Set up an advisory committee to help determine curriculum and equipment needs for the school, (5) Develop a job analysis, identifying the functions of the program and define the responsibilities of the job, (6) Identify teachers who have occupational competence and who can meet the professional requirements for certification, (7) Use available resources pertinent to the specific occupations being taught, (8) Arrange for actual work experience programs with business, industry, or institutions outside the school, (9) Establish criteria for determining competencies a student will have when ready fo employment, (10) Develop a plan for followup of students to determine the effectiveness of the program, and (11) Plan for a sound public relations program. The role of high schools, area vocational schools, community-junior colleges, and university programs must be considered in implementing programs for gainful employment. Most jobs will be in the home and community-related occupations, of which the latter have more status. In determining appropriate programs and job areas for courses, an effort should be made to meet the needs of youth and adults with different abilities in education, background, and experience. (MS)

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THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT
IN VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
Columbus, Ohio

Seminar for Home Economics Leaders

Guidelines for Some Aspects of Program Development

Determining Appropriate Programs and Job Areas

Barbara Gaylor, Consultant, Home Economics and Family Life Education,
Division of Vocational Education, Lansing, Michigan

For many years, we in home economics have been talking about the dual role of women, but it has only been with the passage of the Vocational Education Act of 1963 that we are now doing more than just talking about it. With all the legislation that has been passed, it is obvious that Congress believes education CAN make a difference. We would not be here today if we did not believe this also. Traditionally, home economics in the public schools has provided education for homemaking and family living. Now home economics has not only the opportunity, but also the responsibility to provide education for home and family living AND education for employment in those occupations which use home economics knowledge and skills. We know that every school will continue to offer a program in home economics and family living, but not every school will be offering home economics programs in occupational education. What are some of the factors that need to be considered in determining appropriate programs for wage earning?

The following guidelines may be helpful in determining appropriate programs.

1. Consider some trends in education and what is happening to families and society, together with the changes needed in home economics curriculum. For example:

   - New understandings of the needs of youth and adults with varying abilities, backgrounds, and aspirations make appropriate education for each group necessary. This means that the content and methods of teaching are adapted to needs of special groups of learners; slow, average, more able; mentally and physically handicapped; culturally and educationally disadvantaged from varied socio-economic levels.

   - Rapidly expanding knowledge requires careful selection of learnings to be taught in a trend that will necessitate programs and courses being geared to needs of specific groups: wage earning sequences for potential dropouts and terminal students; basic program for home economics majors; special interest courses for non-home economics majors.

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- The last trend I will mention is emphasis on the work role of women, early marriage, changes in obligations and needs of family members, longer life expectancy, including medicare, requires reorienting of values and goals, adapting to variations in patterns of living. This means for home economics curriculum the development of wage-earning skills in home and community-related occupations, preparation for management, management of multiple roles, strengthening of self-identity, and consideration of special needs of the very young and the elderly.

2. Determine needs of the people in an area for vocational training. The needs, INTERESTS, and abilities of the persons to be trained will affect the program of instruction. It is important that there be established evidence that there is a large enough number of persons who want to receive the training and who give evidence of ability to profit from the training.

3. Make a survey to determine jobs available and the expectations of persons to be employed in these jobs. It is necessary that there be established evidence of reasonable assurance for employment of the completion of training. Some indicators of employment opportunities might be: large numbers of hotels and restaurants which signifies a need for cooks, bakers, waitresses; a building boom of hospitals, nursing homes, motels which indicate a need for hospital aides, and homemaker-home health aides; and a large number of employed women which might indicate need for child day-care center workers, homemaker assistants and other family services.

4. Set up an advisory committee to help determine curriculum and equipment needs for the school. In considering curriculum, some types of employment in home economics can be more effectively taught by cooperating with other disciplines. Survey present school facilities for space and then plan for additional equipment needed.

5. Develop a job analysis, identifying the functions of the program and define the responsibilities of the job.

6. Identify teachers who have occupational competence and who can meet the professional requirements for certification.

7. Use available resources pertinent to the specific occupations being taught.

8. Arrange for an actual work experience program with business, industry, or institutions outside the school, considering hours, working arrangements, supervision, insurance, and other problems which may develop in cooperative work programs.

9. Establish criteria for determining competencies a student will have when ready for employment.

10. Develop a plan for follow-up of students to determine the effectiveness of the program.

11. Plan for a sound public relations program.

The effectiveness of a program training for employment is determined by the number of graduates employed in the occupation for which they were trained and whether they stay employed. As new programs are initiated and old ones strengthened through well-planned curriculum, good teaching, practical learning experiences and adequate facilities, a sound program of evaluation will help provide the needed answers to the development of better programs. The wise administrator will plan accordingly.

After appropriate programs have been determined, what are some of the alternatives for action?

1. High Schools - High schools can prepare individuals for some entry employment and they can provide a systematic and thorough introduction to the world of work. Instruction designed to improve the status and efficiency of adults already employed can also be offered.

2. Area Vocational Schools - Many individual high school districts are not large enough to afford an adequate vocational education program. The prime objective of area vocational schools is to provide youth and adults with marketable skills. Trainees must be able to go directly from school to a job. Persons to be trained in these schools may include high school students, high school graduates, high school dropouts, youth returning from military service, adults entering or re-entering the labor force, and adults who want to upgrade themselves through further training.

3. Community-Junior Colleges - Post-high school education is booming, and the fastest growing institutions are the community-junior colleges. The growth of the community-junior college movement in the United States has opened new opportunities for occupational education. Many communities have turned to the community colleges for providing the occupational training necessary for an emerging group of semi-professional and technical occupations. Home economics has comparatively few offerings at this level. This is a place where we can make a great impact at the technical, semi-professional level.

4. University Programs - The university is broadening its curricula both upward and downward: upward in the sense of providing more training and education for careers requiring highly specialized mental capabilities, and downward in that the university is increasingly educating people in vocational and technical careers. Such programs shall be of inestimable value in teacher education programs where at the pre-service level prospective teachers can observe and participate in programs for gainful employment.

What are the job areas? We know the employment opportunities in occupations using home economics knowledge and skills are greatest in occupations which provide services in home and community-related occupations. The latter

have more status. Programs now underway in states are varied in relation to particular needs of youth and adults at secondary and post-secondary levels including those having socio-economics handicaps. For example, there are homemaker assistants programs to upgrade homemaking skills in poverty areas and to assist homemakers in emergency situations; homemakers classes for welfare mothers and mothers of probate court cases; preparing persons for employment on staffs of Head Start Programs, and day-care centers; for upgrading directors and owners of day-care centers; and two-year programs at the community college level in food merchandizing, food service supervision, and child care assistants.

The job areas that have been identified thus far are closely related to our home economics subject matter areas: (1) food management, production and service; (2) care and guidance of children; (3) institutional and home management; (4) clothing management, production and service; and (5) housing and home furnishings.

In determining appropriate programs and job areas for occupational education courses in home economics, we must proceed soundly and cautiously, and not find ourselves making "big splashes" in some dead-end alleys, but rather to develop productive programs for youth and adults with different abilities in education, background and experiences. The program will differ somewhat from state to state since each must develop its programs in light of state laws relating to education and legal employment age, as well as the points of view concerning education accepted by the leaders in education within the state.

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East, Marjorie
The Role of Teacher Education Institutions. Changes Needed in State Certification Requirements.

Ohio State Univ., Columbus. Center for Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Mar66 5p.; Speech delivered at the Seminar for Home Economics Leaders (Ohio State University, March 1966)

SPEECHES; *OCCUPATIONAL HOME ECONOMICS; *CERTIFICATION; *TEACHER QUALIFICATIONS; *HOME ECONOMICS TEACHERS

The major purpose of teacher certification is to insure a minimum level of exposure to education in hopes that the exposure will provide adequate entrance skills and potentialities for growth in the teaching profession. Principles basic to any state plan for certification are to (1) work cooperatively to establish minimum standards for certification, (2) establish responsibility for individual certification of teachers, (3) establish special provisions for certifying experienced homemakers who are graduate home economists but who did not take a teacher-education program and refresher provisions for teachers who have not been professionally active for some years, and (4) establish reciprocal certification arrangements between states at the secondary level. Current issues in the preparation of teachers for occupational programs include: (1) Shall teachers have occupational experience themselves, (2) Shall these occupational teachers have a full college preparation and meet all certification requirements, and (3) Shall teachers have special courses to help them to teach occupational education. Speaking tentatively, a teacher certified to work in occupational programs should have a regular home economics teacher's certificate, a minimum of one year's experience in home economics teaching, at least 3 months' job experience, a minimum of six credits of special course work in planning and teaching in occupational programs, and required cooperative work with other occupational teachers in yearly workshops or institutes. (MS)

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THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT
IN VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
Columbus, Ohio

Seminar for Home Economics Leaders

The Role of Teacher Education Institutions

Changes Needed in State Certification Requirements

Dr. Marjorie East, Head, Home Economics Education,
Pennsylvania State University

In twelve minutes I shall present to you my ideas on the problems facing us in certifying teachers for occupational programs in seconday home economics. I shall state what I believe to be the major purpose of certification; four general principles which I believe should structure any attempts to certify teachers, and then three issues which are currently being debated when people discuss the preparation (or indeed, the unearthing) of teachers for wage-earning programs. You understand, of course, that I am expressing my views as to purposes, principles, and issues. They may or may not coincide with yours.

I believe the only justifiable purpose of certification is to insure a minimum level of exposure to education in hopes that this exposure will give adequate entrance skills and potentialities for growth in the teaching profession.

The four principles I think basic to any state plan for certification are these:

1. Work cooperatively to establish minimum standards for certification. Teacher educators, state department officials, schoolmen and women all work together.
2. Establish responsibility for individual certification of teachers. (Pennsylvania has recently vested

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complete responsibility in the individual college. If a student completes the program, previously approved by the Department of Public Instruction, the awarding of the teaching credential is automatic.)

3. Establish special provisions for certifying experienced homemakers who have completed a home economics college program but did not take a teacher education program when in college. Also, some special provision should be made for refreshing teachers who have not been professionally active for some years.

4. Establish reciprocal certification arrangements between states. There is no evidence that any one course or pattern of courses insures competence. A total program, considered good in one state should be considered adequate in another state. Reciprocal certification is already accepted in some 35 states for the elementary teachers. Why not for the secondary teacher?

Now I'd like to present to you three related issues which I hear being discussed as we try to prepare teachers for these occupational programs. As I give you each issue, I'll give a brief view of the opinions on each side, and then my own opinions will be thrown in for free.

Issue #1:

Shall these teachers have occupational experience themselves? How much of it? A month? Several years? At the level and type of job they are training the students for? At a managerial or directional level?

The T & I people, who have been in this business for years, say that occupational experience is essential, and that some five years of such experience, at several levels of competence are also essential. I heard an eloquent expression of this point of view at the recent Regional Meeting in New York. The man knew pumps: seven years of work with pumps gave him competence and skill par excellance; he was eminently qualified as a vocational teacher of pumps.

On the other hand, those supervisors and superintendents who want to get an occupational program going - can't find people who have worked seven years, or even seven days, as a wardrobe specialist. They find it very hard indeed to find a person skilled in day care of children who wants to be a teacher. So regular teachers and their supervisors and principals are trying to adapt their present programs to the new plan without special experience in the occupations.

Issue #2:

Shall these occupational teachers have a full college preparation and meet all the requirements for a regular teaching certificate? Or shall they be drawn from those successful at the "occupations" and be expected to pick up a few courses of college grade to give them some understanding of schools and youngsters and pedagogy?

The T & I plan is the latter of these two choices. And there is some pressure on home economics to do likewise, to accept those specialists who really know "pumps" or pre-schoolers or the cleaning and care of clothing, or catering of dinners, or what have you; give them a chance to take college-level courses for a year or so and certify them for these programs.

On the other hand, many home economics teacher educators say that this would be lowering the standards of quality teaching, that home economics already has a hard time in some schools being considered intellectually respectable and that to accept as teachers the people with less than baccalaureate education will be catastrophic to the regular program. They are pushing for more than a baccalaureate level, not less.

Issue #3:

Shall these teachers have special courses to help them do occupational education? Should such courses come at the pre-service or at the post baccalaureate level?

Some say that no special help is needed for these teachers. If a teacher knows teaching and knows children, and knows the job for which she is training children that's all she needs to know. Education courses are pretty much a waste of time anyway since they are so abstract and theoretical.

Others say that these teachers do indeed need special help in planning and organizing, in understanding the changing world of work--the influence of automation, for example. Again, some say this special help should be given to all future teachers as part of their undergraduate study. Others feel that only certain schools and certain teachers will be involved in this occupational work and that after a teacher has experience and knows that she wants to work in occupational home economics, then she should get special help through special courses.

My own opinions on these issues are these: (at this time, you understand. For me the debate is not yet settled. I can be convinced otherwise.) A teacher certified to work in occupational programs of home economics will have:

1. A regular home economics teacher's certificate.
2. A minimum of a year's experience in home economics teaching.
3. Job experience in the occupation for which the students are to be trained of at least three months.
4. A minimum of six credits of special course work in the planning and teaching of occupational programs.
5. Required cooperative work with other occupational teachers in yearly workshops or institutes.

I stand ready to discuss further these points--but my twelve minutes is gone.

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VT 000 346
Guidelines for Pilot Programs in Agricultural Education.

Ohio State Univ., Columbus. The National Center for Advanced Study and Research in Agricultural Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 15p.; Reprint from Proceedings of Research Coordination Conference on Agricultural Occupations (2nd, Columbus, Ohio, January 13-15, 1964).

*PILOT PROJECTS; *GUIDELINES; CONFERENCES; EDUCATIONAL CHANGE; INFORMATION DISSEMINATION; EVALUATION METHODS; *AGRICULTURAL EDUCATION; PROGRAM PLANNING
*RESEARCH COORDINATION CONFERENCE ON AGRICULTURAL OCCUPATIONS

A report of committee work at the second Research Coordination Conference on Agricultural Occupations presents a suggested four-step process in developing pilot programs to provide a systematic basis through which program improvements may be brought about in agricultural education. A pilot program is a planned activity for testing a new idea in a realistic situation. The steps are identifying new ideas and concepts, designing ideas into workable programs, evaluating through field testing, and disseminating ideas which have proven successful. Guiding principles and guidelines for each are provided. (JM)

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GUIDELINES FOR PILOT PROGRAMS IN AGRICULTURAL EDUCATION

Reprinted From

REPORT OF

SECOND

RESEARCH COORDINATION CONFERENCE

ON

AGRICULTURAL OCCUPATIONS

January 13-15, 1964

The Ohio State University
Columbus

Sponsored by

The National Center for
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and the

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Washington, D. C.

VT000346

PREFACE

It has been heartening to observe the increased interest across the nation in the establishment of pilot programs in agricultural education. Evidence that the need for pilot programs is being recognized is readily seen in the requests we have been receiving here at the Center for information or assistance on guidelines to be followed in establishing pilot programs.

Consequently, we are reprinting from the REPORT OF THE SECOND RESEARCH COORDINATION CONFERENCE ON AGRICULTURAL OCCUPATIONS the work of the committee at that conference that developed Guidelines for Pilot Programs in Agricultural Education. It will be recalled that this conference, held at the National Center for Advanced Study and Research in Agricultural Education in cooperation with the Agricultural Education Branch of the Office of Education January 13 - 15, 1964, and attended by representatives of twenty-one states, had as one of its two primary objectives the development of guidelines for pilot programs.

We hope that the work of this committee will be of interest and value to the different states in initiating pilot programs.

GUIDELINES FOR PILOT PROGRAMS IN AGRICULTURAL EDUCATION*

The purpose of pilot programs is to provide a systematic basis through which program improvements may be brought about in agricultural education. While pilot programs are an essential part of an on-going program in agricultural education, they become particularly important at this time. Not only do we have the new national Vocational Education Act of 1963 which provides for a broader program but in addition we are faced with accelerating changes in the students, schools, and communities that we serve, as well as in agriculture. It is becoming increasingly essential that states provide for experimentation and program development in their state plans.

State staffs have an increased responsibility in providing leadership for changes in programs which will strengthen agricultural education. Pilot programs provide an opportunity to develop and refine new approaches and to offer tested recommendations for the further improvement of programs. We do not subscribe to change just for the sake of change, but recognize that change is inevitable, and the proper role of state staffs in agricultural education is to provide leadership to desired change. Planning for orderly, systematic change should be continuous. The changes to which we refer are not the kind that teachers traditionally make within their own departments. We are referring, rather, to major changes that have implications for state wide programs.

A pilot program is a planned activity for testing a new idea in a realistic situation. There are four distinct steps in a pilot program.

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*Adapted from an Ohio State University Agricultural Education Seminar Report by M. G. Linson, et al., 1962.

Each step is a different phase in the development or adoption of an innovation. Briefly, the four steps in a pilot program are:

1. Identifying new ideas and concepts
2. Designing ideas into workable educational programs of action
3. Evaluating through field testing
4. Disseminating ideas which have proven successful

Step one is the identification of ideas that have implications for educational improvement. Priority should be assigned to those ideas which appear to have particular significance for further development of the state program. Step two involves the process of designing the promising ideas identified in step one into workable educational plans. The third step is one of field testing and evaluation. The plan for evaluation should be developed prior to the beginning of the field test. The educational innovation should be thoroughly tested to determine its educational values and possible limitations or restrictions. The final step comes when a new idea has been proven valuable to education and is ready for wide dissemination.

These four steps are inter-related, but each is sufficiently important to merit individual attention. The competencies of specialized resource people should be utilized in each step. Brickell,[1] in a study of educational change in schools in the State of New York, concluded that the most formidable block to instructional improvement today is that education unlike medicine, agriculture, and industry fails to distinguish the three phases of change: design, evaluation, and dissemination. Moreover it fails to support adequately the basic research which should precede the design stage.

Pilot programs in agricultural education can best serve their purpose when each step is adequately developed to fulfill its specific purpose.

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[1]Henry M. Brickell, Organizing New York State for Educational Change. New York: The University of the State of New York. State Education Department, 1961.

Because each step is different the procedures and personnel used will vary accordingly. State staffs must assume the responsibility for guiding the innovation through the four steps in such a manner that the results can be evaluated and considered for use in improving vocational programs.

Only a small number of pilot programs should be attempted at any one time because of limitations of staff, financial resources, etc. Therefore, systematic procedures should be used in determining major changes and extensions in the on-going program.

STEP I - IDENTIFY IDEAS FOR PILOT PROGRAMS IN AGRICULTURAL EDUCATION

Teachers, state department personnel, teacher educators, and lay citizens all have ideas for improving vocational agriculture programs. Some ideas have limited possibilities for application in a state-wide program, but all need to be considered.

A. Guiding Principle

In identifying possible pilot programs in agricultural education, state leadership should actively and continuously encourage the development of new ideas for program improvement and expansion and new program development. A small committee should be charged with receiving the ideas, analyzing and determining those which appear to show promise, determining needed priorities, and recommending those for which pilot programs should be developed.

B. Guidelines

The following guidelines apply to joint state staffs in agricultural education.

1. Evaluate present programs within the state as a means of determining how well such programs are meeting current needs. Such an evaluation

might consider studies already completed as well as additional studies and surveys to identify needed improvements in the program.

2. Consider the need for expanding programs to meet the needs of additional students as provided by the national Vocational Education Act of 1963. Among these might be: Programs for Disadvantaged Students; Procedures for Training for Farm Related Occupations; Post-High School, including Technician Education; and Joint Programs with other Vocational Services.

3. Make an organized effort to secure suggestions from those now affected by the programs of agricultural education. Teachers, school administrators, board members, and their representatives on advisory committees should be invited to submit ideas for improving programs.

4. Appoint a state-wide Pilot Programs Committee.

   a. This committee should be limited in numbers and should include those with administrative responsibilities in agricultural education. Such a committee might include the head state supervisor, head teacher educator, and two or three additional persons from the staffs and advisory committee.

   b. Each suggested innovation should be considered in terms of its potential contribution to the state-wide program. Those which appear to have major implications should be referred to the joint staffs and advisory committee.

5. Consider recommendations of the State Pilot Programs Committee, assign priorities, and name a director with commensurate authority to give leadership to each pilot program.

STEP II - DESIGN THE EDUCATIONAL PLAN

The development of the design for the educational program is a basic step which must precede field testing. The cruciality of this step merits the use of the most competent talent and other resources that can be assembled.

A. Guiding Principle

The educational plan for each pilot program should be carefully designed. It should be developed in an atmosphere of freedom from normal controls, standards, and regulations which might limit the scope and direction of the program. The plan should "spell out" the things that are to be done, a time table (or schedule) for getting the program under way, and the person responsible for the different phases of the plan. The people who are closely involved in the pilot program should participate in designing the plan.

B. Guidelines

1. Designate a director who will have major responsibility for the development of the educational plan.
2. Use specialized consultants in developing the plan and to test ideas against known factors and basic research.
3. Involve school administrators and guidance counselors in developing the plan.
4. Consider the appointment of both state and local advisory committees, depending on the scope and significance of the pilot program(s).
5. Develop as part of the educational plan:
   a. A statement of the philosophical basis and/or situation which prompted the idea for the pilot program.
   b. Statements of purposes and objectives of the program.

c. Statement of what is expected from the pilot program and the resulting changes that will benefit the program of agricultural education.

d. Curricular content to be included in the pilot program.

e. Teaching materials and equipment needed.

f. Specific steps in the procedure to be followed.

g. Number of schools needed as pilot centers.

h. Criteria for selecting schools (kind of community and schools settings needed).

i. Qualifications of teacher and/or others who will be responsible for the program.

j. Number of students to enroll.

k. Criteria for selecting students.

l. Administrative changes the pilot school(s) will need to make to implement the plan.

m. Length of pilot program(s), including time needed for effective evaluation.

n. Estimated cost of conducting the program.

o. Orientation and training needed (and/or professional or technical course).

p. Records to be kept and the reports to be made.

6. Provide for critical review of plans by specialists, staff members, school administrators and counselors, advisory committees and others who are qualified by training and experience to make an appraisal.

7. Secure approval of the plan and necessary financing.

8. Designate a coordinator in each school where the plan is to be implemented. The coordinator, in many schools, may be the teacher of agriculture.

9. Postpone using the pilot schools as demonstration centers until evaluation proves the ideas or practices are educationally sound.

STEP III - EVALUATE THROUGH FIELD TESTING

This step involves taking the completed educational plan prepared in Step II and developing the evaluation procedure. The education plan is then field tested under actual conditions. The plan for evaluation of the innovation should be carefully followed.

Special attention given to the pilot program may result in over-achievement to the extent that the apparent beneficial effects of a given innovation will be due to the added effort (Hawthorne Effect) rather than to the innovation being tested. To insure a more accurate evaluation it is necessary to give control schools the same kind of attention.

A. Guiding Principle

Field testing of innovations in agricultural education should take place under carefully controlled conditions. The complete evaluation procedure should be developed prior to the field testing and followed throughout the trial. Criteria for evaluating outcomes must be clearly stated in advance. (A "no" may be as valuable as a "yes".)

B. Guidelines

1. Devise, with consultant help, the evaluation procedure and instruments that will be used to determine the degree to which the pilot program attained its objectives. (See suggested patterns for evaluation, section C which follows.)
2. Follow, with minimum deviation, the evaluation procedure developed prior to the field test.
3. Select participating field study situation(s).
4. Discuss detailed plan with those who will be involved.

5. Arrange for personnel, materials, and facilities and equipment necessary to conduct the program.
6. Agree on any financial aid that might be supplied.
7. Draw up agreements which clearly state the responsibilities of all individuals and agencies involved.
8. Have agreements signed by appropriate officials.
9. Since pilot programs are untried and may deviate considerably from standard procedure, involve only enough situations to allow for proper evaluation.

C. Patterns of Evaluative Procedures

The purpose of a pilot program is to obtain answers to clearly stated questions that have originated in an idea for a new direction in occupational education. The idea must appear to offer promise, the obstacles must not be insurmountable, the administrative limitations must be resolved, and valid criterion measures must be chosen or developed.

A pilot program is action research on which judgment is being suspended while comparisons involving some degree of controls are being made and an appraisal prepared for publication. There are varying levels of research sophistication in pilot programs. The results may be reported simply as verbal or mathematical observations. A next level might involve a kind of pre-experimental design. At the very best, a true experimental model will be appropriate to the most efficient use of available resources. If the proposal cannot meet necessary conditions for true experimentation, a quasi-experimental design may be substituted and a worthwhile complex developmental procedure synthesized.

The most frequently used pattern or model for an action program involves the application of a specially prepared, new treatment to one

group of students. Observations of outcomes are made. This design is known as a one-group case study.[2]

A treatment	⟶	Observation
X	is followed by	O

If a pre-test is administered before the treatment, the design is modified to measure change assumed to be due to the pilot program. It is a one-group pre-test-post-test study.

Pre-test	⟶	Treatment	⟶	Post-test
O_1		X		O_1

By testing students who received a special treatment and comparing results with scores of students who did not receive the treatment, a static-group comparison design has been effected without prior random assignment.

	Treatment	⟶	Observation
First group:	X		O_1
Second group:			O_2

Often the only feasible plan for trying out an innovation in teaching is to apply the treatment to an intact class. If this group of students and the students in another class not given the special treatment are pre-tested and post-tested, the model may be called a quasi-experimental non-equivalent control group design. If a considerable number of schools can be made available, with random assignment of half of them to each treatment, the school average scores may be analyzed as a true experimental design.

Pre-test	Treatment	Post-test
O_1	X	O_1
O_2		O_2

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[2]N. L. Gage, ed., Handbook of Research on Teaching. Chicago: Rand McNally and Company, 1963. (See Chapter 5 by D. T. Campbell and J. C. Stanley.)

Another possibility is the use of entire schools or classes as intact experimental groups with matching schools or classes as control groups. To check for the Hawthorne effect, an extra group of control schools or classes could be used without a pre-test. This design might be labeled "A quasi-experimental matched control group design."

Pre-test	Treatment	Post-test
O_1	X	O_1
O_2		O_2
		O_3

Reference to the Campbell, Stanley chapter previously cited will give the potential coordinator of a pilot project suggestions on how to use a true experimental design if random assignment of students to treatment groups is feasible. Pre-test-post-test control groups, post-test only control groups, or an inclusive four-group design are recommended. Multivariate designs, such as factorial experiments, are highly efficient especially when interaction and covariation are taken into account.

For any appraisal to be worthwhile, valid criterion measures of outcomes must be constructed. Some measure student knowledge. Those that report occupational placement and progress, in forms germane to societal goals as well as to individual counseling, have special significance as agricultural education expands into new areas along with related vocational education fields.

STEP IV - DISSEMINATE FIELD TESTED INNOVATIONS

People who have studied the process of dissemination of new ideas indicate that observation brings about much more rapid adoption than written or oral reports. It is also true that people generally accept new practices faster when these practices are observed in situations similar to their own. For example, teachers and school administrators in small districts may be reluctant

to adopt new practices that have been demonstrated only in large school systems. The wide-spread dissemination of new practices should take place ONLY after field testing has shown that these practices are educationally and administratively sound. Even then, the results may be "good" but not something that every school should include.

A. Guiding Principle

Innovations in education should be demonstrated in schools in normal settings, providing maximum opportunity for interested personnel to observe and acquaint themselves with the development.

B. Guidelines

1. Select schools for demonstration centers, taking into consideration location, facilities, size, and potential of enrollment. Additional financial assistance may be needed to insure a complete and adequate demonstration.
2. Arrange for state department of education personnel, teacher educators, school administrators, teachers, and advisory groups to observe demonstration centers.
3. Prepare a complete, written description of the innovation.
4. Provide teachers with needed instruction, assistance, and materials to enable them to utilize the innovation when appropriate.
5. Publicize through professional journals and other appropriate media, the accomplishments and values gained from the innovation.

SUMMARY

The section on "Guidelines for Pilot Programs" suggests four steps: 1. Ideas, 2. Design, 3. Field Study and Evaluation, and 4. Dissemination. The suggestion that we start with "ideas" indicates that pilot programs should represent innovations in agricultural education. Educational needs stem

primarily from the basic needs of people. As many of the functions performed in agriculture have moved from farm to urban areas, the needs for training have expanded to include not only training for farming but also training for agricultural business and industry.

One of the major purposes of pilot programs is to explore areas of vocational education in which we would push back the horizons and develop ways to serve more effectively the present and emerging needs of people under the rapidly changing technology. Integrated programs of agriculture, distributive education, and trades and industry, along with related elements of science, social science, mathematics, and other aspects of general education, appear to be areas in which pilot programs should be developed. Programs to improve the conditions of socio-economic depressed groups and reduce the problems of school drop-outs and potential drop-outs need to be developed in order to meet our responsibilities under the Vocational Education Act of 1963.

The committee suggests the following as problem areas for pilot programs:

1. Developing programs where an agriculture teacher is the local school coordinator of cooperative education experiences.
2. Developing vocational agriculture programs in new school district reorganization patterns.
3. Cooperative related agricultural industries training:
   a. Cooperate with representatives of agricultural business and industry.
   b. Cooperate with other educational training programs.
   c. Cooperate with other agricultural agencies.
4. Effectiveness of providing specific in-service teacher education in:
   a. Technical agriculture, b. Distributive occupations, and c. Aspects of general education, such as social science, science, economics, and mathematics.

5. Providing programs with full-time adult teachers.
6. Providing subject matter specialists to improve instructional programs.
7. Developing programs for low income farmers.
8. Using resource persons for teaching, advisory work, and recruiting.
9. Measuring effectiveness of training in terms of technical principles as opposed to training in specific skills and abilities.
10. A program providing for specialized training in the operation, maintenance, and care of farm machinery.
11. A program in vocational agriculture at the junior high level for potential drop-outs in urban areas.
12. Providing educational programs for rural youth who did not complete high school.
13. Upgrading communications skills of high school agricultural students.
14. Measure effectiveness for training drop-outs and/or potential drop-outs for agricultural occupations other than farming.

VT 000 422

VT 000 422
Hull, William L.
Objectives for Vocational and Technical Education in Agriculture. Objective 2, To Develop Agricultural Competencies Needed by Individuals Engaged in or Preparing to Engage in Agricultural Occupations Other Than Production Agriculture.

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Pub Date - 66 10p.; Paper in "Report of a National Seminar," Evaluation and Program Planning in Agricultural Education" (The Ohio State University, July 27-30, 1964).

*SPEECHES; *EDUCATIONAL OBJECTIVES; OFF FARM AGRICULTURAL OCCUPATIONS; FARM OCCUPATIONS; PLANT SCIENCE; ANIMAL SCIENCE; *VOCATIONAL AGRICULTURE; PROGRAM PLANNING; *AGRICULTURAL OCCUPATIONS; *EDUCATIONAL NEEDS; AGRICULTURAL SKILLS
*NATIONAL SEMINAR ON EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION

In discussing the objective developing agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture, three assumptions are made: (1) Knowledge and skills in agriculture exist, can be identified, and can be translated into educational objectives, (2) The selection of specific objectives contributes to a quality program, and (3) Teachers in a subject area should select the educational objectives. Propositions set forth include: (1) Before objectives can be identified, agricultural occupations must be described, (2) The extent to which technical knowledge of plant and animal growth principles is required best defines the nature of the occupation, (3) Essentially no difference exists in the nature of units taught to develop competency in occupations either on or off the farm, and (4) Teachers of vocational agriculture are best qualified to teach principles of plant and animal growth. Three levels of the occupations need specific objectives: production agriculture, supporting occupations supplying inputs, and consumer commodities. Competency factor groups for each must be devised, and instructional content ordered. Student performance will include mastery of content and acquisition of a kind of behavior operating in a substantive area. Because definite stages in the learning process exist, it is necessary that a continuum be derived by appropriately ordering animal growth principles. This continuum can be expanded into attributes identifying agricultural occupations. This paper appears in ED 011 037. (JM)

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REPORT

OF

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING

IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

July 27 - 30, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The Ohio State University

Columbus, Ohio

VT 00422

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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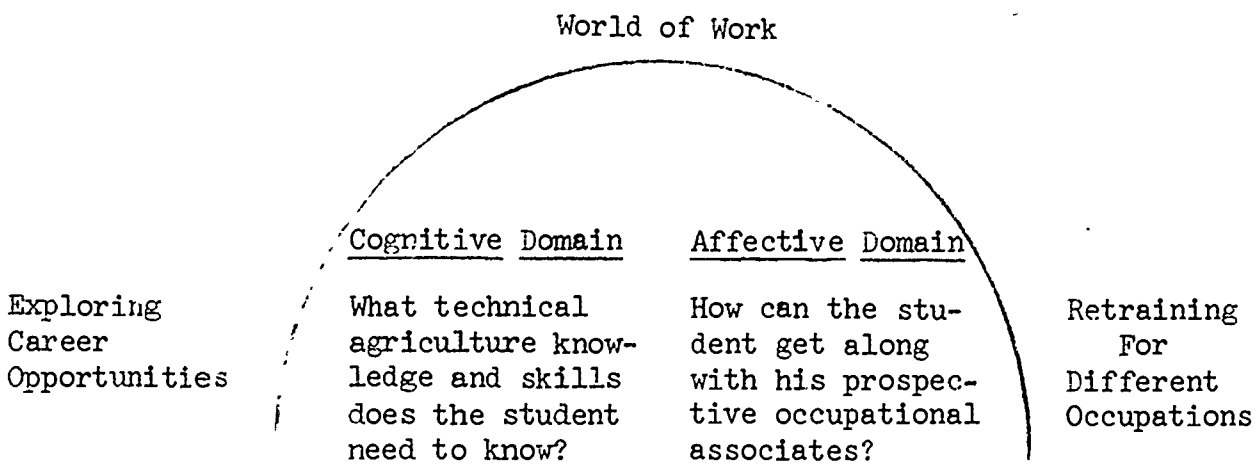
OBJECTIVE 2: To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.

The most general objective of education is that it cultivates excellence. Translated by Bruner,[1] this means the teaching of structure rather than simple mastery of facts and techniques.

Viewing the objectives for vocational and technical education in agriculture from a prospective student's point of view, Figure 1 illustrates the logical sequence of contact with each objective, with the exception of objectives one, two, five, and six. These interact with each other during study of an occupation or family of occupations. The two questions asked in Figure 1 are prerequisites for individual or group actions in any society.

According to Krathwohl and others[2] the affective domain includes educational objectives emphasizing a feeling tone, an emotion, or a degree of acceptance or rejection. This domain relates to the personal aspects of work. More than any of the other objectives, numbers five and six belong to this domain.

Figure 1. ORDERING EDUCATIONAL OBJECTIVES IN AGRICULTURE



Proposed Objective Order

3.	Career Opportunities	1.	Production Agriculture	5.	Human Relations
		2.	"Other" Agricultural Occupations	6.	Leadership Development
4.	Adult Education				

[1]Bruner, J. S. The Process of Education. Cambridge, Mass.: Harvard University Press, 1963.

[2]Krathwohl, D. R., D. S. Bloom, B. B. Masia. Taxonomy of Educational Objectives Handbook II: Affective Domain. New York: David McKay Company, Inc., 1964.

The cognitive domain includes the remembering or reproducing of information which has been learned. Clearly, objectives one and two belong to this domain. The following guiding principles developed for the taxonomy, apply equally to all educational objectives:[3]

1. The taxonomy (of educational objectives) should be used in regard to existing educational units and programs.

2. The taxonomy should be logically developed and internally consistent.

3. The taxonomy should be consistent with our present understanding of psychological phenomena.

4. The classification should be a purely descriptive scheme in which every type of educational goal can be represented.

Bloom[4] further divides educational objectives in the cognitive domain into six major classes: knowledge, comprehension, application, analysis, synthesis, and evaluation. Much of the content in both handbooks focuses on curriculum construction and program development rather than educational objectives for the individual learner.

This paper addresses itself to a discussion of objective two in the Objectives for Vocational and Technical Education in Agriculture[5] as it relates to the development of criteria for evaluation. The objective is:

> To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.

Perhaps the purposes of this conference can best be served by a straight-forward delineation of a particular position on the educational preparation for agricultural occupations. This position paper represents only one of several approaches which could be taken on the subject. However, the author shall attempt to logically and systematically put forth four propositions.

The following assumptions generally relate to the content of this paper and specifically to the propositions:

1. Knowledge and skills in technical agriculture exist, can be identified, and can be translated into educational objectives.

2. The selection of specific appropriate objectives contributes to a quality vocational education program in agriculture.

3. Teachers who are best qualified in a subject matter area should select the educational objectives for that area.

Before criterial objectives can be written for programs in agricultural occupations, technical knowledge of skills involving plant and animal growth principles must be identified. This position is delineated by the following propositions.

1. Before appropriate educational objectives can be identified for agricultural occupations, defining attributes must be assigned to the category.

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[3]Bloom, B. S. (ed), M. D. Englehart, B. J. Furst, Walker H. Hill, and D. R. Krathwohl. Taxonomy of Educational Objectives, Handbook I: Cognitive Domain. New York: David McKay Company, Inc., 1956.

[4]Ibid.

[5]Office of Education, OE 8[illegible]11, Objectives for Vocational and Technical Education in Agriculture. 12 pp. Washington: Government Printing Office, 1965.

2. The extent of technical agricultural knowledge of plant and animal growth principles best defines the nature of the agricultural occupation.

3. Essentially no difference exists in the nature of the technical agriculture resource units taught to develop competency in agricultural occupations either on or off the farm.

4. Teachers of vocational agriculture are best qualified to teach principles of plant and animal growth.

An important notation to the third proposition is the extent of application of this knowledge in the occupation. The extent of application has important implications for educational objectives. Presumably, an agribusiness employee finds himself in an environment which requires more specific knowledge of particular segments of technical information than most farm managers. For example, a farm supply store employee may need to know extensive information about the limited number of products available for sale by the store. A farm manager needs less extensive knowledge of more products.

This paper shall attempt to establish the need for an affirmative dimension describing both on and off-farm agricultural occupations. The second proposition remains as an assertion throughout the paper. But a construct is proposed, projecting production agriculture effects throughout the agricultural industry.

Principle knowledge of plant and animal growth phenomena provides the best background for most agricultural occupations. The nature or content of this knowledge is the same in all situations. However, the extent to which this knowledge applies depends on the demands of the situation and the particular environment of the agribusiness employee.

Identifying Agricultural Attributes in Occupations

Bruner and others[6] define an attribute as a discriminable feature of a concept. For example one feature of a table is that it has legs. This feature or attribute may vary from item to item. Some tables have long legs, some tables have short legs. Other legs are round and some are square. But the attribute of having legs identifies a table. According to Bruner, when a discriminable feature is used to infer identity of something, it is a criterial attribute. The legs on a table may be so short that the table is almost resting on the ground. One could say it is much less of a table; but, if one accepts the identifying attribute of a table as having legs, the non-functional legs qualify the object as a table. Criterial attributes are sorely needed to identify agricultural occupations.

Webster[7] defines agriculture as the science or art of cultivating the soil, harvesting crops, and raising livestock. If one includes the knowledge and practices of cultivating the soil for crop production under the category "plant growth," then plant growth and animal growth represent two features describing agriculture. Any specific occupation requires particular kinds and amounts of agricultural knowledge for an optimum level of operation. Criterial attributes identifying agricultural occupations along dimensions of animal science and plant science need to be identified. When these are identified, behavioral objectives may be written for the prospective employee to attain criterian performance.

Relating Agricultural Occupations

An examination of objective two reveals the phrase "other than production agriculture." Presumably, the agricultural occupations mentioned in the objective are defined by telling what they are not! The terminology of off-farm, non-farm, related, or associated occupations, conveys very little positive descriptive information.

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[6]Bruner, J. S., J. J. Goodnow, and G. A. Austin. A Study of Thinking. New York: Appleton-Century-Crofts, Inc., 1960.

[7]Webster's Third New International Dictionary. Unabridged. Springfield, Mass.: G. and C. Merriam Company, 1961.

The 1963 Vocational Education Act[8] infers a positive continuum between on-farm and off-farm agricultural occupations:

> . . . amounts allotted . . . for agriculture may be used for vocational education in any occupation involving knowledge and skills in agricultural subjects . . .

This continuum relates to the nature and extent of plant and animal growth principles useful to persons engaged in agricultural occupations. In essence, these individuals extend the effect of raising livestock and producing crops into the industrial segment of the economy. This fact is stated by Webster[9] in his definition of agribusiness:

> "A combination of the producing operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities."

Yet, many generally accepted references such as the Dictionary of Occupational Titles,[10] and the Standard Industrial Classification Manual[11] classify agriculture strictly as a production function. When identifying jobs related to agriculture, the DOT[12] enumerates primarily businesses which supply commodities to farms. Agricultural supply businesses and dairy products plants add value to the raw materials and properly can be considered an extension of the production function.

An effort aimed at structuring man's knowledge in vocational education articulated by Ray[13] places agriculture with mining in the extraction phase of material production. This approach strongly suggests that agriculture is primarily a source for raw materials.

Although not recognized by the above sources, the agricultural industry as a production function in the economy extends beyond the limits of the commercial farm. Figures 2 and 3 represent preliminary advances toward a construct identifying the role of production agriculture in the economy.

The schematic diagram in Figure 3 represents agriculture as a unique industry in the economy, one which fulfills an important consumption as well as a production function. In effect, many agricultural goods and services act as raw materials for farm production units. Entry level occupations in agricultural supply businesses often require a comprehensive knowledge of plant and animal growth processes particularly in the areas of genetics and nutrition. These suppliers of inputs into the farm business represent a different level of concern for agricultural educators than the production agriculture level.

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[8]Public Law 88-210. 1963 Vocational Education Act. 88th Congress, H. R. 4955, December 18, 1963.

[9]Webster's Third New International Dictionary. Unabridged. Springfield, Mass.: G. and C. Merriam Company, 1961.

[10]U. S. Department of Labor, W. Willard Wirtz, Secretary, Manpower Administration, Dictionary of Occupational Titles, 1965, Volume II, Occupational Classification, 3rd ed.

[11]Executive Office of the President, Bureau of the Budget. Standard Industrial Classification Manual, 1957.

[12]U. S. Department of Labor, W. Willard Wirtz, Secretary, Manpower Administration, Dictionary of Occupational Titles, 1965, Volume II, Occupational Classification, 3rd ed.

[13]Ray, W. E. "Structuring the Knowledge of Man's Practices." 28 pp. Symposium Paper presented at the American Educational Research Association Annual Meeting, Chicago, Illinois, February 17-19, 1966. (Mimeograph.)

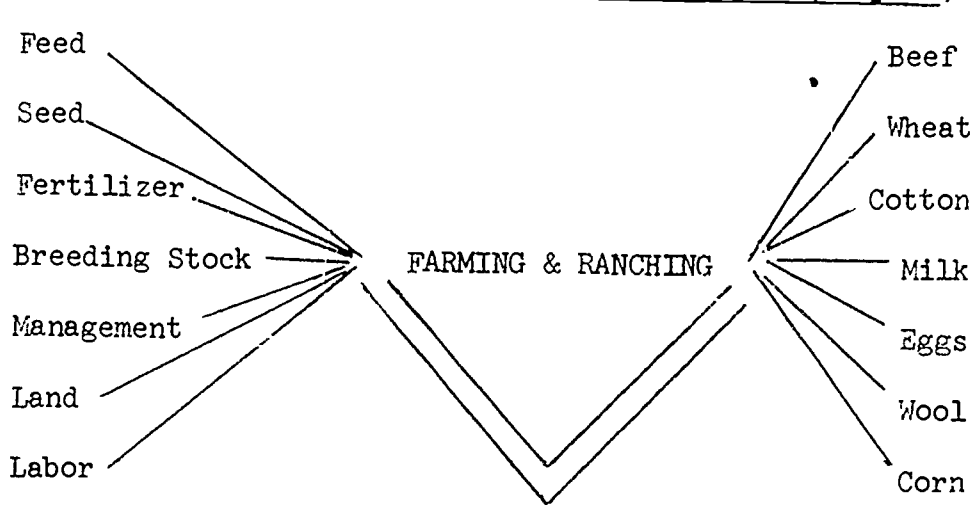
Actually, Figure 3 identifies three levels of concern for the specification of educational objectives relating to agricultural occupations. The first is farming and ranching--production agriculture. Second, the occupations supporting the agricultural industry by supplying inputs to the farm business represent a realistic need for technical agriculture knowledge and skills. Third, the group of commodities destined for the consumer must be

Figure 2. PRIMARY AND SECONDARY FUNCTIONS IN THE ECONOMY

Primary:	Production	Distribution	Consumption
Secondary:	Processing	Servicing	

processed and distributed. Agricultural educators have a concern for accurate and informative product knowledge reaching the consumer. For example, the housewife will find useful technical agricultural knowledge concerning the color and marbling of beef to assist her in purchasing the freshest quality cuts. The degree of concern for agricultural instruction in the three areas mentioned is directly related to the nature and extent of technical agricultural knowledge required by the persons in occupations representing these areas. Kennedy[14] identified 786 occupations associated with farming and agriculture, but he immediately suggested that these occupations may be ordered on a continuum in terms of the knowledge of farming required or desirable for these occupations.

Figure 3. THE AGRICULTURAL INDUSTRY



Principles of Plant and Animal Growth

A taxonomy of agricultural occupations ordered by their need for technical agricultural knowledge must be devised before realistic substantive educational objectives for agricultural occupations can be written. The components necessary for ordering agricultural occupations are available. Competency factor groups[15] have already been designated for many types of agricultural businesses. Table 1 gives the relative competency ratings which agricultural business managers in Oklahoma placed on four areas of agriculture.[16] The Oklahoma Vocational

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[14]Kennedy, W. H. "A Clarification of Relationships Between Farming and Certain Other Agricultural Occupations with Implications for Guidance and Curriculum Development." East Lansing, Michigan: Department of Teacher Education, Michigan State University, 1959. (Mimeograph.)

[15]Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

[16]Ibid.

Research Coordinating Unit[17] recently published competency profiles for thirty-three agricultural job titles. The next step is the development of attainable occupational objectives which incorporate agricultural knowledge for families of occupations. The notion of supporting education advanced by Stevens[18] clearly relates to the educational preparation of individuals for occupations requiring skills in several areas of vocational education. Vocational agriculture should view itself as a supportive element for many distributive occupations requiring technical agriculture product knowledge. On the other hand, for those occupations which supply and service production agriculture, vocational education in agriculture should assume primary responsibility.

TABLE 1. TECHNICAL AGRICULTURAL KNOWLEDGE AND SKILLS REQUIRED FOR EMPLOYEE PROFICIENCY IN FOUR TYPES OF AGRICULTURAL BUSINESSES[1]

Type of Business	Agricultural Business Management	Plant and Soil Science	Animal Science	Agricultural Machinery and Power
Agricultural Supplies:				
Management and Sales	high	high	high	low
Service	some	high	low	high
Agricultural Machinery:				
Management and Sales	high	high	some	high
Service	low	high	some	high
Ornamental Horticulture:				
Management and Sales	high	high	low	some
Service	low	high	low	high
Meat, Milk, and Eggs:				
Management and Sales	high	low	high	low
Service	low	low	high	some

[1]Source: Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

Incorporating Content Objectives with Learner Experience

The task of any educator, indeed the charge to this Seminar, is the development of evaluation techniques which accurately measure a student's progress toward objectives. The preceding information attempted to develop a rationale, an approach for systematically ordering instructional content relative to specific agricultural occupations. Principles of plant

[17]Job Title Profiles in Off-Farm Agricultural Occupations. 66 pp. Vocational Research Coordinating Unit, Oklahoma State University, 1966.

[18]Stevens, Glenn Z. "Supporting Education Among Vocational Programs," The Agricultural Education Magazine, 38: 256-257, May, 1966.

and animal growth pervade all agricultural occupations. Bloom[19] suggests, "Integrative threads based on major topics, ideas, and theories in a subject field tend to yield the organization of the phenomena which seems most sensible to the teacher."

The reader will recall the notation with proposition three suggesting that extent of application has a great deal to do with learning agricultural information. The context in which knowledge is acquired forms the attitudes and feelings surrounding this knowledge. Dewey[20] recognized the inter-relationship between method and subject matter. He preferred to speak of interaction between an organism and the environment as a single event. Method and goal can not be separated!

Student reactions to classroom instruction depend on past experiences. A student may be considering the occupational objective he listed at the beginning of the year while he is acting the part of an agricultural chemical salesman in a role-playing situation in class.

Consequently, Tyler[21] suggests that education is a process of changing the behavior patterns of people. This is using behavior in the broad sense to include thinking and feeling as well as overt action. Without separating content objectives from attitudinal objectives, behavioral objectives can be written to identify criterion student performance. As illustrated in Figure 4, objectives can be stated in operational terms. A statement of the objective should include both the kind of behavior to be developed in the student and the substantive area in which this behavior is to operate.[22] Behavioral statements of objectives, with implications for both the cognitive and affective domain, become the evaluative criteria for units of instruction or agricultural programs.

The Center report[23] lists the occupational titles needing the greatest number of new employees during the next five years:

Agricultural Machinery Mechanic	Greenhouse Grower
Agricultural Machinery Mechanic Helper	Greenhouse Worker
Agricultural Machinery Set-up Man	Nursery Worker
Agricultural Machinery Salesman	Greenkeeper
Agricultural Machinery Partsman	Groundskeeper
Agricultural Supplies Salesman	Food Products Processman
Agricultural Supplies Serviceman	Food Products Salesman
Agricultural Supplies Deliveryman	Food Products Department Manager

The behavioral objectives for these occupational titles remain to be specified. The Illinois study of off-farm agricultural occupations came very close to this approach when it asked employers what their employees needed to know to perform certain activities in the business.

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[19]Bloom, B. S. "Ideas, Problems, and Methods of Inquire," The Integration of Educational Experiences, pp. 84-104. Fifty-seventh Yearbook of the National Society for the Study of Education, Part III. Chicago: The University of Chicago Press, 1958.

[20]Dewey, John. "In Defense of the Theory of Inquire," (1949) in John Dewey on Experience, Nature, and Freedom. Richard Bernstein (ed.) 1960. New York: The Liberal Press.

[21]Tyler, R. W. Basic Principles of Curriculum and Instruction. 83 pp. Syllabus for Education 305, Chicago: The University of Chicago Press, 1950.

[22]Ibid.

[23]Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

Figure 4. EDUCATIONAL OBJECTIVE SPECIFICATION FORMAT FOR AGRICULTURAL OCCUPATIONS

Statements of Objectives (Examples)

Occupational Needs	Operationally Defined	Cognitive Domain	Affective Domain
Agricultural Mechanization	to explain the merits of a diesel tractor	What efficiencies are gained with a diesel tractor on large tracts of land?	The student must appreciate the qualities and limits of a diesel tractor.
Horticulture	to identify a Pfitzer Juniper	The student must know the descriptive characteristics of a Pfitzer Juniper	The student must believe it is important to identify this plant and be able to communicate its usefulness in a landscape design.
Feed Supply Store	to mix the correct amounts of antibiotics in a pig starter ration	The student must either know the correct amounts or be able to use a manual to determine the correct amounts.	The student ought to enjoy being precise and exact with measurements.

If objectives are stated in operational terms, they become evaluation criteria!

The evaluation of program planning for agricultural occupations becomes more comprehensive and correspondingly more difficult than individual student evaluation. The manner in which the teacher instructs the class affects the attitudes as well as the knowledge of the students. The sequence of events used to teach a concept must be an efficient one. The interaction between the student and the internal conditions in the environment should be planned to achieve the stated educational objective. Tyler[24] suggests some general principles for selecting learning experiences:

1. The student should have an opportunity to practice the kind of behavior implied by the objective.

2. The student should obtain satisfactions from carrying on the kind of behavior implied by the objective.

[24]Tyler, R. W. Basic Principles of Curriculum and Instruction. 83 pp. Syllabus for Education 305, Chicago: The University of Chicago Press, 1950.

3. The reactions desired in the experience should be within the range of possibility for the students involved.

4. Many particular experiences can be used to attain the same educational objective.

5. The same learning experience will usually bring about several educational outcomes.

Educators must always be aware of the individual needs of students when planning group instruction. All students do not start at the same place when learning additional information. Definite stages in the learning process exist. Although Krathwohl[25] relates the following comment to the affective domain, many of the same student learning processes occur in the concept attainment of new knowledge:

> . . . the clearer it became that a continuum might be derived by appropriately ordering them. Thus the continuum progressed from a level at which the individual is merely aware of a phenomenon, being able to perceive it. At a next level he is willing to attend to phenomena. At the next level he responds to the phenomena with a positive feeling. Eventually he may feel strongly enough to go out of his way to respond. At some point in the process he conceptualizes his behavior and feelings and organizes these conceptualizations into a structure. This structure grows in complexity as it becomes his life outlook.

This paper has attempted to develop a rationale for unifying agricultural occupations along a continuum of plant and animal growth principles. This continuum can be expanded into attributes identifying agricultural occupations.

The second purpose of this position paper has been the delineation of guidelines for educational objective construction leading to statements of substantive objectives specified in behavioral outcomes. Occupational needs of the agricultural industry ought to be merged with the development of agribusiness abilities within vocational agriculture students. Methods of instruction and the consequent statement of behavior objectives will always vary with the ability levels of the students and the particular conditions of the environment. Writing criterial objectives for agricultural occupations continues to require astute observation of industry phenomena and measurement techniques to assess the student's progress toward the substantive goal.

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[25]Krathwohl, D. R., D. S. Bloom, B. B. Masia. Taxonomy of Educational Objectives Handbook II: Affective Domain. New York: David McKay Company, Inc., 1964.

VT 000 430

VT 000 430
Shontz, David F.
Objectives for Vocational and Technical Education in Agriculture. Objective 3, To Develop an Understanding of and Appreciation for Career Opportunities in Agriculture and the Preparation Needed to Enter and Progress in Agricultural Occupations.

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Pub Date - 66 8p.; Paper in "Report of a National Seminar, Evaluation and Program Planning in Agricultural Education" (The Ohio State University, July 27-30, 1964).

*EDUCATIONAL OBJECTIVES; *VOCATIONAL AGRICULTURE; *CAREER OPPORTUNITIES; *SPEECHES
*NATIONAL SEMINAR ON EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION

Any measure of program success in agricultural education must be in terms of its enhancement of human capacities. It must be considered in terms which identify the people concerned, the kind of behavior or action to be accomplished, and the content or problem area in which this behabior or action is to operate. Objectives which contribute to this are: (1) Understand and appreciate the importance of agriculture, (2) Determine types and numbers of occupational opportunities, (3) Evaluate information concerning occupations, (4) Relate occupational information to personal characteristics, aptitudes, and interests, (5) Obtain exploratory work experience under supervision, and (6) Continue education to advance in the occupation. Other areas that merit consideration are programs for the disadvantaged, broadened objectives, vocational exploration in the elementary school, and objectives based upon the needs expressed by youth and adults. The report of the national seminar is available as ED 011 037. (EM)

ED027441

REPORT

OF

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING

IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The Ohio State University

Columbus, Ohio

AT 00430

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 3: To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.

Vocational and Technical Education in Agriculture has reached a stage of development when the achievements of the past are not entirely adequate guides for identifying the opportunities of the future or for indicating how they might be realized. This is a time of transition, in which one of the basic problems is to implement the currently accepted objectives for the future; at the same time, it is essential to maintain that degree of flexibility required in order to adjust to more desirable objectives that are certain to appear in the future.

Dr. Grant Venn, recently appointed Assistant Commissioner, Bureau of Adult and Vocational Education, U. S. Office of Education, certainly had change in mind when he stated:

> I think we have to have a new concept of occupational education. The nature of work has changed so much that we can no longer think of vocational, or technical, or occupational education, as the teaching of a set of basic skills which the individual learns and then is prepared for a place in the work world. This is simply not going to be true because the average person is likely to change jobs during his work life four or five times . . . .

Along with training for these different skills,

> . . . it seems to me that we must be teaching civic understanding and personal understanding and how to get along with one another.[1]

During the past few years much has been written concerning the impact of automation upon employment in our society. Unfortunately, there are no current lucid estimates of the rate at which automation may eliminate jobs in the future. Some predications like those of Ralph Bellman, a computer expert for the Rand Corporation, indicate that:

> Two percent of the population--by implication the two percent at the upper administrative and executive levels--will in the discernible future be able to produce all the goods and services needed to feed, clothe, and run our society with the aid of machines.[2]

At the present time, there is no way of determining if Mr. Bellman's predictions are entirely correct or, if so, how rapidly they may occur.

However, on the basis of what is already known about the scientific and technological revolution it is apparent that there will be numerous employment adjustment problems in the years ahead. Education will have to become much more deeply concerned with the resolution of many of these problems. Somewhat more than two years ago, the late Adlai Stevenson recognized the central role of education in a world of automation when he stated:

> . . . It is the educator, not the engineer, not the businessman, not the union official, not the bureaucrat, who must tell us how to keep our youngsters in school to prepare them for a productive life.[2]

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[1]Venn, G. Needed: A New Relationship Between Education and Work. Speech presented at Kent State University. 1964.

[2]Childs, G. B. Is the Work Ethic Realistic in an Age of Automation? Phi Delta Kappan, Vol. XLVI, No. 8. April, 1965.

Despite the fact that not all the best Agricultural Education objectives or alternatives for the years ahead may be currently known, our task is to examine the present agreed-upon major objectives, each of which has somewhat distinctive, though related, characteristics and several contributory goals.

It has been frequently stated that our present objectives are projected into a future in which change will inevitably occur. Because of this fact, we should be appreciative that today there are creative and innovative elements at work in the field of Agricultural Education. This is an indication that we are dealing with a growing organism that has vigorous, deeply penetrating roots. I trust that this is also an indication that we have already passed the stage of just trying to avoid obsolescence, and that we are ready to explore and evaluate the essential choices for the most fruitful development of the entire program.

As we concern ourselves with the most effective ways in which Vocational Education in Agriculture can make the best contribution to the youth and adults of our nation and to the societies in which they live, no doubt many additional suggestions will emerge from the group that can help to determine methods of measuring the feasible rates of growth, along the directional paths indicated by the major objectives.

These objectives and their implications all cluster around a central point. That focal point or idea indicates that any measure of success of the Agricultural Education Program must be in terms of its enhancement of human capacities. It is the individual who is being educated. The suggestion has been made, therefore, that we should ask ourselves the following questions: Are we educating and/or re-educating the individual for participation in a changing world of work? Are we striving to produce the informed citizen in a free society? Are we attempting to aid individual growth and fulfillment? In real terms, the test of the success of any educational program will be the quality and the development of its participants and graduates and the contributions they can make to society.

The present objectives may not entirely satisfy everyone concerned, but I believe they do reflect a sound philosophy of Vocational and Technical Education in Agriculture and its relationship to secondary, post-high school and adult education. It will now be up to the personnel engaged in Agricultural Education to select and organize learning activities to develop the objectives, utilizing appropriate principles of learning. As we approach our task, we must not lose sight of the fact that we have an obligation to start serving our clientele at the stage where they <u>now</u> are and not at the place where we <u>wish</u> them to be.

In order to determine how effective educators have been in fulfilling the objectives of a program, it is obvious that the objectives must be clearly understood. One suggestion that may be of value is to think of objectives in terms which identify the people concerned, the kind of behavior or action to be accomplished, and the content or problem area in which this behavior or action is to operate. In examining the contributory goals under major objective number three, it becomes evident that career understandings, appreciations and implications are very important considerations for all students.

<u>Contributory Objective #1</u>

> "Understand and appreciate the importance of agriculture to the Nation's economy and its impact upon the daily lives of all citizens."

The agricultural industry in America today is certainly of a complex, diversified and changing nature. If we are going to assist youth and adults to develop an understanding of, and appreciation for career opportunities in agriculture it would appear pertinent that we must aid them in comprehending important concepts and salient information about agriculture including: meaning of basic terms; interrelatedness and complexity; importance of agriculture and its effect upon the entire American economy; recognition that education is an investment and that both general and vocational education are essential if individuals are to become competent in the agricultural field; student awareness that educational programs are designed to meet the changing needs of individuals and of the agricultural industry; students' knowledge of the reasons for the efficiency of modern agriculture; and that agriculture is a growth industry.

Contributory Objective #2

"Determine the types and numbers of occupational opportunities in agriculture."

High school students and many adults often have numerous misconceptions and quite generally a lack of information concerning agricultural occupations. This is understandable because in many communities, these individuals have had little, if any, exposure to information concerning opportunities in non-professional or professional off-farm agricultural occupations. Consequently, these people need to be given the opportunity to understand and appreciate: both on-farm and off-farm agricultural occupations; occupational families and specific occupations or how and why agricultural occupations are classified; types and number of jobs available in each of the major fields annually; characteristics of the jobs; abilities or competencies required; beginning salaries; entry and advancement opportunities; prospects of satisfaction; and the importance of education and training.

Fortunately, many states have now completed partial or statewide surveys which furnish essential information about the available employment opportunities in the off-farm agricultural occupations. This information should certainly be of value in occupational guidance work.

Despite the recent emphasis upon guidance in many of our schools, most youth have actually received little occupational or vocational guidance. In the Journal of Educational Research, Powell and Bloom emphasized:

> Youth are frustrated in the intelligent selection of a vocation because they do not have adequate vocational information; --adolescents have had little vocational counseling; and they are inhibited in establishing long-range vocational objectives because they have not had sufficient professional help.[3]

These comments certainly point to a definite need for more vocational orientation for youth.

Contributory Objective #3

"Evaluate information concerning agricultural occupations."

Youth and adults need aid in developing an understanding of the information dealing with various agricultural vocations and their possibilities as well as in securing placement for occupational experience. Schools have a responsibility which they must meet.

High school students and adults want and need additional information concerning the basic education required, entry and advancement, job opportunities, age-range preferred, pay scales, sources of information and professional organizations involved. Rauner, in discussing occupational information and occupational choice, concluded:

> In guiding young people towards wise vocational choices, one of the important things to be determined is how much the individual knows about his chosen occupation, because lack of knowledge implies lack of a realistic approach to this most important act of choice.[4]

Youth and adults must be made aware of the importance of "thinking through" many questions such as the following in connection with career exploration: Who is going to decide what is important to me? (my parents, friends, society, or myself?) What criteria should I use in determining what is important for me? (social status, service to my fellow man, personal satisfaction, spiritual growth, creative opportunities?) What moral or ethical considerations will enter into the determination of my sense of values? (honesty,

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[3] Powell, M. & Bloom, V. Development Of and Reasons For Vocational Choices of Adolescents Through The High School Years. Journal of Educational Research, Vol. 56. No. 3. November, 1962.

[4] Rauner, R. M. Occupational Information and Occupational Choice. Personnel & Guidance Journal 41:4-7. December, 1962.

integrity, courage, perseverance, initiative?) What rewards am I interested in? (money, happiness, excitement, a sense of self-fulfillment?) How can I become a useful, productive, happy citizen?[5]

In appraising information concerning agricultural occupations the youth and adults with whom we work would do well to ask themselves at least the following five questions: When? Where? Who? Why? How?

When was the information published? This is important because of the rapid rate of change in the agricultural field. Where was the research conducted or the information prepared, and is it applicable to my situation? Who was in charge of the research or the information collected? The investigator should be well qualified. Why was the material written? For guidance purposes, entertainment, advertising, or public relations? How were the facts collected, and how were they presented?[6]

These items will aid youth and adults in evaluating information and in studying the agricultural world of work for the purpose of learning what to look for in various occupational areas.

Contributory Objective #4

> "Study pertinent occupational information in relation to personal characteristics, aptitudes, and interests."

For instruction to be effective, students must be able to discern the relationship between what they are studying and their occupational goals. They must understand how vocational education in agriculture can help in making career choices and in becoming established in those careers. This should lead each student to assess his individual characteristics and to discover his interests and abilities and relate them to the agricultural industry. The emphasis should be on the students' looking at themselves to determine their interests, abilities, likes and dislikes, and to determine whether they have "anything in common" with the agricultural industry.[7] An individual's thinking should be guided towards matching his personal qualities with the qualitied needed in various occupations.

The teacher of agriculture has the responsibility of bringing his students to view their educational and vocational decisions as a means-to-an-end chain; that which is an end now, may become a means for a later goal. Perhaps then occupational information will become more meaningful to the student and his behavior may become more purposeful.

In order for teachers of agriculture to do an effective job with youth and adults a considerable amount of background preparation is required. Pre-service and in-service education must stress understandings and appreciations of occupational guidance information. Prospective and employed teachers should become acquainted with research findings in the field and make use of information such as indicated in the next few paragraphs.

Many investigations reported in the literature have been concerned with the relationships between early student experiences, and attitudes, abilities, interests, and other personality factors which affect the ultimate vocational selection of the individual. Most of these studies agree that meeting a student's basic needs must be a first consideration. Maslow's theory states that higher order needs cannot appear until lower order needs are at least relatively well satisfied. These basic needs include physiological needs, safety needs, need for belongingness and love, importance, respect, self-esteem, independence, information, understanding, beauty, and self-actualization.[8]

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[5]Stern, B. H. What Happens to Rejected College Applicants? Journal of Higher Education 33:7. October, 1962.

[6]Hoppock, R. Occupational Information. New York: McGraw-Hill Book Co., Inc., 1963.

[7]Weyant, J. T., Hoover, N. K., and McClay, D. R. An Introduction to Agricultural Business and Industry. Danville, Illinois: The Interstate. 1965.

[8]Roe, A. Early Determinants of Vocational Choice. Journal of Counseling Psychology. Vol. 4, No. 3.

Tiedeman's article in the Personnel and Guidance Journal suggests:

> Vocational development is self-development viewed in relation with choice, entry, and progress in educational and vocational pursuits. It is a process occurring over time to man who is capable of anticipation, experience, evaluation, and memory. . .vocational development ordinarily occurs within the context of several decisions.[9]

In a discussion in the Journal of Counseling Psychology, Holland proposes:

> . . . at the time of vocational choice the person is the product of the interaction of his particular heredity with a variety of cultural and personal forces including peers, parents, and significant adults, his social class, American culture, and the physical environment. Out of this experience the person develops a hierarchy of preferred methods for dealing with environmental tasks. . .the person making a vocational choice in a sense "searches" for situations which satisfy his hierarchy of adjustment orientations.[10]

In the current issue of the Occupational Outlook Handbook, Dr. Francis Keppel, until recently Assistant Secretary of Health, Education and Welfare, states:

> The individual realizes his highest occupational potential when he develops a career suitable for him and useful to society. He must be cognizant of his abilities, aptitudes, interests, and personality traits and he must also learn about a world of work characterized by changes. Accurate knowledge of both sets of facts greatly increases the probability that an individual will be able to find and maintain his proper place in this vast and evolving occupational complex.[11]

To guard against oversimplification of a complicated procedure, let us help students to think of occupational choice as an extended developmental process resulting from a series of interrelated decisions rather than as a single choice.

Contributory Objective #5

"Obtain exploratory work experiences in selected occupations under proper supervision."

Since the inception of the vocational education program on a national basis, some form of occupational experience has been considered essential for all students. As has already been pointed out, agriculture is undergoing a complex scientific and technological revolution which is creating a need for more highly trained workers. New opportunities in agricultural occupations are being found in various fields including marketing and processing of food and fiber, in supplying machinery and equipment, and in providing technical and professional agricultural services.

Youth and adults often know little about either non-farm agricultural occupations or the vast world of work. They must be made aware of the types and values of occupational experiences in agricultural businesses and industries, as well as on farms and in school laboratories, in order to assist them to locate and develop broad areas of agricultural interests.

Exploratory occupational experiences, under proper supervision, should enhance each student's background of occupational information and understanding of the important factors influencing occupations, thus enabling him to develop desirable and satisfying plans for the future. Supervision of these students will aid the teacher in realizing the many ways in which occupations are changing and will emphasize the need for flexibility in student career planning.

Among the guiding principles to follow in the organization and operation of an educational program for agricultural occupations, Fuller suggests that agricultural experience programs:

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[9]Tiedeman, D. V. Decision and Vocational Development. Personnel and Guidance Journal. Vol. 40. September, 1961.

[10]Holland, J. L. A Theory of Vocational Choice. Journal of Counseling Psychology, Vol. 6. No. 1.

[11]U. S. Department of Labor. Occupational Outlook Handbook. Bul. 1450,1966-67 edition. Washington, D. C.: Superintendent of Documents.

1. May include situations that provide learning through (a) employment, (b) observation, and (c) supplementary experience in agriculturally oriented firms.

2. Should emphasize education rather than the "work for pay" motive.

3. Should include a basic core of experiences which relate to units of instruction in the course outline.

4. Should be planned cooperatively by the teacher, pupil, employer, and parents.

5. Should be supervised by a teacher of agriculture.[12]

Exploratory occupational experiences can serve as one means of attempting to overcome at least some of the waste of human resources within our economy. This will involve more flexible educational programs and more meaningful individual counseling. Lester of Georgia suggests:

> Intensification of the development of human resources must be forthcoming by providing unlimited opportunities for youth and adults to gain the education, skills, and experience necessary to become full participants in our society and stable citizens in the years to come.[13]

Contributory Objective #6

"Appreciate the need for pursuing a program of continuing education to keep abreast of and advance in the occupation."

Ross, the U. S. Commissioner of Labor Statistics recently stated:

> . . . In the face of the current revolution in science and technology as well as in economic and social patterns, the occupational needs of our Nation are changing rapidly. The rate of change seems to accelerate with each new scientific and social development until occupational guidance in career planning and training has become critical.[14]

For several years, it has been increasingly clear that the average worker will change jobs several times during his productive life. Mason and Haines in their recent publication state:

> Although jobs may change, a worker who has mastered the skills of a trade or occupation and who has kept himself abreast of new techniques and developments can reasonably expect to continue in his trade throughout his working life.[15]

Education must be considered a life-long process. We need to provide youth and adults with a solid foundation of occupational experiences and make them aware of their responsibilities for their own self-development if they are to continue to be well-informed about occupations. If our Nation is to cope with occupational change, continuing guidance and continuing educational opportunities must be provided.

Adults, like youth, have areas of need which should be considered in relation to the following statement by Havighurst:

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[12]Fuller, G. R. Education for Agricultural Occupations. Danville, Illinois: The Interstate Printers & Publishers, 1965.

[13]Lester, H. T., Jr. A Guide to Occupational Areas. College of Education, University of Georgia and Division of Vocational Education, State Department of Education, Atlanta, Georgia. 1965.

[14]U. S. Department of Labor. Occupational Outlook Handbook. Bul. 1450, 1966-67 edition. Washington, D. C.: Superintendent of Documents.

[15]Mason, R. E. and Haines, P. G. Cooperative Occupational Education and Work Experience in the Curriculum. Danville, Illinois: The Interstate Printers & Publishers, 1965.

> The most profound educational change of this century is a change of attitude which no longer regards education as essentially preparatory but regards education as essentially a way of meeting the demands and aspirations of the present period of one's life.[16]

Agricultural Education programs must therefore not only provide training in broad areas but also for a sequence of employment opportunities during one's lifetime.

As we examine the stated objectives for Vocational and Technical Education in Agriculture, it is only natural that questions will arise concerning items that need clarification or that have been omitted. The following questions indicate some areas that may merit further consideration:

1. Are the current objectives suitable for programs for the disadvantaged?

2. Should the present objectives be broadened or liberalized?

3. Should we encourage vocational exploration in the elementary school?

4. Are the current objectives based upon the needs expressed by youth and adults?

The program in Vocational and Technical Education in Agriculture must expand and change just as education and agriculture will develop and change. Perhaps the one thing that must remain unchanged is the personal commitment of those engaged in Agricultural Education to provide the educational leadership each generation needs in order to cope with its own problems and opportunities.

Many years ago Evan Pugh, a pioneer educator, made the following statement:

> We too must have a vision, a recognition of opportunity--an acceptance of responsibility--a realization of need--and a sure sense of direction for the future.[17]

It seems to me that this statement has much significance for Agricultural Educators today.

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[16] Havighurst, R. J. Changing Status and Roles During Adult Life: Significance for Adult Education. Sociological Backgrounds of Adult Education. Center for the Study of Liberal Education, Chicago, 1964.

[17] A Vision of Greatness. (Pugh, Evan--a pioneer educator) Pennsylvania State University, University Park, Pennsylvania.

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Halterman, Jerry J.
Objectives for Vocational and Technical Education in Agriculture. Objective 4, To Develop the Ability to Secure Satisfactory Placement and to Advance in an Agricultural Occupation Through a Program of Continuing Education.

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Pub Date - 66 8p.; Paper in "Report of a National Seminar, Evaluation and Program Planning in Agricultural Education" (The Ohio State University, July 27-30, 1964).

*JOB PLACEMENT; *SPEECHES; *VOCATIONAL AGRICULTURE; *EDUCATIONAL OBJECTIVES; PROGRAM EVALUATION; AGRICULTURAL OCCUPATIONS; *ADULT VOCATIONAL EDUCATION; EMPLOYMENT OPPORTUNITIES
*NATIONAL SEMINARS ON EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION

The objective concerning satisfactory placement and subsequent advancement in an agricultural occupation implies that the qualification of the student and the requirements of a position are in congruence and that the level of employee performance is acceptable to employers. It is the responsibility of vocational and technical educators to measure how well the educational programs are meeting these conditions. Followup records seem requisite to such a measurement. Evidences are needed which will reflect information in sufficient detail so that efficiency measures can be made of various phases of the program. Valid occupational opportunity and job requirement information resulting from changes in agriculture is essential to program development. Persons needed in agriculture can be identified according to their specialized training, distinctive abilities, and level of occupational competence. A continuum of level-of-occupational preparation is suggested for meeting the needs of technologically oriented agricultural occupations. Efficiency of training for level-of-competence can be evaluated by the use of classification guides and job analyses. Evaluation should not only provide information necessary for adjusting, modifying, or extending current programs to meet changing agricultural demands but also for the continuing education of workers. Vocational and technical education must provide for experiences helpful to the student in the areas of available resources, application for employment, self-employment, job opportunities, continuing education, and progress and advancement. The report of the national seminar is available as ED 011 037. (JM)

ED027441

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

July 27 - 30, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Ohio State University

Columbus, Ohio

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OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

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OBJECTIVE 4: To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.

Objective number four as stated in the new publication Objectives for Vocational and Technical Education in Agriculture is "to develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education." Listed as being foremost among contributory objectives are the abilities to:

(1) Utilize the services of appropriate agencies and organizations in locating and securing satisfactory employment

(2) Analyze opportunities for self-employment

(3) Analyze job opportunities and requirements, and assess personal abilities and interests in terms of these requirements

(4) Apply for employment and participate in employment interviews

(5) Plan and pursue a program of continuing education appropriate to the requirements of the vocation

(6) Make satisfactory progress and advancement in an occupation

Considered in their fullest context, these objectives are concerned with the extent which candidates of vocational and technical education programs are able to make a contribution to the world of work for which they are prepared. Any review of these goals requires that we focus our attention upon the nature of the enterprise we are engaged in. Hopefully, our examination of these objectives here today will serve as the basis for the development of "criteria for evaluation" of this and related topics by Seminar participants during the next few days. An effort will be made to highlight implications derived from these statements which seem to be pertinent to the process of evaluation.

Main Objective of Vocational and Technical Education

The culmination of all educational efforts in vocational and technical education is the satisfactory placement and subsequent successful tenure and advancement of students in occupations for which they are qualified. As educators, we ought to remind ourselves that the main objective intent of students of vocational and technical education is successful entry and advancement in an agricultural occupation. Admittedly, other important goals are reached as a result of experiences gained in a program of vocational and technical education, but such programs usually succeed or fail in proportion to the accomplishment realized in preparation for the world of work. In keeping with the theme of the Seminar, it may not be too redundant to observe that ours (vocational and technical educators) is the responsibility to really measure how well we have done in conducting programs of vocational and technical education.

The satisfactory placement and subsequent advancement in an occupational position in agriculture implies at least two things. (1) The qualifications of the student and the requirements of an occupational position are very much in congruence; and (2) the level of performance by the employee is acceptable to employer. In short, perhaps more than anything

else, successful entry means qualification by preparation and advancement means qualification by performance.

Implications for Evaluation--Although all aspects which surround the educational enterprise have a bearing upon the successful realization of this goal, such an objective, considered in its broadest terms, can be evaluated best in terms of overall results and outcomes. Follow-up records of those who terminate their enrollment in the training program, regardless of the reason, seem requisite to such a measurement. Follow-up studies of former students conducted every two to five years and interviews with employers are other ways to secure information useful in making this evaluation.

Evaluation of Objective 4

To accomplish the task which is before us, if we accept the responsibility that is ours to really measure how well we have done in conducting programs of vocational education, presumes we know what we are supposed to be doing both in terms of conducting educational programs and also in evaluating our efforts and accomplishments.

As we look at the process of evaluation, we are concerned not only with the overall program of vocational and technical education in agriculture as it has been structured for each local state or school--including ways and means--but also in what happens to students in terms of outcomes and results which have been attained. The need for acceptable standards of performance required for effective measurement can be noted here. At the beginning of program planning, expected outcomes need to be carefully analyzed to determine the type of evidence which would indicate objectives are being realized. Methods can be developed for securing evidence which reveals the degree to which the outcomes are attained.

Implications for Evaluation--Objective four deals with the deployment and success of the product of vocational and technical education--i.e., students prepared for the world of work. Evidences are needed which will reflect information in sufficient detail in order that efficiency measurements can be made of various phases of the entire program. Not only is it necessary to measure student achievement but the teaching process, the organizational structure of the program, the role of the supportive services and organizations, and the involvement of the administrative core in the agricultural education program must be evaluated.

Occupational Opportunities

If we, as educators, accept that the controlling purpose of vocational and technical education is to fit persons for gainful employment and that it is incumbent upon us to provide training and retraining for youths and adults which is realistic in light of actual or anticipated opportunities for employment, then it follows that it is necessary for us to be knowledgeable concerning occupational opportunities in agriculture and the requirements of the agricultural manpower force.

Brief mention of a few trends and some of the dynamics of the present situation will serve to point up the challenge before us.

(1) Increased research activity on the part of private and public agencies has resulted in a veritable technological explosion in agriculture. Technical and scientific knowledge is being accumulated at such a rate that it is impossible for practitioners to make use of such information at any early time.

(2) Increased applications of science to agriculture and the recognition of the biophysical scientific base of agriculture technology has broadened all fields of agricultural endeavor--production, processing, transporting, and marketing.

(3) Greater sophistication and increased complexity of occupations at all levels has resulted in demands on education not heretofore experienced. Shortages of manpower in various categories has been critical. The shift to "know why" as well as "know how" is most pronounced.

(4) Increased urbanization has resulted in and contributed to the movement off the farm of many of the traditional agricultural activities. New agricultural occupations have emerged in the distribution, processing, and service areas.

(5) The rate of technological change in agricultural occupations makes it necessary to continue occupational training throughout the worker's career.

Implications for Evaluation--The instructors are primarily responsible for developing the program in agricultural education at the local level. Valid information regarding occupational opportunities and job requirements is essential to the development of sound vocational and technical education programs. The continual and far-reaching changes which take place in agriculture and the attendant modification in the occupational opportunities in the work force which serves agriculture impose a number of requirements upon the educational enterprise. Instructors, guidance counselors, and professional placement personnel can fulfill their responsibilities in making the student aware of opportunities to the extent that valid occupational information which reflects these requirements is available.

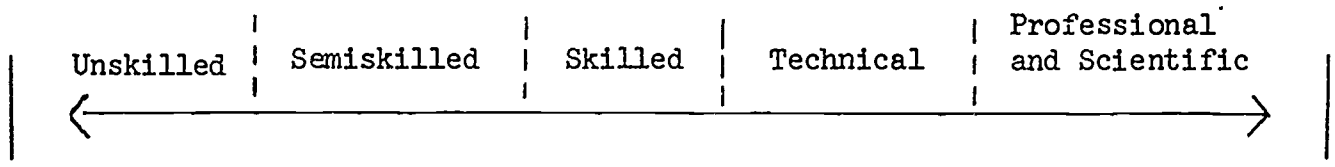
Level-of-Occupational Preparation

The agricultural manpower force of the nation is dynamic, changeable, and fluid-reacting to forces occasioned by technological advances and exerted throughout all segments of agriculture. Historically, the emphasis has been to increase efficiency of production through adoption of technological innovation. The labor spotlight was first upon the unskilled worker who transformed the vast untapped resources of a new nation into a level of production potential sufficient to anchor the nation well for its future role. Next, the artisans, craftsmen, and skilled workers who adapted and prepared themselves for the mechanical age in agriculture were men of the hour. In recent years, the impact of the atomic and space age has required that attention be focused upon a worker oriented toward technological techniques and processes typically used in automation and remote control systems. Dean and McCorkle predict this high specialization of services will continue in the metamorphosis of the nation's manpower force "use by management of specialists and technicians is widespread in agriculture and will continue to increase . . ., the impact of integration has stimulated the specialization of services in production, processing and marketing."[1]

Almost taken for granted is the role of the scientist and professional worker whose research and investigation into the frontiers of new knowledge make possible the technological advancement.

Persons needed in the agricultural work force can be identified according to their specialized training, distinctive abilities, and level of occupational competence. A continuum of level-of-occupational preparation is suggested.

Level-of-Occupational Preparation Continuum



Placement of workers on this scale is accomplished by means of the following classification guide:

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[1]Gerald W. Dean and Chester O. McCorkle, Jr., Projections Relating to California Agriculture in 1975, Bulletin 778, California Agricultural Experiment Station (Berkeley: University of California, 1961), p. 45.

Professional Level

That preparation and/or experience for occupations requiring a high degree of mental activity. This generally requires an academic background of several years of formal education in organized courses concerned with theoretical and practical aspects of complex fields of human endeavor, culminating in a baccalaureate or higher degree. A license, registration, or certification is normally needed. Examples include agricultural engineers, soil chemists, plant pathologists, and animal nutritionists.

Technical Level

That preparation and/or experience for occupations requiring both cognitive (know why) and manipulative (know how) abilities, theoretical and practical understandings, and a high level of job competence; technical preparation normally acquired in specialized post-high school training programs; generally considered as semi-professional preparation to prepare persons to bridge the gap between skilled workers and professional personnel. Examples include surveyor aids, draftsmen, engineering technicians, and sales technicians.

Skilled Level

That preparation and/or experience for occupations requiring crafts and manual skills, a comprehensive knowledge of work processes, and a high degree of manual dexterity learned to a great extent through work experience and apprenticeship periods. Examples include agricultural mechanics, and plant propagators.

Semi-Skilled Level

That preparation and/or experience for occupations requiring the exercise of manipulative ability of a fairly high order, but limited to a fairly well defined work routine; typically an operative type activity with the major work reliance upon vigilance and alertness, in situations in which lapses in performances would cause extensive damage to product or equipment. Examples include operators of field crops cultivators, orchard sprayers, harvesting equipment, and pruners.

Unskilled Level

No formal training or experience required. Work performed is predominantly manual, requiring performance of simple duties that may be learned within a short period of time and which require the exercise of little or no independent judgment. Examples include fruit and vegetable pickers, truck loaders, parts washers, and farm hands.

It should be pointed out that it is not uncommon for tasks once performed by workers qualified at a particular level-of-occupational preparation to be performed at another time by a person qualified at a higher level. This mobility of tasks is primarily in an upward direction with the result being more and higher qualified workers are needed.

The National Committee which rewrote monograph No. 21, revised, has suggested under objective 4 that an increasing number of agricultural occupations require technical or professional education. Further the Committee states that "for students who desire placement at these levels, courses in high school designed to develop vocational competence, supported by other selected subjects, make up a desirable pre-technical or pre-professional program of instruction. Such preparation develops attitudes and abilities which enable the student to complete technical and professional programs successfully."

This position is entirely defensible and justifiable. One of the most interesting aspects accorded to the so-called "Richmond Plan" by Nathan Miller in PTA, April, 1966, was the unique departures from conventional teaching. Author Miller cites two noteworthy approaches in this California plan for vocational education: (1) The courses are pre-technical in title and in nature. A mid-road preparation on the American educational scene is intended--preparation for further training in the vast and expanding field of technology

and even perhaps transfer to a four-year college. Alleged is that students have in mind to be something all through the schooling experience, that they can see what the aim of the program is merely by reading want ads; and (2) an interdisciplinary approach is used and lessons in various subject matter areas are taught over the entire range of class experience. This approach gives the student a reason that he can understand for studying, and then the approach arranges his curriculum so that this reason runs through all his courses.

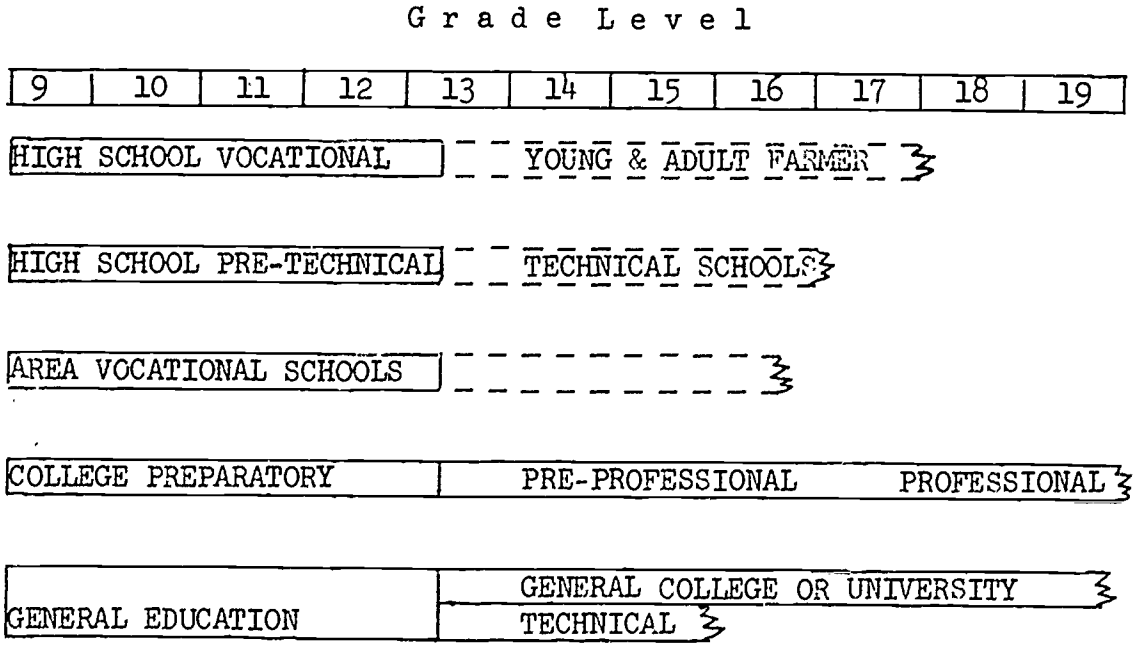
I thought to myself as I read this account--an excellent report of some of the agricultural programs which have been in operation for a number of years.

However, on the other hand, let us examine whether or not we are guilty of some of the allegations directed against vocational education. Edward T. Chase, a leading expert on automation and youth employment, says "that if you visit any vocational school you will find its program incredibly irrelevant to the facts of work in the 1960's. The biggest failure of American education is the way it is turning millions of young people into unemployables." Grant Venn, in his Man, Education and Work, points out (1) that vocational education students are often dropouts of the academic curriculum, and (2) too often vocational education courses do not teach the skills that modern industry wants. Of course these are serious allegations and I suspect they are more valid for some programs in vocational and technical education in agriculture than we are willing to admit. Hopefully, evaluation will reveal weaknesses in regards to these matters if the criteria can be developed which will properly reflect our performance.

Implication for Evaluation--The dynamic nature of agricultural occupations requires that close attention be given to the nature of the work force and that educational programs be adjusted to satisfy these needs. Evaluation procedures should be used to ascertain the level of accomplishment in this regard. Two approaches can be used: (1) the use of a classification guide regarding level-of-occupational preparation; and (2) the use of occupational guides and job descriptions (job analysis).

VOCATIONAL AND TECHNICAL INSTITUTIONS

A review of the classification guide for level-of-occupational preparation suggests in part at least, the roles of the several educational institutions which serve agriculture education. For many occupations, vocational education in full-time high school classes, followed by part-time enrollment in post-high school classes is sufficient for satisfactory placement and advancement. Students who desire placement in occupations requiring technical or professional education may enroll in high school courses designed to develop vocational competence. A number of patterns for vocational and technical education have evolved. In view of the dynamic nature of agriculture and of our society, diversity, flexibility, and adaptability are needed in all these patterns.



Implication for Evaluation--No single pattern of education can adequately fulfill all of the purposes of vocational and technical education. Evaluation should provide information necessary to adjust, modify, or extend current programs to meet the needs and demands of current technological developments and new social and economic conditions.

Continuing Education

The ability to advance in an agricultural occupation through a program of continuing education suggests that we recognize that agricultural occupations are exceedingly dynamic, that no educational program should be considered as terminal, and that it is important for students to understand that continuous education will be a normal pattern for agricultural workers at all levels.

Daniel Bell, eminent Columbia University sociologist, in his paper, The Post-Industrial Society discusses the matter of occupational preparation and competence of workers and of the sociological implications this phase of education will have on our society in the future. He observes that as technical competence becomes the criteria for status and affluence, groups of "dispossessed" will be created among those who have lost out in the race-- regardless of educational preparation and that educational opportunities for some groups are not likely to keep pace with technological change.

Those of us in Agriculture Education can well afford to ask ourselves--are we likely to be numbered among those groups Dr. Bell mentions? Indeed the challenge is ours, the task of combating occupational obsolescence is one which we must accomplish. Not only is the problem one of maintaining competence but also one of preparing persons for the acceptance of broader responsibilities--including those of leadership and management.

Implication for Evaluation--Educational opportunities should be available for employed persons to be able to reinforce and extend their occupational qualifications. Educational institutions at all levels can help accomplish this through offering intensive short courses, seminars, special problems, conferences, symposiums, post-graduate courses, part-time faculty experiences, and extension courses.

Contributory Objectives

Considered rather specifically, Objective 4 and the six foremost contributory objectives suggested in support of the major objective, have to do with finding answers to questions which a young man, engaged in securing a vocational education, might ask at an early point in his schooling. The following points of inquiry seem to be pertinent:

(1) What is the job to which I aspire really like? What are the elements which surround the job and of which it is composed? What are the occupational requirements of the job--spelled out specifically in terms of physical and managerial skills and abilities?

(2) How well do I qualify for the job I would like to have--at the beginning of the training period; at subsequent intervals during the time of preparation? What is my level of competence in regards to the various skills and abilities identified as necessary for occupational entry and advancement?

(3) How do I go about securing and nailing down the job for which I am or will be qualified and in which I will find the greatest satisfaction?

(4) How can I be sure that I will continue to be occupationally competent regardless of the changes which are sure to occur in a dynamic occupation?

Implications for Evaluation--Vocational and technical education should provide for experiences which will assist students to secure the answers to the foregoing questions. Implied are the following matters for consideration by the teacher.

(1) Resources -- What resources are available for use in helping students locate and secure satisfactory placement? How can these and other resources be developed? How can they be used most effectively? What is now being attempted?

(2) Self employment -- Is there provision made for instruction regarding the analysis of opportunities for self employment? Is the student being provided with every incentive to help perpetuate the great American tradition of freedom of entry in and withdrawal from a personal business venture?

(3) Job opportunities -- Is an effort being made to provide valid occupational information to the student during his entire schooling experience by which he can analyze job opportunities and requirements? Is the student being asked to assess his personal abilities and interests in terms of those required for occupational competence? Are these matters being attended to at an early time in order that adequate preparation can be made? Do we sense that, above all, satisfactory preparation is requisite to satisfactory placement and preparation requires extensive planning.

(4) Application for employment -- Has the student become thoroughly familiarized with the mechanics incident to securing a job? Is the student confident that he knows how to properly conduct himself when seeking a position?

(5) Continuing education -- At least two accomplishments should be realized: (1) the student should understand the importance of planning a program and the benefits which derive therefrom, and (2) he should recognize the need to update and retain occupational competency through a program of continuing education.

(6) Progress and advancement -- To progress and advance in an occupation not only fulfills the expectation of the employer but it results in greater self esteem, dignity and human worth to the individual. Improved personal service, of benefit to all, results from commitment and dedication prompted by recognition of worth and need.

Summary

Gentlemen, the proper evaluation of Objective 4 can result in information which will be exceedingly meaningful to us as we attempt to serve the interests of vocational and technical education in agriculture.

It seems appropriate to conclude this Seminar activity with the remarks of President Johnson upon signing the National Vocational Education Act of 1963:

> "Education is the key to our social and economic and technological and moral progress . . . Modern demands upon labor and industry require new skills and an upgrading of old skills, require more education and greater knowledge . . . Education is the cornerstone of our freedom."

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Loreen, C.O.
Objectives for Vocational and Technical Education in Agriculture. Objective 5, To Develop Those Abilities in Human Relations Which are Essential in Agricultural Occupations.

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*NATIONAL SEMINAR ON EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION

Concern for the development of abilities in human relations is pronounced in training programs for the off-farm agricultural occupations and is related to preparation for successful job entry and advancement. Human relations may be defined as the field of applied sociology which seeks to reduce tensions and antagonisms that may exist or might arise among people. Good communication is essential to human relations and can be taught. Constructive attitudes and appreciation of the dignity of work are important. Training should emphasize the development of other traits such as accuracy, responsibility, dependability, intelligence, and courtesy. Presence of still other traits can determine the degree of success of the employee. Some of these are loyalty, respect for authority, willingness to learn, cooperation, honesty, responsibility, leadership, and morale. How well these are taught depends largely on how well the teacher, by both his instruction and his example, succeeds in developing the whole person for his role in the world of work. To allow teachers to set worthy examples of human relations it is necessary to avoid overburdening them with large classes and extraneous tasks. The report of the national seminar is available as ED 011 037. (JM)

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REPORT

OF

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING

IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

July 27 - 30, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Ohio State University

Columbus, Ohio

VT 00466

OBJECTIVES FOR VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 5: To develop those abilities in human relations which are essential in agricultural occupations

I have been asked to discuss objective Number 5 as a part of our review of all of the objectives as we embark on the development of a program of evaluation. This is Objective 5: To develop those abilities in human relations that are essential in agricultural occupations.

"Human relations" is a new term in vocational agriculture circles. Formerly when vocational agriculture was training for farming, there was less need for attention to human relations. As our society becomes more complex and as we move into the development of training programs for off-farm agricultural occupations, it becomes important to include the concern for human relations in these training programs. The off-farm agricultural occupations are often a part of an industrial type of pattern. These often involve large numbers of employees and a management structure. Here an understanding of human relations becomes a most essential part of management and is, of course, important to employees, too.

Human relations, or interpersonal relations, have not long been of concern to industry. It has only been in recent years that the term has come to prominence. Many circumstances have caused management to assess their obligations and responsibilities to society. Human relations now receive widespread study, attention, and application throughout industry.

A statement made by Robert Wood Johnson, who was chairman of the board of Johnson and Johnson, perhaps represents the general attitude of industry toward its responsibilities:

> The world today is divided by antagonistic philosophies. In great areas the state is supreme and absolute, imposing its rule upon its subjects without their consent. We believe that free men can achieve more than slaves can. But, to implement this ideal, we must accept the responsibilities which go with freedom. We must work together as a team to meet common problems. Cooperation, not antagonism, is the key to achievement. The world is looking to us for an example of what free men can achieve. We cannot fail. The destiny of generations to come is in our hands. We are making history. This is our challenge--and our opportunity.[1]

As we prepare students for the world of work, it is fitting that we place sufficient attention on human relations that they will be able to not only secure employment, but that they may advance in their chosen occupations.

The Importance of Human Relations

Over the years the understanding of human relations has been of tremendous importance to the individual and to society. With the increased complexity of our society, the understanding of human relations rose in importance. Nearly every person, from the time he arises in the morning until he retires at night, interacts with the people in the family, in business, in school.

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[1] Edward C. Bursk, Human Relations for Management (New York: Harper Brothers, 1956), p. 29, quoting Robert Wood Johnson.

Harold M. Byram, in Guidance in Agricultural Education, stated that, "The success of the student throughout the secondary school period and out of school is dependent to a large extent on how well he gets along with the other people."[2]

What do we mean by "human relations?" One definition is: "Human relations is the field of applied sociology which seeks to reduce tensions and antagonisms that might already exist or that might arise among various groups and categories of people in a community."[3]

I also found that human relations is sometimes confined to a consideration of face-to-face interactions between individual men and women in their social environment.

It seems that another term has come into common usage and is closely akin to, if not the same as, human relations. This is "interpersonal relations." It is defined as follows: "Interpersonal relations refers to everything that 'goes on' between one person and another (or others) by way of perception, evaluation, understanding, and mode of reaction."[4]

Human relations seeks to find the best way of achieving desired goals with a minimum of needless conflicts. Basic is the respect for the individual and human dignity. Human relations assumes that each individual has certain needs, but that people differ widely in what they consider important.

Abilities in Human Relations--Communications

It is probably fair to say that schools expend as much effort in an attempt to encourage good communication as to any other single area of study. A youngster is concerned with communication as to any other single area of study. A youngster is concerned with communications from the time he learns to speak until he dies. There are many ways of communicating, but we, as educators, dwell largely upon the written and spoken word. Through communications, we make ourselves understood and are understood by others. When we teach penmanship, spelling, grammar, and organization of themes in the grade school, we are developing tools for good communications. We continue this development through our high schools and colleges with a great deal of opportunity for application and practice. It seems quite obvious that the mechanics of communication can and are being taught.

Let us now take a look at some aspects of communication.

William Albig has observed that:

> Underlying all social processes and all societal forms is the transfer of meaning between individuals. Social life can exist only when meanful symbols are transferred from individual to individual. Group activities of any sort are impossible without a means of sharing experiences. In the terminology of the social studies, the process of transmitting meaningful symbols between individuals is designated as 'communication.'[5]

Wilbur Schram points out that:

> . . . even the simplest one-way type of communication always involves at least a source transmitting a message to a destination.
> A source may be an individual (speaking, writing, drawing, gesturing) or a communication organization (like a newspaper, publishing house, television

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[2]Harold M. Byram, Guidance in Agricultural Education (Danville, Illinois: Interstate Press, 1959), p. 115.

[3]John T. Zadronzy, Dictionary of Social Science (Washington, D. C.: Public Affairs Press).

[4]Edmund H. Volkart, A Dictionary of the Social Sciences (UNESCO: The Free Press of Glencoe).

[5]William Albig, Modern Public Opinion (New York: McGraw Hill, 1956) as quoted in Gordon McCloskey, Education and Public Understanding (New York: Harper and Brothers, 1959) p. 59.

> station, or motion picture studio.) The message may be in the form of ink on paper, sound waves in the air, impulses in an electric current, a wave of the hand, a flag in the air, or any other signal capable of being interpreted meaningfully. The destination may be an individual listening, watching, or reading; or a member of a group, such as a discussion group, a lecture audience, a football crowd, or a mob; or an individual member of the particular group we call the mass audience, such as the reader of a newspaper or a viewer of television.[6]

Let us examine some common barriers to the transmission or receiving of communications.

The student may not have a clear idea of the information to be transmitted. He may lack precise words or pictures for conveying the intended meaning. The receiver of the communication may not be giving proper attention, and, thus, misunderstand the message; or having heard, he may not interpret it correctly because of previous experiences, prejudices, or worries.

Leving and Murphy report an experiment in which they studied two groups of college students; one group of five pro-communists, the other a group of five anti-communists. Both groups read two paragraphs twice. Fifteen minutes later, they were asked to reproduce the paragraph from memory. One of the paragraphs was mildly pro-communist in content; the other was rather bitterly anti-communist.[7]

The investigators were trying to determine whether the attitude of the subjects had any effect on how much and how fast they learned and forgot material which either agreed or disagreed with their attitudinal biases.[8]

The results of this study show that the attitude of the subject does have an effect on learning and forgetting.[9]

This study as well as more indirect evidence and the indications of the same kind of results in several other studies suggests:

(1) People learn and remember more items in a communication which agrees rather than disagrees with their attitude toward the content.

(2) Over a period of time, the learning of agreeable items increases faster than the learning of disagreeable items; and the forgetting of disagreeable items increases faster than the forgetting of agreeable items.

(3) People tend to perceive a communication and its communicator as favoring their point of view, whatever their point of view might be--at least when they don't know the communicator's viewpoint and when the communication gives equal amounts of favorable and unfavorable information on a particular topic.

The findings discussed present a rather discouraging picture to a person who wants to communicate "his side of the story" to others who may already have the "other side." How can he give people information and have them learn both sides of the story equally well? The studies reviewed say that the speaker won't be successful if he simply asks such people to learn the material, for they will learn more on their own side than on the other.[10]

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[6]Wilbur Schram, The Process and Effects of Mass Communication (Urbana: University of Illinois Press, 1955) as quoted by McCloskey, p. 61.

[7]Michigan State University, National Project in Agricultural Communication, Search, IV, No. 4 (April, 1958).

[8]Ibid.

[9]Ibid.

[10]Ibid.

Face-to-face conversations comprise a large part of the messages transmitted and received by most people. This is true, too, in the world of work where most decisions are based on face-to-face discussions and most instructions and agreements are verbal.

"Actions speak louder than words." While actions are sometimes overlooked as messages, we must recognize their value in conveying impressions and influencing feelings. Acts are real and their results are tangible.

This brief discussion of the communications process should serve to underscore its importance.

Turning now from the more general discussion of human relations, I want to discuss some specifics that I believe are closely associated with or are a part of human relations.

Attitudes

Attitudes and attitude development are important considerations of vocational educators. Employers are nearly unanimous in their feeling that the attitude of the worker is a most important factor in his success. Teachers, administrators, and curriculum builders are becoming increasingly aware that educational procedures and curriculum content can and do change attitudes.

We might recall that many have paid tribute to the American public school for its job of Americanizing immigrant children from dozens of nations. Certainly, many attitude changes took place in the process.

Attitudes are a vital concern of vocational educators because they affect a student's fitness for various occupational goals. Attitudes may determine whether the individual will like the actual work of an occupation, whether he will find himself among congenial associates, and whether alternative fields of occupations may be identified.

Attitudes also determine a student's fitness for effective and desirable participation in a democratic social order. Attitudes toward social groups, policies, institutions, practices, freedom of speech are all attitudes in which society and schools have a deep concern. Perhaps of greatest importance of all is a student's acceptance of social responsibility.

Definition of Attitudes

Attitudes may be defined as feelings for or against something. Attitudes are closely associated with emotions. Pleasant and unpleasant associations--fear, rage, love, and all the variations and complications in these emotions brought about by learning play a part in attitudes. Attitudes are not merely mental images, but take on a definite meaning when they are considered in relation to some object, situation, or stimulus. Another characteristic of attitudes is that they have an effect on behavior that may be so great that knowing the attitude enables the prediction of behavior. In other cases social and other attitudinal forces may cause behavior that does not follow the expressed attitude. One example is the pupil who expressed opposition to cheating, but proceeded to cheat on an examination. Attitudes may be learned.

A more specific definition of an attitude is that it is an emotionalized tendency, organized through experience, to react positively or negatively toward a psychological object.

It is important here to recognize certain concepts allied to attitudes. These are interests, motives, values, appreciation, tastes, mores, morality, moral ideals, and character. It is often said that attitudes and interests are for practical purposes identical. One definition of interest is that it is a tendency to become absorbed in an experience and to continue it. The similarity to attitude, I believe, is obvious.

Motives are related to attitudes in that the latter, with their directionality and feeling tone, constitute an important aspect of motives.

It has been said that attitudes precede and endure beyond motives. Motives are, thus, more specific and temporary. When goals have been attained, motives are satisfied; but the attitude, or the tendency to have the motive, persists from one occasion to the next.

There can be little doubt that attitudes and human relations are closely related. It seems obvious that vocational educators must be fully aware of attitudes, their development, and their measurement.

Appreciation

How does one develop appreciations in people for various things, concepts, and ideas? Probably the most common effective means are through the development of understanding and through experience. A contributory objective of vocational education in agriculture is the ability to appreciate the dignity of work. To appreciate the dignity of work one needs to understand what work is and how it contributes to the welfare of the individual and to society. Appreciation for this activity through supervised activities is one of the basics that has served vocational education well over the decades.

Henry Borow and C. Gilbert Wrenn state:

> Work is the social act around which each of us organizes much of his daily waking experience and, hopefully, establishes a meaningful and rewarding life routine. One has but to witness the lives of men without work, or of men who lack edifying work--alienated, thwarted, and cut off from the fulfillment of the most human of sentiments, a sense of usefulness and purpose--to recognize the validity of the commonly voiced doctrine that work is, indeed, a way of life.[11]

Work as a virtue has been accepted over the years in America. As our modern production economy has increased, however, there has understandably been less opportunity for an individual to realize ego satisfaction from work. If one is to be honest in discussing work in our society and in providing experiences, he must caution about the situation as it exists in many segments of industry.

Harvey Swados speaks of the "meaningless and degrading nature of work in which a large percentage of our working force is engaged." He worked on an assembly line and found that "the one unifying force among all the men on the line was hatred of their work, contempt for what they did, and shame at their inability to earn their living in a more satisfactory and meaningful way."[12] One must realize that for many, the dignity of work has little meaning.

In spite of the many unfortunate situations in the world of work, a large segment of workers find their work rewarding--there is indeed for many the opportunity for dignity of labor and pride of accomplishment.

Surely work, as we have known it, will change, but jobs and the opportunity to work will be with us in the foreseeable future.

We shall continue to use work as a valuable experience in our education programs. Mason and Haines, in their book Cooperative Occupational Education, have done an excellent job in directing attention to methods of organizing and operating high school level cooperative educational programs. The table following is reproduced to illustrate the many purposes of work experience programs.

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[11]Henry Borow, Man in A World At Work, (Boston: Houghton Mifflin Co., 1964), p. xi.

[12]Harvey Swados, "Work as a Public Issue," Saturday Review, December 12, 1959, pp. 13-15.

CONTROLLING PURPOSES OF WORK EXPERIENCE PROGRAMS[1]

A. REDUCE DROP-OUT PURPOSES

1. Earn Money

to continue in school
to keep social standing

2. Cure Maladjustments

failure elsewhere
low I. Q.
behavior problems

3. Control Employment

control placement
control hours
control working conditions

B. SOCIAL DEVELOPMENT PURPOSES

4. Provide Social Experiences

appreciate dignity of labor
appreciate economic order
understand adults

5. Develop Emotional Stability

independence from parents
build self-confidence
sense of "belonging"
develop personality and character

6. Aid in Selecting Vocation

try-out of interests
self-analysis
discover talents

C. VOCATIONAL PURPOSES

7. Provide General Occupational Training

form work habits and attitudes
understand employer and co-workers
train for an area

8. Provide Specific Occupational Training

in skills, knowledges, judgments, understandings, and attitudes

[1]Ralph E. Mason and Peter G. Haines, Cooperative Occupational Education and Work Experience in the Curriculum (Interstate Printers and Publishers, 1965), p. 61.

While Section A and C may have some human relations implications, I want especially to call your attention to Section B, the Social Development Purposes. Here you will note are listed "appreciate the dignity of labor" and "appreciate economic order." These appear to me to be very basic concepts that a worker new to industry will need for rapid adjustment. The next item, to "understand adults" is indeed a worthy purpose and if work experience can make some contribution here, its importance cannot be denied. In spite of the recent strong emphasis on young people, it is still the adults who exert the greatest influence on economics, politics, religion, and society in general. Further, the teenage student is in the complicated process of becoming an adult.

The listings under Item 5, to "Develop Emotional Stability," are also closely related to human relations. While on the one hand there is "independence from parents," there is

probably developing a closer association with other adults and an area of adjustment that needs recognition. To "build self-confidence" and to "develop a sense of belonging" are important psychological traits and can contribute much to the well-being of the young employee. The importance of the "development of the personality and character" probably need little further comment.

Item 6, to "Aid in Selecting a Vocation," has, of course, guidance implications. This topic has to do with "trying out interests," "self analysis," and "discovery of one's aptitudes and talents." Such processes, of course, are basic to establishing a sense of direction and for at least a tentative choice of vocation. Note, too, that attitudes and interests receive mention.

I expect that if one were to list the benefits of a work experience program for an individual, it would have a pattern similar to that of the purposes. It seems quite evident to me that the work experience program can and will make important contributions to the human relations aspect of vocational education.

Other Traits Desired

Here are comments of three different personnel directors of large firms that employ a great number of people each year. The directors are enumerating the qualities that they like to see in their employees.

> . . . Obviously we are interested in the kind of education that develops such attitudes as thoroughness, which is characterized by the habits of checking one's own work; following up carefully on matters that take time to get results; initiative; ability to take criticism; tact and courtesy, ability to work closely with a group without jealousy or desire to seek individual credit; a definite attitude of public service; loyalty to one's company and employer; and all the other attributes of good citizenship.
>
> It is important to point out that most people lose their jobs in business not because of not knowing, but because of some social attitudes or temperament factor that interferes with either their happiness or the smooth working of the group of which they are members.[13]
>
> . . . The vocational traits most desired, in order of importance, as indicated by the replies, are as follows:
>
> 1. Accuracy
> 2. Responsibility
> 3. Dependability
> 3. Intelligence
> 4. Courtesy
> 4. Initiative
> 4. Judgment
> 5. Tact
> 6. Personal pleasantness
> 7. Interest in work
> 7. Speed
> 8. Adaptability
> 8. Neatness
> 9. Memory
> 10. Poise
> 11. Honesty
> 11. Industriousness
> 12. Loyalty
> 13. Alertness
> 14. Ambition
> 14. Foresignt
> 14. Thoughtfulness
> 15. Thoroughness [14]
>
> . . . However, the basic requirements that we seek to discover--in addition to the fundamental characteristics of honesty, industry, and loyalty--surround such matters as these:
>
> Is he or she prompt?
> Does he understand instructions and retain them?
> Is he accurate and dependable?
> Does he require constant supervision?
> Does he set a good example in conduct, appearance, and attitude?

[13]Robert D. Falk, Your High School Record, Does It Count? (South Dakota Press, 1958), p. 6.

[14]Ibid., p. 13.

Does he recognize what is beyond his scope?
Does he refrain from assuming too much authority?[15]

As illustrated in the above quotations, employers have quite a definite idea of the traits that they like to see in their employees. Many of these are closely associated with human relations and need to be the concern of the vocational educator. Many of these traits fall within the area of attitude development, communications, and work habits. Others, such as poise, judgment, honesty, and ambition are less tangible.

Traits Discussed in the Human Relations Module

Many of the traits that are important in vocational education are discussed in this module.[16] I quote briefly from this excellent material under each of several headings.

Loyalty:

Loyalty implies support of a cause, ideal, practice, or custom. It includes an element of faithfulness to a person or organization.

Loyalty takes time to mature and grow. It is the product of continued contact with a person or business over a length of time. New employees should not expect to receive it before proving themselves worthy of their supervisor's faith and confidence. Likewise, business firms must earn loyalty from their employees. The good will and loyalty which develop between a supervisor and employees or among employees are valuable commodities which are not to be treated lightly.

Respect for Authority:

Authority in agricultural business usually rests in administrative positions which are responsible for production processes. Authority is the power or right to give commands, take actions, or make final decisions.

In some businesses these lines of authority may be closely drawn, with each person carefully guarding his own domain. Large-scale organizations controlling many sub-parts sometimes become bureaucratic. Much valuable company time and effort may be lost by fearful employees, petty jealousies, and status hungry co-workers. Most agricultural businesses are relatively small and uncomplicated. Yet, the concept of respecting your superior is an important one, even in a small business.

Willingness to Learn:

One of the few certainties of life is the likelihood of change. Everywhere we see new products and new techniques taking the places of old ones. Business firms spend a great deal of money on research to find new and better products.

Since "things" change more easily than people, employers usually investigate a prospective employee's willingness to learn new ideas. A person who accepts inevitable changes that occur during the process of living will not spend as much time worrying about them as the individual who does not. Previously held assumptions need constant re-evaluation. Much energy is expended by frustrated, dissatisfied employees. A willingness to change and learn new ways of doing things is a characteristic which we should all cultivate.

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[15] Ibid., p. 69.

[16] One of the twelve modules in the course preparing for entry in agricultural supply, sales, and services occupations listed by The Center for the Study of Vocational and Technical Education, Ohio State University, Columbus, Ohio, is discussed under the heading of Human Relations in Agricultural Occupations.

Cooperation:

Whenever one human being finds himself in contact with another, either on the job, at school, or in the home, personal relations become a factor between the two personalities. Feelings and attitudes between persons affect the goals of the social group. In many cases, the goals of the social group--the church, the family, or the business--can be attained only with the help of individual members. Agricultural businesses operate to make a profit for their stockholders and provide services to customers. Employees should accept these goals and work toward their accomplishment. Whenever you engage in a cooperative enterprise with others, you expect to lose a certain amount of individual freedom in order to benefit the group.

Cooperation means joint action with others in pursuit of common well being.

Cooperation doesn't just happen; it has to be encouraged. An employee who feels rejected by his employer or believes the business is taking advantage of him, is not likely to give up many personal privileges to contribute to company goals or policy. Fortunately, most people desire to belong to groups and want to get along with their fellow employees. Some of the most satisfying employment experiences come from the warm personal friendships which develop between customers and employees, between the employee and the employer, or among employees. These feelings can be so strong that employees dislike being transferred from one location to another, even within the same company.

Honesty:

Honesty is straightforwardness of conduct; it requires a sincere effort from each of us to maintain integrity, fairness, and truthfulness in all situations.

Since we do not always know other person's past experiences and beliefs, we have to be tolerant of their actions. A person may commit a dishonest act unknowingly and be sorry for it later. American people have emerged from the peoples of many nations. Consequently, our society contains persons with vastly different values and ideals.

Responsibility:

Like "honesty" and "loyalty" the term "responsibility" defies any kind of comprehensive and precise description. The actions of a "responsible" person vary with different situations. Many factors influence the "total" personality; a person's previous experience, his attitude toward his supervisor, and so forth. It is difficult to predict responsible behavior because it varies with the motives and aspirations of persons.

A responsible person determines his own acts by carefully considering the consequences of his decisions.

A responsible person is one who is capable of determining his own actions. Responsibility implies an ability to foresee the consequences of actions.

Leadership:

Leadership is exhibited by a person who directs, commands, or guides a group or activity. A leader often exerts influence by persuasion rather than by force.

An important quality of leadership is accuracy. Few groups of individuals will follow a person with false ideas. If you desire to influence others, concentrate on facts and make definite statements only when you are certain you are right. A leader must accept responsibility for influencing other people. If a leader directs a group to take certain action, he is more responsible for the consequences of that action than are other members of that group. Many persons do not like to accept responsibility and shrink from tasks of leadership.

Morale:

Morale is the prevailing mood and spirit which permits dependable performance and steady self-control. Someone has paraphrased it as "how I feel about my job at any given time."

Morale is a state of mind of employees, growing out of their work conditions. It includes employee feelings toward supervisors, the company, and other employees.

Each employee can contribute to the morale of the group by paying attention to good human relations principles. Fair and honest treatment of persons as individuals promotes trust and confidence in a group. If you inform people of decisions affecting them, it will dispel doubts and fear of the unknown. Abrupt treatment of groups of people creates suspicion and disregards individual differences.

Summary

In the foregoing pages I have attempted to show that it is important for Agricultural Education to emphasize training that concerns the human relations aspects of vocations. We need to recognize the role of attitude development and the development of appreciation. We have examined the human relations implications that can be developed through work-experience programs. Many other important factors can determine the degree of success of the employee. Among these traits are loyalty, respect for authority, willingness to learn, cooperation, honesty, responsibility, leadership, and morale.

With respect to how these traits are to be taught, I can only add that a great deal depends on the teacher in the classroom and how well he carries out his full responsibility in developing the whole person for his role in the world of work. I would further suggest that the capable teacher, through his actions and examples he sets, can do much to develop the human relations skills which we desire in our graduates in agriculture. I would caution that we must avoid so overburdening our teachers with numbers of students and with extraneous tasks that they are unable to do what they could do if given the opportunity.

I would conclude this discussion by hoping that we might continue to improve the development of human relations abilities in our students. We can be proud of our progress in teaching technology. To better prepare young people for an increasingly complex society, suggests that we take a greater part in teaching human skills as well.

As for the evaluation of our efforts in teaching human relations, I would observe that this task is very complex. Great care must be observed in developing meaningful evaluative criteria for teaching human relations in vocational education.

VT 000 478

VT 000 478
Follow-Up Study of 1965 Graduates Completing Programs in Vocational Agriculture.

New York State Education Dept., Albany. Bureau of Agricultural Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 5p.

VOCATIONAL FOLLOWUP; *GRADUATE SURVEYS; ORNAMENTAL HORTICULTURE; AGRICULTURAL PRODUCTION; FARM MANAGEMENT; *HIGH SCHOOL GRADUATES; *VOCATIONAL AGRICULTURE
NEW YORK

Graduates from vocational agriculture programs in 248 New York high schools were subjects of a followup study. Of the 1,371 students who completed a major sequence in farm production, farm management, or ornamental horticulture in 1965, 573 were not available for placement because of military service, full-time schooling, or other reasons. Of the 748 employed, 351 were in the occupation for which trained, 193 were in related occupations, 195 were in other occupations, and nine were employed part-time. There were 16 unemployed graduates and the status of 30 additional graduates was not known. Four female graduates included in the total were not included in other classifications. Comparable figures are reported for the 1964 follow-up study. Additional information included enrollment by grade level and curriculum area, teachers' salaries, and the occupational classifications of young farmers. (EM)

ED027441

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THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Bureau of Agricultural Education
Albany, New York 12224

[illegible] THE ROLE OF AGRICULTURAL EDUCATION

FOLLOW-UP STUDY OF 1965 GRADUATES COMPLETING PROGRAMS IN VOCATIONAL AGRICULTURE

Each fall, a follow-up study is made by the Bureau of Agricultural Education in cooperation with school administrators, guidance counselors and teachers of agriculture to determine what has happened to students who graduated from high school during the year with major sequences in agriculture.

This study is a part of a wider study which includes all fields of vocational education. The data gathered from all vocational education fields is submitted to the Division of Vocational Education where a state report is developed and forwarded to the United States Office of Education.

The information gathered in the 1965 study is essentially the same type of data gathered in previous years with three differences:

1. Graduates were reported in terms of the occupational classification of the agricultural field in which they completed a major sequence. The occupational fields reported this year were Farm Production and Management and Ornamental Horticulture. The other fields including Agricultural Mechanization, Agricultural Business and Conservation are quite new and it will be another year or two before a significant number of graduates will complete a sequence of four units in one or more of these fields.

2. Graduates continuing full-time school were classified, for the first time, into two groups, namely; those attending full-time school and not working part-time and those attending full-time school and working part-time.

3. A new item appeared in the study this year in which schools reported the number of persons who left the vocational program prior to completing four or more units and who were employed in a job involving the use of agricultural knowledge and skills.

Table 1 lists the data for 1965 graduates with 1964 data provided for comparison. Due to the small number of girls graduating with major sequences in agricultural subjects they were not included in the statistical treatment of the data.

VT 00478

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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TABLE I

FOLLOW-UP STUDY OF GRADUATES
COMPLETING PROGRAMS IN VOCATIONAL AGRICULTURE

248 Schools
1965

1. Boys Graduated:

	Farm Prod. & Mgt. No.	Orn. Hort. No.	Total No.
Boys	1335	32	1367
Girls	4	0	4
TOTAL	1339	32	1371

	Farm Prod. & Mgt. No.	%	Orn. Hort. No.	%	Total No.	%
2. Number of boys not available for placement:						
a. Entered Armed Forces	224	16.9	7	21.9	233	17.1
b. Continued full-time school						
(1) Unemployed	240	18.0	2	25.0	242	17.7
(2) Part-time employed	93	6.9	2	6.2	95	7.0
c. All other reasons	18	1.3	1	3.1	19	1.4
TOTAL	575	43.1	12	56.2	587	42.8
3. Number of boys in other forces:						
a. Occupation trained	344	25.9	7	21.9	351	25.6
b. Related occupation	190	14.2	3	9.4	193	14.1
c. Other	192	14.4	3	9.4	195	14.2
d. Part-time employed	8	.6	1	3.1	9	.7
TOTAL	734	55.1	14	43.8	748	54.6
4. Number unemployed	16	1.2			16	1.2
5. Status unknown	29	2.2	1	3.1	30	2.2
6. Left prior to completion with marketable skills	140				140	

[illegible] number of boys [illegible] number of boys in the labor force (full-time employed) and the number of boys available for placement but unemployed.

TABLE II

[illegible]

	[illegible]		[illegible]	
	No.	%	No.	%
Entered [illegible]	233	[illegible]	231	[illegible]
[illegible]	329	[illegible]	434	[illegible]
[illegible]	[illegible]		12	[illegible]
TOTAL	570	100.0	665	[illegible]

TABLE III

NUMBER AND PERCENT OF BOYS EMPLOYED FULL-TIME IN THE LABOR FORCE

	1965		1964	
	No.	%	No.	%
In Occupation for which trained	351	47.5	435	48.3
In related occupation	203	27.4	141	15.6
In other occupations	185	25.1	323	36.1
TOTAL	739	100.0	899	100.0

TABLE IV

NUMBER AND PERCENT OF BOYS AVAILABLE FOR PLACEMENT

	1965		1964	
	No.	%	No.	%
Full-time employed	739	95.7	899	97.7
Part-time employed	9	1.2	12	1.4
Unemployed	26	3.4	9	1.0
TOTAL	774	100.3	920	100.0

1964-65 Statistical Summary
Agricultural Education

I

Number of schools offering instruction in Agriculture	[illegible]
Number of teachers	[illegible]

II

A. In School Program

Grade 7 and 8	3329
Grade 9	2497
Grade 10	2295
Grade 11	2332
Grade 12	2953
Grade 9-12 (Different Individuals)	9712

	NUMBER	TOTAL
B. Agriculture 7 and 8	78	3329
Agriculture 1	-	2497
Agriculture 2	-	2295
Agriculture 3 4 - Agricultural Mechanics 1,2	-	3843
Agriculture 11 and 12	-	28
Agricultural Mechanization	3	99
Ornamental Horticulture	14	296
Conservation	16	247
Agricultural Business	1	7

III Young Farmer Program

	TOTAL
Number of Programs	81
Enrollment	2265

IV Classification of Young Farmers

	TOTAL	
	No.	% *
Owner-operator	861	52.6
Renter-operator	51	3.1
Partnership	381	23.3
Farm Manager	35	2.1
Farm Employees	309	18.9
TOTAL	1637	100.0
Unclassified	628	-
TOTAL	2265	-

*Percent of those classified in farming

V. Salary of Teachers of Agriculture

SALARY	NUMBER	%
$12,000 or more	2	.8
11,000 - 11,999	3	1.2
10,000 - 10,999	16	6.2
9,000 - 9,999	57	22.1
8,000 - 8,999	87	33.6
7,000 - 7,999	30	12.4
6,000 - 6,999	47	18.1
Below - 6,000	5	2.1
TOTAL	249	100.0

Two New York State FFA members have received highest honors in the nation for achievements in vocational agriculture.

David J. Mosher, 17, son of Mrs. John Mosher, Box 44, Greenwich, New York, and a senior in the Greenwich Central School, is the National Champion Star Dairy Farmer of 1965. He received the honor with a $500 award at the National Dairy Congress in Waterloo, Iowa, on October 2. Previously named both Star Farmer and top dairy farmer at the New York State FFA Convention at Walton last May, and North Atlantic Regional Star Dairy Farmer in the Eastern States Exposition in September, he won over three other regional champions at Waterloo.

David's selection was based on his outstanding achievements in dairy farming and his leadership in school and FFA activities. He has established a herd of 35 cows and 19 heifers, of which 71% is owned by him in a three way partnership with his mother and sister.

Floyd S. Dubben, Jr., 21, son of Mr. and Mrs. Floyd S. Dubben, Middlefield, New York, received the most coveted FFA award in the nation at the National FFA Convention in Kansas City, Missouri, that of Star Farmer of America on October 14. The award, carrying with it a $1,000 check from the Future Farmers of America Foundation, was presented during colorful ceremonies in the Municipal Auditorium before an audience of over 10,000 FFA members, teachers and guests.

Floyd's selection was based on his achievements in farming and leadership in activities of the FFA. Winner of the Star State Farmer award at the New York State FFA Convention in 1962 he continued farming in a partnership with his father. Today he owns 50 percent of the farm business of 695 acres of land, 86 producing cows, 48 heifers and calves, 60 acres of corn, 40 acres of oats and 262 acres of hay.

The two teachers of agriculture who guided these two outstanding FFA members to highest honors in the nation have also received national honors.

Bruce Emanuel, Teacher of Agriculture at Greenwich Central School, received a $500 award given by the Charles Pfizer Company at the National Vocational Agriculture Teachers Association Convention at Miami Beach, Florida, on December 8. He was honored along with two other teachers whose students received highest national honors in livestock and poultry.

James Rose, Teacher of Agriculture, serving both Cherry Valley Central School and East Springfield Central School, was presented an honorary life membership in the American Vocational Association. This award for being the teacher having the Star Farmer of America for 1965, was presented by the d-Con Company at the annual banquet of the AVA on December 9, at Miami Beach, Florida.

VT 000 527

VT 000 527
Manual for Young and Adult Farmer Programs.

Colorado State Univ., Fort Collins. Dept. of Vocational Education
Colorado State Board for Vocational Education, Denver
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan63 52p.

*YOUNG FARMER EDUCATION; *ADULT FARMER EDUCATION; *PROGRAM GUIDES; EDUCATIONAL OBJECTIVES; EDUCATIONAL FINANCE; PROGRAM DEVELOPMENT; PUBLIC RELATIONS; *PROGRAM PLANNING; SUPERVISED FARM PRACTICE; ADVISORY COMMITTEES
*YOUNG FARMER ASSOCIATION

This revised guide provides information on the organization and conduct of young farmer or adult farmer programs. Units are developed in outline form and include: (1) Recognizing Needs for a Young and Adult Farmer Program, (2) Objectives of the Program, (3) Organizing the Program, (4) Financing the Program, (5) Publicity and Public Relations, (6) Procedures for Program Development, (7) Methods of Conducting an Adult Program, (8) Records and Reports, Supervised Farming, (9) Young Farmer Association, and (10) Advisory Council. Forms are included for a need survey, training program survey, program schedule, and data analysis. (JM)

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Colorado State Board for Vocational Education
Denver, Colorado
and
Colorado State University
Vocational Education Department, Agricultural Section
Fort Collins, Colorado
Cooperating

1963

A MANUAL FOR

YOUNG AND ADULT FARMER PROGRAMS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Revised By

STAFF IN VOCATIONAL EDUCATION IN AGRICULTURE
COLORADO STATE UNIVERSITY

And

STAFF IN AGRICULTURAL EDUCATION
STATE BOARD FOR VOCATIONAL EDUCATION
Denver, Colorado

January, 1963

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Unit I. Recognizing Needs for A Young Farmer and Adult Farmer Program

1. Is the Vocational Agriculture Instructor getting out of his field when he conducts a young farmer or adult program?

Major aim of vocational agriculture is to "train present and prospective farmers for proficiency in farming."

A vocational teacher is well within his field when he conducts an adult program. The Smith-Hughes Act of 1917 in Section 10 states that such education shall be of less than college grade and be designed for meeting the needs of persons who have entered upon or are preparing to enter upon the work of farming. This does not limit his work to the day school program.

He is a public employee of the school district to help meet the needs of the community in the area of education in so far as is possible. Young farmer, adult farmer and parent education are community needs.

It has been predetermined for us that Adult Education is one so large that no one agency can complete and meet those needs, so it becomes the duty of all to help.

A young man today does not usually become established in farming until he is out of school for 6 or 7 years. During this time he should be receiving continuous instruction and guidance in agriculture. The young farmer program is one of the organizations which can properly meet this need.

2. Who should recognize the needs of out-of-school program?

Agriculture Instructor	Other School Officials
School Superintendent	Advisory Committee
School Board	Veteran Instructors
Community Organizations	Local Veterinarians
Grange	Community Farmers
Farm Bureau	All-day Students
Chamber of Commerce	
Civic Clubs	

Methods of determining the extent of the community needs.
- Surveys (Use existing surveys when possible)
- Personal visitations
- Cooperative meetings of agricultural leaders in community
- Spontaneous demand

What factors determine the needs for a young farmer or adult program?
- Number of farmers in the community
- Age and status of farmers in community
- Previous education of the farmers in community

Primary interests of farmers in community
Possibility of individuals becoming established in farming
The status and number of other adult and young farmer programs in the community
Status of graduated students of day school program.

3. A survey form (sample for use in determining needs for instruction

House to house survey is not good. (Leave pencil and paper in car)
Time consuming
People dislike giving out information
Adverse reactions may result
Don't gather large amounts of material (Machinery dealers
Make surveys when needed; use existing surveys -(County Agent
Printed cards are most desirable -3x5, 4x6(County statistics
No personal questions should be asked
Take cards personally rather than mail
Survey should be made of a representative group in the community
Don't release data

Suggested Sample Survey Form - Adapt to Local Condition

Name_____ Address_____

Age_____

1. Are you interested in joining a group of (Young Farmers) (Adult Farmers) for some organized instruction on agricultural subjects? (Yes ___) (No ___) (Undecided ___)

2. Would you attend such classes if offered? (Yes___) (No___)

3. If interested, which of the following areas would be of most interest to you. List your preference 1, 2, 3, 4, etc.
   A. ( ) Livestock Production
   B. ( ) Crop and Soil Problems
   C. ( ) Farm Management
   D. ( ) Farm Mechanics

   List Other Interests Here
   A. _____
   B. _____
   C. _____
   D. _____

4. Have you had any experience in the F.F.A. or 4-H Club program? If so, which and how many years.

5. What time for these meetings would best fit your needs? Check

Spring ( )			
Summer ( )	Day of Week	Morning	( )
Fall ( )	( )	Afternoon	( )
Winter ( )		Evening	( )

6. How many miles are you from the school? (Include direction)

Signed_____
Secretary of Advisory Council

4. What consideration should be given teacher load?
   A. Teacher should recognize his own ability.
      Civic duties
      Family Obligations
      Other school activities
      Size and scope of his already in operation program
      His own physical stamina and enthusiasm
   B. Administrators should recognize the teacher's ability.
   C. How does the Ag teacher's schedule compare with other members of the faculty. (Take into consideration supervised farming and F.F.A.)
   D. What are the community needs?
   E. A satisfied teacher is a better teacher.
   F. A reduced day school load should be given in proportion to young farmer or adult program.

5. What values can be derived from a young or adult farmer program?
   A. For the Voc-Ag man:
      1. Furnishes an easy natural media for the teacher to reach and meet the farmers in the community on a solid basis, makes the school more realistic.
      2. Teacher gains poise, confidence and personality, and strengthens him in the community.
      3. Matures young teachers and keeps older ones alert.
      4. Gives teachers a clearer and more understandable background of the parents and home conditions of their day school students.
      5. Provides longer tenure in communities for good teachers.
      6. Contributes toward better pay and tenure.
      7. Makes work more interesting and challenging.
      8. Provides a good media for publicizing the day school program.

   B. For the patrons:
      1. Contributes to the mental health of the community.
      2. Keeps people happy and useful to each other.
      3. Develops community leadership and interests.
      4. Equalizes opportunity for individuals.
      5. Increases patron's incomes.
      6. Increases individual's knowledge and background.
      7. Increase proficiency and efficiency in Agriculture.

   C. For the administration:
      1. Community good will in that there is a feeling that the school is filling a need.
      2. Helps develop better understanding of administration's problems.
      3. Contributes to the success of an administration.

   D. For the school:
      1. Engenders new appreciation, enthusiasm and spirit in the school.
      2. School becomes a unifying agent in community when it sponsors this type of program.
      3. Helps to secure interest and support for the day school program and other school programs.

6. How great is the need for this program.

AVAILABILITY OF YOUNG MEN AS PROSPECTIVE YOUNG FARMER CLASS STUDENTS

Are there enough farm youth classified as rural farm in Colorado communities to justify the organization of young farmer classes?

The following table based upon the 1960 census data may throw some light upon the availability of prospective young farmer students. It would appear from the data that there are likely to be enough young farmers in any community having a department of vocational agriculture to justify making a careful survey of the situation with the view of organizing instruction for this group in vocational agriculture classes.

TABLE I:--IN-SCHOOL AND OUT-OF-SCHOOL MALE YOUTH COLORADO RURAL FARM - 1960*.

Age in Years (inclusive)	Total	In School		Out-of-School	
		Number	Per cent	Number	Per cent
14 - 17	6,008	5,587	92.99	421	7.01
18 - 24	4,537	1,129	24.9	3,408	75.1
Totals (14-24)	10,545	6,716	63.69	3,829	36.31
25 - 29	2,688	119	4.43	2,569	95.57
30-- 34	3,537	103	2.91	3,434	97.1
Totals (14-34)	16,770	6,938	41.37	9,832	58.7

* U. S. Census Data for Colorado 1960

Unit II. Objectives of the young farmer and adult farmer program.

1. Objectives of the young farmer program.

For sometime the Agricultural Education Service of the U.S. Office of Education has been concerned with the young and adult farmer program. Meetings and conferences held with teacher trainers and supervisors on October 14, 1949; June 7-9, 1950; and October 9, 1950 have given us some advanced thinking which was taken from a U. S. Office of Education publication:

The primary objective for an organization of young farmers, as defined, is to develop group and individual responsibility of young farmers in programs of instruction in vocational agriculture designed to meet their needs in becoming established in farming.

The contributory objectives are:

A. To develop individual and group interests and abilities in financing, planning, operating and evaluating farming programs of young farmers who are members of the organization.
B. To discover and utilize placement opportunities available on a rental, lease, partnership and purchase basis in assisting young men to become established in farming.
C. To develop the leadership abilities needed to participate in activities requiring an understanding of parliamentary procedures, conduct of meetings, public speaking, and other desirable activities for rural young people.
D. To develop an understanding of the ways to secure and utilize the services available to farmers in improving their economic status and social and family relations.
E. To develop abilities in producing, marketing and utilizing farm products; conserving water, soil and other natural resources; financing and managing a farm business; maintaining and operating farm machinery and equipment; maintaining and improving the farmstead; applying farm work simplification practices; and improving farm family living situations.

2. Objectives of the adult farmer program.
   A. Primary objectives:
      1. To aid established farmers in acquiring additional skills and understandings which will help to make progress in the many phases of rural living.
   B. Contributory objectives:
      1. To offer instruction which will help to meet changing situations and conditions, and to benefit from new developments and up-to-date methods.
      2. To solve community and farm problems by working them out together.
      3. To maintain and develop the democratic attitudes and ideals of our state and federal government.

3. Similarities and differences between the young farmer and adult farmer program.
   A. Similarities:
      1. Both are out of school.
      2. Both must have families for supervised farming program.
      3. Both are interested in farm and home improvement and maintaining a favorable environment.

   B. Differences:
      1. There are certain general characteristics that tend to differentiate the groups. One of the most obvious and significant is difference in experience, some good, some bad.
      2. Adult farmers are established; young farmers are trying to become established.
      3. Difference in age.
      4. The adult farmer is more self-reliant and confirmed in his present methods.
      5. The adult farmer will also have been away from formal schooling for many years; will be accustomed to thinking and acting upon his own initiative.
      6. The adult farmer will have formed many habits and accumulated many ideas, and may have become more skeptical of suggestions relatively more conservative.
      7. The adult farmer is likely to be inclined to do less classroom reading and studying.
      8. The adult farmer is usually in a better financial condition to carry out improved and recommended practices immediately than the young farmer.

4. What consideration should be taken of the differences in age and experience of the young farmer and the adult farmer?

   A. Young farmer groups demand more recreational and social activities than do the older groups.
   B. Young farmers are more receptive to supervised farming due to lack of farm experience.
   C. The young farmer has study habits carried over from recent days of school.
   D. The young farmer craves or desires the intellectual stimulation and the social contacts a young farmer class provides.
   E. Young farmers are establishing or are thinking about establishing home and are glad to share with young women of the same age in the study of family responsibilities.

5. What is the philosophy of the young and adult farmer program?

   Vocational education is an integral part of the community school and should provide the students with education experiences which will help them make adjustments and further solve the problems they will encounter in life.

Unit III. Organizing the young and adult farmer program, time of year and day, securing interest, responsibility of administrator, ag. Instructor, etc.

1. Securing cooperation of administrators in Agricultural Education.

   A. Develop an attitude among administrators that this out-of-school work is a necessary part of a complete and continuing program in Vocational Agriculture by:

      1. Emphasize the importance of the young and adult farmer phase in providing complete program of Voc. Ed. in Agriculture to meet community needs and make the administrator feel as if he were needed in the program.
      2. Advise on the development of teaching schedules that will allow time during the regular working day for teachers to devote to on-the-farm instruction and preparation of class work with out-of-school groups.
      3. Establish reimbursement policies that recognize adult programs as part of the job rather than an extra job with extra pay. Schedule and conduct meetings to acquaint school administrators with the program.
      4. Advise the appointment of a committee of superintendents to study and make reports to their associations regarding what can be done by teachers of Vocational Agriculture in conducting a complete program of Vocational Education in Agriculture. Have administrators committees visit already established department and report in Administrators Convention.
      5. Encourage full-time use of the Vocational Agriculture instructor in performing his Ag duties.
      6. Indoctrinate teachers of agriculture in ways and means of demonstrating to local school administrators the values of out-of-school work.
      7. Initiate and maintain a vigorous local program of public relations by use of various agencies.

2. Responsibilities of the State Board to the teacher

   A. Adopt a definite attitude toward these programs.
   B. Publish a state plan covering minimum requirements and regulations of the program.
   C. Have a public relations section covering the state to advance the work of the program.
   D. Provide information for organizing a young or adult farmer program.

3. Steps in setting up young or adult farmer programs.

   A. Ag teacher should be sold on the program.
   B. Determine the need for a young or adult farmer program. (See Unit I report on surveys, etc.)
   C. Secure approval of administrators.
   D. Secure facilities for classes.
   E. Recruit enrollment (by advisory committee and others)
      1. Personal visits made by advisory council and others are best means of recruiting students.
      2. Other methods are:
         a. Personal visits by members of FFA or NFA
         b. Personal letters or cards
         c. Former all-day students
         d. Former adult students
         e. Farmer organizations
         f. Newspapers and posters.

   F. Hold the first meetings. (Arrive early and welcome all)
      1. Review purposes and objectives of the young and and adult farmer program.
      2. Outline long-range plans and possibilities of adult program
         a. Course content
         b. Cooperative activities
         c. Community services
         d. Program for wives and/or young homemakers
      3. Set time, place, length and frequency of meetings
      4. Elect temporary chairman. Appoint Nominating Committee through temporary chairman.
         a. President -- to open and close meetings, introduce speakers, appoint committees and carry on business of the group.
         b. Secretary-Treasurer--to keep attendance record, handle finances, take notes of meetings and write letters.
         c. Reporter -- to handle publicity.
      5. Hold discussions or demonstrations
         a. If time permits supervise discussion on some timely topic so the class will feel that they have benefited by the first meeting (especially in adult classes).

4. When should the young farmer program be conducted?

   A. Time of year: to be determined by the advisory council after considering the desires of the students.
   B. Day or days of week: to be determined by advisory council and students.
      1. Determined by days of other activities in community.
   C. Time of day: to be determined by advisory council according to type of course offered and desire of the group.
      1. Demonstrations in day time.
      2. Lectures or discussions at night.

5. When should the adult farmer program be conducted?
   A. The same three items listed for the young farmer program should be considered by the advisory council for the adult program.
      1. Adult program completed within a shorter period of time.

6. Where should the young farmer program be conducted?
   A. Meetings can be held at the following:
      1. High school
      2. Rural schools
      3. Churches
      4. Community buildings
      5. Farm homes
      6. Garages
   B. Facilities must be considered.
   C. For best attendance meeting place should be within a ten mile radius.

7. Where should the adult farmer class be conducted?
   A. Same considerations as young farmer class.
   B. For best attendance meeting place should be closer to the homes of the farmers.

8. What size classes are recommendable?
   A. Size of class depends upon
      1. Subject taught
      2. Facilities available
      3. Desires of those attending
      4. Ability of teacher to handle large groups.

9. Regulations and recommendations as to need time.
   A. Adult classes should hold not less than 10 meetings totaling not less than 20 hours and held during a period of not less than 2 weeks in any one year.
   B. Young farmer classes should have not less than 15 meetings totaling not less than 30 hours and held over the entire 12 month span for at least 2 years.

10. Responsibilities of the Agriculture teacher.
   A. Part of his job is to provide courses for systematic instruction for young farmers.
   B. He is especially trained to teach such courses so it is his responsibility to teach or supervise the teaching of such courses.
   C. He should provide qualified special instructors insofar as possible to teach jobs with which he isn't too well acquainted or which he doesn't have time to teach.
   D. Recognizing need for out-of-school program is largely up to him.
   E. If a need is indicated for such a class he is responsible for getting the patrons together and organizing the class.
   F. He should <u>assist</u> in setting up Young Farmer Association's if desired by the group.
   G. Keeping the needed records and submitting the necessary reports is also part of his job.
   H. Making sure minimum requirements of State and Federal plans are met.
   I. Should set up course so that it is a continuous program.

Unit IV. Financing the young or adult farmer program; meeting local and state qualification.

1. Who should supply the money for salary, travel, consumable supply, recreation, facilities, etc.?

A. Two acts set aside funds to be used for Vocational Education. Both the Smith-Hughes Act and the George Barden Act place upon the States and Office of Education certain conditions and limitations governing the distribution of funds for each of the several purposes, and specifies definite matching provisions. The federal funds must be matched by the State and local.

Both acts say for each dollar of Federal money used in the State, a dollar of State or local money or both must be expended for the same program.

B. SALARY. There are generally two plans used. One is to include a definite amount in the teacher's salary for carrying on or conducting the young farmer program. The other method is to pay the teacher either on a class basis or hourly basis for class instruction. The school district is then usually reimbursed a part or all of the cost of instruction from state or federal funds.

C. TRAVEL. There is a slight variation in two methods used. One of these methods is to include services of day school classes and travel and all adult work, which is varied in different states, and the travel necessary for the followup of such programs in one salary. The other method is to pay the teacher separately for his adult work and travel to follow up such a program. Some schools pay for travel on a mileage basis but not separate from mileage of the day school program. Other schools separate the two mileage payments. The reimbursement program varies on travel in each state just as the salaries.

D. CONSUMABLE SUPPLY. Some schools charge a fee for consumable supplies.

E. FACILITIES. The following is very typical of most states: Colorado plan says, (1) The local community, except in special cases, shall provide the necessary plant, equipment, supplies and instructional materials to meet the requirements for such education in schools and classes in the state. (2) That the amount expended annually for the maintenance of such education in any school or class shall not be less than amount fixed by the State Board. (3) The cost of maintaining instruction of reimbursed programs are to be paid from public tax funds and not paid from private funds.

F. RECREATION. This item of expense is taken care of by dues paid by individuals or any money making project the group may have. In case of young farmer classes where the gym is used, a satisfactory arrangements can be made for these facilities governed by the policies set up by the school.

2. How should the State, local and Federal participate in expenses and what per cent?

   Federal money can be used from the Smith-Hughes and George-Barden Acts to develop and promote adult and young farmer programs.

   Both Enabling Acts specify that money shall be matched dollar for dollar by state and local money.
   Plans for state participation in financing will vary with state plans.

3. Various state plans as to reimbursement (See following Outline)

4. Who should receive the reimbursement? School Board? Agriculture Teacher?
   A. School Board will receive the reimbursement if available.
   B. The Voc. Agri. instructor should receive some form of reimbursement depending on the amount received by the school.
   C. Some administrators believe the young farmer and adult farmer education is an integral part of the program in Voc. Agri. and is included in the instructor's contract.
   D. Special instructors should be paid by the local school.

5. Should the program be self-supporting to any extent?
   A. The salaries of the vocational agriculture instructor and special instructors will, in some cases, be self-supported.
   B. Shop facilities and utilities should be paid by the local school as a public service.
   C. Fees can be charged for consumable supplies used in farm mechanics classes by adult and young farmers.
   D. Preferably the program should be paid for by the local school and fees should be the last resort.
   E. Fees may help to get more regular attendance.

Unit V. Publicity and Public Relations of the Young and Adult Farmer Program.

1. Desirable methods of publicity.
   - A. Newspaper in the community
   - B. Farm magazines read in the community
   - C. Local radio stations
     1. Sponsored by some local dealer
     2. Member of adult class
     3. Record program beforehand
     4. Use actual doing types of programs
     5. Put notice in paper of program to be given
   - D. Personal contact
   - E. Civic Clubs
   - F. Farm organizations and other related agencies in the community
   - G. Personal cards and letters
   - H. Open house if worth while exhibits are present
   - I. Pictures, charts and slides
   - J. Motion pictures
   - K. Tours and field trips
   - L. Demonstration teams
   - M. Advisory Council
   - N. Store window displays
   - O. F.F.A.

2. Who should do the publicizing?
   - A. Vocational Agriculture instructor
   - B. Public relations committee
   - C. Class members
   - D. Superintendent, principal and school board members
   - E. Advisory Council
   - F. Class Reporter
   - G. Special reporters, newspaper editor

3. Advantages of an effective publicity program.
   - A. Gets the objective of the out-of-school program before the public.
   - B. Young farmer and agriculture department get proper credit for activities sponsored.
   - C. Technical information is gained by the people.
   - D. Helps to develop a working relationship between school and the community.
   - E. Informs people in the community of the achievements.
   - F. Keeps the agriculture teacher on his toes to promote an effective publicity program.
   - G. Improves the relationship between Ag. instructor and the other faculty members.
   - H. Gives the school administration a better understanding.
   - I. Keeps classes informed on class meetings, date, place, time and topics.

4. When and what amount of publicity?
   A. An article that there will be an evening class organized.
      When: 6 to 8 weeks before the class is to begin.
   B. Follow up articles concerning the class.
      When: every week or two following the announcement of the class.
   C. Depends on the availability of newspaper and policy toward such news.
   D. Brief notice prior to each meeting.
   E. Activities of previous class. When: class is completed.
   F. When the article is "News" or the time ripe.
   G. The amount of publicity depends on the activities.
   H. There should be at least three or four articles about the activities of each class held.

5. What should be published?
   A. That an evening class will be started and follow up notices
   B. Nature of the evening class
      1. Value
      2. Plans for a class in the local community
      3. Problems to be discussed
      4. Place, date and time of meeting
   C. Achievements of classes
   D. Activities of classes (Banquets, tours and demonstrations)
   E. Articles about individual class members that have a relation to the instruction
   F. Articles concerning the follow up (Field trips, tours, etc.)

6. What agencies may be used on the young and adult farmer programs?
   A. Soil Conservation
   B. F.H.A.
   C. P. C. A.
   D. R. E. A.
   E. County Extension people
   F. D. H. I. A.
   G. Home Economics Department in school
   H. Crop Improvement Ass'n.
   J. Civic clubs
   K. Farmers Organizations
   L. Machinery dealers

7. What methods can we use in securing cooperation?
   A. We can solicit their services personally and offer ours openly whenever opportunity presents itself.
   B. Use advisory committee
   C. Use Young Farmer Committees

Unit VI. Procedure for developing a young or adult farmer program.

1. What sources can we draw upon for setting up program of work?
   A. Your Agricultural College and Experiment Stations.
   B. The Agricultural Education Magazine has excellent aids on content of instruction.
   C. Federal Agriculture Agencies
   D. Home Economics teacher
   E. Extension specialist.
   F. Bankers
   G. Health officers
   H. Leading farmers
   I. Farmers Union and The Grange
   J. The survey again is a very important source of information in setting up course content.
   K. Key groups of men, committees, or advisory groups can be used as sources to aid in securing enrollment and assist in making recommendations for course content.
   L. Some authors agree that the farmers themselves should be allowed to select the course content as to their own personal needs in a general meeting.

2. What factors should be considered in setting up the program of work?
   A. Present farming situation of group members.
   B. A study of the practices that need to be improved.
      1. Selection of practices or goals for improvement determined by:
         a. Advisory Committee
         b. Visits
         c. Surveys
         d. Records of former veteran farmers
   C. The time, effort and ability which the teacher has available.
   D. Available information
   E. Available equipment
   F. The county program in agriculture education or the number of different agencies should be considered which offer youth programs that might overlap with one which you might set up.
   G. Any content which has been previously taught is a factor.
   H. The degree of variation in young farmer enrollment to educational levels already attained.
   I. Information should be used which one will gain from farm surveys taken from the farmer's own desire and need.
   J. The general subject of the course should be determined on the basis of community needs.
   K. The availability to the teacher of:
      1. An advisory committee
      2. Recent data regarding the agriculture situation
      3. County census figures
      4. P.M.A.
      5. Soil Conservation
      6. County extension in releases

L. The units, jobs, or problems to be considered in setting up out-of-school classes should be much broader than production alone. From the reports of the experience of many classes, the following list will indicate the breadth of instruction given:
   1. Productive enterprises
   2. Opportunities in farming
   3. Farm organization and management
   4. Social activities
   5. Recreational activities
   6. Home beautification and improvement
   7. Legal problems
   8. Family relationships
   9. Health and sanitation
   10. Farm and home mechanics
   11. Cooperation
   12. Civic problems
   13. Marketing farm products.

General Summary

Course outline is influencedby:

1. Type of farming
2. Experience of pupils
3. Ability of instructor
4. Community needs
5. Equipment and teaching materials available
6. The arrangement of productive enterprises by years will depend upon the status of the majority of the farmers in the community.
7. Arrange courses to lend themselves to the supervised farming programs of the individuals in the group to the greatest extent possible.

A Recommended Form to Use in
Determining Student Interests

TRAINING PROGRAM SURVEY

Check the column that most nearly indicates your degree of interest in the following areas:

RATING				
Items Written In	Interested	Slightly Interested	Not Interested	
3	2	1	0	
				COMMUNITY LIVING - Recreation
				1. Square Dance
				2. Social Dancing
				3. Socializers. (Active social games, mass games, quiet games, party stunts.)
				4. Folk Dancing
				5. Ball Games -- Indoor
				6. Table Games
				7. Test Mental Skill Games
				8. Dramatic Numbers (Shadow pictures, etc.)
				9. Others -- Outdoor
				10.
				11.
				12. Dinner Dance Party
				13. Dinner Party
				14. Light Refreshments
				15. Picture Show
				16. Roller Skating
				17. Ice Skating
				18. Hay Ride
				19. Sleigh Ride
				20. Fishing
				21. Hunting
				22. Producing a Play
				23. Tour or Trip
				24. Picnics
				25. Swimming Parties
				26. Horseback Trips
				27.
				Social Adjustments
				1. Meeting people, proper introduction, etc.
				2. Leading group discussion
				3. Speaking to a group
				4. Learn proper social manners through group participation.
				5. Improving family relationships
				6. Improving rural health--Group insurance, etc.
				7. Good family living
				8. Neighbor relationships -- Trespass laws, etc.
				9. Dating
				10. Marriage and divorce
				11. Partnerships, inheritances, legal aspects, etc.
				12. Adjustment to changing living conditions
				13. Being host at social gathering
				14. Presenting program to civic group
				15. Self improvement - through self evaluation
				16. Religious living - not denominational
				17. Social and family problems
				18.

RATING				HOME IMPROVEMENTS
WI	I	SI	NI	
3	2	1	0	
				1. Modernizing the home
				2. Landscaping the home--lawns, shrubs, rock gardens, flower gardens, etc.
				3. Painting
				4. Rural electrification
				5. Cabinet making
				6. Farmstead arrangement
				7. Safe water supply
				8. Labor-saving devices in home
				9. Road improvements
				10. Home recreational facilities
				11. Household repair and maintenance
				12.
				13.
				14.
				. . . . .
				LIVESTOCK - Beef Cattle
				1. Beef cattle breeding and improvement
				2. Pasture and pasture management
				3. Marketing problems
				4. Feeds and feeding
				5. Diseases and parasites, symptoms, prevention and control
				6.
				Dairy Cattle
				1. Feeding dairy animals
				2. Pasture and its place in a dairy program
				3. Diseases of dairy cattle, symptoms, prevention and control
				4. Records for the dairy herd
				5. Dairy herd improvement through selection and breeding
				6. Possibilities of artificial insemination program in a dairy herd
				7. Marketing dairy products
				8.
				Swine
				1. Swine improvement through breeding and selection and other approved practices
				2. Feeding practices
				3. Recommended housing and equipment
				4. Diseases and parasites, symptoms, prevention and control
				5. Marketing problems in swine production
				6.
				Sheep
				1. Sheep improvement through breeding, selection, and other approved practices
				2. Feeding problems in sheep production
				3. Diseases and parasites, symptoms, prevention and control

RATING			
WI	I	SI	NI
3	2	1	0

RATING			
WI	I	SI	NI
3	2	1	0

Corn and Sorghum Production

1. Recommended varieties for local conditions
2. Seed bed preparation, planting, cultivating, and harvesting
3. Fertilizer requirements
4. Pest and disease control
5. Storage methods and facilities (Silage, dry roughages, etc.)
6. Marketing principles and practices
7. Producing of hybrids
8.

Sugar Beets

1. Varieties
2. Seed bed preparation
3. Planting and cultivating
4. Harvesting
5. Fertilizing practices
6. Contracting and marketing
7. Diseases and pests
8.

Vegetable Gardening

1. Selecting adapted varieties
2. Worth to the family
3. Seed bed preparation
4. Fertilizer practices
5. Garden pests and disease control
6. Storage
7. Canning and frozen food methods
8. Irrigation
9. Marketing surplus vegetables
10.

Alfalfa and Clover

1. Selecting adapted varieties
2. Preparing the seed bed and cultivation
3. Fertilizing practices
4. Harvesting for hay, silage, seed
5. Storing
6. Marketing
7. Control of pests and diseases affecting alfalfa and clovers
8. Irrigation principles and practices
9. Producing certified seed
10.
11.
12.

Grasses

1. Varieties and pasture mixtures
2. Seed bed preparation and cultivation
3. Fertilizer practices

Rating				
MI	I	SI	NI	
3	2	1	0	
				4. Grass seed production
				5. Maintaining pastures
				6. Irrigating the pasture
				7. Pest and disease control
				8.
				9.
				10.
				Weed Control
				1. Chemical methods
				2. Cultural methods
				3.
				SOIL CONSERVATION PRACTICES
				1. Contour leveling and draining
				2. Contour farming
				3. Terracing
				4. Grassed waterways
				5. Permanent pasture
				6. Gully control
				7. Stock ponds
				8. Strip cropping
				9. Crop rotation
				10.
				FARM MANAGEMENT
				1. Farm record keeping and record analysis
				2. Marketing
				3. Contracts, leases, and abstracts
				4. Insurance applications on the farm
				5. Income tax reports
				6. Farm laws, game, and trespassing laws
				7. Wise uses of credit agencies
				8. Improving farm homestead
				9. A study of different types of farming
				10. Use of agricultural agencies
				11. Establishment in farming
				12.
				MISCELLANEOUS
				1. Bee management
				2. Tree fruits and small fruits
				3.
				4.
				5.

Three Year Program of Work for Young Farmers

	Sept			Oct			Nov			Dec			Jan			Feb			Mar			Apr			May			June			July			Aug		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Orientation & Org. 3	1	1	1																																	
Crops & Soils																																				
Soil Con. & Pract. 4																3		1																		
Crop Rotation 3																			1	1	1															
Fertilizers 2																			1	1																
Dis. & Pest Cont. 4																									1	1	1	1								
Irrig. Prin. Prac. 2																													1	1						
Storage Methods 2										1																										
Livestock 20																																				
Feeds & Feeding 5	1		1				2			1																										
Animal Breeding 5								2	1	1	1																									
Livestock Housing 3							2										1																			
Animal Diseases 5							1			1			1	1			1																			
Castration & Vac. 2																			1		1															
Civic & Soc.																																				
Gov. Farm Prog. 3									1													1	1													
Voting Duties 3							1	1	1																											
Farm Management																																				
Record Keeping 5		1		1	1	1	1																													
Farm Financing 2																2																				
Farmstead Layout 3																1	1	1																		
Labor Management 1																			1																	
Farm Marketing 4											2																				1					
Farm Mechanics																																				
*Arc Welding 1												1																								
Acetylene Welding 1												1																								

* Assuming that regular meetings are of 2 hours duration, then 2 or more of the farm mechanics meetings would be combined into one session making the one farm mechanics session last longer.

Three Year Program of Work for Young Farmers, Continued

		Sept			Oct			Nov			Dec			Jan			Feb			Mar			Apr			May			June			July			Aug		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Farm Building Con.	3														2	1																					
Farm Machinery	4													2	1	1																					
Engine Repair	3														1	2																					
Recreation Halloween Party	3				1	1	1																														
Christmas Party	3										1	1	1																								
Basketball Social	3																1	1	1																		
Barn Dance	3																						1	1	1												
Banquet	3																																				
Fishing Trip	3																																		1	1	1
Total Number Meetings	92	2	2	2	2	2	2	4	4	3	4	4	4	4	5	5	4	4	4	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1

One Year Calendar of Activities for Young Farmers

Month	Subject	Type of Meeting	Com. Responsible
Sept.			
	Orientation and Organization	Informational	Executive
	Intro. to Feeds & Feeding	Instructional	Meeting Program
Oct.			
	Record Keeping	"	" "
	Halloween Party	Recreational	Recreation
Nov.			
	Nutrients & Their Uses	Instructional	Meeting Program
	Balancing Rations	"	" "
	Voting Duties	Info. Special Speaker	" "
	Record Keeping	Constructional	" "
Dec.			
	Crop Storage Problems	Constructional	" "
	Animal Breeding,Princ. of	Instructional	" "
	Gov. Farm Programs	Info. Special Speaker	" "
	Xmas Party	Recreational	Recreation
Jan.			
	Arc Welding	Instr., Demonstration	Demonstration
	Acetylene Welding	" "	"
	Machinery Repair (2 Meetings	" "	"
Feb.			
	Soil Conservation Services	Info. Special Speaker	Meeting Program
	Wind Erosion	Instructional	" "
	Water Erosion	"	" "
	Basketball Social	Recreational	Recreation
March			
	Com. Fertilizers, Uses of	Instructional	Meeting Program
	Castrating and Vaccinating	Demonstrational	Demonstration
	Farmstead Layout	Instructional	Meeting Program
April			
	Crop Rotation Practices	Instructional	" "
	Barn Dance	Recreational	Recreation
May			
	Disease and Pest Cont.(Crops)	Demonstrational	Demonstration
	Banquet	Recreational	Recreation
June			
	Disease and Pest Cont. "	Demonstrational	Demonstration
July			
	Farm Marketing	Info. Special Speaker	Meeting Program
August			
	Fishing Trip	Recreational	Recreation

Note -- This is a direct take off from the long time program of work and shows in addition to activities the type of meeting and the committee responsible.

A possible one year Course of Study for an adult farmer class.

Beef Production

1 & 2. Feeding
- a. Beef cow herd
- b. Wintering feeders
- c. Fattening cattle

3. A Recommended Pasture Program
4. Diseases and Parasites
5. Beef Cowherd versus Feeder Purchase
6. Selecting and Improving the Breeding Stock
7. Purchasing Feeder Cattle
8. Marketing
9. Housing and Equipment
10. Year Around Management Practices
11. Pot Luck Social -- With Wives

Unit VII. Methods of conducting a young or adult farmer program.

1. What are the possible methods of teaching? Their advantages and disadvantages.
   A. Conference method
      a. Advantages
         1. This consists of systematic group discussion carried on by members of the class under the direction of the teacher.
         2. It is perhaps the most desirable method for general use and can be used most successfully where several of the members have had some experience relating to the subject under discussion.
         3. It should be used in summarizing teaching done by the other methods, such as, demonstrations, field trips, film strips, etc.
      b. Disadvantages
         1. To be most effective the group has to be relatively small.
         2. If not watched carefully, the discussion may resolve into a "free for all."
         3. Much time is often wasted by listening to remarks from the audience which are impertinent.
         4. This type of procedure requires strong leadership.

   B. Lecture method
      a. Advantages
         1. It is a definite time saver.
         2. It is possible for the leader to follow an outline seeing to it that he does just those things he wishes to do in his discourse.
         3. If he is an able speaker, he can arouse interest in continuing learning.
         4. Adults are busy people and the lecture method permits them to absorb what information they can with little effort on their parts.
      b. Disadvantages
         1. It permits little opportunity for audience participation.
         2. It promotes an attitude of passive absorption on the part of too many people.
         3. Very little action results from a meeting of this type.
         4. No opportunity is given for the speaker to know what his audience is thinking.
   C. Demonstrations
      a. Advantages
         1. The observer can see concretely how a process is accomplished.
         2. It is possible to observe both cause and effect.
         3. Watching the actual process is more convincing than being told about it.

b. Disadvantages
   1. Not all ideas can be demonstrated.
   2. Often too much equipment is required.
   3. If one is demonstrating with human beings, the human element makes for many variable factors so that the demonstrator may not prove his point to his satisfaction.

D. Question and Answers
   a. Advantages
      1. An intelligent interrogator can draw out pertinent answers by phrasing his questions so that they result in satisfactory conclusions.
      2. The method is simple to use.
      3. It is quite easy to stick to assigned or desired work.

   b. Disadvantages
      1. The method has been overdone.
      2. Many leaders have used it as a substitute for effective teaching.
      3. It assumes advanced assignment in most cases, and assignment work is not too popular with adult groups.
      4. It develops a compulsory attitude among the students which they resent. They do not like to be pointed out and designated.

E. Reports (Individual and Committee)
   a. Advantages
      1. Allows for member participation.
      2. Gives the farmer the advantage of tying up subject matter to his home farm situation.
      3. Gives the class a type case from which to develop further discussion.
   b. Disadvantages
      1. Reports and report topics should be chosen the preceding meeting.

F. Panel Discussion
   a. Advantages
      1. A panel may be used to open the discussion or as a check upon a formal talk to the group by an outside speaker.
   b. Disadvantages
      1. A panel generally has to be on a general subject and as a result may not answer small individual problems which may confront the farmer.

2. Should the same methods be used for day school classes
   A. The same methods should not be used for a young or adult farmer program as for the day school program in some instances as:
      1. Less willing than all-day students to do routine school work.
      2. Less willing to read assignments.
      3. The out-of-school groups are more mature and will react differently to educational training.

3. What are the principles of learning and teaching?
   A. Principles of Learning
      (How "Grown-Ups" Learn Best, "Handbook for Special Teachers of Food Production; Walter F. Dester.)
      1. By doing
      2. By thinking
      3. By seeing
      4. By being told
      5. By being checked and corrected
   B. Principles of Teaching
      1. The procedures must be democratic.
      2. They must provide for individual participation and activity.
      3. Instruction must be individualized

4. Should we vary our methods of teaching at times? Explain how. Hamlin indicates that the methods may be varied by entering individuals in class proceeding by the following:
   A. Sharing in class discussion.
   B. Serving as a member of a panel.
   C. Giving short talks before the class.
   D. Engaging in shop and laboratory activities.
   E. Staging on the farm demonstrations of new practices for class observation
   F. Serving on an advisory committee and on special class committees.
   G. Participating in social and recreational activities associated with the class.

5. Vocational Agriculture instructor's part in conducting a young or adult farmer program.
   A. Plan the lesson to be given.
   B. Choose method of instruction.
   C. Instruct or provide a competent instructor for each meeting. Train special teachers.
   D. Be responsible for getting and having needed equipment and materials on hand.
   E. See that individual problems are solved if possible at each class meeting.
   F. Coordinate the meeting so that conclusions and summaries indicate the need for the topic for the following meeting.
   G. Follow through to see if each member of class is applying what has been learned.
   H. Be responsible for keeping classes moving.
      1. Avoid exhausting the topic
      2. Keep down needless repetition
   I. Become well acquainted with each member of the class.
   J. Act as a tactful moderator at all times.
   K. Utilize agricultural agencies when specialist authority is needed.
      1. Brief him as to the group he will be talking before.
      2. Outline what items the class would like discussed.

6. What use should be made of special instructors?
   A. To be used when vocational agriculture instructor does not have sufficient specialized training to do the job.
   B. To be used to bolster the vocational agriculture information.
   C. How should the meeting be conducted?
      1. A specialist can be asked to sit in as a resource person and participate in discussions led by other people.
      2. Specialists should not be used extensively, probably not more than two or three times in a ten week course.
      3. If "special teachers" are used for young farmer and adult farmer groups, they should be definitely identified as to their tie-up with the school.

7. What part should the patrons play in the entire picture?
   The program should be kept on a democratic basis throughout. The class members should supply some of the information, all participate in the discussions with the instructor acting only as a leader to keep the thing going in the direction intended. It is a program for the farmer for his benefit.

Unit VIII. Records and reports; supervised farming programs.

1. What records should be kept? How long retained?
   A. Teachers of farmer classes should keep some records.
      1. Necessary from official standpoint
      2. Helpful in evaluating program
      3. Helps in reporting the results to interested public
   B. Records to be kept
      1. Expenditures of public funds
         a. Amounts
         b. Activities for which used
      2. Enrollment, attendance and visitors
      3. Subject and date of meetings
      4. Character of individual farming programs
      5. Results secured in practice--follow up
   C. Length of time to be kept
      Keep only as long as they are useful--used at least once a year.
      Active files -- up to 3 years
      Inactive files -- 5 to 10 years

2. Where should these records be kept?
   This will vary according to the methods determined by the superintendent.
   In the files system at the Ag. Dept. under the young or adult farmer program heading is the appropriate place.
   In some cases they are kept in the school files but usually only copies of report forms are turned in to the superintendent.

3. When and what reports should be made and to whom should they be made?
   A. Any report made should have a use and purpose which should be current or it should not be made.
   B. The following reports should be made:
      1. Publicity
      2. Jobs taught
      3. Expense records
      4. Attendance report
      5. Any awards made
      All valuable reports should be duplicated in the superintendent's file or vault.

4. What use should be made of suggestions, criticisms, testimonials?
   A. Basis for selling worthwhileness of program to administration and community
   B. Justification for more or "no more" classes
   C. Basis for building a stronger more comprehensive program

5. Forms of supervised farming programs carried by members
   A. Productive Projects
   B. Improvement Projects
   C. Supplementary Farm Practices
   D. Placement
   E. Introduction of new and improved practices

5a. How broad an interpretation can be made of supervised farming?

Supervised Farming: Provides experiences which contribute to the development of abilities needed for proficiency in farming and improved family living of the type in which the student is likely to engage.

6. What are the responsibilities of the vocational agriculture instructor in regards to supervised farming for young farmers, adult farmers?

The Smith-Hughes Act says there shall be at least six months of supervised farming for each student. In both adult and Y.F. classes the enrollees should have a supervised farming program consisting of activities related to the course of instruction.

Classification of these activities are:

A. Approved practices which shall result in the better conduct of one or more farm enterprises.
B. Approved practices which will result in improvement of the management of the farm business.
C. Production enterprises not previously carried on this farm.
D. Improvement projects not carried before.
E. Cooperative activities with other adult farmer groups.

Factors to consider in the supervised farming program of young farmers:

A. Stress supplementary farm practices. Improved practices which may develop.
B. Where possible young farmers can continue on with the productive projects he carried in the day school program.
C. Visits should be contact visits, praising good practices and the student will ask how to improve on others.
D. Encourage use of school laboratory, library and any services of a counseling nature the teacher of vocational agriculture can render.

Adult Farmers:

Many of the same problems or factors will be used for adult farmers as the young farmers except not as extensive supervision is needed.

A. With adult farmers do not force visits, just make yourself available to them.
B. Continue the instruction begun in class on the farm until the approved practices are being used.
C. Suggest additional practices and skills in which training should be sought.

7. What methods should be used to create interest in and present the supervised farming?

A. Get interest from the group, find out from individuals what they are doing.
B. Instructor should not do the work himself. Set up committee's and get individual participation.

8. When should the supervised farming be done?
   When the critical time exists and the Ag instructor can be of help.

9. What use should be made of awards?
   A. Some form of awards should be used.
   B. Each program would have its own rules as to what the requirements would be for an individual farmer to receive the award.
   These requirements would be in line with the state plan and with approval of the advisory council. They might include:
      1. Attendance
      2. Productive projects
      3. Approved practices
      4. New developments
   C. Kinds of awards:
      1. Certificate
      2. Trips
      3. Merchandise

10. What summaries should be made of the young and adult farmer's supervised farming programs and how used?
   A. Always keep in mind the objectives of the young farmer class and of the adult farmer class and how they are reaching their objectives.
   B. Some ways of evaluation are:
      1. Does the young farmer have a desire to learn?
      2. Have I taught what is needed by the individuals?
      3. Have the young farmers achieved some of the abilities and skills that were in mind?
      4. Have the farmers set higher goals?
      5. Has his farming status changed?
      6. Are the class members putting into practice what they have learned in the classroom?
      7. Are they making greater proficiency in farming?
      8. Ask the individuals for comments as to what they have learned.
      9. Have a project story by a member or members.
      10. Use of pictures (before and after).
      11. Use of records

Unit IX. Young Farmer Association

1. What are the purposes and objectives of a young farmer association?
   State later under "Seven" under Constitution and By-laws.

2. What officers should be elected?
   State later under "Seven" under By-laws.

3. What are the advantages and disadvantages of young farmer association, local and state?
   A. Local - Advantages
      1. Assist young men to become established in farming.
      2. Helps hold young farmers together.
      3. Community service can be rendered.
      4. Opportunity for cooperative work.
      5. Promotes leadership.
      6. Young farmers can assist in keeping records.
   B. Local - Disadvantages
      1. Time and effort to organize and continue to operate
      2. Tendency to become recreational.
      3. Sometimes too many organizations are formed that compete.
      4. If it fails to function properly, bad publicity may result.
      5. May become pressure group
   C. State - Advantages.
      1. Gives more opportunity for leadership training.
      2. State organizations can improve local organizations
      3. Provides a source of publicity
   D. State - Disadvantages
      1. May become overly organized and lose effectiveness
      2. Additional cost may be involved
      3. Conventions, etc. require too much time away from farming.

4. What are some of the factors that cause a young farmer association to fail?
   A. Lack of proper leadership
   B. No definite program of work, purpose or objective.
   C. Lack of balance of recreation.
   D. Local, State, Federal leaders promote those phases which are easier to promote.
   E. Local officials haven't taken enough interest financially and otherwise.
   F. Teacher load is increased.

5. What use should be made of Y.F.A. in relation to the instructional meeting?
   Other accomplishment.
   A. Classes conducted through Y.F.A.
      1. Local President presides over meeting.
      2. Roll call and minutes of previous meetings by Secretary.
      3. Treasurer's report.
      4. Report from one of the committees (Every member should be on some committee.) Some of these could be:
         a. Crops
         b. Livestock
         c. Tours and field trips
         d. Recreational and social

e. Demonstrations
f. Supervised farming
g. Exhibits
h. Conservation
i. Program planning
j. Miscellaneous

B. Other accomplishments.
1. Cooperate in civic affairs
2. Support F.F.A.
3. Improve level of living for rural people
4. Improve farming
5. Support day school classes and adult classes
6. Fair booths, exhibits, etc.

6. What are the steps in organizing an association?
A. Temporary chairman and secretary elected.
B. Committee elected to draft a constitution and by-laws
C. Adoption of consititution and by-laws
D. Election of permanent officers.

7. What should be included in the constitution and by-laws?

ARTICLE I. NAME AND PURPOSE OF THE ORGANIZATION

Section A. The name of this organization shall be the "_ _____Young Farmer's Association."

Section B. The purposes for which this organization is formed are as follows:
1. To provide an organization which will serve to bridge the gap between high school age and the time when an individual may take membership in an adult farm organization.
2. To help young men getting established in farming.
3. To cooperate with the F.F.A. chapters in their activities.
4. To increase the members' knowledge in agriculture through systematic education.
5. To acquaint members with agricultural legislation.
6. To acquaint members with agricultural government services.
7. To encourage social and recreational activities.
8. To assist and cooperate with other farm organizations

ARTICLE II. ORGANIZATION

Section A. _____Young Farmers' Association is a local chapter affiliated with the _____ Young Farmers' Association.

Section B. The local advisor of this chapter shall be an instructor of vocational agriculture in the local high school or junior college.

ARTICLE III. MEMBERSHIP

Section A. Membership in this organization may be active and honorary.

Section B. Active membership shall be open to any person not enrolled in high school, interested in agriculture, not over 30 years of age, and subject to the approval of the local chapter.

Section C. Honorary membership. Any individual interested in the improvement of agricultural conditions in _____ or who has made outstanding contributions to agriculture by assisting young men in getting established in farming may be elected to honorary membership by a majority vote of the members present at any regular meeting.

Section D. A member must be suspended for failure to pay dues during the fiscal year of July 1 to June 30.

ARTICLE IV. OFFICERS AND EXECUTIVE COMMITTEE

Section A. The officers of the _____ Young Farmers' Association shall be president, vice-president, secretary-treasurer, reporter, sergeant-at-arms, and advisor.

Section B. The executive committee shall consist of all present officers and chairmen of all standing committees.

Section C. The executive committee shall have full authority and control of the organization, subject only to such rules and by-laws as have been adopted by the association and in conformity with the policies governing the administration of vocational education in the local schools.

ARTICLE V. AMENDMENTS

Section A. This constitution may be amended by a two-thirds vote of the members present at any regular meeting, provided that the amendments to be voted upon shall have been read and filed with the secretary at a previous regular meeting and providing that amendments are in conformity with the _____ Young Farmers' Association's Constitution and By-laws. /1.

BY-LAWS

ARTICLE I. DUTIES OF OFFICERS

Section A. President. It shall be the duty of the president to preside at all meetings of the association, and to serve as chairman of the executive committee. The president shall appoint all committees and may serve as an ex-officio member of these committees.

/1 Education for California Out-of-School Farm Youth. State Bureau of Ag. Ed., Califo rnia Polytechnic School, San Luis Obispo, Cal. pp 75-77.

Section B. Vice President. It shall be the duty of the vic president to preside at all meetings of the association in absence of the president and assist the president at all times in carrying on the work of the organization.

Section C. Secretary. It shall be the duty of the secretary to keep minutes of the meetings of the association and of the executive committees. He shall also keep a list of the active and honorary members, carry on the correspondence of the association and fulfill such other duties as usually pertain to that office.

Section D. Treasurer. It shall be the duty of the treasurer to collect and disburse all funds authorized by the association and maintain complete and accurate records of all transactions. He shall present to the association an annual financial statement of the condition of the treasury.

Section E. Reporter. It shall be the duty of the reporter to report promptly and correctly any item of local interest relating to the association, to local newspapers, other publications, and the state office.

Section F. Sergeant-at-arms. It shall be the duty of the sergeant-at-arms to assist, whenever needed, during the meetings of the association.

Section G. Advisor. The teacher of agriculture shall be the advisor and an ex-officio member of all committees. It shall be his duty to act in an advisory capacity to the members of the association.

Section H. Executive committee. The Executive Committee shall control the association, subject only to such regulations and by-laws as have been adopted by the association and in conformity with the policies governing the administration of vocational education in the local schools.

ARTICLE II. COMMITTEES

Section A. The president shall appoint all necessary committees.

Section B. There shall be four standing committees appointed annually: Program, Social, Refreshments, Recreation.

ARTICLE III. MEETINGS

Section A. The association shall hold business meetings at a time most convenient to the association.

Section B. Special meetings may be called at any time by the president and with the approval of the advisor.

Section C. One half of the active membership shall constitute a quorum for the transaction of business.

Section D. The order of business at the regular meetings shall be: call to order, roll call, reading of the minutes, reports of officers and committees, unfinished business, new business, program and adjournment.

ARTICLE IV. ELECTIONS

Section A. All officers and committee members must be active members of the association. The local agriculture instructor shall be the advisor.

Section B. Each active member shall be entitled to one vote.

Section C. The officers of this association shall be nominated by a nominating committee and elected by ballot at the regular meeting held in the month of_____. They shall serve for a period of one year.

ARTICLE V. DUES

Section A. Membership dues in this organization shall be fixed by the executive committee subject to the approval of a majority of the members of the association.

Section B. Annual state association dues will be paid upon approval of a majority of the members present at a regular meeting. /2

/2 Ibid.

Unit X. Advisory Council

1. What are the objectives of an advisory council?
   A. Study community stiuations and determine community needs.
   B. Sponsor adult and young farmer classes.
   C. Clarify the relationship of the agriculture dept. with community agriculture organizations and institutions.
   D. Adapt a program of the department to emergencies that may arise, such as wars and depressions.
   E. Explain the program of the department to the public, and help improve public relations.
   F. Correct the teacher's blind spots, give him encouragement and support.
      Also help him to meet and to work with those whom he needs to know.

2. Advantages of organizing an advisory council
   A. The advisory council provides two-way communication between an agriculture department and representative citizens of a community.
   B. It assists an agriculture department in resisting inappropriate and unreasonable demands from officials outside the community.
   C. It assists in disseminating new agriculture ideas and information.
   D. It provides advice to the teacher from more diversified sources, since the council should be set up to represent all community interests.
   E. The advisory council provides assistance for the teacher in correlating the work of the young or adult farmer class with other community needs.
   F. It acquaints and assists school administrators and boards of education with the educational needs of the community.
   G. A council should assume part of the responsibility of the young or adult farmer programs to relieve the agriculture teacher.
   H. It assists in carrying on the adult program in the event of teacher changes or vacancies.
   I. It helps maintain adequate class enrollment.

3. In selecting the council members the following precautions should be taken:
   A. Nominate only those who are public spirited, interested in the welfare of the community and will devote time to the council.
   B. In some cases school board members and key farmers may not make good council members.
   C. Teacher should not choose his own council.

4. Who should be on an advisory council?
   Select a representative group as to:
   a. Age
   b. Religious denomination
   c. Nationalities
   d. Ex-service men
   e. Economic levels
   f. Geographic location
   g. Parents of students and non-parents
   h. Type of farming
   i. Town and country people
   j. New and old residents

5. How long should a member be on the council?
   A. A three year term system is advisable--members draw lots for 1, 2, or 3 year term, 1/3 retire each year.
   B. One year lapse between terms.
6. How should the advisory council be used? To what extent? How often to meet?
   A. The advisory council should be used to:
      1. Assist the Ag. instructor in getting information determining community needs.
      2. Act as a guide to the Ag. instructor in planning the course of study.
      3. Help the Ag. instructor in selling the program to the community.
      4. Recommend policy for the operation of the Ag. department and program.
      5. Assist the Ag. teacher and school administration in organizing and carrying out of the school program.
      6. Be a stabilizing force in keeping a continuous program when school administration and/or Ag. teachers change.
      7. Keep the Ag. program in balance.
      8. Help formulate objectives of the young or adult farmer program.
      9. Assist the Ag. teacher in meeting special problems, emergencies, new situations, and new undertakings.
      10. Assist the Ag. instructor in correlating his program with other agricultural agencies and community organizations in agricultural education.
      11. Serve in an advisory capacity only; not administrative.
      12. Help the new instructor to get a quick insight into community needs in agricultural education.
      13. Help keep the public informed regarding the vocational agriculture department program, and relay public opinion back about its activities to the Ag. department.
   B. To what extent should the advisory council be used?
      Call on the advisory council as a working committee, and when business needs to be transacted.

4. Suggested Means of Tabulating Data Concerning Nominees for Advisory Council

Name of Nominee	Age			Religious Denomination			Nation-alty		Military Service		Economic Level			Parental Status		Type of Farming					Resi-dent		Geographic location					
	Young Man	Middle Aged	Elder	Protestant	Catholic	Other	White	Other	Veteran	Non-Veteran	High	Middle	Low	Parent	Non-Parent	Dryland	Irrig. Land	Livestock	Crops	Diversified	New	Old	Town	Country	North	East	South	West
Joe Doakes	✓			✓			✓		✓				✓		✓	✓				✓	✓			✓	✓			
John Doe		✓			✓		✓			✓		✓		✓			✓			✓		✓		✓		✓		
Red Hereford			✓	✓			✓			✓	✓			✓		✓		✓				✓		✓		✓		
Kishi Yoshimoto	✓					✓			✓			✓		✓			✓		✓		✓			✓				✓
Pancho Salazar																	✓		✓		✓				✓	✓		
A. Banker				✓			✓															✓	✓					

C. How often should meetings be held?
Hold meetings as often as necessary to transact business.
1. Have worthwhile business for each meeting.
2. Meetings not over two hours long.
Recommended: At least twelve meetings for the year with regular dates planned (such as the first Monday in each month).

7. The principal reasons for failure of advisory councils are:
A. Poor organization
B. Lack of training for the teacher in using councils
C. Lack of appreciation of the council by the teacher
D. Inactivity of the council
E. Disuse after the beginning teacher becomes established in the community
F. Community indifference toward the school and the Ag. department
G. Poor representation on the council.

* * * * * *

<u>The Following Activities Constitute Some of The Ways in Which Vo-Ag Teachers Have Used the Advisory Council Effectively</u>

1. Advise in the development of a community program of agricultural education.
2. Aid in improvement of facilities for vocational agriculture department.
3. Be a source of general information on community problems in agriculture, customs, mores.
4. Help in locating livestock or seed for FFA or YFA groups.
5. Use as a panel before YFA on vital issues.
6. Aid classes on field trips and field days.
7. Assist in obtaining pick-up truck for the department.
8. Visit supervised farming programs on specialized occasions (chain litter, co-op projects, etc.)
9. Make community surveys as needed.
10. Make recommendations to Board of Education concerning policies and procedures for the department.
11. Aid in enrolling class members for all-day, young farmer, and adult classes.
12. Help in selecting speakers, consultants, and special instructors for classes.
13. Assist in supporting and publicizing vocational agriculture program.
14. Assist in evaluating teaching activities for all groups.
15. Assist in publicizing long-time community program of agricultural education.
16. Advise in developing a program of work for adult education.
17. Assist in planning and carrying out a parents' night for FFA.
18. Assist in planning an open house for the FFA.
19. Assist in formulating a farm shop safety program.
20. Help in securing desirable projects to provide learning situations for agricultural mechanics.

21. Assist in providing desirable learning situations in agricultural science.
22. Help in planning sound supervised farming programs for students and FFA chapter cooperative ventures.
23. Use as special instructors for classes.
24. Use as sponsors for trips for FFA or YFA groups.
25. Help sponsor shows and exhibits.
26. Advise in the development of school farms, demonstration plots or land laboratories.
27. Aid in evaluating the over-all progress of the department of vocational agriculture.
28. Assist young farmers in locating farms for rent.
29. Assist in placement of worthy young men in farming or ranching situations.
30. Advise young farmers in matters pertaining to purchase of livestock, equipment, land and a home.

* * * * * * *

STEPS IN SETTING UP AN ADVISORY COUNCIL

Question 9 - What are the steps in setting up an advisory council? Below is given a detailed explanationg of how to do each step.

STEPS	HOW TO ACCOMPLISH
1. Teacher must be sold on the use of an advisory council	1. Study and learn of the duties and functions of an advisory council 2. Visit advisory councils in operation. Watch them perform 3. Talk to administrators where a successful advisory council is in operation. 4. Check yourself to see if you have a personality that will not conflict with people offering suggestions and advice to you. 5. Check section on advantages of organizing a council
2. Secure administrators approval.	1. Explain the function of an advisory council. 2. Point out local needs and advantages of the advisory council. 3. Be able to cite specific examples of schools where they have an advisory council operating. 4. Be able to show him how the advisory council will be an asset to him as well as to the school and you. 5. Ask for assistance in preparing final plans for presentation to board of education. 6. Check the final plans with the administrator.

3. Secure administration permission.	1. Present plans of organization to the board. 2. Give specific purposes of the organization. 3. Point out that the advisory council is strictly advisory on agricultural problems. It is not a pressure or lobby group. 4. Make it plain to board that the council is responsible to them and can be discharged or discontinued at any time. 5. Explain that the board may designate one of its number to sit in on all council meetings. 6. Offer to be present to help to present the plan to the board if they desire your presence.
4. Secure council nominations	1. Prepare list of men in the community as a pool from which members will be selected by: a. Voc. Agri. inst. and superintendent decide on one name to start the list. Contact this man and ask him to suggest another individual. Keep this procedure going until a list of 13-20 men's names are compiled. 2. Take superintendent along when compiling this list if possible.
5. Select council members.	1. Superintendent and Voc. Agri. Inst. prepare suggested list of council members and submit to board of education. 2. Board of Education elect members to the council. 3. Keep list of nominees not selected on file to fill future vacancies.
6. Notify elected members.	1. Secretary of the board of education write personal letter of notification of election. 2. Letter to be signed by president of board.
7. Personal contact with elected members. (THIS STEP IS IMPORTANT)	1. Voc. Agri. Inst. visit each member and congratulate him and get his acceptance. 2. Be able to answer member's questions on the overall program. 3. Check on preferable time of first meeting.
3. Call first meeting.	1. Mail reminder cards. 2. Avoid conflict as much as possible. 3. Impress on members the importance of attendance at the first meeting.
9. Hold first meeting.	1. Explain the job of the advisory council. 2. Elect temporary chairman, secretary and appoint nominating committee. 3. Appoint committee for drawing up constitution. 4. Discuss some live, pertinent topic so men feel they have accomplished something. 5. Decide on definite meeting time and place.

CONSTITUTION OF THE_____VOCATIONAL AGRICULTURE ADVISORY COUNCIL

SECTION A. PURPOSES AND NAME

ARTICLE I Persons and agencies to whom the council is to be advisory. The above named council shall be advisory to_____ vocational agriculture department, and shall exist only during such time as it may be authorized by the local high school administration and board of education.

ARTICLE II Operating field of council. The above named council shall operate in those fields directly included in the vocational agriculture department of the _____ high school including young farmers and adult farmers, and shall limit its activities to matters which directly concern the department of vocational agriculture.

ARTICLE III Purpose and duties of council
The purposes and duties of the above named council shall be to:

1. Study the needs of the community which may be related to the work of the department of vocational agriculture.
2. Acquaint the board of education with the objectives of the school's program of agricultural education.
3. Aid and guide the department of vocational agriculture in those activities which will lead toward progress.
4. Help in developing a program of agricultural education tailormade for a particular community and based upon the crucial needs of a community.
5. Sponsor classes for young farmers and adult farmers (helping to choose subjects and teachers, enrolling class members, planning arrangements as to time and place, advising and assisting the teacher).
6. Offer constructive criticism of the instruction offered and the instructional facilities available.
7. Assist in evaluating the success of the courses offered, in the light of the objectives previously selected.
8. Advise regarding the program of work and activities of the FFA chapter.
9. Provide a continuing program when teachers change and prevent frequent changes of teachers.
10. Correlate the work of a department with that of other agencies such as Agricultural Extension and the Soil Conservation Service, with which council and committee members may have close relationships.

11. Assist a school administrator and a board of education by proposing policies for an agriculture department, saving their time and developing more satisfactory policies than might otherwise be developed.

12. Assist an agriculture department in resisting inappropriate and unreasonable demands from the community.

13. Draw minority groups into participation in programs of a school and community as a result of their representation in councils and committees.

14. Assist in locating farms and opportunities for deserving young men to become established on a partnership, rental, managership, or other basis.

15. Study the programs of agricultural education in other communities with the idea of encouraging the use of those practices which may be applicable to the local community.

16. Revise the objectives of agricultural education as warranted by study and experience.

17. Serve as an avenue of communication between the local department of vocational agriculture and the community.

13. Estimate or measure annually the progress made toward accepted objectives.

19. Provide special committees, or the nuclei of special committees, to work with various groups participating in the program of agricultural education, such as adults, young farmers, high school pupils, FFA members, veterans, supervised farming, farm mechanics, and others.

SECTION B. Membership

ARTICLE I Number of council members.
The number of council members will at no time be less than five and never to exceed twelve.

ARTICLE II Members shall be selected to represent a cross section of the community served by the department of vocational agriculture.

ARTICLE III The active council will submit names of prospective council members to the _____High School Committee (Vocational Agriculture Instructor and high school Administrator) for authorization and approval by Board of Education.

ARTICLE IV Members shall be notified of their appointments by the board of education.

ARTICLE V — Each appointment of an advisory council member shall be for 3 years, except when the appointment is to fill an unexpired term.

ARTICLE VI — At least two-thirds members will be retained each year with none serving more than three successive years, and that one year will expire before any outgoing member may be reapoointed to active duty on the council, except that a member may be appointed for a full term after serving the unexpired term of a member who has left the council.

ARTICLE VII — One third of total membership shall be appointed each year.

ARTICLE VIII — The term of a new council member shall begin on September 1.

ARTICLE IX — An individual will automatically lose membership in the council if he fails to attend three successive meetings without presenting, in advance, to the chairman of the council a valid reason for his absence.

ARTICLE X — At least one member of the board will be expected to be present at each council meeting.

ARTICLE XI — The teacher of vocational agriculture shall attend all council meetings and the high school administrator shall be encouraged to attend, but neither is to be considered as a council member.

ARTICLE XII — Salaried professional workers in agriculture and education in the community are to be invited to attend council meetings when their cooperation is needed, but the board of education will not appoint such persons to membership on the council.

SECTION C. THE CONSTITUTIONAL CHANGES

ARTICLE I — The constitution, articles, and by-laws may be amended or added to by a two-third majority vote of active members at any regular council meeting.

BY-LAWS

SECTION A. MEETINGS

ARTICLE I. — Regular meetings of the advisory council will be held the second Thursday of each month at the agricultural room of the school unless other arrangements are made by the council or its executive committee.

ARTICLE II The advisory council or its executive committee may call special meetings of the council.

ARTICLE III Written notices of council meetings shall be mailed to all members before each meeting by the council secretary.

ARTICLE IV Meetings shall be not more than 2 hours long unless a majority of the council members vote to continue a particular meeting for more than 2 hours.

ARTICLE V Officers of the council and the vocational agriculture instructors will meet prior to council meetings to prepare the agenda.

ARTICLE VI As the need arises for standing and special committees, such committees may be appointed by the chairman.

SECTION B. OFFICERS AND THEIR DUTIES

ARTICLE I The officers shall be a chairman, a vice chairman, a secretary.

ARTICLE II Officers shall be elected annually by majority vote of the council members at the September meeting.

ARTICLE III The chairman shall be elected from among those members who have served on the advisory council for at least 1 year. His duties shall be:

a. To preside at the meetings of the advisory council.
b. To serve as chairman of the executive committee.
c. To appoint special committees which may include persons other than council members.

ARTICLE IV. The vice chairman shall perform the duties of the chairman when he is unable to perform them.

ARTICLE V. The secretary shall

a. Keep records of the attendance of members at meetings.
b. Keep a record of discussion and recommendations.
c. Maintain a permanent record file of council activities.
d. Distribute minutes of council meetings and copies of other council documents to council members, the board of education, the administrator, the teacher of vocational agriculture, and others who may be concerned. He shall have the assistance of the school staff and the use of school facilities in performing these functions.

ARTICLE VI The executive committee shall consist of the chairman, vice chairman, and secretary, and the teacher of vocational agriculture as an ex-officio member. It shall:

a. Act on urgent council matters between council meetings.
b. Prepare agenda for council meetings if requested to do so by the advisory council.
c. Call special meetings of the advisory council as they are needed.

REFERENCES:

1. The Advisory Council for a Department of Vocational Agriculture; Voc. Div. Bul., No. 243; Agr. Series No. 60.

2. Hamlin, Agricultural Education in Community Schools.

REFERENCES

1. Bulletin 100, Developing Young Farmer Programs in Ohio.

2. Cook, G. C. "Handbook for Teaching Vocational Agriculture"

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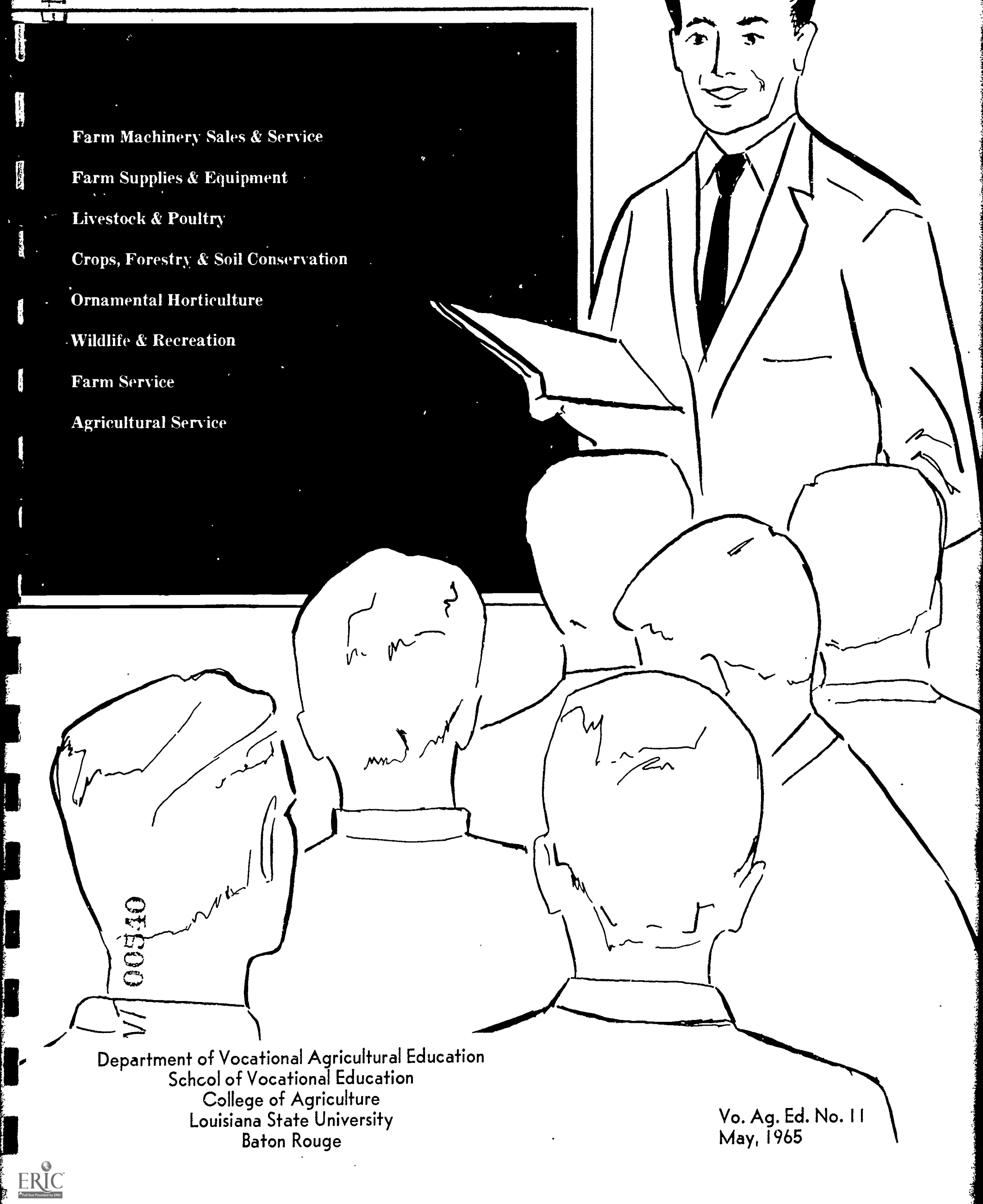
AGRICULTURAL EDUCATION; *OCCUPATIONAL SURVEYS; *OFF FARM AGRICULTURAL OCCUPATIONS; *EDUCATIONAL NEEDS; *EMPLOYMENT OPPORTUNITIES; OCCUPATIONAL CLUSTERS; METROPOLITAN AREAS; EMPLOYMENT QUALIFICATIONS; AGRICULTURAL SKILLS; EMPLOYMENT STATISTICS
LAKE CHARLES; LOUISIANA

A survey of 90 nonfarm businesses and agencies identified present and emerging agricultural occupations other than farming or ranching for which instruction in vocational agriculture should be available in public schools. Data concerned the occupational families: (1) farm machinery sales and services, (2) farm supplies and equipment, (3) livestock and poultry, (4) crops, forestry and soil conservation, (5) ornamental horticulture, (6) wildlife and recreation, (7) farm service, and (8) agricultural service. Job titles and their specific characteristics are given for each occupational family. Of the 1,098 employees in the firms surveyed, 508 were required to have competencies in agricultural subjects. Both numbers of employees and job titles were expected to increase. The greater proportions of managerial, supervisory, sales, and skilled employees showed a decreasing need for semiskilled and unskilled workers. Replacement of workers was limited almost entirely to applicants with a high school or college education. A need for more intensive vocational education prior to job entry or early in employment was indicated by a majority of employers. Recommendations include: (1) Counselors, teachers, students, and parents should be acquainted with the rapid growth of agriculture and the number and variety of jobs available, (2) Programs of vocational education in agriculture must function within an overall program of vocational education, (3) General training in agriculture should be given early in the program and specialized courses and work training later, and (4) Schools should gear vocational agriculture to off-farm job training but continue to provide farmer training. (RW)

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE LAKE CHARLES AREA

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Department of Vocational Agricultural Education
School of Vocational Education
College of Agriculture
Louisiana State University
Baton Rouge

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE LAKE CHARLES AREA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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BY:

C. M. Curtis and C. L. Mondart, Sr.

DEPARTMENT OF VOCATIONAL AGRICULTURAL EDUCATION

SCHOOL OF VOCATIONAL EDUCATION

COLLEGE OF AGRICULTURE

LOUISIANA STATE UNIVERSITY

May, 1965

PREFACE

The efficient production of agricultural commodities requires many products and services which are usually provided by specialized businesses located off the farm. The efficiency of the whole agricultural economy is influenced by the competencies of workers in the nonfarm segment of agriculture. Rural youth have, because of their farm experience, an advantage in nonfarm agricultural occupations providing these experiences are supplemented with training in agricultural subjects.

This REPORT is a segment of a state-wide survey to determine the scope of the nonfarm agricultural complex, locate and identify job titles, and secure job descriptions including knowledge and skill in agriculture needed to effect job entry. Basic data presented can be used by school administrators, counselors, and teachers who plan extended programs of vocational agriculture focused toward meeting the educational needs for employment in nonfarm agriculture.



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This REPORT was made possible by a grant from the Board of Liquidation of the State Debt through action initiated by the Louisiana Agricultural Teachers' Association and members of the staff for Vocational Agricultural Education, State Department of Education, for use by Louisiana State University in making the Survey.

Invaluable aid was extended the University Researchers by the Division of Employment Security and officials of the Lake Charles Chamber of Commerce.

Special acknowledgement is extended the 90 businesses and agencies cooperating in the Study.

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE LAKE CHARLES AREA

by

C. M. Curtis* and C. L. Mondart, Sr.**

INTRODUCTION

Lake Charles, the Parish seat of Calcasieu Parish, is the Metropolitan Center of Southwest Louisiana. The City with a population of 69,500 is a center for agricultural, petroleum and chemical industries.

During 1840 the parish of Calcasieu was created out of the western part of St. Landry. This sprawling area included what is now Allen, Beauregard, Calcasieu, Jeff Davis and part of Cameron Parishes. Lake Charles became the parish seat in 1852.

Lake Charles is a community originally settled in the 18th century by French, German, Spanish and Irish pioneers. Later it was developed by investors from England and from the Northeastern and Midwestern United States.

This Metropolitan Area gained its first fame as a lumber producing area, then became known the world over for its sulphur mining operations. The creation of the Port of Lake Charles and nearby presence of numerous oil fields has industrialized the area and given it a broad and stable basis for future development and growth.

Lake Charles is the agricultural center for the Area. Dr. Seaman A. Knapp, in 1891, built a rice mill in Lake Charles which is still the largest in North America. The area has continued to flourish agriculturally, with the primary

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products being rice and beef cattle. Agriculture is firmly meshed into the total economy. Rice planters, cattlemen, oil producers and manufacturing executives work as a team for the improvement of the Metropolitan Area.

In 1935, the five parish area served by Lake Charles contained 7,397 farms---in 1959 this number had decreased to 4,111. Farm population presents an even more dramatic picture---in 1950 the farm population was 26,425, while the 1960 census data indicated the farm population to be 9,969.

The five parishes comprising this Metropolitan Area has a land area of 3,305,600 acres, of which 1,340,941 acres are devoted to farming. Census data indicate that land area in farming has remained constant during the past decade.

These data reflect the nationwide trend--a movement to fewer but larger farms. Farm income for this area for 1960 was $34,654.334.

The movement to fewer but larger farms is expected to continue. This movement, along with the rapid advance of technology, increases the number of services required for farm production. With this increase in the amount of services required by the farmer, has come a companion increase in the need for agriculturally trained individuals in businesses and agencies that serve the farmer.

A total of 33 public high schools are located in the area, having 18 departments of vocational agriculture that offer training in agriculture. The presence of these departments indicate a high degree of interest in the preparation of youth for occupations in agriculture. Presently, however, the instruction is geared to the goal of training present and prospective farmers for proficiency in farming.

Faced with fewer opportunities to farm and the subsequent increase in off-farm agricultural opportunities; the limiting of instruction for agriculture to the work of the farm no longer meets the needs of all rural youth, even though farm production is and will continue to be the basic industry of this area.

PURPOSE OF THE SURVEY

The Lake Charles study is a segment of a state-wide survey of nonfarm agricultural businesses and professional organizations in seven metropolitan centers: Alexandria-Pineville, Baton Rouge, Shreveport-Bossier City, Lafayette, Lake Charles, Monroe-West Monroe and New Orleans.

The primary purpose of the survey was to identify nonfarm agricultural businesses and professional organizations having one or more job titles requiring knowledge or skill in agricultural subjects, and to obtain specific job qualifications, including training in agriculture, associated with job entry.

Funds granted the University by the Board of Liquidation of the State Debt were used to finance the survey.

The overall objective of the study was to provide those engaged in education with a knowledge of present and emerging agricultural occupations other than farming and ranching, for which instruction in vocational agriculture should be available in public schools.

For the purpose of this research, an occupation other than farming and ranching refers to one for which workers need competencies in one or more of the primary areas of plant and animal science, agricultural business management and marketing, and agricultural mechanization.

In order that extensive changes in existing programs of vocational agriculture reflect the training needs of off-farm agriculture, it was assumed that the following information had to be gathered:

1. Number of employees in each and all agricultural businesses or organizations, together with employee identification according to job title held, and

2. Competencies needed in agricultural subjects or skills required for job entry and advancement, and

3. Special characteristics of all job titles such as salary or wages, entry age, required formal education and experiences, legal restrictions and union regulations, licensing and certification, and a description of work performed by workers within a particular job title.

SURVEY PROCEDURE

The population surveyed in Lake Charles included all nonfarm agricultural businesses and agencies located within the immediate Metropolitan Area.

Lake Charles has more than 45 manufacturing firms producing an abundance of diversified products. Agricultural products such as timber, rice, livestock and dairying are major sources of raw materials for many of these plants. Over 200 non-manufacturing concerns are engaged in supplying services to farmers and non-farmers. Effective buying income in the city of Lake Charles in 1960 was $130,209,000.00.

A comprehensive list of agriculturally oriented firms and organizations was developed for the Lake Charles Metropolitan Area. The list was finalized to include only those businesses most likely to have one or more employees with knowledge or skill in agricultural subjects. Information concerning firms and agencies was secured from the following sources:

1. Lake Charles Chamber of Commerce
2. Division of Employment Security
3. Various trade associations
4. Yellow pages of Southern Bell Telephone Directory

Endorsement of the project was extended by the Lake Charles Chamber of Commerce. The various firms to be surveyed were advised of the Chamber's endorsement by a letter from the Agricultural Committee. A letter announcing and explaining the purpose of the survey was directed to each establishment by the Dean of the College of Agriculture, Louisiana State University. Additional support was given by the local newspaper, Lake Charles American Press.

Several prospective interviewers were recruited by the local office of the Division of Employment Security. Five were employed* and trained by University personnel in procedures to conduct the survey. The study was completed in a 12 day period under the supervision of the University.

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*See Appendix B

A list of businesses and agencies to contact was assigned each interviewer. Personal interviews were conducted using a schedule* developed in cooperation with representatives from other states interested in the same type of study.

A total of 90 firms** cooperated in the survey. Firms and agencies represented employed 1,098 employees--508 of which were required to have knowledge and skill in agricultural subjects.

TREATMENT OF SURVEY INFORMATION

Information supplied by the 90 farm-based firms surveyed was organized under three general categories: 1) Occupational families, 2) Classification of job titles into levels of employment and training required in agricultural subjects, and 3) Special requirements for job entry.

Occupational families used in this study are the same as those adopted by the several states conducting similar studies. They are:

1. Farm Machinery Sales and Service
2. Farm Supplies and Equipment
3. Livestock and Poultry
4. Crops, Forestry and Soil Conservation
5. Ornamental Horticulture
6. Wildlife and Recreation
7. Farm Service
8. Agricultural Service

Total numbers of employees with required training in agricultural subjects were determined for each job title in all eight occupational families.

Job titles identified were classified according to levels of employment ranging from professional to unskilled. Employment levels used in this study are: Professional, Technical, Managerial, Supervisory, Sales, Office, Skilled, Semi-skilled and Unskilled. For the occupational families and each level of employment, information was tabulated showing: average age for job entry, median

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*See Appendix C
**See Appendix A

monthly salary or wage, and the number of employees needing knowledge and skill in each of the subject matter areas of agriculture. Knowledge and skill in agriculture was tabulated under four broad areas:

1. Animal Science
2. Plant Science
3. Agricultural Business Management and Marketing
4. Agricultural Mechanics and Automation

Employment requirements for each job title were determined according to occupational family and level of employment. They are: education, residential background, farm experience and continuing education required.

This survey was made in an attempt to define the scope of occupational opportunities available in nonfarm agriculture within the Lake Charles business and professional complex. Interpretation of data in this study will provide a basis for the development of expanded programs in vocational agriculture to meet the training needs of youth interested in entering nonfarm agricultural occupations.

Schedule and tabular forms used were designed in cooperation with researchers from other states undertaking studies with similar objectives.

PRESENTATION AND ANALYSIS OF SURVEY INFORMATION

Occupational Families

The various firms and agencies surveyed were grouped according to occupational families. A total of 90 different firms and agencies were included in the Lake Charles survey. The first working list included more than this number; however, as the survey progressed it was revealed that some organizations listed no employees with agricultural competencies; these were omitted. There were no refusals, therefore 100 per cent of those considered pertinent were included. A classification of firms according to occupational family follows:

I. Farm Machinery Sales and Service
   Tractor and Equipment Company
   Equipment Company
   Implement Company

II. Farm Supplies and Equipment
- Fence Company
- Hardware and Supply Company
- Seed Store
- Farm Store
- Lumber and Hardware Company
- Construction Materials Company
- Builders Supply Company
- Grain and Grocery Company
- Feed and Seed Store
- Wholesale Distributor

III. Livestock and Poultry
- Packing Company
- Stockyard
- Hatchery
- Creamery
- Dairy Products Company
- Poultry Products Company

IV. Crops, Forestry and Soil Conservation
- Tree Service Company
- Lumber manufacturing Company
- Cotton Compress Company
- Land and Logging Company
- Land Company

V. Ornamental Horticulture
- Garden Center
- Nursery
- Greenhouse and Nursery
- Nursery and Landscape Service
- Floral Gardens

VI. Wildlife and Recreation
- State Park
- Golf Course and Country Club
- Golf Club

VII. Farm Service
- Farmer's Home Administration
- Real Estate Agency
- Pest Control Company
- Exterminator
- Crop Service Company
- Insurance Company
- Welding Service
- Louisiana Farm Bureau
- Water Well Service

VIII. Agricultural Service
- Bank
- Agricultural Extension Service
- Agriculture Department, McNeese State College
- Animal Hospital
- Agricultural Stabilization and Conservation
- Veterinarian

Table I presents the grouping of the Lake Charles firms and agencies according to occupational family.

TABLE I

NUMBER OF AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES GROUPED BY OCCUPATIONAL FAMILY, 1964

Occupational Family	Number
Farm Machinery Sales and Service	4
Farm Supplies and Equipment	27
Livestock and Poultry	9
Crops, Forestry and Soil Conservation	4
Ornamental Horticulture	7
Wildlife and Recreation	3
Farm Service	27
Agricultural Service	9
Total	90

Nonfarm agricultural business in Lake Charles presents a pattern common to the business world--a concentration of firms and agencies providing supplies and services.

More than 50 per cent of the establishments surveyed were classified under two occupational families: Farm Supplies and Equipment, and Farm Service.

The rank of occupational families according to the number of establishments was as follows:

1. Farm Supplies and Equipment, and Farm Service
2. Agricultural Service, and Livestock and Poultry
3. Ornamental Horticulture
4. Farm Machinery Sales and Service, and Crops, Forestry and Soil Conservation
5. Wildlife and Recreation.

Number Employed in Nonfarm Agriculture

The number of workers employed in agricultural businesses, industries and agencies; and the number of employees having competencies in agriculture is

shown in Table II.

TABLE II

NUMBER OF PERSONS EMPLOYED IN AGRICULTURAL BUSINESSES, INDUSTRIES AND AGENCIES, AND NUMBER OF EMPLOYEES HAVING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY

Occupational Family	Total Number of Employees	Employees Having Agricultural Competencies	
		Current Employment	Expected Employment Five Years Hence
Farm Machinery Sales & Service	44	30	31
Farm Supplies & Equipment	233	108	118
Livestock & Poultry	323	73	77
Crops, Forestry & Soil Conservation	100	47	63
Ornamental Horticulture	34	34	34
Wildlife & Recreation	22	12	19
Farm Service	293	160	182
Agricultural Service	49	44	50
Total	1,098	508	574

The agricultural complex of the Lake Charles Metropolitan Area employed a total of 1,098 workers; of these 508 or 47 per cent were required to have knowledge and skill in agricultural subjects. Employers expected this number to expand to 574 five years hence.

Over 50 per cent of those employed were found in two occupational families: Farm Supplies and Equipment, and Farm Service. The following presents a ranking of occupational families according to total number of workers:

1. Livestock and Poultry
2. Farm Service
3. Farm Supplies and Equipment
4. Crops, Forestry and Soil Conservation
5. Agricultural Service
6. Farm Machinery Sales and Service
7. Ornamental Horticulture
8. Wildlife and Recreation

A further analysis of Table II indicates that the number of employees with agricultural competencies in each occupational family had no relation to total employment, rather the work performed by the firms appeared to influence the need for employees with agricultural knowledge and skill.

Occupational families were ranked according to the number of employees having agricultural competencies. This ranking appears below:

1. Farm Service
2. Farm Supplies and Equipment
3. Livestock and Poultry
4. Crops, Forestry and Soil Conservation
5. Agricultural Service
6. Ornamental Horticulture
7. Farm Machinery Sales and Service
8. Wildlife and Recreation

It may be assumed that this ranking indicates outlook in agricultural occupations for youth in the Lake Charles Area.

Growth in number of employees possessing skill in agricultural subjects was expected in all occupational families except Ornamental Horticulture. The other seven families anticipated the addition of 66 workers over the coming five years---an increase of 13 per cent.

Job Titles According to Occupational Families and Levels of Employment

The 508 workers performing jobs requiring a knowledge in agriculture in the 90 establishments surveyed held 141 different job titles. The number of job titles five years hence is expected to increase by 19.

Data in Table III indicate the number of job titles by occupational family.

TABLE III

NUMBER OF JOB TITLES IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING, BY OCCUPATIONAL FAMILY

Occupational Family	Number of Job Titles	Number of Job Titles Five Years Hence
Farm Machinery Sales & Service	10	10
Farm Supplies & Equipment	24	24
Livestock & Poultry	25	25
Crops, Forestry & Soil Conservation	12	20
Ornamental Horticulture	12	13
Wildlife & Recreation	7	7
Farm Service	32	42
Agricultural Service	19	19
Total	141	160

A detailed list of the eight occupational families, together with the total number of workers in each job title is found in Appendix D.

Job titles appear in sufficient quantity in all eight families to challenge the occupational interests of youth. An increase of 13 per cent in the number of job titles five years hence indicates a healthy growth of agricultural opportunity.

Levels of Employment in Nonfarm Agriculture

Management, sales, semi-skilled and skilled levels of employment in order named contained the largest number of workers in all occupational families. A smaller number was found in office, unskilled, supervisory, technical and professional positions. It was interesting to note the number of office employees possessing agricultural skills in some of the occupational families.

Table IV reveals the total number of employees required to have agricultural training by levels of employment in each occupational family.

TABLE IV

TOTAL EMPLOYEES WITH AGRICULTURAL TRAINING
BY LEVELS OF EMPLOYMENT IN OCCUPATIONAL FAMILIES

Occupational Family	Levels of Employment									
	Prof.	Techn.	Mang.	Superv.	Sales	Office	Skilled	Semi-Skilled	Un-skilled	Total
Farm Machinery Sales and Service	0	0	7	0	6	0	14	3	0	30
Farm Supplies and Equipment	0	5	30	4	47	12	5	5	0	108
Livestock and Poultry	0	6	10	11	4	6	11	25	0	73
Crops, Forestry & Soil Conservation	1	7	6	6	1	0	0	7	19	47
Ornamental Horticulture	1	0	12	2	3	0	0	3	13	34
Wildlife & Recreation	0	0	1	1	0	0	2	4	4	12
Farm Service	1	12	31	5	21	18	34	34	4	160
Agricultural Service	26	0	5	1	0	8	0	1	3	44
Total	29	30	102	30	82	44	66	82	43	508

The professional level of employment was found almost exclusively in the Agricultural Service family. Job titles under the managerial and semi-skilled levels were well distributed over all occupational families. Supervisory and sales classifications appeared in most families. Technical and office workers were found in four occupational families. Skilled employees were concentrated in Farm Machinery Sales and Service, and Farm Service. Unskilled workers were found primarily in Crops, Forestry and Soil Co.. rvation, and Ornamental Horticulture.

Employment levels offering the greatest opportunity to interested youth according to the number employed is rather clearly indicated in the following ranking:

1. Managerial
2. Sales and Semi-skilled
3. Skilled
4. Office
5. Unskilled
6. Supervisory
7. Professional

Job Entry Age for Nonfarm Agricultural Workers

The average ages of the 508 employees having agricultural competencies was obtained by level of employment for each occupational family. Minimum and maximum age for job entry was also secured in addition to employee age at the time of the survey.

Tables V-1 through V-8 give average age under each category.

TABLE V-1

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	29	25	39
Supervisory	0	0	0
Sales	40	28	55
Office	0	0	0
Skilled	34	25	44
Semi-skilled	36	25	45
Unskilled	0	0	0

TABLE V-2

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	35	25	55
Managerial	34	26	42
Supervisory	25	25	40
Sales	28	27	38
Office	30	25	35
Skilled	25	25	37
Semi-skilled	32	25	40
Unskilled	0	0	0

TABLE V-3

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	35	25	45
Managerial	41	25	45
Supervisory	35	25	42
Sales	26	25	44
Office	33	25	40
Skilled	31	25	42
Semi-skilled	32	25	43
Unskilled	0	0	0

TABLE V-4

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY AND SOIL CONSERVATION			
Level of Employment	Present	Minimum	Maximum
Professional	28	25	35
Technical	25	25	35
Managerial	40	29	43
Supervisory	34	26	38
Sales	39	25	45
Office	35	25	39
Skilled	0	0	0
Semi-skilled	25	25	29
Unskilled	32	25	32

TABLE V-5

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE			
Level of Employment	Present	Minimum	Maximum
Professional	25	25	35
Technical	0	0	0
Managerial	37	25	45
Supervisory	25	25	45
Sales	48	25	52
Office	0	0	0
Skilled	25	25	45
Semi-skilled	0	0	0
Unskilled	27	25	42

TABLE V-6

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	0	0	0
Supervisory	45	25	55
Sales	0	0	0
Office	0	0	0
Skilled	35	25	45
Semi-skilled	27	25	37
Unskilled	35	25	55

TABLE V-7

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	29	25	36
Technical	26	25	39
Managerial	42	28	38
Supervisory	35	25	45
Sales	45	27	55
Office	32	25	42
Skilled	32	25	46
Semi-skilled	25	25	25
Unskilled	26	25	29

TABLE V-8

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	35	0	45
Technical	0	0	0
Managerial	30	25	42
Supervisory	30	25	45
Sales	0	0	0
Office	28	25	43
Skilled	0	0	0
Semi-skilled	38	25	38
Unskilled	34	22	40

Current ages of all employees ranged around the 35 year average for all occupational families.

The minimum age for job entry at all levels of employment was focused at 25 years; while maximum age for employment was 45. Employers indicated that prospective employees should be young enough to serve the firm at least 20 years before retirement.

Prospective employees less than 25 years of age would find it difficult to secure employment having identity and permanence due to lack of experience and skill. Management level personnel interviewed indicated a preference to employ at an earlier age providing applicants possessed the necessary knowledge and skill in agricultural subjects. It was indicated that applicants generally acquire necessary qualifications through previous work experiences accounting for the years between high school and job entry. Educational personnel could develop training programs that would tend to correct this situation and thereby insure job entry at an earlier age.

Salaries of Workers Employed in Nonfarm Agriculture

Median monthly salaries of employees in the nonfarm agricultural complex of the Lake Charles Area were calculated for each occupational family according to levels of employment. Tables VI-1 through VI-8 show median monthly salaries under categories beginning and maximum.

TABLE VI-1

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	251.00	584.00
Supervisory	000.00	000.00
Sales	284.34	401.00
Office	000.00	000.00
Skilled	286.00	412.00
Semi-Skilled	276.00	326.00
Unskilled	000.00	000.00

TABLE VI-2

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT		
Level Of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	426.00	726.00
Managerial	409.33	701.00
Supervisory	301.00	526.00
Sales	326.00	714.24
Office	276.00	326.00
Skilled	271.00	426.00
Semi-Skilled	259.00	351.00
Unskilled	000.00	000.00

TABLE VI-3

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	426.00	526.00
Managerial	376.00	661.70
Supervisory	413.50	630.16
Sales	180.35	628.17
Office	215.00	360.00
Skilled	331.00	476.00
Semi-Skilled	316.00	438.50
Unskilled	000.00	000.00

TABLE VI-4

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY AND SOIL CONSERVATION		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	392.00	728.00
Technical	376.00	726.00
Managerial	451.00	715.58
Supervisory	336.00	456.00
Sales	359.33	487.11
Office	308.14	461.00
Skilled	000.00	000.00
Semi-Skilled	258.14	458.14
Unskilled	237.54	287.54

TABLE VI-5

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	326.00	726.00
Technical	000.00	000.00
Managerial	301.00	551.00
Supervisory	238.50	476.00
Sales	238.50	413.50
Office	000.00	000.00
Skilled	288.50	713.50
Semi-Skilled	000.00	000.00
Unskilled	191.62	287.11

TABLE VI-6

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	000.00	000.00
Supervisory	301.00	501.00
Sales	000.00	000.00
Office	000.00	000.00
Skilled	226.00	326.00
Semi-Skilled	176.00	326.00
Unskilled	176.00	188.50

TABLE VI-7

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM SERVICE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	426.00	726.00
Technical	273.22	417.66
Managerial	416.00	634.33
Supervisory	401.00	651.00
Sales	294.75	716.91
Office	226.00	365.28
Skilled	314.60	520.44
Semi-Skilled	226.00	301.00
Unskilled	225.16	226.83

TABLE VI-8

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	526.00	709.33
Technical	000.00	000.00
Managerial	351.00	601.00
Supervisory	401.00	551.00
Sales	000.00	000.00
Office	363.50	463.50
Skilled	000.00	000.00
Semi-Skilled	176.00	301.00
Unskilled	176.00	301.00

An analysis of salaries indicated that employees were paid in keeping with training and responsibility, starting with a low income for the unskilled and advancing upward through sales, supervisory, managerial and professional.

Professional, technical, managerial and supervisory employees account for 37 per cent of the total agricultural workers. Professional workers were found in only four occupational families: Crops, Forestry and Soil Conservation, Ornamental Horticulture, Farm Service and Agricultural Service.

Beginning median salaries for the professional, managerial and supervisory levels ranged around $400.00 per month, while maximum median salaries were above $700.00 per month.

This study did not reveal large numbers employed at the technical level in Lake Charles, however, this level of employment offered attractive beginning salaries with substantial increases as the worker gained tenure and experience.

Sales workers were found in all occupational families except Wildlife and Recreation, and Agricultural Services. Almost without exception beginning salaries in this category were around $300.00 per month advancing with job tenure and the skill of the individual. Commissions earned by these workers were dependent upon the individuals ability to increase sales volume and desire for achievement.

Skilled workers were found in all occupational families except Crops, Forestry and Soil Conservation, and Agricultural Service. Beginning median salaries for this level of employment were slightly less than $300.00 per month and increase with tenure to a maximum of $575.00. Semi-skilled and unskilled workers, however, can never hope to achieve a salary--even after years of tenure--to match the beginning salaries of workers in the other levels of employment.

It is significant that 66 per cent of the workers having knowledge and skill in agriculture were employed in the following levels of employment:

1) Managerial 2) Sales 3) Skilled 4) Technical 5) Professional. Average median starting salaries range from $375.00 to $525.00, while average median maximum salaries range from near $700.00 per month to well above this figure. The concentration of employment in these higher levels is worthy of note by educators planning extended programs of vocational agriculture.

Educational Level Desired of Persons Entering Nonfarm Agriculture

Data in Table VII reveal the educational level desired of those planning occupations in nonfarm agriculture.

TABLE VII

EDUCATIONAL LEVEL DESIRED FOR PERSONS ENTERING AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

Occupational Family	Number of Employees					
	Less Than H.S.	H.S. Graduate	Post H.S. Technical Education	Some College	College Degree	No Preference
Farm Machinery Sales & Service	12	16	0	1	1	0
Farm Supplies & Equipment	2	69	10	14	8	5
Livestock & Poultry	0	46	7	10	10	0
Crops, Forestry & Soil Conservation	9	20	0	9	9	0
Ornamental Horticulture	10	8	0	11	4	1
Wildlife & Recreation	8	1	0	2	1	0
Farm Service	41	45	32	24	17	1
Agricultural Service	0	6	5	4	29	0
Total	82	211	54	75	79	7

These data for the Lake Charles Area were parallel to all other nonfarm agricultural businesses and industries of the state participating in the survey in that employers indicated that youth planning careers in this segment of the economy were expected to complete high school --- almost a third of

them must attend or graduate from college. Only 16 per cent of the employees would be replaced by individuals with less than a high school education.

The expression of employers for individuals with college training was of special significance. Only 29 employees were classified at the professional level, yet employers indicated that college training was necessary for 154 or 30 per cent of all employees having knowledge and skill in agriculture. Post-high school technical programs received very few affirmative answers except in the Farm Service family, where it was indicated that 20 per cent of the incoming personnel should have had training at this level.

The preference by employers for formally educated workers was not only general, but applied to all occupational families. This fact should motivate youth to continue their education.

Residential Background Preferred for New Employees

It has been a general assumption that employers in nonfarm agriculture gave preference to workers who were farm reared. The Lake Charles survey indicated that this was not necessarily true, although 43 per cent of the employees would be replaced by workers having a farm background.

Background preference is revealed in Table VIII.

TABLE VIII

RESIDENTIAL BACKGROUND PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm		Rural Nonfarm		Urban		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	16	53.0	0	0.0	0	0.0	14	47.0
Farm Supplies & Equipment	49	45.0	3	2.8	0	0.0	56	52.2
Livestock & Poultry	30	42.0	0	0.0	0	0.0	42	58.0
Crops, Forestry & Soil Conservation	33	70.0	5	11.0	5	11.0	4	8.0
Ornamental Horticulture	16	47.0	0	0.0	2	6.0	16	47.0
Wildlife & Recreation	6	50.0	0	0.0	1	8.0	5	42.0
Farm Service	48	30.0	2	1.0	8	5.0	102	64.0
Agricultural Service	19	43.0	2	5.0	0	0.0	23	52.0
Total	217		12		16		262	

Considerable difference was noted in residential background desired of new employees. The percentage of farm background preference ranged from a low of 30 per cent in Farm Service to a high of 70 per cent in Crops, Forestry and Soil Conservation.

The fact that over 50 per cent of the employees would be replaced with individuals without a farm background was off-set by evidence that indicated employers actually seeking workers with urban or nonfarm backgrounds were relatively few in comparison to the numbers specifying a preference for farm reared workers.

Farm Experience Preferred of New Employees

Table IX covers farm experience of new employees. Employers in the Lake Charles Area indicated that farm experience was necessary for 44 per cent of their employees, although they indicated that they had no particular preference whether that experience was gained on a commercial or non-commercial farm.

TABLE IX

FARM EXPERIENCE PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm					
	Commercial		Noncommercial		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	4	25.0	5	31.0	7	44.0
Farm Supplies & Equipment	19	39.0	12	24.0	18	37.0
Livestock & Poultry	1	3.0	0	0.0	29	97.0
Crops, Forestry & Soil Conservation	17	52.0	11	33.0	5	15.0
Ornamental Horticulture	0	0.0	4	25.0	12	75.0
Wildlife & Recreation	0	0.0	5	83.0	1	17.0
Farm Service	25	52.0	5	10.0	18	38.0
Agricultural Service	1	5.0	12	63.0	6	32.0
Total	67		54		96	

Agricultural Subjects in Which Prospective Workers Must Have Knowledge or Skill

To determine job requirements in terms of knowledge and skill in agricultural subjects was a major objective of this survey. Any adjustment in training programs must conform with qualifications demanded by employers of youth applying for jobs in any one of the occupational families.

In order to record information concerning knowledge and skill needed to effect job entry agriculture was divided into four general subject areas:

1. Animal Science
2. Plant Science
3. Agricultural Business Management and Marketing
4. Agricultural Mechanization and Automation

Tables X-1 through X-8 show agricultural subjects in which prospective employees must have training, according to occupational family and levels of employment.

TABLE X-1

AGRICULTURAL AREAS IN FARM MACHINERY SALES AND SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	7	4	3	4	6
Supervisory	0	0	0	0	0
Sales	6	6	6	6	6
Office	0	0	0	0	0
Skilled	14	3	0	0	14
Semi-Skilled	3	0	0	0	3
Unskilled	0	0	0	0	0
Total	30				

TABLE X-2

AGRICULTURAL AREAS IN FARM SUPPLIES AND EQUIPMENT
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	5	0	5	5	5
Managerial	30	11	25	22	10
Supervisory	4	1	4	3	1
Sales	47	10	36	22	18
Office	12	2	2	3	3
Skilled	5	5	5	1	5
Semi-Skilled	5	0	1	0	5
Unskilled	0	0	0	0	0
Total	108				

TABLE X-3

AGRICULTURAL AREAS IN LIVESTOCK AND POULTRY
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	0	0	0	0	0
Technical	6	6	1	1	1
Managerial	10	11	1	8	5
Supervisory	11	11	2	6	2
Sales	4	4	0	1	1
Office	6	0	0	6	0
Skilled	11	11	0	0	0
Semi-Skilled	25	25	0	0	1
Unskilled	0	0	0	0	0
Total	73				

TABLE X-4

AGRICULTURAL AREAS IN CROPS, FORESTRY AND SOIL CONSERVATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	1	1	1	1	1
Technical	7	0	7	0	7
Managerial	6	5	6	6	6
Supervisory	6	4	4	3	5
Sales	1	1	1	1	1
Office	0	0	0	0	0
Skilled	0	0	0	0	0
Semi-Skilled	7	0	6	7	0
Unskilled	19	0	13	0	13
Total	47				

TABLE X-5

AGRICULTURAL AREAS IN ORNAMENTAL HORTICULTURE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	1	1	1	1	1
Technical	0	0	0	0	0
Managerial	12	0	12	12	7
Supervisory	2	1	2	1	2
Sales	3	0	3	0	0
Office	0	0	0	0	0
Skilled	0	0	0	0	0
Semi-Skilled	3	2	3	2	3
Unskilled	13	0	13	0	6
Total	34				

TABLE X-6

AGRICULTURAL AREAS IN WILDLIFE AND RECREATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	1	0	1	0	1
Supervisory	1	1	1	1	1
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	2	0	2	0	0
Semi-Skilled	4	0	2	0	2
Unskilled	4	1	3	0	2
Total	12				

TABLE X-7

AGRICULTURAL AREAS IN FARM SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	1	1	1	1	1
Technical	12	12	12	12	4
Managerial	31	21	21	21	25
Supervisory	5	2	2	4	2
Sales	21	9	20	20	16
Office	18	1	6	8	0
Skilled	34	9	11	2	28
Semi-Skilled	34	0	18	0	20
Unskilled	4	0	0	0	4
Total	160				

TABLE X-8

AGRICULTURAL AREAS IN AGRICULTURAL SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt.and Marketing	Agri. Mech.and Automation
Professional	26	22	22	23	11
Technical	0	0	0	0	0
Managerial	5	4	3	3	3
Supervisory	1	1	1	1	1
Sales	0	0	0	0	0
Office	8	2	4	2	2
Skilled	0	0	0	0	0
Semi-Skilled	1	1	1	1	1
Unskilled	3	3	2	1	0
Total	44				

A similar pattern was followed in all occupational families concerning agricultural knowledge and skill required of new employees at the different employment levels. Employers were in general agreement that workers at the management, supervisory and sales levels must have broad training extending over all agricultural subject areas; while those in the professional, technical and skilled classifications were expected to have intensive training in the area of their speciality. In the Agricultural Service family it was noted that professional workers were expected to be well versed in all subject areas.

The product sold or service performed influenced the emphasis placed upon training desired in the agricultural subject areas. For example, data indicate that in Ornamental Horticulture emphasis was placed upon the plant science area, while in Farm Machinery Sales and Service this area was not considered important.

In a majority of the cases, businesses and agencies favored training in all agricultural areas, with emphasis upon one or more areas dealing directly with the work or service to be preformed. There was general agreement that while most workers in nonfarm agriculture need a broad agricultural background, including office workers in many instances, some specialization had to be acquired either by training or experience at all levels except the unskilled.

Continuing Education Required of Employees With Educational Facilities Used

Employers were asked to indicate in-service training expected of all employees to advance on the job, designating educational facilities used or provided for such training.

Table XI shows this information by occupational family and according to educational facility used.

TABLE XI

CONTINUING EDUCATION REQUIRED OF
EMPLOYEES AND EDUCATIONAL FACILITIES USED

Occupational Family	No.	Number of Firms: Firm or Industry School	On-the-Job Training	Pub.Sch. Adult Educ.	Vocational School	Agri. School	None
Farm Machinery Sales & Service	30	22	23	5	11	0	0
Farm Supplies & Equipment	108	12	70	1	8	14	20
Livestock & Poultry	73	23	61	23	5	8	4
Crops, Forestry & Soil Conservation	47	21	39	12	3	11	1
Ornamental Horticulture	34	7	22	12	1	14	3
Wildlife & Recreation	12	0	6	2	6	1	0
Farm Service	160	74	144	10	10	34	19
Agricultural Service	44	12	22	0	7	8	15
Total	508	171	387	65	51	90	69

A majority of employees covered by this survey, 86 per cent, participated in educational programs designed to upgrade them on-the-job and for job advancement.

On-the-job training programs were used to upgrade employees in 76 per cent of the cases. Firm or industry schools were provided for 34 per cent of the employees in all occupational families. Agricultural colleges, public school adult education programs and vocational schools were used in only a small percentage of the cases. It was a special significance that employers indicated no continuing education program for only 14 per cent of the total number of employees having knowledge and skill in agriculture.

Expression of a general desire by employers to have continuing education available for their employees, and the fact that in most cases the present training was from on-the-job training and firm or industry schools, points up the great need for expanded vocational programs in our public schools.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The objective of vocational education in agriculture should reflect the changes in the occupational needs of workers in agriculture. The rapid march of technology and science has eliminated the need for large quantities of manpower in production agriculture. Farms are becoming larger and require a large number of specialized services. Gradually a vast nonfarm agriculture has emerged that employs more workers than does farming.

Thus, today modern agriculture is broad and complex, involving not a single occupation but groups of occupations. These groups of occupations may be broadly categorized as production, marketing, processing, and service occupations, each requiring extensive knowledge and highly developed skills for successful performance. National trends indicate that agriculture will become even more complex and specialized in the future.

The immediate task of this survey has been to record facts concerning off-farm agricultural occupations within the Lake Charles Metropolitan Area and thus to inform educators, employers, parents and high school youth of the occupational opportunities in all phases of agriculture.

Summary

The survey of off-farm agriculture in the Lake Charles Area reveals substantial occupational opportunities for the agriculturally trained.

The study was designed to reveal information necessary to guide educators in formulating high school vocational agriculture programs to meet employer needs for workers trained in agricultural subjects. The objectives giving guidance to the study were:

1. To determine numbers of employees in agricultural businesses and agencies, and
2. To identify job titles requiring a knowledge and skill in agriculture, and

3. To determine specific characteristics of job titles, such as, salary, age, farm experience, and a description of responsibilities and work performed.

Findings are summarized as follows:

1. The nonfarm agricultural complex was made up of 90 businesses and agencies, employing 1,908 workers, of which 508 were required to have competencies in agricultural subjects.
2. The 508 agricultural workers held a total of 141 different job titles --five years hence the number of employees will increase to 574--while identifiable job titles will increase to 160.
3. The scope of the agricultural complex was such that a substantial number of businesses were found in each occupational family.
4. The Lake Charles survey indicated no recognizable pattern of product or service provided by nonfarm agriculture, except that emphasis was given to Farm Service, which is in conformance with national trends.
5. Employees at the management, sales, semi-skilled and skilled levels were in greatest numbers, followed by office, unskilled, technical and professional occupations.
6. Current ages of all employees ranged around the 35 year average for all occupational families. The acceptable minimum age for job entry fell at 25 years, while the maximum age was placed at 45. A lack of younger persons seeking employment in agricultural jobs accounted for the entry age of 25, while the maximum age of 45 allowed for at least 20 years of service prior to retirement.
7. Salaries paid by firms and agencies surveyed were in keeping with those engaged in other segments of the economy. Provisions were in evidence for salary increments with tenure and experience. Workers were paid according to education, training and responsibility.

8. Replacement of workers was limited almost entirely to applicants with a high school or college education--only 16 per cent of the employees would be replaced by individuals with less than a high school education. Almost one-third of the workers would be replaced from applicants having a college degree or some successful college experience.

9. Employees with agricultural knowledge and skill in 44 per cent of the cases would be replaced by persons having a farm residential background, however, in the majority of cases no preference was indicated as to the type of farm. Although a majority of the employers expressed no preference as to kind of residential background required of prospective employees, they did not indicate a preference for the urban reared or those with a rural nonfarm background.

10. The kind of training in agricultural subjects varied according to level of employment and occupational family. Workers in management, supervision and sales were expected to have broad agricultural experience and training extending over all subject matter areas; while those in professional, technical and skilled classifications were expected to have intensive training in the area of their speciality.

11. Limitations effecting job entrance were confined to education and job training except in the professional classification where a college degree was required. Some of the agricultural agencies were under civil service, therefore they complied with state or federal regulations governing job entry. Labor union contracts were found in a very small number of firms.

12. A need for more intensive vocational education prior to job entry, or in the early stages of employment, was indicated by a majority of the employers interviewed.

13. Employers in the Lake Charles Area provided continuing education for

their employees. On-the-job training and firm or industry schools were the most common means of effecting this training. Agricultural colleges, public school adult education programs and vocational schools were used in only a small percentage of the cases.

Conclusions

The Lake Charles survey revealed a vital and growing nonfarm agricultural complex. The scope and extent of this complex is revealed by the number of businesses, the number of employees and the wide range and variety of agricultural services performed.

Results of this study clearly indicate changes in agriculture which have occurred at an accelerated pace during the past decade--production farming and the supplier of products and services are inseparable--each dependent upon the other.

The scope of nonfarm agriculture gives emphasis to the importance of providing workers with the best possible educational advantages at the preemployment level and for continuing education after job entry.

Conclusions drawn from the Lake Charles study may aid educators in making the adjustments in programs of vocational agriculture required, if the needs of rural youth are to be fully met.

Conclusions drawn are:

1. Establishments making up the Lake Charles agricultural complex represent practically all aspects of nonfarm agriculture. Job titles are present in a substantial number, and range in employment level from unskilled to professional.
2. Businesses and agencies engaged in processing, servicing, supplying and equipping agricultural production constitute a large segment of this area's economy---a substantial number of employees with knowledge and skill in agricultural subjects are employed.

3. The greater proportions of managerial, supervisory, sales and skilled employees found show a decreasing need for semi-skilled and unskilled workers.

4. Prospective agricultural workers are most employable at ages ranging from 25 to 45, which permits employees to accumulate necessary skill and knowledge required for job entry and offers the employer at least 20 years service. Adequate training programs at the high school level would tend to lower job entry age.

5. Without exception, definite knowledge and skill in agricultural subjects was required by all job titles. Advancement was geared to continuing education provided chiefly by on-the-job training and firm and industry schools. Salaries were in keeping with training and responsibilities.

6. Applicants for jobs in nonfarm agriculture must complete at least a high school education. High school and college training was stressed by all interviewees.

7. Workers who were farm reared are preferred but this is not a requirement for job entry. Emphasis was placed on agricultural training and job experience.

8. Nonfarm agriculture offers the youth of the Lake Charles Area a wide range of occupational opportunities. Its' scope is of sufficient size to offer a continuing challenge to educators of the area.

Recommendations

Programs of vocational agriculture should reflect the changes in the occupational needs of the workers in the whole field of agriculture.

The growing employment market in agriculture is in the establishments that process, service, supply and equip agricultural production. Nationwide, the number of farmers is declining, yet agriculture continues to be the number one

industry in number and variety of jobs offered--it employs one out of every three persons. No other industry offers the challenges of agriculture.

If vocational education in agriculture is to effectively fulfill its functions, the program must be continually evaluated, adjusted and extended to meet the needs and demands of current technological developments and new social and economic conditions.

No single pattern will adequately fulfill all of these purposes. In view of the dynamic nature of agriculture and our society, diversity, flexibility and adaptability should characterize programs of the future.

Based upon results of the survey of the Lake Charles Metropolitan Area, a few recommendations are offered.

1. Counselors, teachers, students and parents should be acquainted with the rapid growth of agriculture. Production agriculture is the basic segment of agriculture with processing, servicing, supplying and equipping the farmer rounding out the picture. Each segment is dependent on the other and each requires extended educational services.
2. School administrators, counselors, teachers and parents should be alerted to the number and variety of jobs in the Lake Charles nonfarm agricultural complex. Students of this area should be given the opportunity to explore agricultural jobs at the various levels in all occupational families as they attempt to select an occupation.
3. Programs of vocational education in agriculture must function within an overall program of vocational education, since students require knowledge and skill in agricultural businesses and industry rather than skills that relate directly to farming.
4. Educators should assume the responsibility for the assembling of resources necessary to provide training in essential areas of agriculture. Resources should be provided for those who plan to farm, enter nonfarm

agricultural occupations and/or pursue further training in agriculture at the college or university level.

5. Educators, in developing plans for extending vocational agriculture, can profit by consulting employers that provide continuing education programs for their employees before making final decisions defining pre-employment training necessary for successful job entry.
6. An opportunity exists for public education to accept the responsibility of assembling resources required for the upgrading of workers who need additional agricultural knowledge and skill to continue on the job and advance in the firm.
7. Programs of instruction should provide for the more general training in agriculture during the early part of vocational training, concentrating on the more specialized phases and participating experiences during the latter part of the training period. Most job titles identified require a basic knowledge in most subject matter areas of agriculture, with emphasis on one or more areas necessary for job performance.
8. Schools should "gear" vocational agriculture instruction to off-farm agricultural job training, keeping farmer-training for those who will farm. To implement a dual-purpose program - one that will serve boys who have vocational objectives leading to entry into nonfarm agricultural jobs and at the same time meet the needs of boys who wish to remain on the farm - will require considerably more resources than are found normally, including personnel, instructional materials, and facilities for giving pre-employment job experiences. Providing such resources must be a major part of any approach to broadening and extending programs in vocational agriculture.

APPENDIX A

NONFARM AGRICULTURAL BUSINESSES AND AGENCIES COOPERATING IN THE SURVEY

Calcam Tractor & Equipment Co., Inc.
Neal Equipment Co., Inc.
Kemmerly, C. E. & Sons, Inc.
Southwest Implement Co., Inc.
Natali-LeJeune Implement Co.
Morgan, A. T. Crop Service
The Cowboy Store
Lake Charles Grain & Grocery Co. (Best-Bet)
Lake Charles Grain & Grocery Co. (Fertilizer)
Lake Charles Grain & Grocery Co.
Woolworth, F. W. & Co.
Hercules Lifetime Fence Co.
Kress, S. H. & Co.
Sulphur Fence Co. (Allied)
Morgan & Lindsey, Inc.
King's Seed Store, Inc.
Kelly-Weber & Co., Inc.
Sears Roebuck & Co. Farm Store
McCall's Farm Supply, Inc.
Norwood Lumber & Hardware Co.
Reeves Lumber Co.
Gulf Lumber & Hardware
Lake Charles Lumber Co., Inc.
Harless, Inc. (Calcasieu Bldg Mat.)
Builders Supply Co.
Krause & Managan, Inc.
La. Western Lumber Co., Inc.
Home Bldg. Materials
Managan & Carroll Bldg. Mat., Inc.
Quality Bldg. Supplies
South St. Lumber Co.
Vermillion Creamery
Swift Packing Co.
Micelle's Commission Yard
Montgomery's Farm & Hatchery
Leading Dairy
Micelle, John Meat Packers
Guth Dairy, Inc.
The Borden Co.
Lake Charles Livestock Commission
Better Homes Tree Service
Stedman Wholesale Distributors, Inc.
Cotton Compress & Warehouse
Edgewood Land & Logging Co., Ltd.
Green Gate Garden Center, Inc.
Vallot's Nursery
Pronia's Floral Garden
Romero Greenhouse & Nursery
Duggans Greenhouse & Nursery
Enco Exterminators & Nursery
Reeves Garden Center

Kayouchee Coulee Golf Club
Sam Houston State Park
Lake Charles Golf & Country Club
Louisiana Flyer, Inc.
Doucets Blacksmith & Welding Co.
Coleman Agency
Guillory Real Estate
Bennett Pest Control
Iles Real Estate
Orkin Exterminating Co., Inc.
Alamo Insect Control
Bruce Terminex Co.
McKinzie Pest Control
Evangeline Iron Works, Ltd.
LeBouef Welding Service
Atlas Welding & Machine Works
Central Machine & Welding Works, Inc.
Better Pest Control
Landry, Pete Welding Shop
Louisiana Farm Bureau
Howell Realty
Dixie Exterminating Co., Inc.
Sweet Lake Land & Oil Co., Inc.
Jennings Production Co.
Martin Water Well Service
Broussard Blacksmith
Layne-Louisiana Co.
Gulf Machine Shop
Myrick Water Well Service
Farmers Home Administration
Arnold's Animal Hospital
Agricultural Stabilization & Conservation Service
Dalovisio Veterinary Clinic
Bruce & Vincent Vet. Hospital
Jolly Animal Clinic
Morris Animal Hospital
McNeese State College, Agri. Dept.
Agricultural Extension Service
Quilty - Smythe Veterinary Clinic

APPENDIX B

PERSONS CONDUCTING INTERVIEWS TO OBTAIN SURVEY DATA

Mr. Philip G. Birdwell, 137 Frazer, Lake Charles, Louisiana

Mrs. Juanita Duhon, Rt. 2, Box 115, Lake Charles, Louisiana

Mr. Reinhold G. Grubb, 3613 McKinley St., Lake Charles, Louisiana

Mrs. Almada Mueller, 309 W. Lee, Maplewood, Louisiana

Mr. Walter E. Williams, 3449 Taylor Dr., Lake Charles, Louisiana

APPENDIX C

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form I

I. Business or Service (Business Code_____)(Firm Number_____)

A. Name of Business or Service_____

Address_____Parish_____

B. Person Interviewed_____

Position_____

C. Estimated per cent gross income that is agriculturally oriented_____

D. Major agricultural products and/or functions of business or service_____

_____

_____

II. Employees in this Business or Service -- (Total Number)_____

A. For employees needing competencies in agriculture, complete the following:

Existing Job Titles	Number of Employees Full-Time	Part-Time	Five Year
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Anticipated New Job Titles	Number of Employees		
	Full-Time	Part-Time	Five Year
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

Fill out a separate Form 2 for each job title listed above.

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form II

I. Name and Address of Firm_____

_____

II. Job Title_____

III. Number of workers in this job title_____

Full-time_____ Part-time_____

Average Age_____ Min. for Entry_____ Max. for Entry_____

IV. Wage or Salary per Month: (Beginning - Maximum - Present)

_____ 150 - 200 _____ 301 - 350 _____ 451 - 500 _____ 601 - 650

_____ 201 - 250 _____ 351 - 400 _____ 501 - 550 _____ 651 - 700

_____ 251 - 300 _____ 401 - 450 _____ 551 - 600 _____ 700 and above.

V. Activities and Duties of Persons with this Job Title_____

_____

_____

_____

_____

VI. Agricultural Areas with which Worker must be Familiar to do Job:

Animal Science

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Breeding Farm Animals
_____	_____	_____	2. Livestock Feeding and Nutrition
_____	_____	_____	3. Sanitation, Disease and Parasite Control
_____	_____	_____	4. Housing and Equipment

Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Animal Science (Cont'd.)

Necessary	Desirable	Not Necessary	
_____	_____	_____	5. Management
_____	_____	_____	6. The Dairy Manufacturing Industry
_____	_____	_____	7. Processing _____ Packing Plants _____ Creameries _____ Poultry Processing _____ Butchering
_____	_____	_____	8. Marketing _____ Packing Plants _____ Creameries _____ Poultry Processing Plants _____ Livestock Auctions

Plant Science

_____	_____	_____	1. Propagation
_____	_____	_____	2. Soils and Fertilization
_____	_____	_____	3. Control of insects_____diseases_____weeds_____
_____	_____	_____	4. Management
_____	_____	_____	5. Production of Ornamental Plants
_____	_____	_____	6. Landscaping
_____	_____	_____	7. Ginning
_____	_____	_____	8. Warehousing
_____	_____	_____	9. Processing (food, seed, grain, etc.)
_____	_____	_____	10. Marketing
_____	_____	_____	11. Forestry _____ Establishing a Stand _____ Hardwood Control _____ Fire Control _____ Estimating and Grading _____ Disease Control _____ Insect Control _____ Harvesting _____ Marketing _____ Manufacturing _____ Pulp Wood

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Agricultural Business Management and Marketing

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Records and Accounts, Budgeting and Analysis
_____	_____	_____	2. Agricultural Financing, Credit and Insurance
_____	_____	_____	3. Farm Organization and Management
_____	_____	_____	4. Labor Management
_____	_____	_____	5. Marketing Problems and Practices
_____	_____	_____	6. Agricultural Policy
_____	_____	_____	7. Agricultural and Related Price Analysis
_____	_____	_____	8. Cooperatives and Business Organizations

Agricultural Mechanics and Automation

_____	_____	_____	1. Farm Power and Machinery
_____	_____	_____	2. Farm Buildings and Conveniences
_____	_____	_____	3. Farm Electrification and Processing
_____	_____	_____	4. Soil and Water Conservation
_____	_____	_____	5. Farm Shop (Welding, Plumbing, etc.)
_____	_____	_____	6. Farm Construction and Maintenance

List other agricultural competencies that are needed for this job title_____

_____

_____

_____

VII. Education Level Desired for Job Titles (Check only one)

_____ 1. Less than High School Graduate

_____ 2. High School Graduate

_____ 3. Post High School Technical Education

_____ 4. Some College

_____ 5. College Degree
_____Baccalaureate _____Master's _____Doctor's

_____ 6. No Preference

VIII. Residential Background (Check only one)

1. Farm_____ 2. Rural, Nonfarm_____ 3. Urban_____ 4. No Preference_____

IX. Farm Experience

_____ 1. On a commercial farm

_____ 2. On a noncommercial farm

_____ 3. No Preference

X. Experience Desired to Enter this Job Title_____

_____

_____

XI. Limitations on Entering this Job Title

A. Licensing or Certification

_____ 1. Professional

_____ 2. Industrial

_____ 3. Civil Service

_____ 4. Other (specify)_____

_____

B. Labor Law Restrictions_____

_____

C. Labor Union Restrictions_____

_____

D. Other (specify)_____

_____

XII. Education Required to Advance in this Job Title

A. Technical short course or training provided by:

_____ 1. Your firm or the industry as a whole

_____ 2. On-the-job training

_____ 3. Public school (adult education)

_____ 4. A vocational school

_____ 5. An agricultural college

_____ 6. None

APPENDIX D

NONFARM AGRICULTURAL JOB TITLES-LAKE CHARLES AREA

OCCUPATIONAL FAMILY	LEVEL OF EMPLOYMENT AND JOB TITLE	NUMBER OF WORKERS
I. Farm Machinery Sales and Service		
	Professional	
	Technical	
	Managerial	
	Manager	1
	Parts Manager	2
	General Manager	2
	Supervisory	
	Sales	
	Salesman	5
	Parts Salesman	1
	Office	
	Bookkeeper	1
	Skilled	
	Mechanic	9
	Tractor & Machine Mechanic	2
	Semi-Skilled	
	Assemblyman	3
	Parts Man	5
	Unskilled	
II. Farm Supplies and Equipment		
	Professional	
	Technical	
	Pilot	5
	Managerial	
	Manager-Owner	5
	Asst. Manager	2
	Manager	18
	Plant Manager	2
	Division Manager	1
	General Manager	1
	Parts Manager	1
	Asst. Parts Manager	1
	Office Manager	1
	Supervisory	
	Mill Superintendent	1
	Foreman	1
	Shop Foreman	1
	Planner Foreman	1
	Sales	
	Salesman	43
	Purchasing Agent	3
	Outside Salesman	2
	Office	
	Office Clerk	6
	Bookkeeper	1
	Accountant	1
	Shipping Clerk	5

	Skilled	
	Merchant's Serviceman	5
	Semi-Skilled	
	Assemblyman	1
	Truck Driver	4
	Unskilled	
III. Livestock and Poultry		
	Professional	
	Technical	
	Auctioneer	2
	Lab. Technician	2
	Lab. Sample Checker	1
	Field Man	1
	Managerial	
	Manager	5
	Manager-Owner	2
	Farm Manager	1
	Plant Manager	1
	General Manager	1
	Supervisory	
	Supervisor	2
	Superintendent	1
	Sales Supervisor	3
	Plant Superintendent	2
	Foreman	3
	Yard Foreman	1
	Sales	
	Salesman	4
	Office	
	Ticket Writer	2
	Scale Man	1
	Receiving Man	2
	Weight Master	1
	Skilled	
	Meat Cutter	2
	Butcher	6
	Pasteurizer Operator	3
	Semi-Skilled	
	Ring Man	2
	Sales Driver	23
	Unskilled	
IV. Crops, Forestry and Soil Conservation		
	Professional	
	Asst. Forester	1
	Technical	
	Tree Surgeon	7
	Managerial	
	Manager	1
	General Manager	1
	Asst. Manager	1
	Office Manager	1
	Forestry Manager	1
	Sales Manager	1

	Supervisory	
	Foreman	3
	Supervisor-Warehouse	1
	Supervisor-Transportation	1
	Sales	
	Salesman	1
	Office	
	Skilled	
	Semi-Skilled	
	Truck Driver	7
	Unskilled	
	Laborer	13
	Porter	6
V. Ornamental Horticulture		
	Professional	
	Horticulturist	1
	Technical	
	Managerial	
	Manager	6
	Asst. Manager	4
	Sales Lot Manager	1
	Manager-Owner	1
	Supervisory	
	Lot & Landscape Foreman	1
	Job Foreman	1
	Sales	
	Lot Salesman	2
	Salesman	1
	Office	
	Skilled	
	Semi-Skilled	
	Tractor Driver	1
	Serviceman	2
	Unskilled	
	Laborer	13
VI. Wildlife and Recreation		
	Professional	
	Technical	
	Managerial	
	Golf Course Manager	1
	Supervisory	
	Superintendent	1
	Sales	
	Office	
	Skilled	
	Operator	2
	Semi-Skilled	
	Maintenance Man	4
	Unskilled	
	Laborer	2
	Park Attendant	1
	Greenskeeper	1
VII. Farm Service		
	Professional	
	Field Engineer	1

	Technical	
	Pilot	9
	Service Technician	3
	Managerial	
	Manager	21
	Sales Manager	2
	Office Manager	1
	General Manager	1
	Mgr. Egg Hatcheries	1
	Mgr. Production & Sale - Eggs	1
	Mgr. of Cattle	1
	Vice President	1
	Rice Drier Manager	2
	Supervisory	
	Supervisor Pest Control	1
	Shop Foreman	1
	Irrigation Supervisor	2
	Field Superintendent	1
	Sales	
	Salesman	21
	Office	
	Office Clerks	15
	Bookkeeper	2
	Secretary	1
	Skilled	
	Driller	8
	Machinist	12
	Welder	12
	Mechanic	1
	Welding Operator	1
	Semi-Skilled	
	Pest Control Service Man	12
	Termite Treating Service Man	6
	Serviceman	12
	Warehouseman	1
	Welders Helper	1
	Fieldman	1
	Driller Helper	1
	Unskilled	
	General Helper	4
VIII. Agricultural Service		
	Professional	
	Veterinarian	7
	Agriculture Teacher	9
	Home Economic Teacher	3
	County Agent	1
	Assoc. Home Demonstration Agent	1
	Home Demonstration Agent	1
	Assoc. County Agent	1
	Asst. County Agent	1
	Asst. Home Demonstration Agent	2
	Technical	
	Managerial	
	Manager	2

Office Manager	2
Department Manager	1
Supervisory	
Performance Supervisor	1
Sales	
Office	
Program Clerk	2
Office Clerk	1
Receptionist	2
Secretary	3
Skilled	
Semi-Skilled	
Veterinarian Assistant	1
Unskilled	
Kennel Man	3

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ALCORN COUNTY; MISSISSIPPI

The focus of this study of a community development is on shifts in the labor force, changes in rural social organization and institutions, and the nature of development organization. It is an interpretative report based on intensive studies in Alcorn County. The findings of 26 published reports listed in the appendix, together with unpublished data, provide the basis for analysis. The data have been taken largely from sample surveys of households in 37 white, open-country and hamlet neighborhoods. Changes in major occupational groupings from 1940-60 show that the number of gainfully employed remained relatively constant with a rapid shift out of agriculture into manufacturing, trades and services. The number employed in agriculture declined by approximately 60 percent while the number employed in manufacturing increased by three-fourths. As the number of workers in agriculture declined, populations, organizations, and services moved from the open-country to the trade center, Corinth, which in 1963 had an estimated one-half of the county's population. With this shift family income increased appreciably, and radical changes occurred in the farm enterprise. The increase in the number of rural women gainfully employed had a favorable impact on rural income and level of living. The findings are presented in six categories: (1) place and people, (2) occupational changes, (3) family types and family living, (4) changing neighborhoods, (5) development organization in the open-country, and (6) organization of the trade area. (SL)

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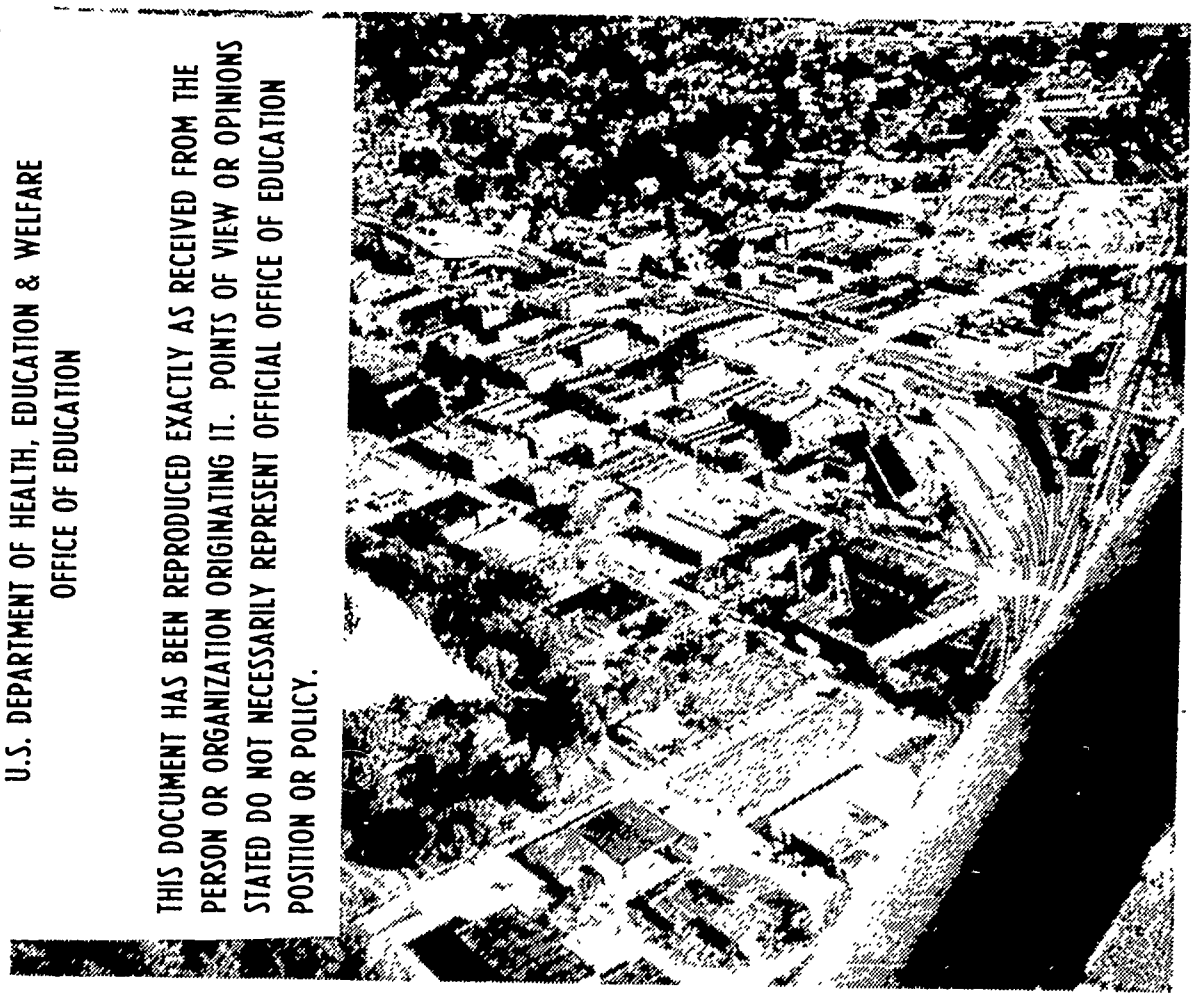
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A Case Study in

Trade-Area Development

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Changes in Occupation and Social Organization in a Northeast Mississippi County

LC 5552

MISSISSIPPI STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
HENRY H. LEVECK, Director

STATE COLLEGE MISSISSIPPI

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SUMMARY

This is a case study of community development — planned change in a limited locality. The focus is on shifts in the labor force, changes in rural social organization and institutions, and the nature of development organization. It is an interpretive report based on intensive studies in Alcorn County in Northeast Mississippi. The findings of 26 published reports listed in the appendix, together with unpublished data, provided the basis for analysis.

As the number of workers in agriculture declined, population, organizations, and services moved from the open country to the trade center, Corinth, which in 1963 had an estimated one-half of the county's population. The decades 1940-1960 showed a rapid shift out of agriculture into manufacturing, trades, and services. Family income increased appreciably, and radical changes occurred in the farm enterprise. The increase in the number of rural women gainfully employed had a favorable impact on rural income and level of living.

Families in the open country varied considerably in terms of social and economic characteristics, and thus were analyzed on the basis of the different kinds of development programs needed. Several types of families were delineated. There were those supported entirely from nonwork income, those still receiving all or part of their income from agriculture, and those rural residents living in the open country who received no agricultural income. The nonwork income type, which consisted chiefly of the older retired families, was relatively homogeneous. Families receiving income from agriculture consisted of two widely divergent types of farm operators, the modern commercial farmer and the traditional, small farmer. Rural residents were highly heterogeneous in nature — on the one hand, the unskilled part-time worker of low income and socio-economic level, and on the other, the "elite" of the countryside.

With the transition from an agricultural economy with small farmers to an industrialized one massed around an urban center, radical changes occurred in schools churches, and rural services. Although open-country neighborhoods had lost services over the last several decades, community club programs provided strength in some places. By 1963, open country club organization had reached a plateau with its future appearing to depend on both occupational shifts and county-wide organizational strategy and effectiveness. Data indicated that it was in the strong neighborhoods with a long history of activity at the neighborhood level that community development clubs were likely to succeed rather than in the weaker neighborhoods where development organization might seem to offer a last hope for neighborhood survival.

At the county level two strong centers of development in terms of interest, organization, and leadership existed. One was the complex of agricultural organizations in which the Agricultural Extension Service played a prominent role. There were approximately a score of different types of agricultural agencies and membership organizations at the county level and more than fifty neighborhood units.

A second center of development in terms of organization and leadership was the business-industrial complex in which the Corinth Chamber of Commerce played a prominent role. During the decade 1952-1962 the area was especially fortunate to have both paid and voluntary workers of high ability in both agricultural and business activities. During this period a number of significant projects were inaugurated and some completed, such as the creation of an industrial park, the planning and financing of a 2.8 million dollar hospital, the construction of a commercial airport, and the extension of telephone service to many residents in the southern portion of the county.

Overall planning and coordination were carried out through an informal liaison between the two major leadership groups — the agricultural and the business-industrial — rather than through one centralized agency.

A Case Study in Trade-Area Development Changes in Occupation and Social Organization in a Northeast Mississippi County

By HAROLD F. KAUFMAN and LUCY W. COLE

PROBLEM AND PROCEDURES

This report is a case study in community development. Community development focuses on the process of planned change in a limited locality. In this instance it is a county seat in Northeast Mississippi with its surrounding trade area. The emphasis is on development organization and programs and their interrelation with changes in the occupational structure and local institutions.

Economic Development

The study of development activity is a multi-disciplinary task with economic concerns frequently receiving the major attention. Generally considered as the best single indices of economic development are per capita increases in real income and in output.

Increasing attention is being paid to the process of development in both highly industrialized nations and underdeveloped countries; the latter have some similarities with the former but also conditions uniquely their own[1]. In the United States, the South, especially the rural South, has received special attention in development of the economy and in improving the relatively serious, low-income situation.

The first pronounced interest in facilitating adjustments of low-income families in rural areas developed during the depression of the thirties. There has been a re-emphasis since World War II[2]. Compared to high-income regions, low-income areas usually have limited agricultural resources, heavy farm population, and insufficient nonfarm employment opportunities. Approximately 1,000 counties in the nation, most of them in the South, have been identified as low-income counties[3]. All the counties in Mississippi have been classified as low-income, and only those in the Delta and on the Gulf Coast are not listed in the "serious" category.

A number of studies have been done within the last decade dealing with economic adjustment of families in low-income areas. These studies have focused on labor utilization, resource use, and level of living of families[4]. With the rapid shift of workers out of agriculture, the low-income situation of the South is changing primarily from a concern in the economics of agriculture to a focus on the complex of problems dealing with the development of the total economy and society.

In promoting economic development, knowledge of what might be termed the "little" economies appears to be essential.

---

[1]The literature in the general field of rapid social and economic change is already voluminous and continues to grow. A journal such as "Economic Development and Culture Change" published quarterly by the Research Center in Economic Development and Culture Change of the University of Chicago, would give the reader some notion of the scope and amount of work in this field.

[2]Development of Agriculture's Human Resources, U. S. Department of Agriculture, Washington, D.C., April 1955.

[3]Ibid.

[4] Agencies of the U. S. Department of Agriculture and state experiment stations have carried on cooperative studies in a number of places. See Buis T. Inman and John H. Southern, Opportunities for Economic Development in Low Production Farm Areas, Agricultural Information Bul. 234, USDA, November 1960.

Until recently, however, this area of research has been largely overlooked[5]. A recent survey of the "little" economies in the United States found over 14,000 privately and publicly financed organizations concerned with local economic development. It was also discoverd that "single purpose programs, such as industrial development, are beginning to be replaced[6] by multi-purpose, comprehensive programs." It is within this context of local economic development that the present study of development organization and related social factors may be most timely and useful. To complement the traditional economic analysis, which includes the balance or imbalance[7] of productive factors such as capital, resources and technology[8], it is proposed that the notion of development organization be added as an essential part of the study of local development[9].

[5]See Donald R. Gilmore, Developing the "Little" Economies, Committee for Economic Development, Supplementary Paper No. 10, 1959. See also the work of the group of researchers affiliated with the Regional Science Association.

[6]Ibid., p. 24.

[7]For development of a theory of unbalanced growth sequence see Albert D. Hirschman, The Strategy of Economic Development, Yale University Press, 1958.

[8]See A Blue Print For Mississippi . Economic Progress sponsored by the Mississippi Economic Council and released in November, 1962. This consists of a summary statement and of more than a score of "background papers" describing what are termed "income stations" and "income conditioners." To the three factors, resources, capital, and technology are frequently added population and economic and political institutions. The notion of development organization as treated here is, at best, a residual category, largely implicit in most writings.

[9]Although beyond the scope of this study, the need should be noted for a coverage of theory of development organization and notions of production factors as they apply to the "little" economies—town and country trade areas and cities.

Organization for Local Development

The objective of this study is to analyze, at least in a preliminary fashion, selected organizational factors in the local development complex. Of central concern is the development organization itself, such as a community development or area improvement agency. Closely associated with the above is a group of auxiliary agencies serving clientele with special interests and technical needs. These agencies in the locality studied include the Agricultural Extension Service and USDA agencies with county programs.

A second concern of this study is a description of changes in organizations which represent the basic social institutions, such as the church and school, and which are essential in providing social stability and continuity. These might be termed agencies of the "community of residence," and data on them are presented in the section on "Changing neighborhoods."

A third body of data deals with the labor force. This includes an analysis of changes in occupation and of classification of family types useful for development programs. Presented first in the report, however, as necessary background for describing the development organization, are population and geographic data.

Activities in the county trade area reported here are to be seen as a case study of the community development movement in the South, which has been prominent since World War II[10]. Programs are generally organized on a trade center or county basis and frequently have both open-country neighborhood and regional counterparts. Although they emphasize creation of new jobs and income, they are broad in purpose and have a number of objectives. In Mississippi at

[10]Harold F. Kaufman, et al., Community Development Programs in the Southeast, Social Science Research Center Community Series 9, 1956.

the present time there are a score or more of counties with development organizations such as those described in this report.

Major opportunities for the employment of persons leaving agriculture may reside in centers such as the one described in this study. As one analyst notes, centers up to 50,000 population "make up small city America and probably furnish the bulk of employment opportunities to rural people."[11] In the 1950-60 decade population centers from 10,000 to 50,000 grew much more rapidly than the nation as a whole. In Mississippi many towns even in the 1000 to 2500 class[12] had a comparatively rapid growth, which is an indicator of the rapid increase in non-farm employment.

Labor Force Analysis

Analysis of labor force composition and trends and of sources of employment may provide a crucial link between a study of development organization and the factors in physical production. This type of interpretation is attempted in this report. Persons who engage in production are also to be seen as participants in development programs.

Change in the occupational distribution is frequently used as a measure of development. In this process the relatively large agricultural labor force declines, the proportion in manufacturing at first increases rapidly then levels off, and the percent in trades, services, and professions continues to grow[13]. For example, in the South for the 70-year period, 1890-1960, the proportion of workers in agriculture and mining declined from approximately two-thirds to one-sixth, while the proportion in the professions, commerce, and services increased from one-fourth to over three-fifths, and the proportion in manufacturing, from one-tenth to approximately one-fifth.

In the nation as a whole the proportion in manufacturing has leveled off, while in Mississippi, with a much smaller industrial base, this proportion continues to increase as the percent of workers in agriculture declines rapidly. With the change in occupational types and the decline in the relative position of agriculture in the economy, it is generally observed that the real per capita income increases[14].

An Interpretive Approach

The approaches and problems noted above indicated a report of some scope. An interpretive report is attempted in order to bring together data from several field studies conducted in Alcorn County, Mississippi, for the period 1955-60[15].

[11]John H. Southern, "Implications of Population and Occupational Change for Rural Areas Development," p. 13, distributed by Economic Research Service, USDA, and given at 40th Annual Agricultural Outlook Conference, November, 1962.

[12]See Harold F. Kaufman and Lucy W. Cole, Size of Trade Center and Development Programs, Mississippi Agricultural Experiment Station Bul. 618, April 1961, and George L. Wilber and Ellen S. Bryant, Growth of Mississippi Counties and Cities, 1950 to 1960, Mississippi Agricultural Experiment Station Bul. 608, December 1960.

[13]See Colin Clark, Conditions of Economic Progress, London: Macmillan, 1940. This author states, "Careful generalization of the available facts indicates that the most important concomitant of economic progress is the movement of the working population from agriculture to manufacture, and then from manufacture to commerce and services."

[14]Ibid.

[15]Investigation was also conducted for a short period the summer of 1963. The work has been done by the Department of Sociology and Rural Life, Mississippi Agricultural Experiment Station. The Agricultural Relations Division of the Tennessee Valley Authority provided cooperation on certain phases of the study. In addition to the authors of this bulletin, W. C. Bailey, Andrew W. Baird, and Ellen Bryant were active in the study during much of its history. The first named person had general supervision of the work for several years. Other professional persons associated with it for a shorter period of time were F. D. Alexander, H. A. Aurback, R. M. Bobbitt, G. V. Douglas, J. E. Dunkelberger, A. A. Fanelli, W. M. Gillis, A. Ostric, H. A. Pendersen, and L. J. Silverman.

Earlier publications, which are listed below, as well as previously unpublished data, are utilized.

This report is aptly described as secondary analysis in that the interpretive framework and data used for evidence have been determined after the field work was completed. No attempt is made to carry out an analysis of a tight cause-effect pattern, but rather to reconstruct a loose association through time between shifts in occupational composition on the one hand, and development and neighborhood organization on the other. This relationship suggests the interpretive thread of the bulletin. Sizable bodies of field data which at first might appear as disparate have been brought together and provide significant evidence to support the interpretation.

From the standpoint of an historical and trends perspective, the analysis is limited by lack of data on early time periods. A panel design, however, was employed for a sample of the farm population, information being obtained on the same population for 1954 and 1957.

Full references of 26 selected publications on Alcorn County Studies are to be found in the last section of this report. They may be identified by matching the numerals in parentheses in the text with those in the Appendix. Generalizations in this report are based on extensive statistical materials which are not reproduced in this publication. They are to be found in a statistical supplement entitled A Case Study in Trade Area Development, A Statistical Supplement[16].

Ten of the 26 publications focus on the educational and other processes involved in the adoption of agricultural and homemaking practices; ten are concerned with neighborhood characteristics, neighborhood development clubs, and related organizations; and the remaining six deal with a description of family types, occupational mobility, and other relevant topics.

Research Procedures

The data used have been taken largely from sample surveys of the open-country population. Thirty-seven white[17], open-country and hamlet neighborhoods were delineated by an experienced analyst in 1955. An enumeration of households by occupation of the head was made at that time. Over 3,500 households were reported.

A note on the rationale of the original surveys is in order. Three family surveys were made involving two separate but overlapping field work designs. Three data complexes were also pointed up. These were (1) adoption of agricultural and homemaking practices, (2) community club functions and neighborhood structure, and (3) open-country family characteristics and types.

In the first survey in 1955, the schedule on "Adoption of Agricultural Practices" was taken on 161 farm operators[18] in six neighborhoods. A resurvey of these farm operators was conducted in 1958.

In the second survey, conducted in the late spring of 1956, a schedule on "Part-time Farmer and Rural Resident," which focused on occupational and level of living changes, was taken on 482 households in 15 different neighborhoods. In this survey nine neighborhoods were added to the six which had been utilized in the adoption of prac-

[16]Progress Report in Sociology and Rural Life No. 30, August 1963. This may be secured by writing to the Department of Sociology and Rural Life or to one of the authors.

[17]Less than one-tenth of the open-country population was Negro. This population was found widely scattered in 13 of the 37 white neighborhoods and in one small all-Negro neighborhood.

[18]Farmers included in this study had at least five acres of crop land, worked on the farm at least one third of the time, (approximately 100 days), lived on the farm in 1954, owned work power, and made their own decisions on enterprise. Schedules were taken in 1955 covering the 1954 crop year and the resurvey in 1958 covered the 1957 crop year.

tices survey.

A random sample of households in the 15 neighborhoods was secured by interviewing every third household in the nine neighborhoods in which contact had not been made previously. In the six neighborhoods in which the adoption of practices schedules had been taken, every third household was also drawn, but in case the household had already been interviewed, a second interview was not held. The one-third sample of households in 15 neighborhoods resulted in 487 household schedules. All occupational types of households were interviewed. These included full-time farm households as well as part-time farm and rural resident ones, although the schedule had the title designating only the latter two groupings.

The neighborhoods themselves were selected on a purposive basis. The six neighborhoods in the adoption of practices sample were selected by first classifying all neighborhoods as large, medium and small in terms of number of families. Then within each size group, two neighborhoods were selected, one which had a community club and one which did not[19]. The level of agricultural practice in the neighborhoods was also a consideration in the selection.

In selecting the nine additional neighborhoods several factors were considered. First, the neighborhoods to be selected were to be seen in relation to the six which were already being studied. Criteria made explicit in selecting the additional nine neighborhoods were (1) location in the county and distance from the county seat, (2) number of households, (3) occupational distribution, (4) land type, and (5) degree of neighborhood organization. The sample of neighborhoods and families when classified as to size of neighborhood and soil type corresponded very closely to the proportions found in the county as a whole.

The representativeness of Alcorn County of the northeast hill area of Mississippi and of the upland region of the South is noted in the following section.

[19]A community club did not exist in either of the two smallest neighborhoods, although one was organized in one of them later. The latter neighborhood was selected as one of a pair for this reason.

PLACE AND PEOPLE

This section provides a brief discussion of human and physical resources as background for consideration of labor force shifts and the role of development organization. Physical resources include location, land, and man-made physical property such as buildings, roads, and machinery. The term human resources refers to the population — its characteristics and changes.

Location and Land

Alcorn County, bordering on the Tennessee line and one county removed from the Alabama line, is located in the hill section of Northeast Mississippi. The county is crossed by four railroads and two federal highways. All of these arteries of transportation cross at Corinth, the major trade center and the county seat. In addition to Corinth the county has one small incorporated town, Rienzi, and several unincorporated hamlets. See Figure 1.

The county can be divided into three distinct land use areas. The eastern and western portions are similar and consist of the poorer, more hilly land, much of which is best suited to timber. A third area running north and south through the center of the county

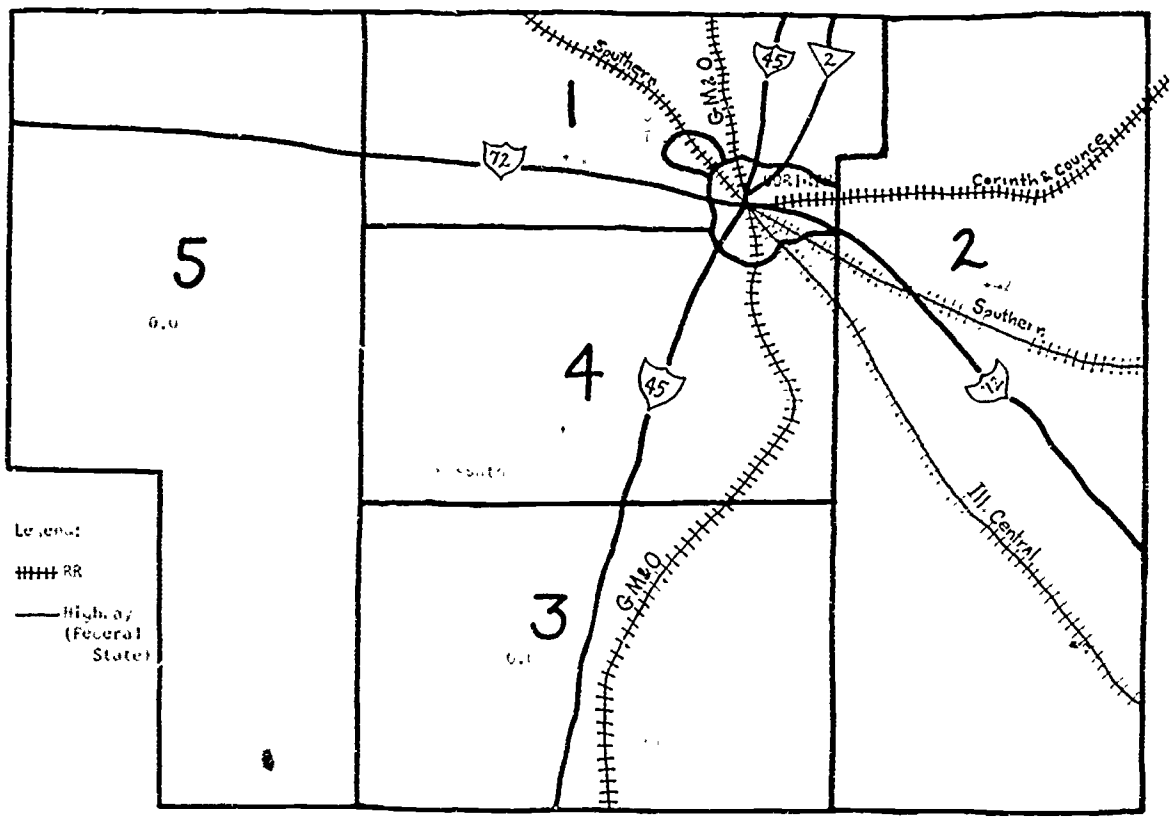


Figure 1.—Alcorn County, Mississippi, Population Centers, Arteries of Transportation, and Percent Population Change by Beat, 1880-1960.

is relatively more level with more of the land suitable for agriculture. The county seat is located at the northern end of this belt. Agriculturally the county is an upland cotton area; this crop still provides a majority of the cash farm income although livestock production is gaining in importance. Certainly over half, and some estimates are as high as four-fifths, of land in the county is better suited for timber than agricultural uses, especially row crops.

Alcorn County is characteristic of the state and the upland South with respect to its major social institutions and traditional agricultural economy with cotton the chief source of cash income. The slow development of industry before World War II with an emphasis on textiles is also typical. Although many counties have one dominant center, as is Corinth, this center is probably larger than the average (median) for the region and certainly for Mississippi. In 1960 one-fifth of Mississippi counties had population centers of 10,000 or over.

Alcorn County was organized in 1870 from parts of the county on the east and the one on the west. It is divided, as are other Mississippi counties, into five beats (administrative townships). See Figure 1.

Centralization in the Trade Center

The shift in population and economic and other activities from the open country neighborhoods and hamlets to the larger centers is a general trend not only in the state and the South but throughout town and country America. This parallels the much greater population shift nationally from town and country to metropolitan areas. The population change is of course an index of the shift in jobs from farm to factory and service establishment.

This radical shift in the location of population and settlement patterns raises important questions concerning work and residence and the relation of the trade center to its hinterland. A central question, which is discussed below, is under what conditions and to what extent the open country can hold and attract persons no longer engaged in agriculture. This assumes that their jobs are located in or near the larger centers of the area.

The proportion that Corinth comprised of the county population increased from approximately one-seventh in 1880 to upward of one-half in 1960. See Table 1. The number of persons outside of Corinth reached its maximum in 1940 and declined sharply in the following twenty years, especially in the 1950-60 decade. In 1960 the population in the open country was about the same as a half century earlier. The analysis of changes in the population by beat locates the shifts geographically. The beats least influenced by activities in the larger trade center had about the same population in 1960 as 80 years earlier when first settlement was under way. See Figure 1.

As is typical, new residences and industries have located in the areas surrounding Corinth. The growth of the center has come not through increase in density of population but by annexation of suburban territory. The entire increase in population in Corinth for the decade 1950-60 was acquired in this manner.

Population Characteristics and Change

Characteristics of the population to be noted are race, age, education, and income. These are compared with state and national averages, and their significance for the adjustment process — the shift of workers out of agriculture —is observed.[20] As is seen in Table 1, the proportion of the population non-white declined from nearly one-third of the total in 1880 to less than one-seventh in 1960. As this racial group has been located entirely in the better farming area in the central portion of the county and in Corinth, the decline in numbers is largely a reflection of the reduction in agricultural workers. The nonwhite population in 1960 was approximately 30 percent less than that in 1940.

The percent nonwhite in 1960 was less than one-third of that for the state but slightly higher than the proportion for the nation. This situation and trend with respect to the nonwhite population is typical of the upland town and country South.

The age distribution of a population may provide some indication of the stage of the adjustment process. A pop-

[20]Figures for county totals and for state and nation were taken from the U. S. Census of Population.

Table 1.—Population of Alcorn County classified by residence and race for selected years, 1870-1960[1]

Year	Number of Residents			Percent of Residents	
	County total	Corinth	Non-White	Corinth	Non-White
1870	10,431	1,512	2,768	14	27
1880	14,272	2,275	4,409	16	31
1890	13,115	2,111	3,510	16	27
1900	14,987	3,661	3,825	24	26
1910	18,159	5,020	4,275	28	24
1920	21,369	5,498	4,106	26	19
1930	23,653	6,220	4,130	26	17
1940	26,969	7,818	4,723	29	18
1950	27,158	9,785	3,904	36	14
1960	25,282	11,453	3,337	45	13

[1]Source: U. S. Census of Population.
It is estimated that the population of Corinth increased over 1500 for the period 1960-1967.

ulation that has relatively few jobs for its workers is likely to have a lower proportion of persons in the productive age group — 15 to 64 years of age — than is the population which has adequate employment. The age groups, 0-14 and 65 and over, are frequently termed the dependent ages, and the proportion these age groups form of the total population is sometimes called the dependency rate or ratio.

This rate is appreciably different for the white and the nonwhite group in that the latter has a much higher proportion of the population in the dependent ages. This indicates that the nonwhite population has a much higher outmigration of persons in the productive ages. In 1950 the percent of white persons in the dependent ages was approximately 3 percent higher for Alcorn County than for the nation. Because of the rapid decline in the proportion of persons over 65, however, the dependency rate for the county in 1960 was one percent lower than the national rate. This similarity is an indication of adjustment in the white labor force. However, the nonwhite population in the county continued to have a 4 to 5 percent higher proportion of persons in the dependent age groups than was true for the nation.

In both income and educational level the county ranked slightly below the state and decidely below the nation. In 1960 the median years of schooling completed for persons 25 years of age and over was 8.3 in the county, 8.9 in the state and 10.6 in the nation. The median family income in the county in 1959 was approximately half that of the nation and slightly below that of the state.

As great differences existed within the county with respect to population characteristics as between the county and outside populations. Data collected in a 1956 survey of one-third of the families in 15 of the open-country neighborhoods in the county point up this differential. As was noted above, that portion of the county farthest from the county seat, and with the smallest proportion of agricultural land, had lost population rapidly in the previous twenty years and in 1960 had no more residents than in 1880. The neighborhoods in this portion of the county were more likely to have an older population, one with less schooling, with much lower family income and with a much higher proportion of the population on nonwork income, principally welfare and pension payments. In 1956, for example, in a neighborhood in a declining area of the county 47 percent of the male heads were over 55 years of age. The median years of school completed for persons over 25 was 5.3, and the median family income reported was approximately $600. By contrast, in one of the open-country neighborhoods adjoining the county seat only 29 percent of the male heads were over 55, the median years of schooling completed was 8.5 and the median family income reported was approximately $2300. The declining neighborhoods had a relatively high percent of the population who were supported entirely from nonwork income. In one neighborhood nearly one-third of the households had no work income.

OCCUPATIONAL CHANGES

The focus of this study is an examination of the relations between changes in occupational patterns and in social organization, especially developmental activity. What effect, for example, has the rapid decline in employment in agriculture had on group life, especially in the open country? Changes in occupational patterns are described in some detail in this section.

From Agriculture to Manufacturing

The changes in major occupational

Table 2.—Persons Employed in Agriculture, Manufacturing, and Wholesale and Retail Trade in Alcorn County, Mississippi, 1940-1960[1].

Year	Total No. employed	Agriculture	Manufacturing	Wholesale & retail trade	Other[2]
1960	8,606	17	28	18	37
1950	8,839	34	17	17	32
1940	8,208	43	16	13	28

[1]Source: U. S. Census of Population.

[2]Includes service in public administration, the professions, business and finance, transportation and communication, utilities, education, religion, hospitals, health and welfare, entertainment and recreation, repair, and work in private households together with all personal services.

groupings for the 20-year period, 1940-60, are shown in Table 2. For this period the number gainfully employed remained relatively constant; the number in agriculture declined by approximately 60 percent and the number in manufacturing increased three-fourths. The increase in workers in trade, services, business and the professions was moderate. Occupational shifts were especially rapid in the 1950 decade and appeared to be continuing at this pace at the time of writing of this report in 1963. Estimates of jobs added by the establishment of new factories and the expansion of existing ones for the period, 1960-63, indicated that not only the number of workers in manufacturing for 1963 was considerably higher than three years earlier but also the proportion.

An open-country population, which as late as the thirties was made up largely of farm families, was rapidly disappearing. In its place was to be found a population comprised largely of rural residents — persons who lived in the country but whose livelihood was from sources other than agriculture. Of the 482 families reporting income in the 15-community sample survey of 1956, the percents receiving income from the following sources were:

Nonfarm work only 36
Farming and nonfarm work 28
Farming only 22
Nonwork income only 14

It is quite likely that at the date of writing this report in 1963 the proportion receiving income from agriculture only was still decreasing and the reverse was true for the proportion receiving all of their income outside of agriculture.

Process of Shifting Out of Agriculture

Evidence of a shift out of agriculture may be seen also in terms of the trend in number of farms. The year of enumeration and the number of farms reported were as follows:

1900 1944
1930 3334
1950 3050
1954 2498
1959 1888

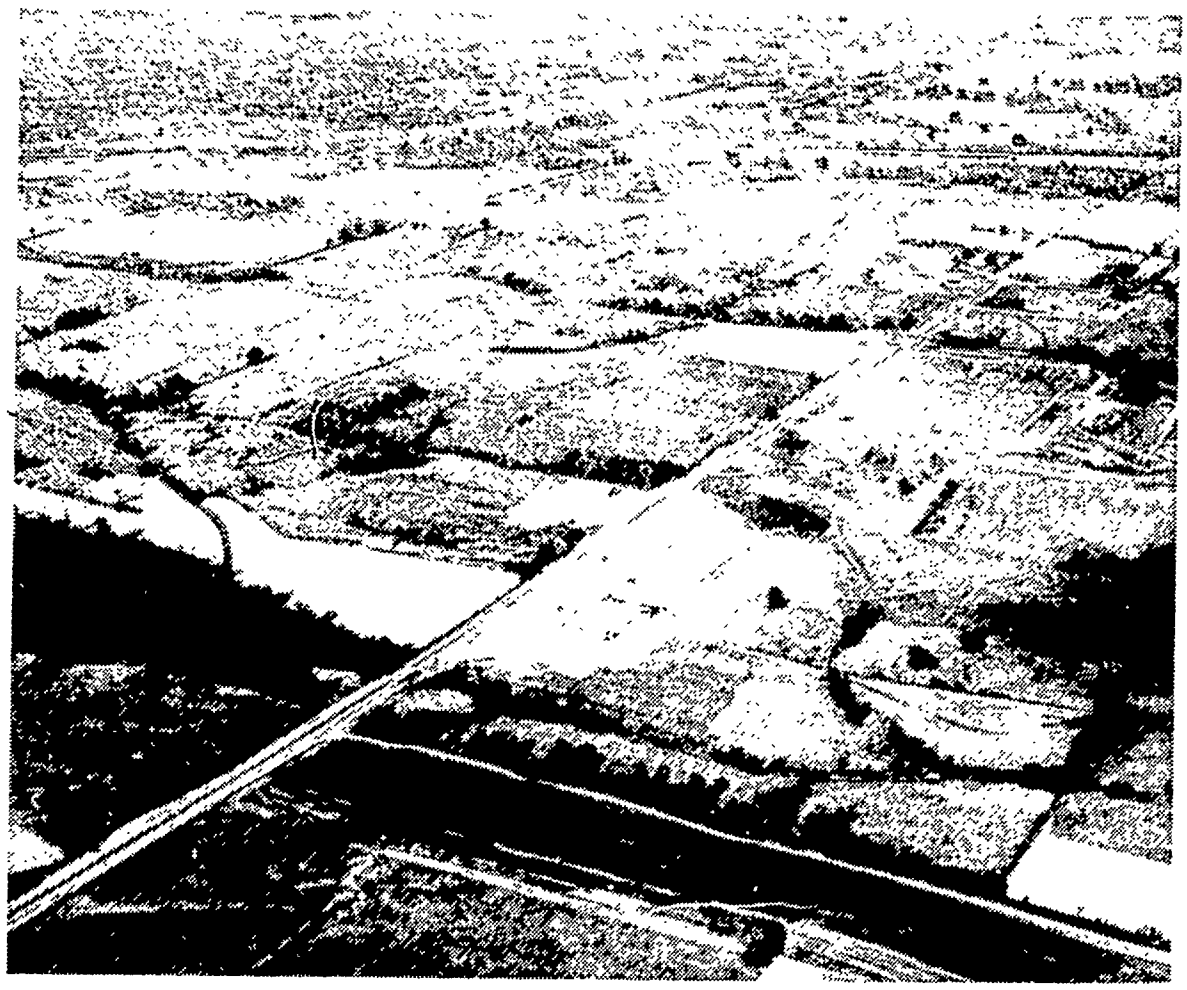
The number of farms reached the peak in 1930, had a slight decline in the next two decades, and showed a very sharp decrease during the 1950's.[21]

Part-time farming is widely regarded as a transitional stage, either into or out of agriculture, especially the latter. In Alcorn County in 1960, 30 percent of the farm operators reported working 100 days or more off their farms. This was approximately twice the proportion reporting off-farm work two decades earlier.[22] By contrast, for this period the South and the nation showed a reverse trend.

The six-neighborhood survey for the crop years 1954 and 1957 details the process of the shift out of agriculture. (6)

[21]The decrease from 1954 to 1959 is appreciable even when changes in definition of farm are taken into consideration.

[22]U. S. Census of Agriculture.



From Farm to Factory: Industrial Park Near Corinth.

Of the 161 farm operators[23] enumerated in these neighborhoods for the crop year 1954, only 109 were left three years later. Thus the decline in number of operators was 52 or approximately one-third in the three-year period. Those who moved had the following status in 1957:

Obtained non-farm employment	29
Retired	15
Moved to a farm elsewhere	8

Of the 29 persons who had quit farming, two-thirds had not moved. Only one of the retired persons had moved from the place where he had been living three years earlier. This relatively large proportion of operators retiring is to be partially explained by the enactment of Social Security legislation for farmers during this period. The great majority of persons taking nonfarm employment stated that the major reason for the change was to make more money.

Persons leaving agriculture were more likely to live in the poor farming neighborhoods located farther from the trade center than were those who remained in agriculture. Those entering nonfarm employment were younger than those remaining in farming, their level of practice was lower, and their operation smaller. Analysis of the use of approximately 1500 acres of cropland operated by the 52 persons who had left farming in the three-year period indicates that the poorer cropland had either gone into the soil bank or remained idle, while much

[23]Farm operators were defined in this study as having at least five acres of cropland, working on the farm at least one-third of the time (approximately 100 days), living on the farm in 1954, owning work power, and making their own decisions on enterprise.

of the better land had been utilized by neighboring farmers. Although the total acreage of crop land had declined, it was probably more productive.

Changes in the Agricultural Enterprise

With the decrease in the number of farms, the median size of farms increased. A major loss in number of farms came from the smaller ones. The average size farm in 1880 was 120 acres. Size declined until 1930, when the average was 60 acres. From then it increased until 1959, when the average was 95.

With the decline in the number of smaller and less productive farms, income rose. The proportion of commercial farms with sales of $5000 or more increased from 1 percent of the total in 1950 to 14 percent in 1959. The reverse was true of those commercial farms with less than $2500 gross sales, which formed nearly nine-tenths of the total in 1950 but only about one-half in 1959. As indicated above, the number of part-time and residential farms continued to increase. The proportion was slightly over one-third in 1950 and increased to nearly one-half by 1959.

Trends in tenure paralleled those found in the nation, region, and state. For the period of record the percent of operators who were tenants gradually increased until 1930, when it formed 59 percent of the total. In 1959, the percent of tenants was 31, only about one-half the proportion found two decades earlier.

Although livestock sales were becoming a more important part of agricultural income, cotton remained the major source of cash farm income.[24] Even with a steady increase in the number of cattle and hogs for the 1940 and 1950 decades and a declining cotton acreage, upward to three-fourths of the cash farm income in 1959 came from cotton. Although the acres devoted to cotton in 1959 were only approximately one-third of those used in 1930, the total production was almost as great due to the fact that yield per acre almost tripled.

Some Aspects of Industrialization

The early industries consisted of saw mills, food processing plants, brick kilns, hosiery mills and a garment plant. Apparel and related plants have continued to be a major source of employment in the county. Between 1954 and 1956 three new shirt factories and a new hosiery mill added close to 700 new jobs.[25] During the latter part of the 1950's two relatively large factories were established producing pianos and telephone equipment. These provided approximately 800 jobs, many for men.

With the large apparel industry it is not surprising that over one-third of all gainful workers in 1960 were women. Of the women in the labor force approximately two-thirds were married, and more than one-fifth of these had children under six years of age. For the 20-year period, 1940-1960, the number of employed women increased by approximately two-fifths, and the proportion women formed of the total labor force increased from 27 to 36 percent. As the percent of employed women living in Corinth remained the same for the period, the increase came entirely in rural areas.

The percent of rural women employed increasel from 13 to 26 percent during the two decades. Significantly, this increase in rural women working came in the period when the number of farms and farmers was rapidly declining. Further implications concerning the rural homemaker who works are discussed in the following section on family types.

[24] Base Book of Mississippi Agriculture, Miss. Crop and Livestock Reporting Service, Jackson, Miss.

[25] See the following publications by the Miss. Agricultural and Industrial Board, Jackson, Miss.: Directory of Mississippi Manufacturers, 3rd Ed., 1953, and Supplement to 1953 Directory of Mississippi Manufacturers — Plants Located Since 1953 (Mimeo.) Jan. 1956.

Effect on Income

The shift of a relatively large proportion of the population out of agriculture into other types of employment contributed appreciably to raising the income level of the county's population. Median earnings of all males in 1959 were $2150.[26] Those in manufacturing and related work reported a median income aproximately three times that of those in agriculture.

Although the median family income in the county in 1959 was reported to be only about half that of the nation, it had much more than doubled during the preceding ten years. In 1959 it was a decidedly higher percentage of the national median than 10 years earlier. This trend was the same as that observed in the state.

An indication of money which the population had available for consumption and investment is to be seen in the index of bank debits.[27] With an index number of 100 in 1945, the amount of funds in the Corinth banks on time and demand deposits had increased to an index of 173 in 1950, and to one of 333 in 1960.

Related to this index is to be seen the sharp increase in industrial payrolls reported by the Corinth Chamber of Commerce. For the period, 1952-62, this item increased from $5½ million to $13½ million. Other indicators of the rise in level of living also reported were the increased number of rural telephones and users of electricity. In 1952 there were only 3,000 rural telephones, and by 1952 the number had more than doubled (6,113). During the same period the number of users of electricity in the county rose from 6,561 to 9,126, an increase of approximately two-fifths. These increases are to be seen in relation to a declining total population.

[26]U. S. Census of Population.

[27]Compiled by the Bureau of Business and Economic Research, Miss. State Univ.

FAMILY TYPES AND FAMILY LIVING

An analysis of family types moves from a look at the labor force and other factors in production to a concern for the types of people who participate and are served by development organizations. The population, even in the open country, is quite varied, and thus has different needs and demands a variety of services. For educational and action agencies to render the most effective service, some functional classification of families[28] and individuals is necessary.

The Process of Upward Mobility

The process of upward mobility, as the term is used here, is the movement from a given occupation and level of living to a more desirable one for those concerned. The aspect of social mobility which has been described above is the occupational shift from small farm, low-income agriculture to more remunerative nonagricultural employment. Upward movement of job and income is also desirable for many persons in nonagricultural pursuits.

The sample survey of families in fifteen neighborhoods in 1956 provides the data for the two types of classifications used here. The one is determined by source and amount of income and points up level of living groups. The other is determined by level of practice in agriculture and is suggestive of the nature of mobility in this occupational grouping.

[28]Harold F. Kaufman and John E. Dunkelberger, "Classifying Families in Low-income Rural Areas," Sociologia, Vol. XXII, No. 2, June, 1960.

Table 3.—Relation of Source and Amount of Income to Selected Socio-Economic Characteristics of Families in Alcorn County, Fifteen-Neighborhood Survey, 1956. (22)

Source and amount of income types	Number of families	High socio-economic score[1]	Daily newspaper	Under 55 years	12 or more yrs. sch.	Participation in organizations[2]	Wife employed
		Percent with — — — Head — — —					
Nonwork: All incomes	66	18	30	15	5	4	6
Nonfarm: Under $1500	46	26	27	58	5	5	30
Part-farm: Under $1500	43	28	47	58	9	8	23
Farm: All Incomes	124	34	40	62	7	9	
Nonfarm: Under $4000	86	63	50	88	22	16	38
Part-farm: $1500 & over	72	66	63	82	18	24	55
Nonfarm: $4000 & over	38	87	79	84	40	27	42
All families	475	45	46	64	16	13	24

[1]William H. Sewell, The Construction and Standardization of a Scale for the Measurement of the Socio-Economic Status of Oklahoma Farm Families. Stillwater, Okla.: Oklahoma Agr. & Mech. College Agr. Exp. Sta. Technical Bul. No. 9, Apr. 1940. Scores ranged from 39-91: those 72 and above were designated as "high".

[2]Membership in other than religious organizations.

Source and Level of Income

Table 3 shows families classified by source and amount of income and described in terms of selected characteristics such as level of living score, participation in other than religious programs, age of head, and years of schooling (22). The sources of income for the survey families (not head) were classified as to nonwork, nonfarm, farm only, and farm and non farm, which is termed in the table "part-farm." In the 1956 survey almost all families reporting only nonwork income and those reporting only farm income stated that their total cash income was less than $1500. Thus these groups are not sub-classified in terms of amount of cash income received, whereas the part-farm and nonfarm are so classified.

The groups are presented in an ascending order from a low to a relatively high level. The basis for comparison is to be found in the percents for the total sample population. For illustrative purposes the lowest and highest ranking groups may be described. The nonwork income group is to be seen as one of older families, many of them probably retired. Years of schooling, level of living, amount of participation, and percent of wives working were all low. This group comprised approximately one-seventh of all the families. By contrast, the group of families living entirely on nonfarm income and having total annual cash earnings of $4000 or more ranked highest on all the measures used. This group comprised approximately one-twelfth of all families. The significance of these groups for development organization is noted below.

Level of Agricultural Practice

In slightly more than two-fifths of the families surveyed in 1956 — 213 out of 485 — the head was engaged in agriculture either full or part time. These farmers were classified as to how well they followed recommended agricultural practices (26). A level of practice score was computed.[29] Two types of farm operators are treated in this discussion: (1) those with the highest level of practice, adopting all five recommended methods, and (2) those with the lowest level of practice, adopting none, or at the most, one of the recommended pro-

[29]Five out of 12 practices were selected by the cumulative method of scoring. These were use of certified cottonseed, use of hybrid seed corn, thick spacing of corn, soil testing, and written records.



From Subsistence to Commercial Agriculture — An Improved Dairy Herd.

cedures.

These two groups are compared and contrasted on selected socio-economic characteristics in Table 4. The two groups suggest two types of farm operators found in the present rapidly changing agricultural scene. The highest adopter represents the modern commercial farmer, while the low adopter has the characteristics of the traditional operator who was the dominant type in the area up until a decade or two ago. The high adopter as compared with the low adopter had a much greater gross income, was more likely to have someone in his family in nonfarm employment, was more highly educated, was considerably younger, and was much more active in development and agricultural organizations.

The Employed Wife

Approximately one-fourth of the wives in the survey of the 15 open-country neighborhoods were employed outside the home. These working homemakers had a higher level of adoption of recommended home practices than did those homemakers who were not employed (9).[30] The higher score for those employed may be partially explained by the age and education of those persons and the fact that they were likely to have husbands who were employed and had contacts off the farm. The employed wives were more likely to be in the middle age groups, 35 to 60, than were women not working outside the home.

[30]Thirteen homemaking practices were used in the index. For details see (9).

Highly significant was the fact that the employed wife contributed approximately one-half of the family's total cash income (9).[31] Partially because of this, those families with employed homemakers were likely to have considerably higher incomes than the other families. It should be noted that the three highest income groups in Table 3 had the highest porportion of wives employed.

It is sometimes maintained that working wives slow up the shift out of agriculture by allowing the husband to remain in farming instead of securing other employment. Certainly, the evidence from Alcorn County does not support this position. Families with heads entirely in nonfarm employment or only part-time in agriculture were much more likely to have homemakers employed than were those where the head received all his income from the sale of farm products. The data from this study suggest that far from the working wife "subsidizing" a partially or totally unemployed husband she is much more likely to have a husband who is "more aspiring" and has higher income than others.

[31]The median income for all families with wives working was $2650: the median income for wives was $1375.

Family Types and Development Organization

From the above analysis several types of families relevant for development programs are indicated. Perhaps the most homogeneous group was those who were supported entirely by non-work income. Most of the heads of these families were retired. Families supported entirely from non-work income comprised approximately one-seventh of the rural population surveyed in 1956. It is likely that the relative size of this group will be maintained for some time because of the high age of many farm operators. Programs most relevant for this group would be those which provide services for the older population of a health, welfare, and educational nature.

A second grouping, those toward which most adjustment programs have been oriented, are the persons who still receive all or part of their income from agriculture. Two types of farm operators and families were noted in Table 4 below and were characterized as the modern

Table 4.—Farmers with the highest and lowest level of practice compared on selected social and economic characteristics. (26)

Item	All operators	Practice level[1] Highest	Lowest
Number of persons	213	18	72
Median gross farm income	$1333	$2600	$1058
Median net family income	$ 728	$2000	$ 423
Percent families receiving income outside of agriculture	57	72	45
Percent of operators full time farming	77	72	79
Percent owning tractor	63	94	44
Median acres operated	72	100	68
Percent with nine or more years of schooling	21	61	4
Median age	49	43	54
Socio-Economic Score[2]	70	82	65
Percent belonging to organizations other than the church	20	50	4
Percent having contact with Soil Conservation Service	22	58	4
Percent having contact with Extension Service	36	75	12

[1]Highest all five practices; lowest, none or one.
[2]Sewell op. cit.

commercial farmer and the traditional small farm operator. Data are not available to predict the exact number of commercial farms with adequate resources that the county can support, but it is likely that the number is considerably less than the 990 commercial farms in the county in 1959. Adequate educational and action programs appear to be available in the county for the full-time commercial farmer. With the growing number of rural residents and part-time farmers, however, programs especially oriented for these persons need to be considered.

A third population of great importance in planning rural development is made up of rural residents—those who live in the open country but are not engaged in farming. This is the largest group in the countryside and is growing in size. As indicated in Table 3, it is quite diverse. It is made up on the one hand largely of unskilled, part-time workers who have relatively low income and socio-economic level, and on the other hand, by a group of rural residents who in terms of level of living, education and organizational leadership may be considered the "elite" of the countryside.

With the rapid decline of the farm population, the open-country neighborhood is becoming more and more a place of residence rather than a location for work. This implication is developed in the following section dealing with rural neighborhoods.

CHANGING NEIGHBORHOODS

Open-country and hamlet neighborhoods.[32] provide at least a part of the locale for rural development. The central question is what contribution, if any, neighborhood organization can make. In this section the neighborhoods in the county are described in terms of services provided and other characteristics; in the following section neighborhood development organization is critically analyzed.

Location and Characteristics

The rural neighborhood has undergone radical change with the transition from an agricultural economy with small farm operators living and working on dispersed farmsteads to an industrialized one with population massed around an urban center and rural residents commuting to this center for work in trades and services. Before changes for the Alcorn County neighborhoods are detailed, however, a brief description is presented of a survey of them in the mid-fifties (1).

As pointed out above, 37 all or predominately white neighborhoods[33] and one non-white neighborhood were delineated in 1955. The neighborhoods varied greatly as to size and other characteristics. In size they ranged from 21 to 295 families, and the median number was 74. The neighborhoods of the county classified as to degree of organization are shown in Figure 2. The nature of neighborhood organization will be discussed in detail in the following section, but it should be noted that a neighborhood is a social unit to the extent that certain activities conducted within its boundaries contribute to its identity. These ac-

[32]Following its technical usage in sociology the term "neighborhood" is employed rather than the term "community" which is the popular or folk term. Communities and community clubs of Alcorn County are used to designate neighborhoods and neighborhood associations.

[33]One or more Negro families lived in only 14, or slightly more than one-third of the 37 neighborhoods. These were in the central portion of the county.

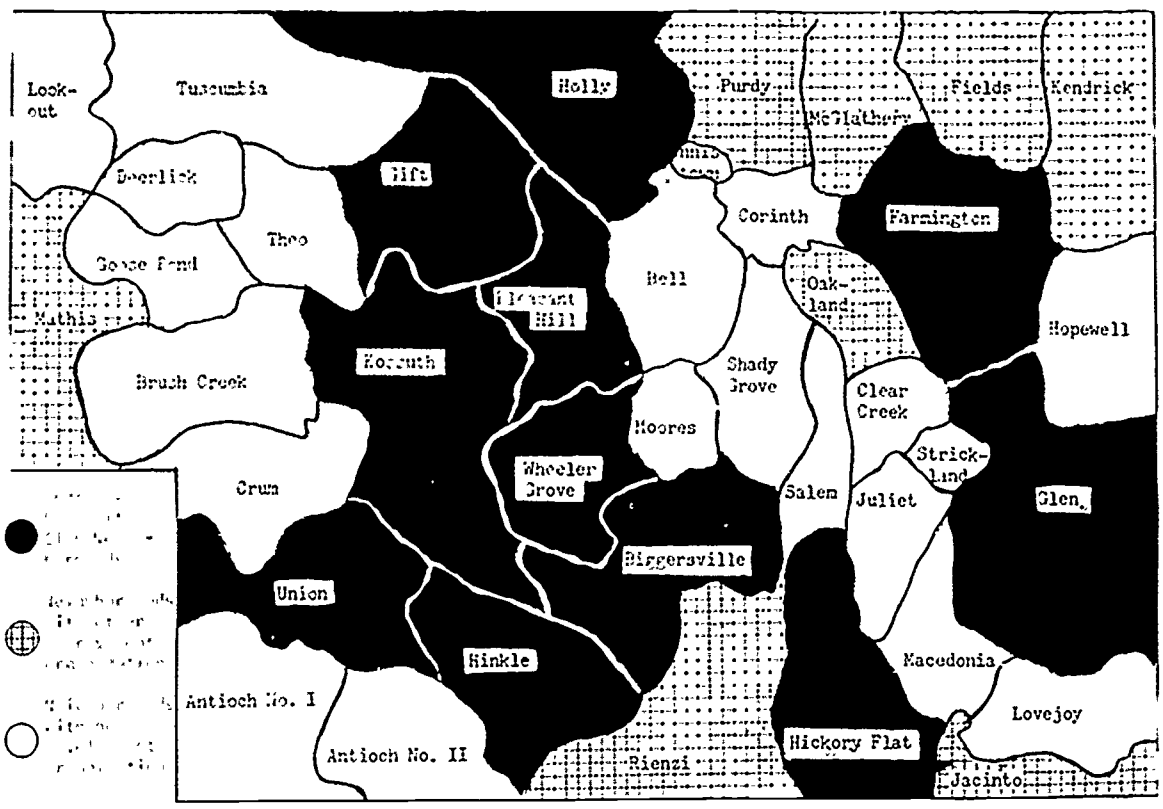


Figure 2.—Alcorn County Rural Neighborhoods, 1955-1958, by Type of Organization for Development.

tivities include not only organized efforts but also "neighboring" and informal leisure time pursuits.

In the mid-fifties approximately one-third of the neighborhoods had community clubs, and about the same proportion were utilized as Agricultural Conservation and Stablization units. Over two-fifths were used as voting precincts, and one-fifth had Home Demonstration Clubs. The number of stores, cotton gins and related services had declined, but the exact figures were not available. In 1911, 10 of the neighborhoods had post offices as compared to only four in the mid-fifties. During the last several decades the number of voting precincts increased and remained organized along neighborhood lines.

Consolidation of Schools

Since neighborhoods often grew up around schools, the loss of these institutions explains some of the decline in number of neighborhoods and also the changes in boundaries. Minutes of county school boards for the early decades of the century indicated that the schools were thought of as being neighborhood institutions. These minutes contained many references to petitions for establishment of schools and adjustment of school boundaries. In 1910 there were 71 white elementary schools outside of Corinth (17). At this time school districts and neighborhoods apparently coincided.

The early consolidations seemed to indicate the joining together of neighborhoods or parts of neighborhoods. By 1925 there were only 53 school districts in the county, and according to newspaper accounts, the school names were still the same as the neighborhood names. By 1955 there were only 23 rural elementary schools and three high schools for the 37 rural neighborhoods, and school dis-

tricts no longer corresponded to neighborhood boundaries. By the sixties the divorcement of school district from neighborhood boundary was complete. There was one district for Corinth and another for the rural areas with eight attendance units. All Negroes were transported to Corinth. The loss of the school as an important neighborhood service not only reduced the number of local functions but also necessitated the forming of new relationships with other neighborhoods and with the county as a whole.

Churches Maintain Their Numbers

By contrast with school trends, the number of churches in the rural area of the county increased. In 1957 all of the 37 neighborhoods except four had churches. There were 64 churches in the rural area of the county as compared with 55 nearly four decades earlier. From 1920 to 1940 there was a gain in the rural population but a loss in the number of churches (19). From 1940 to 1957, however, population declined by one-fifth, but during roughly the same period, 1942 to 1957, the number of churches increased 31 percent. These counter-trends may be illustrated by the seven survey neighborhoods in beats losing population. In the last two census decades two of these neighborhoods gained in number of churches, four retained the same number, and only one lost a church. The village of Rienzi, which lost 6 percent of its population between 1930 and 1950, gained two churches.

In 1957, 29 of the 64 churches were Baptist, 13 were Methodist, 11 were Church of Christ or Christian, and 3 were Presbyterian. Eight were either non-denominational or smaller religious bodies in terms of their representation in the area and the state; all of these eight churches had been organized since 1921. For the period, 1921 to 1957, the number of Baptist churches remained almost the same. The number of Methodist and Presbyterian Churches declined. The number of Churches of Christ increased.

Although many of the schools bore the neighborhood name, a church had the neighborhood name in only one of the 37 localities studied. As contrasted with most other activities, church service areas were for the most part not coterminous with neighborhood boundaries. Slightly more families attended church outside than inside the neighborhood in which they resided.

The Future of the Open-Country Neighborhood

The decline of open-country neighborhoods throughout the nation over the last several decades is well recognized and documented.[34] Although the rural neighborhood has probably been stronger in the South than elsewhere, at least in recent decades, the decline appears to be appreciable here also.[35] In 1910 approximately 70 school neighborhoods were found; in the thirties and forties 45 or 46 neighborhoods were mapped by agricultural workers; and in 1955 in this study only 37 were delineated, some of which were nominal with no organized activity on a neighborhood basis and many residents appearing to be unaware of the name.

The complexity of a neighborhood, the number of services offered, should not be taken as an index of its vitality. The importance of an activity in maintaining locality identity rather than the number

[34]A number of critical discussions are available. Cf. Alvin L. Bertrand "Rural Locality Groups," Rural Sociology 19, pp. 174-179, June, 1954, and Allen B. Edwards, "Ecological Patterns of American Rural Communities," Rural Sociology, Vol. 12, pp. 150-161, June, 1947.

[35]Selz C. Mayo and Robert M. Bobbitt, Rural Reorganization: A Restudy of Locality Groups in Wake County, North Carolina, N. C. AES Tech. Bul. No. 95, Sept., 1951, p. 24.



The Open-Country Neighborhood a Good Place to Live
a Community Club Dinner Meeting

of such activities is the significant criterion in judging the vitality of the neighborhood. For example, some neighborhoods adjacent to the county seat with a relatively large number of services offered to the population were declining as distinctive social units just as were some of the smaller neighborhoods distant from the county seat which were losing population rapidly and which had lost all or nearly all of their services.

The central question in planning is whether or not certain services can be more effectively organized on a neighborhood basis than in some other way. With the decline in the population engaged in agriculture the neighborhood has become largely an area for residence rather than one in which economic production plays a prominent part. Thus it might be contended that the open-country neighborhood will survive to the extent that it can provide effectively those educational, recreational, and other services which make a given locality a good place in which to live.

The prediction might be ventured that if there is to be an open-country neighborhood of the future which has some permanency, it will have an organized structure with considerable informal association accompanying it. The organization will be multi-interest, will adjust to meet change, and will help relate the residents to one another as well as to the

larger soicety. A recent attempt has been made in the South and specifically in the county studied to organize the open country neighborhood. This activity is called the "community club" program which is treated in the following section.

DEVELOPMENT ORGANIZATION IN THE OPEN COUNTRY

Development organization in the open country refers to those groups established on a neighborhood basis which have as their objective the improvement of living in the neighborhood. In the county studied these organizations were of two types. One was limited in its interest and generally in its sex and age groupings. It included 4-H Clubs, home demonstration clubs, Future Farmers and Future Homemakers of America, and forestry clubs. The second type of organization was the neighborhood club, called the community club. The community club was a multi-purpose organization which designated all families residing within the neighborhood as potential members. The discussion which follows deals with the neighborhood club.

The Club Movement in Alcorn County

The neighborhood club program in Alcorn County is a part of the movement which has developed through the state and the Southeast since World War II.[36] The first club of this type was organized in the county in 1952 by the professional agricultural leaders. This club was in one of the better farming neighborhoods which had a reputation of cooperation with county organizations (7). During the four-year period, 1952-1956, a total of 11 clubs were organized. In 1955, the county coordinating and sponsoring agency was established and named the Alcorn County Development Council. This council was made up of representatives from the neighborhood associations, the sponsoring civic clubs, and the professional agricultural leaders or workers.

In 1960, two additional clubs were organized. Thus, by the end of this year there was a total of 13 organizations. In 1961, however, one club was disbanded, and in 1962, two organizations were discontinued, leaving a total of 10.[37] In all three neighborhoods key leaders in the clubs had either died or moved away. In one neighborhood the population decline was very rapid, and in another, residents of the locality became seriously divided over school issues.

By 1963, open-country club organization had reached a plateau, and its future appeared to depend on several rapid and critical changes occurring in the county. These included occupational shifts, which have been discussed above, and county-wide organizational strategy and effectiveness, which is considered below.

The relation of neighborhood clubs to schools is seen in the fact that of the 10 active clubs in 1963, four were meeting in a building which was formerly used for the school and had been sold to the neighborhood association as a club house. A fifth club was planning to purchase a school building as a meeting place. A sixth club met in a church, and the remaining four met in school buildings now in use.

In the late fifties approximately one-

[36]For a treatment of these programs see Harold F. Kaufman, **Community Development Programs in the Southeast,** Miss. State College Social Science Research Center, Community Series No. 9, June, 1956.

[37]In 1952, 164 clubs were reported active in the state. By the mid-fifties this number had increased to over 400 and by 1963 to over 500.

fifth of the families in the neighborhoods in which clubs were organized participated in these associations. The membership averaged around 25 or 30 families.

Club Activities

Programs of the clubs were varied and covered a number of major interests ranging from development of agriculture and improving homemaking to recreational activities (7) A club typically had a monthly meeting balanced with educational and recreational activity. Educational topics were of a wide range including many community problems as well as specific presentations on agriculture and homemaking. As the number of families engaged in agriculture rapidly declined, the number of programs devoted to agricultural topics likewise decreased. In addition to monthly meetings, clubs had special projects such as work days for repairing and landscaping buildings, fund raising campaigns, and community tours.

Clubs usually made an annual plan of work and established committees to carry out various aspects of their program. At the end of each year the county council held a meeting at which time awards for outstanding achievements were made.

Neighborhood Factors in Club Success

An effort was made to discover those factors within a neighborhood which might be favorable toward the organization of a development club, and if one were organized, to influence its successful operation (10). Data from the 15-neighborhood survey were used for this analysis. The neighborhoods were classified as to those which had clubs, those which had more limited improvement organizations but not community clubs, and those without any organization except possibly a church. Several factors stoood out which differentiated the club neighborhood from the others, especially from those without improvement organizations. One characteristic of club neighborhoods was their long history of extensive neighborhood activity. They had relatively more improvement organizations, schools, churches, and economic services than had other neighborhoods. There was decidedly more awareness as to the identity of community leaders in the club neighborhoods than in the others.

There was not only more activity within neighborhood boundaries, but there was also more contact with the outside. Residents of club neighborhoods had a higher rate of membership in organizations other than the church, particularly those promoting educational and development programs. Although club neighborhoods were on the average larger than neighborhoods without organization, this fact in itself did not appear to be directly related to organizational effectiveness. Rather than the total number of families, the number of families of relatively high socio-economic level and interest in development programs appeared to be the significant factors.

Contribution to Development

Several contributions of the community clubs to development may be noted. One was the role of clubs in improving agriculture. Although club members on the average followed more recommended practices than did nonmembers, and for the period studied, 1954-1957, had a higher rate of adoption, it is not clear to what extent, if any, the club contributed to this differential. Certainly those people with education and other characteristics conducive to the acceptance of recommended practices were also more likely to belong to clubs. Possibly the indirect effect of the community club was the important contribution. That is, it pointed up problems for solution and generated motivation rather than providing

specific and detailed technical knowledge.

Also, it should be noted that the nonfarm membership in community clubs increased rapidly for the period following the mid-fifties when most clubs were organized. A study of six clubs revealed that in 1955 less than one-third of the families in these organizations had no income from agriculture (3). By 1958 this proportion had increased upward to one-half of the total, and by 1963 it is quite likely that the proportion was reversed from what it was eight years earlier.

A second contribution of the community club to economic development was in providing a channel of communication in respect to nonfarm employment, especially in manufacturing. The club provided a medium by which residents of the nighborhood were informed as to the need for support for new industry and also of the opportunities available for employment.

A third contribution of the clubs was in the standards they set for good living. These related to adequate recreational facilities for youth, support of the schools and churches, and the utilization and need of health and welfare services. As the neighborhoods have fewer and fewer farmers, programs aimed primarily at building better places in which to live through improved institutions and group activities are likely to be the dominant object of club activity.

It is quite possible that the greatest contribution of neighborhood clubs is not to be measured in physical terms but rather with respect to leadership development and the strengthening of groups which promote desirable change. It might be said that an effective neighborhood club sets the tone or sensitizes the residents of an area as to the need for change[38].

Although raising income and providing community services were frequently cited as contributions of neighborhood clubs, "the improvement of community spirit and pride" are probably the most frequently mentioned and strongly supported justification for club organization. Related to the strengthening of neighborhood relations was also the very obvious contribution the clubs made toward improving relationships between town and country. The unique tie-up discussed below between civic clubs in Corinth and the open-country organizations helped greatly to minimize the differences between the town and the rural neighborhoods.

[38]Cf. "Sensitivity Training," L. P. Bradford and Dorothy Mial, Community Development Review, Vol. 8, No. 1, Mar. 1963.

ORGANIZATION OF THE TRADE AREA

This report to this point has been concerned with documenting and interpreting changes in a trade area in the Southeast which is to some degree representative of the region and possibly other parts of the nation. Changes, almost revolutionary in speed, have been noted. These have occurred with respect to occupation, level of living and organization of the open country.

In this section a central objective of the study is pointed up, namely, the contribution of county and trade center development organizations in promoting and guiding desired change. Certainly the major forces of change are outside the community, but this does not mean that within certain limits there is not the possibility of considerable local initiative. It appears that many crucial decisions related to the establishment of

new enterprises providing non-farm jobs are made by local leaders.

In trade areas as small as the Alcorn-Corinth one and in the early stages of industrialization, decisions by local leaders may be relatively more important than in larger places with a more advanced industrial trade complex. Growth is not automatic as is shown by the radical decline in population of many agricultural counties in the two decades following World War II.

Dynamics of Development

Development organization, more adequately termed the dynamics of development. has at least three aspects which should be noted here — structure of, organization, nature of leadership, and process. Such analysis is to be seen against the background factors of location and resources[39]. The organizational structure is both formal (organized) and informal and represents several interests such as agriculture, industry and the services. This structure also has essential decision-making elements such as planning councils and coordinating groups.

A second essential aspect of the dynamics of development is to be seen in the nature of the leadership. Both paid and voluntary leaders who collectively possess technical skills and the knowledge and art of human relations are needed. This latter talent and ability is especially important in the executives of the developmental organization. Alcorn County was especially fortunate to have paid and voluntary leaders of high ability in stratgeic positions during the 1952-62 decade described below.

A third important aspect of the dynamics of development is the process as seen in terms of decision-making and stages of action. A key factor is the timing of decisions in terms of local needs. resources, and outside support. A selection of the appropriate time to act is to some degree in the hands of local leadership. Fortunate is the community which has paid workers and volunteers with this sense. Some events within and outside the community are, of course, fortuitous and beyond the control of the local leaders.

[39]This study has taken these factors as given and has left detailed analysis to the economist and the physical planner.

Areas of Interest and Organization

The importance of a complex of development organizations is seen when the town and country trade area of today is compared with that of a generation ago or with situations in underdeveloped countries at the present time. This complex of development organizations, including its paid leadership and clientele, is an invaluable factor in mobilization for change.

The most highly developed complex of organizations in a traditionally farming county such as Alcorn is the agricultural one. At the time of this study there were approximately a score of different types of agricultural agencies and membership organizations and more than that number of professional workers. County agricultural organization had its beginning with the creation of the local office of the Agricultural Extension Service in the second decade of the present century. The number of agencies grew rapidly in the depression of the thirties. They serve all aspects of agricultural and forest production and marketing[40].

As noted in the preceding section, many agricultural, homemaking, and

[40]In addition to the Agricultural Extension Service those agencies serving the county include the Agricultural Stabilization and Conservation Service, the Farmers Home Administration, the Federal Crop Insurance Agency, the Mississippi Forestry Commission, the Soil Conservation Service, the Vocational Agricultural Departments, the National Farm Loan Association, the Tupelo Production Credit Association, the Alcorn County Artificial Breeders' Association, and the Alcorn County Cooperative.

forest organizations had neighborhood clubs or chapters. There were approximately 50 different neighborhood organizations of this type in the mid-fifties. The Alcorn County Farm Bureau was a county membership organization. There were several councils of agencies and organizations. These included the Home Demonstration Council, the 4-H Advisory and Junior Councils, the Alcorn County Development Council (council of community clubs), and the Agricultural Coordinating Council.

The pattern of the Agricultural Coordinating Council was developed by the USDA in the late thirties. Mississippi has been known for its strong state and county councils. The Alcorn County group was reorganized in 1960 as the Agricultural Workers' Council, and at the time of this writing provided an important co-ordinating and communication function in rural community development.

The business-industrial complex of organization centered in the Corinth Chamber of Commerce. Other groups and agencies which played an important role in this area of interest were the city and county governments and the Mississippi Employment Service. The Chamber of Commerce was organized on a full-time basis in 1955 and during the following eight years had an impressive record of accomplishments. It had several programs and committees concerned with trade area development. Among the interests organized in 1963 were agriculture and forestry, airport, highways, industrial development, travel development, and merchants' promotion.

A third grouping relevant to development consisted of the service groups and institutions. In this classification were found such agencies as the Public Health Department, the Public Welfare Department, and the Northeast Mississippi Regional Library. Highly institutionalized groups included schools and churches. All of these agencies and associations focused on services to families and individuals and had special relevance for use of leisure time.

Perhaps the greatest opportunity for creativeness and development of community distinctiveness lies with what has been termed the service groups and institutions. A national market leaves its imprint of uniformity on all types of economic activities as do government-oriented programs. Thus, in the so-called community of residence probably lies the greatest opportunity for distinctively local initiative.

Overall Coordination and Planning

Of central concern in development is an organizational structure which carries out coordination of activities and long-range planning. For the period of study two organizational centers of planning emerged. For agriculture, there was the Alcorn County Development Council in which the Agricultural Extension Service played a prominent role. For industry and trade there was the Chamber of Commerce.

Certainly the several aspects of economic life need to be seen as integral parts of the total picture in long range planning. The most effective type of coordinating agency is a moot question. Whether a trade area such as the one studied can operate more effectively with one overall organization or two or more centers of leadership is a question on which all evidence is not in. There had been two proposals, both initiated by the Agricultural Extension Service through its state and national programs, for an overall coordinating and planning agency. One was the county program projection activity in the late fifties, and the other, the Rural Areas Development Program of the early sixties.

There had been extensive discussion

by county leadership of both of these proposals. The consensus was that the present dual but closely coordinated organization was producing satisfactory results, and that the leadership and the design for a uniting superstructure to replace the present organization would be difficult to realize.

There were many ties between the rural and agricultural programs on the one hand and the industrial and trade activities on the other. Perhaps the most effective method of coordination and unit planning came through the informal contacts of both paid and volunteer leaders. These contacts were seen in coffee cliques, civic clubs, churches, and recreational groups. At the formal level, business and industrial leaders played a prominent role in the Alcorn County Development Council. On the other hand, the Chamber of Commerce had, as mentioned above, a Committee on Agriculture and Forestry. The executive of this agency was secretary of the Fair Board. Less formal from an organizational standpoint but a significant index of the close cooperation between business and agriculture was the fact that the monthly meeting of the Agricultural Coordinating Council was held in the Chamber of Commerce office.

Significant in the process of communication and planning was the civic club. Eight service clubs, two of them women's clubs, were located in Corinth, and one was found in the village of Rienzi. Programs of these clubs and contacts they provided appeared to make decided contributions toward providing information, and toward motivating members to take part in community projects.

A Decade of Development

The period, 1952-1962, might well be termed a decade of development in Alcorn County[1] The progress made here should of course be seen within the context of rapid regional and national development. Development might be seen in terms of stages in the process, development structures, and specific projects or results. The latter are the major concern of this section.

Effective programs frequently grow out of a reaction to serious problems. In 1952 an apparel industry which employed over one-third of the workers in manufacturing was closed. At this time also were occurring rapid adjustments in agriculture. Both of these conditions served as stimulants to the creation of development organization. By 1955, as has been noted above, the Alcorn County Development Council had been organized and a full-time program in the Chamber of Commerce had been initiated.

Specific projects included both those providing jobs and those improving community services. During the decade under consideration 15 new industries were established in the county providing several thousand new jobs. In addition, a paper plant was built across the state line, which is manned by a relatively large number of workers from the Corinth trade area. Even a railroad was built to link the plant with the transportation outlets in Corinth.

During this decade radical change was to be observed in the country-side. Hard-surfaced and graveled roads were extended to all parts of the county. Telephone service was extended to hundreds of residents in the southern portion of the area. Many new homes were built, and farms were mechanized. A county airport was constructed, and soon thereafter scheduled air service was established.

The City of Corinth and suburbs saw the creation of an industrial park pro-

[1] The writers are indebted to the Corinth Chamber of Commerce and the Alcorn County office of the Agricultural Extension Service for much of the data used here and in preceding sections.

noted by an Industrial Development Association. By 1963 this park had seven new industries. An urban renewal program had been inaugurated, and a city park and recreational program had been established. By the end of the decade commitments had been made to build a 117-bed county hospital at a cost of approximately $2.8 million.

By this time plans were also under way for the development of the Tuscumbia River Watershed. When completed, this was expected to make a most important contribution to both agriculture and recreation in the area. The Watershed covers the better farming area in the center of the county. Equally significant for longtime development was the inauguration of a study aimed at establishing policy guidelines for future economic development. This study focused on a type of enterprise most suitable for the area, labor needs and resources, rate of growth, and services needed.

Some Questions: Answered and Unanswered

Development organization focuses on that aspect of the process which lies beyond resource analysis, and market and monetary trends. This concern for a detailed picture of organizational dynamics appears, however, to be necessary not only for the development of the "little economies" but also for good living — providing adequate services and institutions. Questions have been raised here concerning the structure of area planning and coordinating agencies and of the relation of these local associations to federal and state agencies. Also noted has been the necessity for specifying through further research, areas of action in which local initiative is especially relevant and useful.

Of special concern in this analysis was the role of open-country organizations. Does the community club movement, for example, foretell a new day for the countryside, or is it a last unsuccessful effort to preserve some semblance of open-country neighborhood organization?

There is some prospect of a new day for the countryside if it is realized that the providing of jobs is only one major objective of development. Another goal of equal importance is to maintain and improve the quality of living — to develop the community of residence.

APPENDIX

LIST OF SELECTED PUBLICATIONS IN THE ALCORN COUNTY STUDIES

Monographs

(1) Alexander, Frank D., Rural Communities, Organized Groups, and Public Agencies in Alcorn County, Mississippi, In Relation to Community Development, Particularly Educational Programs Through Rural Community Clubs. Miss. State College Division of Sociology and Rural Life, Preliminary Report in Community Organization No. 2, Nov., 1955. (98 pp.)

(2) Bailey, Wilfrid C., and Harold F. Kaufman, Factors Related to Differential Participation Among Neighborhoods. Miss. State College Division of Sociology and Rural Life, Preliminary Report in Community Organization No. 3, Oct., 1956. (7 pp.)

(3) Bailey, Wilfrid C., Mississippi Community Fertilizer Education Experiment, Final Report, Miss. State Univ., Preliminary Report in Sociology and Rural Life No. 7, Mar., 1959. (84 pp.)

(4) Bailey, Wilfrid C., and Ellen S. Bryant, Adoption of Homemaking Practices in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 25, July, 1962. (52 pp.)

(5) Bailey, Wilfrid C., and Ellen S. Bryant, The Use of Fertilizer by Farmers in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 26, Aug., 1962. (54 pp.)

(6) Baird, Andrew W. and Wilfrid C. Bailey, Farmers Moving Out of Agriculture, Miss. Agr. Exp. Sta. Bul. 568, Oct., 1958. (7 pp.)

(7) Baird, Andrew W., and Wilfrid C. Bailey, Community Development Clubs in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 597, May, 1960. (26 pp.)
(8) Baird, Andrew W., Lucy W. Cole, and Harold F. Kaufman, Development of Human Resources in Alcorn County, Mississippi. Miss Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 19, Sept., 1961. (75 pp.)
(9) Bryant, Ellen S., and Wilfred C. Bailey, The Rural Working Homemaker, Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 20, Sept., 1961. (21 pp.)
(10) Cole, Lucy W., and Harold F. Kaufman, Factors in Rural Neighborhood Development in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 625. July, 1961. (20 pp.)
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Dean, Ernest H.
Recommendations for the Improvement of Utah's Post-High School Vocational Technical Education Program.

Utah Technical College, Provo
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*TECHNICAL EDUCATION; *VOCATIONAL EDUCATION; *PROGRAM IMPROVEMENT; TECHNICAL INSTITUTES; *STATE PROGRAMS; *POST SECONDARY EDUCATION; EDUCATIONAL NEEDS; OCCUPATIONS; JUNIOR COLLEGES; STATE LEGISLATION; NATIONAL SURVEYS; STATE SURVEYS; ADMINISTRATOR ATTITUDES; DROPOUTS
UTAH

A questionnaire was sent to 16 randomly selected high school principals, five district superintendents, and 12 executive secretaries or administrative officers of statewide associations associated with at least one of the trade-technical programs. Information collected from each of the 50 states by questionnaires to state superintendents, state supervisors of vocational education, and legislative council directors was also utilized to compile a report on vocational and technical education for the junior college sub-committee of the Legislative Council. Some conclusions were: (1) Most high school principals favor having the State Board of Education as the administrative board over the two trade-technical institutes, (2) School superintendents favor the State Board of Education as the administrative board, and (3) No one post-high school institution has general acceptance by the fifty states. One of the 27 recommendations made to the legislature and the governor was that the State Board for Vocational Education should clarify, by Attorney General's opinion, their right to accredit trade-technical schools to grant associate degrees. Some of the 23 recommendations made to the State Board of Vocational Education are that: (1) the curriculum of the two trade-technical schools be enlarged to include a substantial curriculum in the semi-skilled and service occupational training program, and (2) the State Board of Vocational Education relate the total program of vocational education to the needs of the states. (EM)

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Recommendations for the improvement of Utah's post-high school vocational technical education program with special emphasis placed upon improving the functional role of Utah's two trade-technical institutes and the vocational-technical education role of the junior colleges.

Prepared

By

Ernest H. Dean
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May, 1966

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PART I.

INTRODUCTORY STATEMENT

This report on vocational and technical education has been prepared for the junior college sub-committee of the Legislative Council and is offered as supplemental information to the Mortimer report and deals extensively in vocational-technical education. The report is submitted for the following six major reasons:

1. To present a set of objectives which can be a guide to the Governor, the Legislature and the State Board for Vocational and Technical Education, in meeting the occupational training needs of Utah.

2. To set forth two major deficiencies in Utah's post-high school vocational-technical education program which are both necessary and vital in meeting the occupational training needs of youth and adults in a changing world of work.

3. To indicate the need for increased funds whereby technical education and educational programs related to the semi-skilled and service occupations can be added to the two trade-technical school curriculums.

4. To suggest a procedure for accreditation of the two trade-technical institutes where they can grant transfer credit and the associate degree, thereby relieving the immediate need for a new junior college in the greater Salt Lake Area.

5. To present a list of recommendations which, if the Legislature adopts, will improve vocational-technical education in Utah.

6. To present a list of recommendations which, if the State Board for Vocational-Technical Education either adopts or increases their emphasis upon, will improve vocational-technical education in Utah's

four year colleges, junior colleges and trade-technical institutes. Extra emphasis is placed upon programs related to the two trade-technical institutes.

Information contained in this report has been based upon information gathered from the following sources:

1. "Education for a Changing World of Work" - Superintendent of Public Documents. 1
2. "Technical Education for a Changing World of Work" - Superintendent of Public Documents. 2
3. A survey of educators in Utah
4. A survey of executive officers of several of Utah's business associations.
5. An analysis of studies made within other states.

A series of conclusions and recommendations have been included in this report which relate to the junior colleges and trade-technical schools.

It should be understood that little is included in this report which deals with the existing program of vocational education, but rather advances what is felt by the author as deficiencies in the present post high school programs.

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[1]Panel of Consultants on Vocational Education. Education for a Changing World of Work. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C

[2]Panel of Consultants Report. Appendix I, "Technical Training in the United States", Lynn A. Emerson. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

PART II

THE ROLE OF UTAH'S POST HIGH SCHOOL INSTITUTIONS IN VOCATIONAL-TECHNICAL EDUCATION

BASIC OBJECTIVES OF VOCATIONAL EDUCATION [1]

Every citizen should have the opportunity to attain occupational competencies compatible with his abilities and interests. Vocational education must be available to all people who have the need, desire, and ability, to benefit from the instruction.

The size and scope of the vocational education program should meet the qualitative and quantitative needs of the State for trained workers, in a time of rapid technological change, economic growth, and international challenge. This requires a widely diversified program for in-school youth and out-of-school youth and adults, geared to the ever-changing occupational needs of the economy.

To attain these objectives, programs must be organized and operated to meet the following specific standards.

PROGRAM STANDARDS [1]

1. The vocational education program should be an integral part of the total public education program rendering service and earning status commensurate with its significance to the community, the state, and the nation.

a. Programs should be planned on the basis of statewide, regional and national needs, with each vocational school, program unit, and curriculum offering planned to meet an appropriate part of the overall needs.

b. Programs should maintain, in addition to sound public relations efforts, effective functional relationships with employers, labor unions, and other agencies, through appropriate utilization of occupational advisory committees.

2. The vocational education program should offer opportunities to all youth and adults at appropriate levels in all occupational fields, including highly technical work of less than professional grade. It should be sufficiently flexible to meet the needs, not only of youth seeking occupational preparation as part of their education, but also of persons who desire full-time training, employed persons who desire pre-employment training for one field while working in another, and those who desire training for updating and upgrading.

a. Effective programs of student recruitment and selection should be maintained, with admission standards appropriate for each curriculum or unit of the program.

b. Pre-employment training programs should be provided at appropriate age and grade levels, commensurate with the learning abilities of the students and the maturity required for employment.

c. The needs of employed persons who desire updating, upgrading, and training for new occupations should be given attention commensurate with the growing importance of this type of education in a rapidly changing economy.

3. Vocational education programs should maintain a high level of quality through well-developed curriculums and courses of study, satisfactory and accessible facilities, up-to-date instructional equipment and materials, competent instructors employing good teaching methods, carefully selected

students, and efficient administration and supervision.

a. Curriculums should provide for sufficient actual performance or assimilated experiences in classrooms, laboratories, or shops and should include as much basic and genera' education as is appropriate for the age and grade level of the trainees. Pre-employment curriculums should be of sufficient intensity and duration to prepare for effective entrance in the field of work for which the curriculum is designed.

b. The physical plant should be designed to meet the specific needs of the vocational education programs, sufficiently attractive to merit the respect of the community, and readily accessible to part-time students, full time students, and working persons.

c. Instructional equipment and materials should be based upon specific programmed learning and other new media of instruction.

d. Instructional staffs should have adequate teaching competencies based upon occupational experience, technical training, general education and teacher training.

e. Effective vocational guidance service should be provided within the schools from which students are recruited and within the schools which provide vocational education programs. Effective placement and followup service should be provided for graduates of pre-employment programs, with the proportion of graduates who become successful in the fields of their training shown to be relatively high.

f. Administrative and supervisory services should be of a quality and amount sufficient to assure satisfactory operation of the various programs.

THE PEOPLE TO BE SERVED 1

The following are the groupings of people who should be served by Utah's post-high school vocational-technical education program:

a. Youth and adults who have completed or left high school and are part or full time students preparing to enter the labor market as technicians, skilled craftsmen, and semi-skilled or service workers.

b. Youth and adults unemployed or at work who need training or re-training to achieve employment stability or advancement.

c. High school youth with academic, socio-economic or other handicaps that prevent them from succeeding in the regular vocational education program.

d. High school youth who can benefit by an accelerated vocational or technical education program, or for high school youth whose interests cannot be met by their high school vocational education program.

e. Out of school youth with special needs.

FUNCTIONAL ROLES RELATED TO VOCATIONAL-TECHNICAL EDUCATION

Utah's vocational education program should relate to the following functional roles. However, all post high school institutions do not necessarily need to perform in all areas:

1. Apprenticeship related training
2. Technical occupational training
3. Skilled craftsmen training
4. Semi-skilled occupational training
5. Service occupational training
6. Agricultural occupational training
7. Home making and home economics training
8. Marketing and sales training
9. Supervisory and management training
10. Office occupational training
11. Health occupational training
12. Industrial art teacher training

13. Vocational-technical education teacher training

14. Public service occupational training

15. Related academic courses

UTAH SCHOOLS INVOLVED IN POST HIGH SCHOOL VOCATIONAL EDUCATION

Weber State College

College of Eastern Utah

Dixie College

Salt Lake Trade-Technical Institute

College of Southern Utah

Snow College

Utah Trade-Technical Inst.

Union High School

Richfield High School

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[1]Panel of Consultants on Vocational Education. Education for a Changing World of Work. Superintendent of Documents. U. S. Government Printing Office, Washington, D. C.

PART III

THE ROLE OF UTAH'S POST HIGH SCHOOL INSTITUTIONS IN TECHNICAL EDUCATION

This part of the report is added for the following reasons:

1. To indicate some of the hundreds of technical occupations.
2. To indicate the tasks performed by technicians.
3. To indicate the abilities required of the technicians.
4. To enlarge upon recommendations already approved by the committee.

TECHNICAL OCCUPATIONS [2]

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Research, design and development	Engineering aide Mechanical draftsman Mathematics technician Design technician Chemical laboratory technician Computer programmer
Manufacturing production	Operation planner (Layout man) Time-study man Quality control technician Production control supervisor Job methods technician
Construction and Installation	Building construction supervisor Highway engineering aide Materials expediter Estimator Air conditioning installation technician Computer programmer

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Marketing technical products	Electronic sales technician Instrumentation sales technician Manufacturer's representatives: Air conditioning systems Machine tools, etc.
Operation and control	Pilot plant operator Sound-studio technician Radar technician Power station operator Controller, automated machine department
Maintenance and inspection	Computer maintenance technician Building inspector Instrument maintenance technician Service technician - automated machines Inspector - aircraft
Miscellaneous fields	Technical writer Technical illustrator Safety technician Technical secretary Technical correspondent
Health occupations	Dental hygenist Dental laboratory technician Dental assistants Medical assistants Medical laboratory technician Optical technician Medical illustrator
Secretarial science	Medical secretary Legal stenographer Computer programmer
Aircraft and missiles	Aerodynamics analyst Aircraft electronics technician Aircraft quality control technician Guidance systems test technicians Aircraft instrument technician

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Aircraft and missiles	Aircraft maintenance supervisor Aircraft parts inspector Airframe designer Airframe maintenance supervisor Airframe structural test technician Airport control tower operator Draftsman Electrical experimental technician Engineering designer, aircraft structures Engineering propulsion development technician, rockets Engineering liaison technician Final assembly inspector Flight engineer Flight line inspector Mathematics technician Power plant test technician Production planner Quality control technician Technical field representative Technical writer Technical illustrator Test data analyst Test laboratory technician Test technician, guidance systems Weight analyst Wind tunnel technician
Electrical technician occupations	Applications specialist Communications technician Controls specialist Development technician, X-ray Electrical contractor Electrical cost estimator Electrical designer Electrical draftsman Electrical engineering aide Electrical equipment erector Electrical equipment salesman Electrical equipment tester Electrical experimental technician

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Electrical technician occupations	Electrical instrument technician Electrical laboratory technician Electrical maintenance technician Electric motor analyst Electro-mechanical technician Engineering aide Lighting technician Line supervisor Meter and instrument technician Power distribution specialist Power station operator Powerhouse load dispatcher Powerhouse maintenance technician Product designer Project supervisor Quality control technician Rectifier technician Relay specialist Technical service correspondent Technical illustrator Technical writer Test technician, motors
Electronic technical occupations	Aircraft electronic technician Broadcast transmitter technician Communications technician Color television monitor Computer technician Customer service technician, radio - TV Design draftsman Electronic draftsman Electronic equipment testman Electronic control technician Electronic instrument inspector Electronic laboratory technician Electronic layout technician Electronic maintenance technician Electronic sales technician Guided missile technician Industrial control specialist Industrial electronics technician Manufacturer's sales representative

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Electronic technical occupations	Medical electronics technician Radar technician Radio-communications maintenance technician Radio-television production supervisor Recording technician Sound-studio technician Television studio technician Technical writer
Highway and heavy construction technician occupations	Assistant to city engineer Assistant to construction superintendent Cartographer Computer Technician Concrete laboratory technician Construction engineering aide Design draftsman Engineering assistant Estimator Expediter Heavy construction equipment salesman Topographer Highway engineering aide Instrument man Inspector Materials inspector Party chief Photogrammetric technician Reinforcing steel detailer Specification writer Surveyor Technical writer
Manufacturing production technician occupations	Assembly technician Cost analysis technician Cost estimator Cost control technician Industrial technician

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Manufacturing production technician occupations	Instrument maintenance technician Job methods technician Machine-load-control planner Materials control technician Metallurgical technician Methods and analyst Motion-and time study-man Plant layout technician Plant maintenance technician Process description writer Production control supervisor Production estimator Production expediter Production planner Production technician (specialty in specific industry) Quality control technician Safety inspector Specifications writer Tool planner Tool-project man Precision inspector
Mechanical technician occupations	Applications specialist Automotive technician Detailer Diesel technician Die designer Engine development technician Engineering aide, mechanical equipment Estimator Experimental machinist Gas turbine technician Instrument design technician Laboratory technician Machine designer Machine tool salesman Materials salesman Materials testing technician Metallurgical technician Plastics technician Product designer

OCCUPATIONAL FIELD	TYPICAL TECHNICIAN OCCUPATIONS
Mechanical technician occupations	Technical writer Tool designer Welding technician
Technician occupations in fields related to industry	Computer programmer: Business data processing Engineering data processing Fire protection technician Dental laboratory technician Meteorological technician Optical technician Purchasing technician Technical photographer Technical secretary

TASKS PERFORMED BY TECHNICIANS [2]

The range of the various tasks performed by the different types of technicians is great. Here are some of them:

Making drawings - mechanical, electrical, topographical
Making charts and technical illustrations
Analyzing and interpreting plans and designs
Working out details of designing
Performing mathematical computations
Using computing devices such as slide rule and calculating machines
Making cost estimates of labor, materials and equipment
Performing laboratory and operation tests of instruments and equipment
Testing the properties of materials
Making quantitative chemical analyses
Inspecting components, products, machines, instruments, structures
Analyzing production costs
Planning production layouts and production flow
Making time and motion studies
Supervising production and assembly processes
Supervising construction products
Diagnosing trouble in technical equipment
Checking and adjusting production-control and testing instruments

Supervising installation of technical equipment
Marketing technical equipment and products
Rendering direct assistance to engineers and scientists in details of their work
Preparing formal reports on tests or other projects
Preparing specifications
Writing technical manuals, bulletins, and sales promotion materials
Operating and controlling automated production systems
Operating complicated electronic communication equipment
Servicing highly technical equipment
Performing liaison service between engineering and production

These tasks vary from one occupational field to another. No individual technician performs all of them. A summary of these tasks is as follows:

Computing
Inspecting
Measuring
Analyzing
Diagnosing
Interpreting
Using instruments
Using hand tools
Making drawings
Sketching
Detail designing
Recording data
Testing
Writing reports
Using handbooks
Troubleshooting
Expediting
Controlling production
Planning production
Making experimental equipment
Writing specifications
Supervising technical operations
Maintaining automated equipment
Operating large automated systems
Selling technical products
Building prototype models

TRAINING AND EXPERIENCE NEEDED [2]

A high degree of applied mathematical ability
Skill in analysis and diagnosis of technical problems
A solid background of basic physics and/or chemistry
Experience in the skilled crafts or understanding of craft processes
Extensive understanding of industrial equipment and industrial processes
Skill in precise methods of work, as in measurements and instrument adjustment
Sales ability
Skill in dealing with people
Supervisory and management ability
Proficiency in the use of pertinent hand tools and machine tools

Ability to write or illustrate technical material
Extensive background in the technology of the field in which the technician works
A scientific approach to the tasks of the occupation

No single technician requires all of the attributes and abilities listed above. The engineering technician, however, will need most of them.

GENERAL ABILITY REQUIREMENTS [2]

1. Facility with mathematics; ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles; an understanding of, though not necessarily facility with, higher mathematics through analytical geometry, calculus, and differential equations, according to the requirements of the technology.

2. Proficiency in the application of physical science principles, including the basic concepts and laws of physics and chemistry that are pertinent to the individual's field of technology.

3. An understanding of the materials and processes commonly used in the technology.

4. An extensive knowledge of a field of specialization with an understanding of the engineering and scientific activities that distinguish the technology of the field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as detail design using established design procedures.

5. Communication skills that include the ability to interpret, analyze and transmit facts and ideas graphically, orally, and in writing.

THE TECHNICIAN AND HIS JOB REQUIREMENTS [2]

1. Applies knowledge of science and mathematics extensively in rendering direct technical assistance to scientists or engineers engaged in scientific research and experimentation.

2. Designs, develops, or plans modifications of new products and processes under the supervision of engineering personnel in applied engineering research, design, and development.

3. Plans and inspects the installation of complex equipment and control systems.

4. Advises regarding the maintenance and repair of complex equipment with extensive control systems.

5. Plans production as a member of the management unit responsible for efficient use of manpower, materials, and machines in mass production.

6. Advises, plans, and estimates costs as a field representative of a manufacturer or distributor of technical equipment and/or products.

7. Is responsible for performance or environmental tests of mechanical, hydraulic, pneumatic, electrical, or electronic components or systems and the preparation of appropriate technical reports covering the tests.

8. Prepares or interprets engineering drawings and sketches.

9. Selects, compiles, and uses technical information from references such as engineering standards, handbooks, and technical digests of research findings.

10. Analyzes and interprets information obtained from precision measuring and recording instruments and makes evaluations upon which technical decisions are based.

11. Analyzes and diagnoses technical problems that involve independent decisions.

12. Deals with a variety of technical problems involving many factors and variables which require an understanding of several technical fields.

ACCREDITATION OF CURRICULUMS

The following post-high school institutions are presently awarding the associate degree and it is assumed that no additional accreditation is necessary:

Weber State College

College of Southern Utah

Dixie College

Snow College

College of Eastern Utah

Such is not the case for Utah's two trade-technical institutes. Therefore, it is recommended that

1. The State Board for Vocational Education clarify by Attorney General's opinion their right to accredit the two trade-technical schools to grant the Associate Degree.
2. In the event the Attorney General rules that the State Board for Vocational Education does not have the power to accredit the two trade-technical institutes to give Associate degrees, it is then recommended that the implementing legislation be drafted and hopefully included in the Governor's agenda for the upcoming special session.
3. A copy of similar legislation enacted by the Massachusetts State Legislature follows:

CHAPTER 562. AN ACT AUTHORIZING CERTAIN INDUSTRIAL, TECHNICAL, AGRICULTURAL AND VOCATIONAL SCHOOLS TO ESTABLISH COURSES BEYOND SECONDARY LEVEL AND AUTHORIZING SAID SCHOOLS TO GRANT CERTAIN DEGREES TO PERSONS COMPLETING SUCH COURSES OF INSTRUCTION.

Be it enacted, etc., as follows:

SECTION 1. Chapter 74 of the General Laws is hereby amended by inserting after section 37 the following section: - -

SECTION 37A. If a school committee or the board of trustees of any industrial, technical, agricultural or vocational school subject to this chapter determines that sufficient need exists in such school for a course or courses beyond secondary school level and designed to prepare students for greater opportunities for employment in industrial,

agricultural and technical occupations, it may submit in writing its plans for such course or courses to the State Department of Education. Upon written approval of said plans by said department, such school committee or board of trustees may establish and maintain such extended courses of instruction on a technical institute level and public funds may be appropriated for said purpose; provided, that such courses of instruction conform to such standards as said department may establish, and are maintained by said school committee or said trustees under the general regulations of the department. Any such school may use the designation "technical institute" with respect to the maintenance of such courses at such school, and the school committee or trustees of such school may, subject to the approval of the division of vocational education and the board of collegiate authority, grant the degree of Associate in Applied Science to persons who complete such course or courses of instruction.

This section shall not be applicable to the board of regional community colleges, or any action of said board under section twenty-seven of chapter fifteen, or to any regional community college.

SECTION 2. Chapter 645 of the acts of 1948 is hereby amended by inserting after section 7 the following section:

SECTION 7A. Any city, town, regional school district or county which is eligible for aid under the provisions of this chapter and establishes extended courses of instruction in a vocational school, as provided in section thirty-seven A of chapter seventy-four of the General Laws, and wishes to enlarge or construct a school for the purpose of maintaining such extended courses of instruction on a technical institute level shall be eligible for financial assistance in the construction or enlargement of such school in the manner and to the extent provided by this act.

4. The State Board for Vocational Education should avoid unnecessary duplication of services in adding technical curriculums to the two trade-technical institutes' educational program.

5. The State Board for Vocational Education should seek the counsel and advice of the Engineering Associations of Utah and the industry who will be expected to employ the trained technician prior to establishing these curriculums in the trade-technical schools.

6. The State Board for Vocational Education should present a budget based upon need, to the legislature wherein the Junior Colleges can strengthen their present technical education curriculums.

The two trade-technical schools should be given an added assignment to program extensively in technical education. The legislature should appropriate funds to meet this division of the trade-technical school curriculum.

7. That the long range plans of the two trade-technical schools include the possible accreditation by E.C.P.D. to accomplish this.

The State Board for Vocational Education should give due consideration to establishing technical curriculums which can be approved by E.C.P.D..

E.C.P.D. is an Engineer's Council for Professional Development. It is representative of the major engineering societies of the United States and Canada. Within its organizational structure, a subcommittee on technical institute accreditation exists. This committee has set up accreditation standards which include the following:

1. Curriculum length of not less than one academic year of full-time study or the equivalent in part-time study.

2. Admission on the basis of high school graduation or equivalent.

3. Curriculums that are technological in nature, employing the application of physical science and the techniques of mathematics to the solution of practical problems, with a prescribed sequence of related courses in a specific field.

4. Instruction to emphasize laboratory work. Instruction by correspondence study may be included.

5. Qualified teaching staff and adequate physical facilities.

6. Programs to be offered by an organized school or division of an institution or industry devoted to the specific aim of providing technical institute programs, which are stable organizations with adequate financial support, and which have demonstrated achievement in the technical institute field.

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[2]Panel of Consultants Report. Appendix I. "Technical Training in the United States", Lynn A. Emerson. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

PART IV.

THE ROLE OF UTAH'S POST HIGH SCHOOL INSTITUTIONS IN EDUCATION FOR SEMI-SKILLED AND SERVICE OCCUPATIONS.

The following pages in this part of the report are included to:

1. indicate a few of the many semi-skilled and service occupations which should be considered for inclusion in Utah's vocational education program.
2. to compare these occupations with the skilled and technical occupations.
3. to make recommendations for improvement in this phase of Utah's vocational education program.

SEMI-SKILLED AND SERVICE OCCUPATIONS

Clerical occupations	File clerks
	Duplicating machine operator
	Cashier
	Teller
	Stock clerks
	Switch board operator
	Receptionists
	Collectors
	Hotel clerks
	Adjusters
	Key punch operators
Sales occupations	Real estate salesman
	Insurance salesman
	Sales clerk
	Display person
	Window trimmers
	Show card man

Service occupations (domestic and commercial)	Housekeeper Landscaper Cooks and bakers Nursemaids Hostess Waiters - waitresses Meat cutter Barber Manicurist Embalmers Hospital attendants Shoe repairman
Protective service occupations	Fireman (beginning grade) Policeman (beginning grade) Justice of Peace (beginning grade)
Building service occupations	Janitor Boiler operator Tile setter Painter
Processing occupations	Electroplater Foundryman Gravel plant operator Coremaker Molders
Machine trades	Lathe operator Drill press operator Milling machine operator
Metalworking occupations	Forging Fabricating machine operator
Mechanical occupations	Farm mechanic Automobile front end and brake specialist Carman Office machine repairman
Textile occupations	Power machine operator Inspector Warehouseman

Electrical occupations	Armature winder
	Assemblyman
Others	Fabric, rug and upholstry cleaner
	Custodian
	Draftsman (copyman or tracer)
	Hotel or motel housekeeper
	Floriculturist
	Service station attendant
	Heavy equipment operator
	Heavy equipment oiler
	Heavy duty truck driver
	Materials expediter
	Warehouse foreman
	Warehouse helper
	Transit man
	Rod man (Eng.)
	Auto parts salesman
	Counter man
	Salesman
	Nurses aide
	Manicurist
	Barber
	Cashier
	Clerk
	Fork lift operator
	Guard
	Glazier
	Floor coverer
	Paper hanger
	Expediter
	Service Station Manager

	SEMI-SKILLED WORKERS	SKILLED WORKERS	TECHNICIANS
Metal products manufacturing	Fabricating machine operator Forging operator Lathe operator Burner Milling machine operator Ornamental iron worker, etc.	Machinist Toolmaker Moulder Steamfitter Electrician Patternmaker, etc.	Tool designer Tool inspector Draftsman Time/motion-study man Assembly technician Expediter Automated machine maintenance technician Technical supervisor, etc.
Construction	Hod carrier Carpenter helper Truck driver Heavy duty equipment operator Warehouseman Materials procurement man Spray painter Colker Dry wall installer Rough carpenter Time keeper Tilesetter	Bricklayer Stonemason Tilesetter Plasterer Carpenter Painter Plumber Steamfitter Electrician Sheetmetal worker Structural steel worker Welder	Architectural draftsman Structural draftsman Topographical draftsman Estimator Building inspector Equipment salesman Air conditioning technician Materials man Highway Eng. aide Specification writer Technical equipment installation supervisor
Mechanical trades	Turret lathe operator Drill press operator	Machinist	Tool & die man Quality control inspector Tool inspector Layout man
Drafting	Copyman	General draftsman	Technical illustrator Architectural rendering draftsman Architectural draftsman

	SEMI-SKILLED WORKERS	SKILLED WORKERS	TECHNICIANS
Heavy equipment	Equipment operator Oiler	Diesel mechanic	Maintenance mechanic
Construction trades	Brickmason helper	Brickmason	Estimator Engineering aide
Health occupa-= tions	Nurses aide	Practical nurse	Medical technician X-ray technician
Electrical Trades	Assemblyman	Electrician	Instrumentation man Instrument repairman

An extensive list of semi-skilled and service occupations could have been added to this report. However, it was not felt to be necessary in light of the following recommendations:

1. It is recommended that an advisory committee to the State Board for Vocational Education be appointed to make recommendations regarding the increased curriculum offering. The committee is to be representative of groups like the following associations who will be expected to employ the trained students:

Utah Restaurant Association
Utah Mining Association
Utah Canners Association
Municipal League
County Officials Association
Utah Automobile Dealers Association
A.F. of L. & C.I.O. both divisions
Several oil companies including the
Dealers Association and the Utah Petroleum Council
Utah Needle Trades Council
Chamber of Commerce
Hotel - Motel Association
Utah Manufacturers Association
Independent Auto Dealers Association, etc.

2. It is recommended that the curriculum of the two trade-technical schools be enlarged to include a substantial curriculum in the semi-skilled and service occupational training program.

3. It is recommended that the other post-high school institutions involved in vocational education also include in their curriculum offerings more of the semi-skilled and service occupational programs.

4. It is felt that within Utah's post-high school institutions, there has been a gradual eroding away of these kinds of programs in favor of the more sophisticated training programs and that this trend should cease.

5. It is felt that legislative appropriation for these programs should be enlarged and earmarked to guarantee the inclusion of these curriculums in Utah's vocational education program according to need.

PART V.

A. YOUTH AND ADULTS WITH SPECIAL NEEDS

There is need to analyze Utah's total vocational education program in terms of programs for "youth with special needs". Both high school and post-high school vocational education programs should be evaluated in terms of meeting these needs.

For the purpose of this report, the following questions relate to those programs of the post-high school institutions for "youth with special needs":

1. Who are the "youth with special needs" to be served by post-high school vocational education?
2. Who, besides vocational education people are presently involved in programs in the interest of these youth?
3. What can vocational education do to better serve the needs of these youth?
4. Should a closer working relationship be established between vocational education and the other agencies serving these youth?

WHO ARE THESE YOUTH WITH SPECIAL NEEDS? [1]

Let us forget momentarily those needs of youth which are formally connected with special education and rehabilitation (the physically handicapped - the blind, the hard of hearing, the crippled, and a host of others). There is a whole gamut of other needs which might be termed "special". These students are sometimes called potential dropouts, uninterested, reluctant, disadvantaged, alienated, or culturally deprived. Other youth problems are recognized in connection with the minorities,

the migrants, the mentally retarded, the emotionally disturbed, and the delinquent. Altogether, the number represented in these classification is very great; the "dynamite" generated as a result may be social, political, and economic, especially in large population centers. These young people are of grave concern to the community, State and Nation.

For many reasons, these and other students not represented in the classifications above become the dropouts, the early leavers of a system of mass education. Many of them feel that, in view of the academic nature of the school program and the hierarchy of teachers' marks, they are failures and do not belong in school. Their interests and aptitudes may be different and more related to the motor skills and practical aspects of learning. It is probable that in this context many of them may be gifted or talented if this classification can be defined in psychomotor learning. Usually the intelligence they display is nonverbal; their strength is not in the symbolic and abstract, although they seem to be able to sometimes master this deficiency through strong interest and motivation, occasional success and recognition, and realistic application. School, many of them conclude, is a waste of time.

The apparent lack of interest and motivation is a serious problem to these students and to the school which recognizes diverse needs and individual differences. Many of them have not considered what they will do upon entering the labor market. Others have had unrealistic and arbitrary goals set up for them by parents, teachers, other adults, and companions. On the whole, there seems to be a severe lack of occupational

information and vocational guidance of a nondirective nature appropriate to their individual needs and characteristics.

Considerable inquiry and research have been devoted to dropouts and school leavers. A study by the Bureau of Labor Statistics reveals numerous new insights into the labor experiences of high school graduates and dropouts. Most important in this respect, the study submits some suggestions and hypotheses concerning the school leaver and his relationship to the educational and guidance process in the public schools. Out of the study which involved seven geographic areas of the United States and represented a universe of 22,000 school leavers (12,000 high school graduates and 10,000 dropouts), the implications summarized below seem to be predominant to the concern for youth with special needs.[1]

"1. Dropouts do not form a neat homogeneous group with unique problems. They are characterized by innumerable individual differences. Some do have low IQ's, but others are well up on the IQ scale. We can best approach these boys and girls in the same way in which we try to deal with all the rest: each individual with his own interests, talents, and aptitudes.

2. Experience (of the study) with these boys and girls points to this fact: That the problems which finally result in a dropout begin - and are quite overt -- way back in the elementary school. In fact, it is quite early in grade school that many of the potential dropouts begin to fall behind in their scholastic achievement, a process which results in retardation.

3. Most of the dropouts expressed some dissatisfaction with the school programs available to them. These expressions of dissatisfaction may be -- at least in part -- rationalizations of young people because of their very action in leaving school. But these responses were prevalent and consistent enough to warrant the suggestion that it may be worthwhile to take a hard look at the curricula available for persons such as these. The fact that many dropouts do return after several years' absence and from the vantage point of hard out-of-school experience,

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[1]Seymour Wolfbein, "The Transition from School to Work: A Study of the School Leaver," Readings in Unemployment. Prepared for the Special Committee on Unemployment Problems, U. S. Senate, 86th Cong. 1st Sess. Washington: U. S. Government Printing Office, 1960 p. 712-714. (condensed from the original)

in search of specific courses which they consider of particular value in advancing them in their career development, points to the possible rewards we might reap from such a course of action.

4. Finally, some of the findings are relevant to the manpower position of the United States. It is doubtful whether the dropouts - and perhaps even many of the high school graduates--represent a strategic loss of potential college-trained personnel. This is not true, however, in relation to our manpower needs for trained skilled workers. A good share of the dropouts, for example, might have made the grade as skilled, highly trained blue-collar workers--if they had stayed in high school until graduation and thus become eligible for post-high school training programs in these fields. Skilled labor, becoming increasingly complex as it is, is more and more requiring minimum levels of educational attainment."

Another serious element, especially for the young people with special needs, is unemployment and its relationship to society and to the State and Nation's economy.

It is of vital concern to everyone that youth unemployment is closely related to the fact that they ha e few marketable skills.

We must recognize and deal with the disturbing problem of the untrained adolescent. The fact remains that the unemployment rate for students who have not completed high school is about 30 per cent, about twice as high as it is among those who have graduated. Many become wards of state and local agencies. It may well be wiser and cheaper to keep them in training institutions until they learn a useful skill or service rather than to allow them to loiter until they become delinquent or criminal.

Population centers of the United States are experiencing great difficulty with tremendous numbers of youth with special needs.

Utah's Wasatch front constitutes an area where concern for an educational program to meet the needs of these youth is paramount.

Within the greater Cleveland area, a survey was made relating to "unemployed out of school youth". Although the percentage of negro youth is considerably higher in Cleveland than in Utah's Wasatch front, however, it is felt that similar problems relating to unemployment exist.

The Cleveland study included a 1,200 youth (16-22) sample involving over 9,000 separate household contacts and presents impressive findings and implications of youth unemployment, particularly of non-graduates.

> Approximately two out of three (63 per cent) of the out-of-school youth age 16-21 are unemployed.
>
> Approximately one out of three (33 per cent) of the unemployed are high school graduates. One out of two (53 per cent) completed the ninth grade. A total of 67 per cent of the unemployed are nongraduates.
>
> Approximately three out of four (73 per cent) of the nongraduates are unemployed.
>
> Two-thirds (67 per cent) of the unemployed expressed a feeling that they could obtain employment if they could obtain training in a school.
>
> Almost three out of four (71 per cent) of the unemployed in the three areas largely populated by Negro children thought they could obtain employment if they could obtain training in school. Less than one out of two (48 per cent) of the unemployed in the Near West Side expressed a similar opinion.

The Cleveland study raises some serious questions.

1. Can the unemployed youth pull themselves up by their own bootstraps? Do they want to? What are the obstacles which prevent them from helping themselves?

2. Why is unemployment so prevalent in communities populated by Negroes? Is racial discrimination a major cause factor?

3. What can be done to improve the employability of the unemployed? What are the individuals themselves doing to solve the problem? What services can be established to enable the unemployed to help themselves?

4. Is the school curriculum realistic? How can the staff and facilities of the schools be utilized more effectively to prevent further accentuation of the problem?

5. What are the roles and responsibilities of industry, labor, and social agencies in relation to the growing armies of unemployed youth?

6. What does widespread unemployment among the youth mean to the community in terms of responsible citizenship, productivity, and strength?

Sensitive teachers and other educators attempt to help divergent, atypical young people, but often they are handicapped by lack of special competence and training, lack of specialized referral services, lack of parental cooperation, lack of adequate time, equipment and facilities, and many other insufficiencies.

Over the years, there have been many efforts on the part of the public schools to make provisions for special needs. The Opportunity School of Denver, Colorado, is an outstanding example. The age range of its students since its establishment in 1916 has been from 16 to over 70.

The aims of the school's founders are notable:

> To provide the fundamentals of an education for those persons who had been deprived of school advantages in youth
>
> To provide a working knowledge of many of the trades and industries
>
> To offer opportunities to men and women already in mechanical and industrial pursuits who have the ambition to become more efficient workers.
>
> **To give boys and girls another chance, who for various reasons did not fit well in the regular public schools.
>
> To give people born in other countries a chance to learn English and also to prepare them for naturalization and citizenship.

The continuation and part-time school is another example of attempts by the states under the Smith-Hughes Act to cope with the needs of youth.

The 10 purposes of the continuation school as they were listed in 1924

continue to be appropriate in 1966.

1. Give every youth as a fundamental service, the necessary minimum of ability to use the fundamental arts of reading, writing and figuring.

2. Help him remove those removable physical defects that are a handicap to him for life and for work.

3. Some help in his problem of keeping physically fit.

4. Getting and holding a juvenile job and planning for a more permanent career.

5. Planning and carrying out activities for his leisure time.

6. Acquiring a love of reading.

7. Expanding his interests, appreciations, and hobbies.

8. Selecting and practicing desirable social and economic habits.

9. Developing interest and initiative in social affairs.

10. Acquiring desirable social attitudes and working ideas.

Added to the list must be

11. Skill training through a program of vocational or technical education comparable to their potential ability.

WHO, BESIDES VOCATIONAL EDUCATION PEOPLE ARE PRESENTLY INVOLVED IN PROGRAMS IN THE INTEREST OF THESE YOUTH?

1. One doesn't have to look far to see a proliferation of services working in the interest of these youth. Some of these are:

The State Department of Employment Security
The State Department of Welfare
The State Council on Children & Youth
The Juvenile Court System
The State Department of Rehabilitation
The State and Local Coordinators under the Economic Opportunity Act, Manpower Act, etc.
Industry sponsored programs
Vocational education, etc.

WHAT CAN VOCATIONAL EDUCATION DO TO BETTER SERVE THE NEEDS OF THESE YOUTH?

On the whole, vocational education has been largely for selected students. Formal attempts to meet the special needs of youth have not been extensive, although there have been some programs for the handicapped and maladjusted in special education and vocational rehabilitation.

Especially is the above statement true as it relates to Utah's two trade-technical institutes. The following statements support this contention.

Statement #1 is by a regional supervisor of rehabilitation:

> "Our agency has certainly appreciated having Utah Trade-Technical Institute in our midst. We feel that we have made very good use of this school for training opportunities. It appears, however, that although we have very good training facilities in Utah County for our clients with GATB scores of 80 or above, we are lacking in training opportunities for those with scores from 55 to 80. As Utah Trade-Technical Institute has grown and changed from a "vocational school" to a "trade-technical institute", it seems that some entrance requirements have likewise risen to eliminate a few of the students with less ability. Somewhere in the form of state coordinated post-high school planning committees, we believe there should definitely be included some opportunities for the increasing number of borderline graduates as well as the dropouts and special education students. There should be a place in our society for a training program directed toward the education of "helpers" in mechanics, carpentry, and other trade occupations where the objective would be something less than journeyman status."

Statement #2 is by the State Supervisor of Employment Security:

> "Incidentally, we continue to have the question: What do we do for the student who lacks school interest? A void still exists which to a degree was being filled by the original vocational schools."

Statement #3 is by a school district superintendent:

> "My greatest concern is that we still have no effective program for the student who is not slow enough to fit into a remedial situation and yet cannot now meet your entrance requirements. These are the

lost sheep so far as education is concerned. Somewhere we are failing to provide an adequate program for them. They are the potential "dropouts" and represent a real problem insofar as society is concerned."

Statement #4 is by a high school principal of Granite District:

"I am not sympathetic to this proposition of making junior colleges out of our trade-technical schools. There is no disposition to (a) accommodate all who want and need training; (b) I am afraid they will continue the present plan of being too selective in admissions.

"At the present time the Salt Lake Trade-Technical Institute does little to help the average boy or girl in the State of Utah. They, like so many before them, have become so highly selective in their admission policies, that it is very difficult to get in.

"Part of this is due to the fact that we do not have adequate opportunity and consequently the law of supply and demand allows them to 'charge what the traffic will bear' in terms of entering. qualification. I do not refer to money costs, but rather the academic excellence that must be met before admissions is considered at this school."

Whether the statements made about admission standards at the trade-technical schools can be justified or nullified isn't the important point that this committee chooses to make, rather that objective #1 of vocational education is to meet the training needs of <u>all</u> students, and this includes "youth with special needs".

If these criticisms are valid for the two trade-technical schools, then surely it can be argued that Utah's other post-high school institutions have transcended far beyond the two trade-technical schools in their selective entrance requirements.

To improve and redirect vocational education to better serve youth with special needs - - [1]

1. New occupationally oriented programs of vocational education should be added to the school curriculum designed to lead to employment in jobs known to exist and to be successful educational experiences for students who cannot profit from instruction in the traditional programs.

2. Cooperative (school work) programs should be organized wherever possible, so that the student concerned may have the advantage of school experience coordinated with employment.

3. Diversity and flexibility should be the keynote of such programs, and instruction should be highly individualized in order to assure the occupational stability of such students when they actually enter upon full-time employment.

4. Appropriate vocational guidance of practical significance should be made available to each person, and each one trained and employed should be followed up to determine the value of training provided and to secure information leading to improvement of both content and method in future courses.

5. Specially trained teachers who understand the variety of needs of disadvantaged youth and who are occupationally competent in the specialized vocational areas represented should be employed for these programs.

6. Experimental and pilot programs should be planned and conducted to develop practices to serve these students more effectively.

Vocational education programs for youth with special needs should recognize that -- 1

1. A strong program of vocational guidance and counseling should be maintained.

2. Youth with physical or mental handicaps can profit from vocational education programs and courses appropriate to their needs and limitations.

3. Careful selection and grouping should be made on the basis of aptitude, mental capacity, limitations, and needs; these students should not be enrolled in the various classes of the regular vocational program, unless they have the interest or capacity to succeed.

4. The occupational objectives of special needs courses and programs may appropriately include training for occupations which are less than skilled and which may be limited in range and scope.

5. Definite provisions must be made for the continuing basic education of these young people, including diagnostic and remedial measures to assure competency in the foundation skills and citizenship and success in the world of work.

6. Some of these students may benefit from training for entering the regular vocational programs. Others may require more specialized training leading directly to employment when they leave school.

7. Teachers with specialized competencies should be utilized in the planning, teaching, and evaluation of programs for these students.

8. An active program of placement and followup, including appropriate referral services, should be an integral part of the program.

9. Continuing programs of experimentation, research, and evaluation, involving multiple cooperative relationships at all levels, should be initiated and maintained.

Should there be established a closer working relationship between vocational education and the other agencies serving the needs of these youth?

1. A non-paid advisory committee to the State Board for Vocational Education should be appointed. This committee should have representation from the following agencies:

The State Department of Employment Security
The State Department of Welfare
The State Council on Children and Youth
The Juvenile Court System
The State Department of Rehabilitation
The State and Local Coordinators under the
Economic Opportunity Act and the Manpower Act
Industry
Municipal League
County Officials Association

2. It is recommended that immediate steps be taken by the Legislature to earmark funds for classes to meet the training needs of these youth in vocational education.

OTHER RECOMMENDATIONS

1. Never should the image of vocational education relate solely to programs for "youth with special needs". Neither should it relate only to the more sophisticated programs.

2. The ideal program would be to include in the curriculum those occupational training programs which parallel the aptitudes of these youth.

3. That standards of achievement be set at a level related to their peer groups, not with their superiors. They should be expected to earn their place in vocational education through their own initiative and desire to succeed.

4. That adequate counseling service be provided this group of students.

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[1]Panel of Consultants on Vocational Education. Education for a Changing World of Work. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

B. YOUTH AND ADULTS WHO CAN BE SERVED BY THE TECHNICAL CURRICULUM

There is need to analyze Utah's post high school vocational-technical education program in terms of meeting the needs of youth and adults in technical education.

Increased emphasis is being placed upon technical education by business, industry and government, wherein capable students can obtain excellent employment after 2 or 3 years of concentrated post high school education.

For the purpose of this report, the following questions relate to programs for youth and adults in technical education:

1. Who are the students who will be served by the increased emphasis upon technical courses at the two trade-technical schools? Where will they come from?

2. Why should the two trade-technical schools be involved in these technical curriculums?

3. Why should college credit, including the Associate Degree, be approved for some of the curriculums at the trade-technical schools?

4. Where can vocational school people receive valuable help in setting up these programs?

1. Who are the students who will be served by the increased emphasis upon technical courses at the two trade-technical schools? Where will they come from?

Students will come to the program from a number of sources among which are:

a. high school graduates from all over the state. Dr. Mortimer's study of high school students in the greater Salt Lake Area indicate

that if a Junior College were created in the greater Salt Lake Area, many students would attend it, rather than the university or junior college they had indicated they were going to attend.

It is felt that a sizeable number of these students would attend the trade-technical school's technical division, if and when, college credit is given. Experience in many states proves this contention. To cite a few states where this has proven true would be to cite Wisconsin, Florida, Connecticut and California.

Emphasis must be placed upon the route high school graduates should take in enrolling into the technical curriculum at a trade school or enrollment into the university program.

Students coming out of high school should be encouraged to select the curriculum of the university, junior college or trade-technical institute which best fits their interest and aptitude. The student interested in liberal arts should go to the university or junior college; whereas, the science or engineering bound student should be divided into two categories of students:

Student Route: (a) This route should include those students who choose to complete five full years or more of college education, who when they complete their training will be working with abstract ideas, research, design, etc. It would be anticipated that these students would pursue junior and senior college curriculums.

Student Route: (b) This route should include those students who for one reason or another do not want to, or cannot, pursue a full five year

program, and whose aptitude and interests follow the talents of interpreting design and format to others, or who prefer to deal in methods of work, as in measurements and instrument controls and adjustments, or who prefer to plan, layout and install complex control devices or automated systems. These students should be encouraged into one of the college credit curriculums of the trade-technical school, or into a technical division of one of the junior colleges.

There should be provision whereby there could be a free flow of students between route (a) and route (b), based upon the experience of the student in the school curriculum. These students should not be considered washouts in any sense of the word, but what is better than a year of post high school experience to re-assess the students' talents, interests and abilities in terms of the route he should ultimately follow.

There are many students in the university curriculum today who have been placed upon probation or make-up basis who should fit student category route (b). Many of these students should be encouraged to enroll in the trade-technical school curriculum.

b. University transfer students who desire a shorter route to employment. The free flow of students should allow for the university student to make application for transfer from the university program to enrollment into the trade-technical school technical curriculums.

c. Many businessmen and industrialists are encouraging workers who may be replaced by automation to enroll in curriculums whereby they

can acquire the necessary skills and knowledge to shift from a displaced job to new job categories created in the technological advance.

Incentives in the form of tuition scholorships are being given to many of these workers to encourage their attendance in educational classes to prepare for employment as technicians.

It is anticipated that many workers of this category will enroll in the technical curriculums at the trade-technical schools.

Workers who become unemployed because of automation can also swell the student ranks of the technical division of the two trade-technical schools and junior colleges.

d. The trade-technical schools, by granting college credit, should relieve some of the existing burden of the universities, by drawing lower division students into the technical curriculums. The potential student load from this source can be most significant in terms of numbers of students.

e. The trade school graduate and the craftsman working in industry will pursue study and training to become technicians.

Many of the technical occupations grow out of a knowledge and ability to perform as a craftsman. An example of this would be the machinist who senses the shortage of qualified layout men or tool and die men and wishes to pursue additional training to learn one or both occupations.

It is anticipated that many students will enroll in the technical curriculums from these sources.

f. There is pressure being exerted from all fronts to include many technical curriculums into apprenticeable occupations. Many of the aero-space industries are sensing that job and school related experiences, through apprenticeship, can supply many needed technicians. Therefore, it is anticipated that the technical curriculums of the two trade technical schools and junior colleges will have an important effect upon

revamping the apprenticeable occupations to include many technician jobs. Student enrollment into the technical schools will increase significantly as this expansion takes place.

Already many eligible veterans are making application for training at the two trade-technical schools and junior colleges. Many of these veterans have had some training in one or more of the technical occupations and wish to continue their training in a technical institute program. Hundreds of veterans will pursue college level programs, many at one of the trade-technical schools.

g. Within the high schools of Utah are many highly motivated senior high school students who are seeking more than the high school can offer and who are desirous of obtaining college credit while still in high school. These students should be encouraged into the college credit division of the trade-technical schools, or into the technical division of the junior colleges. These students' needs should be met during high school hours, after high school hours and/or during the summer months. An extensive summer curriculum should be available wherein these students can gain insight into the changing world of work including the role of the technician as a member of the occupational team. Of course, college credit needs to be an incentive towards their enrollment.

h. Many youth, after leaving high school, shift from one experience to another without success, until they finally realize that through vocational-technical education they can rise to their potential as a craftsman or technician. Thousands of youth fit this category and every year a greater percentage are enrolling in vocational and technical education. If past experience in Utah proves true for the future, more students will find their way into the two trade-technical schools' technical education programs from this source than from any other single source.

i. Several federal acts provide funds for students to enroll in vocational or technical education classes. Therefore, it is anticipated that many students from these sources will enroll in the technical curriculum at the junior college and trade-technical schools.

2. Why should the two trade-technical schools be involved in technical education?

There should be one policy and one philosophy which should guide all post high school vocational-technical education regardless of the name of the institution where it is conducted.

Vocational education should cover an extensive curriculum including courses designed to meet the needs of the technician, craftsman, apprentice, semi-skilled and service worker.

Any one or all of these curriculums including those of the technician level should be a part of the trade-technical school curriculum as well as part of the curriculum of the junior college and university.

Another major reason why these institutions ought to include many technical curriculums is that these courses are the "image builders" which draw students to the school.

3. Why should the Associate degree and college credit be linked to the technical curriculums of the trade-technical schools?

For two major reasons, namely:

a. Because the technical curriculums should be of college level work, and because there is such a fine line of distinction between these curriculums and the science and engineering curriculums of the university.

Utah school children and their parents are so indoctrinated with the desire for college credit that this is the opportunity to allow the trade-technical schools to relate to students and parents on the same basis as the university and the junior colleges.

b. Any student completing work in one of the technical curriculums should be allowed to apply that college credit towards a science or engineering program at one of the universities without having to start over as a beginning student, which is now the case.

4. Where can vocational educators receive valuable help in launching into these technical curriculums?

Within the State of Utah are many associations of professional people who have a sincere interest in helping establish these curriculums which are necessary to meet the employment needs of business, industry and government.

Among these are associations such as, Utah Chapter of the American Architects Association, Utah Chapter of the Mining, Metallurgical and Petroleum Engineers of America, Utah Society of Professional Engineers and the Utah Committee on Industrial and Employment Planning.

Business and industry who will be expected to hire the trained technician should be brought into the program on an advisory basis.

PART VI.

ANCILLARY SERVICES

RESEARCH [1]

The importance of research in the field of vocational and technical education must be recognized, more widely, and steps taken to develop research commensurate with needs. In this era of rapid technological change, many things are happening that affect vocational education. New scientific concepts are emerging. New materials and processes are appearing in industry. New instruments, machines, and process controls are replacing older ones. Occupations are changing rapidly. Industries are moving into new geographical areas. Significant changes are taking place in the age, characteristics, and spread of the population. These and other changes, affect vocational and technical education.

If vocational education is to meet the needs of training in this rapidly changing world, it must adapt itself to changing conditions. Its patterns of organization must fit into the evolving educational structure of the community, state and the nation. Its curriculum content must be in line with technological and social needs. Its methods of instruction must be in keeping with the latest and best understanding of how people learn and how they can be taught most effectively. If vocational education programs are to provide adequately for the needs of a state or of the nation as a whole, or if specific programs are to be effective, much more information is needed than is now available. This is the task of research -- on a broad scale -- from specific studies of detailed problems

to nationwide studies of problems involving the whole country.

There has been very little research conducted related to vocational or technical education either at the national, state or local levels. Some general observations concerning research that has been done in vocational education indicate that:

1. Much of the research has been applied research.

2. Little attention has been paid to research in the basic sciences and disciplines that underlie vocational education, such as the psychology of learning specific manipulative and technical skills, human relations in occupational settings, and the like.

3. There has been little experimental research under controlled conditions.

4. A considerable amount of the research has been somewhat superficial, with little depth or penetration. The gathering and classification of the data have absorbed so much energy that little was left for reflective thinking with respect to the meaning of the data collected.

5. Although most of the research has been local in scope, with relatively little value outside the local area, a number of large-scale cooperative projects have been undertaken involving more than one state. Leadership for some of these studies has come from the U.S. Office of Education.

6. Vocational education has utilized but little the resources available under the broad cooperative research program of the Office of Education.

7. The reports of many studies have had limited circulation, perhaps through lack of a suitable medium for publishing the research findings and because of limited editions of published studies; also, for a lack of interest of vocational educators at the local level.

Some of the reasons why research in vocational education has followed the pattern outlined above are as follows:

1. Few persons have been trained for the field of research in

vocational education, perhaps because the opportunities for full-time employment in research in this field are limited.

2. Most vocational educators are pragmatists, interested mainly in the tasks they are held responsible for, rather than in research. They usually undertake research only when faced with a problem that demands it and shy away from really tough research jobs that require a great deal of time, energy, and concentrated reflective thinking.

3. Much of the research in vocational education grows out of requirements for graduate degrees. These requirements, especially at the master's degree level, can often be met by minor studies rather than through comprehensive research projects. Too few persons in vocational education have taken enough graduate work to be able to do good research, and many of those who carry out extensive research studies lose their interest in research when the requirements for the degree have been met.

4. University professors in vocational education fields, who might be expected to carry on research themselves, are often so loaded with teaching and other duties that they have no time and energy left for research. Many of them prefer to teach. Sometimes the available time beyond that required for teaching which might be utilized for research, is devoted to outside paid consultant service to supplement low salaries.

5. Comprehensive research requires special facilities and adequate finance which has not been available.

6. Research activity on the part of many vocational educators has been neglected because their superior officers do not recognize its value and do not give sufficient recognition for work in this field.

NEEDED RESEARCH [1]

1. What criteria should be established for the development of a statewide program of area vocational schools - geographic or population areas to be served, tax base, sizes of schools, range of curriculum offerings, and the like?

2. What criteria are most useful in the selection of students for specific pre-employment training programs?

3. How effective are the various types of specific instructional aids, including programmed learning, in vocational and technical training programs?

4. What are the vocational education needs of the aging, and how can they be met?

5. What modifications of teaching methods are desirable in training the unemployed worker, youth with special problems, and other special groups?

6. What should be the land and building requirements for vocational schools?

7. What are the geographical bare spots in the state with respect to opportunities for vocational and technical education and what measures can be taken to provide coverage?

8. What should be the relationship between area vocational centers and comprehensive high schools in the state's total vocational technical education program.

9. To what extent are present pre-employment training curriculums in line with present-day needs in the occupational fields for which the training is designed, and how can they be kept in line with needs?

10. What should be taught in the vocational school as compared with what industry and business should teach, in specific types of training programs?

11. What technical occupations -- now here or emerging -- are found in agriculture, business, industry, the health fields, and other areas of employment for which training programs are not now available, and how can appropriate training be provided?

12. What are the special homemaking problems faced by the women who are employed outside the home and who have family homemaking responsibilities, and what can vocational and technical education do to help in meeting these problems?

13. What personality traits are demanded in specific occupations and what contribution toward their development can be made in vocational and technical education programs?

14. What qualifications are needed by vocational and technical teachers basic and technical education, occupational experience, professional teaching competency -- and how can they be met?

CURRICULUMS AND INSTRUCTIONAL MATERIALS [1]

Curriculums and instructional materials should be brought up to date quickly, as occupations change and teaching methods become more effective. In vocational education, a national plan for coordinating curriculum and materials development has been implemented much too slowly. More State and Federal resources should be allocated to this urgent task.

The general problem of curriculum and program development cannot be reviewed as a unity because of differences in the groups of students involved. In-school preparatory programs should concern the occupational area in its most modern and up-to-date context, but should stress foundation or fundamental elements of the occupational area, which change far less rapidly than specific skills. On the other hand, out-of-school youth and adults, who ase usually employed workers seeking to update and upgrade themselves, must concentrate on the most recent elements of occupational change.

In theory, vocational education, if supported by proper cooperative relationships, adjust automatically to the changing occupational environment. However, the extent of the vocational programs is quite limited in most schools, and the schools do not readily add new programs.

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[1] Panel of Consultants on Vocational Education. Education for a Changing World of Work. Superintendent of Documents. U. S. Government Printing Office, Washington, D. C.

PART VII.

A UTAH SURVEY, A NATIONAL SURVEY.

A UTAH SURVEY

To get a cross-section of opinions from people in Utah who have a close working relationship with Utah's two trade-technical institutes, a questionnaire was sent to:

a. Sixteen high school principals, randomly selected from large, medium and small high schools, and from every part of the State.

b. Five school district superintendents in the immediate area, served by one of the two trade-technical institutes.

c. Twelve executive secretaries or administrative officers of statewide associations, for which at least one of the two trade-technical institutes conduct training programs to train workers for occupations, related to their association. An example would be, the Utah Dental Association, wherein one of the two schools is presently conducting programs to train dental assistants.

Each person was asked to respond to the following questions:

Question: Designate which of the following types of administrative Boards you feel will serve the best interests of Utah's two trade-technical schools.

a. State Board of Education

b. A junior college board

c. A local administrative board

Response:

A. High School principals

Eleven (11) favored the State Board of Education
Two (2) favored the State Board of Education with a strong local board
Two (2) favored the separate Jr. College board

B. Associations or Organizations served

Eleven (11) favored the State Board of Education
One (1) favored a Jr. College board or local board

C. School Superintendents

Five school superintendents were asked to respond. All five responded that the State Board of Education should be the administrative agency.

Question: Should Trade-Technical Institutes remain as they are now constituted or be incorporated with a Jr. College program thereby making them a community college?

Response:

A. High school principals

Five (5) favored comprehensive institutions
Eleven (11) favored separate institutions

B. Associations and Organization positions

Four (4) favored comprehensive institutions
Seven (7) favored separate institutions
One (1) failed to respond to this question

C. School superintendents' position

Three (3) favored comprehensive institutions
Two (2) favored separate institutions

Question: Do you feel that if college credit were given for some of the classes conducted at the trade-technical institutes, that, (a) it would enhance the trade-technical school? (b) diminish the effectiveness of the vocational-technical program? (c) have little or no effect?

Response:

A. High school principals

Nine (9) high school principals said it would enhance the program.
Five (5) high school principals indicated it would diminish the effectiveness of the program
Two (2) did not answer this question

B. Associations and Organizations

Seven (7) were in favor of college credit
One (1) opposed college credit
Four (4) failed to answer this question

C. School superintendents

Three (3) were in favor of college credit
Two (2) were opposed

A NATIONAL SURVEY

Correspondence was sent to each of the fifty states requesting information from state superintendents, state supervisors of vocational education and legislative council directors.

Several questions were asked, among which were:

1. Should institutions be comprehensive or have separate functions:

2. Who should be the Administrative Board for post-high vocational schools?

3. Had they completed a similar study in their state, and if so, was a copy of their report available?

4. Had they drafted legislation to effectuate their committee recommendations, and if so, did it pass to become law? Also, were copies of the bills available?

5. If college credit were to be given for vocational education, what courses should receive credit? And how were the courses accredited?

6. To furnish any additional information which would be helpful to Utah's study.

Responses were received from the large majority of the states. Many of those contacted from the states indicated they had completed similar studies. Some of the most significant of these studies were made in Florida, North Carolina, Michigan, Oregon, Iowa, Ohio, Connecticut, Wisconsin, Vermont, Washington, New Mexico, Georgia, Rhode Island, New Jersey, Illinois and Texas.

It has not been attempted in this report to give a resume of the findings of these studies, however, if the committee so chooses, this can be done and made available. Suffice it to say, several conclusions have been drawn from answers received, and are included in Part VIII of this report. All conclusions can be substantiated.

PART VIII.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the Utah survey:

1. Most high school principals favor having the State Board of Education as the administrative board over the two trade-technical institutes.

2. Most associations or organizations, who have direct relationship to the training programs at the two trade-technical schools, favor the State Board of Education to be the administrative board for the two trade-technical schools.

3. School superintendents favor the State Board of Education as the administrative board for the two trade-technical schools.

4. There is not a consensus of opinion among Utah educators as to whether Utah's two trade-technical schools should become comprehensive institutions or remain terminal training institutions.

5. There is not a consensus of opinion among associations, presently being served by Utah's two trade-technical schools, as to whether the schools should be comprehensive schools or remain terminal training institutions.

6. There is not a clear consensus among educators or those served by Utah's two trade-technical schools, as to the value of Utah's two trade-technical schools giving college credit. However, the majority of those surveyed in Utah responded favorably to college credit for courses completed at the two schools.

Based upon the National Survey;

1. IT CAN BE CONCLUDED THAT no one post-high school institution has general acceptance by the fifty states. Some states have institutions serving a dual role in terminal and transfer programs whereas, others have separate institutions for each of the two programs.

   The following institutions can be found within the states, serving one or both roles:

   a. Area high school centers, serving adults as well as high school students.

b. Area post-high school centers, usually called vocational or technical schools or institutes

c. Junior colleges

d. Community colleges

e. Colleges and universities

2. IT CAN BE CONCLUDED THAT within any one state, there is not a consensus of opinion of the one best institution which should serve as a separate or dual role as related to terminal and transfer education.

3. IT CAN BE CONCLUDED THAT vocational educators prefer all different types of institutions in which to conduct terminal and transfer programs. However, a majority favor an institution where vocational education is not overshadowed by the general education program. Many prefer a separation of functions.

4. IT CAN BE CONCLUDED that there is no consensus as to which institutions should conduct technical education. The opposite is true, because jurisdictional disputes can be found relative to where these programs should be taught. Many university people feel they belong with the universities (strong national move). Vocational educators feel they belong with vocational education. (National moves this direction). Junior colleges feel this should be their area of instruction.

5. IT IS CONCLUDED from the studies of other states that:

   a. very few revolutionary changes were made from their existing organizational pattern.

   b. that usually a broader assignment of responsibility was given to the vocational schools.

   c. that increased emphasis was given to the state's vocational and technical education program.

   d. that the great majority of states prefer the State Board of Education to control and administer all vocational schools.

6. IT IS CONCLUDED THAT there has been a national concern of all educators to raise the image of vocational education. Most educators are agreed that college credit for the technical curriculums will have a significant effect upon the image people have regarding vocational education.

7. It has been expressed by nearly all studies conducted in the other states that the curriculum offering of vocational education schools should include technician education, skilled, semi-skilled

and service occupational programs and programs to meet the needs of youth with special needs. IT IS THEREFORE CONCLUDED, that the recommendations of this committee are consistent with a national trend.

8. IT IS CONCLUDED THAT, re-evaluative studies of vocational and technical education conducted periodically are needed.

9. MANY STATES HAVE CONCLUDED that traditional administrative patterns related to the State Department of Vocational Education need to be changed to more nearly coincide with organizational patterns of the schools. There are national and state recommendations wherein vocational assignments should correlate with:

   a. programs for high school youth

   b. programs for women

   c. programs for out-of-school youth and adults

   d. programs for youth with special needs

   e. programs for transfer credit

10. IT IS CONCLUDED THAT, no consensus exists among the states as to whom should administer the junior colleges and community colleges. However, it can be defended that more states have the State Board of Education as the administrative board and that this is based upon strengthening the vocational and technical curriculum of these schools.

RECOMMENDATIONS TO THE LEGISLATURE AND THE GOVERNOR

It is hoped that the Legislature and the Governor will give careful consideration to the report, especially to the following recommendations:

1. IT IS RECOMMENDED, that the State Board for Vocational Education clarify by Attorney General's opinion their right to accredit the two trade-technical schools to grant the Associate Degree.

2. IT IS RECOMMENDED, that in the event the Attorney General rules that the State Board for Vocational Education does not have the power to accredit the two trade-technical institutes to give Associate degrees, that the implementing legislation be drafted and hopefully included in the Governor's agenda for the upcoming special session.

3. A copy of similar legislation enacted by the Massachusetts State Legislature follows:

CHAPTER 562. AN ACT AUTHORIZING CERTAIN INDUSTRIAL, TECHNICAL AGRICULTURAL AND VOCATIONAL SCHOOLS TO ESTABLISH COURSES BEYOND SECONDARY LEVEL AND AUTHORIZING SAID SCHOOLS TO GRANT CERTAIN DEGREES TO PERSONS COMPLETING SUCH COURSES OF INSTRUCTION.

Be it enacted, etc., as follows:

SECTION 1. Chapter 74 of the General Laws is hereby amended by inserting after section 37 the following section: - -

SECTION 37A. If a school committee or the board of trustees of any industrial, technical, agricultural or vocational school subject to this chapter determines that sufficient need exists in such school for a course or courses beyond secondary school level and designed to prepare students for greater opportunities for employment in industrial, agricultural and technical occupations, it may submit in writing its plans for such course or courses to the State Department of Education. Upon written approval of said plans by said department, such school committee or board of trustees may establish and maintain such extended courses of instruction on a technical institute level and public funds may be appropriated for said purpose; provided, that such courses of instruction conform to such standards as said department may establish, and are maintained by said school committee or said trustees under the general regulations of the department. Any such school may use the designation "technical institute" with respect to the maintenance of such courses at such school, and the school committee or trustees of such school may, subject to the approval of

the division of vocational education and the board of collegiate authority, grant the degree of Associate in Applied Science to persons who complete such course or courses of instruction.

This section shall not be applicable to the board of regional community colleges, or any action of said board under section twenty-seven of chapter fifteen, or to any regional community college.

SECTION 2. Chapter 645 of the acts of 1948 is hereby amended by inserting after section 7 the following section:

SECTION 7A. Any city, town, regional school district or county which is eligible for aid under the provisions of this chapter and establishes extended courses of instruction in vocational school, as provided in section thirty-seven A of chapter seventy-four of the General Laws, and wishes to enlarge or construct a school for the purpose of maintaining such extended courses of instruction on a technical institute level shall be eligible for financial assistance in the construction or enlargement of such school in the manner and to the extent provided by this act.

4. IT IS RECOMMENDED, that the State Board for Vocational Education present a budget based upon need to the legislature for technical education at the two trade-technical schools. (This author recognizes that this is an added assignment for the two trade-technical schools and will need to be funded accordingly.)

5. IT IS RECOMMENDED, that legislative appropriation for these programs be enlarged and earmarked to guarantee the inclusion of these curriculums in Utah's vocational education program.

6. IT IS RECOMMENDED, that immediate steps be taken by the Legislature to earmark funds for classes to meet the training needs of these youth in vocational education.

7. IT IS RECOMMENDED, that all junior colleges of the State be administratively responsible to the State Board of Education.

8. IT IS RECOMMENDED, that within the State Department of Education there be established a division for junior colleges, administratively responsible to the Chief State school officer and the State Board of Education.

9. IT IS RECOMMENDED, that vocational education, including the technical curriculums be a strong part of the junior college program.

10. IT IS RECOMMENDED, that policies relating to fiscal accountability of any one post-high school institution be on the same basis as all other State institutions of higher education.

11. IT IS RECOMMENDED, that personnel policies likewise be on the same basis as all other post-high school institutions.

12. IT IS RECOMMENDED, that the name of the State Board for Vocational Education be changed to the State Board for Vocational-Technical Education.

13. IT IS RECOMMENDED, that both of Utah's two trade-technical institutes remain administratively responsible to the State Board for Vocational Education.

14. IT IS RECOMMENDED, that the curriculum of the two trade-technical schools be broadened to include technical education programs and that these technical curriculums be accredited wherein the Associate degree can be awarded.

15. IT IS RECOMMENDED, that until such a time as the two trade-technical schools can be accredited by the E.C.P.D. (Engineers Council for Professional Development) or another acceptable agency, that the State Board for Vocational Education act as the accrediting agency.

16. IT IS RECOMMENDED, that college credit related to the two trade-technical schools be limited to the following curriculums:

    a. technical curriculums

    b. health occupations

    c. secretarial occupations

    d. graphic arts training

    e. public employee occupational training

    f. supervisory and management training

    g. industrial arts teacher training (2 yrs. only)

    h. vocational-technical teacher training (2 yrs. only)

    i. homemaking or home economics occupations

    j. agricultural occupations

k. marketing and sales occupations

l. academic courses related to the above curriculums only, including

a. science

b. mathematics

c. English or communications

d. social sciences including citizenship

17. IT IS RECOMMENDED, that the curriculum of the two trade-technical schools be enlarged to include classes in semi-skilled and service occupations.

18. IT IS RECOMMENDED, that the trade-technical schools take steps to include programs for "youth who have special needs"; that other State and Federal agencies presently working in relationship to youth problems be used on an advisory basis to this program.

19. IT IS RECOMMENDED, that a new vocational-technical education finance formula be designed for all post-high school institutions based upon the following factors:

1. average daily attendance

2. average institutional cost experienced the previous year for similar curriculums.

3. technical curriculums

4. skilled curriculums

5. semi-skilled and service occupational curriculums

6. ancillary services

7. equipment needed to keep pace with technological advance

20. IT IS FURTHER RECOMMENDED, that the State's highest building priority be placed upon:

a. a building program whereby the entire school program of Salt Lake Trade-Technical Institute can be moved to its new campus for the beginning of the 1967 school year.

b. New and expanded shop facilities at Utah Trade-Technical Institute.

c. New vocational buildings for Utah's junior colleges, to parallel their expansion in vocational education.

21. IT IS RECOMMENDED, that students at the two trade-technical institutes be provided the facilities to engage in extra-curricular activities which are over and beyond the regular school curriculum. These activities should include athletics, physical education, assemblies, lyceums, etc.

22. IT IS RECOMMENDED, that Utah Trade-Technical Institute in Provo be re-evaluated in terms of becoming a full fledged poly-technical institute or community college within the not too distant future.

23. IT IS RECOMMENDED, that funds be provided for the compilation of a comprehensive, classified occupational inventory and for continuing such inventory regularly from year to year. In order that occupational education bear a justifiable relationship to manpower needs, a continuing inventory of employment needs in the State must be available. It is suggested that the Department of Employment Security serve this need.

24. IT IS RECOMMENDED, that State policy with regard to the assignment of priorities for new construction be re-examined. Consideration should be given to liberalizing State Regulations regarding the use of Capital Outlay and debt service and matched building funds so as to provide more freedom to construct facilities of an instructional nature which are needed to fulfill the requirements of a comprehensive educational program. Especially is this true in relationship to trade-technical institutes and junior college construction.

25. IT IS RECOMMENDED, that junior colleges and trade-technical institutes in Utah be precluded from making application of the Legislature to become 4 year institutions.

26. IT IS RECOMMENDED, that Utah's four year institutions of higher education improve and redirect their efforts to more adequately meet the needs of 13th and 14th year students in courses leading toward a Baccalaureate degree.

27 IT IS RECOMMENDED, that upon proper curriculum accreditation by the State Board of Education, and/or the E.C.P.D. accreditation, that Utah's four year colleges and universities accept the transfer credit from the two trade-technical institutes so long as it is used toward an allied occupational goal.

RECOMMENDATIONS TO THE STATE BOARD FOR VOCATIONAL EDUCATION

In addition to the foregoing recommendations, the State Board for Vocational Education should give attention to the following recommendations:

1. IT IS RECOMMENDED, that an advisory committee to the State Board for Vocational Education be appointed to make recommendations regarding the increased curriculum offering. The committee is to be representative of groups like the following associations who will be expected to employ the trained students:

   Utah Restaurant Association
   Utah Mining Association
   Utah Canners Association
   Municipal League
   County Officials Association
   Utah Automobile Dealers Association
   A.F. of L. & C.I.O. both divisions
   Several oil companies including the
   Dealers Association and the Utah Petroleum Council
   Utah Needle Trades Council
   Chamber of Commerce

2. IT IS RECOMMENDED, that the curriculum of the two trade-technical schools be enlarged to include a substantial curriculum in the semi-skilled and service occupational training program.

3. IT IS RECOMMENDED, that the other post-high schools involved in vocational education also include in their curriculum offerings more of the semi-skilled and service occupational programs.

4. IT IS RECOMMENDED, that the trend toward the gradual erosion of semi-skilled and service occupational programs in favor of the more sophisticated training programs should cease.

5. IT IS RECOMMENDED, that a non-paid advisory committee to the State Board for Vocational Education be appointed. This committee should have representation from the following agencies and should concern itself with vocational programs for youth with special needs:

   The State Department of Employment Security
   The State Department of Welfare
   The State Council on Children and Youth
   The Juvenile Court System
   The State Department of Rehabilitation
   The State and Local Coordinators under the
   Economic Opportunity Act and the Manpower Act
   Industry
   Municipal League
   County Officials Association

6. IT IS RECOMMENDED, that the image of vocational education should never relate solely to programs for "youth with special needs". Neither should it relate only to the more sophisticated programs.

7. IT IS RECOMMENDED, that the ideal program would be to include in the curriculum those occupational training programs which parallel the aptitudes of these youth.

8. IT IS RECOMMENDED, that the standards of achievement be set at a level related to their peer groups, not with their superiors. They should be expected to earn their place in vocational education through their own initiative and desire to succeed.

9. IT IS RECOMMENDED, that adequate counseling service be provided this group of students.

10. IT IS RECOMMENDED, that the post-high school institutions now serving in Utah's vocational education program establish programs to serve the youth of their area who have special needs; this to be done in cooperation with the school districts within the commuting distance from their campus.

11. IT IS RECOMMENDED, that the State Director for Vocational Education be administratively responsible to the Chief State school officer and the State Board for Vocational-Technical Education.

12. IT IS RECOMMENDED, that the State Board for Vocational-Technical Education relate the total program of vocational education to the needs of the State.

13. IT IS RECOMMENDED, that the State Department for Vocational Education make extensive use of Statewide advisory committees.

14. IT IS RECOMMENDED, that within the State Department of Education there be established a strong division of vocational education, administratively responsible to the Chief State school officer and the State Board for Vocational-Technical Education.

15. IT IS RECOMMENDED, that immediate steps be taken by the State Board for Vocational Education to determine the technical curriculum to be added to each of the two trade-technical schools' curriculums.

16. IT IS RECOMMENDED, that the State Board seek the advice of the engineering profession of Utah prior to establishing the technical education curriculums.

17. IT IS RECOMMENDED, that prior to establishing the technical curriculum, the State Board seek the advice of the people who will be expected to employ the technician upon his graduation from school.

18. IT IS RECOMMENDED, that each of the two trade-technical schools maintain a strong advisory committee program, including a general committee which can lend guidance to the total school program in serving the needs of the State.

19. IT IS RECOMMENDED, that the staffs of the two trade-technical institutes be upgraded to meet the additional demands being placed upon the schools.

20. IT IS RECOMMENDED, that the salaries and ability level of those responsible for vocational-technical education at the State level be commensurate with their counterparts in the institutions.

21. IT IS RECOMMENDED, that in order for Home Economics to benefit fully from funds to be provided through federal legislation, more emphasis will need to be given to Home Economics programs that are related directly to gainful employment.

22. IT IS RECOMMENDED, that the teacher training institutions that are responsible for the training of counselors give greater emphasis to occupational guidance.

23. IT IS RECOMMENDED, that regulations for certification of teachers be re-studied and re-vised so as to provide reasonable uniformity and at the same time such flexibility as may be needed in order to make it possible to secure and maintain teachers with the desired qualifications. New standards will need to relate to certification of the trade-technical school staff in order to acquire accreditation.

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Kuhns, Eileen P.
Technical and Semi-Professional Occupational Survey.

Montgomery Junior Coll., Rockville, Md.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 63 101p.

*OCCUPATIONAL SURVEYS; *COMMUNITY COLLEGES; *TECHNICAL EDUCATION; *CURRICULUM; CURRICULUM PLANNING; *EMPLOYMENT OPPORTUNITIES; EDUCATIONAL NEEDS
DISTRICT OF COLUMBIA; MONTGOMERY JUNIOR COLLEGE; MARYLAND

The survey was undertaken in order to identify occupational curricula appropriate for the new Rockville campus of Montgomery Junior College. Of the almost 100 curriculums studied, 54 were regarded as feasible for the Washington area and were included in a questionnaire sent by mail to employers. These curriculums fall into the four broad categories of Medical Auxiliary Technologies, Business, Applied Science Technologies, and Public Service. The complete list on the questionnaire is included in the appendix. Respondents participating in the 1963 survey were from 551 firms with a total of 153,866 employees. Of these, 144 participated as part of a "selected" sample of public and private establishments known to employ considerable numbers of technical and semi-professional personnel. This sample accounted for 121,665 or 79 percent of the persons currently employed. Based on the findings, the following curriculums or options were recommended: (1) Nursing, (2) Electronic Data Processing, Business Data Processing or Research and Development Data Processing, (3) Civil Technology, Cartography, Photogrammitry, or Highway Design, (4) Mechanical Technology or Engineering Drafting and Design, (5) Electronic Technology or Electrical Technology, (6) Printing and Graphic Arts, Production and Management, Photography, or Commercial Arts, and (7) Science Technology, Chemical Technology, or Pure Science Technology. In addition, courses suggested for the Evening Division were Executive Administrative Aide, Personnel Management, Real Estate, Police Training, Recreational Leadership, Report Writing, Secretarial, and others as the need arises. (PA)

Montgomery Junior College

TECHNICAL AND SEMI-PROFESSIONAL EMPLOYMENT SURVEY



1963

VT000560

MONTGOMERY JUNIOR COLLEGE

1963

TECHNICAL AND SEMI-PROFESSIONAL OCCUPATIONAL SURVEY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Eileen P. Kuhns
Director of Institutional Research

Donald E. Deyo
Dean of the College

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CHAPTER I

INTRODUCTION

The public junior college functions as an integral part of its service area, often in distinct contrast to neighboring educational institutions drawing students from a wide geographic area and in turn preparing graduates for positions throughout the country or world. Community College students tend to graduate from local high schools, commute from local homes, and in time seek employment in local offices and industries.

In view of this symbiotic relationship, the community college periodically needs to examine its community, to determine whether the College offerings are responsive to emerging occupational trends. Evaluation of community need is likewise indicated when new programs are envisioned, especially when these proposed additions are of a nature to lead directly into employment at the successful completion of a prescribed two-year course of study.

In 1956 such a survey, A College and Its Community, was conducted by the faculty and staff of Montgomery Junior College, assisted by Dr. S.V. Martorana, then Community and Junior College Specialist, United States Office of Education.

Anticipated expansion to a second campus in Rockville focused attention on the need to up-date this report. Under the general direction of Dean Donald E. Deyo, preliminary planning began in Summer 1962, and culminated in data collection and analysis in the Summer and Fall of 1963.

Although Montgomery Junior College exists primarily to provide education for students residing within the County, any realistic study of employment opportunities for these students must survey establishments situated beyond County Boundaries. Residents of Montgomery County may seek employment in the District of Columbia or even in a nearby Virginia county. Accordingly, research data were requested and received from employers throughout the metropolitan community, defined operationally as the local service area of the Washington telephone exchange.

The Technical and Semi-Professional Employment Survey was undertaken in order to identify occupational curriculums appropriate for the new Rockville campus of Montgomery Junior College. Almost 100 curriculums were studied in Summer 1962, and from this extensive list of possibilities, 54 regarded as feasible for the Washington area were selected for inclusion in a Questionnaire sent by mail to employers in Summer 1963.

These curriculums fell into four broad categories: Medical Auxiliary Technologies, Business, Applied Science Technologies, and Public Service. The complete list may be found on page 2 of the Questionnaire, which is included in Appendix A along with several blue sheets containing descriptions of all 54 Classifications. These diversified curriculums (or Classifications as they are called in the Questionnaire) have one thing in common: each prepares the graduate for a technical or semi-professional occuaptional niche. Curriculums

ultimately recommended for development as a result of this community survey are discussed in detail in succeeding chapters.

A paragraph from the covering letter which accompanied the Questionnaire presents the definition of "technical and semi-professional" which is used throughout this study:

> "The two-year community college is well adapted to providing 'technical or semi-professional' education. These interchangeable terms refer to a level of skills and understandings intermediate between the engineer or professional--and the vocationally-trained employee. Compared with the vocational, it represents a type of education in which there is less emphasis on manual skills, and much more on supportive academic knowledge and applied science. At the other extreme (from vocational) is professional education, usually requiring at least four years of college, with even less emphasis on manual skills, and even more concentration on supportive theory.'

Documented repeatedly has been the urgent need for this intermediate type of education, which prepares the student for the vital role of assisting the scarce professional. A National Aeronautics and Space Administration official, Eugene J. Manganiello, in the September 1963 issue of Technical Education News said,

> "We have no choice but to increase the effectiveness of the engineer through expanded use of technicians.....A trained and experienced technician performs his specialized duties in a far superior manner than would the newly graduated engineer and, in fact, better than a mature engineer.....In recent years, we .....have increased the percentage of technician support and have observed improvements in operations. But we have only begun to exploit the potential use of technicians, and we plan to further expand our current admittedly inadequate ratio of technician to engineer."

Responding to the MJC Questionnaire, a consulting engineering firm said,*

> "The vital, urgent need is for good scientific assistants in all fields. Such persons could well study for a degree in time, and might be found among those who would profit from a full college course but were unable to make the grade financially."

From an aero engineering corporation came this statement:

> "I would certainly like to personally endorse your proposed educational program for these classes of employees since I believe there is a great national need for training in these categories which will, from a national standpoint, tend to relieve our shortage of professional scientists and engineers."

An aerial surveys firm said,

> "We wish you success in establishing your new curriculum, since we are convinced that junior colleges with two-year terminal courses in the technical and semi-professional education field are greatly needed, not only in the Washington area, but throughout the country."

Although the use of supportive personnel is more institutionalized in engineering-related fields, community acceptance of technical and semi-professional education in the Medical Auxiliary, Business, and Public Service categories is apparent, as indicated by representative statements reproduced below. Expressions of interest and encouragement were found on many returned Questionnaires. For example, a physician said,

> "The college courses provide a very valuable education and I greatly appreciate having its graduates."

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*In quoting from Questionnaires, only firm type is indicated, since responses were guaranteed confidential treatment.

A realty corporation stated,

> "We think this is a fine program and will fill a very definite need in the community as well as being of invaluable assistance to students preparing to enter the business world and various professions."

A professional exchange service said,

> "I am afraid that we could not help your program much with our limited needs but let me commend you for your endeavor. This is something I have felt junior colleges should have done years ago."

A local government office commented,

> "The need for your type of institution is great and rapidly becoming greater."

A federal government office said,

> "We plan to place particular emphasis on recruitment at the junior college level in a wide variety of specific job classifications in the future, and therefore appreciate the opportunity afforded us of participating in this study."

A behavioral science firm said,

> "I and my staff might be available to teach some courses, and/or serve on advisory panels with or without compensation."

A medical research establishment said,

> "We would be interested in conversation or consultation (without charge) if we could be of benefit to your effort, even to a limited degree of teaching or lecturing (without charge)."

Employers stressed their preference for good basic technical education--which may be supplemented as jobs change and technology advances--rather than for highly specific technical education, which is currently valuable, but subject to early obsolescence. From a firm dealing in telemetry receivers and electronic teaching aids came this statement:

> "We are interested in obtaining fully rounded technically oriented electronics technicians. These people should be firmly grounded in all basics rather than be trained toward one particular industry."

Several employers commented on the desirability of including liberalizing courses in the educational programs of technical and semi-professional students. The president of a recreational business concern said,

> "They need to learn to think, both logically and creatively. They need to learn how to solve problems, how to communicate effectively, how to use resource materials of all types, how to resourcefully get things done, rather than invent excuses why it is still undone, and how to plan effectively. They need to acquire the depth and perception that comes through real understanding and enjoyment of the arts: literature, music, dance, symbolic representation and color."

From the office of a Certified Public Accountant came this statement:

> "We are not interested in the accountant who acquires nothing but methodology or who wants to stop his education after Junior College. We have been hiring most of our accountants from the Business Colleges and find their handicap to generally be deficiencies in Academics (particularly English), social graces and personnel adjustments or relationships."

Curriculum decisions responsive to the needs of the business community have value to students attending college part-time as well as to recent high school graduates attending classes full-time. Montgomery Junior College serves an ever-increasing number of adults who do continue their occupational (as well as liberal) education in evening and extension courses.

In Fall 1963 a total of 77 classes was being offered for college credit on the Takoma Park campus as well as four more classes at extension centers. These 77 classes enrolled 1074 students attending only at night, an increase of 34 per cent over Fall Semester 1962. In addition, 245 day students were registered in these evening classes, representing an increase of 94 per cent over Fall 1962. A number of these evening students were registered for more than one class. Meanwhile, total enrollment for the College as a whole had increased 11 per cent, which is only one-third of the percentage increase noted for the Evening Division.

Rapid advances in knowledge and technology portent more continuing education for American professionals and semi-professionals. In the October 1963 issue of Adult Leadership, John Holden, dean of the graduate school of the United States Department of Agriculture and president-elect of the Adult Education Association cited statistics which indicated that "the more education people have, the easier it is to get them to continue their learning." In the November 1963 Harper's, Clark Kerr, president of the University of California said that among the 200,000 students enrolled in the extension sector of his "multiversity" are "one out of every three lawyers and one out of every six doctors in the state."

Conversely, those with the least schooling and thus the greatest need are the least likely to continue their education. For example, according to the Washington Post a recent report from Seymour Wolfbein, director of the Labor Department's Office of Manpower, Automation and Training, showed that

> "while one out of every three
> unemployed persons failed to go
> beyond the eighth grade, only about

> 5 per cent of the persons in the (federal) manpower retraining program are below that education level."

The community college is especially well-equipped to serve the continuing education needs of semi-professionals, leaving to four-year colleges and universities the more advanced courses appropriate for supplementing the technical education of the professional. Obviously both groups can and do profit from the wide variety of non-technical courses also offered by the community college.

According to the 1963 Survey, the occupational needs of community employers far outdistance the limited numbers graduating from the few post-secondary technical and semi-professional programs found in metropolitan Washington institutions. Student demand may not be consistent with employer demand for a particular type of education, of course, and thus a new curriculum may fail for lack of sufficient student registration. Unsolved to date in suburban communities with high income and education is the related problem of vesting technical and semi-professional programs with sufficient prestige so that they may be elected without perceived loss of status on the part of the student and his parents.

The rest of this report is presented in a manner which allows the reader to choose his own level of involvement with the actual Survey. For those who wish only the highlights, Chapter II gives both conclusions and recommendations. Chapter III is written for those who are interested as well in a summary of the Survey findings. And finally, Chapter IV contains a detailed analysis of the actual returns, including a series of 17 charts designed to make these Survey results even more graphic.

CHAPTER II

CONCLUSIONS AND RECOMMENDATIONS

Over the nation the community college is assuming leadership in the preparation of students for future careers in the technical and semi-professional occupations. The need for personnel trained in these fields is an emerging characteristic of our post-war economy. At the same time, the secondary schools and the four-year colleges, both of which reached functional maturity in other eras, now find themselves only partially able or willing to meet these pressing new demands.

It is not suprising that the community college should find it necessary to step into this educational void; its very name is indicative of responsive involvement in community life. Fortunately, as a social institution it is in its vigorous young adulthood at a time coincident with this increasing requirement for technicians and semi-professionals. Consequently, as the community college meets this challenge to educational leadership, this serves further to define and clarify its role as a maturing dynamic colleague among the other institutions of higher education.

Lynn A. Emerson summarized the findings of many observers, and coincidentally those of the 1963 Montgomery Junior College Survey, when

he concluded in his recent Technical Training in the United States that,

> "Present output of trained technical personnel falls far short of meeting the needs of industry; and projected needs of industry in the years ahead indicate a widening gap between present facilities and these needs."

The community college has emerged as a "promising source of expansion" in this field, with regard to both pre-employment and adult or continuing education functions. Automation and other technological changes will accelerate involuntary vocational mobility at all levels, so that several occupations in the productive lifetime of one person may become commonplace.

Technical education curriculums found in the catalogs of technical insitutions usually are designed to meet these three general requirements:* (1) that the graduate be employable and productive in an entry job after a minimum familiarization period, (2) that he be able to progress to positions requiring increasing responsibility, and (3) that he be prepared to take advantage of future opportunities to advance his technical skills and knowledge. The community college concept of technical and semi-professional education adds a fourth requirement to such curriculums: (4) that the graduate be prepared to live, in the fullest sense of that word.

The fourth requirement is met in the community college by including in every occupational curriculum a substantial number of credit hours in general education courses. Education for technical and semi-

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*Some technical curriculums outlined in the publications of the Technical Education Branch of the United States Office of Education specifically list such requirements.

professional careers should include not only an excellent grounding in the specific basics, as implied in the first and second requirements, but in addition should be flexible and general enough to permit the third requirement, which will allow considerable vocational mobility with a minimum of re-education, should this necessity arise.

Within the four broad categories found on page 2 of the Questionnaire (see Appendix A) are "families" of occupational curriculums. For example, Mechanical Technology includes both production and design phases, as well as allied knowledge in instrumentation, quality and cost control, air conditioning and refrigeration, etc. To meet the four requirements noted above, all students in the generic field of Mechanical Technology should master a basic cluster of technical and supporting courses, as well as prescribed general education subjects. Specialized beyond this common core takes the form of options in some colleges. Under such an arrangement, the student matriculated in Mechanical Technology would be responsible not only for the basic cluster of technical subject matter, but in addition would be required to complete courses in one of the available options, such as Engineering Drafting and Design, or Instrumentation, before he would be eligible for the associate degree.

If the generic curriculum (Mechanical Technology in this example) has been flexibly designed to lead into more than one option, a second specialization may be pursued later through part-time continuing education, should this be dictated by technological change, by an employment market reflecting automation, or by personal preference.

The two-year curriculum is geared to meet the pre-employment needs of full-time day students. Employed part-time evening students, with

educational backgrounds ranging from high school graduation through the doctorate, may have neither the time nor the inclination to complete an entire curriculum. Where the demand is sufficient, sequences of courses with varying numbers of credit hours have been developed by some institutions for those part-time students (or their employers) who are especially interested in a "package" of related knowledge which has been carefully planned by the College faculty and knowledgeable laymen for the accomplishment of some occupational objective.

Technical and semi-professional education tends to be costly. Lynn Emerson gives these capital and operating cost estimates in the conclusion of his previously quoted study:

> "Capital outlay costs for post secondary technical training programs of good quality is estimated at from $300 to $400 per full-time student.
>
> "Operating costs for post-secondary technical programs vary widely in different institutions. The cost of a quality program is estimated at $800 per year per full-time student."

A smoothly functioning system of occupational education requires an operating budget for Student Personnel Services which is sufficient to permit continuous liaison with both the feeder high schools and the local employers. Ideally but expensively this involves individual attention to each interested student (by high school or college counselors) from about the sophomore year in secondary school through community college graduation and placement in an occupation, and perhaps in continuing education beyond that.

Accurate assessment of the educational progress as well as the educational deficiencies of potential technical and semi-professional

students is necessary before the most appropriate program for the individual student can be planned. As guidance personnel have more time for individual counseling aimed at evaluating and increasing the academic effectiveness of all students, this in turn will bring counselors into a closer working relationship with the academic faculty, and thus may have a salutory effect on enhancing the mutual respect of these two branches of the faculty, to the obvious advantage of the student body.

According to the 1963 Manpower Report of the President, the fastest growing major occupational group has been the professional and technical, with "a rate of employment growth more than three times the average of all occupational groups." To date, these occupations have benefited from automation and related technological change; some sectors of the labor market have been less fortunate. As far back as 1956, the total number of white collar workers exceeded those in the blue-collar or manual occupations. Specifically with regard to technicians, the Manpower Research Bulletin #1 issued by the United States Department of Labor in May 1963 states,

> "Technological changes have occurred with such rapidity in recent years that the supply of technical manpower has failed to meet the need for it. At present, the number of technicians employed as supporting personnel is approximately three-fourths the number of engineers and scientists. It has been estimated that within a few years, an average of two to three technicians will be needed for each engineer. The Bureau of Labor Statistics estimates that 800,00 additional technicians will be needed by 1970, not including replacement requirements."

Similar figures showing current and future requirements for technicians and semi-professionals have become commonplace in the manpower literature. As with the 1963 Montgomery Junior College Survey, however, their repetitive message tends to obscure a basic and unsolved problem:

no matter how urgent the demands of employers, the establishment of occupational curriculums alone will not increase the supply of technicians for the unit of supply is the student, and not the curriculum.

At present the occupational curriculum tends to be a second choice for both the student and his parents, and this value judgment is corroborated by the attitudes of many high school teachers and guidance counselors. Particularly in an area with high levels of income and education, the first choice continues to be the pursuit of a traditional college education. While the occupational curriculums may have the enthusiastic support of community leaders, the clear understanding is that this choice is for "other peoples children."

All too often the high school vocational program has become the dumping ground for students lacking sufficient intelligence, knowledge, or motivation to be successful in the more demanding academic subjects. Through a type of "guilt by association", technical curriculums have tended to acquire this stigma, which contains a basic error: the student who cannot succeed in college preparatory subjects by and large is also a poor risk for technical and semi-professional curriculums at the junior college level. This is especially true in the applied science fields, where some proficiency in mathematics is a prerequisite skill.

Recruitment of Montgomery County high school students into occupational curriculums at the College will remain an unsolved problem of supply and demand until it is recognized as one worthy of solution by educators, parents, and employers.

It is recommended, therefore, that consideration be given to the appointment of a committee to review this situation, with membership

representing among others the secondary schools, the Junior College, the Montgomery County Council of Parent-Teacher Associations, the State Employment Services, and the local Boards of Trade, which include both private and federal government establishments.

Both tangible and intangible factors need to be studied, and an action program suggested in order to ameliorate specific difficulties made apparent by the accumulated evidence. "Tangible factors" would include data such as salary schedules comparing entrance rates for high school and community college graduates. Attitudes of parents and peer group leaders reflecting their image of occupational education would be examples of "intangible factors

The genuine interest expressed by area employers as well as their numerous offers of assistance have been most gratifying. Recognition beyond the school system of the central importance of equalizing the acceptability of the technical and semi-professional career is a necessary step toward the eventual solution of this persistent problem.

A March 1963 staff report from the American Institute of Physics included this statement:

> "Making present technicians conscious of the dignity and importance of their work is the best single measure--after provision of adequate salaries--for recruitment of future technicians."

The identification of occupational curriculums for development at the new Montgomery Junior College campus in Rockville was the original objective of this Survey. Intensive research over the period of a year into the problems and possibilities of technical and semi-professional education has resulted in a broadened conception of this purpose. To enumerate a bare list of curriculums for addition is not enough. Just as the community college

over the nation has assumed leadership in the preparation of students for these types of careers, Montgomery Junior College has come to recognize a responsibility in helping to develop a total program of technical and semi-professional education for the entire County. The recommendations which follow therefore reflect not only the findings of the 1963 Survey, but in addition an awareness of these educational possibilities in the rest of the unified school system.

MEDICAL AUXILIARY TECHNOLOGIES

Survey results indicated that several Medical Auxiliary Technologies, if offered as two-year college programs at Montgomery Junior College would fulfill genuine educational needs in the metropolitan Washington area.

Medical Technology and Medical Secretarial already are well-established Classifications at the College. The former is a transfer curriculum, preparing graduates for the third year of upper division courses, and for an additional twelve-month clinical period in a hospital school approved by the Council on Medical Education and Hospitals of the American Medical Association. Students completing this four-year program are eligible for the examination given by the Registry of Medical Technologists of the American Society of Clinical Pathologists.

A five-year grant from the United States Public Health Service made possible the employment of a Dental Assisting director who in turn successfully planned and developed the Dental Assisting program at Montgomery Junior College. National manpower projections for the dental profession indicate that Dental Assisting is destined to be a growing supportive occupation. The number of job openings estimated by respondents for the next five years is

triple the number of those currently employed by these same respondents.

The need for bedside nurses in the Washington area has been amply demonstrated, along with the willingness of the health-care institutions to employ graduates of an associate degree program leading to the state licensing examination.

Almost 90 per cent of these responding employers felt that a two-year program was sufficient to meet their job requirements. Associate degree nursing education is similar in many respects to four and five-year baccalaureate programs, and to three-year hospital school diploma programs, and yet different in other important aspects. The basic nursing theory and practice is found in all three types of educational institutions and includes nursing fundamentals, obstetrics and pediatrics, medical-surgical, and psychiatric nursing. The Western Council on Higher Education for Nursing has summarized a major difference with this statement: the associate degree nursing program is "designed for the education of individual students rather than to meet the service needs of hospitals." The complete program, with related clinical experience, encompasses two academic years and includes a substantial number of general education courses, in keeping with the philosophy of the community college.

Licensed practical nurses are urgently needed in the metropolitan area. At the same time, this is a curriculum more appropriate for the vocational offerings of the secondary schools where as a less-than-college level program it would be eligible for George-Barden reimbursement. A prior attempt to add this curriculum at the Junior College failed for lack of student enrollment, although the 1956 Survey also showed a demand for such graduates in the Washington community.

While the demand for Psychiatric Aides seems to be growing, again this need could be met by a federally reimburseable vocational program in the high schools. Crystallization of the functions of this Classification as a distinct occupation may come in time, and with it may bring higher status and remuneration. Since three-quarters of the responding employers said they would hire men as well as women if both were available and comparably trained, the Psychiatric Aide could be developed as a secondary school curriculum enrolling both boys and girls.

BUSINESS AND PUBLIC SERVICE

For future administrative purposes, Classifications in the Business and Public Service categories will be combined, and thus they are considered as a unit in this chapter on conclusions and recommendations.

The Secretarial Classification is as old as the College itself. The demand for these students is so great that it is difficult to keep them in college long enough to complete the associate degree requirements when the lure of lucrative jobs prior to graduation is so tempting. To meet the needs of legal and technical secretaries, an additional course in dictation, transcription, and vocabulary, for each of these two specialities is suggested, although neither course is deemed necessary immediately.

The Classifications of Executive Administrative Aide and of Personnel Management registered relatively high counts of current and future job demand. The development by the College faculty of planned sequences of Evening Division courses to serve these particular occupational requirements is suggested for the period following the opening of the new campus in Rockville.

The College curriculum currently includes General Business Management (Small Business Administration on the Questionnaire) which will require some reorganization by the faculty in order to make it truly occupational. At present it functions as a temporary expedient for the student whose past record will not allow him to matriculate in the transfer curriculum of his choice--Business Administration. The Accounting Classification, which registered substantial current and anticipated job demand, could be regarded as an option under General Business Management. However, the rapid emergence of Accounting as a branch of Electronic Data Processing may dictate that this Classification be functionally attached to the latter curriculum.

The three Classifications of Real Estate, Police Training, and Recreational Leadership registered considerable community demand. To meet these needs, the development of sequences of appropriate courses, rather than of curriculums per se is suggested. A six credit hour course at the College now forms something of a sequence in Insurance. This course has been approved by the Maryland Commissioner of Insurance, and is consistent with requirements for the State licensure examination. The Evening Division would be the logical place to offer such sequences of courses when they are eventually planned by members of the College faculty, together with the respective lay advisory committees.

Library Assisting registered a current job demand of about 500 persons, with the same number of job openings predicted for the next five years. With the new Instructional Materials Center for a campus laboratory, little additional capital outlay would be required to make this curriculum operative. On the other hand, a conservative approach is recommended, since there does not exist to date a definitive body of knowledge leading

to the associate degree in this field. The 26 respondents currently employing Library Assistants represented a range of business types, where those in this Classification apparently performed rather diverse functions.

Although the responding firms registered considerable current and anticipated job demand for both the Food Management and the Institutional Food Service Management Classifications, neither of these is suggested for development in the immediate future. In spite of the fact that "thumb-nail" descriptions of the Classifications accompanied every Questionnaire (see Appendix A), comments from employers indicated that these two rather different fields were viewed as one by some respondents. Since at least one is a curriculum requiring substantial amounts of both space and equipment, additional study is suggested prior to any further planning.

APPLIED SCIENCE TECHNOLOGIES

Electronic Data Processing is already an associate degree curriculum at Montgomery Junior College. Reevaluation by the faculty is indicated in the near future in order to take advantage of the newer approaches in this rapidly developing field. Two options are suggested: Business Data Processing, and Research and Development Data Processing. Electronic accounting procedures would form an important part of the former option.

Theoretically the use of data processing equipment at off-campus installations provides adequate associate degree education in this field; practically it leaves much to be desired unless a carefully planned and administered cooperative program can be organized. It is likely that the data processing laboratory should be expanded as a campus facility at Rockville, Electronic information processing even now so permeates the business and research world that the time may come when most technical

and semi-professional curriculums will need to include at least some familiarization with data processing.

Mechanical Technology is recommended for development by the time the new campus opens in Rockville, with particular emphasis for the present on only one of the suggested options: Engineering Drafting and Design. Another option to be considered for the future is Instrumentation Technology. Any planning for the more usual Production option in Mechanical Technology should await further evidence of need in this particular community.

Laboratory facilities which would give students the variety and quality of experience needed are costly, albeit necessary. The laboratory is an integral part of such a program, in order that there be constant application and reinforcement of theory with practical application, which in spiral fashion then contirbutes in turn to the understanding of more complex theory.

Survey results showed unusually high current and anticipated future demand for the Electronic Technology Classification. The technical and supporting subjects making up this curriculum have much in common with those found in the Electrical Technology curriculum, which is already offered at Montgomery Junior College. It is recommended that both programs be available to students, with Electrical Technology offered as an option for those who prefer this to further specialization in Electronic Technology per se. There was a considerably stronger community demand for the Electronic Technology.

Electronics is already taught in the County secondary schools. These students receive the first two years of this curriculum in high school, and an additional two years at the Junior College. Thus this type of program has been designed "11-14". The first group of such students graduated from high school last June and are currently enrolled in the existing Electrical

Technology curriculum at Montgomery Junior College.

Equipping an electronics laboratory can be very expensive. Transfer of some equipment from the Takoma Park facility will reduce this total cost somewhat. Also, the current availability of some standard quality testing and measuring instruments in kit form can effect considerable savings and as well provide the students with valuable learning experience in assembling this equipment.

Since printing is the largest single industry in the Washington metropolitan area, it is not surprising that this Classification registered the largest number of job openings reported by respondents for the next five year period.

One employer commented, "Washington is bereft of qualified trainees in printing production, management, and sales, as well as the purely technical skills of press operating, camera work for lithography, stripping of negatives and machine composition." Another said, "No school, public or private, in this area (including D.C.) offers a good comprehensive course in either commercial art or photography."

Printing and Graphic Arts is suggested as a new curriculum, with three options: Production and Management, Photography, and Art--Advertising. At present the latter may be found in the catalog as one of the Fine Arts curriculums. This Art option would be more functional for this purpose were it revised by the faculty to include some work in technical illustration, which is one of the special demands in this community.

Civil Technology is recommended as a new curriculum for development on the Rockville campus, with the understanding that this, too, can be an expensive equipment program. On the other hand, as one respondent pointed out, the principles involved in operating the simpler and less expensive instruments do not differ markedly from those involved in the

operation of the most expensive equipment, and would suffice with a brief on-the-job familiarization period following graduation. Since to an increasing extend mapping involves "the input of data directly from photogrammetric stereoplotting instruments into computing machines", this is another curriculum which should include some familiarization with electronic data processing.

Options of Cartography, Photogrammetry, and Highway Design are suggested for the Civil Technology curriculum. Cartography is already offered in the County secondary schools.

Two Classifications with relatively high current and anticipated future demand were Chemical Technology and Pure Science Technology--Biology Chemistry, Physics. In this geographic area, the laboratory rather than the industrial aspects of Chemical Technology would be stressed. The Pure Science Technology is envisioned as an interdisciplinary effort, preparing the graduate to work directly with scientists in the physical and life sciences.

Recently the American Institute of Physics conducted a conference and gathered additional information about the recruitment and training of technicians in physics. To meet their requirements, this professional group favored the technical education available in a strong two-year program, rather than in a four-year college curriculum. Likewise, 80 per cent of the member companies responding to a recent survey conducted by the Manufacturing Chemists' Association favored "a formal two-year college course designed for chemical technicians."

The interdisciplinary Pure Science Technologist would have a working knowledge of physics and chemistry as well as concentrated exposure to biology and the related mathematics. Working out the delicate balance of

these four subject areas within the two-year span of an associate degree would be a complex task for the applied science faculty, but the end product obviously is in demand in the Washington area.

It is suggested that the generic curriculum encompassing these two Classifications be designated as Science Technology, with two options at present: Chemical Technology, and the integrated Pure Science Technology. At a later date it is possible that Radiation Technology could become a Science Technology option.

Radiation Technology currently is offered as a curriculum at Montgomery Junior College. An Atomic Energy Commission grant will allow the employment of a coordinator for this program as of January 1964, under whose guidance matters of curriculum refinement, student recruitment, and eventual placement of graduates will receive attention.

The need for Technical Report Writers was stressed by a number of respondents, who usually emphasized the need for knowledge of content as well as facility with communication. This Classification is recommended for inclusion in the College offerings as a course, which would from a unit in most of the technical and semi-professional curriculums.

Earlier in this chapter the 11-14 program in Electronic Technology was discussed. It is suggested that three other existing or recommended curriculums also be studied with a view toward 11-14 arrangements with the secondary schools: Printing and Graphic Arts, Civil Technology, and possible Electronic Data Processing.

One of the problems inherent in the 11-14 arrangement occurs because the students entering the College following completion of the high school phase are ready for more advanced technical courses than are the

other entering freshmen, making necessary either two "tracks", or else some form of advanced placement. The former is feasible only when the supply of such students from the secondary schools justifies the establishment of a second track, and the latter requires the development of placement examinations or procedures by the College faculty. Especially with these 11-14 students, the time may come when advanced standing (college credit as well as placement in an advanced course) may be available to entering freshmen who complete such placement examinations with distinction.

The Early Placement program has been in operation for almost two years in the Montgomery County school system, but few students have been admitted in technical subjects. Especially in the heavy (and expensive) equipment curriculums, the College could function as a quasi area technical center to the extent that superior high school seniors were encouraged to enroll in one or more of these College courses on an Early Placement basis.

In summary of this chapter, the new curriculums or options listed in Table I have been recommended for development to coincide with the opening of the Rockville campus of Montgomery Junior College.

TABLE I

CURRICULUMS	OPTIONS
Nursing, Associate Degree R.N.	--
Electronic Data Processing	Business Data Processing Research and Development Data Processing
Civil Technology	Cartography Photogrammetry Highway Design
Mechanical Technology	Engineering Drafting and Design (Instrumentation--for later development)
Electronic Technology	Electronic Technology Electrical Technology
Printing and Graphic Arts	Production and Management Photography Art (Commercial and Technical)
Science Technology	Chemical Technology Pure Science Technology (Biology, Chemistry, Physics)*

*Representatives of some offices and agencies in the community were contacted not as employers but as knowledgeable persons with regard to one or more of the Classifications under consideration. Such a letter went to the Civil Service Commission, asking among others this question:

> "Which of the 54 listed Classifications (or curriculums) currently lead to specific Civil Service positions and ratings?"

Each of these recommended curriculums (or an option) was designated by the responding officer as one which "could lead to a specific civil service position."

In addition, several sequences of courses for the Evening Division have been suggested, especially as a service to the part-time student: Executive Administrative Aide, Personnel Management, Real Estate, Police Training, and Recreational Leadership. Representatives of the local real estate and police training interests already have taken preliminary steps toward working out such programs with the College. In all likelihood these sequences will be the first developed, with the others following as need dictates.

Finally, three new courses have been identified for faculty consideration: Technical Report Writing, and dictation, transcription, and vocabulary for legal and for technical secretaries. It has been suggested that the former course be incorporated into most of the technical and semi-professional curriculums, and that the latter two eventually be offered in the Evening Division of the College.

Before final decisions can be made with regard to curriculum development, it will be necessary to survey the projected career plans of Montgomery County senior high school students, especially as they relate to the technical and semi-professional occupations. No matter how great the demand by employers, curriculum development is a meaningless exercise if students do not elect to enroll.

These data will be collected and analyzed in the very near future. Along with continuing fiscal considerations, conclusions reached from these results should furnish the evidence on which to base final decisions about the establishment of new technical and semi-professional curriculums on the Rockville campus.

Alvin Eurich, vice president of The Fund for the Advancement of

Education, recently said that innovations which occur in college teaching tend to come from sources outside the colleges, such as national affairs, intellectual currents, and broad social forces. Outside the colleges, widespread changes in both technology and organizational patterns of the work force are taking place. These seem destined to have their influence on the curriculums and instructional patterns of the community college, particulary at this growing edge of higher education--the preparation of graduates for technical and semi-professional occupations.

CHAPTER III

SUMMARY OF FINDINGS

Metropolitan Washington is an atypical employment market in that the major "industry" is the federal government. Satellite to this focal point are numerous private firms which have mushroomed in the last decade to assist with the increasingly complex research and development and scientific needs of this the headquarters and control center of the nation.

The demand for technical and semi-professional personnel to support the ubiquitous professional is nowhere more apparent than in such a community. In addition, the variety of skills required for this range of ancillary roles has curricular implications for the community college attempting to educate students for effective entry into the Washington labor market. The Montgomery Junior College Survey gave area employers the opportunity to register current employment patterns and future estimates in each of these four categories: Medical Auxiliary Technologies, Business, Applied Science Technologies, and Public Service.

Respondents participating in the 1963 Survey numbered 551 firms, employing a total of 153,886 employees, who in turn constituted about one-fifth of the 1960 total work force resident in the metropolitan Washington area.

Four hundred and seven of these establishments participated in response to a mailing sent to a 10 per cent random stratified sample selected from 534 categories in the telephone company's Yellow Pages. These categories were chosen to include as far as possible all business types presumed to be interested in technical and semi-professional education. Response from what has been designated as Group I (the random stratified sample of essentially private firms) did not exceed 10 per cent. In addition, these 407 responding firms employed only 32,221 of the 153,886 total work force found in the establishments of all Survey respondents.

One hundred forty-four of the 551 establishments participated as part of a selected sample of public and private establishments known from available evidence to employ considerable numbers of technical and semi-professional personnel. Types of firms making up this Group II are listed in Table II. Requests for participation went out to 238 such establishments; 144 or 60 per cent responded. Together they accounted for 121,665 or 79 per cent of the persons currently employed by all the Survey respondents.

Numerical results from Group I and Group II employers were combined for the purpose of this investigation, which was the identification of each occupational curriculum "which if offered as a two-year college program at Montgomery Junior College would fulfill a genuine educational need in the metropolitan Washington area." As strictly defined, this does not constitute a statistical study, and no attempt should be made to generalize about the total technical and semi-professional needs of the metropolitan Washington community from this combined random and selected "sample". At the same time, the evidence indicates that those who did participate in this Survey comprise a principal market for the potential graduates of these

TABLE II

Categories of Respondents	Potential Respondents (Firms Sent Questionnaire)	Percentage Response	Actual Respondents (Firms Returning Questionnaire	Percentage of Total Number of 551 Actual Respondents	Number of Persons Currently Employed by Respondents	Percentage of Total Persons Currently Employed by Respondents
Group I Random Stratified Sample from 534 Standard Heading Groups in Yellow Pages	4,681	8.7%	407	73.9%	32,221	20.9%
Group II Selected Sample from	238	60.5%	144	26.1%	121,665	79.1%
A. R & D firms, public and private	202	58.9	119	21.6	73,218	47.6
B. Local governments, including schools and libraries	18	77.8	14	2.5	29,954	19.5
C. Other federal government offices	13	53.8	7	1.3	17,316	11.2
D. Other private firms (hospitals and schools) not in random sample	5	80.0	4	0.7	1,177	0.8
Totals			551 firms	100.0%	153,886 currently employed	100.0%

proposed technical and semi-professional curriculums.

About half of the responding firms were located in the District of Columbia, along with about the same percentage of the total employees. Approximately one-third of the respondencs listed a Maryland business address, and together employed about one-third of the total number reported.

By virtue of the way in which the Group II sample was selected, the largest numbers of employees were found in two major categories of business: Public and Quasi-Public Services, and Research and Development. Together they accounted for 86 per cent of the total of 153,886 persons employed in all 551 responding firms. Although more than half of the responding establishments employed less than 25 persons, the modal work force category for all of these firms included from 1001 to 5000 employees.

MEDICAL AUXILIARY TECHNOLOGIES

Employers responding to this Survey left no doubt that some Medical Auxiliary Technologies if offered as two-year college programs would fulfill a genuine educational need in the metropolitan Washington area. One of the large hospitals made this statement:

> "There is a great community need for expansion of educational opportunities for personnel to be prepared for a great number of hospital positions. The hospitals in the District as well as surrounding counties offer not only many but very rewarding opportunities for adequately prepared personnel. Any efforts made by your institution to meet the need will not only be a service to your students but to the health-care institutions."

The greatest numbers of trained personnel were currently employed or would be needed in the next five years in these fields: Licensed Practical

Nursing, Associate Degree Nursing, Medical Secretarial, Medical Technology and Psychiatric Aide.

About 90 per cent of the respondents felt that two years of specialized college training was sufficient for entry into the first three of these listed Classifications; about 60 per cent had the same opinion concerning the latter two.

Approximately 20 per cent of the establishments responding about Medical Technology conducted organized training for this Classification. Such programs were not available even to this extent for the other four Classifications listed above.

Very few of the persons currently employed in these Medical Auxiliary occupations were recruited directly from the junior college level. About one-third of both the Medical Technology and the Medical Secretarial Classifications were recruited by up-grading present employees. Three-quarters or more of the respondents felt that Medical Technology, Nursing, and Psychiatric Aide should be regarded as "hard to fill". Practical Nursing was viewed as the least difficult to fill of this selected group, and even in that case one-half of the employers described this as a "hard to fill" position.

Approximately three-quarters of the responding employers would hire either men or women for the Medical Technology and Psychiatric Aide Classifications. About one-third found either sex acceptable for both kinds of Nursing.

BUSINESS

The need for secretaries in this area requires no further substantiation, although a number of employers made it clear that they were in the market not just for secretaries, but rather for competent, accurate, willing secretaries.

In addition to Secretarial, these Classifications reported the largest numbers of either currently employed or anticipated job openings for the next five years: Accounting, Electronic Data Processing--Business Applications, Food Management, Executive Administrative Aide, Real Estate, Institutional Food Service Management, and Personnel Management.

With the exceptions of Food Management and Accounting, each of these Classifications was regarded as "hard to fill" by 60 per cent or more of the responding employers. In these two cases, 50 per cent and 40 per cent of the employers were of this opinion.

At least 80 per cent of the respondents for every one of these selected Business Classifications indicated that a person with two years of specialized college training would satisfy their job requirements. Organized training programs for these types of Classifications apparently are scarce in the Washington area. The exception was for Real Estate, where half of the establishments reported organized training.

One-half or more of those currently employed were recruited by up-grading in these Classifications: Executive Administrative Aide, Personnel Management, and Institutional Food Service Management. Except for Real Estate, all of the other selected Business Classifications recruited between 25 and 50 per cent by up-grading present employees. These respective percentages have implications for continuing education as well as for pre-employment

education at Montgomery Junior College.

The junior college level currently is a direct recruitment source of relatively few persons employed in these Business Classifications. About one-quarter of the Secretaries and one-fifth of the Institutional Food Service Management groups came directly from high school. The university or college contributed even smaller percentages into direct employment in these selected Classifications.

With regard to sex preference for employees, respondents for the most part indicated willingness to hire either men or women, if available and comparably trained. Some 60 per cent of the employers preferred female secretaries.

APPLIED SCIENCE TECHNOLOGIES

Twelve of these 21 Applied Science Technologies registered current or anticipated job demand suggesting that each was a Classification which if offered would fulfill a genuine educational need in the metropolitan Washington area.

In this selected group of Classifications, the estimated number of job openings for the next five years ranged between 184 for Photography to 3264 for Printing and Graphic Arts. In descending rank order of this five-year demand were Printing and Graphic Arts, Electronic Technology, Engineering Drafting and Design, Civil Technology, Research and Development Electronic Data Processing, Pure Science Technology (Biology, Chemistry, Physics), Chemical Technology, Mechanical Technology, Technical Report Writing, Instrumentation Technology, Electrical Technology, and Photography.

Together the employers giving these estimates expected to have a total of 10,139 job openings in these twelve Classifications during the next

five years, or about 2000 positions per year. These same respondents already employed or listed vacancies for 8,874 employees in these Classifications. Thus an increase of 14 per cent was predicted over the next five years. Five-year estimates included both turnover and the addition of new positions.

Approximately 50 per cent or more of the respondents found each of these twelve Classifications "hard to fill." Seventy per cent or more of the employers indicated that a person with two years of specialized college training would satisfy their job requirements in the respective Classifications.

Twenty to 30 per cent of the employers in the following Classifications reported organized training programs for them: Civil Technology, Mechanical Technology, Electrical Technology, Electronic Technology, and Research and Development Electronic Data Processing. Even fewer organized training programs were available for the other seven selected Classifications.

At present direct recruitment from the junior college level is of little numerical consequence except in the fields of Chemical Technology and Pure Science Technology, where both percentages were equal to about one-fifth of those currently employed. Direct recruitment from the high school was most apparent in Civil Technology (42 per cent), Photography (23 per cent), and Printing and Graphic Arts (32 per cent). Currently the respondents for none of these Classifications employed very many directly from university or college, with the possible exception of Pure Science Technology. In this latter case the three types of educational institutions furnished for direct recruitment these percentages: high school, 15 per cent; junior college, 17 per cent; and university or college, 16 per cent.

Several of these Classifications had significant percentages recruited by up-grading: about 90 per cent of those in Electrical Technology, and approximately one-third of those currently employed in Printing and Graphic

Arts, Chemical Technology, and Electronic Technology. Noticeably lower percentages of recruitment by up-grading prevailed in the other nine selected Classifications.

Responding employers in a rather surprising number of these selected Applied Science Technologies expressed a willingness to employ women as well as men if available and comparably trained. The number of employers answering "both" to Question 8 on page 3 of the Questionnaire fell below 50 per cent in only three Classifications: Mechanical Technology (27 per cent), Instrumentation Technology (48 per cent), and Electrical Technology (37 per cent).

PUBLIC SERVICE

Three of these Classifications stand out when estimates of job openings for the next five years are considered: Law Enforcement--Police Training, Library Assisting, and Recreational Leadership. These estimates are more than matched by current employment figures for the first two Classifications, but not for Recreational Leadership. The difference of over 800 between this five year estimate of job openings (991) and the number of currently employed plus vacancies (138) probably reflects the high rate of turnover expected yearly in Recreational Leadership, which is a permanent career for relatively few of those who function in this capacity during any one year.

About half of the respondents for Library Assisting felt that this Classification was "hard to fill." Approximately 40 per cent held this opinion about Law Enforcement and Recreational Leadership. Some 60 per cent of those employing within the Law Enforcement Classification conducted an

organized training program. About 9 out of 10 of the responding establishments for these three selected Classifications considered two years of specialized college training satisfactory for their requirements.

In terms of direct recruitment from a specified type of educational institution, the junior college level was the heaviest contributor to the Recreational Leadership Classification. From the university or college level both this and the Library Assisting Classification directly recruited about 20 per cent of those currently employed. Also, about the same numbers in these Classifications were recruited by up-grading present employees. Most employers in Recreational Leadership and Library Assisting indicated a willingness to hire either men or women, but this proportion fell to 20 per cent of those employing in the Law Enforcement Classification.

TABLE III lists the Classifications which have been selected for

TABLE III

MEDICAL AUXILIARY TECHNOLOGIES

Medical Technology
Medical Secretarial
Nursing, 2 Year RN
Nursing, Licensed Practical
Psychiatric Aide

BUSINESS

Secretarial
(General, Legal, Technical)
Executive Administrative Aide
Personnel Management
Electronic Data Processing--
Business Applications
Real Estate
Good Management
Institutional Food
Service Management
Accounting

APPLIED SCIENCE TECHNOLOGIES

Civil Technology
(Cartography, Photogrammetry,
Highway Design)
Engineering Drafting and Design
Mechanical Technology
Instrumentation Technology
Electrical Technology
Electronic Technology
Research and Development
Electronic Data Processing
Photography
Printing and Graphic Arts
Technical Report Writing
Chemical Technology
Pure Science Technology
(Biology, Chemistry, Physics)

PUBLIC SERVICE

Law Enforcement (Police Training)
Library Assisting
Recreational Leadership

detailed analysis in this summary chapter on the basis of both current job demand and anticipated openings for the next five years.

Survey results given in Chapter IV indicate that about one-quarter of the responding firms would be interested in working with Montgomery Junior College in setting up an educational program which would enable their technical and semi-professional employees to earn college credit. Several private and public respondents noted the fact that some of their employees already were attending Montgomery Junior College under some type of educational assistance plan.

If even 10 per cent of the establishments expressing an interest in Cooperative Work Experience eventually arranged a program with the College, such summer, part-time, or full-time learning experiences would be available to the students in about a dozen firms.

Because of the complex nature of the organization and administration of Cooperative Work Experience Programs, few could be expected to materialize, regardless of how willing both parties to such an arrangement might be.

CHAPTER IV

SURVEY FINDINGS

This chapter reports the findings from the 1963 Montgomery Junior College Survey. Below are a few highlights, taken directly from the pages which follow:

> "The evidence shows that with most of these Classifications, two years of specialized college training would satisfy the job requirements of employers. This is some indication that these curriculums are indeed appropriate for the two-year college."

> "About one in every six jobs in these responding firms was of this intermediate or assisting type."

> "In the firms of these 551 employers, the anticipated five-year demand was greatest for the combined Applied Science Technologies, with Business Classifications in second place."

> "Applied Science and Medical Auxiliary Technologies were more often considered 'hard to fill' than were the other two types of Classifications."

> "Some employers in every one of the 54 Classifications indicated a willingness to employ either men or women."

Respondents included 551 firms, employing 153,886 persons. These respondents came from two principal sources: (1) Group I-- a random stratified sample utilizing 534 appropriate heading sections from the telephone company's Yellow Pages; and (2) Group II--a selected sample composed of (a) most of the private and federal government research and development establishments listed in the 1962 edition of the Metropolitan Washington Board of Trade's publication Scientific Resources in the Washington D.C. Area; (b) local government offices, including schools and libraries; (c) several other large federal government offices; and (d) other private firms (hospitals and schools) not included in the random sample from the Yellow Pages (see Table II on page 31).*

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*Preliminary exploration with certain federal officials in Summer 1962 indicated that a complete list of all public and private establishments in the metropolitan area would not be available to the College. Without access to such data, the selection of one overall random stratified sample of employers was not possible. Such a sample would have permitted statistical inference about the entire group of employing establishments. The next best alternative appeared to be the use of two types of samples, one random (Group I) and one selected (Group II), but both drawn from broad categories of establishments whose types of business gave some indication of potential interest in technical and semi-professional education.

The Standard List of Headings published by the telephone company as a guide to their classified Yellow Pages provided the categories for the random sample. The Yellow Pages includes a large proportion of private establishments in the metropolitan area, stratified by business type. It does not give comparable access to a similar stratification of the many public offices and installations, which for the most part are simply listed alphabetically in the non-classified section of the telephone book. As noted above, selected local and federal government establishments were nevertheless invited to contribute Survey information.

Actual establishments making up to a 10 per cent random stratified sample from the Yellow Pages were chosen by use of a Table of Random Numbers, to insure that each firm within a given Standard Heading had an equal chance of being chosen.

Random selection of some four thousand Group I establishments and the subsequent data collection proceeded at considerable expense of time and (cont'd)

Group I above included 407, or 74 per cent of the total number of 551 responding firms, but only 21 per cent of the 153,886 employees currently found in all of these surveyed firms. Group II contained 144, or 26 per cent of the 551 respondents, but more importantly, contributed four-fifths (121,665) of these 153,886 employees. Together Group I and Group II respondents employed a number of persons equal to about one-fifth of the total employed residents reported for the Washington metropolitan area by the United States Census in 1960.

Figures which follow in this chapter are accumulated from respondents in both Group I and Group II. The findings are literally the current employment patterns and practices and the estimated needs of respondents to the Questionnaire. Thus in the strict sense, this is a descriptive rather than a statistical study, although the description is basically numerical.

Statistical logic dictates that the returns from neither Group I nor Group II respondents (alone or combined) be inflated to provide a hypothetical estimate of the total technical and semi-professional employment picture in the Washington community. Percentage returns from Group I were

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*(Cont'd) money. However, this procedure was deemed necessary in order that a carefully chosen sample of these employers throughout the community might be given the chance to indicate occupational needs in specific technical and semi-professional fields.

Some did take advantage of this opportunity to respond; many more did not. Guessing at the meaning of non-response is hazardous, but in view of the phasing of the first instruction on page one of the Questionnaire (see Appendix A), non-response could indicate not only the usual apathy or lack of time, but also a considered lack of need for employees educated in these areas.

Types of establishments listed under Group II above were surveyed as a result of the hypothesis that such firms comprise a principal market for technical and semi-professional employment in the Washington metropolitan area.

adjudged inadequate to warrant generalizations about this population of employers. The percentage response from Group II was much greater, but these employers had been deliberately selected (rather than randomly chosen) and thus furnished no basis for statistical inference, no matter how valuable the information provided by their responses in the identification of curriculums appropriate for development.

Charts presented in this chapter illustrate two basic kinds of information: (1) counts of people (e.g., current and estimated future employment figures); and (2) counts of pertinent practices or opinions (e.g., "Is this a 'hard to fill' job?" or "Does your establishment conduct an organized training program for this Classification?"). "Counts of people" provide some indication of relative demand for the various proposed curriculums. It is understood that such figures are descriptive of only these 551 firms, (albeit they account for about one-fifth of the area's employees), and thus represent less than the total demand in the community for a particular Classification. "Counts of pertinent practices or opinions" of firms, although again descriptive on only the responding establishments, nevertheless provide valuable insights about the operational inclinations of this important group of employers of technical and semi-professional students.

It is virtually certain that the inclusion of more firms from the metropolitan area's total number would have increased the "counts of people" given in the following charts; in most cases it is less certain that the inclusion of more firms would have changed significantly the percentage distribution of responding firms answering in the affirmative or the negative about a particular practice or opinion.

LOCATION OF RESPONDING FIRMS IN METROPOLITAN AREA

Montgomery Junior College is a community college serving the educational needs of Montgomery County residents. In keeping with this objective, firms beyond the County boundaries and throughout the metropolitan Washington area were surveyed, since many of the County students will seek employment in contiguous jurisdictions.

Chart I shows the distribution of responding firms in Maryland, Virginia, and the District of Columbia. About one-third of them have business addresses in Maryland, slightly more than half in the District, and the other 14 per cent in nearby Virginia.

This chart also shows the geographical distribution of respondents according to the total number or persons currently employed. The 167 firms in Maryland contributed 58,336 of this total. Virginia respondents employed 15,444 persons, while the 298 District of Columbia respondents employed 80,103, or just over half of the aggregate number of 153,886 currently employed by all 551 respondents.

SIZE OF ESTABLISHMENT

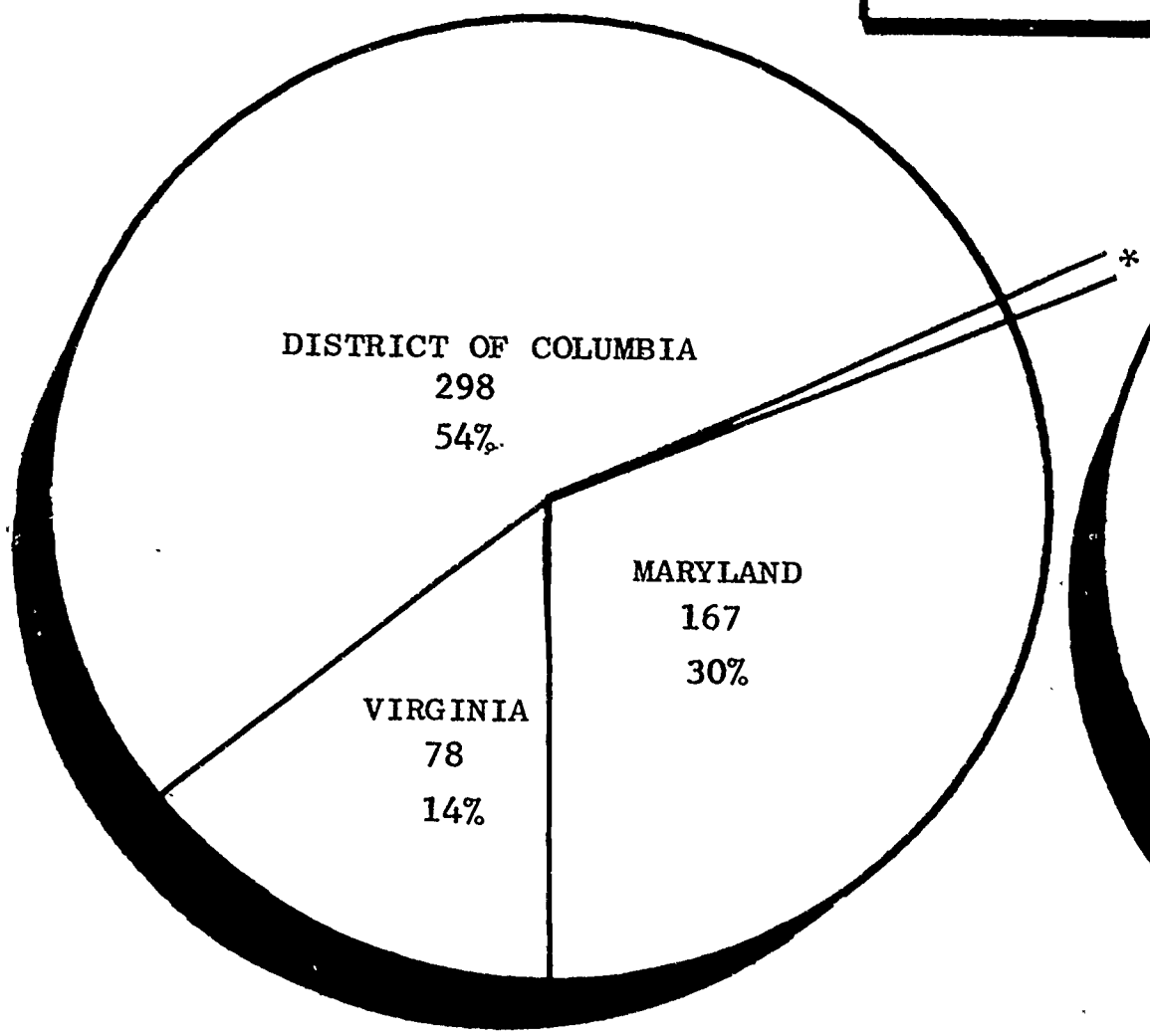
Well over half of the responding employers reported work forces of not more than 25 persons. Chart II shows that in contrast, the total number of employees found in firms of this size is relatively small; the 2090 employees made up but one per cent of the total currently employed by respondents.

The most common size of work force among the respondents was the category containing from 1001 to 500 employees. Forty-six per cent of the employees worked in the 31 firms of this size. The next most common

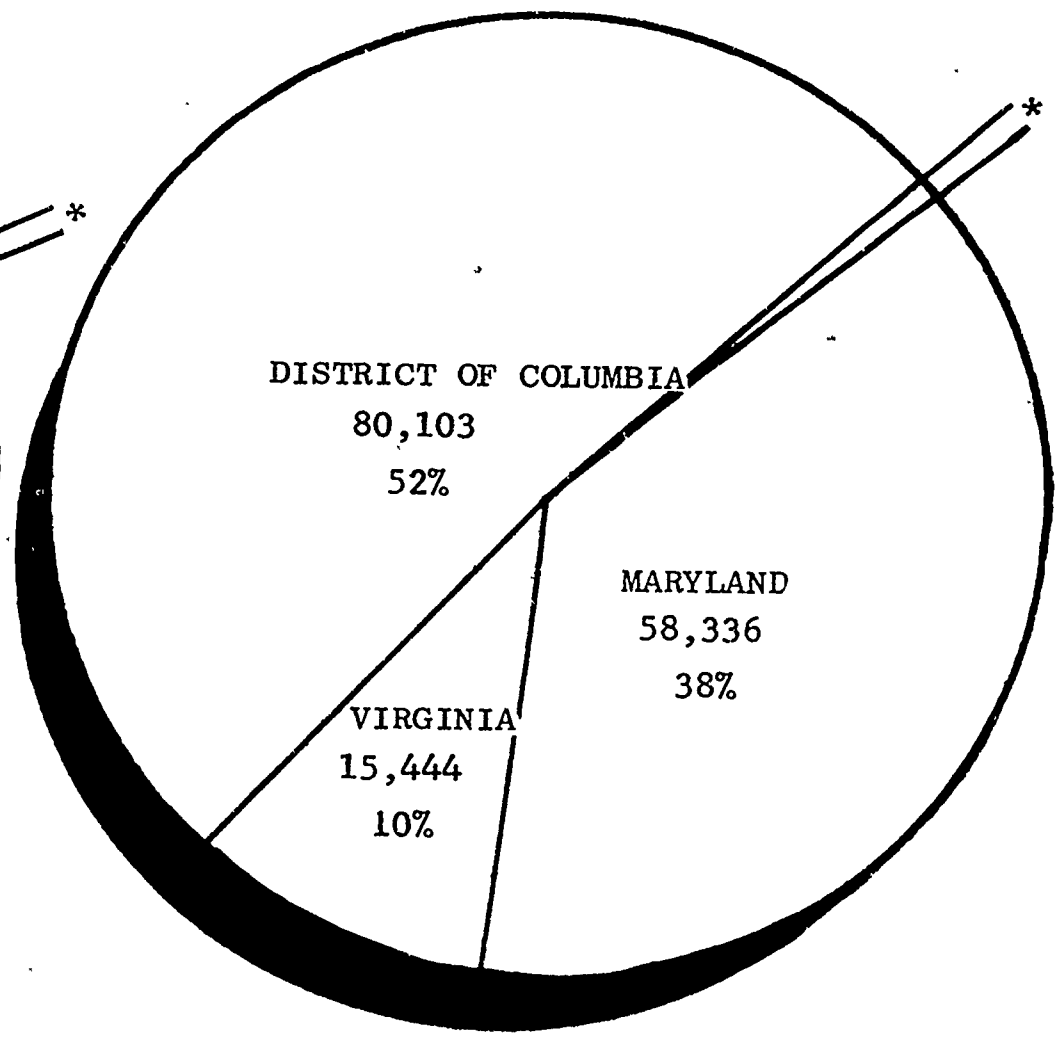
CHART I. Number of Responding Firms in Each of Three Jurisdictions in the Metropolitan Area; also, Number of Persons Currently Employed by Respondents in These Same Three Jurisdictions.

* Eight firms responded anonymously, furnishing no business address information.

ADDRESS

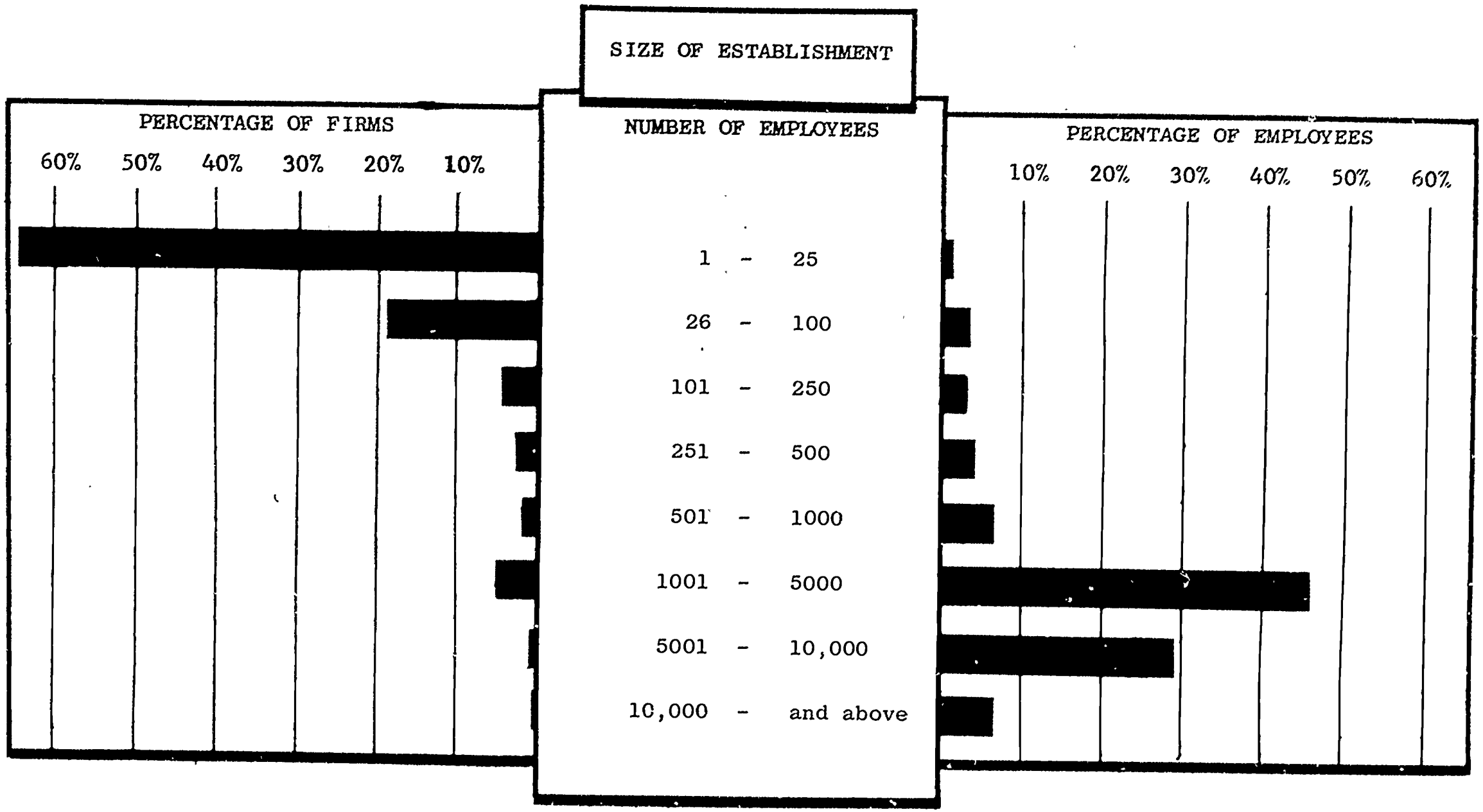


FIRMS
551



EMPLOYEES
153,886

CHART II. Percentage of Responding Firms by Size of Work Force; also, Percentage Distribution in These Categories of Persons Currently Employed by Responding Employers.


SIZE OF ESTABLISHMENT
PERCENTAGE OF FIRMS
60%
50%
40%
30%
20%
10%
NUMBER OF EMPLOYEES
1 - 25
26 - 100
101 - 250
251 - 500
501 - 1000
1001 - 5000
5001 - 10,000
10,000 - and above
PERCENTAGE OF EMPLOYEES
10%
20%
30%
40%
50%
60%

size of establishment was that employing from 5001 to 10,000 persons. In establishments of this size, six firms (only one per cent of the respondents) employed 44,699 or 29 per cent of the respondents' total number of employees.

TYPE OF BUSINESS

The business categories and sub-categories found in Charts III and IV were developed empirically to show the types of firms included in this Survey. Chart III is a summary illustration, while Chart IV presents the breakdown by types of establishments found within each of these major categories of business.

As might be expected considering the nature of the selected sample (Group II above), it is obvious from Chart III that the firms categorized as "Public and Quasi-Public Services" and "Research and Development" employed the largest numbers of persons. Together they accounted for 86 per cent or 131,770 of the 153,886 employees working in the firms of these 551 respondents. A detailed analysis of these two major types of business, by number of firms and number of currently employed, is included on the first page of Chart IV.

Wherever possible, the federal government figures were not lumped together, but instead were distributed according to sub-type of business. For example, the figures for the National Institutes of Health have been recorded under the "Health" sub-category of "Research and Development". "Residual" sub-categories for both federal and local government offices thus contain only those firms which could not properly be placed in any other category.

CHART III. Percentage of Responding Firms in Each of Eight Business Categories; also, Percentage Distribution in These Categories of Persons Currently Employed by Responding Employers.

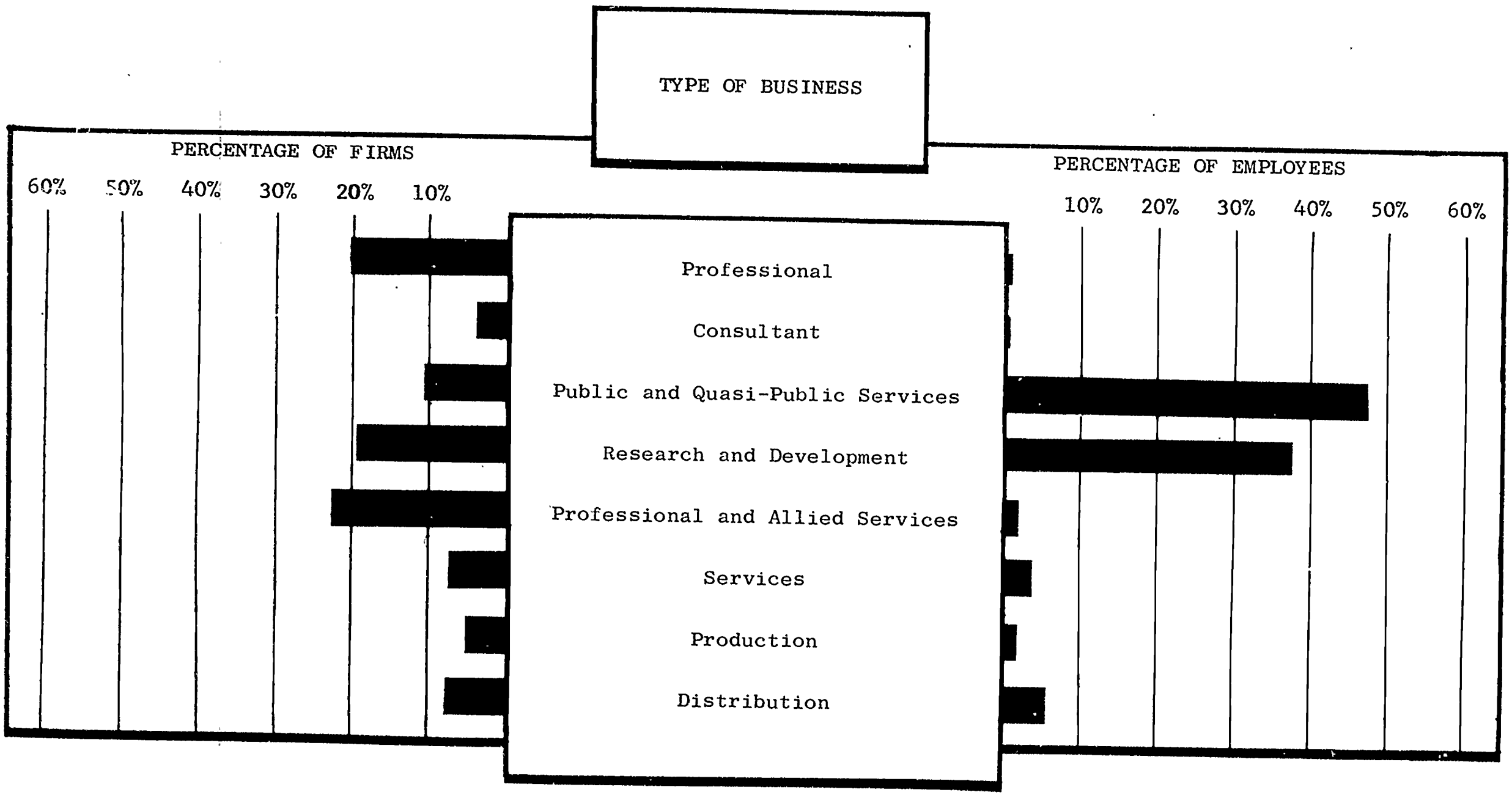

TYPE OF BUSINESS
PERCENTAGE OF FIRMS
60%
50%
40%
30%
20%
10%
PERCENTAGE OF EMPLOYEES
10%
20%
30%
40%
50%
60%
Professional
Consultant
Public and Quasi-Public Services
Research and Development
Professional and Allied Services
Services
Production
Distribution

CHART IV. Number of Responding Firms in Each Business Sub-Category; also, Number of Persons Currently Employed by Respondents in These Sub-Categories of Business.

TYPE OF BUSINESS	NUMBER OF FIRMS	NUMBER OF PERSONS CURRENTLY EMPLOYED
	60 40 20	20 40 60 80 100 200 400 600 800 1000 4000 7000 10000
Professional		
Accountant		
Attorney		
Architect		
Banker		
Clergyman		
Dentist		
Physician		
Other		
Consultant		
Agriculture		
Architecture		
Biology		
Chemistry		
Economics		
Electronics		
Engineering		
Personnel and Labor Relations		
Other		
Public and Quasi-Public Services		
Colleges and Universities		
Hospitals		
Federal Government (residual offices)		
Local Government (residual offices)		27922
Libraries		
Recreational Facilities		
Schools		
Social Welfare Agencies		23117
Other		
Research and Development		
Agriculture		
Biology and Life Sciences		
Chemistry and Physics		
Documentation, Operations Research, Computer Specialists		
Electronics		21059
Health		
Social and Psychological Sciences		
Other		

CHART IV. (cont'd) Number of Responding Firms in Each Business Sub-Category; also, Number of Persons Currently Employed by Respondents in These Sub-Categories of Business.

TYPE OF BUSINESS	NUMBER OF FIRMS	NUMBER OF PERSONS CURRENTLY EMPLOYED
	60 40 20	20 40 60 80 100 200 400 600 800 1000 4000 7000 10000
Professional and Allied Services		
Insurance		
Interior Decorating and Design		
Financial Services		
Printing and Photography		
Selling - Development		
Secretarial		
Technical Report Writing		
Advertising and Public Relations		
Other		
Services		
Automotive		
Electrical		
Electronic		
Food (Restaurant)		
Heating and Plumbing		
Hotel and Motel		
Refrigeration - Air Conditioning		
Other		
Production		
Automotive Products		
Biological Supplies		
Chemical Supplies		
Dental and Medical Supplies		
Publications		
Pharmaceutical Supplies		
Refrigeration Equipment		
Electronic Equipment		
Other		
Distribution		
Biological Supplies		
Chemical Supplies		
Electrical and Electronic Supplies		
Dental and Medical Supplies		
Food Products		
Building Materials		
Petroleum Products		
Pharmaceutical Supplies		
Other		

IS JUNIOR COLLEGE ENOUGH?

Based on the experience of their establishments, respondents were asked to list on the Information Chart inside the Questionnaire (see Appendix A) each Classification or curriculum which if offered as a two-year college program at Montgomery Junior College would fulfill a genuine educational need in the metropolitan Washington area. For each Classification so listed, they were then asked: "Would a person with two years of specialized college training satisfy your job requirements in this Classification?"

Chart V records the answers to this question given by their respective respondents about each of the Classifications. As a research convenience, these 54 Classifications (listed on page two of the Questionnaire) bear quadrant code numbers from 1 through 83, assigned in the following manner:

Quadrant Code Number	Type of Classification
1 through 25	Medical Auxiliary Technologies
26 through 50	Business
51 through 75	Applied Science Technologies
76 through 100	Public Service

Medical Auxiliary Technologies

For 8 of these 11 technologies, more than three-quarters of the respondents indicated that two years of specialized college training would satisfy their job requirements. The exceptions were Medical Technology, Medical Records Librarian, and Psychiatric Aide. Even in these instances more than 50 per cent of the respondents in each case felt that this two years of college education was sufficient.

CHART V. For Each Classification, Percentage of Respondents Answering YES To This Question: "Would a person with two years of specialized college training satisfy your job requirements in this Classification?"

A. Medical Auxiliary Technologies

1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

B. Business

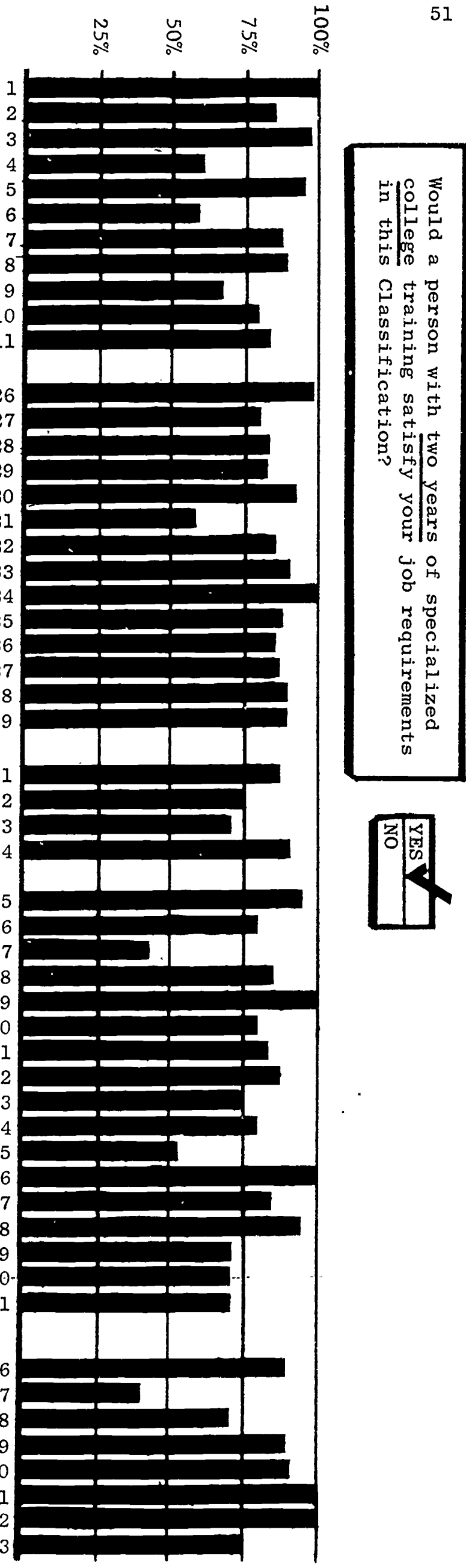
26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Proc.-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

C. Applied Science Technologies

51. Air Conditioning and Refrig. Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Tech. (Biology, Chemistry, Physics)

D. Public Service

76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instruc. Material Asstg.)
82. Recreational Leadership
83. Occupational Therapy



Business

Respondents answering this question about the Business curriculums were generally agreed that two years of specialized college training was enough to meet their requirements. The exception was Banking where only 54 per cent of the respondents answered the question in the affirmative.

Applied Science Technologies

Here again, most respondents felt that these technologies required no more than the two years of specialized college training. The two exceptions from this group of 21 Classifications may be noted for Tool Design and for Space Technology.

Public Service

Respondents in these fields indicated that two years of specialized college was sufficient for their job requirements with the exception of Public Administration, where only 40 per cent said that this amount of training would be enough.

The above evidence shows that with most of these Classifications, two years of specialized college training would satisfy the job requirements of employers. This is some indication that these curriculums are indeed appropriate for the two-year college.

CURRENT JOB DEMAND

For each Classification listed by employers, they were asked to indicate the "number of persons in this Classification currently employed by your concern", and as well the "number of vacancies in this Classification

you are currently trying to fill". Together these figures constitute the total "current job demand" for each of the 54 Classifications. The three pages of Chart VI show in detail this occupational pattern as reported by the 551 respondents, who together employed a total of 153,886 persons.

Medical Auxiliary Technologies

Chart VI shows that the two Medical Auxiliary Technologies with the largest current job demand were Nursing--2 Year RN, and Nursing--Licensed Practical. Respondents reported a current demand of approximately 500 for Nursing, and 650 for Practical Nursing, including about 75 vacancies in the former and 150 vacancies in the latter. In third and fourth rank according to current demand were Medical Secretarial and Medical Technology, two curriculums already offered by Montgomery Junior College.

Business

Figures on the second page of Chart VI leave no doubt that Washington firms employ a lot of secretaries and would like to employ more. The current job demand for the Secretarial Classification was over 7000, including almost 350 current vacancies reported by Survey respondents. Other curriculums with substantial current job demand included Accounting with about 800, Food Management with 750, Electronic Data Processing--Business Applications and Executive Administrative Aide with about 475 each, and Real Estate and Personnel Management with a current job demand of about 300 employees each.

Applied Science Technologies

Current job demand reported by respondents for the Applied Science Technologies may be found on the third page of Chart VI. A figure of well over 2000 persons was indicated for Electronic Technology, including more than

CHART VI. Current Job Demand for Each Classification: Aggregate Number of Persons Currently Employed by Respondents, plus Aggregate Number of Current Vacancies.*

* On Chart VI (and on certain other Charts which follow) the Medical Auxiliary Technologies and the Public Service types of Classifications have been combined on one Chart, purely as a matter of spacing convenience. Both the Business and the Applied Science Technologies contain more Classifications, and so each has been recorded on a separate page of the Chart.

Number of persons in this Classification currently employed by your concern. [redacted]

Number of vacancies in this Classification you are currently trying to fill. [redacted]

A. Medical Auxiliary Technologies

1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

D. Public Service

76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instructional Materials Assisting)
82. Recreational Leadership
83. Occupational Therapy

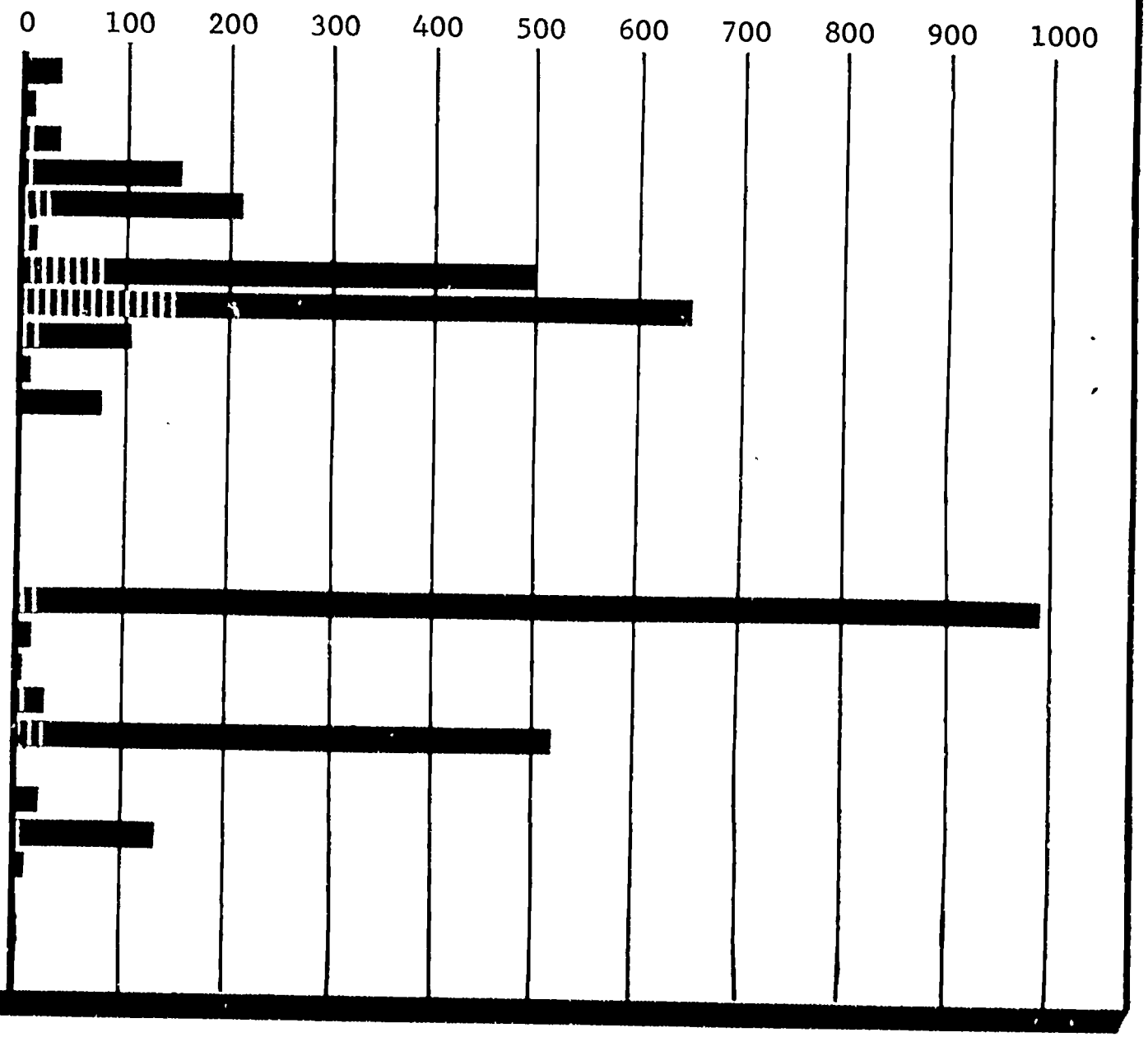


CHART VI. (cont'd) Current Job Demand for Each Classification: Aggregate Number of Persons Currently Employed by Respondents, plus Aggregate Number of Current Vacancies.

Number of persons in this Classification currently employed by your concern. [redacted]

Number of vacancies in this Classification you are currently trying to fill. [redacted]

B. Business

26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Processing-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

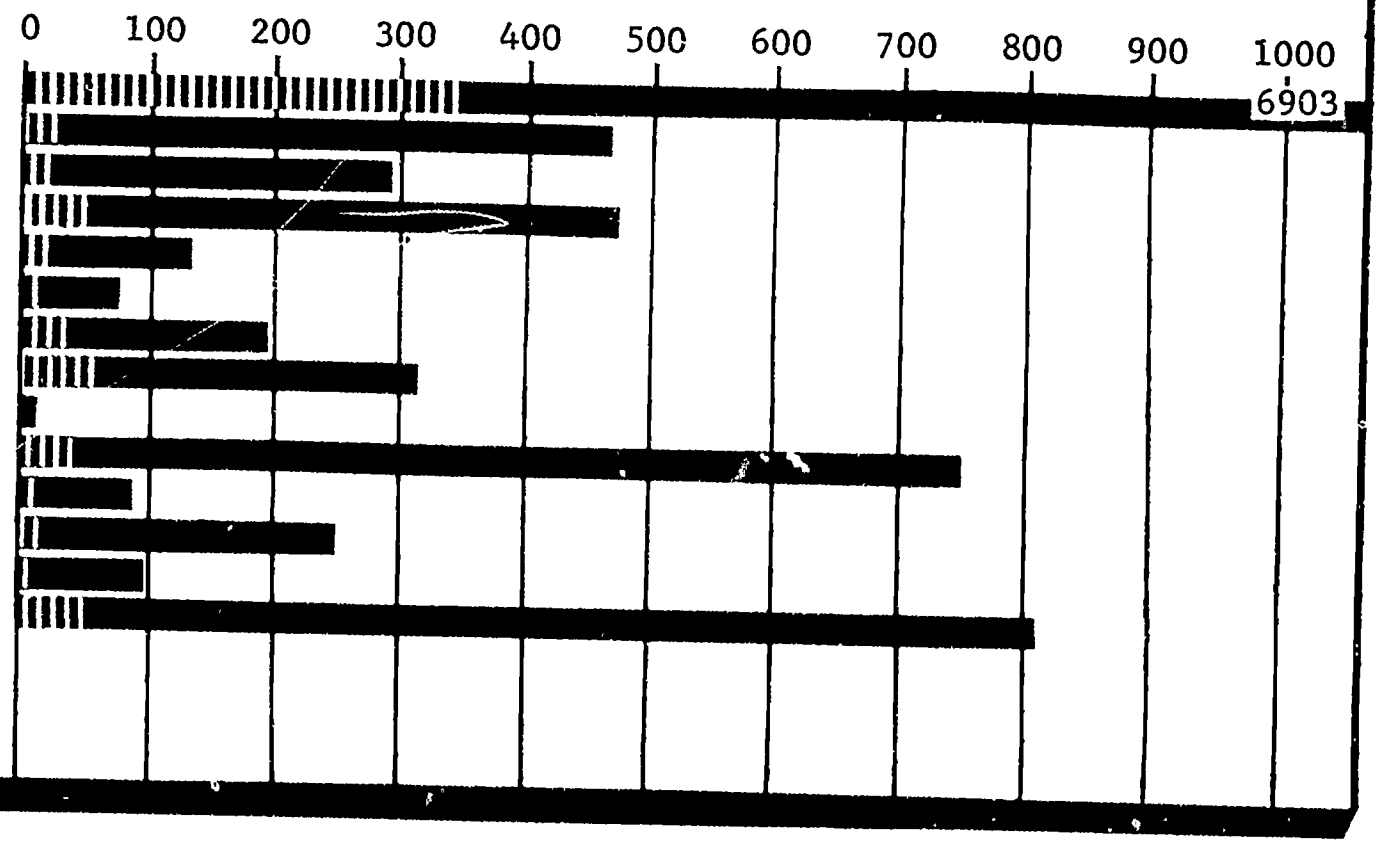


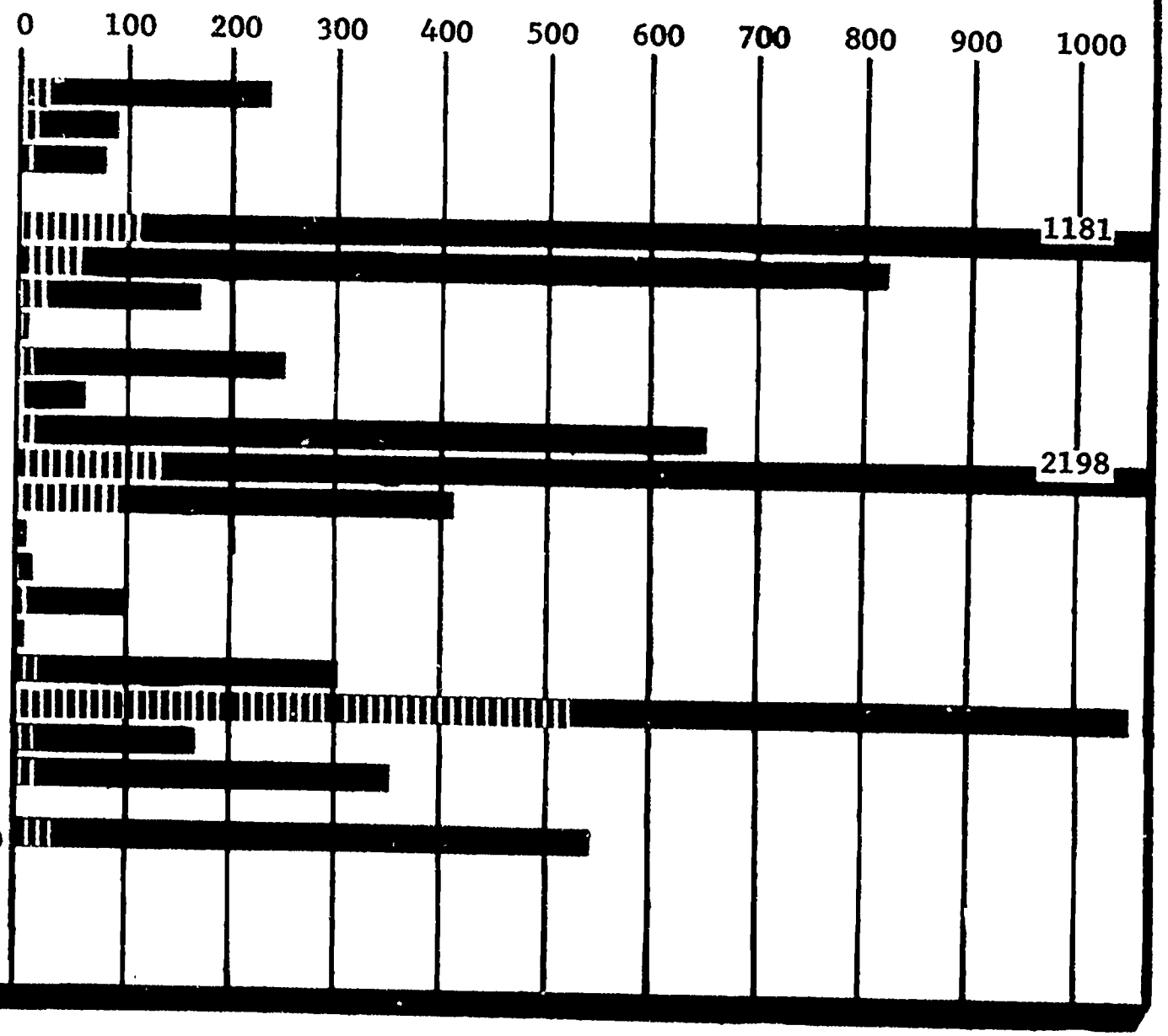
CHART VI. (cont'd) Current Job Demand for Each Classification: Aggregate Number of Persons Currently Employed by Respondents, plus Aggregate Number of Current Vacancies.

Number of persons in this Classification currently employed by your concern. [redacted]

Number of vacancies in this Classification you are currently trying to fill. [redacted]

C. Applied Science Technologies

51. Air Conditioning and Refrigeration Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Technology (Biology, Chemistry, Physics)



100 current vacancies. The current job demand for Printing and Graphic Arts stood at some 1500, including a third of this number (500) in current vacancies. According to these 551 respondents, Civil Technology was third from the top with a total of 1300 persons indicated. Engineering Drafting and Design showed 800, Electrical Technology stood at 650, Pure Science Technology--Biology, Chemistry, Physics near 550, Research and Development Electronic Data Processing at 400, with Chemical Technology at 350 and Photography at 300. Vacancies numbering approximately 100 each for the Classifications of Civil Technology, Electronic Technology, and Research and Development Electronic Data Processing were reported in the firms of these respondents.

Public Service

Respondents listing the Classification Law Enforcement--Police Training (mostly local governments) indicated a current job demand of about 1000 persons. Library Assisting showed the second largest current job demand with just over 500.

Current job demand indicated by these 551 respondents for each of the four types of Classifications may be found in Table IV. (Figures for the Secretarial Classification have been shown as sub-totals in Table IV in order to indicate their preponderance in the totals given for the Business types of Classifications).

Together these 551 firms currently employed 22,059 persons in these 54 specific Classifications, reported 2,116 vacancies, and thus had a current job demand of 24,175 persons. When the latter total is taken as a percentage of the grand total currently employed in all 551 establishments,

TABLE IV

Type of Classification	Currently Employed	Vacancies	Total Current Job Demand
MEDICAL AUXILIARY TECHNOLOGIES	1,501	284	1,785
BUSINESS	10,553	669	11,222
Secretarial	6,903	341	7,244
Other Business Classifications	3,650	328	3,978
APPLIED SCIENCE TECHNOLOGIES	8,339	1,111	9,450
PUBLIC SERVICE	1,666	52	1,718
	22,059	2,116	24,175

Total number of persons currently employed in the 551 responding establishments 153,886

Percentage of total currently employed who are now working in the four types of Technical and Semi-Professional Classificationa.... 15.7%

it may be seen that this group of 24,175 technical and semi-professional employees constituted 15.7 per cent of this total work force. Stated another way, about one in every six jobs in these responding firms was of this intermediate or assisting type.

FIVE YEAR ESTIMATE OF OCCUPATIONAL NEEDS

For each Classification listed, employers were asked to estimate the "total number of job openings to be filled by your firm in this Classification during the next five years". This one question was designed to elicit answers about both turnover and additional positions to be created in the next five years.

Not surprisingly, the three Medical Auxiliary Technologies with the greatest current job demand (currently employed plus vacancies) also show in Chart VII the largest five-year estimates of anticipated job openings. These respondents expected to employ over 600 Practical Nurses, almost 500 Nurses, and over 400 Medical Secretaries.

Business

The needs of respondents for Secretaries again put this Classification in top position with respect to employment estimates for the next 5 years. Accounting stood next, with an estimated demand for 700 employees in this future period. Electronic Data Processing--Business Applications showed a need for 500 employees, Food Management for 450, and Institutional Food Service Management and Executive Administrative Aide for 250 each, over the next five years.

Applied Science Technologies

The most pressing future needs in the Applied Science area were indicated for Printing and Graphic Arts, Electronic Technology, and Engineering Drafting and Design, with respective estimates of about 3000, 2500, and 1000 job openings by the responding firms. Civil Technology and Research and Development Electronic Data Processing showed a five-year demand for about 900 and 875 employees, respectively. Pure Science Technology followed with 350, Chemical Technology with 250, Technical Report Writing and Mechanical Technology with approximately 225, and Instrumentation Technology, Electrical Technology, and Photography with almost 200 employees each.

Public Service

Five-year estimates for the Public Service Classifications are largest for Recreational Leadership, Law Enforcement--Police Training, and

CHART VII. For Each Classification, Aggregate Estimated Job Openings to be Filled by Respondents During the Next Five Years; also, Number of Respondents Giving These Estimates for Each Classification.

Estimated total number of job openings to be filled by your firm in this Classification during the next 5 years.

A. Medical Auxiliary Technologies

1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

D. Public Service

76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instructional Materials Assisting)
82. Recreational Leadership
83. Occupational Therapy

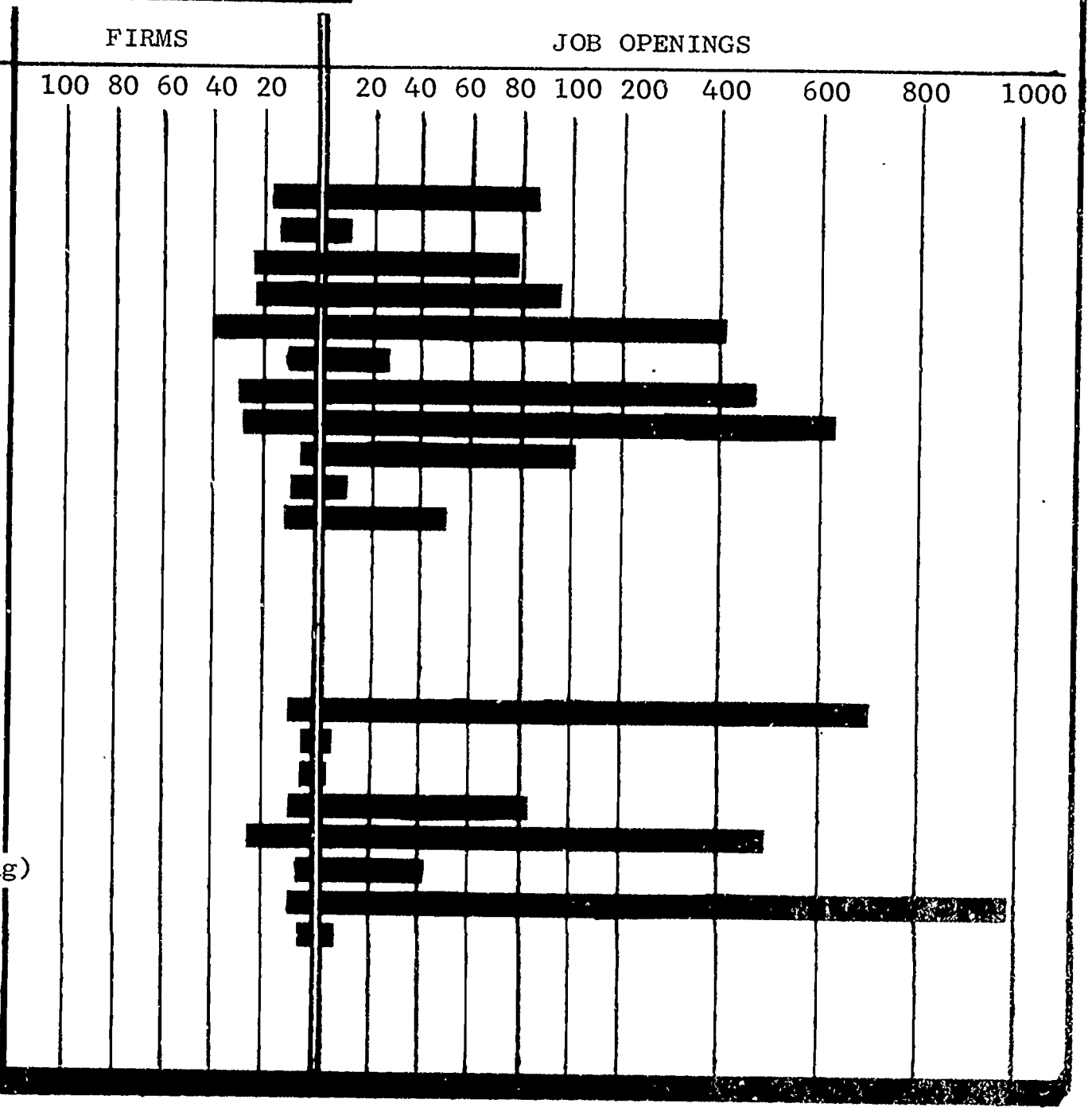


CHART VII. (cont'd) For Each Classification, Aggregate Estimated Job Openings to be Filled by Respondents During the Next Five Years; also, Number of Respondents Giving These Estimates for Each Classification.

Estimated total number of job openings to be filled by your firm in this Classification during the next 5 years.

B. Business

26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Processing-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

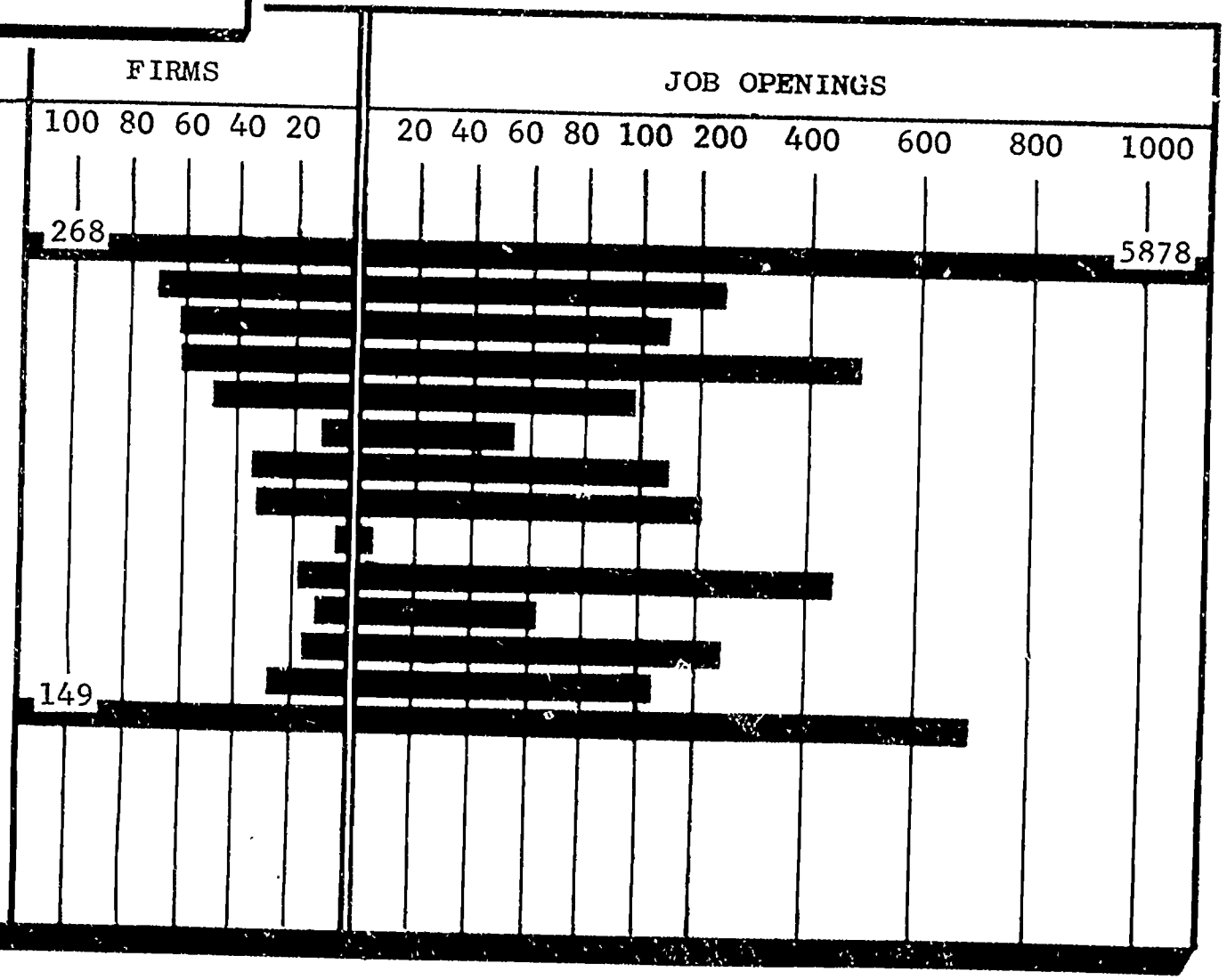
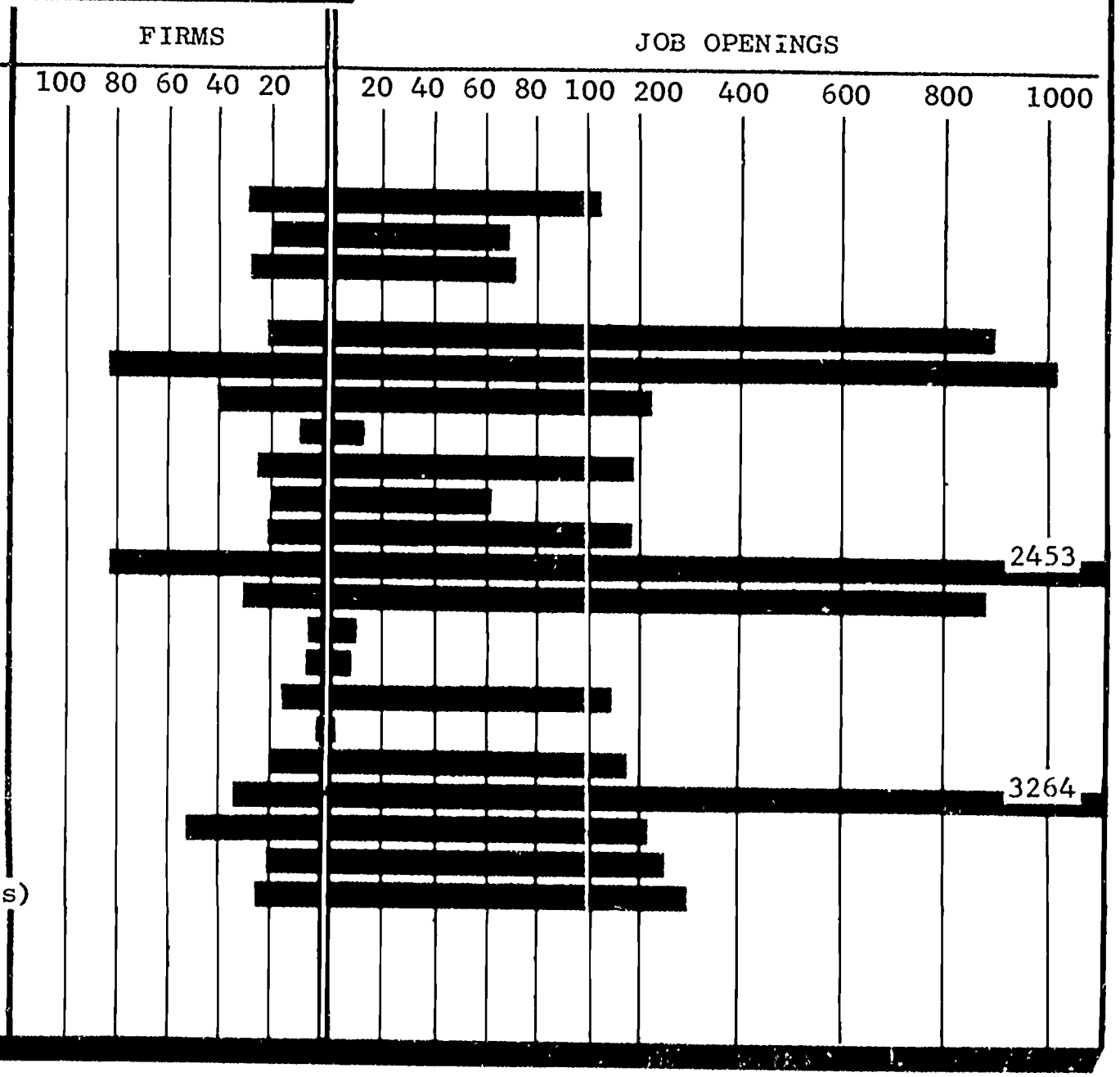


CHART VII. (cont'd) For Each Classification, Aggregate Estimated Job Openings to be Filled by Respondents During the Next Five Years; also, Number of Respondents Giving These Estimates for Each Classification.

Estimated total number of job openings to be filled by your firm in this Classification during the next 5 years.

C. Applied Science Technologies

51. Air Conditioning and Refrigeration Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Technology (Biology, Chemistry, Physics)



Library Assisting, with about 1000, 700, and 500 job openings respectively predicted for these three Classifications by responding firms.

Comparative five-year estimates for each of the four types of Classifications may be seen in Table V. Again the Secretarial sub-total is shown to indicate its relative weight in the Business total.

TABLE V

Type of Classification	Total Number of Job Openings Estimated by Respondents For the Next Five Years
MEDICAL AUXILIARY TECHNOLOGIES	1,994
BUSINESS	8,867
Secretarial	5,878
Other Business Classifications	2,989
APPLIED SCIENCE TECHNOLOGIES	10,657
PUBLIC SERVICE	2,336
	23,854

Together these 551 firms predicted 23,854 job openings in these specific Classifications during the next five years (or an average of almost 5000 each year), including both turnover and new positions. It is interesting to note that this estimate of job openings for the next five years is very close to the 24,175 employees shown in Table IV as the total current job demand for these Classifications.

In the firms of these 551 employers, the anticipated five-year demand was greatest for the combined Applied Science Technologies, with Business Classifications in second place.

HARD TO FILL?

Respondents were asked to answer this question with regard to each Classification which they listed on the Information Chart of the Questionnaire: "Is this a 'hard to fill' job?" They were to check "Yes" if "vacancies usually take over 30 days to fill, or if the majority must be recruited from outside the metropolitan Washington area".

Chart VIII shows the percentage of respondents who answered this question in the affirmative for each Classification.

Medical Auxiliary Technologies

All the employers who listed Medical Records Librarian or Physiotherapy considered these to be "hard to fill" jobs. Almost 90 per cent of the respondents replying with respect to Medical Technology or Nursing--2 Year RN also categorized these positions as "hard to fill".

Business

Four of the fourteen Business Classifications were regarded as "hard to fill": Read Estate, Insurance--Casualty and Surety, Interior Design and Decorating, and Hotel and Restaurant Management. At least 75 per cent of the respective employers indicated that they found these Classifications "hard to fill".

Applied Science Technologies

Nuclear Technology, Radiation Technology, and TV Broadcasting--Technical were all considered "hard to fill" by all employers responding to this question about them. As may be seen in Chart VIII, three-quarters or more of the responding employers also found these Classifications difficult to fill: Air Conditioning Technology, Architectural Technology, Building Technology, Tool Design, and Research and Development Electronic Data

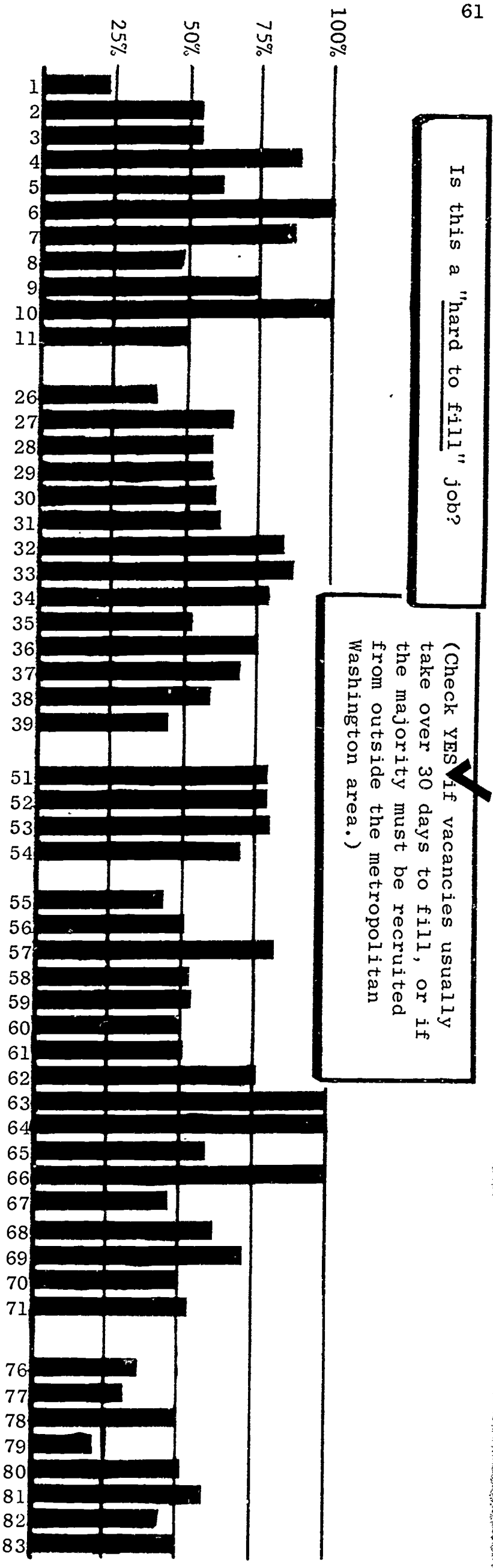
CHART VIII. For Each Classification, Percentage of Respondents Answering YES to This Question: "Is this a 'hard to fill' job?"

A. Medical Auxiliary Technologies
1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

B. Business
26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Proc.-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

C. Applied Science Technologies
51. Air Conditioning and Refrig. Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Tech. (Biology, Chemistry, Physics)

D. Public Service
76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instruc. Material Asstg.)
82. Recreational Leadership
83. Occupational Therapy



Processing. One of the large electronics firms added this comment: "We have currently a critical shortage in data processing people--programmers, computer operators, tab equipment operators, key punch operators." Both Civil Technology and Technical Report Writing fell just below the arbitrary point of 75 per cent taken as indicative of "hard to fill" for a given Classification.

Public Service

The respondents answering this question about Public Service Classifications apparently found none of them very difficult to fill. In no Classification did more than 60 per cent of these specific employers answer this question in the affirmative.

In summary of the data presented in Chart VIII it may be stated that the Applied Science and the Medical Auxiliary Technologies were more often considered "hard to fill" than were the other two types of Classifications.

ORGANIZED TRAINING PROGRAMS

As may be seen by Chart IX, organized training programs for most of the 54 Classifications were the exception rather than the rule. This fact has curricular implications for the community college; if few employers provide such programs, graduates must be ready to function in entry positions rather than depending upon further in-plant training.

Medical Auxiliary Technologies

Except for X-Ray Technology, not more than one-quarter of any of these eleven sets of employers reported organized training programs for their respective Classifications.

CHART IX. For Each Classification, Percentage of Respondents Answering YES to This Question: "Does your establishment conduct an organized training program for this Classification?"

Does your establishment conduct an organized training program for this Classification?

YES
NO

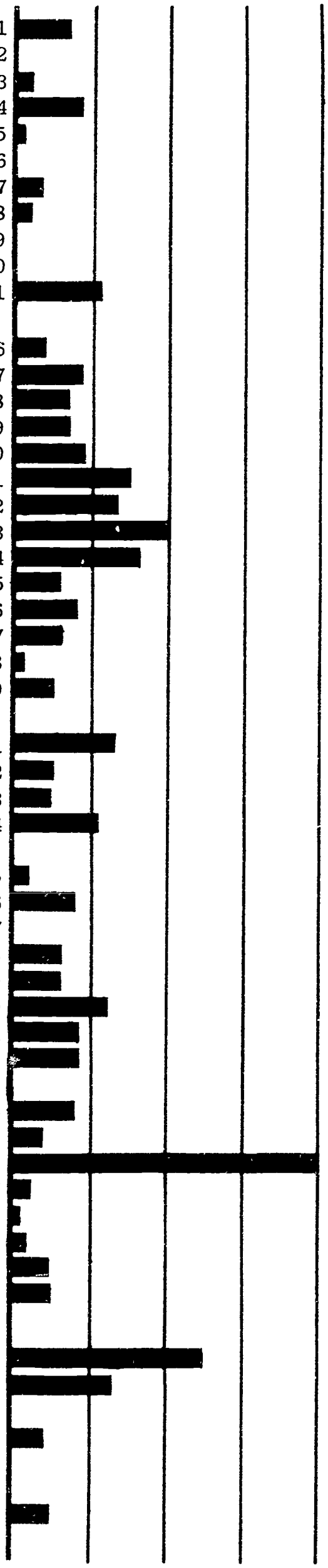
25% 50% 75% 100%

A. Medical Auxiliary Technologies
- 1. Dental Assisting
- 2. Dental Hygiene
- 3. Medical Assisting
- 4. Medical Technology
- 5. Medical Secretarial
- 6. Medical Records Librarian
- 7. Nursing, 2 Year RN
- 8. Nursing, Licensed Practical
- 9. Psychiatric Aide
- 10. Physiotherapy
- 11. X-Ray Technology

B. Business
- 26. Secretarial (General, Legal, Technical)
- 27. Executive Administrative Aide
- 28. Personnel Management
- 29. Electronic Data Proc.-Business Applications
- 30. Small Business Administration
- 31. Banking
- 32. Insurance, Casualty and Surety
- 33. Real Estate
- 34. Interior Design and Decorating
- 35. Food Management
- 36. Hotel and Restaurant Management
- 37. Institutional Food Service Management
- 38. Art (Commercial and Technical)
- 39. Accounting

C. Applied Science Technologies
- 51. Air Conditioning and Refrig. Technology
- 52. Architectural Technology
- 53. Building Construction Technology
- 54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
- 55. Engineering Drafting and Design
- 56. Mechanical Technology
- 57. Tool Design
- 58. Instrumentation Technology
- 59. Quality and Cost Control
- 60. Electrical Technology
- 61. Electronic Technology
- 62. R & D Electronic Data Processing
- 63. Nuclear Technology
- 64. Radiation Technology
- 65. Space Technology
- 66. TV Broadcasting, Technical
- 67. Photography
- 68. Printing and Graphic Arts
- 69. Technical Report Writing
- 70. Chemical Technology
- 71. Pure Science Tech. (Biology, Chemistry, Physics)

D. Public Service
- 76. Law Enforcement (Police Training)
- 77. Public Administration
- 78. Social Welfare Assisting
- 79. Nursery School Education
- 80. Library Assisting
- 81. Teacher's Aide (Instruc. Material Asstg.)
- 82. Recreational Leadership
- 83. Occupational Therapy



Business

Chart IX shows that between one-third and one-half of the respondents answering this question about Banking, Insurance--Casualty and Surety, Real Estate, and Interior Design and Decorating reported organized training programs in their establishments for these Classifications.

Applied Science Technologies

An organized training program was listed by the one participating firm reporting employees in the Classification of TV Broadcasting--Technical. Also, almost one-third of the Air Conditioning and Refrigeration Technology, Civil Technology, and Electrical Technology employers reported organized training.

Public Service

Over 60 per cent of the employers of police noted an organized training program. This may be seen on Chart IX as Law Enforcement--Police Training. About one-third of the respondents answering this inquiry about Public Administration reported in the affirmative.

UP-GRADING*

Employers were asked to answer two questions about recruitment

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*Question 7 on page 3 of the Questionnaire deals with recruitment policy. It was constructed to indicate to respondents that recruitment percentages given by them for all sources--both up-grading of present employees and direct recruitment from types of educational institutions--were to total 100 per cent. In fact, the 100 per cent was even printed on the Survey form as an added precaution. In spite of all this care, however, some employers recorded a given percentage for recruitment by up-grading (Question 7a), and in addition recorded percentages totaling 100 per cent for direct recruitment from the various types of educational institutions (Question 7b).

For a given Classification, therefore, the number indicated as recruited by the combination of answers from Question 7a and Question 7b may total more than the number currently employed in that Classification by the 551 respondents. Under the circumstances, the figures presented in Chart XI may be more closely related to actual educational background of employees in the respective Classifications than to direct recruitment from these specific types of educational institutions.

policy for each of the Classifications they listed on the Information Chart inside the Questionnaire. Chart X is a graphic illustration of the answers to the first of these questions: "What percentage of persons in this Classification do you currently recruit by up-grading present employees through on-the-job training or in-plant education?"

Medical Auxiliary Technologies

As may be seen in Chart X, any appropriate amount of recruitment by up-grading is reported for only two of these Classifications: Medical Technology and Medical Secretarial. Employers in these fields reported that they recruited by up-grading present employees a number equal to about one-third of the persons currently employed in these respective Classifications.

Business

Recruitment by up-grading present employees was more common in the Business Classifications. Survey respondents in the Classifications of Executive Administrative Aide and Institutional Food Service Management reported this type of recruitment source for a number equal to about two-thirds of those currently employed.

More than one-quarter of the number given for current employees were recruited by up-grading in each of the following Classifications: Secretarial, Personnel Management, Electronic Data Processing--Business Applications, Insurance--Casualty and Surety, Food Management, Hotel and Restaurant Management, and Accounting.

Applied Science Technologies

The largest percentage of persons recruited by up-grading occurred in Electrical Technology; there the number was equal to 89 per cent of those currently employed by the respondents. Up-grading recruitment figures equal to one-third or more of those currently employed in Quality and Cost Control,

CHART X. For Each Classification, Percentage of Aggregate Number of Such Persons Currently Employed by Respondents Who Were Reported Recruited by Up-Grading Through On-the-Job Training or In-Plant Education.

What percentage of persons in this Classification do you currently recruit by up-grading present employees through on-the-job training or in-plant education?

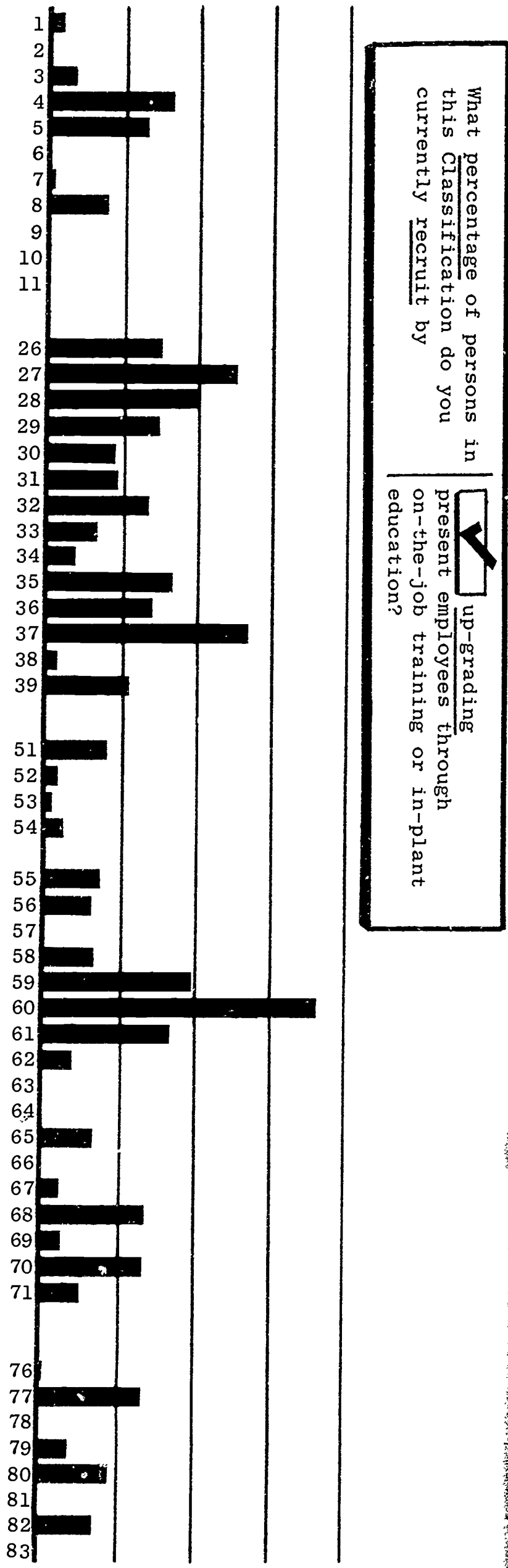
25% 50% 75% 100%

A. Medical Auxiliary Technologies
1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

B. Business
26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Proc.-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

C. Applied Science Technologies
51. Air Conditioning and Refrig. Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Tech. (Biology, Chemistry, Physics)

D. Public Service
76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instruc. Material Asstg.)
82. Recreational Leadership
83. Occupational Therapy



Electronic Technology, Printing and Graphic Arts, and Chemical Technology were also reported.

Public Service

For only one Classification, Public Administration, was any appreciable amount of recruitment by up-grading indicated. Here the number was equal to about one-third of those currently employed by respondents in this field.

RECRUITMENT FROM TYPES OF EDUCATIONAL INSTITUTIONS

Employers responding to this Survey were also asked to indicate for each Classification listed, the percentages recruited directly by them from specified types of educational institutions. Chart XI summarizes these data obtained from the responding firms. The percentage bars drawn for each of the 54 Classifications on this graph are composed of four separate percentages, indicating from bottom to top of each bar the percentages recruited from high school, junior college, university or college, and a residual category labeled "other".

Medical Auxiliary Technologies

Figures given in this portion of Chart XI indicate that few of the people filling these positions were in fact recruited directly from any of these listed types of educational institutions. The largest single percentage occurred for Psychiatric Aide: about 30 per cent of the number reported as currently employed in this Classification were recruited directly from the high schools. Employers responding to this question for Dental Hygiene, Medical Technology, and Medical Records Librarian indicated that a number equal to about 1 in 5 of their currently employed in this Classification

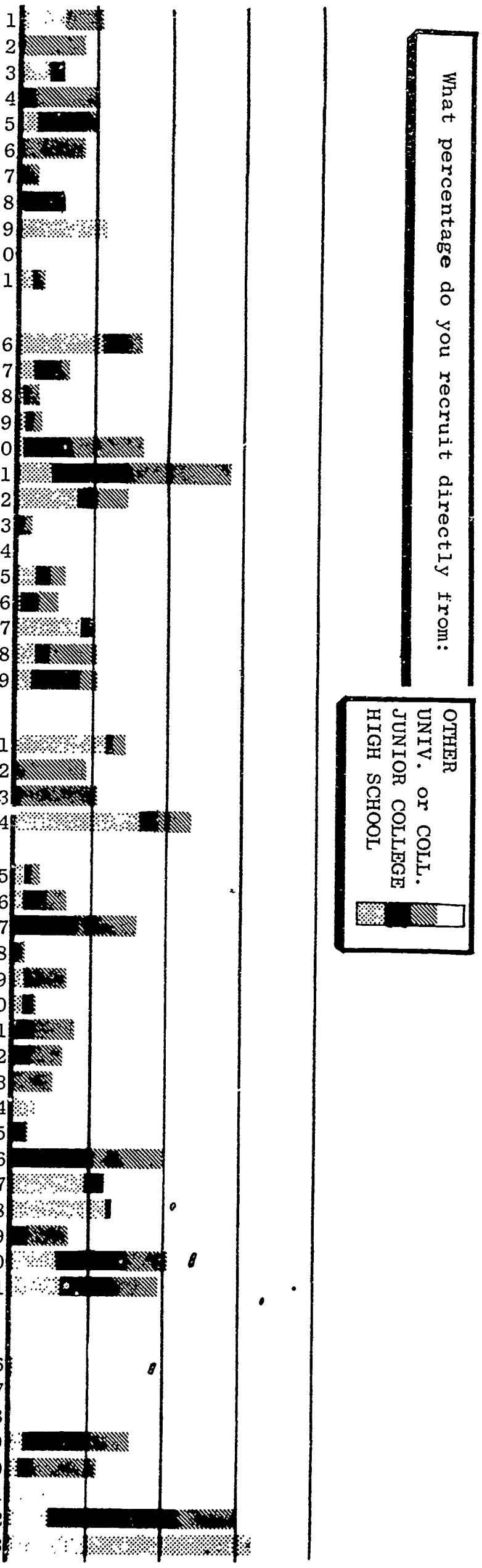
CHART XI. For Each Classification, Percentage of Aggregate Number of Persons Currently Employed by Respondents Who Were Reported Recruited Directly from Indicated Types of Educational Institutions.

A. Medical Auxiliary Technologies
1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

B. Business
26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Proc.-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

C. Applied Science Technologies
51. Air Conditioning and Refrig. Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Tech. (Biology, Chemistry, Physics)

D. Public Service
76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instruc. Material Asstg.)
82. Recreational Leadership
83. Occupational Therapy



were recruited directly from university or college.

Business

In the Business group of Classifications, there is stronger evidence of recruitment directly from one of the listed types of educational institutions. About one-quarter of the Secretarial Classification and about 20 per cent of those currently employed in the Insurance and the Institutional Food Service Management Classifications were recruited directly from high school. Almost this percentage went directly from junior college into the Small Business Administration and Banking Classifications. University and college accounted for the direct recruitment of a somewhat larger percentage for both of these Classifications, however. About 20 per cent of those currently employed by responding firms in the Classification of Art--Commercial and Technical were also recruited directly from university or college.

Applied Science Technologies

Numbers equal to 30 per cent or more of the currently employed in the following Classifications were recruited directly from high school: Air Conditioning and Refrigeration, Civil Technology--Cartography, Photogrammetry, Highway Design Sub-Groups, and Printing and Graphic Arts. About one-quarter of those in Photography came from this recruitment source.

Directly recruited from the junior college level were about one-fourth to one-fifth of those currently employed in TV Broadcasting--Technical, Chemical Technology, Tool Design, and Pure Science Technology--Biology, Chemistry, Physics. The university or college accounted for about this same percentage range with Building Construction, TV Broadcasting--Technical, Architectural Technology, and Tool Design.

Public Service

Respondents employing Occupational Therapists indicated that 80 per cent of those currently employed were recruited directly from high school. Almost half of those in Recreational Leadership came directly from junior college; about 20 per cent of those in Nursery School Education came from this same source. University and college was indicated as the immediate source of about one-fifth of those currently employed in the Library Assisting and Recreational Leadership Classifications.

SEX PREFERENCE

Respondents were asked to answer the following question with regard to each of the Classifications they listed: "If available and comparably trained, would you employ for this Classification men only, women only, or both?" The tri-partite bars shown in Chart XII indicate from top to bottom these three categories of answers, each expressed as a percentage of the total answers given by firms responding about each respective Classification.

Medical Auxiliary Technologies

Understandably in these types of technologies, where a preference was expressed it was for women. On the other hand, half or more of the respondents indicated that they would find either sex satisfactory in the fields of Medical Technology, Medical Records Librarian, Psychiatric Aide, and Physiotherapy. All of the responding employers recorded "both" when asked to answer this question for X-Ray Technology.

Business

In this general area, either men or women were acceptable to most employers in most of these Classifications, the principal exception

CHART XII. For Each Classification, Percentage Distribution of Respondents According to Sex of Employee Preferred for That Classification.

If available and comparably trained, would you employ for this Classification:

MEN ONLY
WOMEN ONLY
BOTH

25% 50% 75% 100%

A. Medical Auxiliary Technologies
- 1. Dental Assisting 1
- 2. Dental Hygiene 2
- 3. Medical Assisting 3
- 4. Medical Technology 4
- 5. Medical Secretarial 5
- 6. Medical Records Librarian 6
- 7. Nursing, 2 Year RN 7
- 8. Nursing, Licensed Practical 8
- 9. Psychiatric Aide 9
- 10. Physiotherapy 10
- 11. X-Ray Technology 11

B. Business
- 26. Secretarial (General, Legal, Technical) 26
- 27. Executive Administrative Aide 27
- 28. Personnel Management 28
- 29. Electronic Data Proc.-Business Applications 29
- 30. Small Business Administration 30
- 31. Banking 31
- 32. Insurance, Casualty and Surety 32
- 33. Real Estate 33
- 34. Interior Design and Decorating 34
- 35. Food Management 35
- 36. Hotel and Restaurant Management 36
- 37. Institutional Food Service Management 37
- 38. Art (Commercial and Technical) 38
- 39. Accounting 39

C. Applied Science Technologies
- 51. Air Conditioning and Refrig. Technology 51
- 52. Architectural Technology 52
- 53. Building Construction Technology 53
- 54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups) 54
- 55. Engineering Drafting and Design 55
- 56. Mechanical Technology 56
- 57. Tool Design 57
- 58. Instrumentation Technology 58
- 59. Quality and Cost Control 59
- 60. Electrical Technology 60
- 61. Electronic Technology 61
- 62. R & D Electronic Data Processing 62
- 63. Nuclear Technology 63
- 64. Radiation Technology 64
- 65. Space Technology 65
- 66. TV Broadcasting, Technical 66
- 67. Photography 67
- 68. Printing and Graphic Arts 68
- 69. Technical Report Writing 69
- 70. Chemical Technology 70
- 71. Pure Science Tech. (Biology, Chemistry, Physics) 71

D. Public Service
- 76. Law Enforcement (Police Training) 76
- 77. Public Administration 77
- 78. Social Welfare Assisting 78
- 79. Nursery School Education 79
- 80. Library Assisting 80
- 81. Teacher's Aide (Instruc. Material Asstg.) 81
- 82. Recreational Leadership 82
- 83. Occupational Therapy 83

being Secretarial where about 60 per cent of the respondents expressed a preference for women.

Applied Science Technologies

Chart XII shows that here the situation is almost the reverse of that with the Medical Auxiliary Technologies: where a preference was expressed, it was definitely for men. At the same time, for every single Classification there were some responding employers who indicated that either sex would be acceptable to them if available and comparable trained.

Public Service

Here again, at least 50 per cent of the employers in most of these Classifications expressed a willingness to hire either sex. Where a preference was expressed, it was for men in the Law Enforcement--Police Training and the Public Administration Classifications, and for women in the other Classifications.

In the summary of his Technical Training in the United States Lynn A. Emerson said, "If maximum potential enrollments are to be attained, greatly increased numbers of young women will need to be enrolled in post secondary occupational training programs." As noted above, some employers in every one of the 54 Classifications indicated a willingness to employ either men or women. On the other hand, men were still preferred over women in the Applied Science and Business fields, while women were preferred in the Medical Auxiliary and most of the Public Service categories.

EMPLOYEES EARNING COLLEGE CREDIT

On page 4 of the Questionnaire (See Appendix A) may be found several general questions asked of all respondents, regardless of which Classifications they had indicated inside on the Information Chart. Chart XIII shows the percentage of affirmative answers to the first question: "Would your establishment be interested in working with Montgomery Junior College in setting up an educational program that would enable your technical and semi-professional employees to earn college credit?"

Answers given by respondents have been distributed according to major type of business. The bars to the left of center on this graph show the total number of firms in each of the major categories of business, and the lighter bars overlaid toward the center of the page show the number of firms from each group responding in the affirmative to this question. To the right of center is shown the percentage of responding firms in each major type of business answering "Yes". Thus the right of the graph details the ratio of the lighter bar to the solid bar.

A total of 127 or 23 per cent of the 551 responding firms answered this question in the affirmative. Only the Professional and Allied Services group included fewer than 15 per cent of the responding employers.

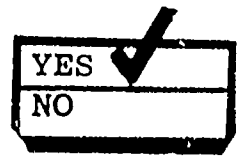
COOPERATIVE WORK EXPERIENCE PROGRAM

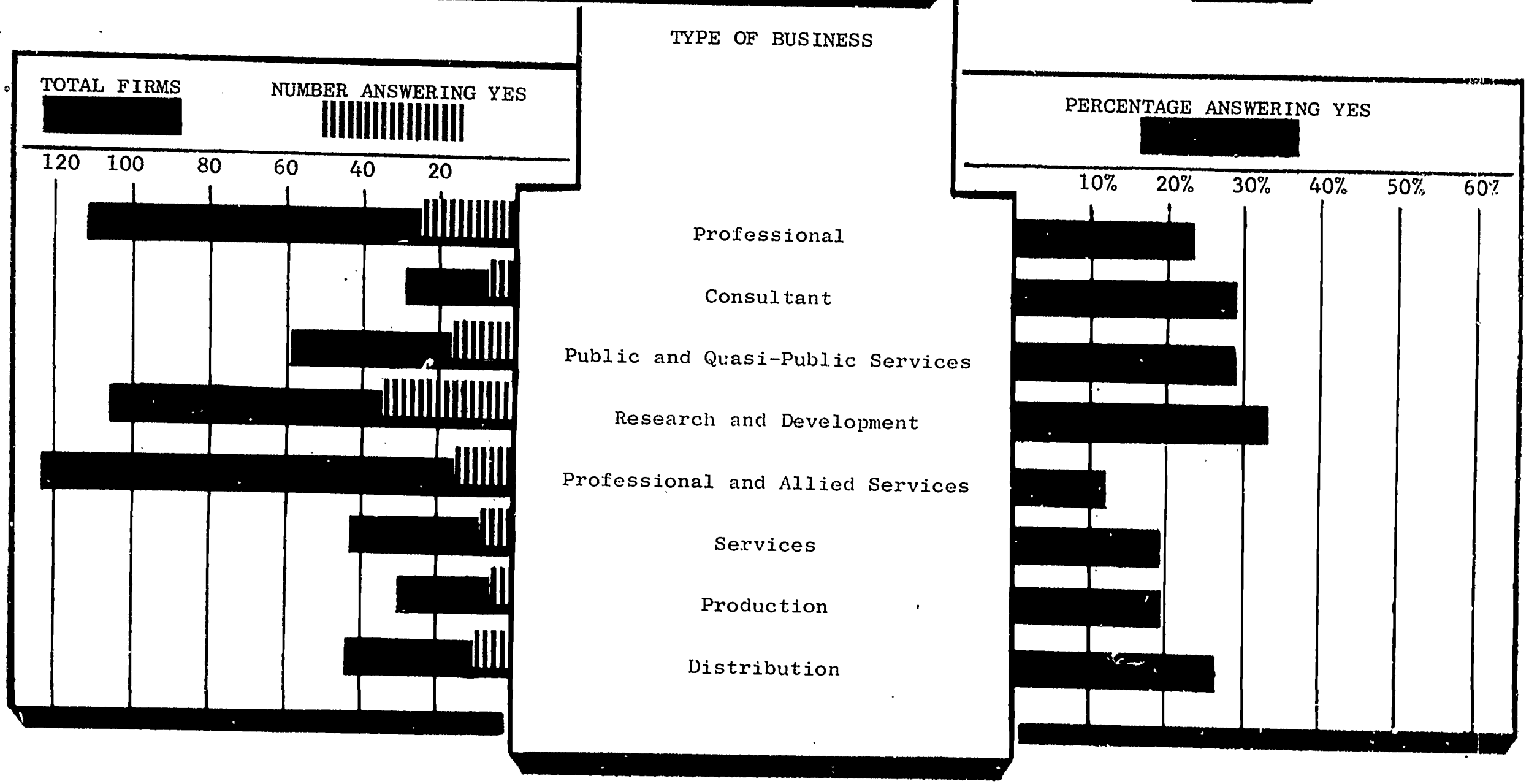
Each responding employer was also asked to answer this question: "Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and

CHART XIII. Distribution According to Type of Business of Respondents Answering This Question: "Would your establishment be interested in working with Montgomery Junior College in setting up an educational program that would enable your technical and semi-professional employees to earn college credit?"

Number of Responding Firms in Each Category of Business; also, Number and Percentage of Respondents Answering YES.

Would your establishment be interested in working with Montgomery Junior College in setting up an educational program that would enable your technical and semi-professional employees to earn college credit?





semi-professional personnel?" Chart XIV shows the number, percentage, and affirmative answers distributed according to business types of the 551 respondents.

One-third of the total group of respondents (174) answered this question in the affirmative. In addition, many Questionnaires contained detailed comments related to such a possibility.

As indicated earlier in Chart III, those firms in the Public and Quasi-Public Services and the Research and Development business categories together contributed by far the largest numbers of employees: 131,770, or 86 per cent of the grand total. Almost 40 per cent of the firms in each of these two categories, or a total of 63 firms, expressed an interest in participating with Montgomery Junior College in a Cooperative Work Experience Program. In no major type of business did less than 20 per cent of the firms answer this question in the affirmative.

COOPERATIVE WORK EXPERIENCE PROGRAM--SUMMER EMPLOYMENT

A total of 119 firms, constituting 22 per cent of the 551 responding establishments, said that trainees could be placed in their firms for summer employment as part of a Cooperative Work Experience Program.

As may be seen in Chart XV, the largest percentages of affirmative answers were found for the Consultant, Public and Quasi-Public Services, Distribution, and Research and Development categories of business.

COOPERATIVE WORK EXPERIENCE PROGRAM--PART-TIME EMPLOYMENT

Respondents were also asked whether Cooperative Work Experience

CHART XIV. Distribution According to Type of Business of Respondents Answering This Question: "Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?"

Number of Responding Firms in Each Category of Business; also, Number and Percentage of Respondents Answering YES.

Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?

YES ✓
NO

TYPE OF BUSINESS

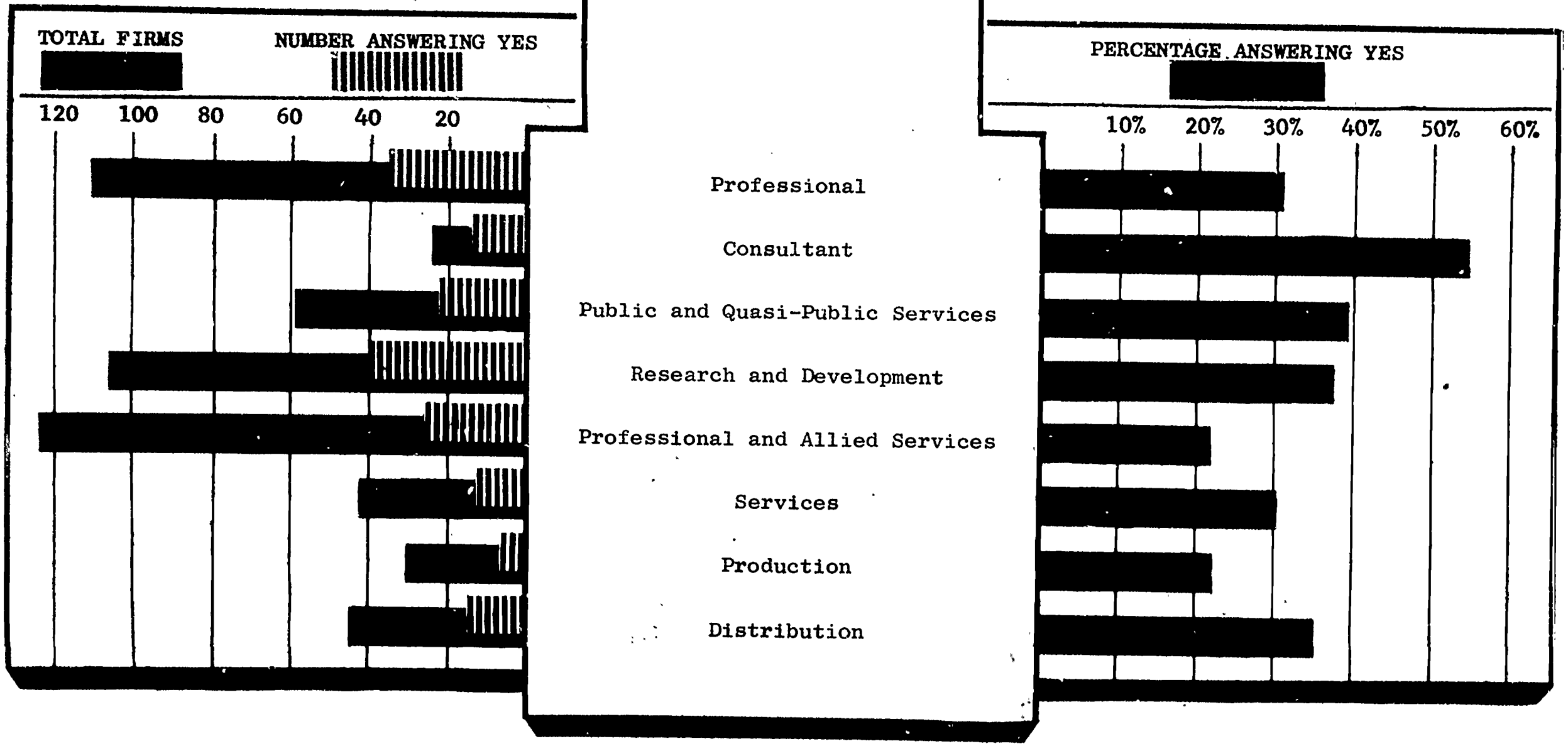


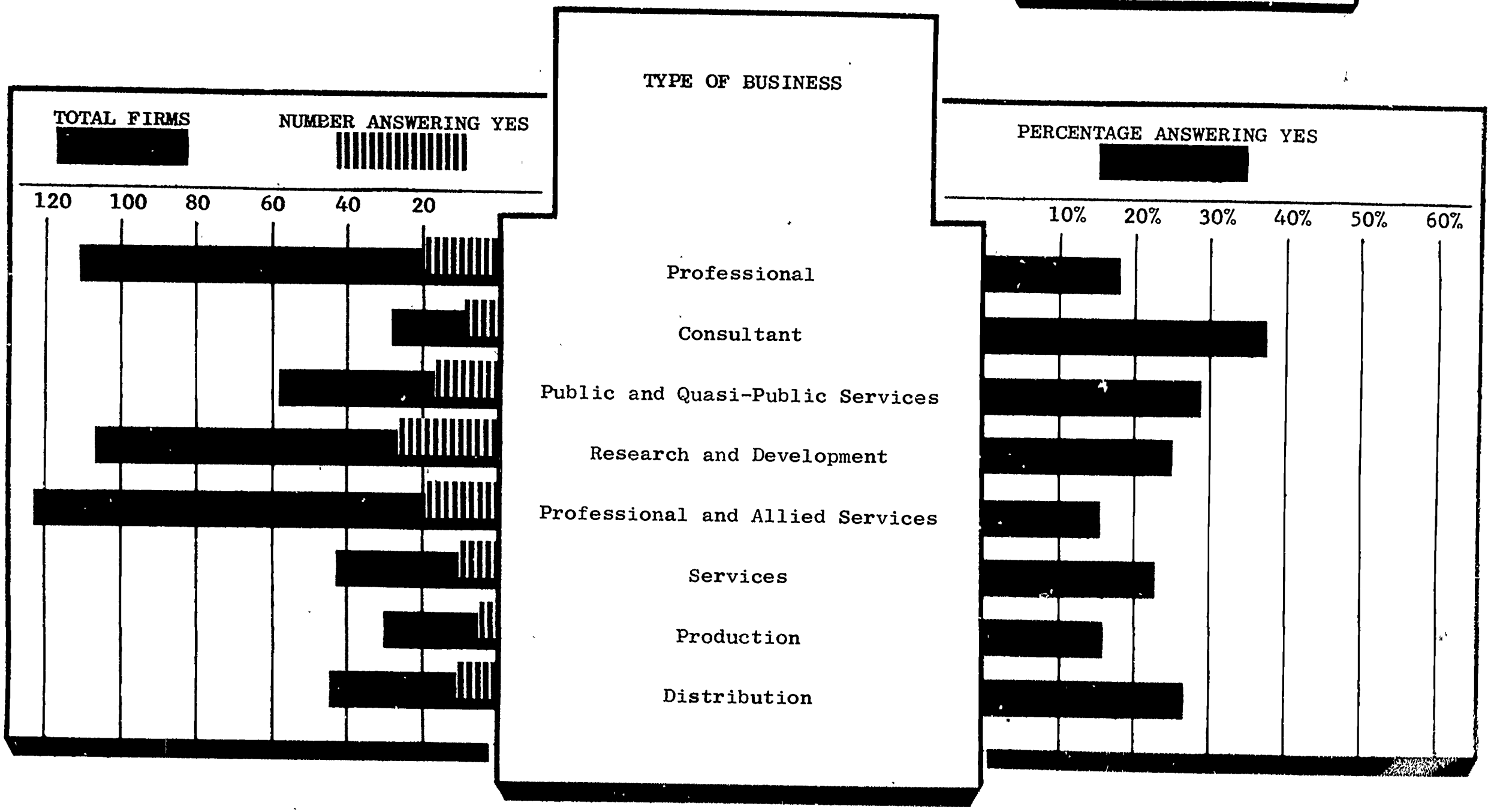
CHART XV. Distribution According to Type of Business of Respondents Answering This Question: "Could these trainees (in a Cooperative Work Experience Program) be placed in your establishment for Summer Employment?"

Number of Responding Firms in Each Category of Business; also, Number and Percentage of Respondents Answering YES.

Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?

If YES, could these trainees be placed in your establishment for:

✓ Summer employment?



trainees could be placed in their respective establishments for part-time work during the school year.

A total of 122 firms, constituting 22 per cent of the total group of 551 respondents, answered this question in the affirmative. The distribution of these answers according to major types of business is shown in Chart XVI. Consultant, Public and Quasi-Public Services, Distribution, and Research and Development types of establishments showed the highest percentages of affirmative answers.

COOPERATIVE WORK EXPERIENCE PROGRAM--FULL-TIME EMPLOYMENT

A third way in which students might obtain their work experience in a cooperative type of program was suggested to respondents: full-time work during the school year for a limited period--for example, one semester of full-time work alternated with one semester in school.

Relatively speaking, employers showed the least interest in this type of Cooperative Work Experience plan, although 93 firms, or 17 per cent of the 551 responding establishments did reply to this alternative in the affirmative. Chart XVII shows the distribution of these answers according to type of business of the respondents.

Again the Consultant, Public and Quasi-Public Services, and Research and Development firms showed the largest percentages interested in participating in a Cooperative Work Experience type of program. A total of 50 firms from these three categories of business alone answered this question in the affirmative.

CHART XVI. Distribution According to Type of Business of Respondents Answering This Question: "Could these trainees (in a Cooperative Work Experience Program) be placed in your establishment for Part-Time Work during the school year for a limited period?"

Number of Responding Firms in Each Category of Business; also, Number and Percentage of Respondents Answering YES.

Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?

If YES, could these trainees be placed in your establishment for:

✓ Part-time work during the school year?

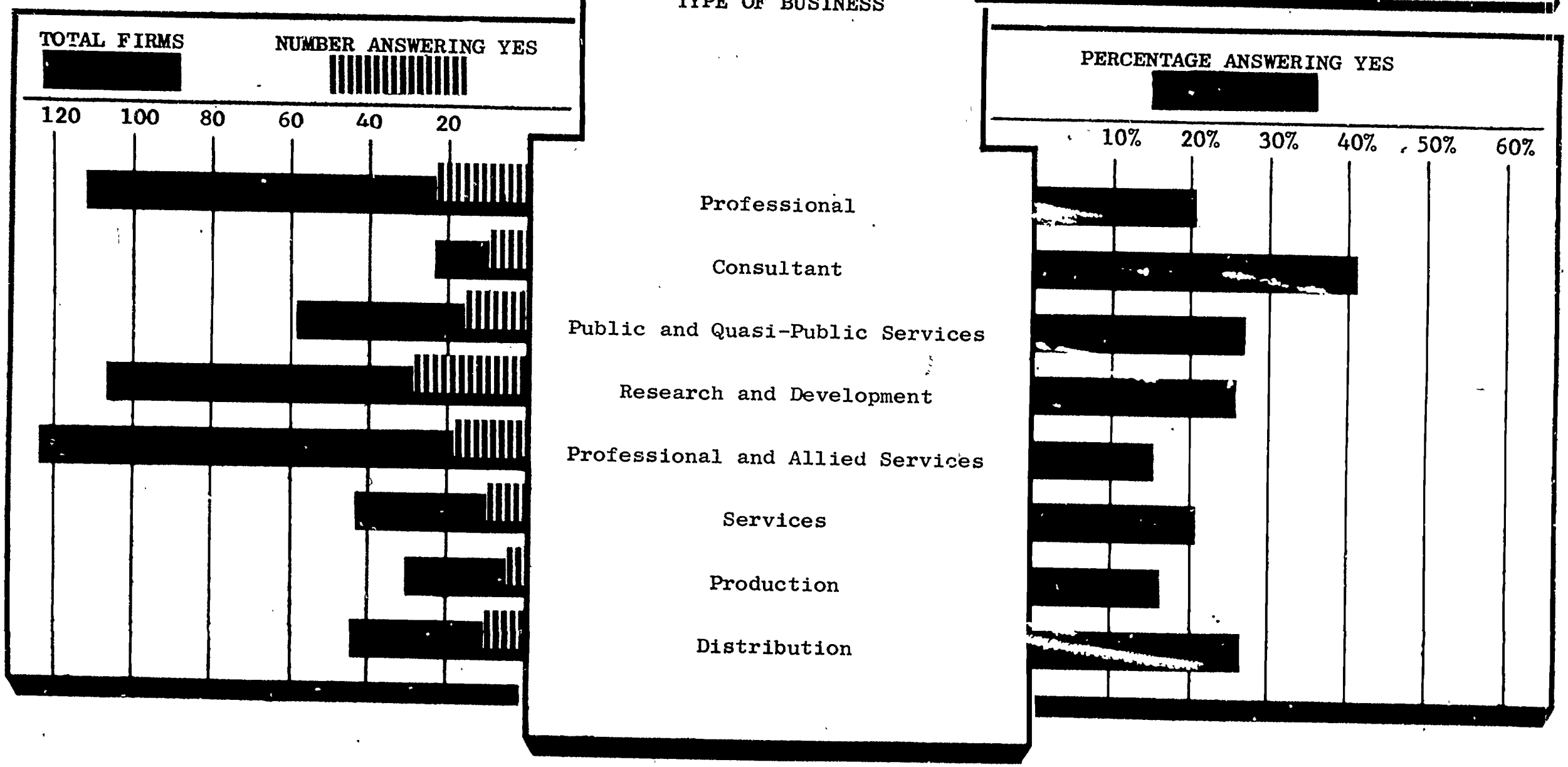


CHART XVII. Distribution According to Type of Business of Respondents Answering This Question: "Could these trainees (in a Cooperative Work Experience Program) be placed in your establishment for Full-Time Work during the school year for a limited period?"

Number of Responding Firms in Each Category of Business; also, Number and Percentage of Respondents Answering YES.

Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?

If YES, could these trainees be placed in your establishment for:

✓ Full-time work during the school year for a limited period (for example, one semester of full-time work alternated with one semester of schooling)?

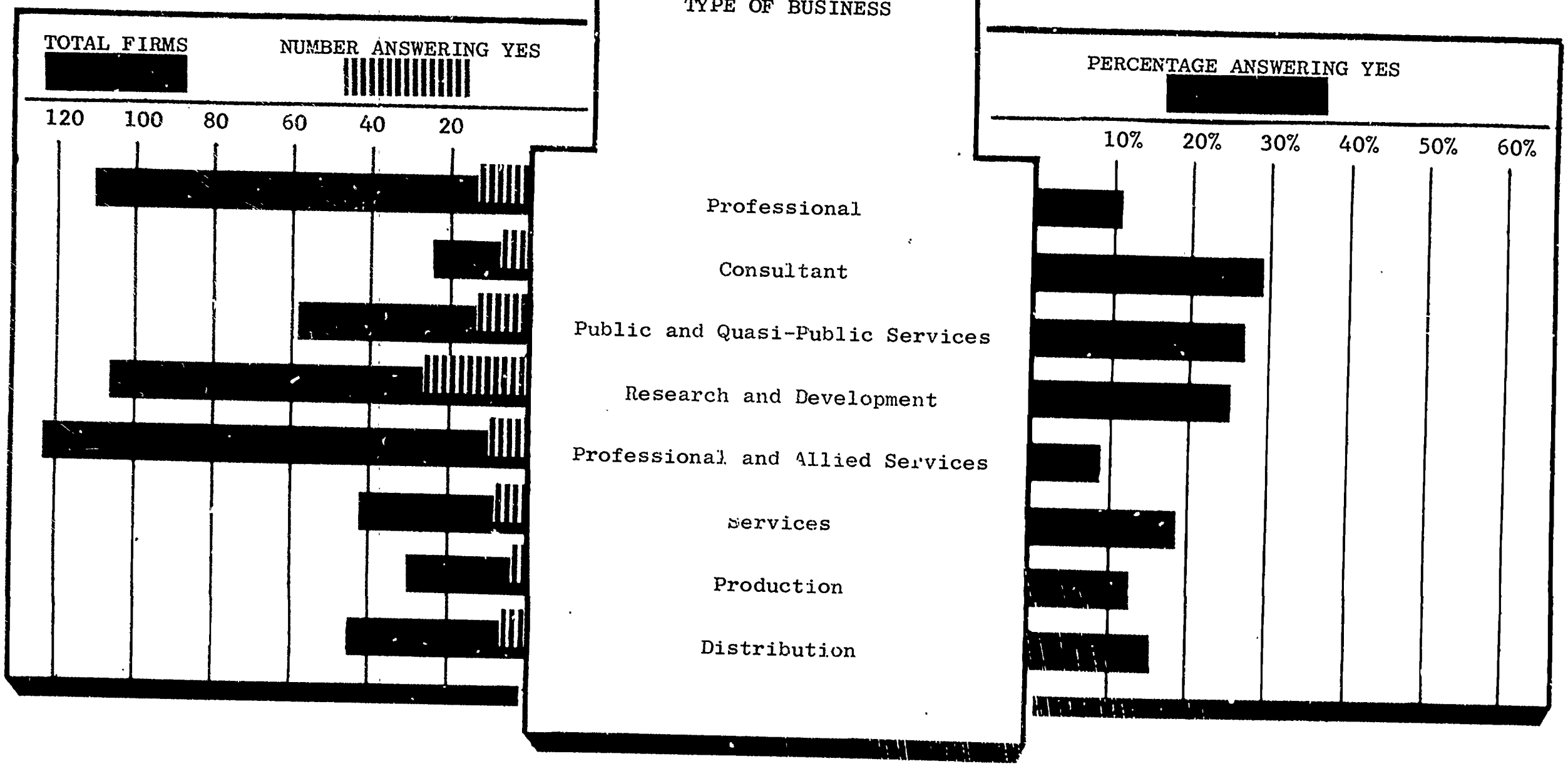


Table VI gives summary information about the Cooperative Work Experience interests of the two business categories employing the vast majority of employees found in the 551 firms responding to this Survey. More Research and Development firms were interested in each type of cooperative program, but undoubtedly this is related to the fact that this business category included almost twice as many responding firms as did the Public and Quasi-Public Services category.

TABLE VI

Interested in---	Public and Quasi-Public Services Firms	Research and Development Firms
Cooperative Program ---Summer	17	27
Cooperative Program ---Part-Time	16	28
Cooperative Program ---Full-Time	16	27

Number of Firms Expressing Interest in Participating in a Cooperative Work Experience Program with Montgomery Junior College
--in the two Business Categories which together employed 131,770 (86 per cent) of the 153,886 persons currently employed in all 551 responding firms

APPENDIX A

1. Questionnaire for the Technical and Semi-Professional Employment Survey

2. Descriptions of Classifications

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*The Classification Descriptions are referred to as "blue sheets" both in the Questionnaire instructions and in the text of this report. Actually, all pages in this report are white, including those in the Appendices. The original Descriptions mailed along with the Questionnaire were printed on blue, however, to facilitate data collection.

Montgomery Junior College

TAKOMA PARK, MARYLAND

TECHNICAL AND SEMI-PROFESSIONAL EMPLOYMENT SURVEY

IDENTIFYING INFORMATION

Name of firm or establishment _____

Type of business _____

Address _____ Phone _____

Form completed by _____ Title _____

Total number of persons currently employed in your establishment _____

INSTRUCTIONS

On page 2 you will find a list of job Classifications generally requiring not more than two years of college education. These Classifications are being tentatively considered as areas for curriculum development at Montgomery Junior College.

1. Based on the experience of your establishment, please circle on page 2 all those Classifications which if offered as a two-year college program at Montgomery Junior College would fulfill a genuine educational need in the metropolitan Washington area. (For your convenience only, brief descriptions of these Classifications may be found on the enclosed blue sheets.)

2. Before each Classification on page 2 you will find a number. Write the identifying number for each circled Classification in one of the boxes at the top of the Information Chart on page 3.

3. Down the left margin of the Information Chart you will find several questions. For each Classification chosen (indicated by the number you have placed in the box above), answer these questions in the column below that particular box.

4. When you have finished the Information Chart, please be sure to answer the questions on page 4.

5. Place the completed survey form in the postage-free envelope provided, and mail it back to Montgomery Junior College. Please return this questionnaire as early as possible.

6. If we may answer questions, or assist you in any way, please call Dr. Eileen Kuhns at 587-0415, extension 44. (For example, you may select more Classifications than the number of boxes provided on the Information Chart, and thus need to phone for an additional survey form.)

7. Thank you very much for your cooperation. It is our hope that the long-range results of this survey will prove beneficial to you as an area employer.

CLASSIFICATIONS*

A. Medical Auxiliary Technologies

1. Dental Assisting
2. Dental Hygiene
3. Medical Assisting
4. Medical Technology
5. Medical Secretarial
6. Medical Records Librarian
7. Nursing, 2 Year RN
8. Nursing, Licensed Practical
9. Psychiatric Aide
10. Physiotherapy
11. X-Ray Technology

B. Business

26. Secretarial (General, Legal, Technical)
27. Executive Administrative Aide
28. Personnel Management
29. Electronic Data Processing-Business Applications
30. Small Business Administration
31. Banking
32. Insurance, Casualty and Surety
33. Real Estate
34. Interior Design and Decorating
35. Food Management
36. Hotel and Restaurant Management
37. Institutional Food Service Management
38. Art (Commercial and Technical)
39. Accounting

C. Applied Science Technologies

51. Air Conditioning and Refrigeration Technology
52. Architectural Technology
53. Building Construction Technology
54. Civil Technology (Cartography, Photogrammetry, Highway Design Sub-groups)
55. Engineering Drafting and Design
56. Mechanical Technology
57. Tool Design
58. Instrumentation Technology
59. Quality and Cost Control
60. Electrical Technology
61. Electronic Technology
62. R & D Electronic Data Processing
63. Nuclear Technology
64. Radiation Technology
65. Space Technology
66. TV Broadcasting, Technical
67. Photography
68. Printing and Graphic Arts
69. Technical Report Writing
70. Chemical Technology
71. Pure Science Technology (Biology, Chemistry, Physics)

D. Public Service

76. Law Enforcement (Police Training)
77. Public Administration
78. Social Welfare Assisting
79. Nursery School Education
80. Library Assisting
81. Teacher's Aide (Instructional Materials Assisting)
82. Recreational Leadership
83. Occupational Therapy

---

*Many of these Classification titles also refer to full professional positions requiring considerably more than two years of College education. In such cases reference here is made <u>not</u> to the professional person, but rather to technical or semi-professional personnel who will be trained in supportive jobs assisting the professional.

INFORMATION CHART

1. Would a person with two years of specialized college training satisfy your job requirements in this Classification? (If this answer is YES, complete all questions for this Classification. If NO, proceed immediately to the next Classification you have listed.)	YES							
	NO							
2. Number of persons in this Classification currently employed by your concern.								
3. Estimated total number of job openings to be filled by your firm in this Classification during the next 5 years.								
4. Number of vacancies in this Classification you are currently trying to fill.								
5. Is this a "hard to fill" job? (Check YES if vacancies usually take over 30 days to fill, or if the majority must be recruited from outside the metropolitan Washington area.)	YES							
	NO							
6. Does your establishment conduct an organized training program for this Classification?	YES							
	NO							
7.a. What <u>percentage</u> of persons in this Classification do you currently <u>recruit</u> by <u>up-grading</u> present employees through on-the-job training or in-plant education?								
b. What percentage do you <u>recruit directly</u> from:	HIGH SCHOOL							
	JUNIOR COLLEGE							
	UNIV. or COLL.							
	OTHER							
	TOTAL	100%	100%	100%	100%	100%	100%	100%
8. If available and comparably trained, would you employ for this Classification:	MEN ONLY							
	WOMEN ONLY							
	BOTH							

1. Would your establishment be interested in working with Montgomery Junior College in setting up an educational program that would enable your technical and semi-professional employees to earn college credit?

   YES
   NO

2. Would your establishment be interested in participating with Montgomery Junior College in a Cooperative Work Experience Program for technical and semi-professional personnel?

   YES
   NO

   If YES, could these trainees be placed in your establishment for:

   Summer employment? YES NO

   Part-time work during the school year? YES NO

   Full-time work during the school year for a limited period (for example, one semester of full-time work alternated with one semester of schooling)? YES NO

3. To assist in training your technical or semi-professional employees, are there additional courses or programs which should be added to the offerings of Montgomery Junior College? _____

   _____

   _____

Write here any additional comments you may care to make:

_____

_____

_____

_____

_____

_____

_____

THANK YOU AGAIN FOR YOUR COOPERATION IN ANSWERING THIS QUESTIONNAIRE!

CLASSIFICATIONS

A. Medical Auxiliary Technologies

1. DENTAL ASSISTING - The graduate is certified to work with the dentist and under his supervision in three main areas: in his business office by handling appointments, the telephone, bills, and correspondence; at the chair-side by assisting the dentist; and in the laboratory by pouring models, casting inlays, and performing other similar functions.

2. DENTAL HYGIENIST - The graduate is licensed to perform prophylaxis, to take and process dental radiographs, and to instruct in dental health education with patients. The dental hygienist may work either in a dental office or in schools.

3. MEDICAL ASSISTING - Prepares the graduate to assist the physician in the office, the examining room, and the laboratory. Maintains medical records, receives patients, makes appointments, keeps accounts, handles insurance and hospitalization forms, may take dictation. Assists the doctor during examinations. Under supervision may assist with basal metabolism tests, electrocardiograms, blood counts and urinalyses. Assists in medical offices, clinics, or hospitals.

4. MEDICAL TECHNOLOGY - Prepares for licensure, after which the graduate may perform the various chemical, microscopic, bacteriological and other medical laboratory procedures used in the diagnosis, study and treatment of disease, under the supervision of a pathologist or other qualified physician.

5. MEDICAL SECRETARIAL - Prepares the graduate not only in the range of basic secretarial skills, but also in specialized terminology, office and laboratory procedures, and maintainence of medical records, which will qualify her for secretarial positions in physicians' offices, clinics, hospitals, and the medical departments of large corporations.

6. MEDICAL RECORDS LIBRARIAN - Prepares the graduate to keep medical records of patients admitted to hospitals and clinics; to compile reports of admissions, births, deaths, transfers, and discharges; to maintain permanent files for record purposes; to do indexing and coding of primary and secondary diagnoses of medical histories and records following established library methods.

7. NURSING, 2 YEAR RN - A relatively new development in medical auxiliary education, this program prepares the graduate to become a registered nurse; to perform bedside nursing duties requiring prescribed education, skills, and hospital experience in the care of ill and injured persons.

8. NURSING, LICENSED PRACTICAL - This program prepares the student for licensure as a practical nurse. This semi-professional graduate works under the supervision of a physician and/or professional nurse. As a member of this medical team the practical nurse performs personal nursing care, gives some medications, charts patients' records, and renders assistance in all the basic fields of nursing and related housekeeping functions.

9. PSYCHIATRIC AIDE - Prepares the graduate to work under supervision as the semi-professional member of a medical team which includes the psychiatrist, psychologist, and psychiatric social worker; to assist in creating a therapeutic climate, along with these professionals who are concerned with the hospital care and treatment of persons suffering from mental illness or severe emotional maladjustment.

10. PHYSIOTHERAPY - Under supervision the graduate assists the professional physiotherapist in the treatment of the patient's bodily disorders, gives exercises designed to correct the patient's muscle ailments and deficiencies, administers massage and performs other body manipulations, gives hydrotherapeutic treatments, uses various mechanical devises for therapeutic purposes.

11. X-RAY TECHNOLOGY - Prepares the graduate to perform under medical supervision a variety of duties related to the diagnostic and therapeutic utilization of X-ray equipment; to X-ray internal parts of the body in order to detect injury, the presense of foreign matter, malformation or malfunctioning; to assist in fluoroscopy; to assist radiologists in the preparation and use of radioactive materials; to process film and keep records of services performed for patients.

B. Business

26. SECRETARIAL (GENERAL, LEGAL, TECHNICAL) - The graduate is prepared to perform general office work requiring the skills of typing, shorthand, bookkeeping, filing, and the use of office machines; to handle business correspondence, some of it independently; to make appointments and otherwise assist the executive in the use and conservation of his time; to answer and place phone calls; to keep office records; and to supervise other clerical employees. The legal secretary in addition is knowledgeable with regard to legal terms and procedures, while the technical secretary is familiar with the specialized terminology of medical, scientific, or industrial discourse.

27. EXECUTIVE ADMINISTRATIVE AIDE - Prepares the graduate to execute administrative policies determined by, or in conjunction with, other officials; to speak for the executive in his absence; to write memoranda outlining and explaining administrative procedures and policies to subordinate supervisory workers; to act as intermediary between minor supervisors and policy-making officials; to keep special files; to perform publicity work.

28. PERSONNEL MANAGEMENT - The graduate is prepared to assist in the selection, training, promotion, welfare, compensation and recreation of employees, and in other employer-employee relationships. The scope of personnel work and the duties and responsibilities vary widely in different establishments, depending upon the policies of the management.

29. ELECTRONIC DATA PROCESSING, BUSINESS APPLICATIONS - Prepares the graduate to assist in the semi-professional operation and maintenance of electronic data processing equipment which is used to carry out a variety of functions in commercial and industrial establishments.

30. SMALL BUSINESS ADMINISTRATION - Prepares the graduate to conduct his own business, and to assist in the efficient management and functioning of small commercial and industrial concerns; provides preparation for accounting, selling, production, and distribution operations.

31. BANKING - The graduate may perform under supervision the detailed operations carried out by banking and related establishments in dealing with customers' commercial accounts, the approval of loans, the collection of debts due the bank, the appraisal, buying and selling of collateral, the movement of securities, the planning of estates, and more generally with corporation finance, stocks and bonds, credits and collections, and saving and loan aspects of the banking business.

32. INSURANCE, CASUALTY AND SURETY - Prepares the graduate for broker's licensure, and for work with insurance agencies, companies, and other organizations in selling, inspection, accounting, promotion, and underwriting related to insurance coverage against losses and insurance coverage provided by workmen's compensation, liability, automobile, aviation, marine, fire and allied lines, accident and health, theft, boiler and machinery insurance.

33. REAL ESTATE - Prepares the graduate for salesman's and broker's licensure, and for appraisal of property leading to professional designations; to sell, purchase, exchange, lease, rent, and manage real property.

34. INTERIOR DESIGN AND DECORATING - Prepares the student to design and arrange domestic and commercial interiors, taking into account the coordination of furniture, textiles, accessories, lighting, and other pertinent factors in interior design. Also knowledgeable with regard to business and marketing procedures, graduates may estimate costs, present room renderings to clients for approval, and make necessary purchases.

35. FOOD MANAGEMENT - Prepares the graduate to direct the operation of a retail or wholesale food establishment and to be responsible for its profitable operation. Supervises selling, maintenance and clerical employees; makes reports, takes and verifies inventories; purchases or requisitions goods; handles receipts; supervises suitable maintenance of premises and stock; assigns duties; and promotes sales.

36. HOTEL AND RESTAURANT MANAGEMENT - The graduate assists in planning menus, purchasing food, maintaining sanitation in food service departments, requisitioning replacements of food service equipment, keeping inventories, issuing supplies, calculating daily costs, keeping accounts and records, compiling financial reports, cashiering and handling money.

37. INSTITUTIONAL FOOD SERVICE MANAGEMENT - Prepares graduates for supportive administrative positions in places where large groups of people are served. Industrial cafeterias, school cafeterias, college food services, hospitals, commercial restaurants, cafeterias, snack bars and other public eating places comprise parts of the industry that is devoted to feeding people away from home.

38. ART, COMMERCIAL AND TECHNICAL - Prepares the graduate to create and design layouts for commercial purposes; to design and prepare charts, diagrams, sketches, maps for publication and exhibition. The technical artist may illustrate industrial or mechanical procedures and equipment for the use of workers who cannot read blueprints, and to facilitate production.

39. ACCOUNTING - Prepares graduates to work under supervision in general accounting, budget, and cost systems; to maintain accounts and records, balance books periodically, prepare statements and interpret accounts for administrative officers; to prepare Federal, state, and local tax returns.

C. Applied Science Technologies

51. AIR CONDITIONING AND REFRIGERATION TECHNOLOGY - Prepares students to meet the requirements of the various branches of the refrigeration industry; under supervision to design systems for specific applications. Graduates may install, maintain, repair equipment used in refrigerating plants and for conditioning air and cooling water in commercial buildings, manufacturing establishments, and homes.

52. ARCHITECTURAL TECHNOLOGY - Prepares the graduate to assist the professional architect in planning, design and on-the-job supervision of construction for residences, and commercial, industrial, and municipal structures. Under supervision graduates prepare cost estimates, write specifications, render sketches of proposed buildings, and prepare detail drawings to be used by building contractors and craftsmen.

53. BUILDING CONSTRUCTION TECHNOLOGY - Prepares the graduate to assist in the supervision and inspection of work involved in construction; to work with skilled artisans, contractors, architects, and professional designers; to perform routine duties such as field surveying, construction layout, and inspection; to give clerical assistance; to make estimates and render detail drawings under supervision to keep engineering records.

54. CIVIL TECHNOLOGY (CARTOGRAPHY, PHOTOGRAMMETRY, HIGHWAY DESIGN SUB-GROUPS) - The graduate is prepared to assist the engineer in the planning and supervision of lay-out and construction of streets, highways, railroads, bridges, dams, and urban and suburban development and re-development projects; to create, draw, and copy maps, using drafting and drawing instruments, aerial photography, and other appropriate techniques; to estimate costs, prepare specifications, participate in surveying; to assist in scheduling construction activities and inspecting work for conformance with blueprints and specifications.

55. ENGINEERING DRAFTING AND DESIGN - Prepares the student to work with engineers in projects of research, design, and development, utilizing knowledge obtained concerning machine and tool design, technical sketching, detail and assembly drawing, materials testing, metal production, metal working, heat treating, alloys and other aspects of metallurgy.

56. MECHANICAL TECHNOLOGY - The graduate is prepared to assist the professional engineer in the design of tools, engines, machines, or industrial equipment, the installation and maintenance of industrial equipment, the supervision of mechanical industrial processes, the planning and operation of central distribution systems for heat, gas, water, or steam.

57. TOOL DESIGN - Prepares the graduate to design tools and devices for the mass production of manufactured articles; to originate and prepare sketches of designs for cutting tools, jigs, dies, special fixtures, and other attachments used in machine operations; to render detail drawings of tools and fixtures; to re-design tools currently in use to improve their efficiency.

58. INSTRUMENTATION TECHNOLOGY - Prepares the graduate to assist the professional in the design, supervision, and maintenance of electrical, mechanical, and thermal instruments and control equipment necessary for the safe and efficient operation of industrial plants; under supervision to perform supportive work involving research, development, or application of techniques of sensing, measuring, transporting, recording, reducing, or reading out data, or controlling the physical conditions required in the conduct of aerospace scientific and technological programs.

59. QUALITY AND COST CONTROL - Prepares the graduate to assist in the collection and statistical analysis of data concerning industrial products in order to reduce costs and maintain quality; to utilize acceptance sampling theory and related statistical techniques; to use measuring gauges and other precision instruments for determining quality; under supervision to prepare recommendations resulting from data collection and analysis.

60. ELECTRICAL TECHNOLOGY - Prepares the graduate to assist the professional in planning and supervision of construction and operation of electric power generating plants, transmission lines, distribution systems, illumination, wire communication, and electric transportation systems; to be knowledgeable concerning the manufacture f various types of electrical machinery and apparatus, including motors and generators, converters and regulators, and switch-gear equipment.

61. ELECTRONIC TECHNOLOGY - The graduate is prepared to work with engineers and physical scientists in the field of electronics which includes radio, radar, sonar, telemetering, television, and other forms of communication; industrial measuring, recording, and controlling devices; navigational equipment; missile and spacecraft guidance systems; electronic computers; and many other types of equipment using vacuum tubes and semiconductor circuits.

62. R & D ELECTRONIC DATA PROCESSING - Prepares the graduate to assist the professional in project planning, problem formulation, system design, programming, production, and related services such as maintenance, and operation of library facilities.

63. NUCLEAR TECHNOLOGY - Prepares the graduate for developmental and research activities in nuclear energy; to assist in building, operating, and servicing reactors; to maintain reactor facilities, fuel processing plants, and research and development centers; to observe safety precautions, especially with regard to radiation hazards.

64. RADIATION TECHNOLOGY - Prepares the graduate to monitor radiation-producing machines and radioactive source materials used in research, industry, and hospitals, and produced in nuclear reactor operations; to monitor medical and dental X-ray installations; to inspect radiation protection devices such as shielding and contamination barriers; to prepare and analyze environmental samples for radioactivity content; to detect and measure various types of radiation; to perform decontamination procedures and take emergency measures where radiation exposure constitutes a hazard to personnel; to calibrate and help maintain radiation detection equipment; to prepare reports on the results of surveys and laboratory tests.

65. SPACE TECHNOLOGY - Prepares the graduate to perform semi-professional work in research, development, design, application, or operations pertaining to an aerospace mission, program, or project; to be knowledgeable concerning one or more of the following aerospace technology specialties: space sciences, life sciences, and systems, fluid and flight mechanics, materials and structures, propulsion and power, flight systems, measurement and instrumentation systems, data systems, experimental facilities and equipment, and research piloting.

66. TV BROADCASTING, TECHNICAL - Prepares the graduate to supervise the operation of technical equipment, and to instaff, maintain, and repair the many types of electrical and electronic equipment required for television broadcasting, including both studio and remote operations; to tune the transmitter for the most efficient operation with established legal limits.

67. PHOTOGRAPHY - The graduate is prepared for portrait, commercial, industrial, press, aerial, educational, and scientific photography including the proficient operation of cameras and auxiliary equipment, and the technical processing operations involved in the developing, enlarging, and printing of the finished products.

68. PRINTING AND GRAPHIC ARTS - Prepares the graduate to work directly or to supervise others in both the technical and the business aspects of the printing industry. Students learn to perform and supervise the various design, composition, platemaking, and presswork operations involved in letterpress, lithography (offset printing), gravure, and screen process; to order printing supplies; to estimate costs for sales purposes: to measure and scale copy, use tables, charts, and other devices for calculating time factors and production costs of a variety of printing jobs.

69. TECHNICAL REPORT WRITING - The graduate is prepared to edit or revise proposed or previously published data. Compiles various types of instructional manuals, reports, bulletins, specifications, catalogs, or other written data pertaining to maintenance, manufacturing, research, experimental engineering and general technological practice and procedure.

70. CHEMICAL TECHNOLOGY - Prepares the graduate to assist chemists and other scientists or engineers in research and development, testing, or other laboratory work: to make computations and tabulate and analyze results; to perform qualitative and quantitative chemical analyses; to assemble and use appropriate chemical laboratory equipment and instruments; to maintain industrial chemical quality control.

71. PURE SCIENCE TECHNOLOGY (BIOLOGY, CHEMISTRY, PHYSICS) - Prepares the graduate to work directly with professionals in the physical and life sciences, in jobs which require the ability to analyze and solve problems and prepare formal reports on experiments, tests, and other projects; to carry out tasks which are technical in nature, but are supportive to, and more limited than those of the scientist, and have a more practical orientation; to be knowledgeable concerning the basic sciences and mathematics.

D. Public Service

76. LAW ENFORCEMENT (POLICE TRAINING) - Prepares the graduate for positions in law enforcement at the local, state, and federal levels, and with private agencies. Students receive instruction in police administration, scientific investigations, traffic control, laws of arrest, search and seizure, state criminal laws and local ordinances, patrol procedures, accident investigations, individual civil rights, and the prevention as well as control of juvenile and adult delinquency and crime.

77. PUBLIC ADMINISTRATION - Training in this field prepares the graduate for semi-professional positions in local, state, or federal government organizations, performing such diverse functions as police administration, delinquency control, city management and planning, personnel management, security relations, financial management, budgeting, recreation, fire control, and sanitation.

78. SOCIAL WELFARE ASSISTING - Prepares the student to assist professional staff members in their work with people who have individual or family problems, or who are served by preventive community programs. In this supportive capacity, social welfare aides thus free the professional's time for services requiring higher levels of professional preparation.

79. NURSERY SCHOOL EDUCATION - Prepares the graduate to assist the professional teacher in the care and early education of pre-school children from two to five or six years of age; to be knowledgeable concerning their physical, mental, emotional, and social growth; to supervise and direct groups of young children, instructing them in simple tasks and projects, songs, games, and discipline.

80. LIBRARY ASSISTING - Prepares the graduate under supervision to perform both reader services and technical services; to assist professional librarians in the selection, purchase and maintenance of the many types of library materials, and to assist the public in their use; under professional supervision to classify and catalog books and other loan items, to do research to secure information requested, and to provide semi-professional reference service to various groups of readers.

81. TEACHER'S AIDE (INSTRUCTIONAL MATERIALS ASSISTING) - The graduate is prepared either to assist the individual teacher in the classroom, or to work as the semi-professional member of an instructional team which may include several teachers with differing levels of experience and proficiency. Under professional supervision teacher's aides assist in the collection, preparation, distribution, and classroom use of diverse kinds of instructional materials, including audio-visuals, records, tapes, charts, programmed learning materials, books, printed excerpts, materials for manipulative skills, etc., the materials varying with both subject area and grade level.

82. RECREATIONAL LEADERSHIP - Prepares the graduate to plan, organize, and direct recreational activities for public, quasi-public, and private organizations maintaining organized leisure-time programs; to direct and supervise water sports and boating activities; to assist in the organization and administeration of day-camps and residential camping facilities.

83. OCCUPATIONAL THERAPY - Prepares the graduate to work as the semi-professional member of a medical team whose purpose is to restore maximum function to mentally or physically disables patients. Under supervision of the professional therapist, helps to select and direct the functional, recreational, educational, and vocational activities designed to meet the specific needs of the patient as outlined by the attending physician.

Portions of these descriptions may be found in the Dictionary of Occupational Titles, the Occupational Outlook Handbook, and other governmental publications; their use is gratefully acknowledged.

APPENDIX B

1. Acknowledgments

2. Selected Sources for Background Information

Acknowledgments

Three Montgomery Junior College faculty members, together with Donald E. Deyo, Dean of the College, and Eileen P. Kuhns, Director of Institutional Research, comprised the research team responsible for the planning and execution of the Technical and Semi-Professional Employment Survey. Mr. William V. Jouvenal and Mrs. Catherine Scott participated in the 19-day research workshops in Summer 1962 and Summer 1963, joined by Mr. James Ross during the second period. In addition, Mr. Jouvenal worked on a partial released time basis both last year and the current year to date, as did Mrs. Scott beginning with this fall term.

Mr. Jouvenal brought to this investigation much valuable knowledge gained from his major role in the 1956 community survey. Sample selection for the current study was carried out under his direction. Mrs. Scott conducted myriad telephone interviews after her talent in this capacity was discovered. Mr. Ross came into the project when a maximum of attention was needed in the area of record control; in addition he conducted several field interviews.

Both in the planning phase during which curriculums were studied and selected for inclusion in the Questionnaire, and in the data collection phase, during which many discussions with employers took place, the broad experience of Mr. Jouvenal in electronics, of Mr. Ross in the physical sciences, and of Mrs. Scott in the business fields made possible a more discriminating approach than would have been the case had the research team been unfamiliar with technical and semi-professional education.

Two College secretaries merit recognition. Mrs. Louise Swindell helped to provide continuity in the research procedures with which she assisted, and Miss Mary Nell Dickerson typed the manuscript.

From other offices and schools within the County system, Mr. Douglas Hall, Mr. Thomas D. Bourdeaux, and Mr. Joseph A. Rice, Jr., made substantial contributions to this project. Mr. Hall directed the data processing Mr. Bourdeaux produced the Charts, and Mr. Rice assisted with the printing operations. Mr. Bourdeaux is a former Montgomery Junior College student, and Miss Nina E. Stephanoff, who designed the cover, is currently enrolled at the College.

Montgomery Junior College also wishes to express sincere appreciation to the many respondents, who took time from their other responsibilities to complete and return the information requested, or to discuss with College staff members the problems and possibilities of technical and semi-professional employment in their respective establishments. This Survey would not have been possible without their cooperation, which often included comments and suggestions of value to the College beyond the scope of this study.

Selected Sources for Background Information

Pertinent background information is readily available to readers in other recent publications, and thus has not been duplicated in this report. For example, an excellent depth study of the technician may be found in Lynn A. Emerson's Technical Training in the United States. A classic in this field is Ross Henninger's The Technical Institute in America. Associate degree nursing is disucssed in J.F. Marvin Buechel's Principles of Administration in Junior and Community College Education for Nursing. Leland L. Medsker's The Junior College: Progress and Prospect presents a comprehensive study of the community college. In addition, these publications contain some extensive bibliographies.

Recent demographic data descriptive of the Washington area may be found in the 1960 Federal Census; in the Skill Survey of the Washington Metropolitan Area 1962-67, sponsored by the United States Employment Service for the District of Columbia; and in Business Information Reports, published in August, 1963 by the Economic Development Committee of the Montgomery County Chamber of Commerce.

Although federal legislation aimed at providing support for community colleges looks promising this year, to date these bills have not completed the various stages prior to enactment, and thus will not be discussed in this report.

The Skill Survey, as well as the new Directory of Science Resources in Maryland discuss area schools and colleges and their present facilities for providing technical and science-oriented education. The section in the Directory dealing with two-year colleges lists the technical and semi-professional curriculums available in the twelve public community colleges located throughout the state.

Both the Directory of Science and the Metropolitan Washington Board of Trade's annual Scientific Resources in the Washington D.C. Area contain information about individual establishments engaged in scientific and research and development activities.

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Clark, Raymond M.
Training for Off-Farm Agricultural Occupations, Report of an Experimental Program in Vocational Education, 1962-64. Supplement.

Michigan State Univ., East Lansing. Coll. of Education
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*OFF FARM AGRICULTURAL OCCUPATIONS; *COOPERATIVE EDUCATION; VOCATIONAL AGRICULTURE; DISTRIBUTIVE EOUCATION; *PROGRAM EVALUATION; PROGRAM ATTITUOES; HIGH SCHOOL GRAOUATES; HIGH SCHOOLS; TRAOE ANO INOUSTRIAL EOUCATION; *EXPERIMENTAL PROGRAMS; *GRAOUATE SURVEYS; OFFICE OCCUPATIONS EOUCATION
MICHIGAN; ELKTON; PIGEON; BAY PORT

The second year of a cooperative education program conducted experimentally in the Elkton-Pigeon-Bay Port School System is described and evaluated. Responses to evaluation questionnaires are reported for former students, current students, and cooperating employers. Of 18 former students who had been enrolled in the program in the 1962-63 school year, 13 returned questionnaires. They reported that the program had been of benefit to them. Most were employed or in continuing education, and all would recommend the program to others. The 20 students in the program in 1963-64 school year were even more positive in their response. Cooperating employers appraised the program favorably. Local school administrators were enthusiastic about the program, citing increasing enrollment and benefits to school, community, and students. The lack of instructional materials and teacher time were the main problems. The full report is VT 000 568. (JM)

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TRAINING FOR OFF-FARM AGRICULTURAL OCCUPATIONS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

Raymond M. Clark

Report of an Experimental Program in Vocational Education 1962-64

Michigan State University
College of Education
June 1964

VT 005655

SUPPLEMENT TO: Training for Off-Farm Agricultural Occupations

Raymond M. Clark

Report of an Experimental Program in Vocational Education 1962-64

College of Education
Michigan State University
June 1964

INTRODUCTION

This report is a supplement to the report of an experimental study in vocational education, "Training for Off-Farm Agricultural Occupations," which was distributed in May, 1963, by the Office of Publications, College of Education, Michigan State University. It will describe the second year of operation of the program and present the evaluation reports of the program from (1) individuals who enrolled in 1962-63 and who graduated in June 1963, (2) those who have been enrolled in the program in 1963-64, (3) employers of the 1963-64 students, (4) of the local administrators of the program, and (5) the evaluation of the author in terms of the progress which he has oberved in the educational program of the school, together with an examination of some of the shortcomings of the program as he sees them.

THE TEACHER-COORDINATOR

During the 1962-63 year a qualified teacher of vocational agriculture was assigned to organize and conduct the program in accordance with plans which had been set up. These are described in the report for 1962-63. At the close of the 1962-63 school year, this teacher left the school system and Mr. Clifford Furness was given the assignment. Mr. Furness has had many years of experience as an industrial arts-machine shop instructor in the school system. He also has had some business experience in the community. His experience in agriculture is limited to having been raised on a farm and to the fact that his career in teaching has been in strictly rural communities where very nearly all of the business and industry is oriented to agriculture.

Mr. Furness had experience in the same community as a teacher of farm mechanics and in the farm mechanics aspects of the war training program during World War II. He is very well acquainted with businessmen and farmers in the community.

These qualifications have made it possible for Mr. Furness to expand the program somewhat and also to develop individual training programs that are more specific than those of the first year. Also, the employers have accepted a more active role in training the students, and Mr. Furness has been able to enlist other faculty members to assist in the training program to a greater degree than was true during the first year of operation.

THE STUDENTS AND THEIR WORK STATIONS

Twenty students were enrolled in the program in 1963-64 as compared with 18 in 1962-63. Of these, twelve were employed in a business which should be considered an off-farm agricultural business. Such a classification is difficult to make since most of the businesses of the area primarily serve farmers and other agricultural interests. On the other hand, we would not classify as agricultural a job in a dry goods store, or in a small factory making parts of an automobile company.

Following is a list of students and their places of employment for 1963-64.

Joan Wedierhold	Hills and Dales Hospital
Betty Buchholtz	Scheurer Hospital
*Berton Schaaf	Shettler Farm Equipment
*Douglas Douks	Gettel Implement Company
*Bob Webber	Webber Brothers Tractor Sales
*Doris Yenglin	Pigeon Co-op Elevator
*Rodney Swalwell	Shelter Plumbing
*Leon Motz	Bill Henrt Ford Sales
*Sandra Schmietzer	Ed. Moore, C.P.A. Office
*Charlotte Weiss	Karl Leppien, C.P.A. Office
Ed Bergmen	Bush's Resturant
Jim Brunni	Mark Wallace, Decorator
*Sandra Farber	Michigan Lumber Company
*Joyce Haley	Elkton Lumber and Tile Company
Todd Toner	Elkton Petroleum Company (Dropped 2nd. Sem.)

Candace Kanehl	Guidance Office, High School
Gail Dufty	Principal's Office, High School
*Larry Wedierhold	Wedierhold Freight Lines
*John Seley	Gerald Derring Farms

EVALUATION

Evaluation by students enrolled in 1962-63

These young people graduated in June 1963 and, therefore, had been out of the program for approximately 10 months when the evaluations were made. The present coordinator mailed the blanks (see Appendix Form 1) to each of the participants and asked them to complete the form and return it to the school. Forms were sent to 17 students of the 18 listed in the report of the first year of operation. Table 1 shows the eighteen students who participated in the Cooperative Training Program at Pigeon, Elkton, and Bay Port and also indicated the 1963-64 activites of the thirteen students who returned the evaluation blanks. Of the eight students who were in the experimental project, 4 are working in similar jobs, 2 are continuing their education, one is not working and one did not respond. One girl was trained as a secretary in a business dealing with farm accounts, income tax records amd other farm business type activites but is now working as a secretary for the Department of Defense in Washington, D. C.

The pattern of employment of the thirteen students is quite varied. Five of the thirteen students are now in some phase of continuing education, four are secretaries, one is a checker at a supermarket, one is employed on a farm and one is still in high school. Only one is unemployed.

TABLE 1

Pigeon, Elkton, Bay Port Students on Cooperative Training Program

Students	1962-63 Place of Training	1963-64 Job Placement
*Barb Kohl	Secretary - CPA	Secretary , U. S. Government
*Judy Ziegler	Secretary - CPA	College 6 mo, returned as a Secretary in an Iron Foundry
*Dwight Hewitt	Farm Implement	Not Ascertained
Ross Behm	Carpenter-Lumberyard	College-Residential Bldg. Major
Tammy Kraft	Secretary-Principal's Office	Secretary-Farom Motor Company
Rhea Roestel	Secretary-Guidance Office	Checker at Supermarket
Robert Damm	Webber Brothers, Pigeon	Not Ascertained
*Ernest Rostoek	Mechanic-Ford Sales	Not working
*Mary Sathany	Office Clerk Co-op Elevator	Office Clerk Co-op Elevator
*Betty Licht	Office Clerk Co-op Elevator	College-Secretarial Course
Jerry Young	Gulf Co-op Service	Not Ascertained
*Randy Renn	Plumbing and Heating	4-year apprenticeship in a Trade School
Betty Renn	Payroll Secretary-Lumberyard	Secretarial Course-College
*Tom Wing	Mechanic - Farm Implement	Bauer Farms
Pat Kelly	Lumberyard	Not Ascertained
Jim Kritzman	Stock Boy - Supermarket	Still in High School
Marge Pobanz	Clerk-Drug Store	Clerk - Drug Store
Leon Ropp	Golf Co-op Service	Not Ascertained

*Students included in the experimental project

Eight of the thirteen students indicated that the primary factor influencing their enrolling in the Co-op Training Program was a need for interest in specific occupational training and three indicated that an opportunity to earn money was the primary influencing factor. Twelve of the thirteen students agreed that the primary benefit to them from participation in the Cooperative Training Program is the acquisition of job experience.

The chief "gripes" of the students could not be neatly grouped into any scheme of classification. Five of the thirteen did indicate that the training program was not thorough enough, two indicated a problem with employers, one objected to the homework required; one thought the manuals were of no value and two did not indicate any grievance. The following are some of the comments the students made: "The rating sheet--although they tried to be fair, I felt that not every employer looked at the scale in the same light. Some would rate higher or some lower or they were sort of confused as to the reasoning of it." "Everything was a little rushed. It would have been better possibly to have the program two or three years in high school." "Students were referred to as "cheap labor". "Not enough class work directly relating to each individual's particular work.

Six of the eight girls and one of the five boys indicated that the cooperative occupational training program helped them to obtain or advance in a full-time job. Three boys and three girls indicated it helped them to obtain further education. These data are shown in Table 2.

TABLE 2

VALUE OF THE COOPERATIVE OCCUPATIONAL TRAINING PROGRAM
IN JOB PROCUREMENT OR JOB ADVANCEMENT
TO THOSE STUDENTS WHO PARTICIPATED

Did the Co-op Training Help You obtain or advance in any of the following?	Number of Yes Responses by Sex		
	Boys	Girls	Total
A full time job	1	6	7
A part time job	1	0	1
A military service rating	0	0	0
Further education	3	3	6
Other	2	0	2
Did not answer	1	0	1

The students heard about their first-full time job in a variety of ways as is indicated by Table 3. Four remained with their co-op employer, one heard about the job from a friend, one through the school, two through personal job hunting efforts and three from other activites. Note that all of the students received their jobs in ways other than advertisements or public employment offices.

There are a number of differences between ratings given by the boys and girls to their on-the-job experiences. A summary of these data are shown in Table 4. Note particularly that girls rated their wages much lower than did the boys.

Table 5 shows the student's ratings of the in-school co-op instruction. Again wide differences are noted between the ratings of boys and girls in some of the experiences. It is of interest to note that boys and girls rated the value of "other printed instructional material" higher than did boys. Boys rated the value of films higher and the value of outside speakers lower than did the girls. Boys did not show any agreement of the usefulness of related instruction.

1. Only two of the thirteen students received a co-op achievement record book.
2. Nine of the students like their present occupation very much and two like their job fairly well.
3. Twelve of the thirteen would select the Cooperative Training Pro ram again.
4. Twelve of the the thirteen would recommend the Cooperative Training Program to other students.

TABLE 3

METHODS OF JOB PROCUREMENT BY
COOPERATIVE TRAINING PROGRAM GRADUATES

How heard about first job	Number of Responses by Sex		
	Boys	Girls	Total
Remained with Co-op employer	1	3	4
Advertisement	0	0	0
Friend or Relatives	1	0	1
Teacher, Counselor or Placement Service at School	0	1	1
Personal job hunting efforts	0	2	2
Public employment office	0	0	0
Other	2	1	3
Did not answer	1	1	2

TABLE 4

RATINGS OF ON THE JOB EXPERIENCES OF STUDENTS
WHO PARTICIPATED IN THE COOPERATIVE TRAINING PROGRAM

ON THE JOB EXPERIENCES	Number of Students Rating by Sex							
	Poor		Fair		Good		Excellent	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Supervision	-	-	-	-	2	2	3	6
Training received on the job	1	0	-	-	3	2	1	5
Variety of experiences	-	-	-	-	3	3	2	5
Opportunity for a better job after graduation	1	0	-	-	4	4	0	4
Wages paid you	1	0	1	5	3	3	-	-
Employers understanding of his co-op training responsibilities	-	-	1	1	0	2	4	5

TABLE 5

RATINGS OF IN-SCHOOL COOPERATIVE INSTRUCTION
BY STUDENTS PARTICIPATING IN THE
COOPERATIVE TRAINING PROGRAM

In-school instruction	Number of students rating by sex							
	Poor		Fair		Good		Excellent	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Usefulness of related instruction	1	0	1	0	2	4	1	4
Coordinator's understanding of your requirements	-	-	0	1	4	5	1	2
Other teacher's understanding of your co-op program	1	0	1	1	3	4	0	3
Value of textbooks	-	-	2	4	1	5	2	0
Value of printed instructional materials	-	-	3	1	1	5	1	2
Value of films	-	-	0	5	4	1	1	2
*Value of field trips	1	1	0	2	1	1	-	-
Value of outside speakers	1	0	0	2	2	2	2	4

*7 students wrote in "none"

The students were asked to write "any comments which you believe will help us to improve our cooperative occupational training program". Eight of the students made comments and these are quoted below. The "M" designates boy and the "F" girl participants.

M: Have more material (books) for all of the fields involved. When I was in the program there weren't many books in the field of marketing and retail grocery business.

M: I was very well satisfied with Co-op and after I got out of school and on my own I put to use what I learned in co-op. This was when I realized what value this program was. That's why I can honestly say co-op helped me 100 percent when I got my first job.

M: I have only one complaint since I graduated, there are not many places to find work. The only jobs to be had are filled by students on the co-op training program and employers do not want to add any one else to the staff.

M: Because of class conflicts I could not take Algebra II and Physics which would have been better for me in college. I would highly recommend the program to any student because of the job experience and for the experience of being part of the working class.

F: It would be more interesting to the students if there would be class discussion giving experiences on the job, troubles and pointers. The students may be able to solve between themselves, rather than learning from just the text.

F: I think textbooks which we (secretary book) had were just a review of what we had already learned in office practice and other courses in school.

F: I think students should be given more training in their classes before they actually go on the job so they know what to expect and aren't hit by the experience in one big blow. Perhaps they could do some jobs for teachers in the office.

F: I felt the programs went very smoothly during the year in which I was enrolled; however, I did get a lot from the speakers who came into our class (much more than from the written material) and I feel if a speaker was scheduled for at least once a week or maybe every two weeks it would add more value to the program. Also I might add, my employer was just wonderful. I feel this program was of more value to me than any other classes I had. Of course, most of my classes pertained to my type of work, but I did enjoy it very much. I feel there is nothing quite as exact as actual experience. No matter how informed a classroom teacher may be on a particular type of work, he or she can't get it across like actual experience.

The Cooperative Training Program was of benefit to the students who participated in it. A high per cent of the students are successfully employed or are in a phase of continuing education. They elected to enter the program as they desired specific occupational training, and this training helped them to obtain or advance in a job. They heard about their first job in a variety of ways. Differences were noted between the boys and girls in their ratings of the value of on-the-job and in-school co-op instruction. Nearly all of the students would recommend it to a qualified and interested student.

Evaluation by the 1963-64 Class

The Cooperative Training Class for 1963 began with a total enrollment of twenty students distributed as indicated in Table 6. Two students were in distributive work, (One was required to drop the program at the end of the first semester due to low scholastic achievement). Seven were in office practice, some of which requires some understanding of agriculture, and eleven were in some phases of trade and industrial work. Of the group classified as trade and industrial students, three were employed in farm machinery dealer stations, two were employed in farm machinery stations, two were employed as mechanics, two were student nurses, one in decorating, one in food service, one in plumbing and one in farming.

Five students of the Cooperative Training Class will remain in the same phase of employment with their same employers. Eight intend to work in other phases of employment and six are planning on attending college. Many of the employers are using their places of employment as a training station only and consequently, a new student is employed each year.

TABLE 6

TYPE OF BUSINESS IN WHICH 1963-64
CO-OP STUDENTS WERE PLACED

Office practice	7	Decorator - interior, exterior	1
Distributive	2	Food Service	1
Nurse Aid	2	Farm Machinery	3
Farming	1	Auto Mechanics	2
Plumbing and Heating	1		

All stations except six will employ a cooperative training student during the 1964-65 school year. Of the six not employing students only one was dissatisfied and this was due to the fact he considered a non-agressive student. The other five either kept their students on as regular employees or conditions required that their termination was made. This had no reflection upon their ability to perform their duties properly. Four employers are employing two students for next year instead of one as in past years.

Table 7 summarizes the evaluation by the students of the instruction they received. See appendix form 2. The table indicates a wide variety of related instruction which they received, and which rated of "Most Help" This is probably due to the wide range of interests and the diversity of jobs held by these students. In this connection it is of interest to note responses to the item, "Value of Related Instruction", in Table 10 in which 17 of the students indicated "much" value in which one indicated "some" value and one indicated "little" value.

Subjects rated of most help to the co-op students are indicated in Table 8. Since the largest number of the 1963-64 students were employed in office or distributive work, it would be expected that such subjects as bookkeeping, typing, and office practice would be rated by the largest number of students. However, it is important to recognize the value of these subjects and also to be aware of the value placed on other subjects in relation to the work experience programs of these students.

TABLE 7

EVALUATION OF RELATED INSTRUCTION BY 1963-64 CO-OP STUDENTS

INSTRUCTION TOPICS OR SCHOOL SUBJECTS	Helped Most	Helped Least
Office Practice	7	
Advanced Chemistry	2	
Bookkeeping	2	3
Farm Shop	2	
Machine Shop	2	
Typing	1	1
Painting	1	
Employer-Employee Relations	1	
How to Respond to Orders	1	
Shorthand		2
Wallpaper		1
Speech		1
Workers and Union		1
Government		5
Electricity		1
English		1 - Workshop

TABLE 8

SCHOOL SUBJECTS OF MOST HELP
EVALUATION OF 1963-64 CO-OP STUDENTS

SUBJECT	NO. INDICATING SUBJECT OF MOST HELP*
Typing	4
Office Practice	5
Bookkeeping	6
Art	1
Chemistry	2
Shop	5
Mathematics	1

*Some students indicated more than one subject

Referring to Table 9, note that all of the students felt that they had enough help from the coordinator, and that nearly all of the students were satisified with the help they received from the employer. Approximately 65 percent indicated the program had little influence on their remaining in school. Nearly all of the students would recommend the program to other qualified students.

The opportunity to earn money while in school was listed of much importance by 13 of the 19 students reporting and the work experience and related training were rated of much value by 18 and 17 of the students respectively, Table 10.

Students were asked to check three qualities they would consider most important for admission to the program. Their responses are listed in Table 11. While interest in the occupational field was listed more frequently than any other item, attention is called to the fact that these students also placed high value on school marks, attendance, and citizenship. This may be a reflection of the fact that the school administrators require that students on the co-op program maintain passing marks in academic subjects and a satisfactory citizenship record while they are on the program.

Table 12 indicates that these students are quite discriminating in the characteristics they believe should be possessed by students who are admitted to the co-op program. Ability to get along with others, dependability, ambition and honesty loom large among the desirable characteristics recognized by the students.

TABLE 9

EVALUATION BY 1963-64 CO-OP STUDENTS
OF OPERATION OF PROGRAM

ITEM	NUMBER OF RESPONSES		
	YES	NO	CAN'T SAY
Did you receive enough assistance from your coordinator	18	0	0
Did you receive enough assistance from your employer	16	0	2
Would you recommend the program to other qualified students	16	0	3
Did the co-op program influence you to stay in school longer	5	12	2

TABLE 10

EVALUATION OF 1963-64 CO-OP STUDENTS OF INSTRUCTIONAL AND WORK EXPERIENCE ASPECTS OF THE PROGRAM

ITEM	NUMBER INDICATING		
	MUCH	SOME	LITTLE
Importance of opportunity to earn money	13	6	0
Value of work experience part of program	18	1	0
Value of related instruction	17	1	1

TABLE 11

RESPONSES TO 1963-64 CO-OP STUDENTS TO FACTORS TO CONSIDER IN ADMITTING FUTURE STUDENTS

(Students were asked to check three factors)

ITEM	NO. RESPONSES
Interest in Occupational Field	16
School Grades	10
School Citizenship	8
School Attendance	8
Need for Job Information	4
Financial Need	3
Individual Training Needs	3
School Credit	1
Personality	1
Qualification	1
Relation to Employer	1
Ambition	1

TABLE 12

PERSONAL FACTORS CONSIDERED DESIRABLE BY 1963-64 CO-OP STUDENTS FOR PROSPECTIVE TRAINEES

(Each student was asked to check three most important)

ITEM	NO. RESPONSES
Ability to get along with others	12
Dependable	11
Ambitious	8
Honest	7
Personal appearance	4
Tactfulness	3
Poise	3
Judgment	2
Friendliness	2
Accuracy	1
Pleasantness	1
Confidence	1
Industriousness	1

That this program has been well accepted by students is indicated by the fact that the principal had applications for 62 students for admission to the program for the 1964-65 school year. At the time this report was prepared it has not been determined how many of these students could be accomodated.

Evaluation by the 1963 Employers

The employers of the 1963-64 co-op students were asked to respond to a number of items indicating their evaluation of the work of the year. A summary of their responses is recorded on a duplicate of the check list which was submitted to them.

COOPERATIVE TRAINING PROGRAM
Pigeon, Elkton, Bay Port Public Schools

Employer Appraisal

Date_____
Employer_____

NON-AGRICULTURAL TRAINING PROGRAM

1. How would you rate the program, based on your own association with it?
   Good 17 Fair 1 Poor 0

2. How do you rate the work performance of your trainees in comparison with other beginning workers? Better 8 About the same 8
   Not as good 1

3. Are your trainees learning the things you feel the school should provide in helping them become proficient? Yes 14 No 1 Can't Say 3

4. Do you feel you have had sufficent contact with the coordinator?
   Yes 18 No 0 Can't Say 0

5. Do you feel the work experience training program should become a part of the program of your school? Yes 17 No 0 Can't Say 1

6. As you have seen it, what do you believe to be the greatest strength of the work experience program? (Following are the comments)

   Eight mentioned, opportunity for experience.
   Two mentioned, opportunity to help choose future occupation.
   Three mentioned, teaches responsibility.
   Others mentioned, see practical side of life; get acquainted with world outside of classroom; learn to work with people.

7. As you see it, what would you believe to be the greatest weakness of the work experience training program? (following are comments)

   Four mentioned, more students should take it.
   Three mentioned, employers should spend more time with trainees.
   One felt that, training should begin in the Junior year.
   One wants the, development of more concentration and accuracy.
   One feels that, the vo-ag program should do a better job of training on how to succeed as a business man.

Evaluation of the Local School Administrators

Both the superintendent of schools and the principal of the high school have been enthusiastic about the program. They feel that it contributes a great deal to the training and experience of the students and that it is an important factor in bringing school and community into closer cooperative relationship.

Accompanying these favorable aspects are some problems which are yet to be solved. One is the fact that 62 students have applied for the program for 1964-65 and there are only 20-25 work stations available. This is true in spite of the fact that the coordinator has already gone beyond the school district boundaries for some of the present work stations. Perhaps this problem suggests the need for larger units for operation of the program, or for the introduction of training programs to prepare students for employment outside the community.

The employers require students who are willing to work, and who are reliable. These are not necessarily the best academic students, but neither are they the lowest grade of students. They are not drop-outs or potential drop-outs and the administrators recognize that the program as it is now operating, does little to solve the drop-out problem. On the other hand it must be emphasized that this school system has an almost insignificant drop-out problem as compared with some of the urban areas of the state.

The earnings of some of the students have been a definite help to them. However, this has not been a major factor in the success of the program in this school. There is little doubt that the students would have remained in school even though they might not have been employed in the training program.

Evaluation by the Author

Much of the evaluation of the administrators would also be included in an evaluation by the author. In addition, the following observations represent part of the evaluation of the program to date.

There is still much need for adequate instructional materials appropriate for instruction related to the non-farm agricultural occupations. This problem was described in the report of the first-year of operation. Since that time, some of the results of our studies regarding the functions of non-farm business and the competencies, understandings and abilities required for performance of these have been given to the teacher-coordinator. He feels these are useful in setting up the experience program to be provided by the employer. In addition, he feels these would be useful in his work with the school faculty in helping them plan related instruction for individuals in their classes who also are enrolled in the training program for off-farm agricultural business.

Earlier it was indicated that the training program encourages a close cooperation between school and community. This represents a very valuable asset to both the school and to the community. There is a greater tendency for the businessman to look to the school for graduates whom they can employ, and at the same time the availability of these business places for training stations represents a valuable educational asset which can only be made available through the businesses of the state.

One of the problems inherent in the situation is the fact that the coordinator does not have enough time to do all the tasks he recognizes as desirable. He is assigned one hour of the school day in which he meets the students as a group. He also is paid for an additional hour each day (in addition to the normal school day) for working with employers, developing new training stations and working with individual students.

It would be desirable for the coordinator to have more time working with students, for developing additional training stations and for improving the training programs through work with other faculty members and the like. On the other hand, it should be noted that the school has two full-time counselors and a health service which contributes to the program. Also, the faculty is continually made aware of the program through contacts with the coordinator and through regular faculty meetings. If more time were given for coordination, the administrators would need to guard against an attitude on the part of the faculty, "to let the coordinator do it."

One of the original purposes of this project was to demonstrate a way whereby a local school could provide training for the non-farm agricultural business of the area. While there are shortcomings in this program in terms of sophisticated control and evaluation procedures, we believe that the progress is being made in terms of the original purpose. The report of employers and of graduates represent a high degree of satisfaction. The students who have been out a year are making progress in terms of eitner countinuing their education or in terms of employment. The total offerings of the school have been expanded to help improve the occupational opportunities for graduates of the school.

Much remains to be done in the development of more appropriate instructinal materials. Materials are needed for use by employers, and the coordinator, and by other teachers on the faculty of the school which will contribute to improved training programs for employment bound high school graduates.

During the 1964-65 school year we plan to further develop instructional materials for this program and to work with the coordinator to further strengthen the program of individual students. We also plan to further integrate needed training in such areas as English, mathematics, business and social sciences with the vocational needs of the students.

APPENDIX

Appendix Form 1

Pigeon, Elkton, Bay Port Public Schools
COOPERATIVE TRAINING EVALUATION

Graduate Appraisal_____ Date:_____

Directions: Please fill in the blanks below and check the questions as they apply to you:

1. Firm in which you had Cooperative Training Program_____

2. Name: Miss / Mrs. / Mr. _____ _____ _____
First Middle Last

If married, maiden name_____ _____
First Last

3. Home Address _____ Home Phone No._____
Street and Number City State

4. Your present or last employer_____
(Firm or Employer's Name)

Employer's Address _____
Street and Number City State

5. As a co-op student were employed as_____
Job Title

6. How long were you enrolled in the co-op program?_____
(No. Months)

7. What was the chief reason influencing you to enroll in the Cooperative Occupational Training Program? (check only one)

( ) Influence of family, friends, or employers.
( ) Influence of counselor, teacher, principal, coordinator, other students.
( ) Need for - or interest in - specific occupational training.
( ) Previous job experience.
( ) Need for opportunity to earn money.
( ) Other (please speficy)_____

8. In what way did Cooperative Occupational Training help you most?

_____

9. What was your chief "gripe" about your Cooperative Occupational Training?

_____

_____

10. Since leaving school, what job, military service or educational experience have you had? List below excluding periods of unemployment.

Begin with date of first activity following graduation.		Name of person or firm for which you worked and/or military service assignment and/or name of educational institution you attended.	List the two or three activities which you did most while on the job, in military service or in school
From Month and Year	To Month and Year		

11. Did Cooperative Occupational Training Help you <u>to obtain</u> or <u>advance in</u> any of the following:

( ) a full-time job
( ) a part-time job
( ) a military service rating
( ) further education
( ) other principal activity (please specify) _____

_____

12. How did you discover or hear about your first full-time job after graduation? (Check only one)

( ) remained with co-op employer
( ) advertisement
( ) friend or relative
( ) teacher, counselor, or placement service at school
( ) coordinator at school
( ) personal job hunting efforts
( ) public employment office
( ) other means (explain)

13. Rate each of the following aspects of your Cooperative Occupational Training Program: place check mark (x) in appropriate columns.

A. On-the-job Experiences	Poor	Fair	Good	Excellent
1. Supervision (by employer, foreman, etc.)				
2. Training received on the job				
3. Variety of job experiences				
4. Opportunity for a better job upon graduation				
5. Wages paid you				
6. Employer's understanding of his co-op training responsibilities				

B. In-School Co-Op Instruction	Poor	Fair	Good	Excellent
1. Usefullness of related instruction				
2. Coordinator's understanding of your job requirements				
3. Other teachers' understanding of your job requirements				
4. Value of textbooks				
5. Value of other printed instructional materials				
6. Value of films				
7. Value of field trips				
8. Value of outside speakers				

14. Did you receive a Cooperative Training Achievement Record Book upon completing your co-op program?

If yes, how has it been of value? Check any which apply.

( ) in getting a job
( ) in advancing on other job
( ) in military service
( ) in providing personal satisfaction
( ) in other ways (explain)_____
_____

15. Are you currently employed in the occupation for which co-op training prepared you? ( ) Yes ( ) No.

If no, give your chief reason for changing to another occupation. Check only one.

( ) no job available in occupational field
( ) developed new interest
( ) disliked job for which I was trained
( ) found opportunity for advancement
( ) never intended to work in my co-op occupation
( ) present work pays better
( ) other (explain)_____

16. How well do you like your present occupation? (Check one)

( ) very much
( ) fairly well
( ) don't like it

17. If you could do it over again, would you choose the same occupational field? (check one)

( ) Yes
( ) No
( ) Can't Say

18. If qualified students asked your advice, would you recommend Cooperative Occupational Training To them?

( ) Yes
( ) No
( ) Can't Say

19. Please write any comments which you believe will help us improve our Cooperative Occupational Training Program.

_____

_____

_____ _____

_____

Appendix Form 2

COOPERATIVE TRAINING PROGRAM
Pigeon, Elkton, Bay Port Public Schools

Student Appraisal

Your Name_____Age____Grade in School_____

1. Please name the type of business in which you were enployed: (Example) Farm Machinery Sales and Service).____

2. Which topic covered in your related instruction program helped you most?____

   Which topic covered in your related instruction program helped you least?____

   Which school subjects covered in your total school program helped you most?____

3. Did you receive enough assistance from your coordinator? Yes____ No____ Can't Say____.

4. Did you receive enough assistance from your employer? Yes___ No___ Can't Say____.

5. Did the co-op program influence you to stay in school longer? Yes____ No____ Can't Say____.

6. Would you recommend the program to other qualified students? Yes____ No____ Can't Say____.

7. How important was the opportunity to earn money while you were still in school? Much___ Some____ Little____

8. How valuable was the work experience you had as part of your program? Much____ Some____ Little____
   How could it have been improved?____

9. How valuable was the related instruction? Much____ Some____ Little____
   How could it have been improved?____

10. How could the work experience have been more valuable to you?
    ____

11. How could the coordinator have improved the school part of your program for you?____

12. What are your plans for next year? High School____ College, where_____ Employment, where_____.

What general factors should the school consider in admitting students to the co-op program? Please check the three (3) which you consider to be most important.

Financial need	____	School attendance	____
Individual Training Needs	____	School citizenship	____
Interest in an Occupational field	____	School credit	____
		School grades	____

Other (please specify)_____

14. What personal factors do you consider desirable for prospective trainees in the co-op program? Please check the (3) which you consider to be most important:

Accuracy	____	Friendliness	____	Judgment	____
Ambition	____	Health	____	Pleasantness	____
Appearance	____	Honesty	____	Poise	____
Courtesy	____	Industriousness	____	Self-control	____
Dependability	____	Intelligence	____	Tactfulness	____
Ability to get along with others	____				

Others (please specify)_____

15. Which subjects, topics, or units covered in the program helped you most? Please list the most helpful first.

A._____
B._____
C._____

16. Please list any ways in which your supervised work experience could be made more valuable by your employer.

A._____
B._____
C._____

17. Please list any ways in which your coordinator could have made the school portion of your program more valuable:

A._____
B._____
C._____

18. Please list some specific ways in which the co-op program was of benefit to you.

A._____
B._____
C._____

Appendix Form 3

COOPERATIVE TRAINING PROGRAM
Pigeon, Elkton, Bay Port Public Schools

Employer Appraisal

Date_____
Employer_____

NON-FARM TRAINING PROGRAM

1. How would rate the program, based on your own association with it?
   Good____ Fair____ Poor____

2. How do you rate the work performance of your trainees in comparison with other beginning workers? Better____ About the same_____
   Not as good____

3. Are your trainees learning the things you feel the school should provide in helping them become more proficient. Yes____ No____
   Can't Say____.

4. Do you feel you have had sufficient contact with the coordinator?
   Yes____ No____ Can't Say____

5. Do you feel the work experience training program should become part of the program of your school?
   Yes____ No____ Can't Say____

6. As you have seen it, what do you believe to be the greatest strength of the work experience training program._____
   _____

7. As you have seen it, what do you believe to be the greatest weakness of the work experience training program._____
   _____
   _____

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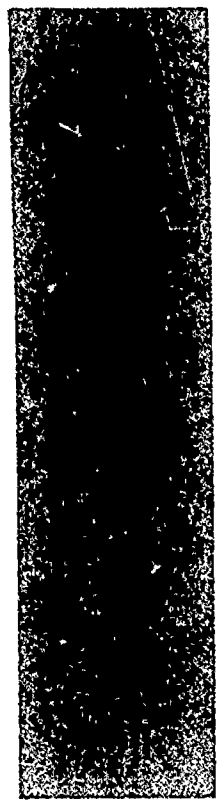
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ELKTON; PIGEON; BAYPORT; MICHIGAN

The objective of the project was to develop the most effective vocational education training at the high school level for selected non-farm occupations involving agricultural, distributive, office, and trade and industrial education. Procedures were outlined in the initial proposal for school selection and program initiation. The program was conducted in the Elkton-Pigeon-Bayport school system where 18 students enrolled. Formal agreements, meeting minutes, policies, and survey schedules are included in this study of planning and the first year of operation. Problems existed in the placement of students in cooperative work experiences and the selection of work stations. The report of observations cites evidence of need for (1) this type of program, (2) inservice and preservice teacher education programs, (3) instructional materials, and (4) adequate teacher time. (JM)







May 1963

TRAINING FOR OFF-FARM AGRICULTURAL OCCUPATIONS

Report of an Experimental Program
in Vocational Education 1962-63

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Raymond M. Clark

College of Education
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East Lansing, Michigan

1963

FOREWORD

Since World War II the occupational patterns in the United States have undergone radical and rapid changes. This has been as true in agricultural business and industry as in other aspects of the world of work. Many of the functions formerly done on farms have been moved to cities where they are performed more efficiently as services to farmers and farm people as well as services to consumers of farm products.

To keep abreast of these developments so that vocational education for the changing world of work can be provided, research, pilot studies and other devices are a vital part of the total educational program. This paper is a description of a pilot project undertaken in the Elkton, Pigeon, Bay Port school system to demonstrate a specialized training program for young men and women who wish to prepare to enter a non-farm agricultural business or industry.

Many individuals and organizations have been involved in the program. Special recognition is due the following:

Mr. James Matteson, Superintendent of Schools, Elkton, Pigeon, Bay Port Schools.

Mr. Orville Snider, Principal of the Elkton, Pigeon, Bay Port High School.

Mr. John Fuller, Coordinator and Teacher of Vocational Agriculture, Elkton, Pigeon, Bay Port Schools.

Mr. Russell Tyndall, Assistant Superintendent of Schools, (Retired June 30, 1962, but did much of the administrative work in launching the program).

Mr. Robert Winger, Assistant Superintendent for Vocational Education, Michigan Department of Public Instruction, Chairman of Advisory Committee for the project.

Mr. Harry Nesman, Chief, Agricultural Education, Michigan Department of Public Instruction, Member of Advisory Committee for the project.

Mr. Lawrence Tompson, Chief, Business Education, Michigan Department of Public Instruction. Member of Advisory Committee for the project.

Mr. Jack Harris, Chief, Trade and Industrial Education, Michigan Department of Public Instruction, Member of Advisory Committee for the project.

Dr. Peter Haines, Teacher Trainer, Business Education, College of Education, Michigan State University.

Mr. Leon Alger, Research Consultant, Division of Vocational Education, Michigan Department of Public Instruction.

In addition acknowledgment is extended to the businessmen, and to the students who participated in the project. Their support and cooperation is sincerely appreciated.

Raymond M. Clark

INTRODUCTION

We are all aware of the revolutionary changes that have taken place in the proportion of the total population engaged in agriculture. The most spectacular change is the decrease in the proportion of people who are directly engaged in farming. Along with this decrease there has been an increase in proportion of people employed in occupations related to agriculture. We are aware that of the approximately 66,700,000 persons employed in the United States, 21,700,000 are employed in occupations involving agriculture. Only about 5,700,000 of these are directly engaged in farming, and the remainder are producing for, or servicing farmers or else they are engaged in the distribution and processing of farm products.

There are indications that this trend is likely to continue with more people being engaged in new occupations which will serve farmers or improve the distribution of farm products. A proportionately smaller percentage of the population will be involved in production of food and fiber for the nation. This shift of workers plus the anticipated development of new jobs presents a challenge to educators engaged in vocational fields. Not only must educators keep up to date with technological shifts of agriculture and industry but they also must constantly adapt their training programs to prepare workers for the new occupations, to retrain displaced workers, and to prepare teachers who are capable of providing training for the new occupations as they develop.

Many of the workers do not need specific agricultural training. For example, the clerk in a grocery store or the apple packer in a large packing plant do not need agricultural training in order to perform satisfactorily On the other hand, there are many situations in which workers would be more

efficient and more effective if they had better understanding and skill in agriculture.

A complete review of the literature related to training for non-farm agricultural occupations is unnecessary at this point. It, however, should be pointed out that a number of studies have been made which indicate that employers would hire trained personnel for many of the non-farm agricultural occupations such as farm machinery maintenance, workers in farm elevators and seed stores, truck drivers engaged in hauling of farm produce from the farm, those engaged in hauling supplies to the farm, and many others if the trained personnel were available. Some studies report employer dissatisfaction with the untrained help they are required to employ. This is the case because they have been unable to obtain employees with sufficient training to make them satisfactory workers for these jobs.

Current research also indicates that the content of training programs needed by workers in many of the non-agricultural occupations serving farmers with goods or services needs to be drawn from many different areas of traditional subject matter. For example, many employers have indicated a need for employees with a good background in mathematics, English, agriculture, business, and shop work (either industrial arts or specific trade training). This emphasis upon a variety of subject matter is in contrast to some of the traditional types of vocational training with which we are familiar.

In the past, it has been possible to train people for farming without drawing much subject matter from areas of business, trade and industry, or industrial arts. We wanted our vocational agriculture students to have some background in English. In particular we wanted them to be able to read and write satisfactorily, and to have some skills in mathematics. However,

there was not as much emphasis in these areas as is currently desired by prospective employers in non-farm agricultural business.

With these problems and results in mind, a pilot study to try out and demonstrate a program of training specifically for the non-farm agricultural occupations of a local area was undertaken. It was decided to locate this project in a relatively small school where the program would represent an additional vocational program beyond any that had previously been offered. This is a report of progress of such a pilot study. Since it is in its first year of operation, it is impossible to provide a final evaluation. It, however, may be possible to point out some of the strong points as well as to indicate some of the phases of the program which should be modified as new studies are developed in this field.

PLAN OF THE EXPERIMENTAL PROGRAM

For many years, the writer has been interested in the possibility of broadening vocational education programs to meet new needs. This is particularly important in the service occupations, many of which exist in the non-farm agricultural businesses and industries of the nation.

Conferences with the administrators in the College of Education at Michigan State University and with the State Director of Vocational Education in the Michigan Department of Public Instruction encouraged the writer to undertake a project to demonstrate a program of training for some of the non-farm agricultural occupations in the area of a local school district.

Support and cooperation of staff, resources, and encouragement were assured by all the administrative officers concerned. Conferences were held with the Vocational Education Research Consultant in the Michigan Department

of Public Instruction. An agreement was reached regarding the sharing of responsibility, planning the project, directing activities, and other problems of relationship which could be anticipated.

Many teachers and administrators had been indicating concern about the need to train people who would be employed in the non-farm agricultural occupations. The problem was one of selecting among many opportunities rather than one of convincing a reluctant superintendent that he should cooperate. The Pigeon-Elkton-Bay Port School District, located in Huron County, Michigan, was selected. This is a newly consolidated school district located in an excellent agricultural area. Three towns are located within the school district and elementary schools are operated in each of the villages. A central high school has been completed and used for two years.

After making suitable contacts, the research consultant and the writer arranged for a conference with the superintendent, principal, and guidance director. Plans for the project were thoroughly discussed. The purposes were outlined, and plans were made for the organization of a program. It was agreed that representatives of the Department of Public Instruction, Agricultural Education Staff at Michigan State University, and the local school administrators would share the task of organizing an experimental project following the general pattern of the cooperative work experience program, but adapting it to the training in the agricultural businesses and industries of the area.

Two statements formulated in the early stages of planning will be of interest at this point. The first was developed by the research consultant and the author for use with the staff in the Office of Vocational Education of the Department of Public Instruction. It is as follows:

PROVIDING VOCATIONAL EDUCATION TRAINING FOR SELECTED NON-FARM OCCUPATIONS
(A proposal for an experimental project in vocational education.)

Phase I; Training at the high school level.

I. Title of Project:

A study to determine the most effective method of providing vocational education training at the high school level for selected non-farm occupations.

II. Problem:

Recent studies in Michigan, California, and in other states indicate that there are a number of non-farm occupations in which workers need to have a basic agricultural knowledge or background. However, these same studies show that workers with these qualifications in agriculture are not now being employed in these occupations in sufficient numbers. Several of these studies point out that to be successful in many of these occupations, a worker needs to also have abilities and understandings in the field of distribution, office and/or trade and industry.

Recent occupational developments have increased the need for persons trained in non-farm occupations. Many of these occupations require skills, abilities, and understandings common to two or more vocational areas. Training for these occupations could be provided in two or more of the following areas: agricultural education, distributive and office education, and trade and industrial education.

Information is needed on the need for and the feasibility of developing programs for this type of training in the 12th and/or 11th and 12th grades of the high school. Such programs could exert a positive influence toward encouraging students to remain in school beyond the age of sixteen.

III. Objectives of the Project:

To develop a vocational education training program at the high school level for non-farm occupations involving agriculture, distributive, office, and trade and industrial education together with an appropriate vocational guidance program.

IV. Procedure:

1. Select schools or groups of schools willing to develop programs. Selection factors to be considered would include: population of area, size of school area, job opportunities, school ability to finance the program, and total curriculum potential, including adequate counseling and guidance.

2. Provide for local advisory committees to work with each program.

3. Design vocational education curriculums to meet the objectives of project in preparing youth for employment.

4. Local programs will not be reimbursed on an experimental basis for more than five years.

5. A continuing evaluation of the project will be conducted including the maintenance of adequate records.

6. Conduct follow-up studies of the graduates in each of these programs.

7. Approximate time schedule. Plans to be completed and first classes to start in fall of 1962. Project will operate in each school on an experimental basis for a period of time not to exceed five years.

8. Provision will be made for appropriate teacher training.

V. Administration:

A. Coordination:

Project to be coordinated by Dr. Raymond M. Clark, Associate Professor of Teacher Education, Michigan State University, and Mr. Leon Alger, Research Consultant, Division of Vocational Education, Department of Public Instruction.

B. State and Local Level: (See Foreword for list of individuals involved)

The second represents a summary statement of conferences held at Pigeon and at Michigan State University with representatives of teacher training for business education, agricultural education, and the research consultant, Department of Public Instruction. Following are excerpts from this report:

"REPORT OF MEETING CONCERNING THE VOCATIONAL EDUCATION EXPERIMENTAL PROJECT AT PIGEON, MICHIGAN"

Date: April 3, 1962

We discussed the purposes of the project as follows:

1. To develop a plan for the operation of work study programs in small high schools which may differ in some respects from the present diversified occupations co-op programs.

2. To develop working relationships between agricultural education, distributive and office education, and trade and industrial education similar to the present arrangements for certain co-op training programs that exist between distributive and office education and trade and industrial education.

3. To determine if certain farm service business occupations require a training program different from the present co-op programs as they are now operating.

4. To develop a training program for entry occupations in farm service businesses including suggested curriculums, time plans, coordination activities, et cetera.

The class schedule for the project was discussed. It was suggested that consideration be given to a class for all students in the project and in addition, a special class for those students preparing for farm service occupations in which they will get training that cannot be secured through the other class. This would necessitate that the coordinator prepare course materials for both the regular co-op students and the students in the special farm service occupations training program.

* * *

LOCAL ORGANIZATION OF THE PROGRAM

Following the planning stage described above, the superintendent received approval from the Board of Education for the project. One of the two teachers of vocational agriculture in the school was appointed to organize and operate the program. This teacher had had several years experience as a successful agriculture teacher and had also served as a field-man for a farmer cooperative operating on a state-wide basis. He, therefore, had had some experience in the business aspects of a non-farm agricultural business as well as having had experience in the vocational agriculture program.

At the request of the superintendent, it was agreed that a "co-op" program would be organized to include selected students for the experimental project, but that others would be included for work experience

in other businesses. For purposes of our study, special assignments in related instruction or special attention to the work experience aspects of the experimental program might be provided for the students employed in farm service business.

The teacher was asked to begin his work on April 1, prior to beginning the actual instructional program in September. He was to:

1. Survey the community to determine the number of available work experience stations.
2. Determine the interest and willingness of businessmen to cooperate by providing work experience for the students.
3. Work with the counselor and principal to identify students who would like to participate in the program.
4. Collect, organize, and prepare materials for the instructional aspects of the program.

Since this school district had not previously conducted a cooperative work experience program, the teacher was asked to secure the above information and to make plans for all of the students who would be included during the first year.

The plan also included provision for data to be collected by the teacher regarding his activities. These included:

1. Job analysis--what people do on the job. What are the skills and information needed for satisfactory performance on the job?
2. What is done by the teacher in making job training plans.
3. How the coordinator spends his time. Visits made; miles traveled; time spent in teaching; time spent preparing instructional materials; and other activities related to the program.

4. What instructional materials are needed by the teacher for the program.

5. What was taught; for how long a time; when; to whom.

6. Record of evaluation by the employer of the student; record of the relationship with the school.

FIRST YEAR OF OPERATION

The story of the planning and first year of operation of the program is contained in the records and reports of the various individuals involved in the program. In this section we will consider these reports under the following:

1. State vocational office administration and policies.
2. Local school administration and policies.
3. Plans and activities of the research consultant and the author.
4. Activities and reports of the coordinator.

State Vocational Office Administration and Policies:

In the planning stages of this project, the cooperation of the personnel in the Office of Vocational Education was enlisted. This was important for two reasons:

1. The experimental program would use part of the time of one of the vocational teachers in the school system, and, therefore, required that understanding and cooperation be forthcoming.
2. Reimbursement from vocational funds for an experimental program required that agreements be made between the local school and the State Vocational Office. Reimbursement did not emerge as an important item in the early planning stages. When it was mentioned the superintendent said, "I had not thought of reimbursement.

We would operate the program without it, but we will take the money if it is available."

Two statements will serve to reflect the relationships and cooperative aspects of the program at the State Vocational Office level. These include the, "agreement for an experimental program with the Pigeon, Elkton Bay Port School Districts," and the "Minutes of the Steering Committee for Experimental Programs with the Pigeon, Elkton, Bay Port School Districts." Portions of these are reproduced in the following:

AGREEMENT FOR AN EXPERIMENTAL PROGRAM WITH THE PIGEON, ELKTON BAY PORT SCHOOL DISTRICTS

I. Title of Project:

A study to develop a vocational educational training program at the high school level for occupations within farm service businesses.

II. Objectives:

1. To develop a vocational education training program at the high school level for occupations in farm service businesses which may involve agriculture, distributive, office, and trade and industrial education together with an appropriate vocational guidance program.

2. To demonstrate a method of training for farm service business occupations.

3. To demonstrate a method for determining needed content of training programs for farm service business occupations.

4. To determine if there exists a common core of knowledge or abilities needed for these occupations or for various clusters of these occupations.

5. To further extend our knowledge regarding the nature and extent of occupations within farm service businesses.

III. Procedure:

1. General Method:

a. The school will conduct an occupational survey of its service area to determine the number of farm service businesses, the number of employees within these businesses, and the training requirements for these employees.

b. Information regarding farm service businesses and the training required within these businesses will be collected and analyzed from a state-wide basis.

c. Course of study will be developed based on a and b. Emphasis will be placed on cooperative work study programs.

d. A local advisory committee will be appointed to assist in the development of the program.

e. Assistance will be given through Michigan State University in training the teacher(s) and/or coordinator(s). Assistance will also be given in the preparation of instructional materials.

2. Evaluation of the project.

a. Evaluative instruments will be constructed and administered to graduates, employers, and others involved in the project.

b. A complete record of all meetings, contacts, developments, et cetera, will be kept for the purpose of making a final report.

* * *

MINUTES OF MEETING OF STEERING COMMITTEE FOR EXPERIMENTAL PROGRAM
PIGEON, BAY PORT, ELKTON, SCHOOLS

The factors inherent in this project, which are considered to be experimental in nature, are as follows:

1. The relationship between the regular vocational agricultural program and the cooperative education program operated in local schools, subject to partial reimbursement from distributive, office, or trade and industrial education funds. Some of the students involved in this project will be enrolled in a reimbursed, advanced farm mechanics class. At the present time, there is no provision in the federal policy which permits students to be enrolled in such a class without concurrently being enrolled in a regular vocational agriculture class and conducting a supervised farming program.

2. The qualifications of the coordinator-elect do not meet the requirements of the state plan for the cooperative education program. He is, however, qualified as a vocational agriculture teacher.

3. The time requirements for work experience on the time of the students under the regular cooperative training program may not necessarily be followed.

It was agreed that a consultant from each of the three services involved in this project would be named by the chief of the service to be available as consultants to this project. These individuals will be kept informed regarding project developments.

* * *

Local School Administration and Policies:

In addition to the fact that the administrators in the school district gave enthusiastic approval and support for the program, the following items are cited as evidence to show how the administrators have supported the program:

A. The assignment of one-half time of the teacher of agriculture for six months prior to actual operation of the program. For this period, the salary and expenses were borne entirely by the local Board of Education.

B. The statement of "Cooperative Occupational Education Policies," which is reproduced below, reflect the high standards the school administrators demand of the program.

COOPERATIVE OCCUPATIONAL EDUCATION POLICIES
Pigeon, Elkton, Bay Port High School

1. All students on the cooperative occupational training program shall spend a minimum of (four) hours per day in school and a minimum of (15) hours per week on the job; total combined hours of school and work not to exceed (48) hours per week.

2. The school schedule for Co-op students shall be composed of a minimum of (4) classes. Two of these classes are required

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Plans and Activities of the Research Consultant and the Author

The author and the Research Consultant worked closely with the State Vocational Personnel Office, and with others in the College of Education at Michigan State University particularly with teacher trainers in business education. We also worked closely with the local school administrators and the coordinator. The activities of the State Vocational Office and the local school administrators are adequately covered above. In the case of the coordinator, an enumeration of a number of activities will serve to indicate our relationship to his program.

We served as resource persons in a meeting with prospective employers in the spring of 1962. At this meeting, we explained our purposes in terms of its experimental aspects. The superintendent discussed the local school policies and the coordinator discussed his proposed program. A consultant from the Trade and Industrial Service of the State Vocational Office also attended this meeting and explained many of the procedures to be followed to comply with legal requirements of child labor laws, workmen's compensation, and the like.

Since this session, the research consultant and the author have both visited the program at different times. We have discussed progress with the principal and superintendent and with the coordinator. We have visited a number of the students on the job and discussed the programs with the students and with the employers in each case.

In addition, we have been able to offer suggestions to the coordinator (who also teaches the related instruction course) regarding sources of instructional materials, and regarding techniques of interviewing prospective employers, making job analyses, and preparation of individual training programs.

Activities and Reports of the Coordinator.

It is difficult to completely separate the work of the state staff, local administrators, and the local coordinator in terms of specific activities and functions. In many cases, certain aspects of the program were cooperatively developed so that each individual contributed to the final product. This was true of the following report of a meeting on March 25, 1962. It is reproduced here since it represents a program of the coordinator as it had developed at that time.

VOCATIONAL EDUCATION EXPERIMENTAL PROJECT AT PIGEON, MICHIGAN

May 25, 1962

A progress report of the activities of the coordinator of the project was presented. A post-card survey has been made in which proprietors of business establishments were asked to indicate their interest in a work-study program. As a result of this survey, Mr. Fuller has had twenty-one interviews with employers. He indicated that further interviewing was planned. Preliminary results indicate that there are approximately ten opportunities for trainees in business closely related to agriculture and thirteen opportunities in other businesses.

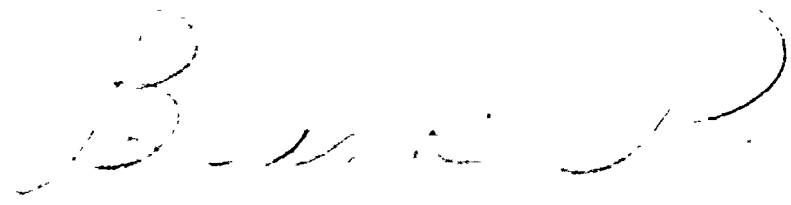
A survey of the junior class in vocational agriculture indicates that possibly six students from this class might participate in the experimental program. Mr. Fuller together with the guidance director is now surveying the entire junior class of the high school to determine student interest in a work-study program.

The teaching-coordination schedule for the experimental project was discussed. As a result of this discussion, it was agreed that a minimum schedule would include:

1. A class for those students who are not employed in farm service occupations.

2. A class for those students who are employed in farm service occupations.

3. Half an hour of coordination time per student per week. The following diagram illustrates one possible arrangement which might fit the Pigeon High School Schedule:



SURVEY SHEET

Opportunities for Training in Farm Service Occupations

1. Name of Business _____ Address _____

2. Nature of Business: (Check those that apply)

a.	Farm Machinery	4
b.	Farm Elevator	3
c.	Bank (loans to farmers)	1
d.	Lumber and Building Supplies	2
e.	Electric Service to Farmers, including wiring	1
f.	Plumbing, septic tank installation and service	
g.	Tiling	
h.	Crop disease and insect control	
i.	Fertilizer and lime application and sales	
j.	Hauling supplies and produce to and from farms	
k.	Farm truck repair	2
l.	Veterinary clinic	
m.	Manufacturing of cement tile	
n.	Others (specify)	7

3. Kinds of work to be performed (check those that apply)

a.	Contacts with customers	
b.	Sales work in the place of business	
c.	Sales work on farms	
d.	Demonstration of equipment	
e.	Clerical and bookkeeping	

f. Repair and maintenance of equipment _____

g. Others (specify) _____

4. Number of regular employees in the business

full time_____ part time_____

5. Do you now employ high school students?_____

6. General comments on businesses visited._____

_____

Following the initial contacts with prospective employers and prospective students, the coordinator made assignments of students to the employers. The principal and guidance counselor worked with the coordinator regarding the assignments. Students were interviewed by the employers. In most cases, they had an opportunity to select from two or three candidates.

Following is a list of the assignments made for the school year 1962-63. Note that many of these jobs are in business other than non-farm agricultural business. On the other hand, it is difficult to determine exactly what occupations represent non-farm agricultural occupations in terms of the abilities and understandings required of employees. In support of this observation, the reader may recall that Kennedy* found that some occupations not classified as agricultural occupations require more of the same abilities and understandings as are required of farmers than is necessary for many agricultural occupations.

Kennedy, W. Henry, The Clarification of Relationships Between Farming and Certain Other Agricultural Occupations with Implications for Guidance and Curriculum Development. 1958, Doctoral Dissertation, Michigan State University.

PIGEON, ELKTON, BAY PORT STUDENTS ON COOPERATIVE TRAINING PROGRAM

1962-63 School Year

Students	Place of Business
*Barb Kohl	Karl Lepien (CPA) Pigeon
*Judy Ziegler	Karl Lepien (CPA) Pigeon
*Dwight Hewitt	Gattel's Implement Pigeon
Ross Behm	Elkton Lumberyard Elkton
Tammy Kraft	E.P.B. High School - Principal's Office
Rhea Roestel	E.P.B. High School - Supt. Office
Robert Damm	Webber Brothers Pigeon
*Ernest Rostoek	Russell Ford Sales & Service Pigeon
*Mary Santhany	Elkton Co-op Elevator Elkton
*Betty Licht	Pigeon Co-op Elevator Pigeon
Jerry Young	Gulf Co-op Service Elkton
*Randy Renn	Shelter's Plumbing & Heating Pigeon
Betty Renn	Michigan Lumber Fabricators Elkton
*Tom Wing	Shelter's Implement Pigeon
Pat Kelly	Michigan Lumber Fabricators Elkton
Jim Kritzman	Elkton I.G.A. Elkton
Marge Pobanz	Schnieder Drugstore Elkton
Leon Ropp	Gulf Co-op Service Pigeon

* Students included in experimental project

For purposes of the experimental study, we have indicated the students considered eligible for the experimental aspects of the program. These were identified in consultation with the coordinator on the basis of the nature of the job and the knowledge, understanding, and skills required of the worker. At the time the actual program was begun in September, 1962, the coordinator had developed a training program for each student. Since then he has followed a practice of visiting each employer once each two weeks. He checks on progress being made by the students, discusses needed changes in the training program with the employer, and confers with the student concerning his activities. The school system has a six weeks' marking period for students. Each six weeks, the coordinator obtains the employers rating of each student through a personal interview. This rating provides part of the basis for student marks. A copy of the rating sheet is on page 21.

OBSERVATIONS AND FINDINGS

1. Need for program

It has been stated by some vocational education staff that, "there is nothing in training for non-farm agricultural occupations that we are not already doing, or that we cannot do under present vocational programs." Our observations and the State Vocational Education Office in Michigan records reveal that such programs are not being offered despite the possibility that they might have been.

A further study of plans vocational education indicates that adequate programs probably cannot be offered in this area without (1) modification of present state policies and plans (2) more adequately trained teachers in the fields of agriculture, business, and industry, as well as in such areas as economics, human relations, English, and mathematics, and (3) a staff at the state office level who is able and willing to recognize the merit of providing a training program that incorporates content from agriculture, business, and industry in such a way that it is thoroughly integrated.

MARKING PERIOD_____

Elkton-Pigeon-Bay Port Schools
Pigeon, Michigan

COOPERATIVE TRAINING RATING SHEET

Name of employee_____ Date_____
Place of employment_____ Rated by_____

PURPOSE:

This rating sheet is to be used to aid employers to grade the student employed on the Cooperative Training Program. A report on the student's work is required each school marking period.

INSTRUCTION:

Place a check mark in the space that best describes his work. After completing the rating, determine his grade and mark it in the space at the bottom of this sheet. We would like to have comments on his work also.

Accuracy of work:
1. Makes many errors ____
2. Is careless ____
3. Is fairly accurate ____
4. Is careful ____
5. Is very accurate ____

Care of Working space:
1. Very untidy ____
2. Careless ____
3. Just passable ____
4. Keeps space clean ____
5. Keeps very clean & orderly ____

Handling of tools and/or equipment:
1. Rough ____
2. Careless ____
3. Indifferent ____
4. Careful ____
5. Very careful ____

Speed:
1. Very slow ____
2. Slow ____
3. Ordinary ____
4. Fast ____
5. Very Fast ____

Use of Working Time:
1. Very wasteful ____
2. Loafs with others ____
3. Passable ____
4. Busy ____
5. Very Busy ____

Use of Materials:
1. Wasteful ____
2. Careless ____
3. Fair ____
4. Good ____
5. Very Careful ____

Responsibility:
1. Buck passer ____
2. Evades responsibility ____
3. Passable ____
4. Likes it ____
5. Seeks it and handles it well ____

Initiative:
1. Does not exhibit any ____
2. Very little ____
3. Average ____
4. Offers some suggestions ____
5. Very original ____

Attendance:
1. Off a great deal ____
2. Off occasionally ____
3. Off occasionally valid reasons ____
4. Seldom off ____
5. Never absent or tardy ____

Attitude toward fellow workers:
1. Does not get along ____
2. Does not cooperate ____
3. Neutral ____
4. Good ____
5. Well liked, very cooperative ____

Attitude toward Supervisors:
1. Disrespectful ____
2. Does not cooperate ____
3. Average ____
4. Cooperative ____
5. Very respectful & helpful ____

Personal Appearance & Cleanliness:
1. Slovenly and dirty ____
2. Untidy ____
3. Fair ____
4. Good ____
5. Exceptionally pleasing ____

Enthusiasm:
1. None ____
2. Very little ____
3. Average ____
4. Above average ____
5. Superior ____

Comments:

Grade_____
Scale: A 65-58 B 57-50
C 48-38 D 37-30

Examples from the Pigeon study include two girls working in the office of a certified public accountant. An important part of their work is keeping accounts for farmers and making out their income tax statements for them. They must understand farm problems such as inventory, depreciation, and accounting, and recognize the procedures for reporting farm income tax. Training for these girls must include some understanding of agriculture and some accounting and office practice. These types of training need to be integrated so that the students will be able to relate the agricultural and business practices into one occupational program.

2. Need for Trained Teachers:

One of the basic principles of vocational education is that "the teacher has had experience in the occupation in which instruction is being given." Vocational educators have accepted this principle and, have generally acquired farming experience for certification as a teacher of vocational agriculture, and appropriate experience in other fields for certification to teach in those areas.

Up to the present time, we have not developed teachers who are experienced or trained in two or more of the traditional areas of vocational education. For the present, we may recruit some teachers from business who have not had agricultural experience, or from agriculture who have not had experience in business. However, we believe that for the long-time program, we will need to develop teachers who have had experience in a non-farm agricultural business and in agriculture. Probably experience in office work is also essential. Our observation of the Pigeon program indicates the need for the teacher to have a strong background of experience in this type of occupation. The teacher-coordinator at Pigeon has done a very

good job with the experimental aspects of the program, largely because of his background of experience and training in agriculture and in business. However, in our discussions with him he emphasizes the importance of providing adequate training at the pre-service level and of following up with a continuous in-service teacher training program.

3. Instructional Materials:

The problem of providing adequate instructional materials for the non-farm agricultural program is acute. Printed materials exist with a view toward training for farming, training for business, or training for industry. It has been almost impossible to find instructional materials that combined essential items from two or more of these fields into a unified "package" for use by students working in the non-farm agricultural occupations. Teacher-coordinators in local systems are often involved with assignments which make it impossible to prepare adequate materials. In many cases, however, the materials could be prepared at the state or national level and made available wherever they are needed. Perhaps the most important instructional items needed are textbooks or manuals for use of students. These could be used to suggest content and to provide subject matter information. In addition, such items as models, charts, audio-visual devices, programmed learning materials, and others will be needed as this program develops.

4. Need for Adequate Teacher Time:

School budgets are always tight, particularly in these days of rapidly expanding school population. This is likely to result in over load assignments to teachers with respect to the number of students and number of classes handled each week. Nevertheless, adequate time must be provided for the teacher-coordinator to follow-up his students on the job and to provide adequate related instruction. In our project, we have

felt that the teacher-coordinator has had time for a reasonable job of follow-up. The school schedule was, however, such that he did not have enough time to provide the "special" agricultural subject matter materials needed by the students in the program.

5. Need for Training:

Occasionally we have heard or read that business and industry will train its own personnel. Our observations, as well as the findings of other studies indicate that these businesses will employ trained personnel if they are available. We have already begun to note the opportunities the students in this program have for employment. One boy who has worked for a Farm Machinery Sales and Service Organization has had several job offers for employment as a parts man for other machinery dealers. Others will have an opportunity for full-time employment in the places in which they are now working.

In this connection, it should be emphasized that the students enrolled in this program are very high caliber young people. Employers repeatedly warn the teacher-coordinator and the school administrators, "We do not want your low ability students. We are willing to cooperate by helping provide the work experience, but we will not be bothered with students who will not work at assigned tasks." As a result, a number of students on the experimental program are college bound. The question may logically be raised as to the relative value of this program for college bound students. If the program has helped some of them to "find themselves" and has encouraged them to seek further education, it has been worth while. On the other hand some other program might have been more valuable for the college bound student. In either case it looks as if we have failed to train the right people actually to enter employment at the level for which the training

was designed. Further evaluation at a later date may reveal some modification of the relation of college enrollment and actual employment of some of these students.

The use of this type of training program to curb school drop-out rate may be effective to the extent that it will provide motivation and interest which will encourage good students to remain in school. At the present time, we see no place in the program for the low ability individual who does not want to work or to stay in school. We realize that many students are potential school leavers, not because they are low caliber mentally, but because they are not properly motivated or because teachers and administrators have failed to develop interests and capitalize on these interests in the planning of an instructional program for them. Many of these people might be encouraged to remain in school if they could be identified and placed in a training program in which they were challenged.

6. Placement Level of the Training Program:

As indicated above, it may be possible to offer a specialized work experience training program for in-school students which will encourage some of them to remain in school through the twelfth grade. If this were accomplished, more high school students would have marketable skills at graduation time.

On the other hand, there are many who believe that students at high school level should be given a broad, basic training of a liberal arts type and that the specialized training should be offered at a post-high school level.

Our experimental program provides no answer to this question. We are aware of the fact that we have not enrolled students who are likely

to remain at the semi-skilled or skilled level. Some means must be found to train this level of student, but up to now, we have been unable to accomplish much in this area.

7. The problem of selecting content for the program

Traditionally we have said, "study the practice and skills of the best farmers, or the successful industries and businesses in the area and base your training program on these practices." Our experimental program also includes a job analysis of the local business as a basis for organizing training content.

As we have studied this question, we have come to the conclusion that an analysis of a local situation does not provide a sufficient basis for an instructional program. Many examples can be found. One or two may be used to illustrate. One custom operator, when asked how much of certain herbicides he used to kill weeds in farmers' crops had a stock answer, "Oh about a cup full." The actual recommendation of the manufacturers of two of these chemicals called for the equivalent of approximately 1/4 cup in one instance and 1 cup in another. To have based training on the practice of this operator would have been to train for malpractice. In other situations, students should have a knowledge of seed varieties that are recommended by the experiment station. They need to be able to interpret the recommendations of the manufacturer regarding the use of feeds, fertilizers, pesticides, antibiotics, and many other products. The practices and recommendations of local dealers may be at great variance from these.

For many areas of Michigan, students will need to migrate to other locations for employment. If we provide training in their local area which

will make them employable in some other part of the state, we will need to check even more carefully with the total industry as we develop course content for our trainees.

In conclusion, we believe that we have demonstrated one way to move ahead with the training program that has not previously been offered; at least in the secondary schools of the state. We will need to remove barriers of narrowly conceived traditional programs and to make sure that the special vocational funds involved do not stand in the way of pioneering types of programs but that they be used to encourage such efforts. For the schools in larger communities where regular office, distributive, or trade co-op programs can be offered we need further study to bring about an integration of the agricultural, office and industrial skills, and the abilities and understandings needed for performance in these occupations. Potentially, the program can be helpful to a large segment of the population. We still have many problems to solve before we can be sure we are offering the best possible training program. The traditional pioneering spirit of our profession, our willingness to break bonds of inertia, and our ability to build on past accomplishments will do much to move us forward in service to agricultural education and the industry it serves.

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*VOCATIONAL AGRICULTURE; *SUPERVISED FARM PRACTICE; *COOPERATIVE EDUCATION; *OFF FARM AGRICULTURAL OCCUPATIONS; GUIDELINES; PUBLIC RELATIONS; PROGRAM ADMINISTRATION; *PROGRAM GUIDES; PROGRAM COORDINATION; OCCUPATIONAL GUIDANCE

A committee of vocational agriculture teachers drafted guidelines for use in conducting career-centered, occupational experience programs on farms or in farm-related agricultural occupations. Guidelines are included for selecting and placing students, selecting training stations, and supervising and coordinating the program. Detailed suggestions are included for school and employment correlation, occupational guidance and class scheduling, personal problem handling, employment adjustment, extra-curricular activities, followup of graduates, publicity, administration, and course content. (JM)

ED027441.

COOPERATIVE, SUPERVISED, PART-TIME, OCCUPATIONAL EDUCATIONAL PROGRAM IN AGRICULTURE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT 00580

I. What is a cooperative, supervised, part-time occupational, experience program in agricultural education?

One of the basic principles of vocational education in agriculture is that schools should provide for directed or supervised experience in agriculture. Directed or supervised experiences in agriculture may be obtained by the student on a farm, in farm related agricultural occupations, or a combination of the two. Modern agriculture affords many employment opportunities for youth, which the effective teacher can utilize to build sound vocational educational programs designed to meet the needs of pupils and society

It is "experience." It is "learning by doing."

It is "career centered." The student trainee is usually employed as a worker and receives wages and or other compensation commensurate with his value to the employer. As a beginning worker, his value would normally be less than that of an experienced worker. Because of his career interest in learning and in gaining experience, and because he receives related class instruction, he may become a very valuable worker under continued employment.

It is "agricultural." Farm experience is a requirement to employment in many agricultural fields and a necessity for those planning careers in farming. The directed experience must be on a farm or in an agricultural establishment which contributes to the accomplishments of the students' occupational objectives.

It is "supervised." Supervised experience is considered as an integral part of the vocational agriculture training program. It must therefore be under the direction and supervision of the school.

1. It is the responsibility of the school to select and approve the persons to be trained and the places for such training.

2. A plan of training (an individual training program) is cooperatively planned and agreed upon by the trainee, the teacher, and the employer.

3. The teacher keeps in close touch with the trainee and the employer to check on accomplishments, to discuss problems, to provide as well as assist the employer in providing on-the-job instruction, and to correlate the occupational experiences with the related class instruction.

4. The school accepts responsibility for evaluating the student's experience in cooperation with the employer.

II. For whom is supervised occupational experience intended?

This experience is intended for the following students of vocational agriculture including young adults:

1. Those who do not live on farms.

2. Those who live on farms which are part-time, residential, marginal, or for other reasons do not provide opportunity for experience of the type desired.

3. Those who desire experience on a farm or in an agricultural business of a distinctly different type than that carried on at home.

[1]Teachers Guide for the Effective Use of Records of Supervised Occupational Experience & Training in Vocational Agriculture.

III. Guidelines for selecting and placing students

A. Selecting students - selection should be based on interest, aptitude, and learning capacity.

1. Publicize program to students and parents

2. Discuss with administration and guidance counselor possible trainees for the cooperative part-time work experience program.

3. If the vocational agriculture curriculum includes an exploratory course in agricultural occupations, interested students may be selected from this group.

4. Use a personal information sheet along with an application form to help screen applicants for the program.

5. Various interest inventories may be used to select possible enrollees. (See committee No. 1 report for names of interest inventories.)

6. Interview students

B. Placing students in work stations

1. Coordinator should determine specific interests of enrollees.

(a) Determine two or three training areas in which the student has an interest.

(b) List these interests in order of preference.

2. Attempt should be made to place student in area of first preference if his aptitude so warrants.

3. Determine training station for which enrollee's qualifications appear to fit him.

4. Arrange a personal interview for enrollee with the employer.

5. Only students who are most likely to progress and succeed should be recommended to an employer.

6. Employer should always make the final selection.

IV. Guidelines to consider in selecting training stations

A. Develop an advisory committee from owners and managers of agricultural businesses.

B. Work with Chamber of Commerce to develop a list of potential training stations.

C. Visit with specific prospective employers.

1. Explain cooperative program.
2. Explain child labor laws and work permits.
3. Work out training plans with employer.
4. Be certain prospective employer does not look upon program as a source of cheap labor.

D. Develop certificates or other identification to present to employer after he accepts trainee.

V. Guideline for Supervision and Other Responsibilities of Coordinator

A. Correlating school work with job experience

1. Visit trainee on the job to determine training needs.
2. Prepare list of reference materials.
3. Check rating sheets turned in by employer.
4. Organize material on Social Security to present to class.
5. Help trainee about to graduate, prepare a letter of application for a job in another city.
6. Prepare equipment for demonstration in class.
7. Meet with group of employment officials to bring up to date the unit of study on "getting a job."
8. Arrange for special tutoring.
9. Arrange for personnel director to speak to cooperative class.
10. Show cooperative training films to class.
11. Check progress reports of trainees with their individual training schedules.
12. Explain to trainees the insurance regulations and how they apply them.
13. Chart business organization for trainees to explain their places in the organization.
14. Conduct conferences with job instructor to upgrade the instruction.
15. Encourage trainees to formulate a savings plan regardless of wage.
16. Work on instructional material for cooperative trainees.
17. Collect materials on job safety for presentation to class.
18. Order movie films to be used in cooperative class.
19. Prepare daily lesson plans to meet the need of cooperative class.
20. Help prepare students for interview for a training job.

B. Occupational guidance and school scheduling

1. Help students arrange their school schedules.
2. Adjust working schedule of trainee to provide better training.
3. Make up cooperative training schedules for trainees after consultation with employers.
4. Confer with drop-outs to determine cause.
5. Assist principal with scheduling of part-time students.
6. Serve as member of guidance committee to secure more and better counseling preliminary to training.
7. Confer with guidance couselors to explain opportunities in cooperative training.
8. Advise students regarding union affiliations in union shops.
9. Confer individually with cooperative students about to graduate.
10. Confer with cooperative students on question of going to college.
11. Talk to ninth grade class on how to plan high school program in order to include cooperative training in the junior and senior year.
12. Securing and making available occupational information and inventorying individual assets and limitations.
13. Preparation of individual inventory.

C. Caring for Student's personal problems

1. Handle cases of truancy from job.
2. Meet with trainee and parent to settle individual problems.
3. Arrange with nurse for student's physical examination.
4. Help trainees with Federal and State income tax reports.
5. Confer with trainee, principal, parents regarding a discipline case.

6. Discuss with the trainee the advisability of having a hobby.
7. Encourage trainees to formulate a wage saving plan, regardless of amount of earnings.
8. Confer individually with trainee on confidential subjects.
9. Confer with trainees on subject of conduct on the job.
10. Confer with trainee in re: specific personality trait deficiencies noted by coordinator or employer.
11. Confer with trainee in re: work deficiencies.
12. Investigate tardiness and absence cases from school and work.
13. Handle discipline cases.

D. Making employment adjustments for students

1. Visit trainee on the job.
2. Check weekly work and time reports of trainees.
3. Adjust working schedule of trainee to provide better training.
4. Confer with student concerning complaints of employer.
5. Clear up misunderstanding between employer-employee.
6. Confer with employer on wage scale for employee.
7. Confer with employer on working deficiencies of student.
8. Arrange for trainees to spend extra hours on the job during rush hours.

E. Providing for extra-curricular activities

1. Sponsor after-school picnic or party for members of the program and employees.

F. Follow-up on the graduates

1. Arrange conferences between employers and trainees concerning permanent employment.
2. Write letter to former student who has received fine promotion congratulating him.
3. Discuss with manager the promotion of a former student.
4. Write to former trainees for suggestions on improvement of program.
5. Organize placement department for cooperative program graduates.
6. Set up permanent record forms in order to follow up graduates of vocational program.
7. Keep in contact with graduates by means of questionnaires.
8. Write letters of recommendation for graduates from your program.
9. Provide extension or post-graduate work for former students of the program.

G. Publicize the program

1. Explain cooperative program to employer.
2. Prepare school assembly program to acquaint students with cooperative program.
3. Prepare story on cooperative training for the newspapers.
4. Make home calls to get acquainted with parents of trainees, and to explain the program.
5. Explain training program to Chamber of Commerce and also to service clubs.
6. Explain details of program to school board at request of superintendent.
7. Discuss program with high school counselors.
8. Prepare bulletin on cooperative program for distribution to students, parents, and employers.

9. Meet with local union to explain the cooperative program.
10. Talk to P.T.A. about vocational training in general, and specifically the cooperative program.
11. Secure appointment of a cooperative training reporter for the school paper.
12. Call on employer, not in program, to discuss training opportunities in his organization.
13. Make "courtesy" calls.
14. Prepare new publicity plan to secure better distribution of information on cooperative training.
15. Confer with guidance counselors to explain opportunities in part-time training.
16. Serve as member of educational committee sponsored by local Chamber of Commerce.
17. Organize a department news sheet.
18. Talk to ninth grade class on how to plan high school program in order to include cooperative training in the senior year.
19. Attend district union meeting.
20. Attend state union meeting.
21. Participate in adult education forum.
22. Make use of the radio, newspapers, window displays in publicizing your program.
23. Educate your advisory committee to boost your program whenever and wherever possible.
24. Welcome opportunities to speak before faculty, students, and civic organizations.
25. Prepare and distribute handbills, bulletins, and pamphlets concerning cooperative program.

H. Administering the program

1. Prepare check-list rating sheet for use by training supervisors on the job.
2. Check weekly work and time reports of trainees.
3. Prepare six week's report on training program for principal and superintendents.
4. Make out report for State Board for Vocational Education.
5. Attend committee on curriculum revision appointed by superintendent of schools.
6. Explain laws governing part-time workers.
7. Reorganize advisory committee.
8. Make up department budget for next year.
9. Invite employer with unreasonable complaints to meet with advisory committee.
10. Meet with students in eleventh grade to explain requirements of entry into cooperative program in twelfth grade.
11. Discuss program with high school counselors.
12. Revise check sheet on which employers rate trainees.
13. Confer with principal on question of excusing cooperative people for school functions.
14. Help employer plan an inservice training program for all his employees.
15. Meet with advisory committee to plan revision of content of vocational courses.
16. Discuss uniform pay scale for all trainees with advisory committee.
17. Submit plans for expansion of vocational program to principal and superintendent.

18. Submit plans for expanding one-year training program into two years, with second year cooperative.
19. Discuss with superintendent the problem of an advisory committee "too busy" to function properly.
20. Explain child labor regulations and work permits to employer.
21. Check to determine whether Federal and State laws with respect to training are being violated.
22. Confer with drop-outs to determine student causes.
23. Discuss with superintendent the question of using school buses for transportation of trainees to jobs during noon hour.
24. Prepare data on cost per pupil for superintendent to present to his board.
25. Prepare training agreement to be signed by employer, trainee, parent, and school.
26. Meet with irate parent to clear up misunderstanding of program.
27. Discuss with advisory committee the question of raise in wages for trainee.
28. Check progress of cooperative students in other school subjects.
29. Compile data for various required reports.
30. Make out annual reports to the principal and superintendent.
31. Discuss with principal the amount of school credit granted cooperative students.
32. Prepare a six week's progress report to be sent to parents of trainees.
33. Prepare final cards for graduates showing training units completed, hours in each, rating on ability, etc.
34. Attend conferences on coordination problems with teacher trainer or state supervisor.
35. Discuss grading system for cooperative students with principal.
36. Serve as chairman of curriculum committee for local high school.
37. Plan series of professional meetings for department staff.
38. Make out requisitions for next year's supplies.
39. Discuss with superintendent plans for organizing advisory committee.
40. Investigate tardiness and absence cases.
41. Discuss trainee's status with union shop steward.
42. Arrange for trainees to spend extra hours on the job during rush periods.
43. Confer with trainee, parents, and superintendent regarding a discipline case.
44. Handle discipline case.

VI. Other Considerations

A. Pre-requisites

1. Enrollee must be at least 16 years of age and should be either a junior or senior student.

2. Enrollee should have completed course work in basic agricultural science and agricultural occupations which preferably has included exploratory work experience.

3. Enrollee should have the approval of the class instructor before registering for the course. This approval given only after guidance interviews with the student by the school counselor and/or the class instructor.

4. A training station must be available which will provide the particular occupational experience that is desired and needed by the enrollee.

B. Schedule of Classes

1. The "in-school" class for these students should occur at a period which will permit two successive periods immediately following for the supervised occupational training program.

Suggested schedule:

Period 4 - Agricultural occupations class

Period 5 - Supervised occupations training

Period 6 - Supervised occupations training

C. School Credit

1. Credit should be granted - 1 credit for each hour of the school day the student is enrolled in the supervised occupational program (in school and on the job).

2. Credit should be applicable to high school graduation requirements and also be acceptable to post-high school training agencies in meeting their entrance requirements.

D. Financial Compensation

1. For that time an enrollee spends at the training station he should receive pay commensurate with the service he provides.

2. The training plan should contain a statement indicating the starting pay and schedule of increases.

3. The starting pay should be conservative and increases sufficient so that the enrollee can see that his increased knowledge is being recognized with increased pay.

VII. Course Content

Three things are involved in learning a trade or preparing for an occupation. They are:

1. Manipulative skills which are actually required to perform the job.
2. Technical and related information.
3. Development of personal-social traits which are so essential in getting along with others.

In the vocational cooperative program, the actual manipulative skills needed to do a job are taught by the employer.

The technical and related information can be taught either by the employer or the school. In most cases it can be most effectively taught by the school in the related study class. The actual development of personal-social traits along with others is vitally needed by every worker in getting along with others and is entirely up to the individual himself. The coordinator is often able to offer helpful suggestions for the improvement of the job personality of the employee-students.

It can easily be seen that in a related study class, there might be students representing a variety of occupations; however, for each individual in the class, the instruction is specific to the occupation in which he is working. Obviously, specialized and technical related material for each occupation can only be taught on an individual basis. Most of the class is devoted therefore to a study of the occupation in which each individual is working. Information which is of general interest to the entire group such as social security, securing a job, health, labor laws, taxes, budgeting, saving and investing, insurance, etc. is taught to all students as a group. Student-learners are part-time workers and as such they come under laws affecting other workers. All part-time employer students should know something about labor laws, labor organizations, etc.

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Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in the Baton Rouge Area.

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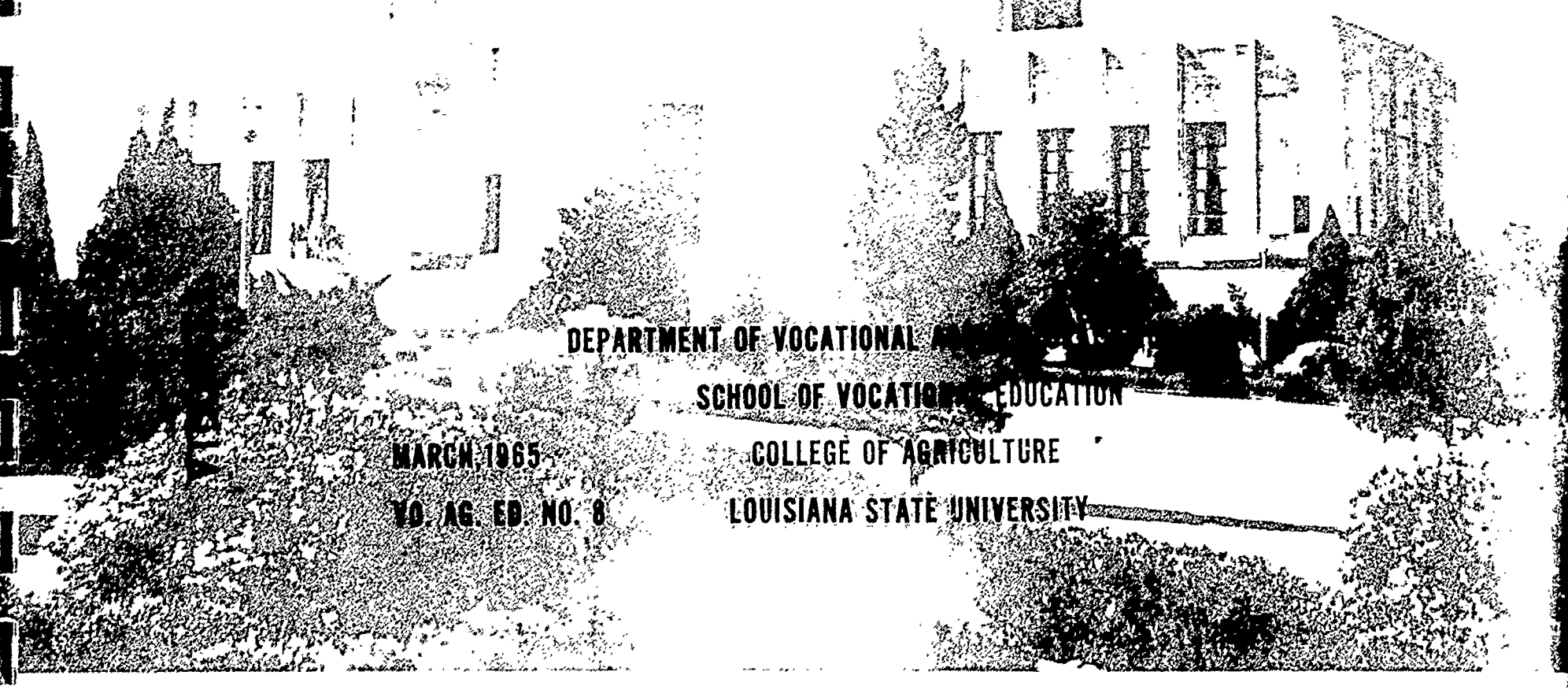
*OFF FARM AGRICULTURAL OCCUPATIONS; *OCCUPATIONAL CLUSTERS; *OCCUPATIONAL SURVEYS; SALARIES; WORK EXPERIENCE; EMPLOYER ATTITUDES; AGE; RESIDENCE REQUIREMENTS; *EDUCATIONAL NEEDS; METROPOLITAN AREAS; EMPLOYMENT OPPORTUNITIES; AGRICULTURAL SKILLS; *EMPLOYMENT QUALIFICATIONS; EMPLOYMENT STATISTICS; VOCATIONAL AGRICULTURE; QUESTIONNAIRES
BATON ROUGE; LOUISIANA

The objective of this survey was to identify off-farm agricultural businesses and professional organizations having one or more job titles requiring knowledge and skill in agriculture and to obtain specific qualifications for job entry. In this survey, one of seven in Louisiana, 153 firms had 4,612 employees, 2,495 of which were in 326 job titles requiring knowledge and skill in agriculture. Job titles were classified by occupational families and employment level. These families and levels were tabulated by educational level, residential background, farm experience, and continuing education requirements. It was concluded that (1) Vocational agriculture program objectives must be expanded to include education for off-farm agricultural occupations, (2) The acceptable job entry ages of 25 to 45 could be lowered with proper pre-employment training, (3) Salaries were in keeping with training and experience, and (4) High school and college training is stressed by employers. Extensive knowledge and skills in agriculture are required of management, supervisory, and sales personnel while intensive training in their specialty are required of professional, technical, and skilled personnel. Recommendations concerned implementation of programs in the schools to prepare students for entry into the off-farm agricultural occupations. (JM)

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARMING AGRICULTURAL JOBS IN THE BATON ROUGE AREA

153 FIRMS
326 JOB TITLES
4612 EMPLOYEES
2495 EMPLOYEES (WITH AGRICULTURAL COMPETENCIES)



DEPARTMENT OF VOCATIONAL AGRICULTURE
SCHOOL OF VOCATIONAL EDUCATION
COLLEGE OF AGRICULTURE
LOUISIANA STATE UNIVERSITY

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE BATON ROUGE AREA

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BY:

C. M. Curtis and C. L. Mondart, Sr.

DEPARTMENT OF VOCATIONAL AGRICULTURAL EDUCATION

SCHOOL OF VOCATIONAL EDUCATION

COLLEGE OF AGRICULTURE

LOUISIANA STATE UNIVERSITY

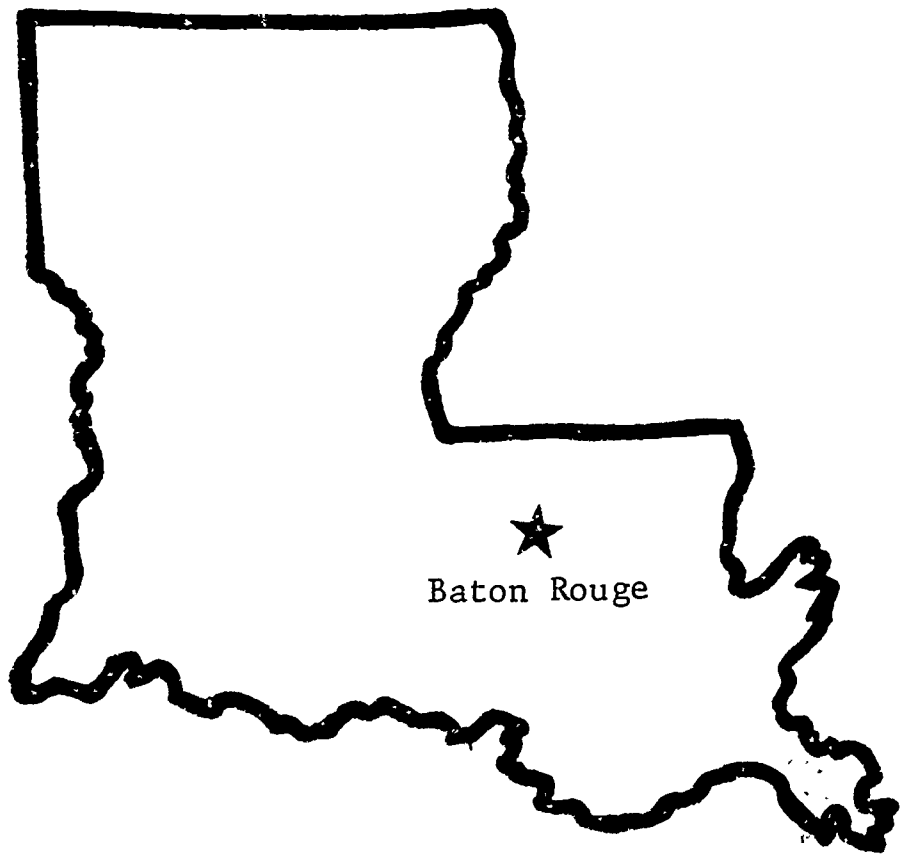
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PREFACE

The need for a greater emphasis on the preparation of youth for today's world of work is becoming more recognized. Rural youth are finding it increasingly difficult to find employment in their communities unless they have the ability and resources to farm. Rural youth has, because of their farm experience, an advantage in nonfarm agriculture providing these experiences are supplemented with training in agricultural subjects required for job entry.

This report is a segment of a state-wide survey to determine the scope of the nonfarm agricultural complex, locate and identify job titles and secure job descriptions including knowledge and skill in agriculture needed to effect job entry.

Information presented can be used by school administrators, counselors, and teachers who plan extended programs of vocational agriculture aimed toward meeting the educational needs for employment in nonfarm agriculture.



ACKNOWLEDGEMENTS

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Invaluable aid was extended to University Researchers by the Division of Employment Security and officials of the Baton Rouge Chamber of Commerce.

Special acknowledgement is extended the 153 businesses and agencies cooperating in the survey.

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE BATON ROUGE AREA

by

C. M. Curtis* and C. L. Mondart, Sr.**

INTRODUCTION

The Baton Rouge trade area encompasses nine southeast Louisiana parishes. Baton Rouge, in the center of this nine parish area, is a key industrial city of the fast growing Gulf South. The capitol city of Louisiana, it is the third largest city in the state with a population of 126,000.

Located on the banks of the Mississippi River, the Baton Rouge Metropolitan Area offers tremendous advantages to industry desiring to locate in the deep south. The availability of an almost unlimited supply of fresh water, the presence, in quantity, of natural gas, sulphur, and salt as well as the location of the farthest inland deep water port, has made Baton Rouge the center for petroleum and chemical industries.

Louisiana's beautiful State Capitol Building towers 34 stories above downtown Baton Rouge. Its presence, along with several other state government buildings, enhances the city's economic stability. Besides being the center of state government, the city is also the location of numerous agencies and organizations whose activities revolve around government business. Over 5,000 employees staff the various state government offices.

Baton Rouge is also the home of the main campus of Louisiana State University. Some 14,000 students inhabit this campus as they pursue study in the

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nearly 100 different curricular offerings. Louisiana State University and Agricultural and Mechanical College is a center for national research programs. The College of Agriculture, through its Division of Resident Teaching, network of Agricultural Experiment Stations and Cooperative Extension work, has made an immeasurable contribution to Louisiana agriculture. Actually, L. S. U. is the research and development agency for the state's number one economic endeavor, i.e., agriculture.

This metropolitan area is also rich agriculturally and is the hub of a major jobbing and distributing center. The wholesale trade area reaches out 125 miles to serve the large new plants that have been constructed near Baton Rouge and in the Gulf South Region.

The industrial and agricultural development in this area is truly in the beginning stages of growth. The climate is most favorable to industry and agriculture. Nature has been kind to this region. The soil is fertile, natural waterways furnish cheap transportation and an abundance of natural resources are present that serve the needs of a manufacturing industry.

In 1935, the nine parish area served by Baton Rouge contained 16,327 farms---in 1959 this number had decreased to 12,656. The drop in farm population presents an even more dramatic picture---in 1945 the farm population was 69,709, while the 1960 census indicated the farm population to be 30,402.

This trend conforms to that of the nation during the past two decades. Nationally, there has been a steady decrease in the percentage of population actually engaged in farming. The movement is to fewer but considerably larger farms. This is very vividly illustrated by the fact that despite the drastic decrease in numbers the farm income for this area was $26,756,924.00 in 1960. This movement can be expected to continue.

The rapid advance of technology in agriculture increases the number of services the farmer requires for production. It also increases the need for a

steady supply of agriculturally trained employables to staff the various firms that supply these services. The total agricultural industry employs approximately 35 per cent of this nation's total labor force. Four out of every ten jobs in private employment are related to agriculture, i.e., nationwide.

A total of 41 public high schools are located in the area, having 19 departments of vocational agriculture that offer training in agriculture. The presence of these departments is indicative of the high degree of interest in the preparation of youth for occupations in agriculture. Presently, however, the instruction is geared to the goal of training present and prospective farmers for proficiency in farming.

Faced with fewer opportunities to farm and the subsequent increase in off farm agricultural opportunities; the limiting of instruction for agriculture to the work of the farm no longer meets the needs of all rural youth, even though farm production is and will continue to be the basic industry of this country.

Purpose of the Survey

The Baton Rouge Area study is a segment of a state-wide survey of nonfarm agricultural organizations in seven metropolitan centers: Alexandria-Pineville, Baton Rouge, Shreveport, Lafayette, Lake Charles, Monroe-West Monroe and New Orleans.

The primary purpose of the survey was to identify nonfarm agricultural businesses and professional organizations having one or more job titles requiring knowledge or skill in agricultural subjects, and to obtain specific job qualifications, including training in agriculture, associated with job entry.

Funds granted the University by the Board of Liquidation of the State Debt were used to finance the survey.

The overall objective of the study was to provide those engaged in education with a knowledge of present and emerging agricultural occupations other

than farming and ranching, for which instruction in vocational agriculture should be available in public schools.

For the purposes of this research, an occupation other than farming and ranching, refers to one for which workers need competencies in one of the primary areas of plant and animal science, agricultural business management and marketing,. and agricultural mechanization.

In order that extensive changes in existing programs of vocational agriculture reflect the training needs of off farm agriculture, it was assumed that the following information had to be gathered:

1. Number of employees in each and all agricultural businesses or organizations, together with employee indentification according to job title held, and
2. Competencies needed in agricultural subjects or skills required for job entry and advancement, and
3. Special characteristics of all job titles such as salary or wages, entry age, required formal education and experiences, legal restrictions and union regulations, licensing and certification, and a description of work performed by workers within a particular job title.

Survey Procedure

The population surveyed in the Baton Rouge area included all nonfarm agricultural businesses and agencies, excluding Louisiana State University and Southern University, located within the immediate metropolitan area. The College of Agriculture, Louisiana State University, will be a part of a future study concerning professional agricultural workers at the college level. It must be pointed out, however, that a total of 785 professional agriculturalist are employed by the three divisions of the college of agriculture: Resident Instruction, Full-Time Research, and Cooperative Agricultural Extension.

Workers in Baton Rouge nonfarm establishments number some 90,700 with about 29,000 in manufacturing and about 61,000 in nonmanufacturing. The city's more than 200 diversified industries combine into one of the healthiest industrial complexes in the nation. Agricultural products such as sugarcane, timber, livestock and dairying make up a major source of raw materials for many of these plants. Many nonmanufacturing concerns are engaged in supplying services to both farmers and nonfarmers. Spendable income in the Baton Rouge trade area is currently estimated at $686,130,000.00.

As a preliminary procedure, a comprehensive list of agriculturally oriented firms and organizations was developed for the Baton Rouge Metropolitan Area. This list was finalized to include only those businesses having one or more employees with knowledge or skill in agricultural subjects. Information concerning firms was secured from the following sources:

1. Division of Employment Security
2. Baton Rouge Chamber of Commerce
3. Louisiana Department of Commerce and Industry
4. State Chamber of Commerce
5. Various trade associations
6. Yellow Pages of Southern Bell Telephone Directory

The Greater Baton Rouge Chamber of Commerce endorsed the project and gave active support to the survey team, particularly during the preparation stage. The various firms and agencies to be surveyed were advised of the Chamber's endorsement by a letter from the Agricultural Committee. A letter announcing and explaining the purpose of the survey was directed to each establishment by the Dean of the College of Agriculture, Louisiana State University. Additional support was given by the local newspapers, State Times and The Morning Advocate, and Television Station WBRZ.

A group of prospective interviewers was recruited by the local office of the Division of Employment Security. These were screened and six were employed*

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* See Appendix B

and trained by University personnel in procedures to conduct the survey. The study was completed in a 13 day period under the direct supervision of the University.

Each interviewer was assigned a list of businesses to contact. All information obtained was recorded using a survey instrument* developed in cooperation with representatives from other states interested in the same type of study.

A total of 153 firms** cooperated in the survey. These establishments employed 4,612 employees--2,495 of which were required to have knowledge and skill in agricultural subjects.

These 2,495 employees were engaged in 326 distinct but different job titles; all requiring training and experience in agriculture.

Treatment of Survey Information

Information supplied by the 153 farm-based firms surveyed was organized under three general categories:

1. Occupational families

2. Classification of job titles into levels of employment and training required in agricultural subjects, and

3. Special requirements for job entry.

The occupational families used in this study are the same as those adopted for use by the several states conducting similiar studies. They are:

Farm Machinery Sales and Service
Farm Supplies and Equipment
Livestock and Poultry
Crops, Forestry and Soil Conservation
Ornamental Horticulture
Wildlife and Recreation
Farm Service
Agricultural Service

Total numbers of employees with required training in agricultural subjects were determined for each job title in all eight occupational families.

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* See Appendix C
** See Appendix A

Job titles identified were classified according to levels of employment based upon performance necessary to job function. The levels of employment used in this study are: Professional; Technical; Managerial; Supervisory; Sales; Office; Skilled; Semi-skilled; and Unskilled. Average age for entry, median monthly salary or wage, and the number of employees needing knowledge or skill in each of the subject matter areas of agriculture was tabulated for each level of employment by occupational family. Agricultural knowledge or skill was tabulated under the following four broad areas: Plant Science, Animal Science, Agricultural Business Management and Marketing, and Agricultural Mechanics and Automation.

Specific employment requirements for each occupational family were determined according to each level of employment. They are: education, residential background, farm experience, and continuing education required for advancement after job entry.

This study was made in an attempt to present the scope of occupational opportunities available in off farm agriculture within the Greater Baton Rouge business and professional complex. Special consideration was directed toward training that must be offered at the high school level if interested youth are to be provided the background required to enter agricultural occupations performed off-the-farm.

The schedule, and tabular forms used in this study, were designed in cooperation with researchers from other states undertaking studies embracing the same general objectives.

PRESENTATION AND ANALYSIS OF SURVEY INFORMATION

Occupational Families

A total of 153 agricultural firms, businesses and agencies were included in the Baton Rouge survey. The list as first organized contained more than

this number; however, as the survey progressed it was discovered that some establishments listed no employees with agricultural competencies; these were omitted. No firm refused to participate in the study; therefore 100 per cent of those considered pertinent were included in the survey. Each firm was placed in one of the eight occupational families.

I. Farm Machinery Sales and Service
   - Tractor and Machinery Company
   - Truck and Tractor Company

II. Farm Supplies and Equipment
   - Fence Company
   - Hardware and Supply Company
   - Feed and Seed Store
   - Feed, Seed, Fertilizer and Chemical Company
   - Construction Materials Company
   - Agricultural Supply Co-op.
   - Dime Store
   - Food Store
   - Department Store
   - Garden Centers

III. Livestock and Poultry
   - Packing Company
   - Poultry Products Company
   - Meat Market
   - Dairy Products Company
   - Stock Yards
   - Egg Company

IV. Crops, Forestry and Soil Conservation
   - State Forestry Commission
   - Grain Elevator
   - Sugar Refinery
   - Produce Company
   - Fruit Market
   - Tree Service

V. Ornamental Horticulture
   - Wholesale Florist
   - Retail Florist
   - Landscape Architect
   - Nursery
   - Nursery and Landscaping Service

VI. Wildlife and Recreation
   - State Park and Recreation Commission
   - Riding Stable
   - Taxidermy Shop
   - Golf Course

VII. Farm Service
   - Farmers Home Administration
   - Real Estate Agency
   - Termite Control Company
   - Pest Control Company
   - Insurance Company

Television Station
Electric Power Supplier
Contracting Company
Livestock Brand Commission
Research Consultant
Foundry

VIII. Agricultural Service
State Department of Agriculture
Bank
Animal Hospital
Veterinarian
Plant Pest Control Division
U. S. Agricultural Marketing Service
County Agent
State Department of Education (Vocational Agri. Education Section)
Louisiana State Marketing Commission
Vocational Agriculture Teacher
Agricultural Stabilization and Conservation
Soil Conservation Service

The grouping of the Baton Rouge nonfarm agricultural establishments according to Occupational Family is indicated in Table I.

TABLE I

NUMBER OF AGRICULTURAL BUSINESSES, INDUSTRIES AND AGENCIES GROUPED BY OCCUPATIONAL FAMILY, 1964

Occupational Family	Number
Farm Machinery Sales and Service	4
Farm Supplies and Equipment	36
Livestock and Poultry	20
Crops, Forestry and Soil Conservation	12
Ornamental Horticulture	27
Wildlife and Recreation	7
Farm Service	21
Agricultural Service	26
Total	153

Data in Table I reveal a concentration of firms and agencies supplying services. More than 50 per cent of the establishments were classified under three Occupational Families: Farm Supplies and Equipment, Ornamental Horticulture and Agricultural Service, respectively.

The rank of occupational families according to number of establishments

was:

1. Farm Supplies and Equipment
2. Ornamental Horticulture
3. Agricultural Service
4. Farm Service
5. Livestock and Poultry
6. Crops, Forestry and Soil Conservation
7. Wildlife and Recreation
8. Farm Machinery Sales and Service

There was no particular major product or service emphasized for the area, with the exception of farm and agricultural services.

Number Employed in Nonfarm Agriculture

Table II presents the total number of workers employed in the 153 firms and agencies surveyed, as well as the total number having competencies in agriculture, by occupational family.

TABLE II

NUMBER OF PERSONS EMPLOYED IN AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES, AND NUMBER OF EMPLOYEES HAVING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY

Occupational Family	No.	Employees Having Agricultural Competencies	
		Current Employment	Expected Employment (Five Years Hence)
Farm Machinery Sales & Service	79	76	81
Farm Supplies & Equipment	694	174	185
Livestock & Poultry	756	346	349
Crops, Forestry & Soil Conservation	1332	744	776
Ornamental Horticulture	140	135	144
Wildlife & Recreation	151	141	156
Farm Service	420	164	173
Agricultural Service	1040	715	744
Total	4612	2495	2608

Firms, industries and agencies making up the nonfarm agricultural complex of Baton Rouge employed a total of 4,612 workers; of these 2,495, or 54 per cent were required to have knowledge or skill in agricultural subjects to perform their job. Employers expect this number to approach 2,608 five years from now.

Over 50 per cent of those employed were holding job titles connected with Crops, Forestry and Soil Conservation, and Agricultural Service. The following is a ranking of occupational families according to total number of workers:

1. Crops, Forestry and Soil Conservation
2. Agricultural Service
3. Livestock and Poultry
4. Farm Supplies and Equipment
5. Farm Service
6. Wildlife and Recreation
7. Ornamental Horticulture
8. Farm Machinery Sales and Service

Baton Rouge is the headquarters of the Louisiana Forestry Commission which accounts, to some extent, for the large number of workers having agricultural competencies in Crops, Forestry and Soil Conservation. The same can be said of Agricultural Service because of the State Department of Agriculture. These agencies gave total number of employees regardless of work location.

The number of workers with agricultural competencies in each occupational family had no particular relation to total employment, rather, the work performed by firms within a family appeared to exert more influence on proportion of workers needing agricultural knowledge or skill.

A ranking of occupational families according to number of workers having knowledge or skill in agriculture appears as follows:

1. Crops, Forestry and Soil Conservation
2. Agricultural Service
3. Livestock and Poultry
4. Farm Supplies and Equipment
5. Farm Service
6. Wildlife and Recreation
7. Ornamental Horticulture
8. Farm Machinery Sales and Service

It may be assumed that this ranking indicates occupational outlook in agriculture for youth in this area, according to each occupational family.

All occupational families were expected to grow in number of employees possessing skill in agricultural subjects to a total addition of 113 workers over the coming five years---an increase of some five per cent.

Job Titles According to Occupational Families and Levels of Employment

The 2,495 workers performing jobs requiring knowledge in agriculture held 326 different job titles, ranging in performance level from that of laborer to professional status.

A listing of the number of job titles by occupational family is shown in Table III.

TABLE III

NUMBER OF JOB TITLES IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING, BY OCCUPATIONAL FAMILY

Occupational Family	Number of Job Titles	Number of Job Titles (Five Years Hence)
Farm Machinery Sales and Service	19	30
Farm Supplies and Equipment	37	42
Livestock and Poultry	61	70
Crops, Forestry & Soil Conservation	57	65
Ornamental Horticulture	26	30
Wildlife and Recreation	12	16
Farm Service	42	45
Agricultural Service	72	90
Total	326	388

A detailed list of job titles for each of the eight occupational families, together with the total number of workers in each job title is found in Appendix D.

The large number and variety of distinct job titles found in nonfarm agriculture offers rural youth interested in agricultural careers a wide range of job selections.

Job titles are present in all eight families in sufficient quantity to challenge the personal interests of youth. The outlook will be more interesting during the next five years, inasmuch as the number of job titles is expected to increase by 62, or 19 per cent.

Levels of Employment in Nonfarm Agriculture

Semi-skilled, Technical and Unskilled levels of employment contained the largest number of workers in all occupational families; followed by Skilled, Managerial and Sales. A smaller number was found in Office and Supervisory positions. In many instances it was observed that the supervisory function was performed by the individuals occupying managerial positions. An interesting discovery was the number of Office personnel required to have a knowledge of agriculture.

The total number of employees required to have agricultural training by levels of employment in each occupational family is shown in Table IV.

TABLE IV

TOTAL EMPLOYEES WITH AGRICULTURAL TRAINING
BY LEVELS OF EMPLOYMENT IN OCCUPATIONAL FAMILIES

Occupational Family	Levels of Employment									
	Prof.	Tech.	Mang.	Superv.	Sales	Office	Skilled	Semi-Skilled	Unskilled	Total
Farm Machinery Sales and Service	0	0	12	2	9	6	37	10	0	76
Farm Supplies and Equipment	0	0	49	2	46	25	3	33	16	174
Livestock and Poultry	0	11	33	26	72	39	56	71	38	346
Crops, Forestry & Soil Conservation	45	21	25	22	6	11	58	445	111	744
Ornamental Horticulture	6	0	28	4	18	5	33	8	33	135
Wildlife and Recreation	3	0	16	9	0	0	2	3	108	141
Farm Service	15	21	17	9	19	7	29	46	1	164
Agricultural Service	103	522	27	16	0	41	0	0	6	715
Total	172	575	207	90	170	134	211	616	313	2,495

Professional and technical levels of employment were found primarily in Agricultural Service, Crops, Forestry and Soil Conservation, and Farm Service. Job titles under the managerial and supervisory levels were well distributed over all occupational families. Sales and office classifications appeared in practically every family. A concentration of skilled workers was found in Farm Machinery Sales and Service, Crops, Forestry, and Soil Conservation, and Livestock and Poultry and Farm Service. The unskilled were found primarily in Crops, Forestry, and Soil Conservation, and Ornamental Horticulture.

The following ranking of employment levels according to the numbers employed indicates rather clearly the levels offering the greatest opportunity to interested youth:

1. Semi-Skilled
2. Technical
3. Unskilled
4. Skilled
5. Managerial
6. Professional
7. Sales
8. Office
9. Supervisory

Job Entry Age for Nonfarm Agricultural Workers

The mean age for all employees was found for each of the 153 firms by occupational family and for each level of employment. Consideration was given to the present age, minimum age for job entry, and the maximum age for entry.

Tables V-1 through V-8 present these findings.

TABLE V-1

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Machinery Sales and Service

Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	38	29	43
Supervisory	40	35	50
Sales	38	25	42
Office	32	25	42
Skilled	29	25	44
Semi-Skilled	35	25	41
Unskilled	0	0	0

TABLE V-2

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Supplies and Equipment

Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	35	27	46
Supervisory	35	28	48
Sales	31	25	48
Office	30	26	49
Skilled	32	25	42
Semi-Skilled	35	25	45
Unskilled	32	25	51

TABLE V-3

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Livestock and Poultry			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	28	26	45
Managerial	34	29	47
Supervisory	33	28	42
Sales	28	26	42
Office	27	25	43
Skilled	32	25	48
Semi-Skilled	33	25	49
Unskilled	26	25	41

TABLE V-4

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Crops, Forestry, and Soil Conservation			
Level of Employment	Present	Minimum	Maximum
Professional	35	25	45
Technical	25	25	35
Managerial	25	25	43
Supervisory	34	25	43
Sales	32	25	45
Office	35	25	46
Skilled	36	27	50
Semi-Skilled	25	25	32
Unskilled	47	22	55

TABLE V-5

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Ornamental Horticulture			
Level of Employment	Present	Minimum	Maximum
Professional	28	25	49
Technical	0	0	0
Managerial	33	27	53
Supervisory	28	25	45
Sales	28	28	51
Office	27	25	41
Skilled	26	25	49
Semi-Skilled	35	25	55
Unskilled	30	25	45

TABLE V-6

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Wildlife and Recreation			
Level of Employment	Present	Minimum	Maximum
Professional	45	25	53
Technical	0	0	0
Managerial	41	32	46
Supervisory	50	21	65
Sales	0	0	0
Office	0	0	0
Skilled	30	25	55
Semi-Skilled	30	25	55
Unskilled	45	25	55

TABLE V-7

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Service			
Level of Employment	Present	Minimum	Maximum
Professional	33	26	52
Technical	43	25	54
Managerial	36	27	50
Supervisory	35	25	47
Sales	37	25	50
Office	30	25	45
Skilled	28	27	48
Semi-Skilled	32	25	51
Unskilled	30	25	52

TABLE V-8

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Agricultural Service			
Level of Employment	Present	Minimum	Maximum
Professional	35	25	55
Technical	35	25	53
Managerial	35	25	45
Supervisory	35	25	55
Sales	0	0	0
Office	33	25	51
Skilled	0	0	0
Semi-Skilled	0	0	0
Unskilled	45	22	55

Definite trends in employee ages were in evidence for all occupational families. The average present age for all employees ranged around 35 years.

The acceptable minimum age for job entry was placed at 25, while the maximum age was 45. Most employers stated that if they employed an individual he should be young enough to offer the firm at least 20 years of good service before retirement. Regardless of occupational family, very few employees had the necessary experience and skill to be employed in the various job titles identified before age 25.

The minimum age of 25 for first job entry would seemingly work to the disadvantage of youth completing vocational programs, either at high school or post high school levels. Interviewees at the management level indicated a willingness, in fact a preference, to employ at an earlier age providing the applicants possessed the necessary knowledge and skill in agricultural subjects. The prevailing practice indicated that employees holding the various job titles acquired the necessary qualifications through previous work experiences. This accounts for the years between high school graduation and entry in a job having identity and permanence. Adequate training in high school would tend to insure job entry before age 25.

Salaries of Employees Working In Nonfarm Agriculture

Median monthly salaries or wages were calculated for all occupational families and for each level of employment. Tables VI-1 through VI-8 show median monthly salaries under categories beginning and maximum.

TABLE VI-1

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Machinery Sales and Service		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	451.00	601.00
Supervisory	401.00	501.00
Sales	401.00	701.00
Office	226.00	338.50
Skilled	317.66	434.34
Semi-Skilled	234.34	326.00
Unskilled	000.00	000.00

TABLE VI-2

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Supplies and Equipment		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	404.57	591.00
Supervisory	413.50	526.00
Sales	210.38	434.34
Office	235.38	378.78
Skilled	276.00	413.50
Semi-Skilled	215.47	376.00
Unskilled	178.14	311.00

TABLE VI-3

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Livestock and Poultry		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	244.75	344.75
Managerial	513.50	715.58
Supervisory	451.00	626.00
Sales	424.40	720.30
Office	217.67	301.00
Skilled	278.27	407.52
Semi-Skilled	245.23	309.33
Unskilled	183.14	233.10

TABLE VI-4

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Crops, Forestry, and Soil Conservation		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	551.00	601.00
Technical	376.00	513.50
Managerial	476.00	617.67
Supervisory	413.50	501.00
Sales	376.00	476.00
Office	267.66	401.00
Skilled	359.34	492.66
Semi-Skilled	234.34	351.00
Unskilled	191.66	276.00

TABLE VI-5

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Ornamental Horticulture		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	338.50	707.25
Technical	000.00	000.00
Managerial	326.00	551.00
Supervisory	401.00	601.00
Sales	242.66	285.09
Office	226.00	292.66
Skilled	216.22	451.00
Semi-Skilled	183.35	234.35
Unskilled	186.46	241.62

TABLE VI-6

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Wildlife and Recreation		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	276.00	326.00
Technical	000.00	000.00
Managerial	314.64	478.27
Supervisory	276.00	376.00
Sales	000.00	000.00
Office	000.00	000.00
Skilled	501.00	701.00
Semi-Skilled	192.66	251.00
Unskilled	201.90	256.00

TABLE VI-7

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Service		
Level of Employment	Median Monthly Service	
	Beginning	Maximum
Professional	626.00	719.48
Technical	336.58	539.10
Managerial	701.00	715.00
Supervisory	355.16	493.30
Sales	373.22	705.16
Office	256.83	383.85
Skilled	270.45	452.00
Semi-Skilled	249.34	399.34
Unskilled	197.30	249.88

TABLE VI-8

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Agricultural Service		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	626.00	724.08
Technical	376.00	588.50
Managerial	476.00	626.00
Supervisory	376.00	676.00
Sales	000.00	000.00
Office	251.00	351.00
Skilled	000.00	000.00
Semi-Skilled	226.00	376.00
Unskilled	176.00	187.50

Salaries paid workers having agricultural knowledge and skill in all establishments interviewed were in keeping with training and responsibilities, starting with a low median income for the unskilled and advancing upward through sales, supervisory, managerial and professional.

Employees in the professional, technical, managerial and supervisory levels account for 42 per cent of the total agricultural workers. Professional workers were found in all but three of the occupational families: Farm Machinery Sales and Service, Farm Supplies and Equipment, and Livestock and Poultry.

Starting salaries at the professional level ranged from $550 per month to $625, while maximum salaries were well above $700 per month.

Technician level workers were found in small numbers except for the Agricultural Service family. Median salaries paid technical workers were in keeping with training and responsibility. In most cases technician salaries ranged from a minimum of $375 per month to a maximum of $575.

Starting salaries for managers and supervisors ranged near a minimum of $400 per month to a maximum exceeding $700.

Workers engaged in sales were found in two salary categories: those on definite salary and those on salary, plus commissions. The beginning salary for each category was at about the same level, while those on commission earned much more with tenure. The type of firm and the product or service sold made a difference in the earning capacity of those on commission.

Skilled workers were found in all occupational families except Agricultural Service. Starting salaries were slightly less than $300 per month and increased with tenure and experience to a maximum of $450. Semi-skilled employees earned $50 to $100 per month less than those in skilled jobs. Unskilled workers were earning on the average about $250 per month with practically no advancement in salary with tenure and experience.

Educational Level Desired of Persons Entering Nonfarm Agricultural Occupations

Table VII reveals the educational level desired for persons entering agricultural occupations. It shows the number of employees in each occupational family working at each educational level.

TABLE VII

EDUCATIONAL LEVEL DESIRED FOR PERSONS ENTERING AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

Occupational Family	Number of Employees					
	Less Than H.S.	H.S. Graduate	Post H.S. Technical Education	Some College	College Degree	No Preference
Farm Machinery Sales & Service	0	38	20	2	16	0
Farm Supplies & Equipment	14	104	8	21	27	0
Livestock & Poultry	68	152	32	48	46	0
Crops, Forestry & Soil Conservation	114	546	0	34	50	0
Ornamental Horticulture	21	65	8	22	18	1
Wildlife & Recreation	75	49	0	14	0	3
Farm Service	8	62	5	49	31	9
Agricultural Service	3	273	8	223	208	0
Total	303	1289	81	413	396	13

Employers in nonfarm businesses and agencies indicated that youth planning careers in this segment of the economy were expected to finish high school---a third of them must attend or graduate from college. The high school dropout would receive little consideration---only 12 per cent of the employees would be replaced by individuals with less than a high school education.

The emphasis placed upon college training was of special significance. Data show that only 172 employees were classified at the professional level, yet employers indicated that college training was necessary for 809 or 33 per

cent of all employees having knowledge and skill in agriculture. Post high school technical programs received very few affirmative answers except in the Farm Machinery Sales and Service family, where it was indicated that 26 per cent of the incoming personnel should have had training at this level.

The Agricultural Service family required more college graduates than all of the other families combined. The preference by employers for formally educated workers was general and applied to all occupational families.

Residential Background Preferred for New Employees

For many years it has been generally assumed that employers in nonfarm agriculture gave preference to workers who were farm reared. This was not necessarily true in the Baton Rouge area, although 44 per cent of the employees would be replaced by workers having a farm background.

Background preference is indicated by occupational family in Table VIII.

TABLE VIII

RESIDENTIAL BACKGROUND PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm		Rural Nonfarm		Urban		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	40	53.0	10	13.0	0	0.0	26	34.0
Farm Supplies & Equipment	58	34.0	13	7.0	2	1.0	101	58.0
Livestock & Poultry	38	11.0	0	0.0	0	0.0	308	89.0
Crops, Forestry & Soil Conservation	376	51.0	106	14.0	0	0.0	262	35.0
Ornamental Horticulture	17	13.0	1	1.0	0	0.0	117	86.0
Wildlife & Recreation	1	1.0	11	8.0	0	0.0	129	91.0
Farm Service	71	43.0	8	5.0	5	3.0	80	49.0
Agricultural Service	499	70.0	1	0.1	0	0.0	215	29.9
Total	1100		150		7		1238	

Residential background preferred differed considerably among the various occupational families. The percentage of farm background preference ranged from a high of 70 per cent in Agricultural Service to a low of one per cent in Wildlife and Recreation. A surprising situation occurred in Livestock and Poultry where employers indicated that only 11 per cent of new workers hired must have a farm background. In contrast, data show that few employers were actually seeking workers with nonfarm or urban backgrounds.

Farm Experience Preferred of New Employees

Table IX covers farm experience preferred of new employees. Data in this table indicate that farm experience gained on a noncommercial farm was preferable to that gained on a commercial farm. An analysis of these data show that employers would replace 1,100 employees with individuals having had farm experience; of which 653 or 58 per cent must have gained their experience on a noncommercial farm, while 408 or 37 per cent must come from a commercial farm.

TABLE IX

FARM EXPERIENCE PREFERRED FOR NEW EMPLOYEES

Occupational Family	Commercial Farm		Noncommercial Farm		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	15	37.5	25	62.5	0	0.0
Farm Supplies & Equipment	31	53.0	20	35.0	7	12.0
Livestock & Poultry	38	100.0	0	0.0	0	0.0
Crops, Forestry & Soil Conservation	0	0.0	376	100.0	0	0.0
Ornamental Horticulture	13	76.0	4	24.0	0	0.0
Wildlife & Recreation	0	0.0	1	100.0	0	0.0
Farm Service	62	87.0	9	13.0	0	0.0
Agricultural Service	249	50.0	200	40.0	50	10.0
Total	408		635		57	

Agricultural Subjects With Which Prospective Workers Must Have Knowledge or Skill

A major objective of this survey was to determine job requirements in terms of knowledge or skill in agricultural subjects. Any adjustments to be made in training programs must conform with the qualifications demanded by employers of youth who apply for jobs in their establishments.

In order to record information concerning knowledge and skills needed by youth to effect job entry, agriculture was divided into four general subject areas:

1. Animal Science
2. Plant Science
3. Agricultural Business and Marketing
4. Agricultural Mechanization and Automation

A broad analysis of each area was used to guide the interviewees in making decisions as to agricultural training considered necessary for each job title identified.

Tables X-1 through X-8 show agricultural subjects in which prospective employees must have training, according to occupational families and levels of employment.

TABLE X-1

AGRICULTURAL AREAS IN FARM MACHINERY SALES AND SERVICE WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	12	2	5	8	11
Supervisory	2	1	0	0	2
Sales	9	9	9	9	9
Office	6	0	0	6	0
Skilled	37	22	12	0	37
Semi-Skilled	10	0	0	0	10
Unskilled	0	0	0	0	0
Total	76				

TABLE X-2

AGRICULTURAL AREAS IN FARM SUPPLIES AND EQUIPMENT WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	49	32	38	41	26
Supervisory	2	2	2	2	2
Sales	46	20	39	35	14
Office	25	15	19	18	12
Skilled	3	2	0	1	1
Semi-Skilled	33	15	13	0	20
Unskilled	16	2	12	0	14
Total	174				

TABLE X-3

AGRICULTURAL AREAS IN LIVESTOCK AND POULTRY
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	11	11	0	0	0
Managerial	33	33	22	33	25
Supervisory	26	26	18	19	9
Sales	72	72	40	50	3
Office	39	39	0	31	0
Skilled	56	56	0	0	0
Semi-Skilled	71	27	0	0	46
Unskilled	38	9	0	0	38
Total	346				

TABLE X-4

AGRICULTURAL AREAS IN CROPS, FORESTRY AND SOIL CONSERVATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	45	45	45	43	43
Technical	21	2	21	5	7
Managerial	25	4	25	25	18
Supervisory	22	3	22	6	6
Sales	6	0	6	6	0
Office	11	0	8	8	0
Skilled	58	0	38	0	34
Semi-Skilled	445	0	425	0	109
Unskilled	111	0	109	0	92
Total	744				

TABLE X-5

AGRICULTURAL AREAS IN ORNAMENTAL HORTICULTURE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	6	0	6	4	2
Technical	0	0	0	0	0
Managerial	28	0	28	26	7
Supervisory	4	0	4	4	3
Sales	18	0	18	7	1
Office	5	0	3	2	0
Skilled	33	0	30	14	0
Semi-Skilled	8	0	8	0	0
Unskilled	33	0	26	0	11
Total	135				

TABLE X-6

AGRICULTURAL AREAS IN WILDLIFE AND RECREATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	3	3	3	0	0
Technical	0	0	0	0	0
Managerial	16	14	13	14	14
Supervisory	9	9	9	0	0
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	2	2	0	0	2
Semi-Skilled	3	0	0	0	3
Unskilled	108	31	26	0	77
Total	141				

TABLE X-7

AGRICULTURAL AREAS IN FARM SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	15	8	7	6	6
Technical	21	21	0	0	0
Managerial	17	17	17	15	9
Supervisory	9	7	7	0	4
Sales	19	19	19	8	3
Office	7	5	2	6	0
Skilled	29	2	2	0	27
Semi-Skilled	46	43	43	0	3
Unskilled	1	1	1	0	1
Total	164				

TABLE X-8

AGRICULTURAL AREAS IN AGRICULTURAL SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	103	92	92	92	79
Technical	522	333	394	57	107
Managerial	27	27	27	27	0
Supervisory	16	14	9	0	2
Sales	0	0	0	0	0
Office	41	19	23	26	0
Skilled	0	0	0	0	0
Semi-Skilled	0	0	0	0	0
Unskilled	6	5	5	0	2
Total	715				

A pattern was in evidence in all occupational families concerning agricultural knowledge and skill required of new employees at the different employment levels. The employers were in general agreement that workers at the management, supervisory and sales levels must have broad training extending over all agricultural subjects areas; while those in the professional, technical and skilled classifications were expected to have intensive training in the area of their speciality. This was true in all families except Agricultural Service where professional workers were expected to be well versed in all subject areas.

Agricultural service performed, or product sold, exhibited a marked influence on the emphasis placed upon the degree of training desired in the agricultural subject areas. For example, data indicate that Farm Machinery Sales and Service placed great emphasis upon the mechanization area, while Ornamental Horticulture expected their workers to be proficient in the plant science area.

An analysis of the responses to this section of the survey also shows that in a majority of the cases, businesses and agencies favored some training in all agricultural areas, with emphasis upon the one or more specific areas that were necessary to the work or service performed.

Continuing Education Required of Employees and Educational Facilities Used

Employers were asked to indicate in-service training expected of all employees to advance on the job. They were also asked to designate educational facilities used, or provisions made by employers to provide such training.

Table XI reveals this information by occupational family and according to educational facility used.

TABLE XI

CONTINUING EDUCATION REQUIRED BY FIRMS TO ADVANCE IN OCCUPATIONS

Occupational Family	No.	Number of Firms					
		Firm or Industry School	On-the-job Training	Pub.Sch. Adult Educ.	Voc. School	Agri. School	None
Farm Machinery Sales & Service	76	54	55	0	0	0	
Farm Supplies & Equipment	174	34	141	0	20	29	64
Livestock & Poultry	346	164	343	1	1	1	16
Crops, Forestry & Soil Conservation	744	2	398	0	0	0	344
Ornamental Horticulture	135	40	100	1	5	26	7
Wildlife & Recreation	141	1	108	0	0	53	6
Farm Service	164	65	110	0	0	12	64
Agricultural Service	715	34	324	0	0	103	375
Total	2,495						

The majority of employees covered by this survey participated in educational programs designed to upgrade them on-the-job and for job advancement.

The most common educational program in use was on-the-job training. Firm or industry schools were provided for employees in all occupational families. Practically no use was made of adult education programs in public schools; with vocational school programs being indicated for employees in only three families. Agricultural college facilities were used by employees in six families.

Expression of a general desire by employers to have continuing education available for their employees offers a golden opportunity for adult education programs at the high school or post high school levels.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The agricultural industry has always been the basic industry of America. Vocational Agriculture, for many years, has had as its aim: the preparation of present and prospective farmers for proficiency in farming. In order to carry out this goal, instruction has been aimed at management and production.

The increasing demand for products of the farm indicates the necessity for a continuing supply of well trained individuals to meet the challenge of the farm; however, educators must also be aware of the need for more adequate preparation for the large numbers of off-the-farm agricultural occupations that exist in economy. Today agriculture encompasses much more than farming. It is a combination of: 1) production of agricultural commodities, 2) businesses engaged in furnishing supplies and services to the farmer, and 3) firms engaged in processing and marketing the products of the farm.

This study of the Baton Rouge Metropolitan Area indicates the need for trained workers in all phases of agriculture. Programs of instruction in agriculture must of necessity include training that will meet the needs of all students. Parents of students enrolled in secondary schools look to school leadership to provide opportunities for all students to explore career areas in agriculture, before making a choice.

Summary

The survey of off farm agriculture in the Baton Rouge Area reveals substantial occupational opportunities for the agriculturally trained. Proof is in evidence that youth with a desire to stay in agriculture, but are unable to farm, have a bright future if high schools extend and broaden vocational programs and prepare them for nonfarm agricultural jobs.

The study was designed to reveal information necessary to guide educators in formulating high school vocational agriculture programs to meet employer

needs for workers trained in agricultural subjects. The objectives giving guidance to this study were:

1. To determine numbers of employees in agricultural businesses and agencies, and

2. To identify job titles requiring a knowledge and skill in agriculture, and

3. To determine specific characteristics of job titles, such as, salary, age, farm experience, and a description of responsibilities and work performed.

Findings are summarized as follows:

1. The agricultural complex of Baton Rouge was made up of 153 businesses and agencies, employing 4,612 workers, of which 2,495 were required to have competencies in agricultural subjects.

2. Agricultural workers held a total of 326 different job titles.

3. Five years hence the number of employees with knowledge and skill in agriculture will increase to 2,608 with an accompanying increase in job titles to 388.

4. The scope of the agricultural complex was such that a substantial number of businesses was found in each occupational family.

5. A conformance to the nationwide trend of emphasis in farm and agricultural service was in evidence in the Baton Rouge area.

6. Semi-skilled, technical, and unskilled levels of employment contained the largest number of workers; followed by skilled, managerial, sales, office and supervisory.

7. The acceptable minimum age for job entry fell at 25 years; while the maximum age of 45 allowed for 20 years of service prior to retirement.

8. Salaries paid by firms and agencies surveyed were in keeping with those engaged in other segments of the economy. Adequate provisions were in evidence for salary increments with tenure and experience.

9. Employers indicated that replacement workers would be selected from applicants with high school or college education--only 12 per cent of the employees would be replaced by individuals with less than a high school education. One-third of the workers will be replaced from applicants having a college degree or some successful college experience.

10. The kind of training in agricultural subjects varied according to level of employment and occupational family. Employers were in general agreement that workers in management, supervisory and sales levels must have broad training extending over all agricultural subject areas; while those in the professional, technical, and skilled classifications were expected to have intensive training in the area of their speciality.

11. Employers indicated that employees with agricultural knowledge and skill will be replaced by applicants having a farm residential background.

12. Very few limitations besides education and job training were indicated for effecting job entrance, except in the professional classification where a college degree was required. Some of the agricultural agencies were under civil service, and therefore, complied with state or federal regulations governing job entry. Labor union contracts were found in a very small number of firms.

13. Employers indicated a need for more intensive vocational education prior to job entry, or in the early stages of employment.

14. Continuing education for employees was provided by all employers. On-the-job training was the most commonly used means of effecting this training. Agricultural college facilities were used to some extent, with vocational schools and adult education programs ranking last in use.

Conclusions

The Baton Rouge survey revealed a vital and growing nonfarm agricultural complex. The scope and extent of this complex is evidenced by the number of businesses, the number of employees and the wide range and variety of agricultural services performed.

Results of this study indicate that production farming and the supplier of agricultural services are inseparable--neither can survive without the other--both require a steady supply of agriculturally trained employables if they are to continue to adequately serve the consuming public.

The complex of agencies on which agricultural production depends for services, and supplies and equipment, gives emphasis to the importance of providing workers with the best possible educational advantages at the pre-employment level and for continuing education after job entry. Vocational education in agriculture to survive must expand its objective, adding job training in nonfarm agriculture to that of farmer training. There are numerous employment opportunities in nonfarm agriculture for which youth can prepare; hence, Vocational Agriculture must also accept the responsibility to prepare individuals not only to farm but for the variety of other jobs supporting agricultural production.

A review of information presented, together with conclusions drawn, may aid

educators in making the adjustments in programs of vocational agriculture required if the needs of rural youth are to be fully met. Conclusions drawn are:

1. The Baton Rouge area agricultural complex contains practically all aspects of nonfarm agriculture. Job titles are present in a substantial number, and range in employment level from unskilled to professional.
2. Establishments engaged in processing, servicing, supplying and equipping agricultural production represent a major segment of this Area's economy--employees make up a fair percentage of the total work force.
3. Prospective agricultural workers are most employable at ages ranging from 25 to 45. This range allows for the accumulation of necessary experience and enables at least 20 years of service to the establishment. Adequate training programs at the high school level would lower job entry age.
4. Salaries for all levels were in keeping with training and responsibilities.
5. Knowledge and skill in agricultural subjects was required by all job titles.
6. The high school dropout would receive little consideration when applying for work in the nonfarm agricultural complex. High school and college training was stressed by all interviewees.
7. A residential background of farming was preferred but was not a requirement for job entry. Emphasis was placed on agricultural training and job experience.
8. Nonfarm agriculture offers more challenges to youth and education than ever before. Young people interested in agriculture will find a variety of careers open to them--careers that will challenge the intellectually alert.

Recommendations

Programs of vocational agriculture have been primarily concerned with the preparation for entrance into farming. This aim is being challenged by educators who are becoming increasingly more aware that agriculture and farming are no longer synonymous. Training programs in vocational agriculture should reflect

the changes in the occupational needs of the workers in the whole field of agriculture.

The future of any business depends upon the demand for its product. There is no doubt that the demand for agricultural products and services is increasing. This increase is measured daily by the exploding population. Predictions are that population will double in the next 35 years. Agriculture now employs one out of every three persons when derived products are included. No other industry offers the challenge of agriculture--no other field offers so great an opportunity to achieve.

The recommendations listed below are offered with the express purpose of assisting educators in the planning of expanded programs to encompass the total field of agriculture.

1. Production agriculture is the basic segment of agriculture, with servicing, supplying and equipping the farmer rounding out the agricultural picture. Students, parents, counselors and teachers should be acquainted with the rapid growth of agriculture and the dependency of each sector on the other, requiring extended educational services.
2. School administrators, counselors, teachers and parents should be alerted to the number and variety of jobs in the Baton Rouge agricultural complex. Students should be given the opportunity to explore agricultural jobs at all levels of employment in each occupational family as they progress in secondary school programs.
3. Pre-employment training is essential for off farm agricultural job entry. An extended program in vocational agriculture providing instruction in the science of agriculture, together with the necessary job experiences, is needed for those who desire job training.
4. Educators should assume the responsibility for the assembling of resources necessary to provide training in essential areas of agriculture. Resources

should be provided to insure the availability of training to those who plan to farm, enter off farm agricultural occupations, and/or pursue further training in agriculture in higher education.

5. Programs of instruction should provide for the more general training in agriculture during the early part of vocational training, concentrating on the more specialized phases, and participating experiences, during the latter part of the training period. Most job titles identified require a basic knowledge in most subject matter areas of agriculture, with emphasis on one or more areas necessary for job performance.
6. Those responsible for training should consult employers in nonfarm agriculture before making final decisions defining pre-employment training necessary for successful job entry.
7. An opportunity exists for public education to accept the responsibility to furnish facilities for the upgrading of workers who need additional agricultural knowledge to continue on the job and advance in the firm.

APPENDIX A

NONFARM AGRICULTURAL BUSINESSES AND AGENCIES COOPERATING IN THE SURVEY

Breeden Tractor & Implement Co.
Talbot Tractor Co.
Toups Truck & Tractor Service
Dealers Truck & Equipment Co., Inc.
Olinde's Hardware & Supply Co.
Averette's Tobia Gass Co.
Scott Fence & Insulation Co., Inc.
Montgomery Ward & Co.
Reeve's Grocery & Hardware
Lehmann's Seed Store
Louisiana Agricultural Cooperatives, Inc.
Ascension Cooperative
Godeau-Huey Hardware & Paint Co.
Goudeau, J. H. Store
McIntyre Veneer Co., Inc.
National Food Store
Gonzales Truckers, Inc.
Progressive Stores, Inc.
T. G. & Y. Stores
Tri-Parish Cooperative
Construction Materials, Inc.
Kelly Feed & Seed
Kalmbach-Burckett Co., Inc.
Cox Bros. Hardware & Supply
Rainbow Feed & Seed Store
Hagan Fence Co.
Dayton Fence Co.
Ace Hardware
Chenevert Hardware
Sears Roebuck & Co.
Mack's Hardware
Dave's Hardware
Erickson Hardware
Highland Road Hardware & Garden Center
Live Oak Hardware & Supply
McCrory's
Naylor Bros. Feed - Seed & Hardware
Ace Hardware
Kleinpeter's Farms Dairy
Stephens Meat Co.
Tall Pines Egg Co.
Manda Bros. Provision Co.
Old South Packing Co.
Swift & Co.
Ready Portion Meat Co., Inc.
Dominique's Stockyards, Inc.
Dixie Broilers, Inc.
Brown-Allsbrook Stockyards, Inc.
The Borden Co.
National Dairy Products Corp.
Imperial Poultry

Smiley's Meat Market
Christianna Bros.
H & S Packing Co.
Millwood Packing Co.
Lily Milk Products
Louisiana Forestry Commission
Cargill, Inc.
Cinclare Central Factory
Gonzales Products Co.
Poplar Grove Planting & Refining Co., Inc.
Princeville Canning Co.
Fruit Exchange, Inc.
Capital City Produce
O'Brein Tree Service
A-1 Tree Co. & Service
Borskey, J. C. Tree Service
Tripple A Tree Service
Granberry Wholesale Florist
Louise's Flower Shop
Heroman Florist
Chapin & Associates
Pelican State Nursery
Russell's Florist
Billeann's Flowers
Don Lyn Florist
Charlie's Nursery & Landscape Service
Cora's Florist, Inc.
Capital Garden Center
Hunter, J. W., Landscape Contractor
Carriage Trade Florist
Clegg's Nursery
Crawford Wholesale Florist & Supply
Hart Landscape Co.
Magnolia State Nursery
Flowers Styled by Jim
Bob Hawkins Flowers
Billy's Flowerland
House of Flowers
Verbie's Flower Shop
Daigre Flower Shop
Hunt's Florist
Arbour's Forget Me Not Florist
Fred's Flower Shop & Nursery
Delmont Florist & Nursery
State Park & Recreation Commission
Fontane Stables
Deep South Taxidermy
Buquoi Taxidermy Service
Lazy D Stables
Golf Forest
SPCA Association
Falcon Termite Control Co.
Southern Terminix Co.
Naylor Bros. Feed-Seed & Hardware
Rebel Pest Control Co.
Morganza, Dr. M. (Research Consultant)

Livestock Branding Commission
Williams, Kirmit Realty
Willie & Willie Building Contractors
Jenco Products Co.
Dixie Electric Membership Corp.
WBRZ Television Station
A & B Termite Control Co.
Lett, Charlie
Vitality Food Shoppe
Orbit Exterminating Co.
Allied Pest Control, Inc.
William, L. Owens Lab., Inc.
Louisiana Termite Control
Lema B. Sims, Real Estate Agency
Farmers Home Administration
Orkin Exterminating Co., Inc.
Soil Conservation Service
State Dept. of Agriculture
Agricultural Stabilization & Conservation Service
Baton Rouge Animal Hospital
Agriculture Teacher
Louisiana State Market Commission
State Dept. of Education, Vocational Agriculture Section
Choctaw Drive Animal Hospital
Animal Center
County Agent
Denham Springs Animal Hospital
U. S. Agriculture Marketing Service
U. S. Dept. of Agriculture
Heflin & Cooper Veterinarian
Animal Ark Pet Clinic
West Side Animal Clinic
Perkins Road Veterinarian Hospital
Helouin's Veterinarian Clinic
Granzin Veterinarian Clinic
Animal Disease Eradication (USDA)
American Bank & Trust Co.
Louisiana National Bank
State Land Office
Bank of West Baton Rouge
Baker Bank & Trust Co.

APPENDIX B

PERSONS CONDUCTING INTERVIEWS TO OBTAIN SURVEY DATA

Mrs. Jeannette Davis, P. O. Box 582, Baton Rouge, Louisiana

Mrs. Margaret Newsom, 6973 N. Rothmer Dr., Baton Rouge, Louisiana

Mrs. Clare Stockstill, 10319 Harvey, Baton Rouge, Louisiana

Mrs. Buelah P. Theriot, 1981 Hood Ave., Baton Rouge, Louisiana

Mrs. Zdenka Turk, 4275 Capitol Hts., Baton Rouge, Louisiana

Mrs. Gracie Wiggins, 4340 Burgess Dr., Baker, Louisiana

APPENDIX C

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form I

I. Business or Service (Business Code_____)(Firm Number_____)

A. Name of Business or Service_____

Address_____Parish_____

B. Person Interviewed_____

Position_____

C. Estimated per cent gross income that is agriculturally oriented_____

D. Major agricultural products and/or functions of business or service_____

_____

_____

II. Employees in this Business or Service -- (Total Number)_____

A. For employees needing competencies in agriculture, complete the following:

Existing Job Titles	Number of Employees		
	Full-Time	Part-Time	Five Year
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

	Anticipated New Job Titles	Number of Employees		
		Full-Time	Part-Time	Five Year
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

Fill out a separate Form 2 for each job title listed above.

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form II

I. Name and Address of Firm_____

_____

II. Job Title_____

III. Number of workers in this job title_____

Full-time_____ Part-time_____

Average age_____ Min. for Entry_____ Max. for Entry_____

IV. Wage or Salary per Month: (Beginning - Maximum - Present)

_____ 150 - 200	_____ 301 - 350	_____ 451 - 500	_____ 601 - 650
_____ 201 - 250	_____ 351 - 400	_____ 501 - 550	_____ 651 - 700
_____ 251 - 300	_____ 401 - 450	_____ 551 - 600	_____ 700 and above.

V. Activities and Duties of Persons with this Job Title_____

_____

_____

_____

_____

VI. Agricultural Areas with which Worker must be Familiar to do Job:

Animal Science

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Breeding Farm Animals
_____	_____	_____	2. Livestock Feeding and Nutrition
_____	_____	_____	3. Sanitation, Disease and Parasite Control
_____	_____	_____	4. Housing and Equipment

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Animal Science (Cont'd.)

Necessary	Desirable	Not Necessary	
_____	_____	_____	5. Management
_____	_____	_____	6. The Dairy Manufacturing Industry
_____	_____	_____	7. Processing
			_____ Packing Plants
			_____ Creameries
			_____ Poultry Processing
			_____ Butchering
_____	_____	_____	8. Marketing
			_____ Packing Plants
			_____ Creameries
			_____ Poultry Processing Plants
			_____ Livestock Auctions

Plant Science

_____	_____	_____	1. Propagation
_____	_____	_____	2. Soils and Fertilization
_____	_____	_____	3. Control of insects____ diseases_____weeds_____
_____	_____	_____	4. Management
_____	_____	_____	5. Production of Ornamental Plants
_____	_____	_____	6. Landscaping
_____	_____	_____	7. Ginning
_____	_____	_____	8. Warehousing
_____	_____	_____	9. Processing (food, seed, grain, etc.)
_____	_____	_____	10. Marketing
_____	_____	_____	11. Forestry
			_____ Establishing a Stand
			_____ Hardwood Control
			_____ Fire Control
			_____ Estimating and Grading
			_____ Disease Control
			_____ Insect Control
			_____ Harvesting
			_____ Marketing
			_____ Manufacturing
			_____ Pulp Wood

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Agricultural Business Management and Marketing

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Records and Accounts, Budgeting and Analysis
_____	_____	_____	2. Agricultural Financing, Credit and Insurance
_____	_____	_____	3. Farm Organization and Management
_____	_____	_____	4. Labor Management
_____	_____	_____	5. Marketing Problems and Practices
_____	_____	_____	6. Agricultural Policy
_____	_____	_____	7. Agricultural and Related Price Analysis
_____	_____	_____	8. Cooperatives and Business Organizations

Agricultural Mechanics and Automation

_____	_____	_____	1. Farm Power and Machinery
_____	_____	_____	2. Farm Buildings and Conveniences
_____	_____	_____	3. Farm Electrification and Processing
_____	_____	_____	4. Soil and Water Conservation
_____	_____	_____	5. Farm Shop (Welding, Plumbing, etc.)
_____	_____	_____	6. Farm Construction and Maintenance

List other agricultural competencies that are needed for this job title_____

_____

_____

_____

VII. Education Level Desired for Job Titles (Check only one)

_____ 1. Less than High School Graduate

_____ 2. High School Graduate

_____ 3. Post High School Technical Education

_____ 4. Some College

_____ 5. College Degree

_____Baccalaureate _____Master's _____Doctor's

_____ 6. No Preference

VIII. Residential Background (Check only one)

1. Farm_____ 2. Rural, Nonfarm_____ 3. Urban_____ 4. No Preference_____

IX. Farm Experience

_____ 1. On a commercial farm

_____ 2. On a noncommercial farm

_____ 3. No Preference

X. Experience Desired to Enter this Job Title_____

_____

_____

XI. Limitations on Entering this Job Title

A. Licensing or Certification

_____ 1. Professional

_____ 2. Industrial

_____ 3. Civil Service

_____ 4. Other (specify)_____

_____

_____

B. Labor Law Restrictions_____

_____

C. Labor Union Restrictions_____

_____

D. Other (specify)_____

_____

XII. Education Required to Advance in this Job Title

A. Technical short course or training provided by:

_____ 1. Your firm or the industry as a whole

_____ 2. On-the-job training

_____ 3. Public school (adult education)

_____ 4. A vocational school

_____ 5. An agricultural college

_____ 6. None

APPENDIX D

JOB TITLES IN THE BATON ROUGE AREA

OCCUPATIONAL FAMILY	LEVEL OF EMPLOYMENT AND JOB TITLES	NUMBER OF WORKERS
Farm Machinery Sales and Service	Professional	
	Technical	
	Managerial	
	General Manager	2
	Sales Manager	1
	Business Manager	1
	Farts Manager	3
	Service Manager	1
	Manager	2
	Office Manager	1
	Asst. General Manager	1
	Supervisory	
	Shop Foreman	2
	Sales	
	Salesman	9
	Office	
	Clerk	2
	Posting Clerk	1
	Bookkeeper	1
	Office Secretary	2
	Skilled	
	Mechanic	36
	Parts Man	1
	Semi-Skilled	
	Truck Driver	2
	Assemblyman	5
	Mechanic Helper	3
	Unskilled	
Farm Supplies and Equipment	Professional	
	Technical	
	Managerial	
	Manager	24
	Grocery Manager	1
	Store Manager	1
	Asst. Manager	2
	General Manager	7
	Dept. Manager	1
	Treasurer	1
	Sales Manager	1
	Office Manager	1
	Branch Manager	5
	Produce Manager	1
	Market Manager	1
	President	1
	Vice President	2

	Supervisory	
	Fertilizer Supt.	1
	Asst. Plant Supt.	1
	Sales	
	Salesman	38
	Sales Clerk	6
	Sales Lady	2
	Office	
	Bookkeeper	5
	Secretary	3
	Chief Accountant	2
	Clerk	7
	Shipping Clerk	5
	Grocery Clerk	3
	Skilled	
	Butcher	1
	Butcher Helper	1
	Mechanic	1
	Semi-Skilled	
	Produceman	1
	Poultry Serviceman	1
	Serviceman	1
	Truck Driver	17
	Maintenanceman	2
	Warehouseman	11
	Unskilled	
	Porter	1
	Fence Erector	13
	Yardman	2
Livestock and Poultry	Professional	
	Technical	
	Fieldman	3
	Herdsman	4
	Inspector Grader	4
	Managerial	
	Plant Manager	1
	Sales Manager	2
	President	1
	Vice-President	1
	Manager	8
	Office Manager	2
	Asst. Manager	4
	General Manager	8
	Personnel Manager	2
	Retail Sales Manager	1
	Wholesale Manager	1
	Branch Manager	1
	Merchandise Manager	1
	Treasurer	1
	Secretary-Treasurer	1
	Supervisory	
	General Plant Supt.	5
	Plant Supervisor	1
	Route Supervisor	7

	Ice Cream Plant Supt.	1
	Milk Plant Supt.	1
	Shipping Foreman	2
	Plant Foreman	4
	General Supervisor	5
	Sales	
	Salesman	15
	Routeman	42
	Buyer	5
	Sales Lady	2
	Outside Salesman	1
	Beef, Lamb, & Veal Salesman	1
	Precision Cut Salesman	1
	Dairy & Poultry Salesman	1
	Hotel, Restaurant & Institution Salesman	1
	Office	
	Bookkeeper	3
	Cashier	2
	Shipping Clerk	6
	Clerical Clerk	14
	Office Worker	6
	Clerk	4
	Ticket Writer	2
	Weighmaster	1
	Secretary	1
	Skilled	
	Meat Cutter	24
	Butcher	26
	Asst. Herdsman	1
	Rendering Operator	2
	Meat Boner	3
	Semi-Skilled	
	Maintenanceman	5
	Truck Driver	33
	Milker	2
	Order-packer	4
	Coolerman	4
	Grader-Candler	1
	Warehouseman	22
	Unskilled	
	Laborer	30
	Yardman	5
	Groundman	3
Crops, Forestry and Soil Conservation	Professional	
	State Forester	1
	Asst. State Forester	1
	Forester I	3
	Forester II	21
	Forester III	8
	Forester IV	6
	Forester V	3
	Dept. Information Rep.	2

Technical	
Investigator II	5
Investigator III	1
Engineer	2
Asst. Engineer	4
Chemist	4
Managerial	
Manager	11
Asst. Manager	2
Traffic Manager	4
Elevator Manager	1
Exec. Vice-President	1
Secretary-Treasurer	1
Office Manager	1
President	1
Field Manager	1
Store Manager	2
Supervisory	
Foreman	11
Foreman II	2
Foreman III	1
Supervisor	1
Fabrication Supt.	2
Superintendent	1
Asst. Superintendent	1
Tree Nursery Supt. I	2
Tree Nursery Supt. II	1
Sales	
Salesman	3
Merchants	3
Office	
Time Keeper	1
Cane Weigher	4
Clerks	3
Office Worker	3
Skilled	
Cavity man	1
Mechanic	13
Derrick Operator	4
Clarifier	3
Sugar Boiler	6
Forest Ranger I	7
Forest Ranger II	18
Forest Ranger III	6
Electrician	5
Semi-Skilled	
Climber	16
Truck Driver	3
Forest Fireman I	108
Forest Fireman II	103
Forest Fireman III	114
Forest Towerman I	67
Forest Towerman II	33
Unskilled	
Groundman	2
Laborer	109

Ornamental Horticulture	Professional	
	Landscape Architect	4
	Entomologist	1
	Landscape Draftsman	1
	Technical	
	Managerial	
	Manager	21
	Asst. Manager	7
	Supervisory	
	Foreman	3
	Sales Supervisor	1
	Sales	
	Salesman	13
	Sales Clerk	4
	Dispatcher	1
	Office	
	Bookkeeper	2
	Clerk	1
	Office Worker	2
	Skilled	
	Floral Designer	28
	Asst. Designer	5
	Semi-Skilled	
	Grower	2
	Apprentice Designer	1
	Pctter	3
	Nursery man	1
	Planter	1
	Unskilled	
	Laborer	18
	Delivery Boy	12
	Yard Boy	1
	Gardener	1
	Apprentice	1
Wildlife and Recreation	Professional	
	Curator	3
	Technical	
	Managerial	
	Manager	3
	Superintendent	1
	Asst. Superintendent	1
	Park Superintendent	11
	Supervisory	
	Park Ranger	9
	Sales	
	Office	
	Skilled	
	Taxidermist	2
	Semi-Skilled	
	Maintenanceman	1
	Truck Driver	2
	Unskilled	
	Park Attendant	48
	Kennelman	10
	Grounds Keeper	50

Farm Service	Professional	
	Mechanical Engineer	6
	Research Director	1
	Chemist-Bacteriologist	1
	County Supervisor	1
	Public Relations Man	2
	Home Service Advisor	1
	Farm Director (News)	1
	Executive Secretary	1
	FHA Supervisor	1
	Technical	
	Laboratory Asst.	1
	Livestock Brand Inspector	20
	Managerial	
	Manager	7
	President	4
	Asst. Manager	2
	Division Manager	1
	Sales Manager	1
	General Manager	1
	Branch Manager	1
	Supervisory	
	Supervisor	1
	Line Supt.	1
	Shop Foreman	1
	District Supervisor	4
	Pest Control Supervisor	1
	Termite Supervisor	1
	Sales	
	Salesman	15
	Routeman	3
	Real Estate Agent	1
	Skilled	
	Operator	2
	Carpenter	1
	Mechanic	8
	Lineman	18
	Semi-Skilled	
	Treator	6
	Treator Helper	1
	Pest Control Serviceman	28
	Exterminator	3
	Termite Serviceman	5
	Warehouseman	3
	Unskilled	
	Warehouse Helper	1
Agricultural Service	Professional	
	Voc. Agri. Teacher	1
	County Office Manager	1
	Voc. Agri. Specialist	3
	Executive Asst. II	1
	Land Administrator I	3
	Land Adminsitrator II	1
	Voc. Agri. Supervisor	4

State Director Agri. Ed.	1
Area Veterinarian	12
Chief Anhydrous Ammonia Div.	1
Commissioner of Agriculture	1
Asst. Comm. of Agriculture	1
Dir. Weights & Measures	1
Exec. Asst. Dept. of Agri.	1
Dir. Sweet Potato Adv.	1
Chemist	1
Dir. Warehouse Comm.	1
Chief Milk Testing Div.	2
Plant Entomologist	1
Veterinarian	39
State Entomologist	1
Poultry Pathologist	3
Veterinarian Pathologist	3
Pest Control State Supv.	1
Pest Control Dist. Supv.	1
County Agent	1
Asst. County Agent	1
Assoc. County Agent	1
Ag. Mkt. Service Area Supv.	1
Ag. Mkt. Dist. Supv.	1
Ag. Commodity Grader	9
Technical	
Pest Control Technician	59
Produce Insp.	177
Veterinary Nurse	1
Veterinary Lab. Technician	9
Animal Disease Enforc. Officer	1
Livestock Insp., General	8
Livestock Insp.	59
Sweet Potato Insp.	89
Apiary Insp.	4
Milk Sampler & Weigher	31
Warehouse examiner	4
Marketing Specialist	10
Weight & Measure Insp.	19
Anhydrous Ammonia Insp.	1
Feed & Fertilizer Insp.	1
Herbicide Insp.	1
Seed Technician	6
Jr. Livestock Loan Rep.	3
Grain Insp.	3
Cotton Gin Specialist	1
State Seed Analyist	1
Exhibit Technician	1
Poultry Product Insp.	10
Poultry Grader	5
Horticulture Insp.	2
Pest Control Insp.	5
Pink Boll Worm Insp.	6
Managerial	
President	2

Exec. Vice-President	1
Sr. Vice-President	1
Vice-President	10
Asst. Vice-President	9
Manager	4
Supervisory	
Work Unit Supv.	14
Poultry Prod. Supv.	1
Fire Ant Supv.	1
Sales	
Office	
Secretary	4
Clerk	1
Clerk Typist	3
Milk Plant Auditor	13
Chief Clerk	1
Program Clerk	1
Farm Commodity Mkt. Reporter	17
Area Clerk	1
Skilled	
Semi-skilled	
Unskilled	
Laborer	2
Vet. Hosp. Helper	3
Gardener	1

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ALEXANDRIA; PINEVILLE; LOUISIANA

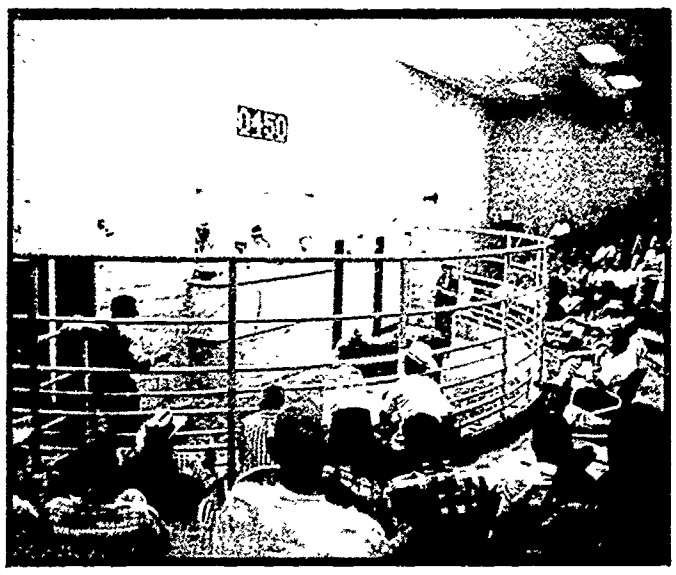
The principal purposes were to identify off-farm agricultural occupational job titles requiring knowledge and skill in agriculture and to obtain job qualifications. In this survey, one of seven in Louisiana, of the 3,048 employees reported by 138 firms, 913 were required to have training in agriculture. Job titles were classified into occupational families and employment levels, and these were tabulated by educational level, residential background, farm experience, and continuing education requirements. There were 224 different job titles with a trend toward the farm and agricultural services family and toward management, skilled, and professional levels. Employers preferred a job entry age between 25 and 45. Salaries were proportionate to experience and employment level. Some employers favored farm background and high school or college education in employees. Personnel in management, supervision, and sales were required to have broad agricultural knowledge while professional, technical, and skilled personnel were required to have more specific and intensive training in agriculture. Recommendations for the implementation of educational programs are included. (JM)

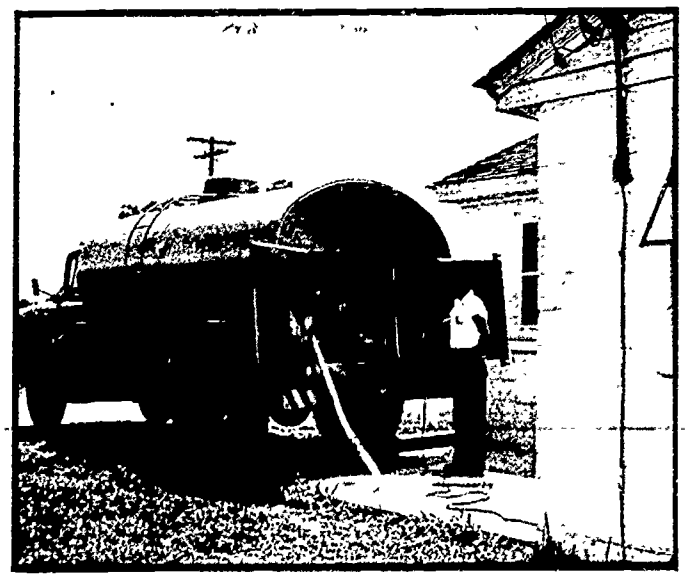
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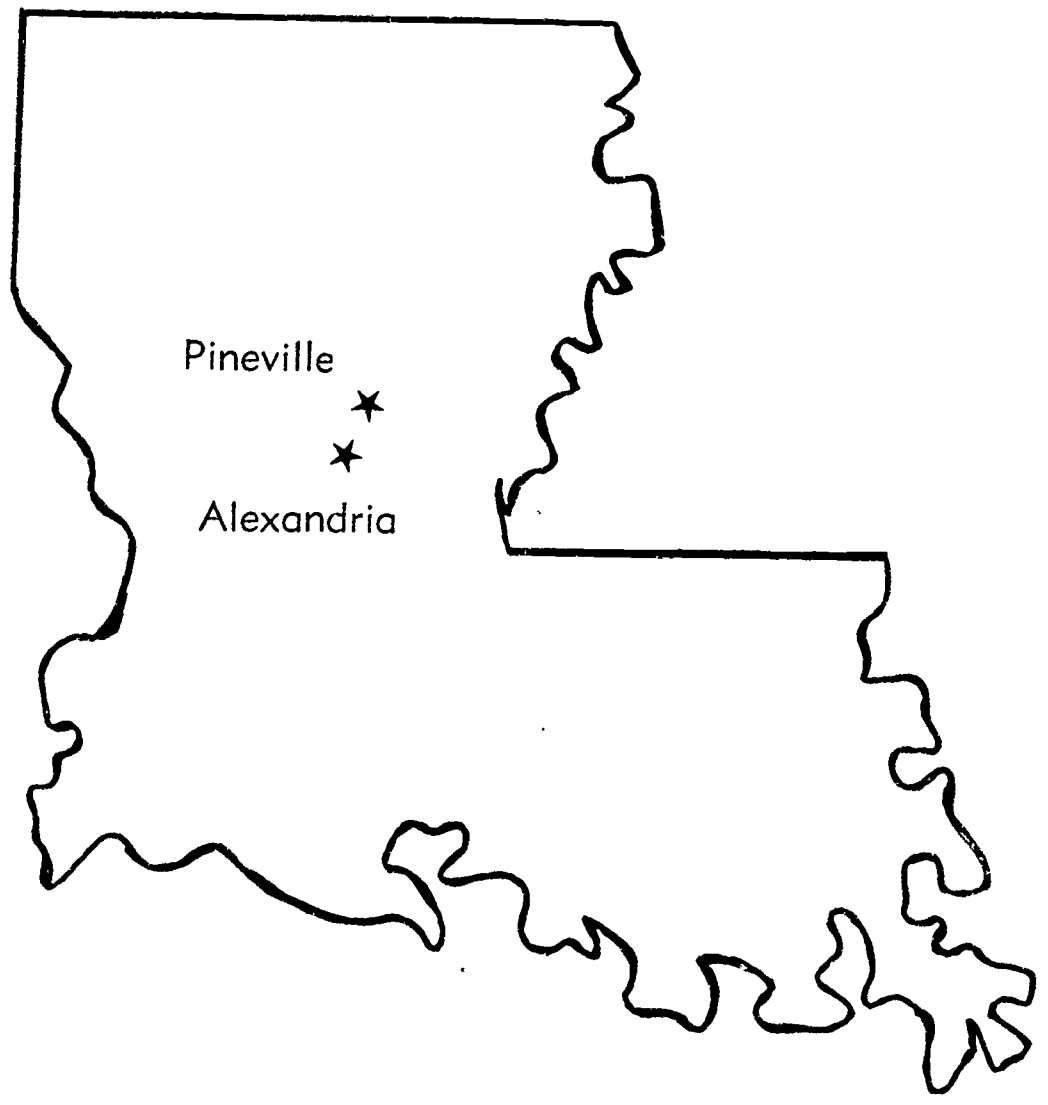
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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN ALEXANDRIA-PINEVILLE AREA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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BY:

C. L. Mondart, Sr., and C. M. Curtis

DEPARTMENT OF VOCATIONAL AGRICULTURAL EDUCATION

SCHOOL OF VOCATIONAL EDUCATION

COLLEGE OF AGRICULTURE

LOUISIANA STATE UNIVERSITY

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PREFACE

Rural boys, excluding those with ability and resources to farm, migrate to find jobs. Where jobs are sought in urban areas, they compete with urban youth more competitively trained, except for the jobs in nonfarm agriculture where the farm boy has a built-in advantage because of his farm experiences, providing such experiences are supplemented with training in agricultural subjects required for a particular job.

This REPORT is part of a state-wide study designed to locate and identify by title jobs in nonfarm agriculture, along with a description of such jobs including knowledge and skill needed for job entry. Information presented is intended primarily for school administrators, counselors, and agricultural instructors who plan adjustments in programs of vocational agriculture necessary to meet the needs of students who aspire to jobs in nonfarm agriculture.



ACKNOWLEDGEMENTS

The REPORT was made possible through action by the Louisiana Agricultural Teachers' Association, members of the staff for Vocational Agricultural Education, State Department of Education, in obtaining a grant from the Board of Liquidation of the State Debt for use by Louisiana State University in making the Study.

Invaluable aid towards making the Alexandria-Pineville survey was extended to University researchers by the Division of Employment Security and officials of the Alexandria-Pineville Chamber of Commerce.

Great appreciation is expressed to the 139 businesses and agencies cooperating in the Survey.

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN ALEXANDRIA-PINEVILLE AREA

by

C. L. Mondart, Sr.,* and C. M. Curtis**

Introduction

The Alexandria-Pineville trade territory comprises thirteen Central Louisiana Parishes. It is a large rural area in which the production of farm crops, livestock, and timber make up a very substantial segment of the economy. In 1960 the population of the area was approximately 366,000. Of this number 48,000 were living on an estimated 18,000 farm units under separate management.

Youth who remain in the area look to agriculture for employment. There are approximately 85 high schools offering agricultural instruction to more than 4,000 rural boys. The instruction is geared principally to the farm production interests of youth and adults, with the goal of training present and prospective farmers for proficiency in farming occupations.

Limiting instruction for agricultural occupations to the work of the farm no longer meets the needs of all rural youth, even though farm production is, and will continue to be a forceful influence in the area.

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Largely because of advancing technology and automation, drastic changes are occurring in agriculture. Much of the traditional work once performed on the farm is now done in towns and cities where numerous and varied divisions of agriculture have developed to process and market the products of the farm, along with servicing the production needs of the farmers. A marked decline in numbers of farms and people living on farms parallels this movement, although actual total farm production continues to maintain high levels.

In 1935, the Alexandria-Pineville area contained 40,000 farms. In 1959 this number had decreased to 18,000. The drop in farm population was even more startling--in 1945 it was 122,000, while in 1960 only 48,000 lived on farms.

Many farm migrants undoubtedly settle in Alexandria-Pineville where job opportunities are available, many in specialized establishments organized to serve farmers and handle their products. The rapid growth of the "twin-cities" was helped by this action--population increased from 26,000 in 1930 to 50,000 in 1963, while population in the Parish (Rapides) spiraled from 65,000 to 119,000.

The movement towards fewer but larger farms is expected to continue. Soon, if not at the present time, more farm boys will be of work age than can possibly find employment opportunities in farming. These opportunities will further decrease following more farm consolidation, increasing capital requirements of farming, and technological advances that reduce the need for human energy on the farm.

Faced with the problem of fewer opportunities to farm--about 350 farms now change management in the area each year--and the increase in nonfarm agricultural occupational opportunities, the educational pattern for rural

boys must be reshaped to prepare students to meet a whole set of emerging conditions. Not only must a boy compete with graduates from his own community, but he may be forced to migrate to Alexandria-Pineville, or some other more distant center and compete for a job with more competitively trained urban graduates.

The National Vocational Education Act of 1963, Public Law 88-210, places new emphasis on occupations where employment opportunities are expanding in off-farm agriculture, to supplement traditional farmer training now in process.

Before a more comprehensive program can be arranged, it was considered necessary to determine actual employment in farm-based establishments, along with the required knowledge and skill in agricultural subjects which affect entry in jobs where satisfactory performance depends upon training in agriculture. Once this information is known, then program changes can be made to reflect job opportunities discovered, together with training required.

In the absence of this information, a survey of the seven metropolitan areas of the State was made in a effort to develop a large-scale picture of employees and their qualifications found in all establishments considered a part of the agricultural complex.

Purpose of Study

The Alexandria-Pineville survey is a part of the State Survey, inasmuch as the "twin cities" is one of the seven metropolitan areas.

The principal purpose of the survey was to identify nonfarm agricultural business and professional organizations having one or more job titles requiring knowledge or skill in agricultural subjects, and to obtain specific job qualifications, including training in agriculture associated with job entry.

Funds granted to the University by the Board of Liquidation of the State Debt were used to finance the survey.

The overall objective of the study was to provide those engaged in education with a knowledge of present and emerging agricultural occupations, other than farming and ranching, for which instruction in vocational agriculture should be available in public schools.

For purposes of this research, an agricultural occupation, other than farming and ranching, refers to one for which workers need competencies in one or more of the primary areas of plant and animal science, agricultural business management and marketing, and agricultural mechanization.

To make a determination involving extensive changes in high school programs of vocational agriculture, it was assumed that the following information had to be gathered:

1. Number of employees in each and all agricultural business firms or organizations, together with employee identification according to job title held, and

2. Competencies needed in agricultural subjects or skills required for job entry and advancement, and

3. Special characteristics of all job titles such as salary or wages, entry age, required formal education and experiences, legal restrictions and union regulations, licensing and certification, and a description of work performed by workers within a particular job title.

Survey Procedure

The population surveyed in Alexandria-Pineville contained all nonfarm agricultural businesses and organizations located within the immediate metropolitan area comprising the twin-cities.

Alexandria and Pineville--commonly called the crossroads of Louisiana--are situated on opposite banks of the Red River and together occupy the geographic center of the State. Workers in the two centers in nonfarm establishments approximate 14,000, with about 3,500 of this number employed

in manufacturing. More than 100 manufacturers are located in the immediate vicinity. Agricultural products such as timber, livestock and dairying, sugar cane, cotton, corn and soybeans make up a major source of raw products for these plants. Non-manufacturing concerns are engaged in supplying services to both farmers and non-farmers.

A comprehensive list of agriculturally oriented firms and organizations was developed for the Alexandria-Pineville community and refined to include only those most likely to have one or more employees with knowledge or skill in agricultural subjects. This action was supported by information obtained from the Yellow Pages of the local Southern Bell Telephone Directory, the several trade associations, records of the Alexandria-Pineville Chamber of Commerce, and the local Division of Employment Security.

Endorsement of the proposal to survey these establishments was extended by the Agricultural Committee of the Alexandria-Pineville Chamber of Commerce. Officials of the Chamber advised each establishment by letter of such endorsement. A letter explaining the purpose of the survey was directed to each establishment by the Dean of the College of Agriculture, Louisiana State University. Support of the survey was given by the local newspaper, the Alexandria Daily Town Talk, and both broadcasting companies, Alexandria Broadcasting Company and Dixie Broadcasting Service.

A group of prospective interviewers was recruited by the local Division of Employment Security. These were screened and six were employed* and trained by University personnel to make the survey. These surveys were made over a 10-day period under University supervision, using facilities of the local Employment Security office as a base of operations.

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* See Appendix B

Each interviewer was assigned a group of firms to contact and arrange with management an acceptable day and hour for a personal interview. There were no refusals--information obtained by the interviewer from the interviewee was recorded, using a schedule* developed for statewide use.

A total of 139* establishments cooperated in the survey--100 per cent of those having employees with knowledge or skill in agricultural subjects. These organizations employed 3,048 workers--913 were required to have training in agriculture.

Treatment of Survey Information

Information supplied by the 139 farm-based firms surveyed was organized under three general categories for purposes of presentation: 1) Occupational families, 2) Classification of job titles into levels of employment and training required in agricultural subjects, and 3) Special requirements for job entry.

Occupational families selected were patterned after those adopted for use throughout the country where similiar studies are underway--they are Farm Machinery Sales and Service; Farm Supplies and Equipment; Livestock and Poultry; Crops, Forestry and Soil Conservation; Ornamental Horticulture; Wildlife and Recreation; Farm Services; and Agricultural Services. Total numbers of employees requiring training in agricultural subjects were determined for each job title in all eight occupational families.

Job titles found were classified according to levels of employment, ranging from a high to a low grade performance including Professional; Technical; Managerial; Supervisory; Sales; Office; Skilled; Semi-Skilled;

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* See Appendix C
* See Appendix A

and Unskilled. For the occupational families and each level of employment, information was tabulated showing: age for entry, monthly salary or wage, and the number of employees needing knowledge or skill in each of the subject matter areas of agriculture: Crops, Livestock, Management and Mechanics.

Employment requirements found and considered specific for each occupational family were determined according to each job level. They are education, residential background, farm experience, and continuing education required for advancement after employment.

This Report is made in an attempt to define the scope of occupational opportunities in nonfarm agriculture available within the Alexandria-Pineville business and professional complex, with special regard to training that must be offered at the high school level if youth is to be provided with the background required for entering agricultural occupations performed off-the-farm.

Tabular forms, and the schedule used in the study, were designed in cooperation with researchers from other states undertaking studies seeking to obtain comparable information.

Presentation and Analysis of Survey Information

Occupational Families

A total of 139 agricultural business and professional organizations were included in the Alexandria-Pineville survey. The initial list contained more than this number; however, after beginning the survey it was learned that several establishments listed had no employees with competencies in agriculture; hence, those were omitted. Since there were no refusals to cooperate, 100 per cent of those considered pertinent to the study were included in the survey. All of these were categorized in one of the appropriate eight major occupational families.

Farm Machinery Sales and Service

- Farm Machinery and Equipment Dealer

Farm Supplies and Equipment

- Fence Company
- Wholesale Distributing Company
- Feed and Seed Store
- Building Supply Store
- Hardware Store
- Department Store
- Dime Store
- Drug Store
- Agricultural Chemicals Dealer
- Dairy Farm Equipment Dealer
- La. Agricultural Cooperative
- Fertilizer Company

Livestock and Poultry

- Livestock Auction Barn
- Poultry By-Products Company
- Poultry and Egg Processing Plant
- Creamery
- Milk Distributorship
- Packing Plant
- Grocery Store
- Slaughter House
- Dairy Products Company

Crops, Forestry, and Soil Conservation

- Paper Company
- Cotton Products Company
- Cotton Gin
- Creosoting Company
- Cotton Division, Agri. Mkt. Service
- Forestry Experiment Station
- Fruit Stand
- Forestry Consulting Firm
- Produce Company
- Fruit Market
- Louisiana Forestry Commission
- Forest Service
- Tree Service Company

Ornamental Horticulture

- Nursery

Wildlife and Recreation

- Louisiana Wildlife and Fishery Commission
- City Park
- Golf Course

Farm Service

Insurance Company
Research Consulting Firm
Real Estate Company
Building Contractor
Electric Power Supplier
Pest Exterminating Company
Farm Bureau
Welding Company
Machine Shop
Plant Pest Control Division (USDA)

Agricultural Service

Vocational Agricultural Teacher
Agricultural Extension Service
Veterinary Hospital
Soil Conservation Service
Agricultural Stablizer and Conservation Agency
State Agricultural Market Commission
Bank--Commercial
Bank--Federal Land Bank Association
Federal Home Administration
Water Shed Conservation Office

TABLE I

NUMBER OF AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES GROUPED BY OCCUPATIONAL FAMILY, 1964

Occupational Family	Number
Farm Machinery, Sales and Service	4
Farm Supplies and Equipment	43
Livestock and Poultry Industries	19
Crops, Forestry, and Soil Conservation	16
Ornamental Horticulture	12
Wildlife and Recreation	1
Farm Service	29
Agricultural Service	15
Total	139

Nonfarm agricultural business activity in the Alexandria-Pineville locality follows a common pattern for all business-there is a concentration of firms and agencies providing services.

There were relatively few concerns actually engaged in manufacturing farm products into consumable commodities. Over 50 per cent could be

classified under two occupational families: 1) Farm Supplies and Equipment, and 2) Farm Service Occupations. The location in Alexandria of a number of Federal agencies helped to swell numbers providing agricultural services.

The rank of occupational families according to number of establishments was as follows:

1) Farm Supplies and Equipment
2) Farm Service
3) Livestock and Poultry Industries
4) Crops, Forestry, and Soil Conservation
5) Agricultural Service
6) Ornamental Horticulture
7) Farm Machinery Sales and Service
8) Wildlife and Recreation

There was no recognizable pattern followed by all establishments as to a major product or service emphasized for the Area, with the exception of farm and agricultural services.

Number Employed in Nonfarm Agriculture

The number of workers employed in the 139 firms and agencies surveyed, together with those having competencies in agriculture, is shown by occupational family in Table II.

TABLE II

NUMBER OF PERSONS EMPLOYED IN AGRICULTURAL BUSINESSES, INDUSTRIES AND AGENCIES, AND NUMBER OF EMPLOYEES HAVING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY

Occupational Family	Total Number of Employees	Employees Having Agricultural Competencies	
		Current Employment	Expected Employment Five Years Hence
Farm Machinery Sales and Service	55	48	48
Farm Supplies and Equipment	1,321	146	155
Livestock and Poultry	442	141	155
Crops, Forestry, and Soil Conservation	315	237	246
Ornamental Horticulture	92	77	88
Wildlife and Recreation	11	6	6
Farm Service	687	159	178
Agricultural Service	125	99	99
Total	3,048	913	975

A total of 3,048 persons were employed in Alexandria-Pineville by firms and agencies making up the agricultural complex; of these 913, or 32 per cent, were required to have knowledge or skill in agricultural subjects--five years hence the number will expand to 975.

More than one-half of those employed were engaged in giving some type of farm or agricultural service. Occupational families, when ranked according to number of workers, appeared as follows:

1) Farm Supplies and Equipment
2) Farm Service
3) Livestock and Poultry
4) Crops, Forestry, and Soil Conservation
5) Agricultural Service
6) Ornamental Horticulture
7) Farm Machinery Sales and Service
8) Wildlife and Recreation

The number of workers with agricultural competencies in each occupational family had no particular relation to total employment, rather, the

work performed by firms within a family appeared to exert more influence on proportion of workers needing agricultural knowledge or skill.

Assuming that rank of occupational families, according to numbers of workers required to have agricultural competencies, indicated outlook in agricultural occupational opportunities to youth, the eight families ranked in the following order:

1) Crops, Forestry, and Soil Conservation
2) Farm Service
3) Farm Supplies and Equipment
4) Livestock and Poultry
5) Agricultural Service
6) Ornamental Horticulture
7) Farm Machinery Sales and Service
8) Wildlife and Recreation

Only three of the occupational families were not expected to grow in number of employees trained in agricultural subjects: 1) Farm Machinery Sales and Service, 2) Wildlife and Recreation, and 3) Agricultural Service. The other five families plan the addition of 62 workers over the coming five year period--an increase of some 7 per cent.

Growth will occur most in families covering livestock and poultry; and crops, forestry, and soil conservation. This is a logical expectation since the Area has great potential in these segments of agricultural production, while soil conservation will continue to be of concern to all.

Job Titles According to Occupational Families and Levels of Employment

The 913 workers serving in an agricultural capacity in the 139 establishments surveyed held 224 different job titles, ranging in performance from the level of laborer to professional status.

Table III shows the number of job titles by occupational families.

TABLE III

NUMBER OF JOB TITLES IN AGRICULTURAL OCCUPATIONS
OTHER THAN FARMING, BY OCCUPATIONAL FAMILY

Occupational Family	Number of Job Titles	Number of Job Titles Five Years Hence
Farm Machinery, Sales and Service	13	17
Farm Supplies and Equipment	43	49
Livestock and Poultry	26	27
Crops, Forestry, and Soil Conservation	55	55
Ornamental Horticulture	8	12
Wildlife and Recreation	2	2
Farm Service	43	56
Agricultural Service	34	34
Total	224	252

A detailed breakdown of job titles is shown for each of the eight occupational families, together with the number of workers in each title found in the survey.

OCCUPATIONAL FAMILY	LEVEL OF EMPLOYMENT AND JOB TITLES	NUMBER OF WORKERS
Farm Machinery Sales and Services	Professional	0
	Technical	0
	Managerial	
	Manager	4
	Assistant Manager	2
	Parts Manager	2
	Office Manager	2
	Supervisory	
	Shop Foreman	4
	Parts Foreman	1
	Sales	
	Salesman	8
	Office	
	Skilled	
	Mechanic	10
	Parts Man	3
	Truck Mechanic	4
	Farm Equipment Mechanic	3
	Semi-Skilled	
	Assemblyman	3
	Truck Driver	1
	Unskilled	
	Porter	1

Farm Supplies and Equipment

Professional	
Plant Breeder	1
Forester	1
Engineer	1
Technical	
Seed Analyzer	1
Lumber Grader	1
Managerial	
General Manager	3
Manager	36
Assistant Manager	5
Vice-President	4
Office Manager	4
President	5
Secretary-Treasurer	1
Sales Manager	7
Production Manager	1
Supervisory	
Mill Foreman	4
Woods Foreman	2
Department Supervisor	1
Superintendent	1
Foreman, Supervisor	1
Plant Supervisor	1
Production Supervisor	1
Warehouse Supervisor	1
Seed Dryer Supervisor	1
Sales	
Salesman	25
Sales Clerk	4
Sales Girl	3
Outside Salesman	5
Telephone Salesman	2
Pharmacutical Buyer	1
Lumber Buyer	1
Office	
Bookkeeper	2
Shipping Clerk	3
Receiving Clerk	1
Accountant	1
Skilled	
Estimator	1
Serviceman	1
Semi-Skilled	
Assistant Seed Dryer	1
Unskilled	
Installation Man	3
Warehouseman	4
Porter	2
Delivery Man	1
Warehouse Assistant	1

Livestock and Poultry		
	Professional	0
	Technical	
	Cattle Buyer	2
	Managerial	
	Manager	19
	President	2
	Sales Manager	2
	Procurement Manager	1
	Assistant Manager	8
	Production Manager	1
	Supervisory	
	Foreman	5
	Shift Supervisor	2
	Route Supervisor	1
	Processing Foreman	1
	Superintendent	1
	Plant Supervisor	1
	Sales	
	Sales Clerk	3
	Salesman	4
	Buyer	7
	Office	
	Shipping Clerk	3
	Skilled	
	Livestock Handler	8
	Stockman	16
	Processor (poultry)	24
	Smoker	4
	Carpenter	1
	Meat Cutter	9
	Processor (beef)	2
	Semi-Skilled	
	Candler and Grader	4
	Yardman	12
Crops, Forestry, and Soil Conservation		
	Professional	
	Area Forester Superintendent	2
	District Forest Superintendent	1
	Unit Forester	1
	Agri-Commodity Supervisor	1
	Asst. Commodity Supervisor	1
	Research Forester	11
	Range Conservationist	8
	Soil Scientist	1
	Entomologist	3
	Plant Physiologist	1
	Mechanical Engineer	1
	Forester	11
	Technical	
	Forest Technician	1
	Treating Technician	2
	Forest Ranger	16

	Managerial	
	Manager	16
	Assistant Manager	2
	Business Manager	1
	General Manager	1
	Office Manager	17
	Production Manager	2
	Plant Manager	1
	Gin Manager	8
	President	1
	Supervisory	
	Woodyard Foreman	1
	Gin Superintendent	1
	Mill Superintendent	1
	Plant Superintendent	1
	Maintenance Foreman	1
	Repair Shop Foreman	1
	General Superintendent of Mills	1
	Sales	
	Buyer	3
	Seed Buyer	5
	Salesman	11
	Office	
	Seed Checker & Weigher	1
	Secretary	1
	Shipping Clerk	2
	Skilled	
	Gin Operator	6
	Stand Man	8
	Forest Farmer	8
	Cabinet Maker	1
	Radio Operator	1
	Mechanic	5
	Heavy Equipment Operator	3
	Parts Man	1
	Look-out Man	7
	Semi-Skilled	
	Fire Guard	7
	Tractor Operator	4
	Packer-Shipper	2
	Forest Fireman	13
	Forest Towerman	5
	Maintenance Helper	5
	Unskilled	
	Laborer	17
	Woods Crew	3
	Trade Helper	1
Ornamental Horticulture		
	Professional	0
	Technical	0
	Managerial	
	Manager	14
	Assistant Manager	9
	Supervisory	
	Nursery Foreman	1

	Sales	0
	Office	0
	Skilled	
	Propogator	3
	Semi-Skilled	0
	Unskilled	
	Nursery Laborer	35
	Nursery Helper	9
	Landscape Laborer	5
	Yardman	1
Wildlife and Recreation		
	Professional	
	Biologist	1
	Technical	0
	Managerial	0
	Supervisory	
	Area Supervisor	5
	Sales	0
	Office	0
	Skilled	0
	Unskilled	0
Farm Service		
	Professional	
	Work Unit Supervisor	1
	Agricultural Engineer	4
	Entomologist	1
	County Supervisor	1
	State Director	1
	Administration Officer	1
	Engineer	1
	Loan Specialist	1
	Loan Specialist Assistant	1
	Farm Management Officer	2
	Loan Officer	1
	Technical	
	Service Technician	14
	Airplane Pilot	2
	Artificial Inseminator	1
	Management Technician	1
	Plant Covered Technician	1
	Milk Technician	2
	Breeding Technician	1
	Managerial	
	Manager	26
	District Manager	1
	Assistant Manager	1
	Supervisory	
	Machinist Foreman	2
	Service Supervisor	1
	Foreman	4
	Sales	
	Salesman	9
	Insurance Salesman	4

	Office	
	Secretary	2
	Bookkeeper	1
	Office Clerk	1
	Skilled	
	Pest Treator	2
	Machine Operator	10
	Welder	14
	Well-Service Man	3
	Pest-Control Serviceman	3
	Well Driller	2
	Mechanic	7
	Pest-Control Operator	4
	Carpenter	8
	Termite Man	2
	Semi-Skilled	
	Welder Helper	2
	Scout II	1
	Well-Driller Helper	2
	Painter	4
	Machinist Helper	6
	Unskilled	0
Agricultural Service		
	Professional	
	Veterinarian	4
	Senior Counselor	1
	Counselor	8
	Instructor	2
	Vocational Agri. Teacher	2
	State Administration Officer	1
	Soil Conservationist	10
	Soil Scientist	7
	Agricultural Engineer	1
	Civil Engineer	7
	Biologist	1
	Forester	1
	County Manager	1
	Party Leader	1
	Agricultural Economist	1
	Hydraulic Engineer	2
	Geologist	1
	Technical	
	Draftsman	1
	Conservation Technician	1
	Civil Engineer Technician	2
	Managerial	
	Administration Officer	3
	President	1
	Vice-President	5
	Loan-Officer	1
	Supervisory	0
	Sales	0

Office	
Clerks	8
Stenographer	9
Chief Clerk	1
Conservation Program Clerk	1
Allotments Program Clerk	1
Soil Bank Clerk	1
Counter Clerk	1
Bookkeeper	1
Administrative Clerk	1
Skilled	
Auto Mechanic	1
Surveyor	4
Semi-Skilled	
Veterinarian Helper	3
Kennel Helper	2
Unskilled	0

It was quite obvious that nonfarm agriculture in Alexandria-Pineville contained a number and variety of distinct jobs for which rural youth could prepare and aspire.

Practically all of the eight occupational families provided job titles in a sufficient quantity to challenge the occupational interests of rural youth, even though interest by the individual may be focused upon a particular segment of nonfarm agriculture. The outlook is expected to widen inasmuch as job titles are expected to increase by 28, or 12 per cent, over the next five-year period, a development that will make nonfarm agriculture in the Area even more attractive to youth.

Levels of Employment in Nonfarm Agriculture

Management, skilled, and professional levels of employment in order named contained the largest number of workers in all occupational families; followed by unskilled, sales, and semi-skilled. Fewer were employed for sales and technical work. Office workers were not frequently found with a knowledge of agricultural subjects, however, it was surprising to discover a number of firms requiring agricultural knowledge of those serving in office job titles.

Table IV includes total employees required to have agricultural training by levels of employment in the eight occupational families.

TABLE IV

TOTAL EMPLOYEES WITH AGRICULTURAL TRAINING
BY LEVELS OF EMPLOYMENT IN OCCUPATIONAL FAMILIES

Occupational Families	Levels of Employment									
	Prof.	Techn.	Mang.	Superv.	Sales	Office	Skilled	Semi-Skilled	Un-skilled	Total
Farm Machinery Sales and Service	0	0	10	5	8	0	20	4	1	48
Farm Supplies and Equipment	3	2	66	13	41	7	2	1	11	146
Livestock and Poultry	0	2	33	11	12	3	64	4	12	141
Crops, Forestry, & Soil Conservation	42	19	49	7	19	4	40	36	21	237
Ornamental Horticulture	0	0	23	1	0	0	3	0	50	77
Wildlife and Recreation	1	0	0	5	0	0	0	0	0	6
Farm Service	15	22	28	7	13	4	55	15	0	159
Agricultural Service	51	4	10	0	0	24	5	5	0	99
Total	112	49	219	49	93	32	189	65	95	913

Employment at the professional and technical levels was restricted almost entirely to Crops, Forestry, and Soil Conservation; Agricultural Service; and Farm Service. The various job titles under management were well distributed over all occupational families. Skilled workers were concentrated in Farm Machinery and Sales; Livestock and Poultry; Crops, Forestry and Soil Conservation; and Farm Service. The semi-skilled were limited primarily to Crops, Forestry and Soil Conservation; and Farm Service. The unskilled were found in Ornamental Horticulture. These concerns were family owned and operated, with a supporting crew of unskilled workers.

A listing of those employed at the various job levels depicts rather clearly the levels of employment offering the most promise to young people, taking into account ranking according to numbers working at each level:

1) Management
2) Skilled
3) Professional
4) Unskilled
5) Sales
6) Semi-Skilled
7) Supervision
8) Technical
9) Office

Job Entry Age For Nonfarm Agricultural Workers

Age of all employees with agricultural competencies in the 139 establishments was obtained by level of employment for each occupational family. Emphasis was given to minimum and maximum age for job entry in addition to employee age at the time of the survey.

Tables V-1 through V-8 show age averages under each category.

TABLE V-1

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE

Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	33	25	37
Supervisory	37	25	41
Sales	31	25	38
Office	0	0	0
Skilled	35	25	42
Semi-Skilled	25	25	31
Unskilled	45	25	35

TABLE V-2

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT

Level of Employment	Present	Minimum	Maximum
Professional	35	25	35
Technical	40	28	50
Managerial	37	28	50
Supervisory	32	27	43
Sales	35	25	41
Office	34	25	46
Skilled	35	25	50
Semi-Skilled	25	20	45
Unskilled	38	25	39

TABLE V-3

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY

Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	25	25	35
Managerial	31	29	51
Supervisory	34	28	46
Sales	39	26	53
Office	35	25	45
Skilled	39	25	51
Semi-Skilled	25	25	38
Unskilled	33	25	42

TABLE V-4

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY, AND SOIL CONSERVATION

Level of Employment	Present	Minimum	Maximum
Professional	26	25	52
Technical	34	32	49
Managerial	35	28	47
Supervisory	34	29	46
Sales	36	25	51
Office	37	25	35
Skilled	36	25	48
Semi-Skilled	33	25	45
Unskilled	28	25	43

TABLE V-5

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE

Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	36	26	54
Supervisory	0	25	0
Sales	0	0	0
Office	0	0	0
Skilled	25	0	0
Semi-Skilled	0	0	0
Unskilled	32	31	55

TABLE V-6

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION

Level of Employment	Present	Minimum	Maximum
Professional	0	25	0
Technical	0	0	0
Managerial	0	0	0
Supervisory	0	25	0
Sales	0	0	0
Office	0	0	0
Skilled	0	0	0
Semi-Skilled	0	0	0
Unskilled	0	0	0

TABLE V-7

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SERVICE

Level of Employment	Present	Minimum	Maximum
Professional	34	27	47
Technical	31	25	42
Managerial	37	29	48
Supervisory	38	27	49
Sales	34	25	47
Office	32	25	45
Skilled	33	25	47
Semi-Skilled	34	25	46
Unskilled	0	0	0

TABLE V-8

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICES

Level of Employment	Present	Minimum	Maximum
Professional	29	26	44
Technical	25	25	35
Managerial	30	25	40
Supervisory	0	0	0
Sales	0	0	0
Office	32	25	55
Skilled	40	25	45
Semi-Skilled	25	25	40
Unskilled	0	0	0

There was no discernable trend in age of employees for any specific occupational family or for any particular business or agency. Current ages of all employees ranged around the 35 year average for all occupational families and in all establishments. On the other hand, certain trends were quite apparent when dealing with minimum and maximum ages specified for job entry.

The age considered acceptable for job entry at the various levels "zeroed" in at age 25; while maximum age for job entry was focused upon age 45, regardless of the occupational family. Most employers felt that prospective employees should be young enough to offer at least 20 years of service before retirement, and that few applicants accumulated necessary knowledge and skill in agricultural subjects before age 25.

The minimum age of 25 for first employment would presumably operate against youth completing vocational agriculture programs, whether at the high school or post high school levels. Actually, management indicated willingness to employ at an earlier age providing applicants possessed the necessary knowledge or skill in agricultural subjects. In actual practice it was found that job title applicants generally acquired qualifications by previous work experiences which generally consumed the years between high school graduation and entry in a job having both identity and permanance. Proper training in high school would tend to offset this condition and insure job entry before age 25.

Salaries of Workers Employed in Nonfarm Agriculture

Salaries or wages for all 913 workers were determined for each occupational family according to levels of employment. Tables VI-1 through VI-8 show monthly median salaries under categories "Beginning" and "Maximum". Maximum recorded was $700.00 per month and above; hence, where this figure is shown it can be interpreted to mean a minimum for this bracket.

TABLE VI-1

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	413.50	0	563.50
Supervisory	451.00	0	617.66
Sales	376.00	0	700.00(& above)
Office	0	0	0
Skilled	280.41	0	416.28
Semi-Skilled	244.75	0	394.75
Unskilled	226.00	0	226.00

TABLE VI-2

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	No salary given	0	No salary given
Technical	226.00	0	276.00
Managerial	594.75	0	700.00
Supervisory	401.00	0	538.50
Sales	343.85	0	593.85
Office	247.00	0	326.00
Skilled	278.78	0	446.31
Semi-Skilled	276.00	0	426.00
Unskilled	221.00	0	240.00

TABLE VI-3

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	0	0	0
Technical	501.00	0	700.00(& above)
Managerial	451.00	0	700.00(& above)
Supervisory	413.50	0	544.75
Sales	328.08	0	700.00(& above)
Office	234.34	0	401.00
Skilled	238.50	0	276.00
Semi-Skilled	220.00	0	255.00
Unskilled	201.00	0	251.00

TABLE VI-4

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY, AND SOIL CONSERVATION

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	437.36	0	700.00(& above)
Technical	388.50	0	541.62
Managerial	436.00	0	601.00
Supervisory	382.25	0	571.83
Sales	365.58	0	513.50
Office	276.00	0	438.50
Skilled	234.34	0	341.00
Semi-Skilled	201.00	0	301.00
Unskilled	184.34	0	226.00

TABLE VI-5

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	216.00	0	294.75
Supervisory	205.00	0	285.00
Sales	0	0	0
Office	0	0	0
Skilled	256.00	0	356.00
Semi-Skilled	0	0	0
Unskilled	177.84	0	190.58

TABLE VI-6

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	No salary given	0	No salary given
Technical	0	0	0
Managerial	0	0	0
Supervisory	326.00	0	476.00
Sales	0	0	0
Office	0	0	0
Skilled	0	0	0
Semi-Skilled	0	0	0
Unskilled	0	0	0

TABLE VI-7

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

FARM SERVICE OCCUPATIONS

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	401.00	0	700.00
Technical	327.38	0	516.90
Managerial	562.72	0	700.00
Supervisory	384.34	0	601.00
Sales	333.14	0	692.66
Office	236.00	0	363.50
Skilled	364.75	0	419.75
Semi-Skilled	319.75	0	394.42
Unskilled	0	0	0

TABLE VI-8

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILY AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICE

Level of Employment	Median Monthly Salary		
	Beginning	Present	Maximum
Professional	449.08	0	700.00(& above)
Technical	372.42	0	700.00(& above)
Managerial	501.00	0	700.00(& above)
Supervisory	0	0	0
Sales	0	0	0
Office	313.50	0	413.50
Skilled	376.00	0	476.00
Semi-Skilled	201.00	0	301.04
Unskilled	0	0	0

There was a marked tendency among all establishments to pay salaries in keeping with training and responsibilities. starting with a low income level for the unskilled with increments for the semi-skilled and skilled workers and continuing upward through sales, supervision, management, and professional.

Generally, salaries paid workers were consistantly advanced with tenure, except for the unskilled.

Over 40 per cent of the 913 workers were employed at the professional, management and supervisory levels. Professional workers were found in only three occupational families: 1) Crops, Forestry, and Soil Conservation; 2) Farm Service; and 3) Agricultural Service.

Starting salaries for professionals, manager and supervisors ranged around $400.00 per month, while maximum salaries exceeded $700.00.

The total force of workers included relatively few technicans. The 49 workers found were distributed over all occupational families except three: 1) Ornamental Horticulture; 2) Wildlife and Recreation; and 3) Farm Machinery Sales and Service. With the exception of those employed in Farm Supplies and Equipment, technicans were well paid in comparison to other levels including sales and supervisory. Initial rates were slightly under $400.00 per month, but advanced to $700.00 and above with tenure.

Employees engaged in sales were found in two categories: those on a stipulated salary, and those on a salary plus commission. Beginning salaries were about equal for both groups, with those on commission earning much more with tenure.

Skilled workers were found in all occupational families other than Wildlife and Recreation and Ornamental Horticulture. Beginning salaries outside Agricultural and Farm Services were under $300.00 per month but advanced up to $500.00 with tenure. Semi-skilled workers earned from $50.00

to $100.00 per month less than skilled workers, while earnings of the unskilled ranged around the $200.00 figure without appreciable advancement with tenure.

Educational Level Desired of Persons Entering Nonfarm Agricultural Occupations

Table VII gives the educational level desired of those who plan occupations in nonfarm agriculture.

TABLE VII

EDUCATIONAL LEVEL DESIRED FOR PERSONS ENTERING AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

Occupational Family	Number of Employees					
	Less Than H.S.	H.S. Graduate	Post H.S. Technical Education	Some College	College Degree	No Preference
Farm Machinery Sales & Service	1	26	1	18	2	0
Farm Supplies and Equipment	4	73	9	34	26	0
Livestock and Poultry	12	107	2	13	7	0
Crops, Forestry, and Soil Conservation	30	115	0	29	63	0
Ornamental Horticulture	8	51	0	7	1	0
Wildlife and Recreation	0	5	0	0	1	0
Farm Service	14	68	8	48	21	0
Agricultural Service	1	26	9	3	60	0
Total	70	471	29	162	181	0

Students planning careers in nonfarm agriculture were expected to complete high school--at least a third of them must attend or graduate from college. Insofar as the 139 establishments contacted were concerned, this segment of the Alexandria-Pineville economy had no place for those not completing high school--only seven per cent of the employees found would be

replaced by persons with less than a high school education when vacancies occurred.

Emphasis upon college training was significant. While total number of employees with agricultural competencies was 913; only 112 were classified at the professional level. Still employers indicated a preference of college training for 343, or 37 per cent, of all employees without regard to level of employment. In fact, the number of employers preferring college training compared favorably with those willing to accept workers with a high school education. By way of comparison, much less concern was expressed about qualifications earned from post high school technical programs.

The preference by employers for formally educated workers was not only general, but applied to all occupational families. One family, Agricultural Service, required more college graduates than all other employees combined.

In comments made aside from supplying information requested by interviewers, a number of employers expressed distress over the lack of youth applying for jobs--that those applying had little training in how to present themselves and had even less knowledge about the business or job under consideration.

The insistence of employers upon formal education for employees, supplemented with vocational training leading to job entry, was apparent throughout the survey. Actually, it was found that nonfarm agriculture was "hungry" for well trained young employees who had growth potential.

Residential Background Preferred For New Employees in Nonfarm Agriculture

Generally, it has been assumed that employers in nonfarm agriculture employ workers who were farm reared. This was not factual in the Alexandria-Pineville area, although 40 per cent of the employees would be replaced by new workers with a farm background.

Table VIII indicates by occupational family the kind of background desired for agricultural workers.

TABLE VIII

RESIDENTIAL BACKGROUND PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm		Rural Nonfarm		Urban		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales and Service	40	83.0	0	0.0	0	0.0	8	17.0
Farm Supplies and Equipment	45	31.0	0	0.0	15	10.0	86	59.0
Livestock and Poultry	56	40.0	0	0.0	4	3.0	81	57.0
Crops, Forestry, and Soil Conservation	54	23.0	7	3.0	0	0.0	176	74.0
Ornamental Horticulture	73	95.0	0	0.0	0	0.0	4	5.0
Wildlife and Recreation	6	100.0	0	0.0	0	0.0	0	0.0
Farm Service	53	33.0	8	5.0	0	0.0	98	62.0
Agricultural Service	41	41.0	11	11.0	0	0.0	47	48.0
Total	368		26		19		500	

Occupational families differed in residential background desired of employees, ranging from a low of less than one-fourth of the workers in Crops, Forestry, and Soil Conservation to a high of 100 per cent in Wildlife and Recreation, that would be replaced by those with a farm background.

The fact that over 50 per cent of the employees would be replaced with persons without a farm background, was tempered with evidence to show that employers actually seeking workers with an urban or nonfarm background were relatively few in comparison to the number specifying the farm as the kind of residential background considered most desirable in new employees.

Farm Experience Preferred of New Employees

Farm experience gained on the commercial farm took precedence over

that obtained on the noncommercial farm, where farm experience is a factor favorably influencing job entry in nonfarm agriculture. Table IX gives evidence to confirm this generalization.

TABLE IX

FARM EXPERIENCE PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm					
	Commercial		Noncommercial		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales and Service	40	100.0	0	0.0	0	0.0
Farm Supplies and Equipment	37	82.0	5	11.0	3	7.0
Livestock and Poultry	49	88.0	0	0.0	7	12.0
Crops, Forestry, and Soil Conservation	30	56.0	3	6.0	21	38.0
Ornamental Horticulture	68	93.0	0	0.0	5	7.0
Wildlife and Recreation	0	0.0	0	0.0	6	100.0
Farm Service	21	40.0	32	60.0	0	0.0
Agricultural Service	4	10.0	6	15.0	31	75.0
Total	249		46		73	

Employers were interested in their workers having a background of farm experience to the extent that at least 40 per cent of the total employees would eventually be replaced by only those with farm experience and primarily, with experience gained on a commercial farm.

Agricultural Subjects in Which Prospective Workers Must Have Knowledge or Skill

To determine job requirements in terms of knowledge and skill in agricultural subjects was a major objective of the survey, for any adjustments in training programs must be made to conform with qualifications demanded of youth when applying for jobs in any one of the occupational families

regardless of employment level.

For purposes of obtaining and recording knowledge and skill in agricultural subjects needed to effect job entry, agriculture was divided into four general areas, 1) Animal Science, 2) Plant Science, 3) Agricultural Business Management, and Marketing, and 4) Agricultural Mechanization and Automation. Component divisions of each area were used to guide interviewees in making a determination as to the agricultural training considered necessary for each and every job title identified.

Tables X-1 through X-8 are designed to show agricultural subjects in which prospective employees must have training, according to occupational levels and families.

All occupational families followed a similar pattern in establishing standards of knowledge and skill required in agricultural subjects of employees at the different levels--workers in management, supervision and sales must have broad training, extending over all subject matter areas; while workers at the professional, technical and skilled levels are expected to have intensive training in specific areas, since employees at these levels perform more specific services.

The service performed by establishments making up a particular occupational family greatly influenced emphasis placed upon the intensity of training desired in one or all of the agricultural subject areas. For instance, in farm machinery sales and service emphasis was placed upon agricultural mechanization and automation, while in livestock and poultry this area was not considered so important.

In the great majority of cases, businesses and agencies favored training in all subject matter areas, with emphasis upon one or more areas dealing directly with the work or service to be performed. There was

general agreement that while most workers in nonfarm agriculture need a broad agricultural background, including office workers in many instances, some degree of specialization had to be acquired either by training or experience for jobs at all levels except the unskilled. Programs in vocational agriculture must be redesigned to cover this need if graduates are to be prepared to find satisfactory employment in nonfarm agriculture.

TABLE X-1

AGRICULTURAL AREAS IN FARM MACHINERY SALES AND SERVICE WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	10	6	8	9	10
Supervisory	5	2	2	4	5
Sales	8	2	4	6	8
Office	0	0	0	0	0
Skilled	20	9	9	0	20
Semi-Skilled	4	4	4	4	4
Unskilled	1	0	1	0	1
Total	48				

TABLE X-2

AGRICULTURAL AREAS IN FARM SUPPLIES AND EQUIPMENT
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	3	0	3	3	3
Technical	2	0	2	1	1
Managerial	66	36	55	55	50
Supervisory	13	3	13	15	13
Sales	41	25	23	25	16
Office	7	4	4	7	2
Skilled	2	2	2	1	2
Semi-Skilled	1	0	1	0	0
Unskilled	11	4	5	1	9
Total	146				

TABLE X-3

AGRICULTURAL AREA IN LIVESTOCK AND POULTRY
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	0	0	0	0	0
Technical	2	6	0	0	0
Managerial	33	33	11	32	19
Supervisory	11	11	4	10	11
Sales	12	12	5	12	0
Office	3	0	0	3	0
Skilled	64	63	0	1	1
Semi-Skilled	4	4	0	0	0
Unskilled	12	12	0	2	6
Total	141				

TABLE X-4

AGRICULTURAL AREAS IN CROPS, FORESTRY, AND SOIL CONSERVATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	42	13	42	33	28
Technical	19	0	19	15	10
Managerial	49	27	49	31	20
Supervisory	7	4	1	0	7
Sales	19	8	19	11	10
Office	4	1	1	1	0
Skilled	40	0	15	11	25
Semi-Skilled	36	14	34	0	9
Unskilled	21	0	17	0	4
Total	237				

TABLE X-5

AGRICULTURAL AREAS IN ORNAMENTAL HORTICULTURE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	23	2	23	23	22
Supervisory	1	0	1	0	0
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	3	0	3	0	0
Semi-Skilled	0	0	0	0	0
Unskilled	50	0	50	1	44
Total	77				

TABLE X-6

AGRICULTURAL AREAS IN WILDLIFE AND RECREATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	1	1	1	1	1
Technical	0	0	0	0	0
Managerial	0	0	0	0	0
Supervisory	5	5	5	5	5
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	0	0	0	0	0
Semi-Skilled	0	0	0	0	0
Unskilled	0	0	0	0	0
Total	6				

TABLE X-7

AGRICULTURAL AREAS IN FARM SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	15	11	11	10	9
Technical	22	22	17	7	12
Managerial	28	23	22	25	21
Supervisory	7	3	2	5	3
Sales	13	5	6	9	8
Office	4	2	2	4	2
Skilled	55	32	20	26	53
Semi-Skilled	15	3	1	1	8
Unskilled	0	0	0	0	0
Total	159				

TABLE X-8

AGRICULTURAL AREAS IN AGRICULTURAL SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automotion
Professional	51	30	36	44	47
Technical	4	0	4	4	4
Managerial	10	8	7	9	9
Supervisory	0	0	0	0	0
Sales	0	0	0	0	0
Office	24	1	7	24	14
Skilled	5	0	1	2	5
Semi-Skilled	5	5	0	0	1
Unskilled	0	0	0	0	0
Total	99				

Continuing Education Required of Employees with Educational Facilities Used

Employers were asked to describe in-service training expected of employees to advance on the job, designating educational facilities used or provided for such training.

Table XI shows by occupational family workers who had or were enrolled in programs designed for upgrading on the job; also, the kind of educational facilities used.

TABLE XI

CONTINUING EDUCATION REQUIRED OF EMPLOYEES AND EDUCATIONAL FACILITIES USED

Occupational Family	Number of Employees (Frequency)						
	Number of Employees	Firm or Industry School	On-the Job Training	Pub.Sch. Adult Educ.	Vocational School	Agri. Col.	None
Farm Machinery Sales and Service	48	26	15	0	0	0	0
Farm Supplies and Equipment	146	90	53	3	30	12	23
Livestock and Poultry	141	23	76	0	2	4	55
Crops, Forestry, & Soil Conservation	237	19	139	0	14	28	41
Ornamental Horticulture	77	1	1	0	0	0	75
Wildlife and Recreation	6	0	0	0	0	0	6
Farm Service	159	40	103	0	6	4	41
Agricultural Service	99	23	92	0	2	4	3
Total	913	222	479	3	54	52	263

More than two-thirds of all employees participated in one or more educational programs designed for advancing in job title or upgrading on the job held at the time.

Training on the job was the most common practice of upgrading employees: firm or industry schools were provided by practically all occupational families, but little or no use was made of public school facilities, although in a few instances both vocational schools and colleges were used for giving special instruction to a particular group of employees.

The rather general desire of employers to have workers upgraded offers an opportunity for adult instruction, either at the high school or post-high school levels.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The scope of vocational agriculture in the schools of Central Louisiana must be broadened, if rural boys are to be prepared for the productive life reflected by the jobs found in Alexandria-Pineville nonfarm agriculture - a vital and growing segment of the Area's economy.

Vocational Agriculture can not be "all things to all people". Neither can it's leadership forget that continuing emphasis on farmer training is essential to life in the Area. Yet there has been too long a recess in training programs for rural youth, particularly the farm boy. Far too many of them need stimulation and guidance--they need the instruction required to develop the ability for adapting to the world in which they will live.

For a long time now, there has been a transition in agriculture from the farm to the urban areas, along with people. Agriculture has come to encompass much more than farming as it was known a few decades ago. Presently, new segments of agriculture take shape in the form of businesses marketing farm products; supplying farm power to farmers; manufacturing insecticides and pesticides; plus a multitude of others giving services to both farmers and consumers.

In short, the agricultural pattern is experiencing drastic but challenging changes, a development that should be known to all citizens, especially educators who alone are in a position to modify school programs to meet such challenges.

The problem of the moment is to marshall enough facts to open the eyes of educators, parents, and farm boys to the great occupational opportunities in agriculture, particularly those available in nonfarm agriculture where jobs outnumber those on the farm.

Summary

Ample proof of occupational opportunities for the agriculturally trained was assembled from businesses and agencies taking part in the Alexandria-Pineville survey. Information gathered showed conclusively that youth with the right kind of educational services could effect job entry, and since instruction in agriculture is the only vocational training offered to boys in the high schools of Central Louisiana, graduates who desire to stay in agriculture but are unable to farm must look to an enlightened segment of the high school to prepare them for nonfarm agriculture.

The size and diversity of the Alexandria-Pineville agricultural complex, together with workers employed and the work to be done, demands a steady supply of well-trained people with formal agricultural training.

This study was designed to glean information considered necessary to guide educators in the Area towards modifying agricultural instruction at the high school level to meet Alexandria-Pineville employer needs for agriculturally trained workers. It's primary objectives were: 1) to determine numbers of employees in all agricultural businesses and agencies, and to identify job titles; 2) to determine the agricultural competencies required for job entry; and 3) to determine special characteristics of job titles, taking into account salary, age, farm experience, and a description of work performed.

Findings are summarized below:

1) There were 139 agricultural businesses and agencies making up the Alexandria-Pineville agricultural complex, employing 3,048 workers, of which 913 were required to have knowledge and skill in agricultural subjects.

2) The 913 workers held a total of 224 different job titles--five

years hence the number of employees will increase to 975, while identifiable job titles will increase to 252.

3) There was no recognizable pattern of product or service provided by nonfarm agriculture, except that emphasis was given to farm and agricultural services, which is in conformance with nation-wide trends.

4) The diversity and scope of the agricultural complex was sufficient to have businesses and agencies in all occupational families, with employees in numbers at all occupational levels, ranging from low level to professional skills.

5) Employees at the management, skilled, and professional levels were in greatest numbers, with fewer in the unskilled, sales, semi-skilled, supervision, technical, and office occupations.

6) There was a definite trend in all establishments to fix minimum and maximum age for job entry: a minimum of age 25 for entry and a maximum of age 45. Age 25 was preferred for job entry largely because of the lack of younger persons applying for work with qualifications desired, while maximum age 45 was indicated as being low enough to obtain at least 20 years of service from the employee.

7) Commensurable salaries were paid according to levels of employment, with workers at the professional, managerial, supervisory, skilled, and sales levels drawing higher salaries. Provisions were made for salary increments with tenure, except for the unskilled.

8) Replacement of workers was limited almost entirely to applicants with a high school or college education, except for the unskilled. More than one-third of the workers will be replaced when vacancies

occur from applicants having a college degree or at least an appreciable amount of successful college experience.

9) Employees with agricultural knowledge and skill in 40 per cent of the cases would be replaced by persons having a farm residential background, preferably a commercial farm. Although the majority of employers expressed no preference as to the kind of residential background required of prospective employees, they still did not indicate a preference for the urban reared or those with a rural nonfarm background.

10) A similar pattern was followed by all businesses and agencies in specifying the areas of subject matter in agriculture required of employees at the different employment levels. Workers in management, supervision, and sales were expected to have broad agricultural experience and training extending over all subject matter areas; while workers at the professional, technical and skilled levels were required to have specialized training in a specific area or a component of an area, since a special kind of service was performed.

11) There were little or no limitations on entering the various job titles found in all occupational families, except where a college degree was required for a recognized profession. A few of the agricultural agencies were under Civil Service regulations governing job entry; also, a few businesses had contracts with labor unions, but no labor law restrictions were described as effecting job entry.

12) Nonfarm agriculture in Alexandria-Pineville was expected to grow according to plans projected by establishments for the next five

year period--job titles will be increased, while numbers of employees with agricultural competencies will advance.

13) Comments expressed by employers to interviewers showed concern about qualifications of high school graduates applying for work, even those completing vocational agriculture. There was general agreement indicating a need for more comprehensive vocational education immediately prior to employment or in the early stages of employment.

14) Employers provided for continuing education of their workers, using company and firm schools and on-the-job training as the most common means of effecting such training. Adult education programs, post-secondary school courses, and colleges were infrequently used.

Conclusions

The Alexandria-Pineville survey revealed quite clearly the tremendous scope of nonfarm agriculture in the twin cities, evidenced by the number of businesses and agencies it contained, the number of employees in comparison to all workers, and the great host of agricultural services performed.

The dimensions of the agricultural complex not only makes available numerous and varied occupational opportunities to youth of the Area, but also warrants a continuous supply of well educated prospective workers trained in the several aspects of agricultural business and industry.

It is not enough to equip farmers with the best advice--the best tools available--and the best education, and not extend the same kind of service to those engaged in nonfarm agriculture. The interrelationship between farmer and his counterpart in the city is such that neither can survive without the other--both require the best educational services, if they are to advance

in service to each other and to the public.

The magnitude of nonfarm agriculture gives emphasis to the importance of providing workers with the very best possible educational advantages, taking into account both the need for pre-employment training and giving continuing education throughout the workers' careers.

The initial effort to assemble the resources required to cover these needs must begin with the high school, supplemented with similar action at the post-high school and college levels. Acceptance of this premise calls for an unprecedented adjustment in the aim of vocational agriculture: "...preparation for efficiency in farming operations..." to "...fitting youth and adults for gainful employment in agricultural occupations...".

Conclusions drawn from the Alexandria-Pineville study may well serve as a guide to educators in the Area towards stretching the dimensions of vocational agriculture to meet the needs of youth who are interested in preparing for nonfarm agricultural occupations, available in the twin citics or in a more distant urban center. Some of the more pertinent conclusions are:

1) Businesses and agencies engaged in handling agricultural production, plus those giving services to farmers, constitute a major segment of the economy---they employ a substantial number of employees who must have knowledge and skill in agricultural subjects, not only to perform necessary services, but to advance on the job.

2) Establishments making up the Alexandria-Pineville Agricultural complex represent practically all aspects of nonfarm agriculture and contain a whole catalogue of job titles, ranging from the semi-skilled to highly specialized and professional services.

3) The greater proportions of professional, managerial, supervisory, and skilled employees found in all establishments show a decreasing need for semi-skilled and unskilled workers, while proportions of businesses and agencies engaged in providing services show an increasing need for workers trained in service and operative jobs.

4) Prospective workers, largely because of the lack of earlier training, are more apt to be employed at an age ranging from 25 to 45, which permits employees to accumulate necessary skill and knowledge required for job entry and offers the employer at least 20 years of service. The job entry age would be lowered if a training program was in effect.

5) Salaries are commensurate with training and responsibility and increase with tenure, except for the unskilled. Without exception, definite knowledge and skill in agricultural subjects was required by all job titles, with advancement geared to continuing education provided chiefly by firm and industry schools or on-the-job training.

6) Prospective workers must complete at least a high school education. In a ratio of one to three, they must have college training.

7) Farm reared workers are preferred but this is not a requirement for job entry: knowledge and skill in agricultural subjects obtained prior to job entry is considered more important.

8) Nonfarm agriculture in Alexandria-Pineville offers a wide range of occupational opportunities to youth at fair pay. It is hungry for well trained young men who are broadly educated and equipped to perform a great variety of agricultural services. It's dimensions are of sufficient size to offer a continuing challenge to

educators of the Area especially those interested in vocational agriculture.

Recommendations

Training in vocational agriculture should reflect the changes in the occupational needs of workers in the whole field of agriculture and at the same time be in accord with educational needs common to all workers.

In agriculture the growing employment market is in the companies and agencies that serve the consumer, including the farmer himself. Census figures show a decline in numbers of farmers, yet no other industry matches agricultural business in the number and variety of jobs offered---it employs one out of every three persons, being the nation's biggest business. No other business has brighter prospects for youth.

Farming is only a part of the picture--nonfarm agriculture completes the picture. The Alexandria-Pineville story is repeated throughout the country; telling youth, their parents, and educators of the continuing educational challenges offered by agriculture.

Employers in Alexandria-Pineville indicated quite pointedly that if extended and expanded programs in vocational agriculture were available they would be patronized, and that certain programs not presently being provided are urgently needed. It was their opinion, stated in response to problems confronted with employees, that educational programs should encompass the breadth of occupations found within nonfarm agriculture.

How to plan and implement new programs of vocational agriculture to prepare students for more different kinds of jobs poses a monumental problem to educators. Based upon results of the Alexandria-Pineville survey, a few recommendations are offered for consideration.

1) Counselors, teachers, students, and parents should be acquainted

with the growth of agriculture--all must understand the inter-relationship between the farmer and his urban cousin--the person engaged in an agricultural business or agency.

2) Counselors, teachers, parents, and all others concerned should be alerted to the number and variety of jobs in the Alexandria-Pineville agricultural complex, with students exploring jobs at the various levels in the different occupational families with a view to making a determination as to the job or occupational family offering the greatest possibility according to their capabilities.

3) Interested students can profitably pursue investigations designed to acquaint them with the requirements of the different occupational families or specific job titles, leading to becoming knowledgeable in how to apply for a job in a particular kind of business and agency.

4) Educators, in developing plans for broadening vocational agriculture, can profit by the experiences of employers in nonfarm agriculture who successfully provide training programs to advance their workers, using teaching content as a guide for selecting subject matter to cover in pre-employment training.

5) Educators may consider accepting responsibility for assembling resources required by nonfarm agriculture for upgrading workers on the job who need additional agricultural knowledge or skill to stay on the job, or advance in job title. Post-high school training may also be extended to youth out of school who look to job entry for the first time.

6) The most functional job training is considered to be that offered

immediately prior to job entry; hence, the more general training in agricultural subjects should be presented in the first one-half of the high school program, with more specialized job training offered during the latter portion of the training period. Most all job titles identified require basic knowledge and skill in plant sciences, animal sciences, management and mechanics, with additional or more specialized training in one subject or a component part of a subject.

Educators must continually consult employers in nonfarm agriculture before making final determinations defining pre-employment training acceptable for satisfactory job entry.

APPENDIX A

NONFARM AGRICULTURAL BUSINESSES AND AGENCIES COOPERATING IN THE SURVEY

Scott-Rabalias International, Inc.
Shadow, P. A. Jr., Tractor Co.
Andries Tractor & Equipment
Voelker, E. S. Co., Inc.
Swanson Dairy Farm (Surge)
Sears Roebuck & Co.
Morgan & Lindsey Co.
Cade Export Co., Inc.
Rapides Drug Co. Ltd.
Arkansas Oak Flooring Co.
Morgan & Lindsey Co.
Carroll Lumber Co., Inc.
Central Lumber Co.
Alexandria Seed Co., Inc.
Louisiana Agricultural Cooperatives
Blake, Robert E. Hardwoods, Inc.
Hodges Feed & Supply Co.
Louisiana Limestone Distributor
Tarver, Hugh C. Jr., & Associates
Petrus Feedmill
Lone Star Feed Mill
Roy O. Martin Lumber Co., Inc.
Bayou Roberts, Coop., Inc.
Red Barn Chemical Co.
Eldridge, G. W. Jr., Lumber Co.
Standard Lumber Co.
Lewis Vernon Lumber Co.
Roberts, N. O. Lumber Co.
Louisiana Seed Co., Inc.
Kellogg, L. O. Lumber Co., Inc.
Alexandria Fence Co.
Louisiana Wholesale Distributors
DeSelle, L. E. & Co., Inc.
Richey Bros. Lumber & Supply, Inc.
Pineville Seed & Feed Store
Couvillion, H. L., Building Materials
Hill-Harris & Co.
Tioga Building Supply
Handy Man Stores
Palfrey, Henry W., Inc.
Jones, J. R. & Sons
Kress, S. H. & Co.
Montgomery Ward & Co.
Miller's Hardware & Saw Co.
Louisiana Wildlife & Fisheries Commission
Hayes Manufacturing Co.
Central Louisiana Electric Co., Inc.
Bruce Terminex Service
Adams Pest Control, Inc.

Chambees, James N.
Carbo Foundry & Machine Co.
Orkin Exterminating Co., Inc.
White, Charles N. Realtor-Builder
Ruston Foundry & Machine Shop
Central Culvert Corporation
Ready Mix Concrete Co., Kojis, R. J.
Wolf & Wasson, Real Estate & Builders
Brown, Joe D.
Hathorn Manufacturing Co.
Semple Machine Shop
Alexandria Flying Service
Webb, W. C.
Alexandria Welding & Press Co.
Louisiana Division of Milk Testing
Central Louisiana Artificial Breeding Circuit
Rapides Farm Bureau
Plant Pest Control Division (USDA)
Green, Earl D. Water Well
Water Shed Conservation Office
Agricultural Stabilization & Conservation Service
Soil Conservation Service
Ellzy, W. P., Agriculture Teacher
Rodriquez, Dr. E. F., Veterinarian
Burton, H. A., Veterinarian
Paige Veterinarian Hospital
Vocational Rehabilitation
Alexandria Animal Clinic
Louisiana Dept. of Agri. State Mkt. Commission
Hester, L. O., Agriculture Teacher
State Agricultural Dept.
Security National Bank
Guaranty Bank & Trust Co.
Rapides Bank & Trust Co.
Chandler, Neil R., Wholesale Lumber
Pineville Lumber Co.
Petrus Feed & Seed Store
Williams Nursery
Henry, L. B., Plumbing & Well Drilling
Blair, C. R. Laboratory
Farmers Home Administration
State Farm Insurance
Gehr, M. C.
Hodges, W. H. & Co., Inc.
J. M. Poultry Packing Co., Inc.
Magnolia Park Farm & Produce Co.
Red River Egg Co., Inc.
The Borden Co.
Armour & Co.
Rapides Packing Co.
Duncan, W. A.
Texada-Bailey Co., Inc.
Red River Egg Co., Inc.
College Park Grocery
Cudahy Packing Plant

Walker Farms
Mid-West Dairy Products
Louisiana Poultry By-Products Company
Cash Poultry & Egg Co.
Arthur Lacy Barn
Dominiques Livestock Auction
Swift & Co.
International Paper Co.
Clayton Anderson Cotton Co.
Cotton Growers Gin Co., Inc.
Independent Gin & Mill
Colfax Creosoting Co.
Cotton Division - Agri. Market Service (USDA)
Southern Forestry Experiment Station
Daminco's Fruit Stand
Cobb, Howell C.
Jacks
Ralph's Fruit Market
Forest Service
Earnhard Tree Surgeon
Alexandria Fruit Co.
Louisiana Forestry Commission
Red River Cotton Products Co.
Young, Robert E., Nursery
Adams Nursery
Blum, Fred E. & Son Nursery
E & E Nursery
Chamberlain's Nursery
Harold Poole Nursery
Richards Nursery
Purkey Nursery & Landscape Service
Poole Bros. Nursery
Alexandria Tomato & Produce Co.
John Boogaerts
Haley's Nursery

APPENDIX B

PERSONS CONDUCTING INTERVIEWS TO OBTAIN SURVEY DATA

Mr. Steven Carter, 2008 Shannow Road, Alexandria, La.

Mr. Edwin Gayle Dean, Jr., 413 Avoyelles Dr., Alexandria, La.

Mr. Raymond Adam Guidry, 1952 1/2 Monroe St., Alexandria, La.

Mr. Jess Willard Lundy, Box 444, Colfax, La.

Mrs. Mary R. McPherson, Rt. 1, Box 102, Pineville, La.

Mr. Sidney M. Wayne, 202 Reagan St., Pineville, La.

APPENDIX C

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form I

I. Business or Service (Business Code_____) (Firm Number_____)

A. Name of Business or Service_____

Address_____Parish_____

B. Person Interviewed_____

Position_____

C. Estimated per cent gross income that is agriculturally oriented____

D. Major agricultural products and/or functions of business or service

_____

_____

II. Employees in this Business or Service -- (Total Number)_____

A. For employees needing competencies in agriculture, complete the following:

Existing Job Titles	Number of Employees Full-Time	Part-Time	Five Years
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

Form I (Cont'd)

	Anticipated New Job Titles	Full-Time	Part-Time	Five Years
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____

Fill out a separate Form 2 for each job title listed above.

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form II

I. Name and Address of Firm_____

_____

II. Job Title_____

III. Number of workers in this job title_____

Full-time_____ Part-time_____

Average Age_____ Min. for Entry_____ Max. for Entry_____

IV. Wage or Salary per Month: (Beginning - Maximum - Present)

_____ 150 - 200 _____ 301 - 350 _____ 451 - 500 _____ 601 - 650

_____ 201 - 250 _____ 351 - 400 _____ 501 - 550 _____ 651 - 700

_____ 251 - 300 _____ 401 - 450 _____ 551 - 600 _____ 700 and above.

V. Activities and Duties of Persons with this Job Title_____

_____

_____

_____

_____

VI. Agricultural Areas with which Worker must be Familiar to do Job:

Animal Science

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Breeding Farm Animals
_____	_____	_____	2. Livestock Feeding and Nutrition
_____	_____	_____	3. Sanitation, Disease and Parasite Control

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Animal Science (Cont'd.)

Necessary	Desirable	Not Necessary		
_____	_____	_____	4.	Housing and Equipment
_____	_____	_____	5.	Management
_____	_____	_____	6.	The Dairy Manufacturing Industry
_____	_____	_____	7.	Processing

_____ Packing Plants
_____ Creameries
_____ Poultry Processing
_____ Butchering

_____	_____	_____	8.	Marketing

_____ Packing Plants
_____ Creameries
_____ Poultry Processing Plants
_____ Livestock Auctions

Plant Science

_____	_____	_____	1.	Propagation
_____	_____	_____	2.	Soils and Fertilization
_____	_____	_____	3.	Control of insects_____diseases_____ weeds_____
_____	_____	_____	4.	Management
_____	_____	_____	5.	Production of Ornamental Plants
_____	_____	_____	6.	Landscaping
_____	_____	_____	7.	Ginning
_____	_____	_____	8.	Warehousing
_____	_____	_____	9.	Processing (food, seed, grain, etc.)
_____	_____	_____	10.	Marketing
_____	_____	_____	11.	Forestry

_____ Establishing a Stand
_____ Hardwood Control
_____ Fire Control

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Plant Science (Cont'd.)

_____Estimating and Grading
_____Disease Control
_____Insect Control
_____Harvesting
_____Marketing
_____Manufacturing
_____Pulp Wood

Agricultural Business Management and Marketing

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Records and Accounts, Budgeting and Analysis
_____	_____	_____	2. Agricultural Financing, Credit and Insurance
_____	_____	_____	3. Farm Organization and Management
_____	_____	_____	4. Labor Management
_____	_____	_____	5. Marketing Problems and Practices
_____	_____	_____	6. Agricultural Policy
_____	_____	_____	7. Agricultural and Related Price Analysis
_____	_____	_____	8. Cooperatives and Business Organizations

Agricultural Mechanics and Automation

_____	_____	_____	1. Farm Power and Machinery
_____	_____	_____	2. Farm Buildings and Conveniences
_____	_____	_____	3. Farm Electrification and Processing
_____	_____	_____	4. Soil and Water Conservation
_____	_____	_____	5. Farm Shop (Welding, Plumbing, etc.)
_____	_____	_____	6. Farm Construction and Maintenance

List other agricultural competencies that are needed for this job title

_____

_____

_____

VII. Education Level Desired for Job Titles (Check only one)

_____ 1. Less than High School Graduate

_____ 2. High School Graduate

_____ 3. Post High School Technical Education

_____ 4. Some College

_____ 5. College Degree

_____Baccalaureate _____Master's _____Doctorate

_____ 6. No Preference

VIII. Residential Background (Check only one)

1. Farm_____ 2. Rural, Nonfarm_____ 3. Urban_____ 4. No Preference_____

IX. Farm Experience

_____ 1. On a commercial farm

_____ 2. On a noncommercial farm

_____ 3. No Preference

X. Experience Desired to Enter this Job Title_____

_____

_____

XI. Limitations on Entering this Job Title

A. Licensing or Certification

_____ 1. Professional

_____ 2. Industrial

_____ 3. Civil Service

_____ 4. Other (specify) _____

_____

B. Labor Law Restrictions _____

_____

C. Labor Union Restrictions _____

_____

XI. Limitations on Entering this Job Title (Cont'd.)

D. Other (specify) _____

_____

XII. Education Required to Advance in this Job Title

A. Technical short course or training provided by:

_____ 1. Your firm or the industry as a whole

_____ 2. On-the-job training

_____ 3. Public school (adult education)

_____ 4. A vocational school

_____ 5. An agricultural college

_____ 6. None

VT 000 588

VT 000 588
Will We Be Prepared, A Plan for Vocational, Industrial, and Technical Education, Niagara, Orleans, Genesee Counties.

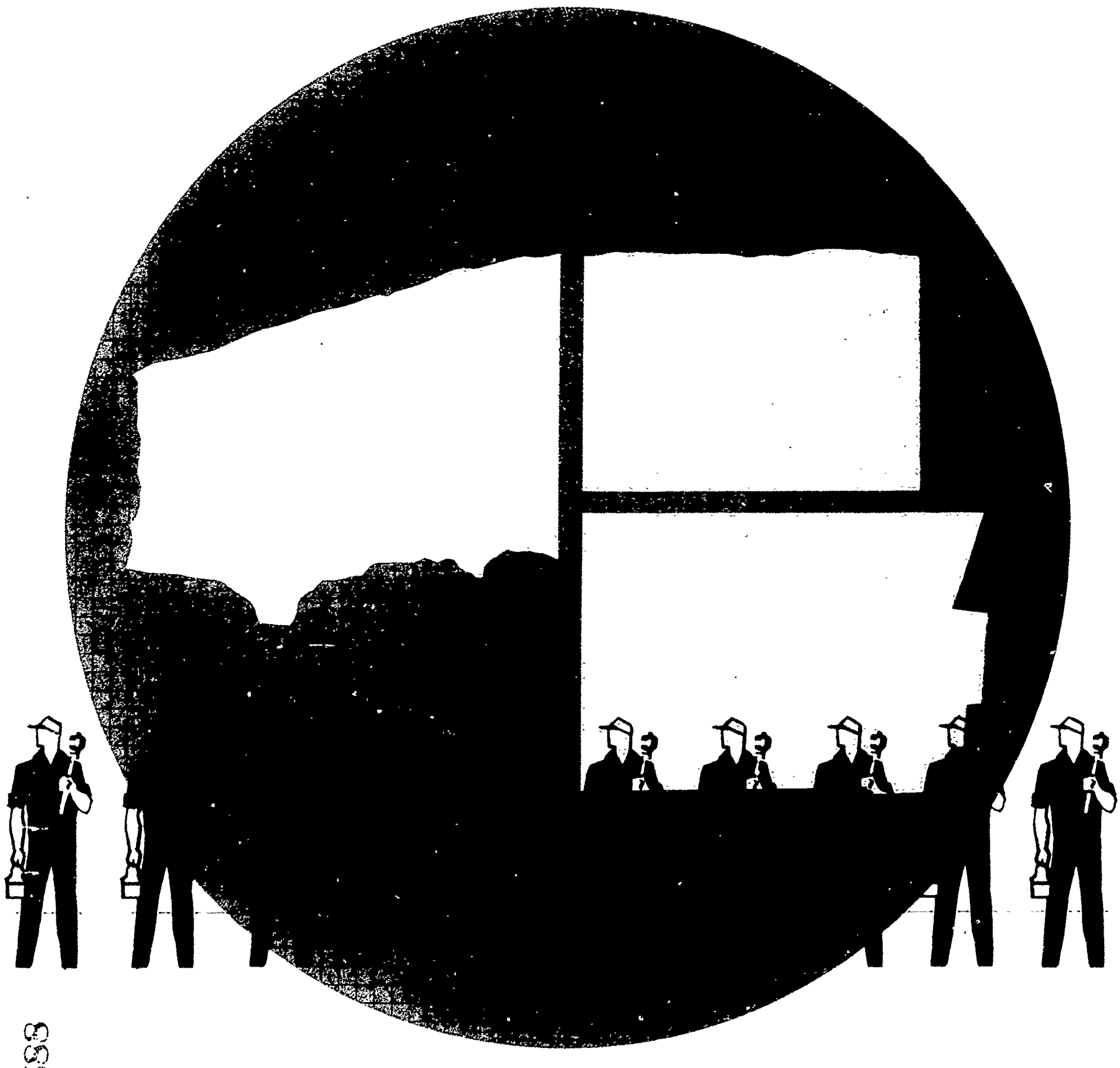
Tri-County Vocational, Industrial, Technical Survey, Medina, N.Y.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep64 61p.

*VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; OCCUPATIONAL SURVEYS; EDUCATIONAL NEEDS; PARENT ATTITUDES; EMPLOYEE ATTITUDES; STUDENT OPINIONS; EMPLOYER ATTITUDES; SCHOOL SURVEYS; *FEASIBILITY STUDIES; PROGRAM ATTITUDES; *EDUCATIONAL PLANNING; *AREA VOCATIONAL SCHOOLS
NIAGARA COUNTY; ORLEANS COUNTY; GENESEE COUNTY; NEW YORK

A 3-county survey was conducted: (1) to determine the needs, organization, and types of programs to be developed, and (2) to identify the characteristics, scope, and type of existing vocational and technical programs. The enrollment in 25 high schools ranged from 219 to 2,193 with 1964-65 total enrollment at 19,668. Projected 1970 enrollment is 21,654. The dropout rate was estimated at 22 percent for the high school period. Responses from 4,148 parents indicated: (1) 73 percent were satisfied with students' course choices, (2) 95 percent favored expanding or improving vocational programs in high schools, (3) 87 percent favored expansion and improvement for adult vocational programs, and (4) 44 percent expressed a personal interest in adult courses. Information from 4,927 ninth graders indicated 96 percent intended to complete high school, 40 percent intended to attend post-secondary schools, and 75 percent were interested in high school vocational courses. Employment service offices reported 15,140 registrants and 4,353 placements in 1963. Responses from 389 employers showed 45 percent had no difficulty filling openings, 48 percent required high school diplomas, 68 percent required specialized training while in high school, and 25 percent would participate in work experience programs. Responses from 498 young employees indicated that 80 percent were interested in vocational education if it were available. Recommendations were: (1) Sub-committees of the Policy Commission shall determine courses for three tentative area vocational centers, and (2) A director of vocational education shall be appointed to assist the Policy Committee and Boards of Education. (EM)

ED027441

WILL WE BE PREPARED?



VOCATIONAL, INDUSTRIAL, TECHNICAL SURVEY
NIAGARA, ORLEANS, GENESEE COUNTIES

VT005568

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A PLAN FOR VOCATIONAL, INDUSTRIAL AND TECHNICAL EDUCATION

NIAGARA - ORLEANS - GENESEE COUNTIES

SEPTEMBER 1964

ERIC Full Text Provided by ERIC



DR. JOSEPH R STROBEL Assistant Commissioner for Vocational Instructional Services, State Education Department Albany, N Y

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
ALBANY 1

JOSEPH R STROBEL
ASSISTANT COMMISSIONER FOR
INSTRUCTIONAL SERVICES
(VOCATIONAL EDUCATION)

July 15, 1964

To the Citizens of Niagara, Orleans and Genesee Counties:

On behalf of the State Education Department, accept our sincere appreciation for your enthusiastic undertaking of the study and for your deep concern in identifying patterns of needed vocational education.

The growing complexity of the job requirements demands better educational preparation of youth and adults. Increasingly, people are required to have advanced knowledge and skills prior to their entry into the labor market.

This report will serve as a guide and be of real value to the members of Boards of Education and the school administrators of your County. The carrying out of the recommendations should facilitate the development and expansion of needed programs of vocational education. The satisfactory completion of these educational programs by youth and adults will assist them to meet the current and changing employment standards.

The future improvement and extension of the vocational education programs in this region of the State will be of great assistance to the people and to the development of the economy.

Sincerely yours,

Joseph R. Strobel

Joseph R. Strobel

TRI-COUNTY
VOCATIONAL • INDUSTRIAL • TECHNICAL SURVEY

NIAGARA-ORLEANS-GENESEE COUNTIES

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HUGH W VANDERHOOF

July 16, 1964

To The Policy Committee:

Submitted for your consideration is this Vocational, Industrial and Technical Survey report for Niagara, Orleans and Genesee Counties.

This reflects the coordinated efforts of many persons and organizations. It would be impossible to express appreciation to the more than 14,000 people who participated, but certain individuals and groups deserve special recognition: The Boards of the 23 School Districts and District Superintendencies: the Executive Committee; the Policy Committee; the Planning Committee and the Advisory Committee; the interviewers; The State Education Department for its advisory and financial assistance; and the Orleans-Niagara Board of Cooperative Educational Services for providing office facilities and acting as the financial coordinating agency.

Special acknowledgement must go to the Consultants from Cornell University, Professor Claude L. Kulp, who acted as Director, Dr. Joseph P. Bail, and Dr. William E. Drake, for their invaluable guidance and assistance in the preparation of this report.

We now have the opportunity to move forward and implement this study with Vocational and Technical programs realistically oriented to labor market requirements. It is hoped that the results of this survey will bring greater opportunities to the youth of this area.

Very truly yours,

Erwin J. Horwitz

Erwin J. Horwitz
Coordinator

EJH:pat

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INTRODUCTION

PURPOSE OF THE SURVEY

In order to be prepared to meet the challenges ahead, the Boards of Education and the School Administrators of Niagara, Orleans and Genesee Counties encouraged and assisted by The State Education Department decided to conduct a Vocational, Industrial ond Technical Survey.

This Survey is designed to reveal the characteristics, scope and types of present vocational and technical education programs in the public schools of the area. The major objectives are to determine the needs, organization, and types of programs to be developed for in-school and out-of-school youth and for the upgrading, training and retraining of the employed, the under-employed and the unemployed.

The Survey was also designed to identify needed additions or modifications required to meet the changing occupational demands and patterns of industry and society for better trained youth. Particular emphasis was placed an the concept of area vocational and technical programs, namely, the grouping of school districts for the purpose of establishing programs which even the largest school districts in the Survey territory could not hope to provide effectively on an independent basis.

This information is put together in a form which will be useful to the Boards of Education, Chief School Administrators, the instructional staffs of the schools involved, the business, industrial, civic, local governmentol interests of the community, the people of the area, and the State Education Department.

A good deal has been written recently obout the criticol need for Vocational ond Technical Education

From Clifford A. Allonson, Executive Director, New York Stote Council of Retail Merchants, Inc. in "A Report to Members on Retailing and Government 1963-64" at the Annual Meeting, October 7, 1963:

"Education and training should perhaps be the first item on this list of our major problems Substantial attention has been given to our need for expansion of higher educotion This is to be commended. Unfortunately, however, we have devoted inadequate ottention, effort and investment to the far greater number of our citizens in dire need of additional education ond training if they are to be self-supporting citizens in the years which lie ahead.

A reorientation of secondory school programs should be made to better meet the needs for vocational education of the non-college bound student. With every job in industry requiring better qualifications, whether it be in manufacturing or in retailing, we cannot consider ony point of educational achievement as terminal"

From the Buffalo Courier-Express, Sunday, May 31, 1964, "Trode Education Called Vital Need":

"Unless far more and better educotion in the semi-professional, technical, and skilled levels is soon made available to greater numbers of citizens, the national economy and social structure will suffer irreparable harm," the report said.

Grant Venn, author of the 185-page study for the American Council on Education, "Man, Education and Work," said the nation's educational system is geared to the 20 per cent of the students who complete college.

The other 80 per cent — the high school dropouts, the high school graduates who don't go to college, and those who enter college but don't finish — have bleok prospects because they are "entering a labor market whose jobs require constontly higher levels of education and skill development," he said

Venn said educators must toke o leading role in providing a solution to the paradox of a nation with between 4 and 5 million persons unemployed, and yet with job openings for some 4 million skilled workers.

From Lester Velie's, "Why Johnny Can't Get a Job" which appeared in the Reader's Digest, January 1963:

"One out of every five boys between the ages of 16 and 19 who looks for work fails to find it. Yet thousands of highly paid jobs are going begging.

New York State Employment Service executives report that jobs go unfilled in 61 skilled trades — from glass blowers to printers, from cheese mokers and boilermakers to TV repairmen Many cities lack shoe repairmen, sales clerks, typists, turret lathe operators — not to mention such specialists as dietitians, pharmacists, medical-laborotory technicians

Here is a curious national problem. So acute are shortages of skilled workers today that businesses are threatened."

From the New York Times, June 21, 1964 by Will Lissner.

"In the midst of boom, more than 5 per cent of the workers in the New York area are unemployed — . And yet, while 217,000 persons are without work, thousands of jobs are going begging because they call for education and training the jobseekers do not have.

City Welfare Commissioner James R. Dumpson said yesterday that the facts led to one conclusion. 'The kind of unemployment we now have, he said, 'is the kind that isn't eliminated by an expanding economy The jobs that economic expansion produces go begging as far as the unemployed are concerned, because they cannot fill them. The economy has moved on and passed them by.' "

ORGANIZATION OF THE SURVEY

In order to insure maximum cooperation and efficiency, the Survey was organized to include the Boards of Education; a Policy Committee composed of Chief School Administrators, an Executive Committee; a Planning Committee consisting of High School Principals and Guidance Personnel, and an Advisory Committee made up of representative leaders from Industry, Business, Labor, Government, Boards of Education, Higher Education and others.

The Orleans-Niagara Board of Cooperative Educational Services served as the financial coordinating agency for the 23 school districts and the 3 district superintendencies of the Survey Area.

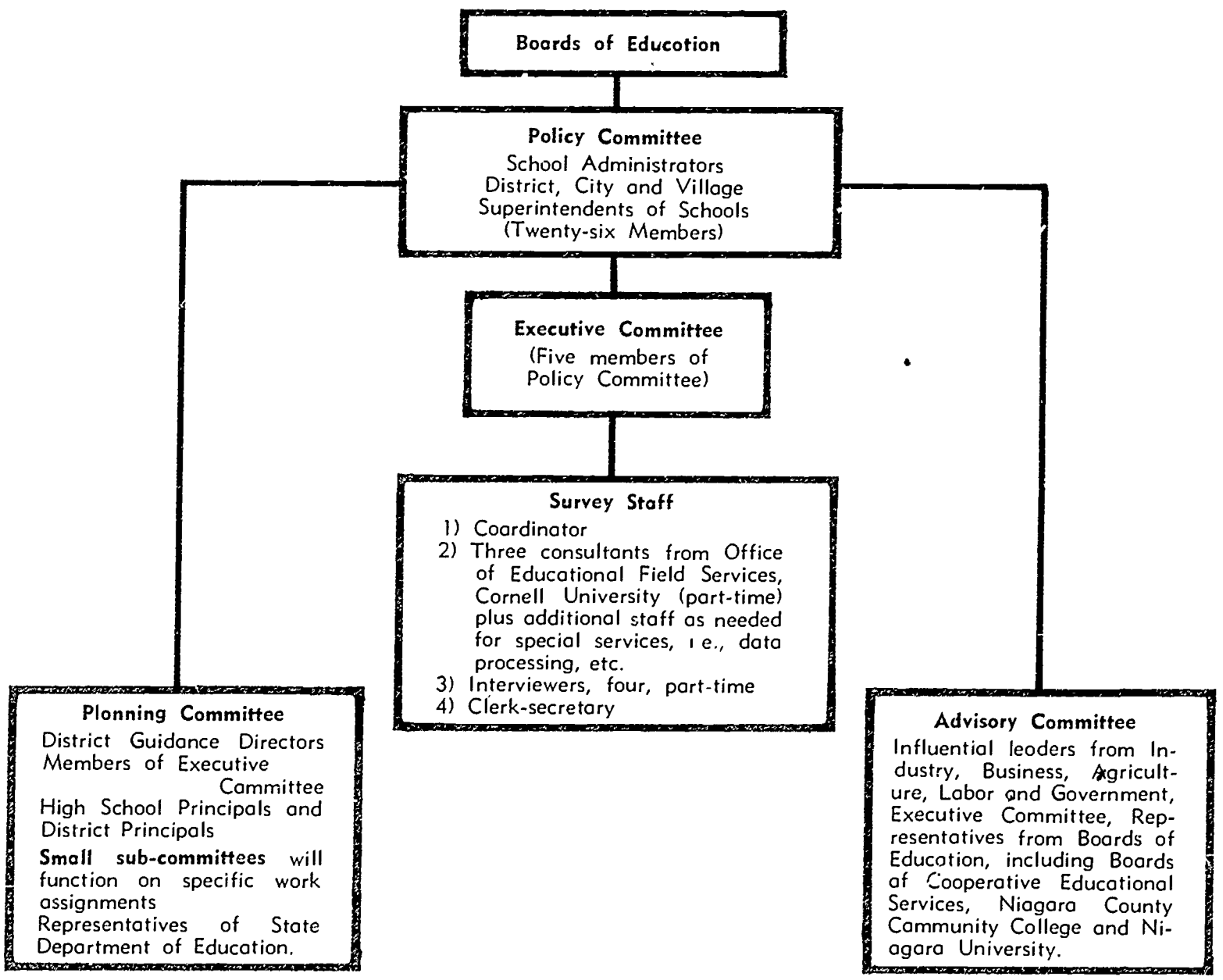
The Policy Committee established the purposes; determined the scope of the sudy, arranged for finances; employed the staff; appointed a Planning and Advisory Committee, decided on the nature of the final report, provided general supervision; planned for the implementation of Survey recommendations and assisted in the preporation of the final report. The Executive Committee of five was formed to facilitate action on behalf of the Policy Committee.

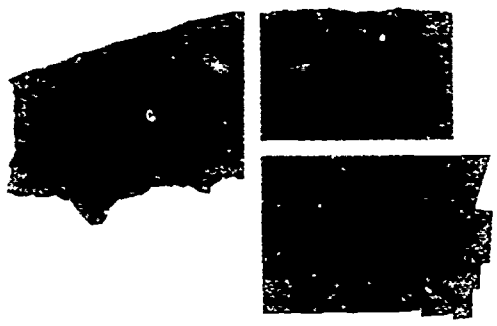
The Planning Committee assisted in the preparation of questiannaires for parents, students, business and industry; developed an occupatianal handbook, and provided interviews with parents and students. The members of this committee helped to insure uniform administration of questionnaires, and assisted in many other ways, including development of a climate of understanding concerning the purposes and recommendations of the Survey.

The Advisory Committee reviewed the outline for the Survey; considered the techniques to be used in connection with questionnaires proposed for use with employers and employees, reviewed the plan for visitations and helped to list businesses and industries to be included; helped to make arrangements with those to be interviewed, and will advise and assist in the development of public understanding and in the final implementation of the Survey.

The Survey Staff included a Coordinator; three Consultants from the faculty of the School of Education at Cornell University; four Interviewers who were employed to secure the cooperation of businesses and industries in the completion of questionnaires, and a clerk-secretary.

SURVEY ORGANIZATION CHART





THE SURVEY AREA

The three counties included in the Survey are part of the Niagara-Frontier Area. The region extends about 60 miles east to west and 30 miles from north to south and covers an area of 1,430 square miles.

The Niagara Frontier first attained prominence as a center of commerce and trade because of its unique natural assets and geographic advantages.

Niagara County which includes the cities of Niagara Falls, North Tonawanda and Lockport, is one of the most concentrated industrial centers in the world. In addition, its rich soil has brought fame to Niagara as an outstanding fruit-growing region. It has Niagara University founded in 1856 and Niagara County Community College which opened in 1963.

Orleans is a small county on the southern shore of Lake Ontario. The fertile soil of the County, its most important natural resource, and nearness to markets makes Orleans rank very high in the production of grain, fruit, and vegetables. In the southern portion of the county are several thousand acres of fertile muckland, and a strip of land along the 25 miles of lake shore, about ten miles wide, forms a part of the Western New York Fruit Belt.

Genesee County, drained by the Tonawanda and Genesee Creeks, is primarily an agricultural area, with its main products being dairy, poultry, fruit, wheat, potatoes and hay. The City of Batavia is a large manufacturing area and is in the center of the county. Gypsum quarries, timber, sand and gravel are plentiful in Genesee County.

In a study published by the Area Development Department of Niagara Mohawk Power Corp., are the following salient points:

> The Niagara Frontier is in the middle of a vigorous market today and is destined to remain so as far ahead as 1975.
>
> It is surrounded by the nation's most densely populated areas. Six of the nation's largest cities are within 250 miles.
>
> It is a region abounding in natural attractions.
>
> It has comparative freedom from congestion.
>
> It is the home of a well-balanced, mixed economy.
>
> This section has virtually unequaled concentration of highly skilled scientists, engineers and technicians.

Presently under study is the proposal to have the Western Expressway, which now extends from Rochester to Spencerport, come through Orleans into Niagara County. This would join the LaSalle Expressway leading into Buffalo and Canada.

This, added to the accessibility of the Thruway, would make a network of highways second to none.

The most recent and exciting development in this area has been the emergence of what has become known as "Western New York's Science Triangle." This refers to a triangular area bounded on the west by Buffalo, on the east by Rochester, and on the south by New York State's Nuclear Service Center in Cattaraugus County. The "Triangle" concept developed from the clusters of research institutions and the growing numbers of nuclear-oriented industries located at its points.

MANUFACTURERS, 1958

County	No. Establishments	Total Employment	Production Workers	Total Payroll
Niagara	307	44,557	30,836	$255,764,000
Orleans	41	2,004	1,716	7,797,000
Genesee	81	5,732	4,447	27,578,000
Totals	429	52,293	36,999	$291,139,000

WHOLESALE TRADE, 1958

County	No. of Establishments	No. of Employees	Total Sales
Niagara	191	1,623	$128,043,000
Orleans	37	437	15,829,000
Genesee	64	621	41,441,000
Totals	292	2,681	$185,313,000

RETAIL TRADE, 1958

County	No. of Establishments	No. of Employees	Total Sales
Niagara	2,453	10,170	$260,286,000
Orleans	396	1,168	38,512,000
Genesee	634	2,310	68,040,000
Totals	3,483	13,648	$366,838,000

SERVICE TRADE, 1958

County	No. of Establishments	No. of Employees	Total Sales
Niagara	1,093	2,287	$23,075,000
Orleans	171	236	2,539,000
Genesee	337	489	7,637,000
Totals	1,601	3,012	$33,251,000

AGRICULTURE, 1959

County	Total No. of Farms	Commercial Farms	Acreage in Farms	Total Sales
Niagara	2,456	2,046	209,000	$13,567,000
Orleans	1,259	1,056	176,000	13,498,000
Genesee	1,585	965	239,000	15,578,000
Totals	5,300	4,067	624,000	$42,643,000

PERSONAL INCOME

	By County	Per Capita
Niagara	$418,700,000	$2,232
Orleans	31,500,000	2,184
Genesee	72,200,000	2,170
Total Income	$522,400,000	

Business Fact Book, 1962, New York State, Part I
Department of Commerce, Albany 7, New York

SCHOOL DISTRICT ENROLLMENTS IN THE SURVEY AREA

	K—½ Day	K—Full Day	Grades 1 - 6	Grades 7 - 12	Total	Professional Staff
NIAGARA COUNTY						
Barker		109	620	573	1,302	68
Lewiston-Porter	355		1,944	1,628	3,927	206
Lockport	667		2,983	2,598	6,248	306
Newfane	250		1,348	998	2,596	135
Niagara Falls	1,581		9,152	8,413	19,146	1,002
Niagara-Wheatfield	372	72	2,376	1,873	4,693	223
North Tonawanda	857		4,058	3,340	8,255	418
Royalton-Hartland		210	1,055	870	2,135	110
Starpoint	233		1,213	936	2,382	119
Wilson	167		983	861	2,011	108
Totals	4,482	391	25,732	22,090	52,695	2,696
ORLEANS COUNTY						
Albion		249	1,388	1,215	2,852	127
Holley	52	61	663	532	1,308	72
Kendall		90	596	411	1,097	54
Lyndonville		69	529	365	962	54
Medina	323		1,224	1,178	2,725	134
Totals	375	469	4,400	3,700	8,944	441
GENESEE COUNTY						
Alexander		117	604	488	1,209	66
Batavia	259		1,688	1,688	3,635	203
Byron-Bergen	117		668	527	1,312	66
Corfu-East Pembroke	87	64	885	641	1,677	88
Elba		85	455	346	886	47
LeRoy	176		714	773	1,663	74
Oakfield-Alabama	127		761	606	1,494	76
Pavilion		92	539	478	1,109	55
Totals	766	358	6,314	5,547	12,985	675

School Districts, Enrollment, Staff and School Housing: March 1964
The State Education Department, Albany, New York

POPULATION

County	1950	1960	1963	% Change From 1950	Projected 1970
Niagara	189,992	242,269	259,895	+36.8	298,533
Orleans	30,032	34,159	35,994	+19.9	39,112
Genesee	47,534	53,944	56,227	+18.3	60,484
Tri-County Totals	267,558	330,422	352,116		398,129

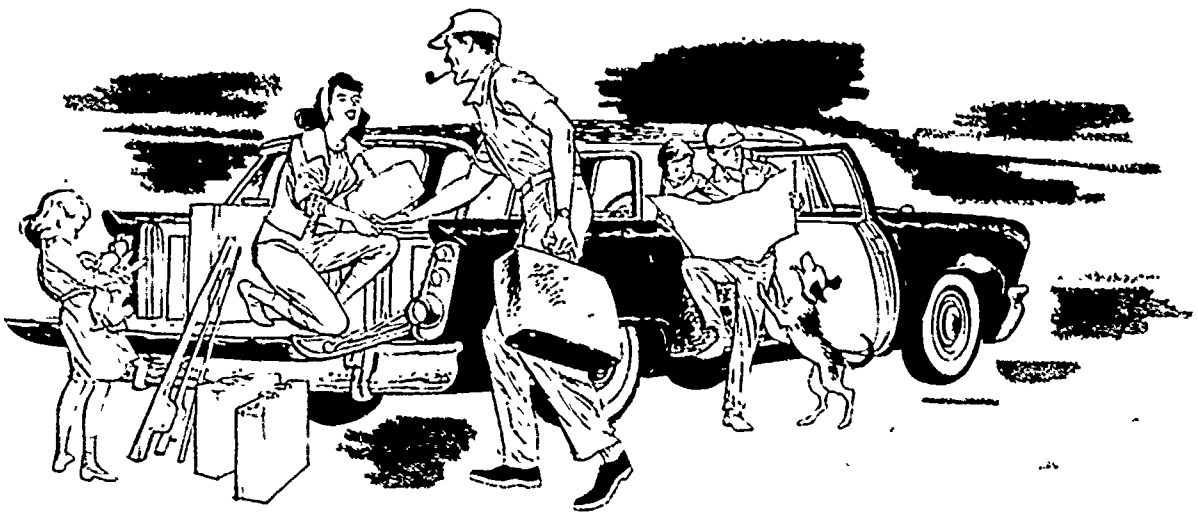
AGE OF POPULATION

The problems of education for our youth will be compounded in the years ahead. The fact that the number of boys and girls that will be in school is growing each year can clearly be seen in the following table.

Age of Population by Single Years to 21, by Sex, 1960

Age	Niagara County			Orleans County			Genesee County		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Under 1	6,017	3,040	2,977	730	380	350	1,210	614	596
1	6,106	3,109	2,997	756	358	398	1,226	613	613
2	6,095	3,101	2,994	743	377	366	1,277	676	601
3	5,744	2,910	2,834	749	382	367	1,180	611	569
4	5,751	2,977	2,774	712	393	319	1,247	654	593
5	5,558	2,814	2,744	736	373	366	1,237	634	603
6	5,164	2,636	2,528	716	374	342	1,195	635	560
7	5,154	2,564	2,590	687	376	311	1,235	634	601
8	5,002	2,573	2,429	677	354	323	1,136	595	541
9	4,946	2,460	2,486	669	361	308	1,172	607	565
10	4,667	2,357	2,310	684	359	325	1,136	586	550
11	4,797	2,430	2,367	637	330	307	1,087	567	520
12	4,787	2,486	2,301	705	339	366	1,168	609	559
13	4,746	2,476	2,270	700	355	345	1,106	568	538
14	3,657	1,844	1,813	570	298	272	861	432	429
15	3,477	1,742	1,735	527	254	273	857	437	420
16	3,615	1,819	1,796	565	274	291	872	442	430
17	3,720	1,813	1,907	633	320	313	939	474	465
18	3,005	1,534	1,471	412	191	221	611	277	334
19	2,722	1,334	1,388	337	163	174	501	224	277
20	2,627	1,274	1,353	339	156	183	496	217	279
21 and Over	144,912	71,765	73,147	20,872	10,141	10,731	32,245	15,654	16,591
Total, All Ages	242,269	121,058	121,211	34,159	16,908	17,251	53,994	26,760	27,234

Source. **U. S. Census of Population: 1960,** PC (1)-34B, Table 27



MOBILITY OF THE LABOR FORCE

Every year millions of workers change jobs in the United States. In a recent year, more than 8 million different workers changed jobs. Every year millions of workers move from one place to another. About 7 per cent of all male workers are now living in a county different from the one they were in the year before. This emphasizes the need to train not only for our immediate local needs, but for Area, State and National needs as well.

From The Buffalo Evening News, dated November 7, 1963: "Up To 50% Moved In 5-Year Period On The Frontier."

"Niagara Frontier residents are playing a merry game of 'musical chairs' in their moving habits.

That is evident from a new U. S. Commerce Department report on the 1960 census called 'Mobility for Metropolitan Areas.'

The report shows that of the 1,155,197 persons 5 years old and over living in Erie and Niagara Counties in 1960, 527,580 of them moved since 1955. The report doesn't say so, but presumably a good many of them moved more than once in the period.

Of the total number of people who moved in the two counties between 1955 and 1960, 420,000 moved to other counties. Another 41,723 came from different metropolitan areas, 36,458 from non-metropolitan areas and 13,449 from abroad."

PLACE OF WORK, 1960

County	Total All Workers	Worked In County	Percent	Worked Out-Side County	Percent	Not Reported	Percent
Niagara	86,645	75,619	87.3	7,692	8.9	3,334	3.8
Orleans	12,134	8,196	67.6	3,415	28 1	523	4.3
Genesee	19,211	15,379	80 0	2,991	15.6	841	4.4

Source: **U. S. Census of Population: 1960,** PC (1)-34C, Tables 36 and 82

OCCUPATIONS OF EMPLOYED WORKERS IN THE TRI-COUNTY AREA

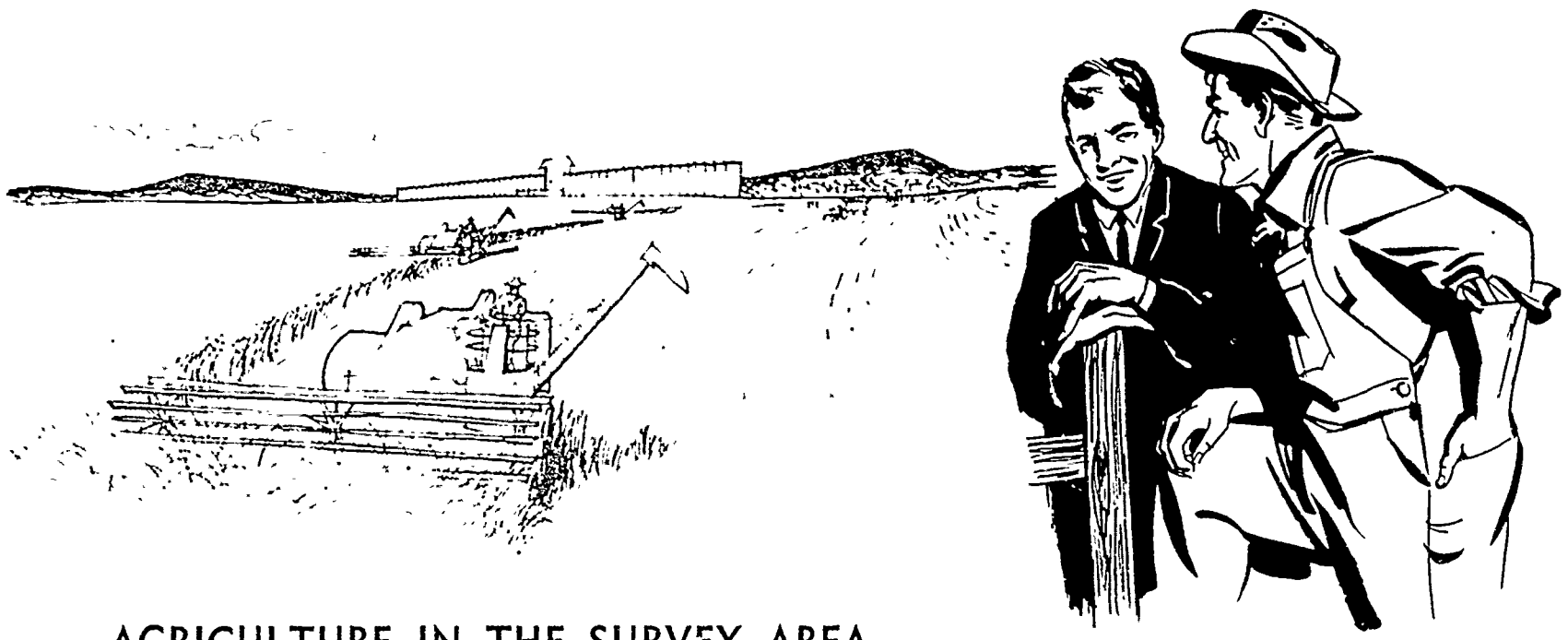
In the three county area of the survey, the number and distribution of workers in the major occupational groups is as follows:

Major Occupation Groups for Employed Persons, 14 yrs. of Age and Over, By Sex, 1960

Occupation Graups	Niagara		Orleans		Genesee	
	M	F	M	F	M	F
PROFESSIONAL, TECHNICAL	6,280	3,476	602	587	1,044	967
FARMERS AND FARM MANAGERS	1,010	55	785	23	1,023	24
MANAGERS, OFFICIALS, AND PROPRIETORS (EXCEPT FARM)	4,509	808	596	81	1,138	163
CLERICAL WORKERS	3,599	7,563	395	775	704	1,509
SALES WORKERS	2,845	2,117	460	251	759	530
CRAFTSMEN AND FOREMEN	16,174	255	1,852	79	2,878	86
SEMI-SKILLED WORKERS	15,524	3,845	2,071	902	2,919	1,223
PRIVATE HOUSEHOLD WORKERS	23	1,040	12	178	7	361
SERVICE WORKERS (EXCEPT HOUSEHOLD)	3,081	4,245	294	523	721	1,005
FARM LABORERS AND FARM FOREMEN	496	106	557	69	669	78
OTHER LABORERS	5,376	199	600	61	870	55
OCCUPATIONS NOT REPORTED	3,280	1,468	452	287	560	341
TOTALS BY SEX	62,197	25,177	8,676	3,816	13,292	6,342
GRAND TOTAL	87,374		12,492		19,634	

Source: **U. S. Census of Population: 1960** PC (1)-34C, Tables 84, 91, and 93.

The largest group of employees in each county of the area was semi-skilled workers. Next in line were craftsmen and foremen, professional, technical, and service workers. The largest concentration of men in the work force were found in semi-skilled workers, craftsmen, managers, professionals, and farmers. Women in the labor force were most abundant in clerical, semi-skilled workers, service workers, professional, and sales. For men, the greatest change upwards, percentage wise, in the last 10 years occurred in professional, technical, and related areas followed by sales and craftsmen. All other categories showed decreases during this period. For women, the greatest change was in service workers, then clerical, professional, private household workers, sales and semi-skilled workers.

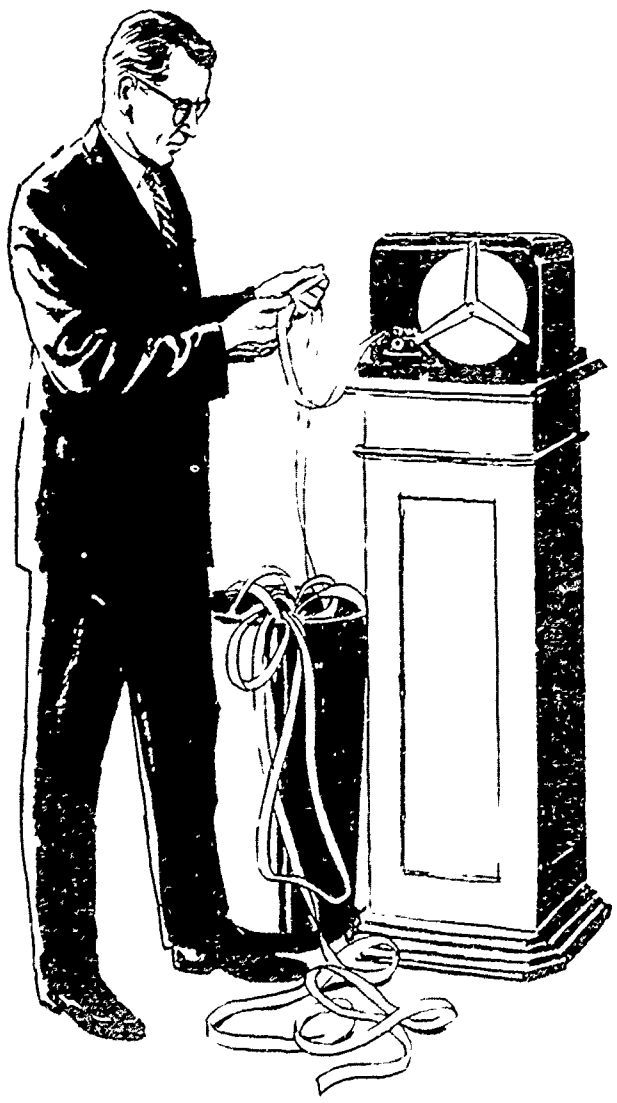


AGRICULTURE IN THE SURVEY AREA

. . . MORE THAN FARMING

Agriculture in the Empire State is an important, strong and vigorous enterprise. The Agriculture of Niagara, Orleans and Genesee Counties represents some of the State's most valuable and diversified agricultural industry.

The sale of agricultural products in the survey area amounts to nearly 43,000,000 dollars per year. But agriculture's new dimensions go beyond the 5,000 farms of the survey area. They basically involve farmers, but also include their suppliers and more than 500,000 persons in nearly 70,000 firms that assemble, process and distribute products in New York and other states.*



The tri-county area includes portions of both the Erie-Ontario Lake Plain and the Central Plain Areas. The area resources permit economic production of a variety of crops. Both cash crops and dairy are common but farms are becoming increasingly specialized. The desirable agricultural features of the area include level topography and favorable climate. Soils vary widely and permit great diversity in agricultural production. It is an area of good farms and a vigorous agricultural industry supplying those farms and processing and distributing their products.

The complex of agricultural occupations in the area represents a new and different challenge to vocational education. The area has an emerging need for vocational education which will provide training for a more specialized production agriculture. In addition, there is an increasing need to train young people for the vast complex of agricultural occupations off-the-farm, which make up a vital part of the total agricultural industry.

* Agriculture's New Dimensions
N. Y. State College of Agriculture at Cornell University

ITEMS IN WHICH THE THREE COUNTIES RANKED AMONG THE 100 LEADING COUNTIES IN THE NATION

"Ranking Agricultural Counties" is the title of a special report published by the Bureau of the Census. This report is based on the 1959 U. S. Census of Agriculture. In the report are listed the 100 leading counties in the nation for 55 selected items. There are 3,072 counties in the United States.

Below are the items in which each survey county ranked among the 100 leading counties.

Item	Rank of County		
	Niagara	Orleans	Genesee
Value of all vegetables harvested for sale	—	41	64
Acres harvested for sale:			
Cabbage	39	10	—
*Dry onions	—	39	7
*Green peas	—	—	33
Irish potatoes	—	—	90
Snap beans	—	54	28
Sweet corn	—	—	31
Tomatoes	48	17	—
Value of all fruits	68	86	—
Apples			
Trees of all ages	12	18	—
Quantity harvested	16	13	—
Cherries			
Trees of all ages	18	19	—
Quantity harvested	16	17	—
Grapes			
Vines of all ages	31	—	—
Quantity harvested	35	—	—
Peaches			
Trees of all ages	37	—	—
Quantity harvested	44	—	—
Pears			
Trees of all ages	18	39	—
Quantity harvested	21	43	—
Plums and Prunes			
Trees of all ages	22	69	—
Quantity harvested	22	49	—

* Only 50 leading counties listed.

NUMBERS OF FARMS AND LAND USE NIAGARA, ORLEANS, AND GENESEE COUNTIES

Item	Niagara			Orleans			Genesee		
	1950-54 mean	1959	% change	1950-54 mean	1959	% change	1950-54 mean	1959	% change
Total number of farms*									
New difinition		2,456	—25½		1,259	—25		1,585	—21
Old definition	32,932	2,598	—21	1,707	1,280	—24	2,028	1,664	—17
Number of farms by categories									
Commercial	1,993	1,134	—44	1,372	767	—44	1,407	1,041	—26
Part time	596	1,035	+76	175	275	+57	332	395	+16
Land use									
Land area in acres		341,120			253,440		320,640	320,640	0
Acres in farms	296,971	208,806	—15	194,781	175,732	—10	255,366	239,333	— 6
Percent of land in farms	73	61	—16	77	69	—10	80	75	— 5
Average Size of Farm—									
Acres	75	85	+14	115	140	+22	126	151	+20
Type of ownership (%)									
Farms operated by:									
Full-owners	79	74	— 6	75	72	— 4	69	65	— 6
Part-owners	16	20	+20	19	24	+26	24	27	+13
Managers	1	1	0	—	—	—	0	1	—
Tenants	5	5	0	6	4	—33	8	7	—12
Type of farm									
Percent classified as:									
Dairy	15	16	+ 7	17	17	0	31.5	39	+24
Poultry	6	3	—50	4	6	+50	5	5	0
Other Livestock	3	3	0	4	5	+25	5	4	—20
General	13	6	—60	17	13	—24	12	6	—50
Fruit	14	9	—36	16	8	—50	—	1	—
Vegetable	3	2	—33	12	9	—25	4	4	0
Field crop	5	3	—40	10	4	—60	11.5	6	—52
Miscellaneous	42	58	+38	21	38	+88	31	35	+13

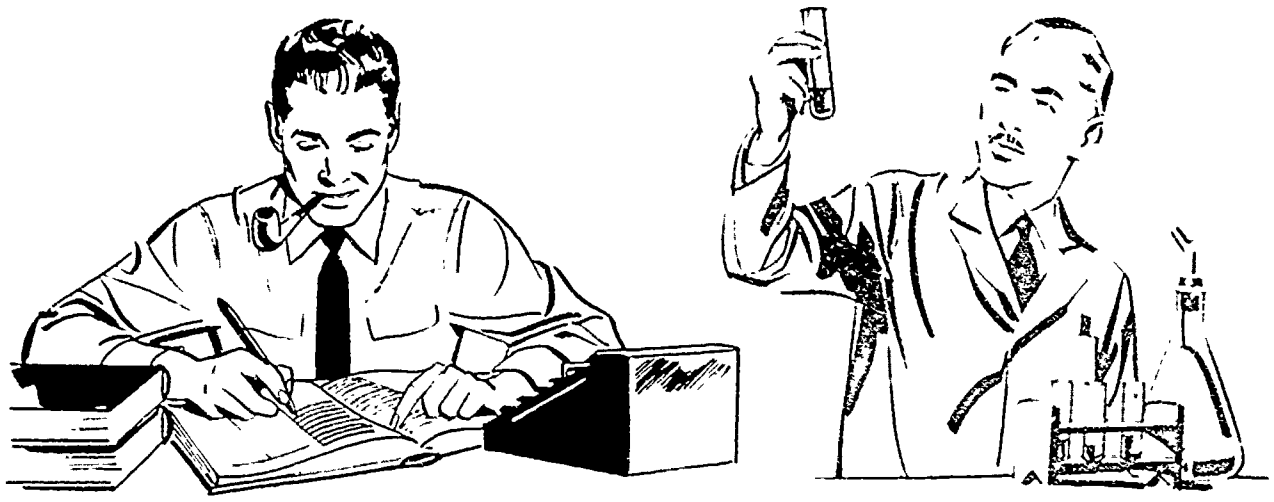
* For the 1959 Census, a farm was any place of 10 acres or more under the control of one operator or partnership if sales amounted to $50 or more per year. Also, places of less than 10 acres with sales of $250 or more.

For 1950 and 1954 Censuses, a farm was any place of 3 or more acres if annual value of agricultural products for sale or home use were $150.

Item	Niagara			Orleans			Genesee		
	1950-54 mean	1959	% change	1950-54 mean	1959	% change	1950-54 mean	1959	% change
Off-farm work									
Total farms reporting	1,883	1,416	— 25	775	623	— 19	1,042	777	— 25
Farms reporting 100 or more days	1,543	1,243	— 20	580	468	— 6	781	612	— 22
Equipment and facilities									
Number of:									
Tractors	4,287	4,652	+ 9	2,704	2,953	+ 10	3,004	3,633	+ 21
Trucks	2,014	1,704	— 15	1,289	1,251	— 2	1,277	1,352	+ 6
Automobiles	3,858	3,060	— 20	2,117	1,628	— 23	2,524	1,914	— 22
Grain Combines	440	627	+ 46	363	417	+ 23	629	797	+ 27
Corn Pickers	68	260	+385	126	280	+222	175	376	+153
Pickup Balers	230	555	+241	183	365	+199	416	702	+ 60
Field forage harvesters	160	236	+ 48	115	187	+ 63	271	502	+ 85
Farms Reporting Milking machines	623	576	— 8	390	380	— 2	713	697	— 2
Percent of Farms Reporting:									
Telephones	75	89	+ 19	75	90	+ 22	78	90	+ 15
Home Freezers	33	64	+194	29	59	+203	36	65	+ 80
Farms Reporting Milk Cows									
County Total	1,895	924	— 51	1,137	522	— 54	1,362	816	— 40
Farms Reporting Cattle plus calves									
County Total		1,236			714			1,033	
Farms Reporting Hogs plus Pigs		653			335			405	
Acreage in Crops									
Hay acreage		32,025			21,277			41,403	
Corn silage		5,794			4,364			10,462	
Grass silage		1,113			948			1,641	
All corn		19,777			15,799			21,532	
Corn for grain		13,690			11,161			10,856	
Wheat		19,180			13,906			20,430	
Oats		16,075			11,026			17,267	
Dry beans		638			1,687			5,630	
Barley		1,225			1,364			1,949	
Selected Vegetables (Acres)									
Snap beans		623.7			1,007.9			1,880.4	
Sweet corn					1,552.9			3,924.8	
Dry onions					701.7			2,394 8	
Green peas		600.1			751.9			2,262.7	
Cabbage		1,753.3			1,706 0				
Tomatoes		252.9			4,152.4				
Cantaloupes		208.4							
Squash					115.7				
Broccoli					1,173.6				
Cucumbers plus pickles					1,843.6				

THE CHALLENGE AHEAD . . .

LABOR FORCE TRENDS

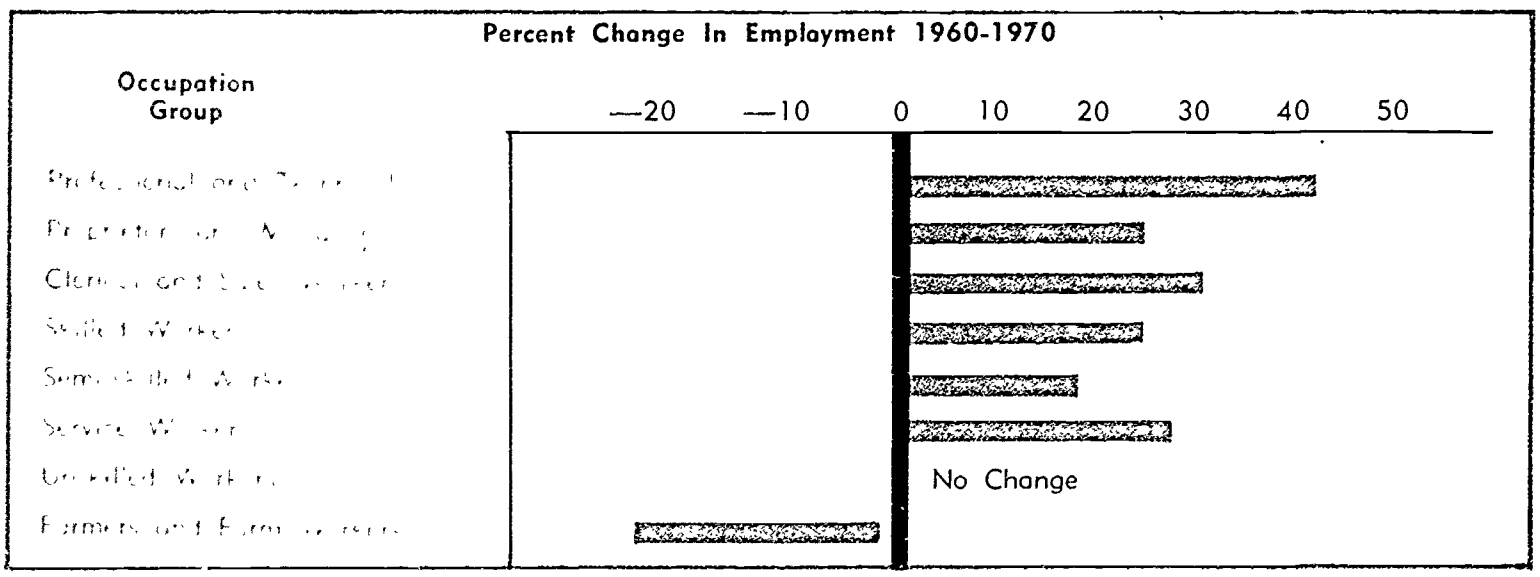


During the past decade, professional, office and sales workers as a group exceeded for the first time in our history the number of persons employed in manual occupations (skilled, semi-skilled and unskilled jobs).

During the coming decade, this trend will continue. The fastest growth will occur among professional and technical occupations, especially engineers, scientists and technicians.

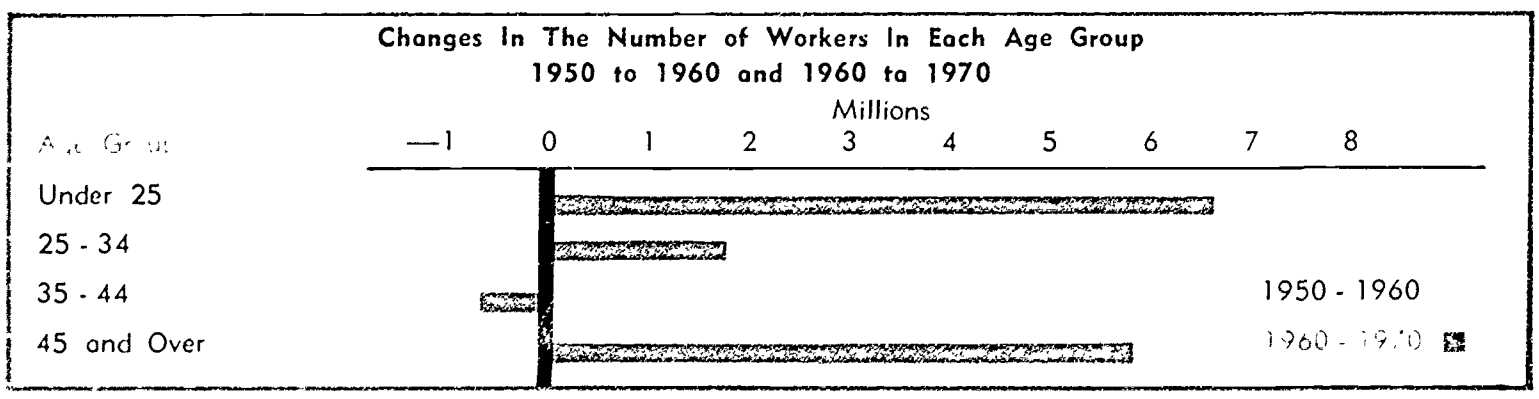
Among the manual occupations, the need for skilled craftsmen will increase, but the number of unskilled jobs will stay about the same, continuing this long term relative decline.

JOB OPPORTUNITIES WILL INCREASE FASTEST IN OCCUPATIONS REQUIRING MOST EDUCATION AND TRAINING



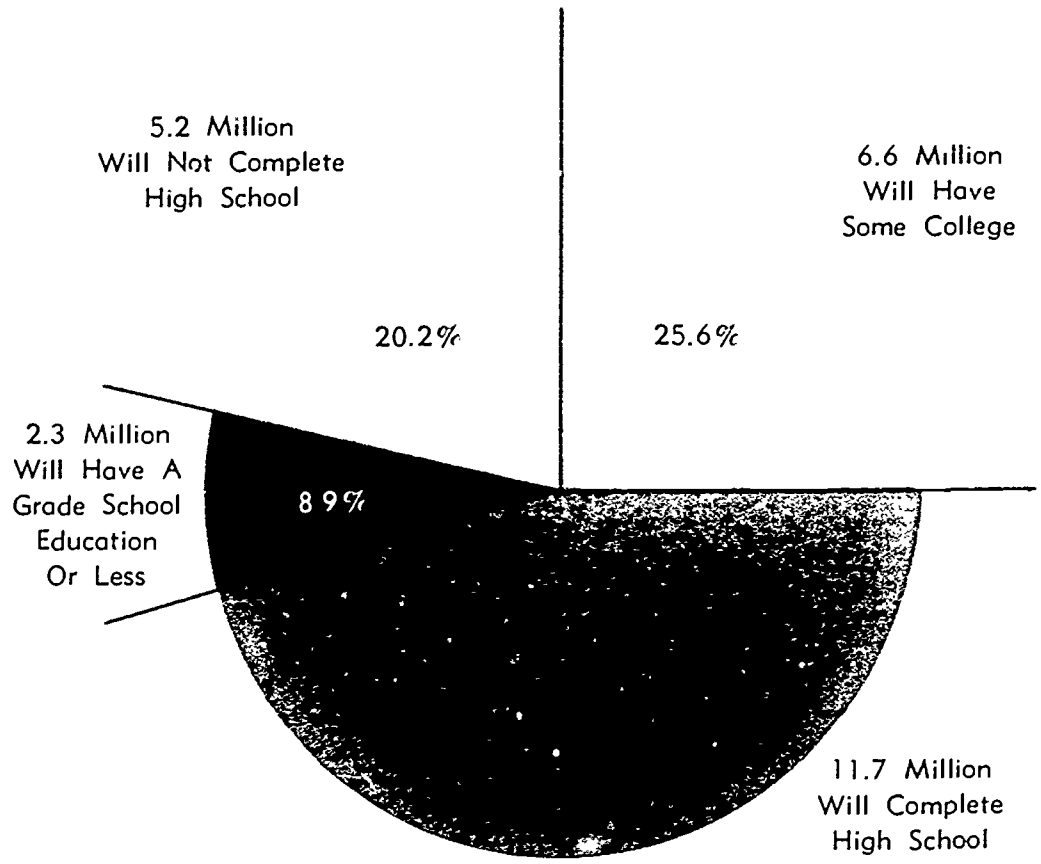
U S Dept of Labor

Young workers will account for a major share of the changes in the working population during the 1960's.



U S Dept of Labor

BETWEEN
1960 AND 1970,
26 MILLION
YOUTH WILL
ENTER THE
LABOR FORCE



U. S. Dept. of Labor

LABOR FORCE BALANCE SHEET FOR THE 1960's

		MILLIONS
NUMBER OF WORKERS IN 1960		73.6
Subtract:		
Withdrawals — death, retirement, marriage, childbearing, etc.	—15.5	
1960 WORKERS STILL IN LABOR FORCE IN 1970		58.1
Add:		
Young entrants	+26.0	
Adult women returning to work	+ 3.0	
NUMBER OF WORKERS IN 1970		87.1

U. S. Dept. of Labor

DROPOUTS



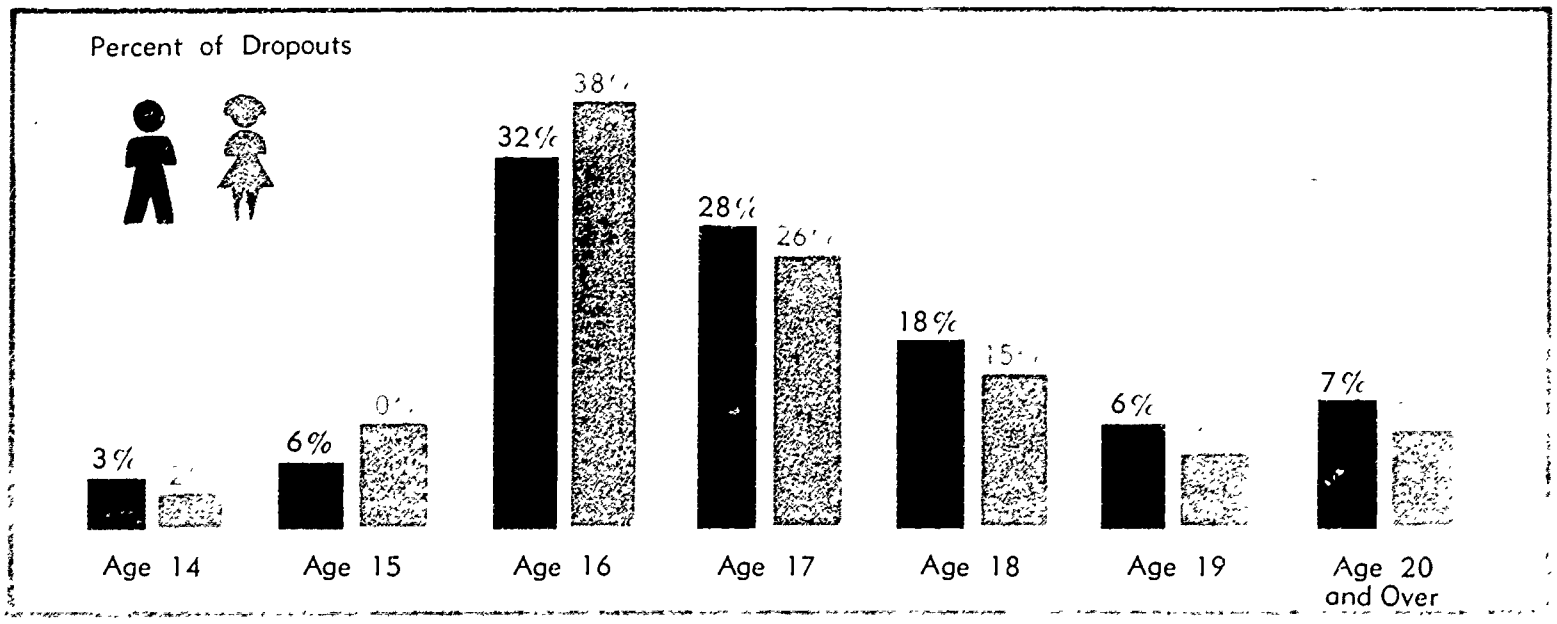
There is a great deal of concern today, and rightfully so, with the school dropout problem. Because of the amount of publicity this problem is receiving, there is the misconception that the number of young people dropping out of school is increasing. The fact is that a smaller percentage of students are dropping out of school than ever before. What heightens our concern is that there are fewer job opportunities available when they drop out, because under the impact of the great and accelerating increases in automation and technological change, the number of jobs available for high school dropouts is rapidly declining Indeed, job opportunities for the high school dropout are shrinking more rapidly than the high school dropout rate is declining.

AGE OF DROPOUTS WHEN THEY LEFT SCHOOL

Part of the problem inducing potential dropouts to stay in school is that, more often than not, they are behind the normal grade for their age. Over 80 percent in these studies were grade-retarded by at least 1 year, and half by at least 2 years. Many of them, if they had stayed in school and finished, would have been 20 years old or over before graduation.

On the other hand, it is a challenge to curriculum planners and school counselors that 20 percent of these boys and girls dropped out during the 12th grade when they were presumably within reach of graduation. Two-thirds of them were abreast of the usual age-grade relationship.

AGE OF DROPOUTS WHEN THEY LEFT SCHOOL



U. S Dept. of Labor

GRADE LEVELS OF THOSE DROPPING OUT

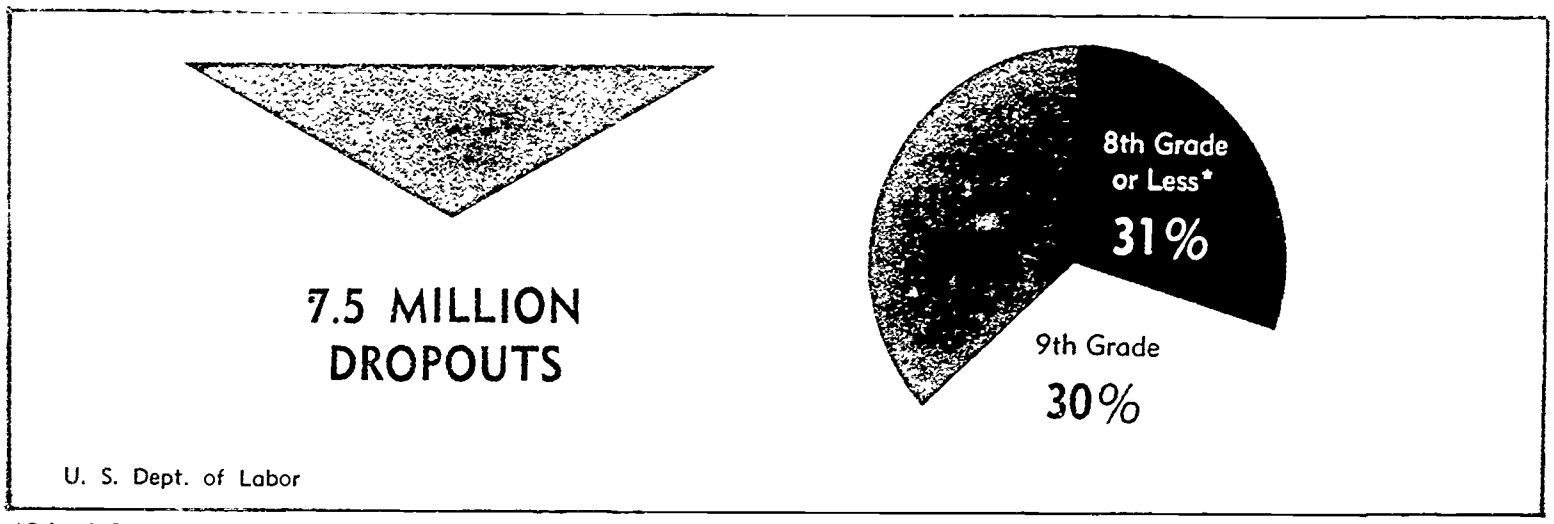
Employers will require at least high school diplomas for more and more jobs, nevertheless, 7.5 million young people entering the labor force during the 1960's will not have completed high school and 2.5 million of these will not have completed a grade school education.

The prospect that 30 percent of all young workers entering the labor force during the 1960's will lack a high school education points to the need to:

Encourage boys and girls to get all the education and training possible.

Develop courses of training designed to meet the needs of these young people

MILLIONS OF NEW YOUNG WORKERS WILL LACK A HIGH SCHOOL EDUCATION



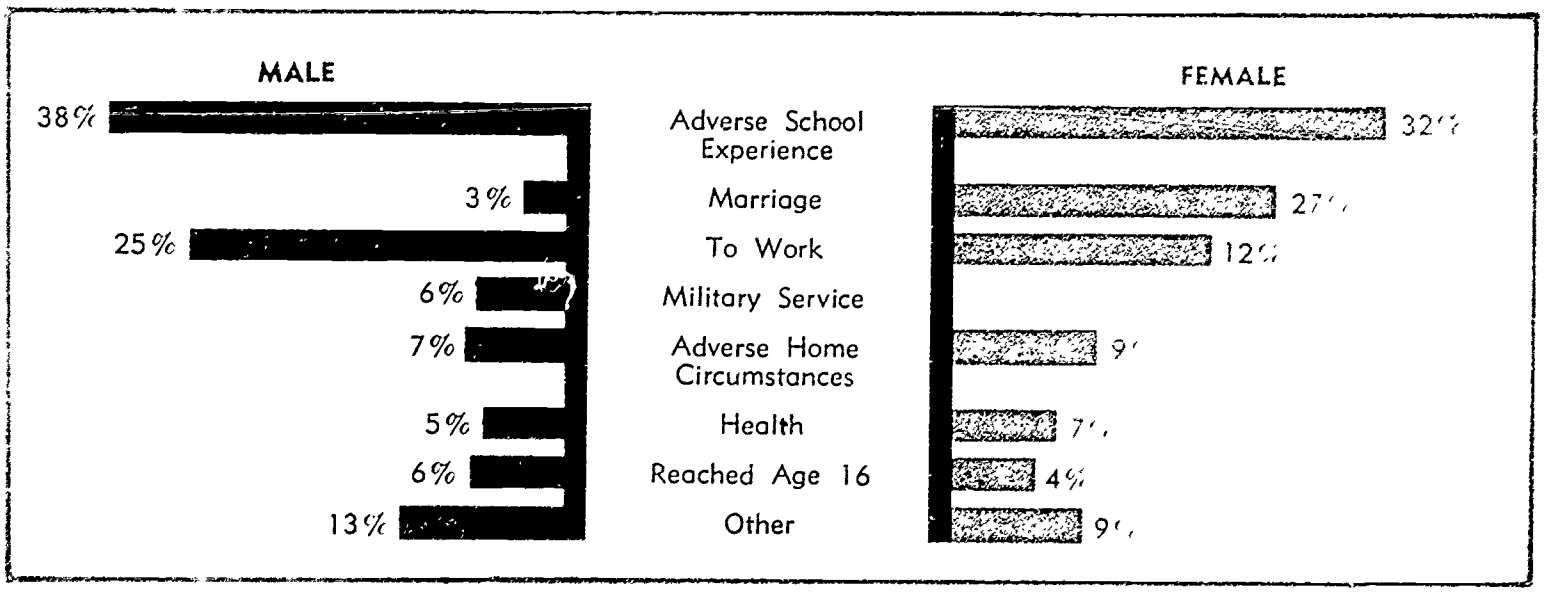
U. S. Dept. of Labor

*School Grades Of Youth Leaving Before High School Graduation

REASONS FOR DROPPING OUT

In one study, 1600 students who were personally interviewed were asked why they left school. The major single reason given by the students was adverse school experience. This was undoubtedly due, in part, to the fact that large proportions were behind in their normal grade, but the dropouts themselves did not mention that factor as a cause for their dissatisfaction. Rather, they expressed boredom with school subjects, dislike of teachers, or other general complaints.

REASONS DROPOUTS GAVE FOR LEAVING SCHOOL



U. S. Dept. of Labor

ONE ECONOMIST WRITES

From an article by Sylvia Porter in the Buffalo Courier Express dated June 5, 1964

"At this peak of the high school dropout season, let me submit some hitherto undisclosed statistics about who is dropping out this year. A full 82,500 who will drop out of high school in 1964 alone have the scholastic ability to complete a college program and to make a significant contribution to our economy and society. Another 375,000 who will leave this year without getting a diploma have the potential to complete difficult post-high school vocational programs and to fill our urgent need for trained technicians. An additional 150,000 who will drop out have enough intelligence to complete special high school courses designed for them and to acquire the skills with which to earn a decent living They'll not find the courses, though, and they'll be heading for the jobless roles.

Only 142,500 of all who will drop out are at the bottom of the IQ pile, need special education programs. But they won't find the programs either and they'll join our swelling numbers of unemployed juvenile delinquents and welfare cases. Only 19 percent had IQs of less than 80 and only 20 percent had IQs between 80 and 89. A full 50 percent had IQs between 90 and 109 and about 11 percent had IQs of 110 and above.

These statistics dramatize how woefully inadequate is today's attack on the dropout problem, how much more we must do We must drastically revise our school curricula to make the education more versatile and compelling We must provide far more post-school training programs for the millions of students capable of becoming skilled technicians. We must develop special courses for the low IQ groups to make them capable of holding jobs. We must upgrade the calibre and dignity of vocational education across-the-board as rapidly as possible. We must improve our guidance services We must make a searching examination of our own attitudes toward types of education, insist not just on a reappraisal of our education system but also on follow-up corrective action"

While the high school dropout may not represent, for the most part, college potential, the expanding occupations present a fruitful area for the development of training methods needed to move the dropout into some of the rapidly expanding areas of the economy. For smaller numbers, it may be possible to motivate them to extend their education and training to reach into the faster growing job categories, the semi-professional, technical, clerical and sales occupations The information on the dropout problem in the Survey Area is presented on page 22.

THE VOCATIONAL EDUCATION ACT OF 1963 (PUBLIC LAW 88-210)

The Vocational Education Act of 1963 signed by President Johnson December 18, 1963, is the end product of much thought and discussion. But in large part it is the outgrowth of the study and recommendations of a Panel of Consultants, originally called for by the President in his education message to the Congress in February 1961.

The Panel was appointed by the Secretary of Health, Education, and Welfare and comprised twenty-five persons from various walks of life and sections of the country. Its assigned task was to study the then existing federally-aided vocational education programs under the Smith-Hughes and George-Barden Acts.

PANEL OF CONSULTANTS REPORT

In November 1962, the Panel reported that vocational education offerings were seriously limited in variety and vastly inadequate in terms of the numbers of people they reached and the numbers of schools they served. Perhaps of greater significance was the Panel's finding that programs were frequently unrealistic in terms of the current and projected needs of the labor market.

The Panel's report expressed concern with the fate of 21 million noncollege graduates entering the labor market during the 1960's, the millions of workers whose skills and technical knowledge must be updated, and those whose jobs will disappear with the advent of automation, increased efficiency and further economic change. They foresaw a critical need for greater numbers of highly skilled craftsmen and technicians in the years ahead. They observed thot 3 million women will be working or seeking employment in the decade ending in 1970.

For the disadvantaged youth of high school age who has academic, social and economic handicaps, the usual high school vocational education program was found to be unsatisfactory. Experimental or pilot projects were suggested as a means of developing more effective instruction techniques, and wide flexibility of programs for disadvantaged youth was recommended.

DECLARATION OF PURPOSE

The opening section of the Vocational Education Act of 1963 contains the following declaration of purpose.

"It is the purpose of this part to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment, to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State — those in high school, those who have completed or discantinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps — will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, ond which is suited to their needs, interests, and ability to benefit from such training."

"While regulations are necessary in administering a program of Vocational Education, it should be kept in mind that effective planning requires that persons responsible for vocational education take into consideration such factors as (1) employing highly qualified and efficient personnel, (2) relating the program directly with employment opportunities, (3) analyzing occupations as the basis of course content, (4) providing needed facilities and equipment, (5) having sufficient time for instruction to develop skills and judgment to the accepted levels of performance in the students chosen occupation together with (6) evaluating and revising continually the program, ond (7) cooperating with interested groups."

Excerpt taken from the Regulations for the administration of vocational education under the provisions of the Federal Vocational Education Act.

WHAT IS VOCATIONAL, INDUSTRIAL AND TECHNICAL EDUCATION?

Vocational, industrial and technical education is designed to develop skills, abilities, understandings, attitudes, and work habits needed by workers to enter and make progress in an occupation. It is **education for competency** in an occupation. The opportunity to actually practice and develop needed abilities is an important part of every course. A vocational, industrial and technical program has the following characteristics:

1. The training is for a specific occupation or occupational group.
2. The training is based upon an up-to-date analysis of the occupation as practiced by successful and efficient workers
3. The students enrolled have made a tentative vocational choice based upon their ability, interest and aptitude.
4. The instructional program simulates working conditions in the occupation.
5. The teacher has had proper training and experience in the field in which he is providing training.
6. The Vocational Program is sufficiently complete to develop a reasonable degree of competence on a given occupational level The Technical Program can provide a base for further academic or technical training.
7. The instruction includes skills, technical and scientific knowledge, understandings, attitudes, safety habits, and related information necessary to success in the occupation chosen

Students take the regular courses required of all pupils for graduation from high school in addition to the selected program in Vocational and Technical education. These **include** English, mathematics, science and social studies as required

The program in which courses may be developed include **Agriculture, Business Distributive Education, Home Economics, Technical,** and **Trade and Industrial.** Individuals may train to become skilled workers, craftsmen, or technicians. In addition, certain students may elect to continue their education after high school in trade, technical, or other types of schools or colleges.

A brief description of these types of programs that may be offered are given below:

Vocational Agricultural Education — A program of instruction in agriculture to train for occupations in farming and related fields including agricultural mechanics, agricultural business, ornamental horticulture, conservation, and forestry and other occupations involving knowledge and skills in agricultural subjects.

Vocational Business Education — A program of instruction designed to train for employment in business occupations including secretarial jobs, bookkeeping, office machines, and related areas

Vocational Distributive Education — A program of instruction designed to train for careers in selling, marketing, merchandising and business management

Vocational Homemaking Education — A program of instruction designed to assist students in understanding and solving problems in personal, home and family living, and in preparing for occupations related to food service, textiles and similar fields.

Vocational Trade and Industrial Education — A program of instruction designed to train workers for initial employment in a wide range of industrial occupations, including skilled trades and crafts. Typical courses for boys include auto mechanics, carpentry and building trades, machine shop, electricity, and welding Girls may choose courses such as beauty culture and practical nursing

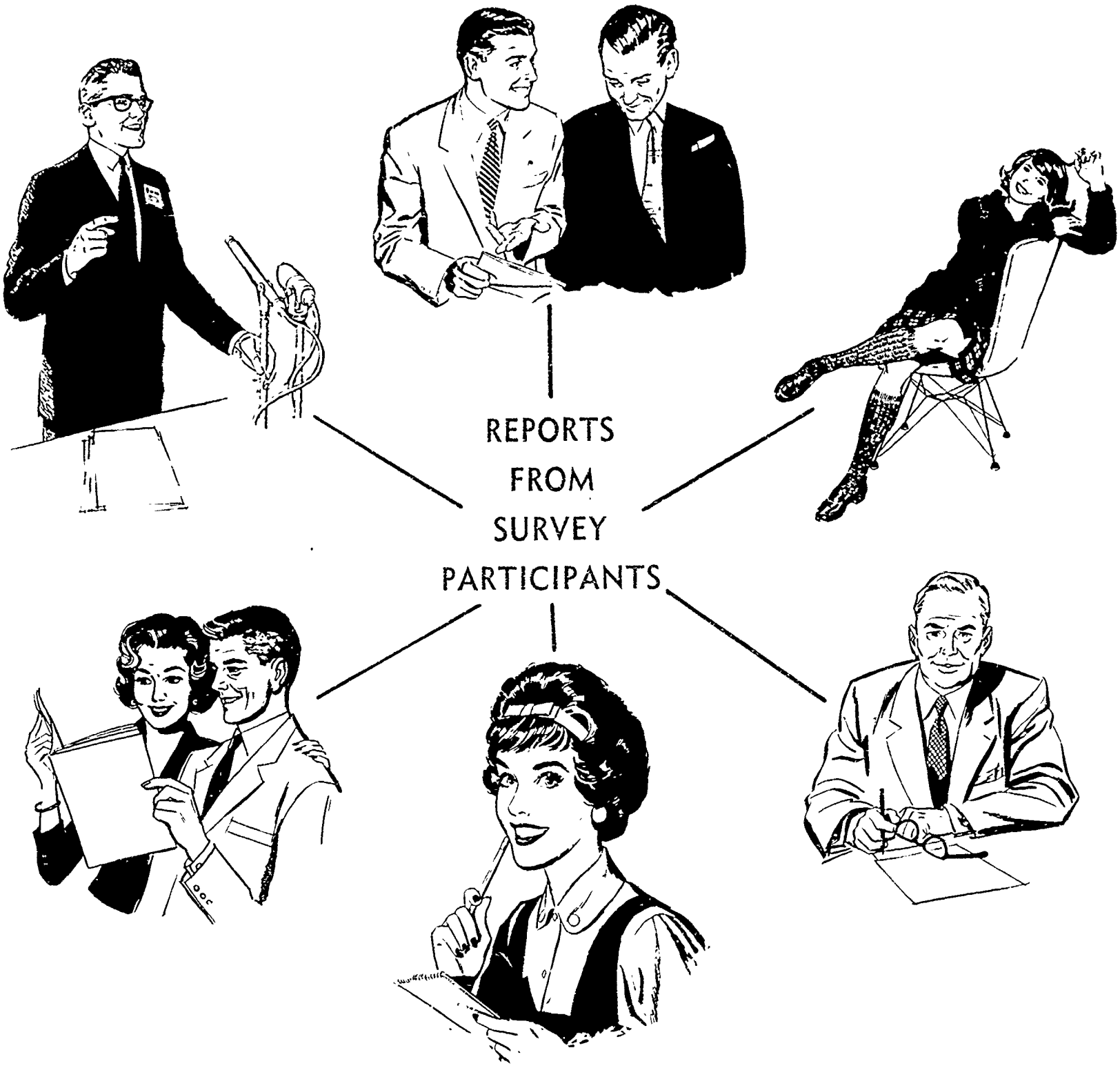
Vocational-Technical Education — A program of instruction organized for special occupational areas to develop skills in science and technology as applied to modern design, production, distribution, and services The "technician" is the middle man between the skilled worker and the engineer or other professional person

Vocational Cooperative Work Experience — Many of these programs can be offered on a cooperative basis in which boys and girls, 16 years of age and over, are placed in part-time jobs to supplement their classroom instruction. On the job they work for pay and the training station is used as a laboratory Often the student will step into a full-time position on a permanent basis with the same employer.

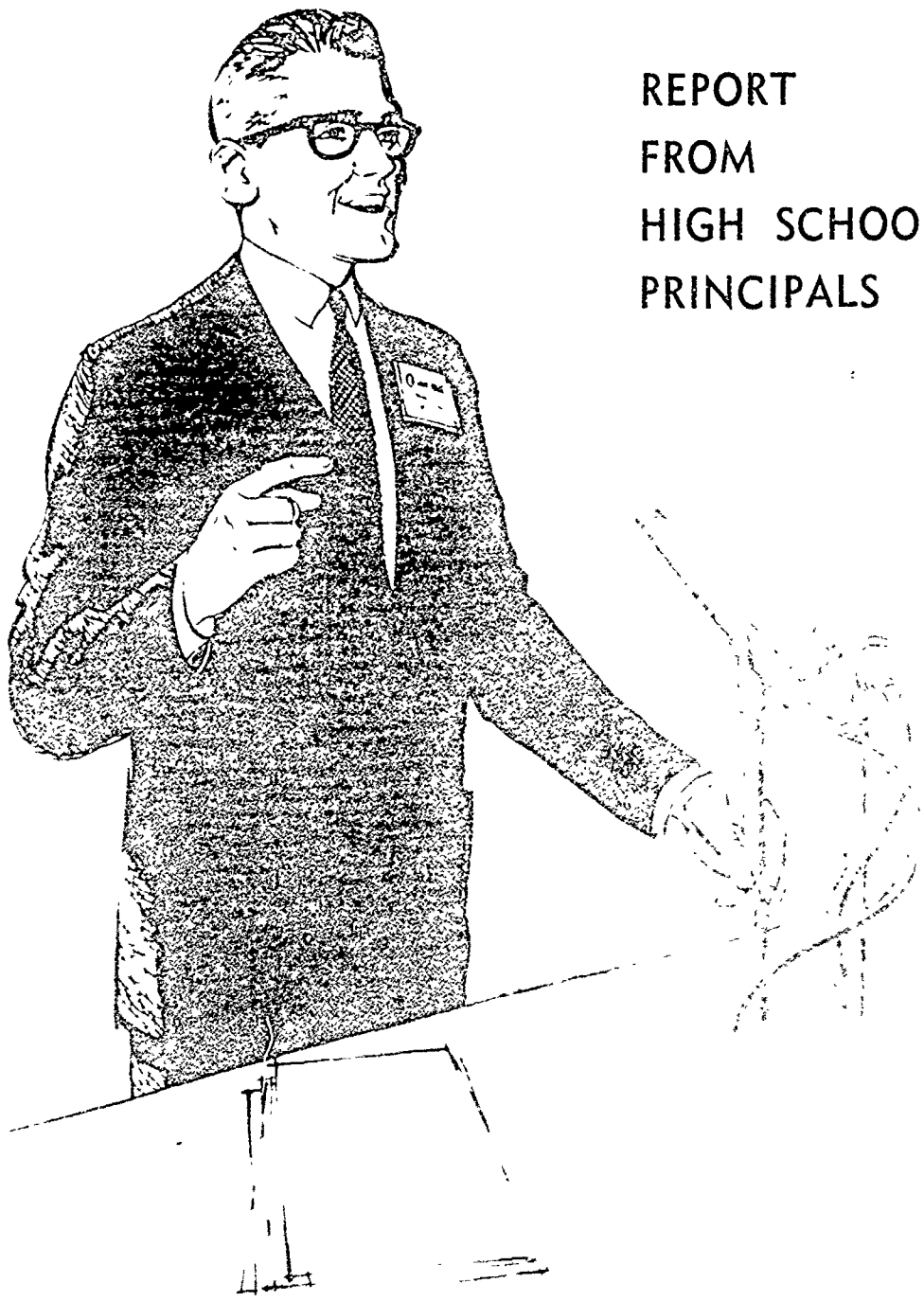
Courses in Vocational, Industrial and Technical Education

The suggested course titles listed below indicate some of the areas in which programs in vocational, industrial and technical education may be developed The high school and adult courses are open to both sexes, while certain courses may necessarily have more appeal to one sex than the other The length of each course varies, and is determined by the school officials in consultation with other agencies and organizations. Programs may be offered in cooperation with local business and industrial concerns Standards for these courses have been established by the State Education Department

1. Agricultural Machinery Technology (Operation and Repair)
2. Auto Mechanics
3. Auto Body Repair and Service
4. Agricultural Sales and Service
5. Beauty Culture
6. Bookkeeping
7. Business Machine Operation
8. Carpentry and Building Construction
9. Clerk-Typist and Receptionist
10. Commercial Art
11. Drafting (Mechanical)
12. Dental and Medical Assistant
13. Electric Appliance Repair
14. Electricity and Electric Wiring
15. Electronics Technology
16. Farm Operation and Management
17. Food Preparations and Service
18. Landscaping and Horticulture
19. Machine Trades
20. Plumbing, Heating and Refrigeration
21. Practical Nursing
22. Printing Trades
23. Retail — Sales and Management
24. Secretarial and Stenographic Work
25. Sheet Metal Work
26. Textile Fabrication — Upholstery
27. Welding



A vital part of the Survey plan was to gather information from high school principals, parents, students, employment service officers, employers, and young employees. The following sections contain the reports and data gathered from the several groups cooperating in the study.



REPORT FROM HIGH SCHOOL PRINCIPALS

There are twenty-three school districts included in the Survey Area. There are twenty-five high schools, including one vocational school. There are 19 Central School Districts and 4 City School Districts All of the school districts in the Survey Area are participating in the study

HIGH SCHOOL ENROLLMENTS BY DISTRICTS

On the basis of 1963 enrollment in the high school grades nine-to-twelve inclusive, the several schools range in size from 219 to 2193 students. (There are two academic high schools and one vocational high school in Niagara Falls,, a district with 4217 high school students.)

The range is shown below:

No. of Pupils	Less Than 300	300-400	400-500	500-600	600-700	700-800	800-900	900-1200	1200-2200
Number of High Schools	3	8	1	4	0	0	2	3	4

The majority of high schools included in the Survey Area have enrollments which are too small to make possible the establishment of vocational programs within the district, since a total enrollment of at least 1400 pupils in grades 10 to 12 inclusive is the necessary minimum needed to offer such instruction, Niagara Falls has 3936 in grades 10 to 12 (three schools), and North Tonawanda 1594. Lockport has 1232 students in grades 10 to 12.

The Guide to School District Reorganization for New York State, published by the New York State Department of Education, states that:

> There is an increasing demand for secondary vocational and technical education in New York State. Unless this demand is to be met entirely on a State level (which is not recommended by the committee), consideration must be given to the formation of school districts having enrollments approaching 1400 and more in a **senior high school** attendance unit. These programs are expensive in terms of equipment and personnel and limited in terms of the number of pupils enrolled in a given area of instruction. — To achieve a reasonable optimum of vocational offerings an enrollment of 1400 in a senior high school **attendance unit** is required.

Note An attendance unit for purposes of vocational education might be made up of a cluster of small high schools, forming a larger Area Vocational School or center.

CURRENT AND PROJECTED HIGH SCHOOL ENROLLMENTS

The high school enrollment in grades 9 to 12 for the schools of the Survey Area in October 1963 was as follows.

Ninth grade	4419*
Tenth grade	5314
Eleventh grade	4796
Twelfth grade	4285
Total enrollment, grades 9 to 12, all schools*	18,814
Projected enrollments, grades 9 to 12 all high schools:	
For 1964-65	19,668
For 1969-70	21,654

* Ninth grade total does not include Niagara Falls High School, nor Trott Vocational High School, Niagara Falls These schools are three-year senior high schools which enroll grades 10 to 12. There are ninth graders in Niagara Falls who were not included in this Study.

HOLDING POWER OF THE SECONDARY SCHOOLS

Number enrolled in the ninth grade in 1959-1960	3603
Number of the ninth grade 1959-1960 group graduated in 1963	2568*
The per cent of the 1959-1960 ninth grade group that graduated in 1963	71%
The per cent of the 1959-1960 ninth grade group that did not graduate from the **same school system** in 1963, **or** who transferred to another system, or who dropped out	29%
Holding power, when those who transferred to another high school from which they graduated, or who are expected to graduate in 1964 (five year graduates) are included with those who did graduate on time from the same school, is estimated to be	78%

* **Does not include** the 12th grade graduates, 708 in number, from Niagara Falls High School and Trott Vocational High School.

To have included graduates from schools for which 9th grade enrollment was not provided would have distorted the percentage for holding power.

The Holding power of individual high schools of the Survey Area ranged from 51% to 96%. Six schools graduated more than 90% of those who had entered the ninth grade four years earlier, nine schools graduated from 80% to 89%; eight schools graduated from 70% to 79%, one graduated 67% and one school graduated 51%.

In summary, the holding power of the high schools of the Survey Area is, in general, excellent. It could, of course, be improved somewhat in many of the high schools. Vocational opportunities might well be a means of encouraging pupils to stay in school for longer periods of time by providing motivation which may be lacking now

NON-VOCATIONAL COURSES IN INDUSTRIAL ARTS, HOMEMAKING, AND BUSINESS

Many courses in Industrial Arts, Homemaking, and Business Education are classified as a part of general education and non-vocational. It is true however that such courses often provide orientation experiences related to occupational life which are of great value for exploratory purposes It is interesting to note that all but one of the high schools included in this study offer one or more of these programs in general education. About one third of the total enrollment in grades 10 to 12 or 6257 students elected to participate in these offerings.

PRESENT PROGRAMS IN VOCATIONAL AND TECHNICAL EDUCATION

The 25 high schools of the Survey Area have rather limited offerings in vocational education, as far as the smaller schools are concerned. Four have only one offering each, (vocational agriculture or vocational business education) and four others do not have any courses of a vocational nature. The types and distribution of the existing programs, with numbers of students enrolled are as follows:

VOCATIONAL PROGRAMS

Name of Program	Number of Schools Offering	Number of Teaching Positions	Number of Students
Vocational Agricultural Education	11	11	481
Vocational Business Education	15	64	3524*
Vocotional Distributive Education	8	9	593
Vocational Homemaking Education	8	13½	452
Vocational Trade and Industrial Education	7	23½	572
Vocational Technical Education	4	5	163
Other**	5	11	184
	Totals	137	5969*

* Figures provided by several schools undoubtedly include students in some commercial courses which are **not** of a strictly vocational nature, and also some duplication as far as individual students are concerned, i.e., a student enrolled in two courses might be counted twice, etc.

** Vocational Industrial Cooperative Courses ..... 34 students
Practical Nursing ..... 141 students
Nurses Aide ..... 9 students

DROPOUTS IN THE SURVEY AREA

A reasonable estimate of the per cent of drop-outs from the group used in this study, i.e., those who entered the ninth grade in 1959-1960, is 22% or the difference between the 78% graduated in four years (or five years) and 100%. Numerically this means that about 792 of the 3603 members of the 1959-1960 ninth grade class did not graduate in either four or five years.

Might Some Type of Vocational Education Have Kept Students Who Dropped-out, in School For a Longer Period of Time? (Possibly to Graduation?)

Nineteen of twenty-five principals said "Yes," with such qualifying answers as

"Yes, in vocational education, probably not in technical education"

"Yes, for a few."

"Possibly or perhaps."

One principal said "no."

Might Vocational or Technical Education Have Provided Drop-outs With a Better Opportunity to Find More Rewarding Employment?

Eighteen principals thought "Yes."

One said "No."

Three said "Possibly."

One principal emphasized that "the vocational training should be commensurate with their ability and previous training."

POST-HIGH-SCHOOL EDUCATION OF GRADUATES

Of the 2568 members of the ninth grade class of 1959-1960 who graduated in 1963, those who continued their education after graduation numbered 1709

The per cent of graduates who continued their education after graduation was 67%

The types of schools in which the 1963 graduates continued their education were:

Four-year College	940 Students	55 3%
Two-year Community College	243 Students	14 2 %
Technical Institutes	166 Students	10 %
Business School	177 Students	10 %
Nursing School	64 Students	4 %
Special Trade Schools	44 Students	2 6%
Evening Adult Classes	20 Students	1 %
Other, miscellaneous	55 Students	3 %

In Your Opinion Could Area Vocational Education Programs Equip Some of Your Students for More Favorable Entrance to Industry?

In your geographical area?	Yes — 22	No — 2	Possibly — 1
In adjacent counties?	Yes — 22	No — 0.	Possibly — 1
In the State and Nation?	Yes — 21.	No — 0.	Possibly — 3

ADULT EDUCATION OFFERINGS

What Are The Present Adult Education Programs or Courses of a Vocational Nature Offered in the Several School Districts?

All except three school districts offer vocational courses of one type or another for adults One school has ten courses, two have nine courses each, one has eight courses and another seven. Several schools provide only one course each in adult education The larger school districts have the broader programs in such fields as trade and industrial education, as well as technical education, as might be expected.

The total enrollment in all schools in Adult Vocational Education is 1064.
The courses offered and the number of schools providing each, are as follows.

Name of Course	Number of Districts	Name of Course	Number of Districts
Typing	11	Accounting	1
Welding	10	Business Control	1
Bookkeeping	9	Carpentry	1
Electronics, Basic and Advanced and Servicing	6	Electrical	1
Machine Shop	4	Electronic Test Tube Equipment	1
Shorthand	4	Engineering, Basic Review	1
Ceramics	3	Furniture Making	1
Woodworking	3	Industrial Control Instruments	1
Agriculture, Young Farmers	2	Mechanics	1
Art	2	Office Machines	1
Blueprint Reading	2	Paper Making	1
*Engineers, Stationary	2	Practical Nursing	1
Mechanical Drafting	2	Sewing	1
Related Shop Mathematics	2	Slide Rule	1
Automotive Mechanics	1	Tailoring	1
		*Tool and Die Making	1

* Related Instruction

The four districts which have the largest programs in vocational education enroll 688 students, or 64% of the total enrollment in the twenty districts having such programs These figures underscore the meagerness of the adult education opportunities in many of the districts which do not have the facilities nor the staff to provide vocational courses for adults If and when area vocational centers are developed, instructional staff and equipment will be available to present more numerous offerings in vocational education Even the present offerings of the four largest centers could be extended when better financial support becomes available

PROBLEMS

What Are Some of the Problems, As You See Them, Involved in Establishing Vocational and Technical Programs for Youth and Adults in the Tri-County Area of the Survey?

The most frequently mentioned problems listed by the principals are as follows.

Problem	Number of Principals Mentioning
Transportation needs will vary as to time, distance, and cost	16
Inadequate funds — costs — financing	7
Location of Vocational Centers — agreeable location so that students of all areas may participate	5
Unions and their restrictions	4
Adequate plant and equipment — expansion of present plant in some instances	3
Agreement on what the program should include	2
Guidance and counseling	2

What is Your Frank Opinion of the Feasibility and Desirability of Attempting to Create a Larger Number of Vocational and Technical Courses in Various Existing Schools Throughout the Survey Area?

The following answers of the principals to the above questions indicate that they see little promise in any plan which attempts to establish vocational or technical offerings in small schools in relatively sparsely settled areas of the survey territory There are some exceptions, of course Some of their comments are as follows.

We favor this if the only alternative is transporting pupils beyond 15 miles daily.

Would create more problems — due to crowded conditions.

I question whether this can be done satisfactorily except in larger schools

Schools should be large enough to offer varied programs, 2 or 3 larger centers would be better than many small ones.

I would favor an **area county school** above increasing courses in existing schools

Should be explored at least as an interim device while other special schools are being developed.

More feasible to establish vocational-technical school centrally for those schools located on fringe of the survey area.

We carried this program for years, but our offerings were too limited and class enrollments too small

Locally, — need not demonstrated. Desirable but **not** feasible due to space

Appropriate courses to meet local needs.

Depending on the courses it could be an excellent idea Should not have duplication of facilities.

It would be desirable to expand existing facilities in existing vocational training centers and incorporate them in the overall plan. This makes use of existing administration, experience, instructors, "know-how" and their fullest application to the problems. If additional pupils enter the program the facilities must be enlarged.

A separate building should be utilized for vocational training.

The number of students in any one school, outside of the larger cities, does not justify the expense.

ABILITY LEVELS TO BE SERVED

If Adequate Vocational and Technical Education Programs Were to be Established in the Area, Would You Consider Them as Desirable for Interested Students of All Levels of Ability, or Principally for Those of Lesser Ability?

Twenty-one principals thought that such programs should be open to interested pupils of all levels of ability One suggested that those of average ability should be admitted Two thought that only those of "lesser" ability should be admitted.

In the words of the principals:

I believe that it would be a mistake to make this a "lesser" ability program

Vocational program for all interested students. (5 principals)

Should be provided particularly for present "drop-outs" and for some of the lower ability students Basis of selection and ability level required for courses should be carefully analyzed (6 principals)

All levels of ability because we know that many able students do not go on to college, that others are vocationally talented; that some programs need to train pupils at lower levels of skill than now set for vocational programs. (4 principals)

Let's not blacken or hamstring the plan before it is put into operation (2 principals)

I believe the "lesser" ability concept would be damaging in implementing the program It would tend to be a second class citizen point-of-view.

EARLIER STUDIES BY DISTRICTS

Have You or Your Associates Made or Participated in Any Studies Which Are Now Available and Might be of Interest to the Survey Staff, Such as: Drop-out Studies; Follow-up Studies of Graduates in College or Employed, of the Areas of Greatest Need for Vocational Guidance, Education and Placement, and the Like?

The responses from several school systems indicated that studies of the type mentioned had been made Several of the participating school systems sent copies of their follow-up studies to the Survey Staff



WHAT DO PARENTS SAY?

Each 9th grade pupil was instructed to take home the Informational Booklet on Vocational and Technical Education for Parents and Students and a Parent Interest Survey Form. The interest of the student in vocational and technical courses was listed on the Porent Interest Survey

PARENTS' OPINION OF STUDENT CHOICES

Do you approve of the preliminary choice of which your son daughter has expressed an interest?

	Niagara		Orleans		Genesee		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Percentage	
Yes	2114	77	386	66	544	67	3044	73
No	87	3	17	3	15	1	119	3
No response	550	20	178	31	257	32	985	24
Total	2751	100	581	100	816	100	4148	100

Of the parents responding, 73% approved their son's or daughter's choice of courses and also approved of their enrollment in the course(s) of their choice by the identical percentage (73%).

OPINIONS REGARDING EXPANSION OF VOCATIONAL AND TECHNICAL EDUCATION

Do you favor expanding and improving programs in vocational and technical education for high school students?

	Niagara		Orleans		Genesee		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Percentage	
Yes	2630	95	557	96	779	95	3966	95
No	78	3	13	2	23	3	114	3
No response	43	2	11	2	14	2	68	2
Total	2751	100	581	100	816	100	4148	100

Do you favor expanding and improving programs in vocational and technical education for adults?

	Niagara		Orleans		Genesee		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Percentage	
Yes	2406	87	511	88	679	83	3596	87
No	209	8	48	8	80	10	337	8
No response	136	5	22	4	57	7	215	5
Total	2751	100	581	100	816	100	4148	100

A very high proportion (9[illegible]%) approved of expanding and improving vocational and technical education for high school youth. They were in favor of expanding and improving vocational and technical education for themselves or other adults in 87% of the cases.

PARENT INTEREST IN SPECIFIC COURSES

Would you be interested in an adult class to improve your occupational skills?

	Niagara		Orleans		Genesee		Total	
	Number	Per cent	Number	Per cent	Number	Per cent	Percentage	
Yes	1196	43	286	49	346	43	1824	44
No	1365	50	263	45	427	52	2055	50
No response	190	7	36	6	43	5	269	6
Total	2751	100	581	100	816	100	4148	100

CHOICE OF FATHERS FOR ADULT COURSES

Courses	Niagara			Orleans			Genesee			Total			Rank
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	
1 Appliance Repair	89	68	61	14	10	12	18	15	10	121	93	83	5
2 Auto Mechanics	74	74	42	29	20	11	20	15	9	123	109	62	4
3 Bookkeeping - Accounting	58	30	27	9	6	4	19	6	11	86	42	42	9
4. Carpentry	76	68	54	19	19	6	31	23	17	126	110	77	3
5 Dental - Medical Assistant	2	1	1	0	0	0	1	1	1	4	2	2	14
6. Electricity	84	76	69	20	25	24	19	31	21	123	132	114	1
7. Farm Management	16	13	9	15	5	5	12	8	5	43	26	19	10
8. Food Service	11	5	7	1	4	0	4	3	1	16	12	8	12
9 Hospital Aide - Practical Nursing	6	2	1	2	0	1	1	0	0	9	2	2	13
10 Machine Trades	64	48	42	13	12	12	17	13	12	94	73	66	7
11. Office Machine Operator - Clerk Typist	10	13	9	2	5	4	3	7	3	15	25	16	11
12 Plumbing, Heating and Refrigeration	70	69	62	16	20	16	18	17	19	104	106	97	6
13 Retail - Sales Management	57	51	17	11	5	7	21	9	5	89	65	29	8
14. Welding	67	68	72	21	20	28	29	20	23	117	108	123	2
15. Other	146	79	55	32	15	9	38	17	9	216	111	73	

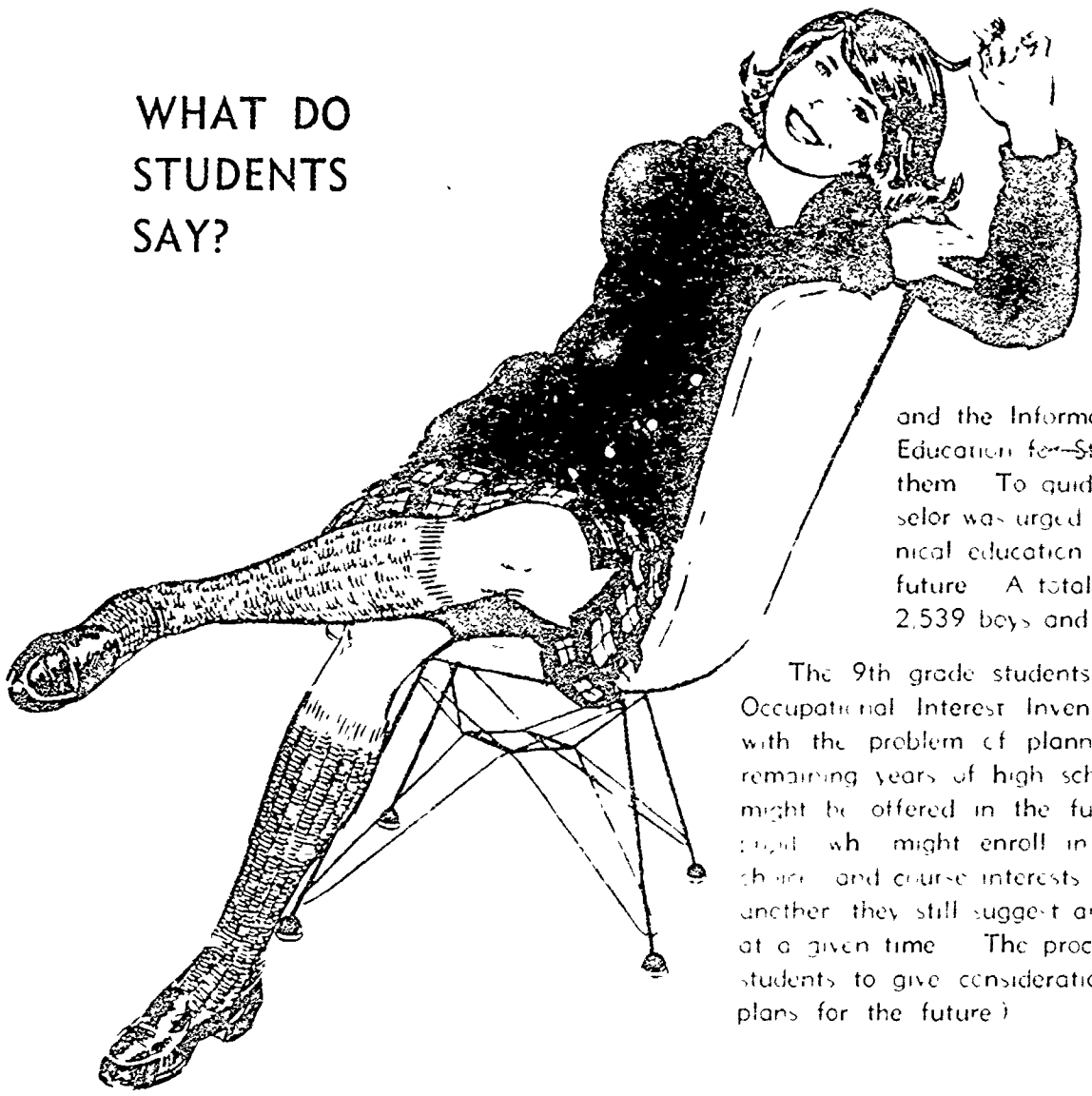
CHOICE OF MOTHERS FOR ADULT COURSES

Courses	Niagara 1st	Niagara 2nd	Niagara 3rd	Orleans 1st	Orleans 2nd	Orleans 3rd	Genesee 1st	Genesee 2nd	Genesee 3rd	Total 1st	Total 2nd	Total 3rd	Rank
1 Appliance Repair	8	2	4	2	2	1	4	1	0	14	5	5	7
2 Auto Mechanics	4	3	3	2	3	1	1	1	1	7	7	5	9
3 Bookkeeping - Accounting	131	90	83	44	34	19	51	34	19	226	158	121	3
4 Carpentry	1	1	2	2	0	1	1	1	0	4	2	3	12
5 Dental - Medical Assistant	68	92	68	8	15	11	14	15	13	90	122	92	5
6. Electricity	1	4	0	1	0	0	1	3	1	3	7	1	11
7. Farm Management	4	5	0	2	0	0	1	1	1	7	6	1	10
8. Food Service	117	79	65	18	18	15	29	24	17	164	121	97	4
9 Hospital Aide - Practical Nursing	262	121	60	58	38	20	42	28	20	362	187	100	1
10. Machine Trades	1	9	1	2	1	1	4	1	1	7	11	3	8
11. Office Machine Operator - Clerk Typist	172	123	68	37	35	22	52	37	17	261	195	107	2
12 Plumbing, Heating and Refrigeration	1	1	3	0	1	0	0	0	0	1	2	3	13
13 Retail - Sales Management	22	32	40	7	8	16	6	9	16	35	49	72	6
14. Welding	0	2	1	0	0	2	0	0	0	0	2	3	14
15. Other	117	98	74	46	18	16	48	30	18	211	146	108	

Although 87% approved of expanding courses for adults, only 44% were interested in enrolling in such courses.

Other courses that parents would like to see added to the list are. Beauty Culture, Electronics, Horticulture, Textile Fabrication, Dressmaking and Design, and Data Processing.

WHAT DO STUDENTS SAY?



Each 9th grade student in the 23 school districts in the survey area was asked to complete the Student Occupational Interest Inventory. The inventory form was prepared by the Staff in cooperation with a sub group from the planning Committee. Before the students completed the inventory the purposes of the survey and the Informal Booklet on Vocational and Technical Education for Students and Parents were discussed with them. To guide pupils in their selections, each counselor was urged to review the list of vocational and technical education courses which might be offered in the future. A total of 4,927 useable forms were returned, 2,539 boys and 2,388 girls.

The 9th grade students were chosen to complete the Student Occupational Interest Inventory because they will soon be faced with the problem of planning an educational program for their remaining years of high school. It was felt that programs which might be offered in the future should reflect the choices of the pupils who might enroll in such courses. Although occupational choices and course interests will change from one period of time to another, they still suggest areas of interest on the part of students at a given time. The procedure also served as a stimulus to the students to give consideration to their vocational and educational plans for the future.)

AGE DISTRIBUTION OF PUPILS

The great majority of the students in the study group, 97%, were 14, 15 or 16 years of age. Less than 1% were 13 years of age or under, and 2% were 17 years of age and over. The age distribution was very similar for each county in the study.

PLANS FOR COMPLETING HIGH SCHOOL

The percentage of boys and girls planning to complete high school was slightly over 96. Approximately 3% of the boys and girls were undecided as to whether or not they would complete a 12th grade education.

STUDENT PLANS FOR COMPLETING HIGH SCHOOL

	Niagara		Orleans		Genesee		Total Percentage	
	Number	Per Cent	Number	Per Cent	Number	Per Cent		
Yes	3240	97	602	96	909	96	4751	96
No	27	1	3	1	7	1	37	1
Undecided	82	2	22	3	31	3	135	3
No answer	3	—	1	—	0	0	4	—
Total	3352	100	628	100	947	100	4927	100

PLANS FOR POST-HIGH SCHOOL EDUCATION

About 64% of the students planned to continue their education after high school. Only slightly more than 9% indicated they did not plan post-high school education, and the remaining 27% were undecided.

Of those planning to further their education beyond high school, about half of the boys and girls were thinking of attending either a four-year college, a two-year community college or a two-year technical school.

Choice	Niagara Number	Niagara Per Cent	Orleans Number	Orleans Per Cent	Genesee Number	Genesee Per Cent	Total	All County Percentage
4 Year College	1413	42	206	33	346	37	1965	40
2 Year Community College or Technical School	432	13	70	11	145	15	647	13
Other	457	13	106	17	174	18	737	15
No answer	795	24	158	25	207	22	1160	24
Not Applicable	255	8	88	14	75	8	418	8
Total	3352	100	628	100	947	100	4927	100

STUDENT DESIRE TO PREPARE FOR OCCUPATIONAL TRAINING WHILE IN HIGH SCHOOL

A total of 3,698 students (75%), expressed interest in vocational and technical education during their high school days.

	Niagara Number	Niagara Per Cent	Orleans Number	Orleans Per Cent	Genesee Number	Genesee Per Cent	Total	Percentage
Yes	2561	76	444	71	693	73	3698	75
No	769	23	180	29	251	27	1200	24
No answer	22	1	4	—	3	—	29	1
Total	3352	100	628	100	947	100	4927	100

COURSE CHOICES OF STUDENTS

A complete summary of course choices is presented, based on the list appearing in the Informational Booklet. Other choices made by students which are not on the list are Airline Hostess, Salesman, and Modeling.

CHOICE OF VOCATIONAL COURSES BY THOSE INTERESTED IN PREPARING FOR AN OCCUPATION

Courses	Niagara 1st	Niagara 2nd	Niagara 3rd	Orleans 1st	Orleans 2nd	Orleans 3rd	Genesee 1st	Genesee 2nd	Genesee 3rd	Total Choices 1st	Total Choices 2nd	Total Choices 3rd	Rank
1. Agricultural Machinery	17	35	22	8	14	11	15	27	17	40	76	50	19
2 Auto Mechanics	212	146	83	59	36	20	72	34	32	343	216	135	3
3 Auto Body Repair and Service	47	158	81	15	51	12	15	58	22	77	267	115	7
4 Agricultural Sales and Service	5	21	16	1	7	7	6	8	6	12	36	29	23
5 Beauty Culture	171	153	148	45	40	30	65	37	53	281	230	231	2
6 Bookkeeping	57	123	166	13	28	30	16	48	58	86	199	254	6
7 Business Machine Operation	31	65	100	6	11	15	16	16	21	53	92	136	12
8 Carpentry and Building Construction	46	49	62	9	6	11	18	22	19	73	77	92	13
9 Clerk Typist and Receptionist	76	274	159	23	43	36	23	79	34	122	396	229	4
10 Commercial Art	92	98	87	13	15	9	24	17	15	129	130	111	8
11. Drafting (Mechanical)	97	72	61	10	9	11	20	21	17	127	102	89	10
12 Dental and Medical Assistant	60	98	83	10	12	10	16	32	21	86	142	114	11
13 Electric Appliance Repair	19	31	31	5	10	7	2	5	14	26	46	52	21
14 Electricity and Electrical Wiring	30	79	65	8	14	12	9	22	15	47	115	92	14
15 Electronics Technology	117	65	67	22	5	6	24	19	6	163	89	79	9
16. Farm Operation and Management	36	24	29	19	15	14	39	20	20	94	59	63	15
17 Food Preparation and Service	15	32	53	4	13	10	8	15	17	27	60	80	20
18 Landscaping and Horticulture	15	35	34	2	5	4	4	3	10	21	43	48	22
19. Machine Trades	34	40	49	5	4	15	6	7	24	45	51	88	18
20 Plumbing, Heating and Refrigeration	9	5	15	1	1	3	2	2	8	12	8	26	27
21. Practical Nursing	132	121	87	35	23	23	47	34	25	214	178	135	5
22 Printing Trades	7	12	16	2	1	3	0	3	3	9	16	25	25
23 Retail (Sales and Management)	50	36	53	9	7	9	4	4	9	63	47	71	16
24. Secretarial and Stenographic	345	150	135	54	23	35	94	43	43	493	216	213	1
25. Sheet Metal Work	2	10	28	1	2	6	1	4	8	4	16	42	24
26 Textile Fabrication and Upholstery	7	8	15	0	1	8	3	1	6	10	10	29	26
27. Welding	14	40	89	4	8	29	4	10	28	22	58	146	17
28. Other	820	357	228	65	29	28	147	66	45	1032	452	301	



REPORT FROM NEW YORK STATE EMPLOYMENT SERVICE OFFICERS

There are four Employment Service Offices included in the Survey area Three are located in the cities of Niagara Falls, Lockport and Batavia, and the fourth is located in Albion and serves Orleans County.

	1961	1962	1963
Total Number of Registrants:	13,304	15,480	15,140
Total Number of Placements·	4,054	4,497	4,353
Placement of Workers Under 21:	729	783	1,121

In your opinion, what are the shortcomings or weaknesses of young people who are not placed? (Males and Females)

Lack of goals and confidence brought on by limited and current lack of opportunities in the area.
Low educational level and failure to finish high school.
Little or no skill to offer employers.
Lack of motivation and interest.
Unrealistic demands concerning wages and type of work they are willing to perform
Poor personal appearance and hygiene
Lack of transportation to available jobs
Unwilling to relocate.
Unwilling to start at entry wage level
Insistence upon certain jobs, to the exclusion of others, when they are not qualified.

What are the weaknesses of young workers who repeatedly register for employment and are placed, but cannot hold a job? (Males and Females)

Lack of motivation and interest
Poor work habits and attitudes
Carelessness
Absent too frequently
Unwilling to learn job thoroughly
Personality factors — unable to get along

In the past three years, what types of job orders do you frequently have difficulty filling with properly qualified applicants? For what types of jobs do you believe there are likely to be shortages in the next 5-10 years? (Please answer these questions by checking as you see fit on the following checklist:)

Job Field	Estimated Shortages of Personnel	
	Present	Future
Professional and Managerial	X	X
Semi-Professional and Technical	X	X
Clerical Occupations		
Sales Work		
Service Jobs (Domestic, Personal, etc.)	X	X
Agricultural and Kindred		
Skilled Trades	X	X
Unskilled Trades		
Semi-Skilled Occupations		
Other (Specify:)		
No Difficulty in Filling Any Position		

If you checked any shortage fields above, please give below, for each field checked, several specific job titles to illustrate the kinds of shortages you have in mind:

Professional:	Engineers (all kinds); Chemists; Registered Nurses; Caseworkers; Teachers; Salesmen; Accountants; Personnel Management; Natural Scientists.
Semi-Professional and Technical:	Practical Nurses; Electronic Technicians; Computor Programmers; Lab Technicians.
Skilled:	Machinist and Allied, Tool and Die Maker and Designer, Maintenance Mechanic; Electrician, and Millwright.
Service:	Child Monitor, Cook; Companion; Housekeeper; Waitress.

Do you frequently get requests from employers for high school graduates who have had specialized training in high school?

Yes X No

If yes, what types of special training are most often requested?

MALES		FEMALES
Machine Shop	Industrial Arts with	Stenography
Auto Repair	Math to Trig	Office Procedures
Accounting	Chemistry	Business Course with Shorthand
Positions Involving Math		Commercial and Business Subject Graduates

Is there much demand for high school graduates who have had general academic preparation but no vocational training?

Yes No X

Please comment:

I feel that local employers are more interested in a graduate's potential ability to learn to do the job he offers, and in his personal, motivational and temperamental characteristics, than in the specific content of his high school course.

Most employers are reaching the point of requiring high school graduation even for unskilled jobs, usually as a protection against promotional "job bidding."

Do you place non-high school graduates from time to time?

Yes X No

If yes, in what types of jobs are they most frequently placed?

MALES	FEMALES
Unskilled	Unskilled
Factory and Farm	Waitress, Countergirl
Better employers insist upon high school graduation	Factory Worker
Construction	Child Monitor
Truck Drivers	
Service Positions	

The following are additional comments made by employment service managers which apply to youth currently seeking employment assistance.

41% of all applicants for placement assistance were under 22 years of age. Three out of five were not occupationally set and required one or more counseling interviews.

The problem faced in the placement of youth is the lack of orientation and/or training prerequisite to entrance into a field of work commensurate with the individual's skills, knowledge, abilities, physical capacity, aptitudes, traits, and interests.

Female applicants seeking entry into clerical occupations have had basic preparation through courses provided in their respective schools. Those with one or more years of business training are readily placed.

45% of those classified for occupations involving mechanical work are drop outs. This could be materially reduced were vocational training provided in the diverse fields of mechanical work.

82% of those classified for manual work are drop outs. This would be greatly reduced were vocational courses provided in such fields as structural work, bench work, machine tending, equipment tending, inspection and testing.

Drop outs in today's labor market are at a severe disadvantage and we find difficulty in placing many youths who do not have some training suitable for use in industry.

What specific kinds of training do the high schools in this area now provide which in your opinion help young people quality for initial employment through your office? What types of training or education need to be added to the high school programs in this area in order to better qualify young people for initial employment in this region? (Please answer the above questions by checking selected courses on the following checklist. Add and check any other courses that you believe should be on the list):

COURSES	A NOW PROVIDED	B SHOULD BE ADDED
1. Agricultural Machinery	X	XX
2. Auto Mechanics	XXX	X
3. Auto Body Repair and Service	XX	XX
4. Agricultural Sales and Service		X
5. Beauty Culture	X	
6. Bookkeeping	XXXX	X+X+
7. Business Machine Operation	XXXX	X+X+
8. Carpentry and Building Construction	X	X
9. Clerk-typist and Receptionist	XX	XX
10. Commercial Art	X	X
11. Drafting (Mechanical)	XXX	X
12. Dental and Medical Assistant		XXX
13. Electric Appliance Repair		XX
14. Electricity and Electrical Wiring	XXX	X+
15 Electronics Technology		XXXX
16. Farm Operation and Management		X
17. Food Preparation and Service		XXX
18. Landscaping and Horticulture		XXX
19. Machine Trades	XXX	XX+
20. Plumbing, Heating and Refrigeration	X	X
21. Practical Nursing	X	XX+
22. Printing Trades	X	XX+
23. Retail (Sales and Management)	XXXX	
24. Secretarial and Stenographic	XXXX	X+
25. Sheet Metal Work	X	X
26. Textile Fabrication and Upholstery		
27. Welding	X	XX

(The number of x's indicates how many of the four employment service managers responded. X + indicates program should be emphasized)

THE RESPONSES OF EMPLOYERS

Employers in 25 communities in the survey area provided facts and opinions concerning their hiring and training practices, their need for trained personnel, and the desirability and feasibility of initiating more vocational education at the high school level.

Four interviewers obtained 389 business and industrial personal interviews with employers who represented virtually all of the major firms and a sampling of the remainder of the other firms in Niagara, Orleans and Genesee Counties.



TYPE AND NUMBER OF BUSINESSES SURVEYED

Type of Business	Niagara		Orleans		Genesee		Total	Percentage
	Number	Per Cent	Number	Per Cent	Number	Per Cent		
1. Manufacturing	164	55	14	40	25	46	203	52
2. Construction	19	6	1	3	2	4	22	6
3. Wholesale	13	4	1	3	4	7	18	5
4. Retail	55	19	9	26	12	22	76	19
5. Service	24	8	5	14	5	9	34	9
6. Transportation	6	2	1	3	2	4	9	2
7. Finance	10	3	1	3	1	2	12	3
8. Institution and Other	9	3	3	8	3	6	15	4
Total	300	100	35	100	54	100	389	100

TYPE OF JOBS EMPLOYERS INDICATED DIFFICULTY FILLING PRESENTLY

The employers responding checked Skilled Trades as the type of job that is the most difficult to fill. 45% of those surveyed have no difficulty filling any position.

Occupational Group	Number of Businesses Checking				Rank
	Niagara	Orleans	Genesee	Total	
1. Professional and Managerial	42	4	10	56	2
2. Semi-Professional and Technical	35	3	7	45	4
3. Clerical	17	4	8	29	6
4. Sales Work	29	5	6	40	5
5. Service	4	1	1	6	8
6. Agricultural and Kindred	4	1	0	5	9
7. Skilled Trades	72	6	21	99	1
8. Semi-Skilled Occupations	30	3	13	46	3
9. Unskilled	6	0	1	7	7
10. Other	12	3	1	16	
11. No difficulty	146	12	16	174	
12. No response	21	5	1	27	

TYPE OF JOBS EMPLOYERS EXPECT DIFFICULTY FILLING IN THE FUTURE (5 - 10 YEARS)

When asked to predict what types of jobs they will have difficulty filling in the future, again the most frequent response was the Skilled Trades. One-third of those surveyed believe they will have no difficulty filling any position in the 5-10 year period ahead.

Occupational Group	Number of Businesses Checking				Rank
	Niagara	Orleans	Genesee	Total	
1. Professional and Managerial	48	6	11	65	2
2. Semi-Professional and Technical	35	7	7	49	3
3. Clerical	19	6	8	33	6
4. Sales Work	32	8	5	45	4
5. Service	4	1	1	6	8
6. Agricultural and Kindred	5	0	0	5	9
7 Skilled Trades	71	13	19	103	1
8. Semi-Skilled Occupations	28	6	10	44	5
9. Unskilled	6	2	0	8	7
10. Other	12	4	2	18	
11. No difficulty	116	9	5	130	
12. No response	54	2	16	72	

MINIMUM EDUCATION REQUIREMENTS FOR INITIAL EMPLOYMENT

Half of those employers required at least a high school education, 19% would take less, while 31% did not respond

EDUCATION REQUIRED BY BUSINESSES	Number of Businesses							
	Niagara		Orleans		Genesee		Total	Percentage
	Number	Per Cent	Number	Per Cent	Number	Per Cent		
Elementary Only	8	3	0	0	14	26	22	6
9th Grade	1	0	0	0	1	2	2	0
10th Grade	41	14	1	2	2	4	44	12
11th Grade	5	1	0	0	1	2	6	1
High School Graduation	147	49	17	48	23	42	187	48
More Than High School	7	3	1	2	1	2	9	2
No response	91	30	16	48	12	22	119	31
Total	300	100	35	100	54	100	389	100

TRAINING REQUIREMENTS

For 62% of the employers, specialized training while the student is in high school is required, while 68% indicated a **preference** for specialized training while in high school.

Special recognition is given by obout half of the employers for specialized training in high school with higher starting salaries being indicated by 108 (28%), and higher level jobs being mentianed by exactly the same number.

A tabulation of employer responses to the question, How do you usually train newly employed workers? is presented below:

TYPE OF TRAINING	Niagara	Orleans	Genesee	Total
On-the-job Training (informal)	281	31	51	363
Organized Apprenticeships	34	2	5	41
No Extensive Training Necessory	26	5	6	37
Organized Training in Plant	25	5	4	34

What specific kinds of training do the high schools in this area now provide which in your opinion help young people qualify for initial employment in your company?

Employers were asked to respond to this question by checking a list of vocational education programs. In order to interpret judiciously the tabulation of responses presented below, it is necessary to bear in mind that the business education curriculum is the most prevalent type of vocational preparation currently offered in the high schools of the survey area.

PROGRAM TITLE	Number of Employers Checking Each Course			
	Niagara	Orleans	Genesee	Total
1. Clerk-typist and Receptionist	159	19	25	242
2. Bookkeeping	195	20	26	241
3. Business Machine Operation	129	15	14	158
4. Drafting (Mechanical)	95	4	17	157
5. Secretarial and Stenographic Work	110	17	28	155
6. Machine Trades	76	7	19	102
7. Retailing Sales and Management	70	6	3	79
8. Welding	57	5	16	78
9. Electricity and Electric Wiring	63	5	9	77
10. Commercial Art	19	3	2	64
11. Auto Mechanics	45	1	9	55
12. Sheet Metal Work	24	4	6	34
13. Carpentry and Building Construction	24	1	2	27
14. Electronics Technology	17	0	4	21
15. Printing Trades	12	3	3	18
16. Plumbing, Heating and Refrigeration	16	1	1	18
17. Electric Appliance Repair	9	2	4	15
18. Agriculture Machinery Technology	3	5	5	13
19. Food Preparation and Service	6	4	4	12
20. Auto Body Repair and Service	9	0	1	10
21. Farm Operation and Management	3	2	5	10
22. Textile Fabrication — Upholstery	2	2	1	5
23. Practical Nursing	4	0	1	5
24. Beauty Culture	3	0	1	4
25. Agricultural Sales and Service	2	0	0	2
26. Dental and Medical Assistant	1	0	0	1
27. Landscaping and Horticulture	1	0	0	1

What types of training or educotion need to be odded to the high school progroms in this oreo to better qualify young people for initial employment in your company?

PROGRAM TITLE	Number of Employers Checking Each Course			
	Niagara	Orleans	Genesee	Total
1. Plumbing, Heating, and Refrigeration	35	10	9	54
2. Welding	41	6	6	53
3. Machine Trades	32	5	8	45
4. Electricity and Electric Wiring	25	8	7	40
5. Retailing — Sales and Management	23	4	10	37
6. Carpentry and Building Construction	26	4	5	35
7. Electronics Technology	22	6	5	33
8. Business Machine Operation	19	2	10	31
9. Sheet Metal Work	19	1	5	25
10. Auto Mechanics	9	7	6	22
11. Drafting (Mechanical)	10	3	4	17
12. Electric Appliance Repair	7	6	4	17
13. Food Preparation and Service	12	3	1	16
14. Secretarial and Stenographic Work	12	2	2	16
15. Auto Body Repair and Service	9	3	3	15
16. Agriculture Machinery Technology	3	5	5	13
17. Landscaping and Horticulture	9	3	1	13
18. Agricultural Sales and Service	3	3	6	12
19. Bookkeeping	9	1	2	12
20. Clerk-typist and Receptionist	11	0	1	12
21. Printing Trades	8	3	0	11
22. Textile Fabrication — Upholstery	5	2	0	7
23. Commercial Art	4	0	2	6
24. Farm Operation and Management	5	0	1	6
25. Practical Nursing	3	3	0	6
26. Dental and Medical Assistant	2	3	0	5
27. Beauty Culture	0	2	0	2

At the present time some schools in New York State, in cooperation with local employers, offer a program in which pupils (usually seniors) spend at least one-half day in school and the rest of the day at work under appropriate supervision. Do you think your firm would be interested in establishing such a cooperative school work program?

NUMBER OF EMPLOYERS WHO EXPRESSED WILLINGNESS TO PARTICIPATE IN A WORK EXPERIENCE PROGRAM

RESPONSE	Niagara		Orleans		Genesee		Total	Percentage
	Number	Per Cent	Number	Per Cent	Number	Per Cent		
Yes	64	21	16	46	16	30	96	25
No	228	76	18	51	37	68	283	73
No reply	8	3	1	3	1	2	10	2
Total	300	100	35	100	54	100	389	100

OPINIONS REGARDING VOCATIONAL EDUCATION IN HIGH SCHOOL

In your opinion, would area vocational and technical education programs for high school students help some people for more favorable entrance to jobs in your company? Please comment.

To this question, 75 per cent responded YES, 22 per cent answered NO, and 3 per cent did not reply. Most of the employers who answered the question also offered comments.

75% RESPONDED YES

SAMPLE COMMENTS

1. All production workers should have vocational training.
2. The general obility of graduates would be upgraded.
3. There is a great need for business operations courses.
4. Non-college students would be better equipped and would require less on-the-job training.
5. Plumbing and heating depends greatly on vocationolly troined people.
6. In this age, some training is necessary. More outomation requires more skill.
7. Instrumentotion is a vital part of our process and could be tought in such a school.
8. This would assist us in filling our need for technicians and clerical help.
9. People well trained are always in demand.
10. This would be invaluable in retaining employees.

22% ANSWERED NO

SAMPLE COMMENTS

1. The high school program is good now. The problem is to keep them in school.
2. A better generol education would be more beneficial.
3. Vocational and technical training play a minor role in our entry level jobs.
4. In our business, one needs to use common sense.
5. We can't see how this would help us.
6. We can train a high school graduate.
7. Union contracts prevents hiring at any other level than at bottom.
8. This troining should come after high school.

What are some of the problems, as you see them, that would be involved in establishing an area vocational and technical school in the three-county region included in this survey?

In order, the problems employers mentioned most frequently were:

1. Difficulty in tronsportation.
2. Finoncing — toxes are too high already.
3. Finding suitable locations.
4. Obtaining a competent staff.

It is interesting to note that 42 firms or 11% felt there would be no problems at all.

THE RESPONSES OF A GROUP OF YOUNG EMPLOYEES

Four hundred ninety-eight employees responded to a survey questionnaire designed to elicit the views of young workers regarding their interest in and need for vocational education.



THE RESPONDENT GROUP

Their age range is from 16 to 22 with approximately an equal number of men and women responding. 88 per cent of the females and 80 per cent of the males are high school graduates. Approximately 20% of the men and women have had at least one or two years of formal education beyond high school.

TYPE OF PROGRAM TAKEN IN HIGH SCHOOL BY EMPLOYEE RESPONDENTS

	Male	% Male	Female	% Female	Total	Percentage
College Preparatory	96	38	51	21	147	29
General	25	10	5	2	30	6
Industrial Arts	51	20	1	0	52	10
Home Economics	0	0	4	2	4	1
Vocational Agriculture	8	3	0	0	8	2
Vocational Business	38	15	179	74	217	44
Vocational Trade and Industrial	15	6	1	0	16	3
No response	21	8	3	1	24	5
Total	254	100	244	100	498	100

TYPE OF WORK BEING DONE BY EMPLOYEE RESPONDENTS

	Male	% Male	Female	% Female	Total	Percentage
Professional and Managerial	3	1	6	2	9	2
Semi-Professional	12	5	1	0	13	2
Clerical	23	9	165	68	188	38
Sales	5	2	28	12	33	7
Service and Domestic	3	1	29	12	32	6
Agriculture and Kindred	0	0	0	0	0	0
Skilled Trades	4	2	0	0	4	1
Semi-Skilled	52	20	3	1	55	11
Unskilled	152	60	12	5	164	33
Total	254	100	244	100	498	100

INTEREST IN VOCATIONAL EDUCATION

When these young workers were asked questions pertaining to their job satisfaction as well as their interest in and need for additional vocational education they answered as follows:

Is your present job the kind of work you prepared for when you were in high school?

	Men	Women
No	81%	49%
Yes	17	50
No Response	2	1
	100%	100%

What is your feeling about your present job?

	Men	Women
Satisfied	43%	80%
Neutral or Indifferent	29	10
Dissatisfied	26	10
No Response	2	0
	100%	100%

Do you need to get further edu ation or training in order to improve your work skills or obtain a better position?

	Men	Women
Yes	77%	51%
No	21	47
No Response	2	2
	100%	100%

If training programs such as the following (or some other prog am you wish to add) were offered in a day school or in an evening school in this area, would you be interested in enrolling in one of these programs?

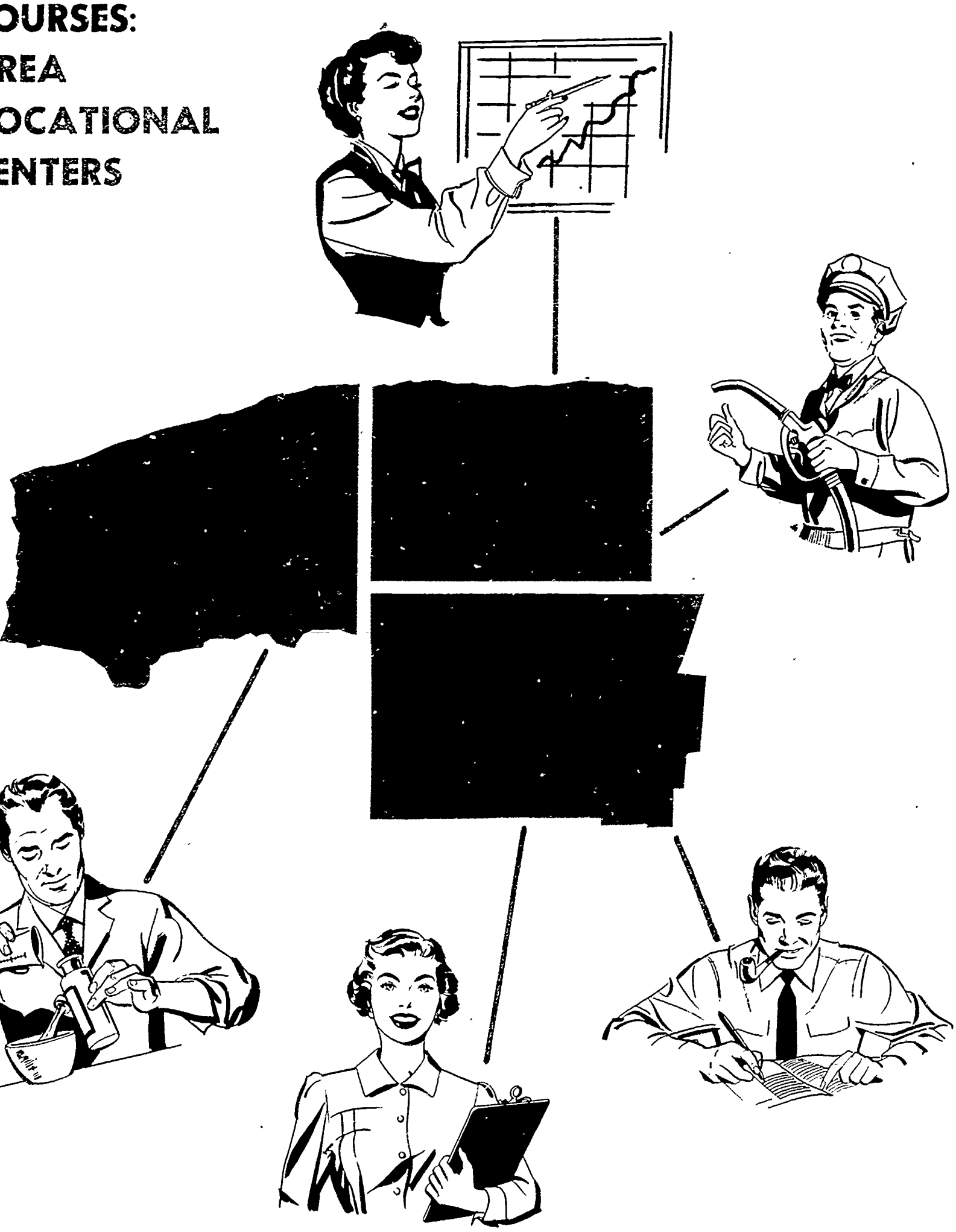
80% of those responding indicated a desire to enroll in a vocational or technical program if it was available.

If you are interested in enrolling, indicate your first, second and third choices.

EMPLOYEE PREFERENCES FOR VOCATIONAL AND TECHNICAL PROGRAMS

PROGRAM TITLE	Employee Choices									Rank
	Female			Male			Total			
	1	2	3	1	2	3	1	2	3	
1. Agricultural Mochinery Technology	0	0	0	4	0	7	4	0	7	21
2. Auto Mechanics	2	2	1	33	21	13	35	23	14	3
3. Auto Body Repoir and Service	1	1	0	2	17	9	3	18	9	15
4. Agricultural Sales and Service	0	0	0	0	0	3	0	0	3	27
5. Beouty Culture	25	9	20	1	1	1	26	10	21	8
6. Bookkeeping	19	17	15	7	4	7	26	21	22	7
7. Business Machine Operation	24	20	20	9	13	12	33	33	32	1
8. Corpentry and Building Construction	0	3	3	6	10	12	6	13	15	16
9. Clerk-typist and Receptionist	19	32	23	1	0	1	20	32	24	4
10. Commercial Art	9	7	5	5	8	1	14	15	6	12
11. Drafting (Mechanical)	0	3	3	28	19	13	28	22	16	5
12. Dental and Medical Assistant	6	17	5	1	1	1	7	18	6	13
13. Electric Appliance Repair	0	0	0	1	2	3	1	2	3	26
14. Electricity and Electric Wiring	0	0	0	12	17	8	12	17	8	11
15. Electronics Technology	0	0	0	9	6	9	9	6	9	17
16. Farm Operotions and Management	0	0	1	2	2	3	2	2	4	25
17. Food Preparation and Service	0	7	5	2	4	1	2	11	6	18
18. Landscaping and Horticulture	0	5	1	4	3	4	4	8	5	19
19. Mochine Trades	0	0	1	30	17	19	30	17	20	6
20. Plumbing, Heating, and Refrigeration	0	0	0	5	1	8	5	1	8	20
21. Practical Nursing	9	9	7	1	0	0	10	9	7	14
22. Printing Trades	0	0	0	3	3	1	3	3	1	24
23. Retailing — Sales and Management	5	5	9	8	8	8	13	13	17	10
24. Secretarial or Stenographic Work	39	16	19	0	1	0	39	17	19	2
25. Sheet Metal Work	0	1	0	0	6	5	0	7	5	22
26. Textile Fabrication — Upholstery	1	1	5	1	1	4	2	2	9	23
27. Welding	1	0	0	7	21	19	8	21	19	9
28. Other	22	12	5	34	17	14	56	29	19	

PROGRAMS:
COURSES:
AREA
VOCATIONAL
CENTERS



PRESENT PROGRAMS

Present vocational programs should be continued, where the potential enrollment is large enough to justify them.

Existing programs should be evaluated at the school district level to determine whether or not they are meeting the current needs of young people and employers. Specific courses which are or should be a part of these programs, should be added or discontinued as need dictates. From current offerings new types of vocational courses must be developed if the schools are to keep pace with the shifting demands of industry due to economic and technological changes. **Some new courses will be transitory in nature, and the overall vocational program must be more adaptable to change and more flexible than in the past.**

PROPOSED COURSES

Recommendation of **Proposed Courses** for the Area Vocational Centers must be based in part on the choices of occupations made by students; the employers' interests; the expressed needs of young employees; shortages in the labor market as reported by the several Employment Service Offices; new needs in Agricultural Education; and State and National needs for trained workers. The interests of employers, students, employees, and other workers will be reviewed by listing several major choices of occupations, based on the number of first choices from each group, as follows:

Adult Education Needs Expressed by Parents

FATHERS WERE INTERESTED IN:

- Carpentry
- Electricity
- Auto mechanics
- Appliance repair
- Welding
- Plumbing, heating, refrigeration
- Machine trades
- Retail sales — management
- Bookkeeping — accounting
- Farm management

MOTHERS WERE INTERESTED IN:

- Hospital Aide, Practical Nursing
- Office machine operator, clerk, typist
- Bookkeeping — accounting
- Food service
- Dental - medical assistant
- Retail sales — management
- Appliance repair

Students Occupational Choices

- Secretarial and stenographic
- Auto mechanics
- Beauty culture
- Practical Nursing
- Electronics technology
- Commercial art
- Drafting
- Clerk typist - receptionist
- Farm operation and management
- Dental and medical assistant
- Bookkeeping

Employment Service Offices Report on Jobs Difficult to Fill Because of Shortages of Qualified Candidates

Semi-professional Technical:	Practical nurses
	Electronic technicians
	Computor technicians
	Laboratory technicians
Skilled:	Machinist and allied, Tool and Die maker, and Designer
	Maintenance mechanic
	Millwright
Service:	Child monitor, Cook, Companion
	Housekeeper, Waitress

Employers' Suggestions Relative to Courses for Beginning Young People

Plumbing, heating, refrigeration	Carpentry and building construction
Welding	Electronics technology
Machine trades	Business machine operation
Electricity and electric wiring	Sheet metal work
Retail — sales and management	Auto mechanics

Young Employees' Choices of Courses in Which They Would Be Interested

Business machine operation	Secretarial or stenographic work
Clerk-typist and receptionist	Retail — sales and monagement
Bookkeeping	Drafting
Beauty culture	Auto mechanics
Machine trades	Electronics technology
Welding	Textile fabrication
	Auto body repair and service

Agriculture

There is need for new types of Agricultural Education in Niagara, Orleons and Genesee Counties. "Agriculture in the Empire State is an important, strong and vigorous enterprise. The agriculture of Niogara, Orleans and Genesee Counties represents some of the State's most valuable and diversified agricultural industry."

The sole of ogricultural products in the area amounts to nearly 43,000,000 dollars per year. But agriculture's dimensions go beyond the nearly 5,000 farms of the survey area. They basically involve farmers, but also include their suppliers and more than 500,000 persons in nearly 70,000 firms that assemble, process and distribute products in New York and other states.*

There are 3,072 counties in the United States. Niagara, Orleans and Genesee Counties rank in the 100 leading counties in several areas of agricultural production. An industry of this magnitude, with changes underway, includes many jobs for which vocational training should be given.

*Agriculture's New Dimensions, N.Y.S. College of Agriculture, Cornell University.

SUMMARY LIST OF COURSES FROM WHICH SELECTIONS MAY BE MADE BY SCHOOL OFFICIALS

From the following list of courses which were chosen or named as desirable by several Survey groups a selection for each of the Vocational Centers may be made by responsible school officials and representatives of the State Department of Education. Many of the courses are now being provided and the others were listed by several groups from whom the Survey obtained factual information or opinions. It should be noted that even the largest Vocational Center could not offer (or should not) all of these courses, but in the three-county area surveyed most of these programs could be provided. Each should receive serious consideration. The present combined programs of five school districts in the Survey area now include about half of the recommended offerings. These five districts would like to add other courses as soon as possible.

COURSES NOW OFFERED IN ONE OR MORE SCHOOL DISTRICTS

Advanced Electronics

Agriculture (Vocational)

Apprentice Related Instruction for Machinists, Tool and Die Makers, Beginning and Advanced Groups

Auto Mechanics

Beauty Culture

Basic Electronics and Servicing

Basic TV Repair

Bookkeeping (Vocational)

Business Courses (Vocational)

Carpentry

Chemistry, Industrial

Cooperative Distributive Education

Drafting and Design (Structural)

Electrical Servicing

Homemaking (Vocational)

Machine Shop—11, 12, and 13, 14 (post high school)

Nurse's Aide

Practical Nursing

Stenography (Vocational)

Technical Electricity

Vocational Industrial Cooperative Program

OTHER COURSES CHOSEN OR RECOMMENDED BY STUDENTS, EMPLOYERS, EMPLOYEES, AND EMPLOYMENT SERVICE OFFICERS

(Courses Now Offered, mentioned above, **not** repeated here)

Appliance Repair

Auto Body and Repair

Business Machine Operation

Child Monitor

Clerk Receptionist - Typist

Commercial Art

Computer Technician

Cook

Dental and Medical Assistant

Electricity and Electric Wiring

Electronics Technology

Farm Operation and Management

Food Services

Hospital Aide

Housekeepers

Laboratory Technicians

Machine Design

Maintenance Mechanic

Millwright

Plumbing, Heating, and Refrigeration

Retail Sales and Management

Sheet Metal

Tool and Die Maker

Waitress

Welding

COURSES MENTIONED MOST FREQUENTLY

The courses mentioned most frequently by Survey Participants are shown in the following table. In parentheses below each group are the number of respondents. Courses checked are based on the number of first choices reported by each group.

COURSES PREFERRED MOST FREQUENTLY
BY SURVEY PARTICIPANTS

COURSE TITLE	(3,879) Parents Adult Education Fathers	Mothers	(4,927) Students	(4) Employment Service Offices	(389) Employers	(498) Young Employees
Appliance Repair	X	X				
Auto Mechanics	X		X		X	X
Auto Body and Repair						X
Beauty Culture			X			X
Bookkeeping	X	X	X			X
Business Machine Operation		X			X	X
Carpentry	X				X	
Child Monitor				X		
Clerk Typist-Receptionist		X	X			X
Commercial Art			X			X
Companion				X		
Computer Technician				X		
Cook				X		
Dental and Medical Assistant		X	X			
Drafting			X		X	X
Electricity and Electric Wiring	X				X	X
Electronics Technology			X	X	X	
Farm Operation and Management	X		X			
Food Service		X				
Hospital Aide		X				
Housekeeper				X		
Laboratory Technician				X		
Machine Design				X		
Machine Trades	X			X	X	X
Maintenance Mechanic				X		
Millwright				X		
Plumbing, Heating and Refrigeration	X				X	
Practical Nursing			X	X		
Retail Sales and Management	X	X			X	X
Secretarial and Stenographic		X	X			X
Sheet Metal					X	
Textile Fabrication						X
Tool and Die Maker				X		
Waitress				X		
Welding	X				X	

AREA VOCATIONAL CENTERS

Major Area Vocational Centers are designed to provide, efficiently and economically, courses in several vocational fields including Trade and Industrial Education, and Vocational Technical Education. The Area Vocational Center serves a cluster of school districts of varying sizes, grouped around one of the larger districts. Most of the component districts will be within a radius of not over fifteen miles from the Vocational Center. A large Area Vocational Center will probably require a new vocational building or an addition to an existing plant.

Some types of vocational programs, such as Vocational Agriculture, Vocational Business, Vocational Distributive Education and Vocational Homemaking may be offered in district high schools as at present, or in a shared services program which includes several smaller enrollment districts.

It is believed that many of the proposed vocational programs listed earlier, might be offered in an Area Vocational Center, and that various combinations of small schools might offer jointly one or more of the programs in Business, Agriculture, Distributive Education, or Homemaking. To these courses, others from the list of proposed offerings might be added after study of probable enrollment in a given area and the current occupational demands.

DESIRABLE CENTERS FOR AREA VOCATIONAL PROGRAMS

CENTER #1

NIAGARA FALLS
(16 mi radius)

School Districts	Enrollment Grades 10 - 12	
NIAGARA FALLS	3,918	
North Tonawanda	1,594	
Lewiston - Porter	799	
Niagara - Wheatfield	774	
Starpoint	395	
Wilson	358	
Newfane	422	(19 miles)
Lockport	1,232	
Total (10 - 12)	9,492	

CENTER #2

MEDINA
(15 mi. radius)

	Enrollment Grades 10 - 12	
MEDINA	576	
Albion	599	
Barker	274	
Lyndonville	173	
Royalton-Hartland	370	
Kendall	149	(20 miles)
Holley	221	(20 miles)
Total (10 - 12)	2,362	

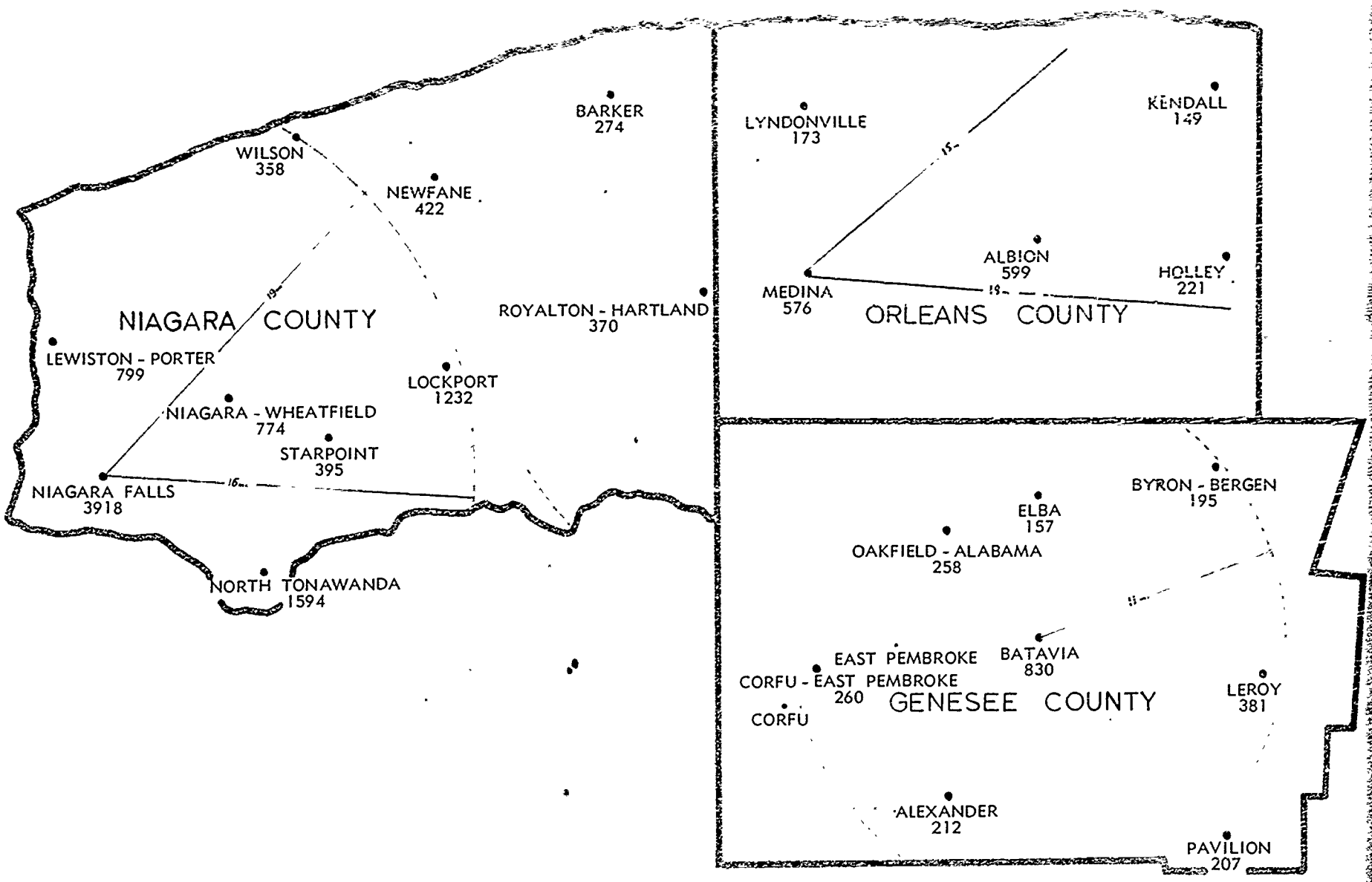
CENTER #3

BATAVIA
(11 mi. radius)

	Enrollment Grades 10 - 12
BATAVIA	830
LeRoy	381
Alexander	212
Byron - Bergen	195
Corfu - East Pembroke	260
Elba	157
Oakfield - Alabama	258
Pavilion	207
Total (10 - 12)	2,500

TENTATIVE AREA CENTERS

(Actual Centers to be Determined by Board of Education and Policy Committee



(Grades 10-12 Enrollments Are Indicated)

TENTATIVE AREA VOCATIONAL CENTERS

(Actual Centers to be Determined by Boards of Education and Policy Committee)

NIAGARA FALLS MEDINA BATAVIA

Each of the three Centers has a present enrollment of more than 2,300 students in grades ten to twelve in the several school districts which comprise the center. Niagara Falls Area Center enrollment in these grades is 9,492; Medina, 2,362; and Batavia, 2,500. The projected enrollment in grades 10, 11, and 12, for 1969 70 is as follows:

Niagara Falls Area Vocational Center School systems	10,774
Medina Vocational Center School systems	2,743
Batavia Vocational Center School Systems	2,850

The minimum number of students considered necessary to warrant the establishment of a vocational school is 1,400 in grades 10 to 12. The Guide to School District Reorganization for New York State indicates that "It simply is not feasible for a school which has fewer than 1,000 to 1,400 students in grades 10, 11, and 12, to consider the inclusion of vocational and industrial education in its curriculum." To offer the type of vocational programs envisioned by this report at reasonable cost and of the scope contemplated, an enrollment in grades 10 to 12 of approximately 2,000 students is the minimum which should be considered for an Area Vocational Center. Each of the recommended Centers has a reasonable enrollment for vocational purposes.

TRANSPORTATION

Students enrolled for vocational or technical education courses should, ideally, spend one half of each school day with their peers in their home school districts, studying the constant or required subjects necessary for high school graduation. The remaining half-day daily, either morning or afternoon should be at the Area Vocational Center. In the survey area transportation from the home school district to the Area Vocational School should not pose a great problem as the terrain is level; the roads numerous and excellent and the distances reasonable. The travel necessary from the home district to the Vocational Center will be less than fifteen miles for most students, with a small number requiring not to exceed twenty miles (one way) transportation.

PROGRAMS AND COURSES FOR AREA CENTERS

The following table presents the suggested programs and courses for consideration in Area Voctional Centers in the Survey Region. These programs and courses reflect the expressed choices and needs of various groups participating in the Survey. All courses listed were in the higher priority range of choices. Many of the courses are now being offered. The designated assignment of courses to Centers is based on the character of the occupational needs of each Area Center. Many courses can and should be offered in all Centers; others in only one or two Centers.

SUGGESTED PROGRAMS AND COURSES FOR CONSIDERATION IN AREA VOCATIONAL CENTERS IN THE TRI-COUNTY SURVEY AREA

(Niagara, Orleans, Genesee)

COURSES	PROGRAM	Area Vocational Centers Niagara Falls	Medina	Batavia
Vocational Agriculture	Agricultural Business	X	X	X
	Agricultural Mechanics	X	X	X
	Farm Operation and Management	X	X	X
	Ornamental Horticulture	X	X	X
	Conservation and Forestry	X	X	X
Vocational Business	Bookkeeping	X	X	X
	Business Machine Operation	X	X	X
	Office Practice (Clerk-typist, receptionist)	X	X	X
	Secretarial and Stenography	X	X	X
Cooperative Vocational Distributive Education	Reail Sales	X	X	X
	Store Management	X	X	X
Vocational Homemaking	Foods, Preparation and Service	X	X	X
	Clothing and Textiles	X	X	X
	Homemaking	X	X	X
Vocational Trode and Industriol	Appliance Repair	X	X	X
	Apprentice Related Instruction for Machinists, Tool and Die Makers (math and science)	X		X
	Auto Body Repair	X	X	X
	Auto Mechanics	X	X	X
	Beauty Culture	X	X	X
	Carpentry and Building Construction	X		
	Drafting and Design	X		X
	Electricity and Electric Wiring	X		X
	Food Management	X		X
	Industrial Cooperative Courses		X	X
	Machine Trades	X	X	X
	Maintenance Mechanic	X		
	Nursing	X	X	X
	Hospital Aide (Nurses Aide)	X	X	X
	Practical Nursing	X	X	X
	Photogrophy	X		
	Printing	X		
	Sheet Metal Work	X		
	T.V. and Radio Repair and Servicing	X	X	X
	Welding	X	X	X
Vocational Technical	Commercial Art and Design	X		
	Dental and Medical Technician	X		
	Electricity, Technical	X		
	Electronics, Basic	X		X
	Electronics Technology	X		X
	Electronics Instrumentation	X		X
	Graphic Arts	X		
	Industrial Chemistry	X		
	Technicians:			
	Laboratory	X		
	Computer	X		
	Data Processing	X	X	X

MAJOR CONSIDERATIONS FOR THE POLICY COMMITTEE, ADVISORY COMMITTEE, AND BOARDS OF EDUCATION MEMBERS

(1) **Tentatively,** designate Area Attendance Centers for Vocational and Technical Education, each with a senior high school (grades 10-12) enrollment base of at least 2,000 pupils.

(2) Determine the basic curriculum for all Area Center Vocational Programs, and for the special curricula or courses peculiar to each center, which are to be provided. Information relative to the character of the desired courses is to be found, in part, in the responses of employers and others as given in the Survey Report, and also in the expressed interest of students in preparing for certain occupational fields. Of course the total vocational curriculum will include consideration of state-wide and national needs for workers, as well as employment trends in the three-county area of the survey. State Education Department personnel in vocational and technical education will assist in the planning of the vocational curricula for these schools.

(3) Determine the size and character of the staff required to carry on the designated program.

(4) Determine site locations; physical plant additions or new buildings required, and necessary equipment.

(5) In all planning, consider the need for flexibility, including changes in instructional programs which may have to be made from time to time to meet business and industrial demands for new types of training.

(6) Consider promoting the establishment of programs of vocational significance which even the smaller high schools, with sufficient enrollment and good student interest, might provide at reasonable cost, inasmuch as extensive new plant and physical equipment would not be required, such as:

(a) Vocational Agriculture (in the case of small schools which have discontinued this program, two or more districts might collaborate in a new program.)

(b) Vocational Distributive Education

(c) Vocational Business Education

(d) Cooperative Work-Experience Programs

(e) Basic science and mathematics related to vocational and technical work, together with drafting.

(f) Preparation for employment by developing an understanding of the importance of personal attitudes, cooperation, character of the available job opportunities, demands of the labor market and the like.

(7) Financial planning, with assistance of State Department personnel with attention to cost estimates, and sources of funds, including local, state, and federal sources.

The Policy Committee, assisted by representatives of the Advisory Committee and of the State Department of Education, should develop recommended programs of vocational and technical education for the consideration of Board of Education members of the three-county area These programs should indicate priorities for the order of their establishment, such as:

Programs which can be provided NOW, in present facilities, at limited expense.

Programs which can be established as soon as adequate financial assistance and physical plant and staff are available.

RECOMMENDATIONS

(1) It is recommended that the Policy Committee shall establish three sub-committees, one for each Area Vocational Center, to determine the courses to be included in each Center. In addition to the Policy Committee representation on the sub-committees, there should be selected members of the Advisory Committee and the staffs of the several school systems. Reports of the sub-committees should be submitted to the full membership of the Policy Committee for screening, coordination, and suggestions, as well as for the information and approval of the State Education Department.

(2) It is recommended that a Director of Vocational Education shall be appointed to assist the Policy Committee and Boards of Education in the three Area Vocational Centers, including coordination of the several programs with the policies of the State Education Department.

EXECUTIVE COMMITTEE

Chairman: Otto J. Stewart, District Superintendent Orleans-Niagara B.C.E.S.
Vice-Chairman: George Wolfe, Superintendent of Schools, Albion
Secretary: Charles T. Button, Superintendent of Schools, Medina
Treasurer: Jean I. Garrett, Treasurer, Orleans-Niagara B.C.E.S.
Member: Weldon R. Oliver, Superintendent of Schools, Niagara Falls
Member: Hugh W. Vanderhoof, District Superintendent, Genesee County B.C.E.S

POLICY COMMITTEE

NIAGARA COUNTY

Barker Central School: Gerald F. Hall, Supervising Principal
Lewiston-Porter Central School: Tobias J. Collins, Superintendent
Lockport Schools: Kenneth A. Fuller, Superintendent
Newfane Central School: George J. Bligh, Supervising Principal
Niagara County: Mabel S. Lee, District Superintendent
Niagara Falls Schools: Weldon R. Oliver, Superintendent
Niagara-Wheatfield Central School: Charles R. Clark, Supervising Principal
North Tonawanda Schools: Maurice E. Friot, Superintendent
Royalton-Hartland Central School: Charles H. Porter, Supervising Principal
Starpoint Central School: W. Eugene Ross, Superintendent
Wilson Central School: L. Ernest Tarr, District Principal

ORLEANS COUNTY

Albion Central School: George Wolfe, Superintendent
Holley Central School: Alfred L. Perry, Supervising Principal
Kendall Central School. David J. Doyle, District Principal
Lyndonville Central School: Edward J. Sakowski, Supervising Principal
Medina Central School: Charles T. Button, Superintendent
Orleans-Niagara B.C.E.S.: Otto J. Stewart, District Superintendent

GENESEE COUNTY

Alexander Central School: A. Warren Dayton, Supervising Principal
Batavia City Schools: Edward L. Osborn, Superintendent
Byron-Bergen Central School: William A. Stirling, District Principal
Elba Central School: Leicester H. Benton, District Principal
Genesee County B.C.E.S.: Hugh W. Vanderhoof, District Superintendent
LeRoy Central School: Donald Horr, Superintendent
Oakfield-Alabama Central School: Howard E. Bain, District Principal
Pavilion Central School: Thomas H. Graham, Jr., Supervising Principal
Pembroke Central School: Laurence B. Lane, District Principal

PLANNING COMMITTEE

NIAGARA COUNTY

Barker Central School
Eugene E. Erb, Principal
Ralph K. Frick, Director of Guidance

Lewiston-Porter Central School
Paul W. Haley, Principal
Thomas R. Marshall, Guidance Counselor
William Holroyd, Guidance Counselor

Lockport City Schools
Dr. Lloyd F. McIntyre, Principal
Samuel P. Neivert, Coordinator of Pupil Personnel
W. Barrett Lovejoy, Guidance Counselor

Newfane Central School
John A. Chiavaro, Director of Secondary Education
Henry H. White, Director of Guidance
Lawrence Suffness, Guidance Counselor

Niagara Falls City Schools
Russell F. Grauer, Principal, Niagara Falls High School
Frederick Knapp, Director of Vocational Education
John P. Janowski, Guidance Counselor
Paul J. McDonnell, Guidance Counselor

Niagara-Wheatfield Central School
Richard Eden, Principal
Robert Harrisshburg, Director of I.A. & Voc. Educ. & Ad. Educ.
Donald Wadsworth, Chairman of Guidance Department
Frank Busino, Guidance Counselor

North Tonawanda Senior High School
Earl W. Fonner, Principal
Joseph Dorczak, Director of Vocational Education
Stewart R. Jones, Guidance Counselor

Royalton-Hartland Central School
John D. Fahy, Director of Secondary Education
Norman J. Uschold, Guidance Counselor
James F. Vail, Guidance Counselor

Starpoint Central School
Harold Keech, Principal
Harold B. Smith, Jr., Guidance Counselor

Wilson Central School
Richard P. Schmidle, Principal
Archie Petty, Guidance Counselor
George R. Krahl, Guidance Counselor

ORLEANS COUNTY

Albion Central School
Theodore Anderson, Principal
Norma DiLaura, Guidance Counselor
Bernard Lynch, Guidance Counselor

Holley Central School
Howard DeBaun, Principal
Graydon McCarty, Guidance Counselor

Kendall Central School
Frank W. Clow, Principal
Richard Gross, Guidance Counselor

Lyndonville Central School
Donald F. Herry, Principal
Richard D. Farwell, Guidance Counselor

Medina Central School
Edward A. Devlin, Principal
David Parsons, Director of Pupil Personnel

GENESEE COUNTY

Alexander Central School
Samuel Pirro, Principal
James Messe, Guidance Counselor

Batavia City Schools
Carl W. Stamp, Principal
Gerald S. Hugaboom, Director of Vocational & Technical Education
Robert T. Howe, Director of Guidance

Byron-Bergen Central School
John F. Hadden, Principal
George W. Constantine, Guidance Counselor

Corfu-East Pembroke Central School
Wilson Choate, Principal
Clifford Mantor, Guidance Counselor

Elba Central School
Samuel Giansante, Principal
Alan Abrams, Guidance Counselor

LeRoy Central School
Paul Starkweather, Principal
Elizabeth Suttell, Guidance Counselor

Oakfield-Alabama Central School
Robert L. Beswick, Principal
John Sharp, Guidance Counselor
Joseph Rice, Guidance Counselor

Pavilion Central School
Gerald B. Smith, Principal
William Thayer, Guidance Counselor

ADVISORY COMMITTEE

NIAGARA COUNTY

Barker Central School

Robert Benton, Engineering, Harrison Radiator Division, Lockport, New York
Lyman Bigford, Foreman, Scurfari Construction Company, Niagara Falls, New York
Daniel Hogan, Harrison Radiator Division, Lockport, New York
James Perry, Co-owner, C. J. Perry & Son, Gasport, New York
Kenneth Schilling, Electrician, Harrison Radiator Division, Lockport, New York
Myron Zigrossi, Southland Frozen Foods, Inc., Barker, New York

Lewiston-Porter Central School

Howard Baker, Farmer, Ransomville, New York
John C. Broughton, President, Board of Education, Lewiston-Porter Central School, Lewiston, New York
William Dahoda, Assistant Plant Engineer, Division of National Lead Company, Niagara Falls, New York
C. Arnold Dutton, Chairman, Board of Trustees, Niagara County Community College, Youngstown, New York

Lockport School District

Thomas Byrne, Personnel Manager, Harrison Radiator Division, Lockport, New York
Lucius Dickerson, Agricultural Agent, Niagara County Extension Service, Lockport, New York
William S. Hilger, International Representative, United Auto Workers—AFL-CIO Lockport, New York
Ward Hutchins, President, Jaycees, Harrison Radiatar Division, Lockport, New York
Harry E. Jackson, Jr., President, Board of Education, Harrison Radiator Division, Lockport, New York
David Mackey, President, Lockport Chamber of Commerce
General Manager, Simonds Saw & Steel Company, Lockport, New York
Robert McNerney, President, Kiwanis Club, New York Telephone Company, Lockport, New York
Robert Smith, Jr., Executive Secretary, Young Men's Christian Association, Lockport, New York
Kenneth Ulman, Manager, Manufacturers & Traders Trust Company, Lockport, New York
William A. Warrell, Manager, New York State Employment Office, Lockport, New York

Newfane Central School

William J. Baker, Board Member, Insurance Agent, C. W. Baker Agency, Inc., Lockport, New York
Lester D. Carner, Secretary, Lockport Felt Company, Newfane, New York
John R. Henning, President, Newfane Lumber Company, Lockport, New York
John L. Stookey, Niagara County 4-H Club Agent, Niagara County Extension Service, Lockport, New York

Niagara Falls School District

Mark H. Beecher, Director, NYS Lineman's Joint App. & Safety Committee NYS Lineman's JAC, Niagara Falls, New York
William J. Burke, Employment Security Manager,
Division of Employment, Department of Labor, Niagara Falls, New York
Don A. Corey, Director, Niagara Falls Memorial Hospital, Niagara Falls, New York
William Cummings, Vice-President, Marine Trust Company, Niagara Falls, New York
Charles J. Edgette, Dean, College of Business Administration, Niagara University, Niagara Falls, New York
Harold Levin, President, Hotel Niaagra, Niagara Falls, New York
Howard Pilkey, Manager, Salaried Personnel Administration and Training, The Carborundum Company, Niagara Falls, New York
Peter J. Wacks, Vice-President, Industrial Relations, Bell Aerosystems Company, Buffalo, New York
George Wilbar, Manager, Sears Roebuck Company, Niagara Falls, New York
Jerome Wilkenfeld, Technical Superintendent, Hooker Chemical Company, Niagara Falls, New York

North Tonawanda School District

Clement R. Arrison, Jr., Manager, Radatron, Inc., North Tonawanda, New York
Robert Cleveland, President, Tonawanda Iron Division,
American Radiator & Standard Sanitary Corp., North Tonawanda, New York
James W. Ferguson, Manager, Durez Plastics Division, Hooker Chemical Compnay, North Tonawanda, New York
Thomas F. Gosch, Executive Vice-President,
Chamber of Commerce of the Tonawandas, North Tonawanda, New York

Royalton-Hartland Central School

Clyde Allport, Personal & Property Insurance Representative, Gasport, New York
Tracy Baxter, Purchasing Agent, Food Machinery Corporation, Middleport, New York
James Fisk, Marine Trust Company, Middleport, New York
LaVerne Miller, Area Account Supervisor, Food Machinery Corporation, Middleport, New York
Paul O'Neill, Sunoco Sales & Service, Gasport, New York
Donald Perry, Engineer, Harrison Radiator Division, Lockport, New York

Starpoint Central School

Marshall Damerell, President, Niagara-Cutter Company, North Tonawanda, New York
Lee Klein, Board of Education Member,
Mechanical Engineer, Harrison Radiator Division, North Tonawanda, New York
James O'Malley, Aero Engineer, Bell-Aero Space, North Tonawanda, New York
Mrs. Pearl Peters, Cambria Citizens Committee for Schools, Lockport, New York
Robert Schmid, Owner, Lockport Rambler, Lockport, New York
John Williams, Teacher, Distributive Education, Sweet Home Central School, North Tonawanda, New York

Wilson Central School

Mrs. Donald Croop, Wilson, New York
Mark Huntington, Bank Manager, Wilson, New York
Russell Hurlburt, Former President, Board of Education, Wilson, New York
Mrs. Lois Jennings, Wilson, New York
Carl May, Wilson, New York
William McLoughlin, Certificed Public Accountant, Ransomville, New York

ORLEANS COUNTY

Albion Central School

Leonard Depczynski, Vice-President, Board of Education, Albion, New York
Winton P. Hatch, Employment Security Manager, New York State Employment Service, Batavia, New York
Earl Holbrook, Personnel Manager, Hunt Foods, Albion, New York
Edward J. Kennedy, Personnel Director, Lipton's, Albion, New York
Francis Kirby, Chairman, Rural Area Development Committee Orleans County Agriculture Department, Albion, New York
Thomas McNall, Merchant, Albion, New York
Arthur West, County Agent, Agricultural Extension Service, Albion, New York

Holley Central School

Wendell Borncamp, Manager, Duffy-Mott Company, Holley, New York
Henry Hagen, Jaycee Member, Hulberton, New York
Mark McCrillis, Former Mayor, Holley, New York
Harlan Munger, Salesman, Holley, New York
Bruce Rodwell, Jaycee President, Holley, New York

Kendall Central School

Harry D. Butler, Town Board Member, Electrical Engineer, Eastman Kodak Company Kendall, New York
Victor Jurhs, Town Board Member, Owner, Kendall Hardware, Kendall New York
Fred A. Koza, President, Board of Education, Kendall Central School, Kendall, New York
Harold Skutt, Co-owner, Morton Lumber Company, Morton, New York

Lyndonville Central School

David Crosby, Sr. Lyndonville, New York
Carl Holsing, Food Machinery Corporation, Middleport, New York
James Wright, Lyndonville Canning Company, Lyndonville, New York

Medina Central School

Eugene Forrestel, Shelby Center, New York
Van Hungerford, Sigmamotor, Inc., Middleport, New York
John Kennedy, Kennedy Bros., Inc. Medina, New York
Raymond C. Pahura, County Supervisor, Insurance Agent, Medina, New York
Milford Phinney, Phinney Tool & Die Company, Inc., Medina, New York
Dean Sanderson, Plant Manager, Birds Eye, Inc., Medina, New York

GENESEE COUNTY

Alexander Central School

Robert Barie, Board Member, Alexander Central School, East Bethany, New York
Richard Fietz, Attica State Prison, East Bethany, New York
William Fritts, Agent, Nationwide Insurance Company, Darien Center, New York
James Hume, Jr., Farmer, Batavia, New York
Lester Schiller, Board Member, W.N.Y.S. Lines, Attica, New York

Batavia School District

Maynard L. Church, Board Member, Lapp Insulator Company, LeRoy, New York
Sanford L. Fisher, President, Genesee Lumber Company, Batavia, New York
Joseph L. Mancuso, President, Batavia Industrial Center, Batavia, New York
Arne E. Swanson, Manager, Doehler-Jarvis Division, National Lead Company, Batavia, New York
Robert R. Thalner, Chief Engineer, Sylvania Home Products, Batavia, New York

Byron-Bergen Central School

James Chapell, Board of Education Member, Curtice-Burns Company, Bergen, New York
Russell E. Gillett, Past Board Chairman Supervisor, Hardware Merchant, South Byron, New York
Robert Weinert, Production Credit Association, Batavia, New York

Corfu-East Pembroke Central School

Henry Bangert, Manufacturers & Traders Trust Company, Corfu, New York
Carl H. Dibble, President, Board of Education, Corfu, New York
Edward Reynolds Farmer, Corfu, New York
Gail Seamans, Owner, Seamans Hardware, East Pembroke, New York
Frederick Susat, Union Seward, East Pembroke, New York

Elba Central School

Donald Ames, Co-owner, Esso Service Station, Elba, New York
Robert Given, Manager, U.S. Agriculture Stabilization and Conservation Service, Batavia, New York
Walter Owens, Manager, Owens' Rexall Store, Elba, New York
Roy A. Porter, Owner, Roy A. Porter Farms, Elba, New York
Anthony Zambito, Manager, Zambito Brothers, Elba, New York

LeRoy Central School

Charles Dusing, President, Dusing & Hunt, Inc., LeRoy, New York
Brent Mills, President, Lapp Insulator Company, LeRoy, New York
Orrin J. Mitchell, Sr., President, Union Steel Chest Corporation, LeRoy, New York

Oakfield-Alabama Central School

William Daniels, Personnel Director, U.S. Gypsum Company, Oakfield, New York
E. Kent Reading, Superintendent, Graham Manufacturing Company, Batavia, New York

Pavilion Central School

Arthur Conway, Supervisor of Planning & Development, Pavilion Natural Gas Company, Pavilion, New York
B. R. DeWitt, President, B. R. DeWitt, Inc., Pavilion, New York
R. F. Hettrick, President, Board of Education, Pavilion, New York
Edward Jacobs, Public Relations Director, Pavilion, New York
Michael Piedmont, Secretary and Office Manager, Potter-DeWitt, Inc., Pavilion, New York

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VT 000 595
Mapping Your Occupational Training in the State of Washington, An Occupational Training Directory for Counselors.

Washington Office of State Superintendent of Public Instruction, Olympia
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 63 148p.

*COMMUNITY COLLEGES; TECHNICAL EDUCATION; *TRADE AND INDUSTRIAL EDUCATION; *DISTRIBUTIVE EDUCATION; EDUCATIONAL PROGRAMS; EDUCATIONAL OPPORTUNITIES; OCCUPATIONAL INFORMATION; OCCUPATIONAL GUIDANCE; *TECHNICAL INSTITUTES; *DIRECTORIES
WASHINGTON

The purpose of this directory is to furnish the student and the school counselor with information about post-high school technical trade, industrial education training, and distributive occupations programs. Section I gives the historical development, instructional programs, student services, faculty and student enrollment, and fees for Bellingham Technical School, Big Bend Community College, Centralia College, Clark College, Clover Park Vocational-Technical School, Columbia Basin College, Everett Junior College, Grays Harbor College, Highline College, Lower Columbia College, Olympia Vocational-Technical Institute, Olympia College, Peninsula College, Renton Vocational School, Seattle Public Schools, Skagit Valley College, Spokane Technical and Vocational School, Tacoma Vocational-Technical Institute, Wenatchee Valley College, and Yakima Valley College. The course description, job description, employment outlook, and the location of courses are given for 31 programs. There are mid-management centers in 12 of the schools listed above. Information is given for employment, employment opportunities, and training programs in distributive occupations also. (EM)

ED 127

MAPPING YOUR OCCUPATIONAL TRAINING in the State of Washington

LOUIS BRUNO
STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
OLYMPIA, WASHINGTON

VT000595

MAPPING YOUR OCCUPATIONAL TRAINING

in the State of Washington

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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An occupational training directory for counselors

Office of the
STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
Olympia, Washington
1963

MAPPING YOUR OCCUPATIONAL TRAINING

IN THE STATE OF WASHINGTON

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Olympia, Washington

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FOREWORD

Never in the history of our Nation has the productive capacity of American Industry been as dependent on the creative genius and technical skills of our manpower resources.

Since the first Smith-Hughes Legislation, Washington State has maintained a position of leadership in Vocational-Technical Education through promotion and development of curricula assuring maximum utilization of individual abilities.

Demand for information concerning available training within the four areas of Vocational-Technical Education -- trade and industrial education, distributive education, agricultural education, and home and family life education -- has encouraged the production of a directory of public educational facilties which would contain information about specific courses of instruction.

We are confident counselors and administrators in schools, veterans' programs, local employment security offices, and vocational rehabilitation centers will find this directory an aid in counseling and advising individuals regarding the nature of a particular training program, the employment outlook following training, and schools best suited to the specialized needs of the individual.

America's future industrial strength and economic health will be determined to a great extent by the effectiveness of sound vocational guidance and counseling services.

Louis Bruno

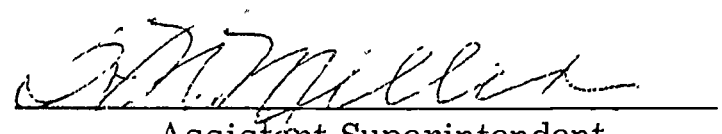
State Superintendent
of Public Instruction

INTRODUCTION

Ten years ago the youth who dreamed of becoming an aero-space mechanic was suspected of living in a world of fantasy. Today we may accept his choice of vocation as a realistic one which is vital to our country's progress. Young people in our schools today face a world changing at an ever-accelerating rate. Their world of work in a few short years will be far different from what it was ten years ago, or what it is today. There is at present an ever-increasing demand for competently trained young people, with a corresponding ever-decreasing demand for unskilled men and women who have terminated their educations early. The technological race in which we find ourselves demands that students be aware of the vital position they will soon hold and be aware of the training opportunities available to them.

Youth of today may be living in challenging times, but these young men and women also have the finest training opportunities ever offered. It is fortunate that these opportunities are also available to adults who desire to retrain themselves in skilled trades, or to fit themselves for challenging new jobs emerging from the accelerated economy.

For those who do not want a four-year college degree but wish to become a part of the skilled and educated labor force, the State of Washington offers training at twenty vocational-technical schools or community colleges located in various population centers of the State. Mapping Your Occupational Training contains information about the technical trade and industrial education training programs and the distributive education training programs offered in these institutions and centers. Students and counselors will find it to be a valuable aid to planning future careers.



Assistant Superintendent
for Vocational Education

TO THE STUDENT WHO WANTS TO PLAN AHEAD

The wise student does want to plan ahead. He knows a great deal of his happiness in the world depends on his doing well the kind of work he enjoys and does best. He knows, too, that practically all careers today require training or further education beyond high school, but that this must be planned for in advance.

If you believe in such planning, you should be thinking seriously about yourself and your future as early as the seventh or eighth grades. This booklet might be of help to you if your thoughts turn in the direction of occupational training. However, before referring to it, consider these few important things.

What are you like?

You may think of yourself as a sociable person, as an athlete, as one who likes to read, as a chess player, as an explorer scout, as a hot rod expert, or as a poor speller. But what has this to do with choosing your career? These are very important things to know. There are probably many other similar things about yourself which have never occurred to you that you should consider with the obvious. Knowing these, you can see which general career fields they might fit, and you can get an idea where your best prospects lie.

Your counselors and teachers will help you discover the clue to "you". They will help you review some of the tests you have taken and the grades you have made through the years. They will also consider with you your interests, activities, your job experiences, the subjects you like best, and the characteristics you have developed. Counseling services are also available to you at local Employment Service offices. Counselors in these offices utilize aptitude tests when they can assist you in determining your chances for success in a number of broad fields of work and in specific occupations. Counseling sometimes reveals capacities you don't know you have. Remember, you are different from any other boy or girl...you are a unique person. The more you know what your own particular gifts are--and everyone has his own--the better prepared you will be to see what opportunities in the world are for you.

What are the best career goals for you?

You will find as you reflect thoughtfully about yourself and your opportunities that perhaps several different career fields may seem to suit you. This is to be expected as you begin your exploring and might well continue to a certain extent beyond your high school years. At the same time, you will notice as you start to match yourself with career fields that many which are attractive to you require different levels of schooling. For instance, one of the things you enjoy and do well might be working with machines. Careers related to this are tremendously varied. Most involve some type of training, and this may be of a technical nature obtained in special vocational schools or community colleges. Aircraft technicians and engineering technicians enroll in educational programs of this type. On the other hand, career fields involving similar interests may require considerably more education of a more academic nature. Mechanical engineers receive qualifying degrees from institutions of higher learning which offer preparatory programs of at least four years. Those succeeding in such programs usually do much better than average in their basic subjects and/or their standardized tests, particularly in mathematics and science, while in junior and senior high school.

This same variation in training holds true for all career fields, not just the mechanical. You will have to make your own vocational decision but you can make a sounder decision with competent help and a good understanding of yourself and the occupational fields offering suitable opportunities to you. The Employment Service office has occupation and job information about your community--can tell you which are more plentiful, which are harder to get, what the hiring requirements are, and what they pay.

How will you prepare to reach your goals?

As you consider the requirements for the fields appropriate to you, you should begin to make your course choices with these requirements in mind. What you take as electives before graduation from high school and how well you do in them will make a great difference in how ready you will be for later training and your first experience in your career. If you do your very best in the electives you choose, and find you are not succeeding in some as well as in others, you should stop to reconsider your plans with this in mind.

Your first chances to make decisions regarding courses usually come before you really get to know yourself well. So it will not be too unusual if you surprise even yourself as you progress through the years. Talk to your counselors about the things you are discovering as you try to see yourself fitting into the world of many careers. Then make your choices as wisely as possible realizing some may not always be the most appropriate. But just right or not just right, each experience can teach you more about yourself.

This booklet is only one of many references which may help guide you with your decision making. It concerns itself with many community college or special vocational school offerings designed to train people for occupations which do not require at least four years of study, strongly academic. If you are not sure which level of education is most appropriate for you, a good companion to this is Mapping Your Education, available in most counseling offices, describing some similar programs as well as professional preparation available in the collegiate institutions of Washington and Oregon. Other publications from the Department of Labor, which are very helpful in providing information about different occupations are: Occupational Outlook Handbook, Job Guide for Young Workers, and Career Guide for Demand Occupations. They are available in most high school and public libraries.

Occupations described in the front section of this booklet refer you to schools which provide the training required for participating in them. The latter part of the booklet acquaints you with these schools and basic information regarding them.

We hope you will enjoy discovering yourself and exploring your present and prospective future. If this publication assists you in any way, it will have served its purpose.

TO THE COUNSELOR

This publication was designed for your use as an important reference to many occupational training opportunities in the State of Washington. Whether or not you are counseling on the pre-secondary, secondary, or community college levels, we believe you will find it valuable as an up-to-date career counseling guide.

The material is organized for flexible use in schools, distributive education, or technical trade and industry. The kinds of businesses identified conform to the Census of Business Classifications prepared by the United States Department of Commerce. Code numbers of the various occupations are consistent with those of the Dictionary of Occupational Titles published by the United States Department of Labor. The use of these classifications will make it possible to refer to regularly-published materials and statistics for further study or reference.

Section One

The first section gives an overview of the twenty public training institutions which provide programs for specific occupations. Each campus, its curricular offerings, and activities are described briefly.

Section Two

The second section provides descriptions of the specific technical trade and industrial education training programs available within the various institutions described in section one.

Occupational descriptions are based on information from trade publications, interviews with business leaders, trade association leaders, union leaders, the Dictionary of Occupational Titles, and the Occupational Outlook handbook.

Occupational trends and outlook predictions are based on studies of information available from the Research Division, Employment Security Department, Olympia, Washington.

Section Three

The third section provides descriptions of the specific distributive education training programs available within the various institutions in our State.

Thus in one package the counselor together with the counselee can investigate a training program, examine the nature of the work and the anticipated employment outlook, locate the several institutions which sponsor the training, and then make the appropriate decision based on the student's needs.

In addition to this information, it is the intention of those who prepared this directory to make available from time to time a supply of brochures for students on specific occupations for which there is a demand in the State and for which preparatory programs have been developed. These will serve as supplements to this book. A family of brochures will thus accumulate and will be available in quantity to you as they are developed. It is anticipated that this source will form an important part of the instructional materials used in career units or in counseling offices for exploratory and specific planning purposes. Already three leaflets of this sort have been distributed throughout the State -- Mid-Management Training for You in 1962, Technical Education Occupational Careers in Washington, and Careers in Data Processing in the State of Washington.

With this book, you will undoubtedly make use of other essential references and booklets yielding educational and vocational information of national as well as local import. Selection of valid, current and applicable materials for this purpose often become a confusing process. As you develop your library, you may find some of the basic supplements listed in the bibliography to be of value to you.

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STATE OF WASHINGTON PUBLICATIONS

McClane, Douglas V., editor, Mapping Your Education--a cooperative project of high schools and collegiate institutions of Oregon and Washington. Abbott, Kerns, and Bell Company, Portland, Oregon.

This book lists community colleges, but emphasis is less on occupational training than on planning for more professional education.

Newsletters and bulletins from schools, colleges, or committees which provide up-to-date educational and vocational information. Examples of these are:

University of Washington, Memo to Schools--monthly periodical, Dr. J. Robert Long, Director, Office of High School Relations, Seattle 5, Washington.

Washington State University, Notes from WSU--periodical. Admissions Office, Pullman, Washington.

Washington Committee on High School - College Relations, Bulletin -- periodical. Washington State University, Pullman, Washington.

Catalogs, brochures, and scholarship information are available on request to the training schools and institutions of higher learning in the State of Washington and to schools in other parts of the country which your students might attend.

NATIONAL PUBLICATIONS

National Vocational Guidance Association, NVGA Bibliography of Current Occupational Literature--revised 1959. 1605 New Hampshire Avenue, N.W., Washington 9, D.C.

U. S. Department of Labor, List of Occupational Outlook Publications, December, 1960--Career Information for Use in Guidance, Occupational Outlook Service, Bureau of Labor Statistics, Washington 25, D. C. Free.

Reference Books:

Barron's Guide to the Two-Year Colleges, Barron's Publishing Co., 1962.

Lovejoy's College Guide, Simon and Schuster, 1961.

Occupational Outlook Handbook, United States Government, Department of Labor, 1961.

Professional Organization Publications:

American School Counselor Association, How About College Financing? American Personnel and Guidance Association, Washington, D.C. 1960.

American Association of School Librarians and American School Counselor Association, Librarians and Counselors Work Together. AASL, Chicago, or ASCA, Washington, D. C. 1960.

American School Counselor Association, How About College--A Guide for Parents of College-Bound Students. ASCA, Washington, D.C. 1960.

National Vocational Guidance Association, How to Express Yourself Vocationally- A Handbook for Students, Parents, Teachers, Counselors, and Principals. NVGA, Washington, D. C. 1961.

CAREER MATERIALS FOR STUDENTS

Although general texts and booklets might be used in your school for guidance units and probably include a consideration of careers, there is a need for supplementary materials of a brochure nature to keep students up-to-date on changing occupational patterns and outlooks. In addition to the family of brochures which will be related to this particular directory and be distributed from time to time, you should find the occupational briefs, kits, and guidance service materials of the various reputable publishers valuable for group guidance, individual counseling, and library use.

Washington State Employment Service

In this age of scientific and technological change, many jobs have become obsolete. Demand for unskilled and semi-skilled workers has decreased while demand for well-educated and highly trained skilled workers has increased. Frequent contacts with employers throughout the State enable Employment Service officials to maintain current occupational and labor market information. In addition, the Employment Service participates in the administration of the Manpower Development and Training Act of 1962, and provides placement and employment counseling services. Employment Service counselors utilize the GATB (General Aptitude Test Battery)---a battery of tests which uniquely relate the aptitude of individuals to the aptitudes required by many of the occupations described in Sections II and III of this book. In order to effectively assist today's youth realize productive careers in an increasingly complex society, it is essential that school counselors and Employment Service counselors maintain a close working relationship.

LOCATION OF TRADE - TECHNICA

Janu

Post High School

TRADE-TECHNICAL IND

These Trade - Technical industrial training programs enroll approximately 9,000 day preparatory post high school students. This chart does not include Washington's vocational training programs in Agriculture, Distributive Education, or Home & Family Life Education, nor does it include high school or adult evening or extension courses.

Centers and Schools	Aircraft Mechanics	Appliance Repair	Auto Body Repair	Auto Mechanics	Barbering	Boatbuilding	Cabinetmaking & Millwork	Carpentry	Commercial Art	Commercial Photography	Cosmetology	Data Processing	Dental Assistants	Diesel Mech
BELLINGHAM TECHNICAL SCHOOL· Bellingham			X	X				X						
BIG BEND COMMUNITY COLLEGE Moses Lake														
CENTRALIA COLLEGE Centralia											X			
CLARK COLLEGE Vancouver			X	X							X		X	X
CLOVER PARK VOC.-TECH. SCHOOL Lakewood Center	X			X							X			
COLUMBIA BASIN COLLEGE Pasco			X	X							X			X
*EVERETT JR. COLLEGE Everett				X				X		X	X	X		X
GRAYS HARBOR COLLEGE Aberdeen														
*HIGHLINE COLLEGE Seattle														
LOWER COLUMBIA COLLEGE Longview			X	X										X
OLYMPIA VOC.-TECH. INSTITUTE Olympia											X			
*OLYMPIC COLLEGE Bremerton								X			X			X
PENINSULA COLLEGE Port Angeles														
*RENTON VOCATIONAL SCHOOL Renton														
*SEATTLE PUBLIC SCHOOLS Adult Vocational Education	X	X		X		X	X	X	X	X	X	X		X
SKAGIT VALLEY COLLEGE Mount Vernon														
*SPOKANE TECH. & VOC. SCHOOL Spokane	X		X	X				X	X		X	X	X	X
*TACOMA VOC.-TECH. INSTITUTE Tacoma			X	X	X	X	X	X		X	X	X	X	X
WENATCHEE VALLEY COLLEGE Wenatchee														
*YAKIMA VALLEY COLLEGE Yakima														

* Schools with major expansion plans for vocation-technical courses, 1963-64.

NICAL COURSES IN WASHINGTON STATE
January 1963

NDUSTRIAL EDUCATION *Day Pre-Employment*

Assistants	Diesel Mechanics	Drafting	Dry Cleaning	Electrical	Electronics — Industrial	Electronics — Communication & TV	Engineering Aids (Drafting & Design	Food Services	Forestry & Wood Products	General Office Practice	Instrumentation — Industrial Control	Machine Trades	Needle Trades	Painting & Decorating	Practical Nursing	Printing	Production Illustration	Sheet Metal	Upholstery	Watch Repairing	Welding
				X		X	X				X			X							
									X												
				X		X			X					X							
X			X	X		X	X		X		X			X	X						X
				X	X				X		X	X		X							
X				X		X	X		X		X			X		X					X
X				X		X		X	X		X			X							X
									X					X							
						X			X												
X				X		X			X					X		X					
								X	X												
																					X
X	X	X	X	X	X	X			X		X	X		X			X		X		X
				X		X			X					X							X
X				X	X	X	X		X	X	X			X	X		X		X		X
X		X	X	X	X	X			X	X	X	X	X	X			X	X	X		X
									X					X							
				X					X					X							X

STATE BOARD FOR VOCATIONAL EDUCATION
Old Capitol Building, P. O. Box 250
OLYMPIA, WASHINGTON

Schools Offering Post-Secon
In Distributive Occupati

Listed below are the centers offering the fast-growing Mid-management program of training in Distributive Education. The Mid-management Seminar and co-ordinated on-the-job employment within a career field are integral parts of the training program.

Career Fields →	Retail	Wholesale	Service	Sales	Fina
CENTRALIA COLLEGE Centralia	X	X	X	X	X
EVERETT JR. COLLEGE Everett	X	X	X	X	X
SKAGIT VALLEY COLLEGE Mount Vernon	X	X	X	X	X
COLUMBIA BASIN COLLEGE Pasco	X	X	X	X	X
SEATTLE VOC.-TECHNICAL Seattle	X	X	X	X	X
CLARK COLLEGE Vancouver	X	X	X	X	X
YAKIMA VALLEY COLLEGE Yakima	X	X	X	X	X

HIGHLINE COLLEGE
Seattle

BIG BEND COMM. COLLEGE
Moses Lake

OLYMPIC COLLEGE
Bremerton

GRAYS HARBOR COLLEGE
Aberdeen

TACOMA VOC.-TECH. INST.
Tacoma

SPOKANE TECH. & VOC. SCHOOL
Spokane

LOWER COLUMBIA COLLEGE
Longview

Currently giving serious consideration to Mid-management Training Programs

Post-Secondary Courses
e Occupations – 1963

(Community College and
Vocation - Technical)

	Financial Service	Sales-Supporting	
	X	X	
	X	X	
	X	X	
	X	X	
	X	X	
	X	X	
	X	X	

SECTION I

Vocational-Technical Schools and Community Colleges offering complete occupational training programs in the State of Washington

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SECTION I

Vocational-Technical Education Institutions in the State of Washington
Bellingham Technical School
Big Bend Community College
Centralia College
Clark College
Clover Park Vocational-Technical School
Columbia Basin College
Everett College
Grays Harbor College
Highline College
Lower Columbia College
Olympia Vocational-Technical Institute
Olympic College
Peninsula College
Renton Vocational School
Seattle Public Schools
Skagit Valley College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute
Wenatchee Valley College
Yakima Valley College

SECTION I

VOCATIONAL-TECHNICAL EDUCATION INSTITUTIONS in the State of Washington

"Vocational-technical education" describes an umbrella of occupation-centered educational services designed to train youth and adults for immediate employment or for upgraded employment in business, industry, farm, or home. The umbrella covers four basic areas: Agricultural education, trade-industrial and technical education, distributive education, and home and family life education. In a broad sense, vocational-technical education is education other than professional, training individuals for occupations which make up approximately 90% of the labor force of the United States.

This section describes the opportunities offered by the twenty post-high school vocational educational facilities in the State. Of the twenty institutions described here, thirteen are community colleges and seven are vocational-technical schools or institutes.

Although community colleges and vocational schools take somewhat different approaches to vocational education, there are more similarities than differences in the training provided in the vocational-technical areas.

Community colleges usually have the following objectives:

(1) To provide preprofessional or liberal arts lower division education to students who will transfer to a four-year university.

(2) To provide a concentrated program of vocational or semi-professional education for students who wish to enter business, industry, agriculture, or the home.

(3) To provide classes for adults in academic, vocational-technical, or extension courses to upgrade the employed.

(4) To provide two years of general education.

(5) To serve the community as a cultural and activities center.

Vocational-technical schools usually have the following objectives:

(1) To offer training in specific skills to non-college bound students.

(2) To provide training or retraining to workers whose skills and technical knowledge must be updated.

(3) To provide training or retraining to workers whose present jobs will change due to automation or economic conditions.

(4) To complement public education by offering specialized training with or after the high school general education program.

(5) To provide related instruction for apprentices and to assist in the development and improvement of supervisory personnel in all areas served by vocational-technical education.

History and Development

The vocational-technical schools in this State had their early foundations through the enactment of the Smith-Hughes Act of 1917, brought on by the need during World War I. The growth periods for vocational education have been associated with the nation's crises. The seven vocational-technical schools were established or greatly expanded during World War II. Since that time and during the postwar era, vocational education has been going through another crisis brought on by automation and the cold war and met by Federal legislation including the National Defense Education Act and the Manpower Development and Training Act. The report of President Kennedy's Panel of Consultants on Vocational Education was organized in 1962 for the purpose of reporting the need for vocational education and suggesting the need for updating all Federal legislation dealing with vocational education.

Four of the present thirteen community colleges established vocational divisions during the World War II years. The postwar years saw some increasing accents on this type of education in the community colleges. It was not until recent years as the junior colleges became community colleges that there was any wide development of vocational-technical education. Today, most of the community colleges offer some vocational-technical education; five colleges offer substantial programs and others plan additions.

Despite its forty-six year history and several periods of tremendous growth, vocational-technical education in the State of Washington is still unable to meet the manpower needs of the State. In 1962 Washington's twenty post-high school institutions enrolled more than 8,000 full time vocational day students, employed 400 full time day vocational instructors, enrolled 60,000 part time adult students, and employed 1,500 part time instructors. Total educational facilities in the twenty schools have an evaluation of $40 million, with $12 million in specialized equipment. Washington industries have expressed a preference for locally-trained people, yet in 1962 our industries were required to hire approximately fifty per cent of their technicians from other states, while many of Washington's youth went untrained and unemployed.

Instructional Programs

Vocational-technical schools generally award their students a Certificate of Proficiency for short courses, a Certificate of Completion for the one- or two-year programs, and, in some cases, may award a diploma after six months of successful employment.

Community college vocational-technical students may earn credit toward an Associate in Arts degree; however, these students do not usually transfer on to a four-year institution but find work in the occupation for which they are trained.

Vocational-technical schools emphasize training in more specific occupations. In contrast to community colleges, vocational schools tend to continue their educational programs throughout the entire year. For this reason, and the fact that vocational schools may concentrate more on the occupational courses, it is usually possible to receive the training necessary for employment in a shorter period of time than that spent at a community college. In general, training in vocational-technical schools is concentrated on occupational courses, while in community colleges the student may take some general education subjects along with his occupational courses.

Vocational-technical teachers in both vocational schools and community colleges are chosen primarily on the basis of successful occupational experience. Vocational educators cooperate with labor and management and, through advisory committees, seek to provide the kind of trade and technical training needed by the changing demands of the work world.

Student Services

Vocational schools do not have a large program of social events, although many have student body and special interest groups.

Community colleges offer a variety of student activities including inter-collegiate athletic programs, drama, forensics, music, lecture series, student publications, student government, and a variety of social events.

Both the community colleges and vocational schools give entrance eligibility tests, interviews, and provide vocational guidance service.

Student Fees

Annual fees in the vocational schools average approximately $40. Actual fees vary from $5 to $150.

Annual community college fees average $160. Actual fees vary from $120 to $175. Both the vocational schools and community colleges have additional costs for special supplies and books, averaging from $30 to $70 annually. Lab fees are usually nominal but in a few special courses where expensive instructional supplies are used may be as high as $80 annually.

The total operational cost for providing a vocational-technical program in the State of Washington approaches $850.00 per year per full time student. Most of this cost is borne by State taxes, with additional assistance from Federal appropriations and local taxes. Student fees represent about 12% of the cost.

For further information about vocational education, contact any of the schools listed in this publication, or write to:

State Board for Vocational Education
P. O. Box 250
Old Capitol Building
Olympia, Washington

BELLINGHAM TECHNICAL SCHOOL

(Bellingham)

History and Development

The first "Industrial School" was planned and constructed in 1912. This school evolved into a manual training section of the Whatcom High School. After the Smith-Hughes Act was passed by Congress in 1917, classes in auto mechanics and machine shop were organized. Later machine shop classes were organized at Fairhaven High School.

The imminence of World War II necessitated the establishment of evening classes in 1940. As a result of steady growth, over 4,000 persons received training for industry in this school during the war years.

The planning for the present project began in 1953 when it was realized that the vocational programs offered by the district were not meeting the needs of the community. As a result, the Board of Directors appointed an advisory committee of representatives of labor and industry to make a study of the vocational needs of the community, and steps were immediately taken to fulfill the obligations presented.

Bellingham Technical School was established in 1957 as a part of the Bellingham School District. Its campus is located approximately one mile northwest of the downtown business area of Bellingham. The total evaluation of Bellingham Technical School is approximately $650,000.

The school operates as an area vocational-technical school; enrollment is not limited to those living in the Bellingham School District. The school was designed to serve those students who are interested in terminal training in the vocational-technical occupations.

Instructional Program

The daytime educational opportunities are varied. Students may select a specialized training program to be completed in one or two years. Instruction is offered in the nine following areas: auto mechanics, body and fender repair, carpentry, engineering aide, industrial electronics, machine shop, restaurant trades, waitress training, and practical nursing.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Vocational-Technical	11	210

Student Services

The cooperative testing services of the Washington State Employment Service are utilized for class placement. In this way, students are helped to discover their abilities and aptitudes, and after training the placement services provide help in finding suitable employment.

Offices for counseling, registration, and information are open each weekday except for vacation periods throughout the entire year.

Fees

	(Per Year)
Tuition (students over 21)	$120.00
Students under 21, no fee	
Lab fees (all students)	18.00

For further information write to:

Director of Vocational Education
Bellingham Technical School
3028 Lindberg Avenue
Bellingham, Washington.

BIG BEND COMMUNITY COLLEGE

(Moses Lake)

History and Development

Through the united efforts of many citizens of the upper Columbia Basin area, Big Bend Community College was authorized by the State Board of Education in August, 1961. Plans were immediately set in motion to acquire a building site and develop the building program. The site, a 114-acre tract south and east of the city of Moses Lake, was purchased in October, 1961, and preliminary building plans presented in January, 1962.

The college opened in September, 1962, on the Moses Lake High School campus and will operate a full program in the late afternoon and evening hours until the new college campus is completed in September, 1963.

Big Bend Community College is governed by the Board of Directors of Moses Lake School District and is operated with county and state funds and student fees.

Big bend Community College will operate in four buildings on 30 acres. These units include an administration building, library and student union center, science and engineering building, and physical education building. A music auditorium, business administration and education facilities, and art and journalism facilities are included in the administration building.

Instructional Program

The regular day vocational program offerings include instruction and training in three occupations: agriculture, nursing, and secretarial studies.

Faculty and Student Enrollment

A full-time faculty of 30 is presently employed by the college.

Student Services

Big Bend Community College provides a well-balanced program of extra-class activities for all students. This is in keeping with the belief that participation in college activities contributes to the development of a well-rounded personality and to the growth of leadership ability. These activities help to promote school spirit, to furnish outlets for special interests and talents of students, and to enhance the cultural development of the students.

Fees

(Annual student cost for Washington residents)

General Fee—Full-time students	$ 30.00
Registration Fee—Full-time students	135.00
	$165.00

For further information write to:

President
Big Bend Community College
Moses Lake, Washington

CENTRALIA COLLEGE

(Centralia)

History and Development

Centralia College, established in 1925, is housed in nine separate buildings located in the heart of the city of Centralia. The 11.8-acre campus includes modern classroom and laboratory buildings, with latest new construction housing a student center-library. The valuation of the campus and facilities is approxmately $1,800,000.

Instructional Program

The Centralia College instructional program is designed to meet the needs of the people in the local community. The college provides training in three areas:

1. Transfer program:
   Provides two years of courses equivalent to lower division courses offered at four-year colleges and universities.
2. General studies:
   Provides two years of study to students who wish to develop special interests but who do not necessarily wish to transfer to a four-year institution.
3. Vocational and technical education:
   Provides two years or less of training which may lead to immediate entry into employment.

Under the general guidance of advisory coommittees and the advisory council, continuing growth in technical education is planned at Centralia College. Programs will be added to meet the needs of the growing student interest in those fields which demand a high degree of technical skill and training.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts & pre-professional, lower division	44	760
Vocational-Technical	7	90

Student Services

The college counseling services assist the student in identifying his skills and interests and in making necessary adjustments for employment. The Washington Employment Security Office facilities are used to assist the technical student in determining his aptitude for successful completion of the program and ultimate employment in the various technical fields.

Students in vocational-technical education at Centralia College are eligible to participate in inter-collegiate athletics, have membership in groups and societies, music, drama, forensics, and are in every respect regular college students on the campus.

Students are urged to improve their social and cultural values through campus life by participating in extra-curricular activities.

Fees

(Annual student cost for Washington residents)

Tuition	$ 30.00
Student Body Fee	45.00
General Fee	60.00
Health Fee & Misc. (Complete health protection)	30.00
	$165.00

For further information write to:

Director of Admissions
Centralia College
Centralia, Washington

CLARK COLLEGE

(Vancouver)

History and Development

Clark College is a comprehensive community college. It was established in 1933. The attractively landscaped campus covers an area of 60 acres on land that was once part of the historic Fort Vancouver Military Reservation. The five-part Applied Arts Center complex was opened in 1950; the other six buildings on the campus were completed in 1958. Total valuation of the facilities is three million dollars.

A master building plan for college expansion has been completed, with all college planning based on an ultimate enrollment of 2,500 students. The curriculum is constantly being evaluated to make certain the college is continuing to meet the needs of the community.

Instructional Program

As a community college, Clark defines its role in terms of the following purposes: University parallel curricula, vocational-technical training, general education, adult education, guidance and counseling.

Students in vocational-technical programs normally attend two years, with a few desiring only one year and others continuing for a third year. Students in terminal programs are encouraged to take the courses necessary to fulfill requirements for an Associate in Applied Science Degree. Clark offers thirteen vocational-technical daytime programs, in addition to a variety of business and distributive education offerings. Evening apprenticeship-related offerings are a regular part of the adult education program. A data processing program is the most recent addition to the technical curriculum.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	66	1,030
Vocational-Technical	29	570

Student Activities

A diversified activities program, both organizational and social, gives students with widely differing interests an opportunity to participate. One of the college's newest and most active organizations is the Technical Arts Club. Members must be majoring in a vocational-technical field to qualify for membership. A full varsity and intramural sports program; service, social and interest-group clubs; and student government, music, drama, and journalism are among the activities available.

Fees

(Annual student cost for Washington residents)

Tuition and Fees	$150.00

For further information write to:

Dean of Students
Clark College
1925 Fort Vancouver Way
Vancouver, Washington

CLOVER PARK
VOCATIONAL-TECHNICAL SCHOOL

(Lakewood Center)

History and Development

The Clover Park Vocational-Technical School had its start as a training center for war production skills during World War II. Courses were established which met the need of local military establishments in the South Tacoma area. These were expanded in 1946 to serve the postwar era, primarily in aviation, electronics, auto shop and machine shop. With the growing needs of industry in the early 1950's, the school was moved from Clover Park High School to its present location one mile east of Lakewood Center in suburban Tacoma. Here the school was able to convert several surplus warehouse units into excellent training facilities and added many new courses to meet the demands of the area. The newest building, which will house a library and classrooms, is scheduled for occupation in February, 1963. The present site occupies 125 acres including an aircraft runway and an educational radio-television broadcasting center.

Instructional Program

Training is available in thirteen different vocational programs at the present time. All the programs, varying in length from twelve weeks to two years, are designed to prepare the student with skills and knowledge necessary to secure employment in the industry for which he was trained.

A diploma is awarded upon completion of the required hours of training.

All courses meet the standards and criteria as set forth by the State plan for vocational education.

New courses in the planning stages are: graphic arts, medical laboratory technician, production technology, and distributive education. In addition, there are plans for an education center to serve the growing needs of this area.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Vocational-Technical	24	350

Student Services

A vocational counselor assists instructors and students in providing the most useful training for each career goal offered. Placement testing is done prior to enrollment. Assistance is given in obtaining employment following completion of the course of training. Follow-up records keep school administrators apprised of occupational success.

Fees

Registration fee, annual, for all courses (except practical nursing)	$ 5.00
Practical Nursing (per semester)	12.00

For further information write to:

Director of Vocational Technical Education
Clover Park Vocational-Technical School
5214 Steilacoom Boulevard
Lakewood Center 99, Washington

COLUMBIA BASIN COLLEGE

(Pasco)

History and Development

Columbia Basin College was established in 1955 after operating as a Technical-Vocational Institute for eight years. As a community college in the State of Washington, Columbia Basin College offers a comprehensive program of technical courses, college transfer courses, and general community service instruction and activities.

Columbia Basin College is located in Pasco, Washington, on a 160-acre campus, with a complex of buildings that is composed of the classroom building that encompasses the library, administration, student lounge and classrooms; the technical-vocational building which includes the majority of the technical laboratories; the science building which includes the science laboratories; and the physical education and music building. Total valuation of the facilities is two and one-half million dollars.

Instructional Program

Columbia Basin College offers an extensive program in the Technical-Vocational fields that includes the following courses:

Business Education
Electronic Data Processing
Electronic Technology
Engineering Technology
Commercial Foods
Illustrative Technology
Automotive
Body Rebuilding and Refinishing
Practical Nursing
Machine Shop
Welding

Also, apprenticeship, extension, craft training, homemaking, and business courses are offered in the Extended Day Program.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	69	1,357
Vocational-technical	26	450

Student Services

Columbia Basin College has an active student body organization that supports a total intercollegiate athletic program, drama, forensics, women's recreation, music lecture series, and many special interest clubs and organizations.

Fees

(Annual student cost for Washington residents)

General fee	$138.00

For further information write to:

Admissions Office
Columbia Basin College
2600 North Chase Street
Pasco, Washington

EVERETT JUNIOR COLLEGE

(Everett)

History and Development

Everett Junior College is a public community college established in 1941 to meet the post-high school educational needs of the Snohomish County community. It operates as an integral part of the Everett Public School System. The college offers both terminal and college transfer courses in technical-vocational, academic, and general education.

The college moved in 1958 to a specifically designed campus in North Everett. On the main 13-acre site are seven modern brick buildings, including a technical building, an arts building which houses part of the technical program, and a campus center building. An auditorium-classroom building will be added soon at the main campus. The physical education plant is three blocks south. Total valuation of facilities is two million seven hundred thousand dollars.

Instructional Program

The instructional program consists of three major areas: the lower division curriculum leading toward a baccalaureate degree from a senior college or university, or an associate degree from Everett Junior College; the technical-vocational curriculum which may or may not lead to a baccalaureate degree, and the evening and part-time program which is a combination of the two.

Courses are organized into nine instructional divisions: arts, business administration, communications, life sciences, nursing, physical education and athletics, physical sciences, social sciences and technical-vocational education. The student may select courses from any of these divisions, and with the aid of an experienced faculty counselor, organize them into a program of study suitable to meet his educational objectives.

Everett Junior College is a dynamic institution, and courses and curricula are constantly being added or expanded to serve the needs of students. New programs in data processing and business mid-management began in the fall of 1962. An Associate Degree Program in nursing is expected to start in the fall of 1963. Other new programs, particularly in the technical field, are in the planning stage.

In addition to the above, technical-vocational training is offered in photography, electronics, engineering technician, welding, cosmetology, carpentry, auto mechanics, practical nursing, secretarial training, and forest products. A complete program of related trade training for apprentices in automotive body rebuilding, automotive machining, cabinet making, carpentry, electrical wiring, machining, plumbing, and sheet metal is also offered, as well as many trade extension and community service courses.

The degrees of Associate in Arts and Sciences and Associate in Technical Arts are awarded for completion of approved two-year programs of study.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	93	1,775
Vocational-technical	12	225

Student Activities

Extra-curricular activities are an important part of the student's life at Everett Junior College. These include student government, music, publications, drama, inter-collegiate and intramural sports, speech and debate, and more than a dozen different clubs appealing to special interests.

Fees

(Annual student cost for Washington residents)

Registration Fee	$150.00

For further information write to:
Director of Admissions
Everett Junior College
801 Wetmore Avenue
Everett, Washington

GRAYS HARBOR COLLEGE

(Aberdeen)

History and Development

Grays Harbor College was incorporated on August 7, 1930. In January, 1958, the college moved into new facilities consisting of a classroom wing, a science wing, a library, a gymnasium, an administration building, and a student union building on a 40-acre tract south of Aberdeen, overlooking the bay. Total evaluation of the facilities is one million seven hundred thousand dollars.

In its role of community college, Grays Harbor College has four objectives:

(1) To provide its students with general education . . . that is, with a knowledge of the ideas, values, and creative works which have shaped civilization. (2) To offer those students who are transferring to four-year colleges academic prerequisites for specialization and professional study. (3) To provide a program of vocational or semi-professional education for students who wish to enter business or industry. (4) To offer classes for adults in academic, vocational, and recreational areas.

Instructional Program

In addition to the regular transfer and liberal arts programs the college offers vocational-technical classes in secretarial training and practical nursing. Beginning in the fall quarter of 1963, electronics technology will be added to the curriculum.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	40	700
Vocational-technical	3	50

Fees

(Annual student cost for Washington residents)

Tuition	$ 30.00
General and Student Body Fee	135.00
	$165.00

For further information write to:

Registrar
Grays Harbor College
Aberdeen, Washington

HIGHLINE COLLEGE

(Seattle)

History and Development

Highline College was established in 1961 in the Highline School District, south of Seattle, Washington. It is a two-year community college offering a comprehensive program of college transfer courses, terminal courses, and community service activities related to instruction. The program is presently housed in temporary quarters on the campus of Glacier High School. Laboratories, secretarial and accounting rooms, industrial art shops, physical education facilities, library and cafeteria, are shared by the college and by the high school. Such special facilities as counseling offices, student activity center, bookstore, and administrative and faculty offices are housed in portable buildings adjacent to the high school.

Planning and construction of a new campus on South 240th Street, just off Highway 99, are under way. The new buildings should be ready for occupancy for the fall quarter, 1964. The two-and-one-half million dollar investment in the original campus development should give Highline College one of the finest and most modern facilities in the West.

Instructional Program

Courses offered at Highline College are grouped under the following principal instructional divisions: business administration, humanities, technical-vocational education, science, social science, physical education. From the areas listed above, students select courses which will constitute a meaningful program of general education, a university parallel program, or a technical-vocational program. This selection is aided by the guidance and advice of trained and expert counselors and by teaching faculty who are assigned the advisement of students under a well-developed program.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	27	668
Vocational-technical	2	32

Student Services

A wide variety of extra-curricular student activities is included as a part of the college program. This includes such activities as student publications, intramural and intercollegiate athletics, drama, student government, and an increasing number of special interest clubs of a political, vocational, or avocational nature.

Fees

(Annual student cost for Washington residents)

Registration fee	$150.00

For further information write to:

Admissions Office
Highline College
2634 South 142nd Street
Seattle 88, Washington

LOWER COLUMBIA COLLEGE

(Longview)

History and Development

Lower Columbia College, established in 1934, is part of the Longview Public School System. The college campus covers an area of twenty-six acres in the heart of Longview, Washington. The greater part of the new campus was constructed in 1958 and now represents approximately a two-and-one-half million dollar investment consisting of nine major buildings.

Instructional Program

Educational opportunities are varied. Students may select either a one or two-year terminal program in an occupational area, or they may select a two-year pre-professional or liberal arts program and transfer to one of the universities or colleges for completion. At the completion of the two-year technical education program, the student is granted the Associate of Technical Arts degree. Students may select a major from trade and technical education, business education, general education, distributive education or home and family life education.

The college, with assistance from industrial advisory committees, has tentative plans for new technical programs in the fields of data processing, metallurgy, and forestry technology.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	43	610
Vocational-technical	17	245

Student Services

The college counseling staff is available to help students determine goals which are commensurate with their ability, time, and interests. The Washington State Employment Service, through its testing program, helps students discover their skills and select areas in which to train. Later it may help in job placement.

Students are encouraged to participate in many available extracurricular activities such as a full sports program, various clubs, and activities in music, journalism, and drama.

Fees

(Annual student cost for Washington residents)

General Fee	$120.00
Student Body Fee	33.00
	$153.00

For further information write to:

The Registrar or Vocational Director
Lower Columbia College
Longview, Washington

OLYMPIA VOCATIONAL-TECHNICAL INSTITUTE

(Olympia)

History and Development

Olympia Vocational-Technical Institute was established in the Spring of 1962 as part of the Olympia Public School System. It presently is located in a three-story building in the heart of downtown Olympia. Its present valuation is approximately three hundred thousand dollars. The institute operates as an area school; enrollment is not limited to those living in the Olympia School District.

Long range planning includes construction of campus-type buildings on existing school district lands.

Instructional Program

Students may select their major from electronics, data processing, or secretarial sciences. Six new curricula are being planned and will be expanded into other areas indicated by the needs of the community, particularly in civil technology and forest products technology areas.

A certificate of merit may be presented to those satisfactorily completing certain prescribed courses of training. A certificate of proficiency is awarded to those who satisfactorily complete an entire course of study in any prescribed area. A diploma may be awarded to those earning a certificate of proficiency upon the completion of six months of employment in a related, prescribed area and concurrent with an evaluation of the student by the employer.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student*
Full time	5	65

Fees

Registration Fee (per year)	$45.00

For further information write to:

Director
Olympia Vocational-Technical Institute
317 East Fourth Avenue
Olympia, Washington

OLYMPIC COLLEGE

(Bremerton)

History and Development

Olympic College was established in 1946 as a part of the Bremerton Public School System. The courses offered were an outgrowth of those set up in World War II training programs in conjunction with the Bremerton shipyards. For several years the college was housed in temporary war dormitories. The present two-and-one-half-million dollar campus was constructed during the 1950's and consists of seven large campus-type buildings.

Instructional Program

Students who plan to transfer to a university degree program may earn Associate in Arts degree. A degree in Technical Arts is awarded to those who satisfactorily complete the two-year program in secretarial sciences, business administration, nursing, drafting, surveying, graphic arts, or electronics. Present plans call for a large addition to the vocational-technical division offering curricula in data processing and other technical and trade occupations indicated by the needs of Kitsap County.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	97	2,064
Vocational-technical	8	136

Student Services

The education of the whole individual is the concern of Olympic College. In addition to the need for pre-professional, vocational, and technical training, there is a need for the development of social skills in the art of everyday living. Each student is encouraged to participate in as many of the extra-curricular activities as may interest him. Activities include the several campus clubs, organizations, and special interest groups, as well as intramural athletics and major sports.

Fees

(Annual student cost for Washington residents)

Student tuition and general fees	$180.00

Vocation class charges (for those not desiring college credit) is $2.00 for each credit hour of instruction

For further information write to:

Director of Admissions, or Director of Vocational Education
Olympic College
1519 Chester
Bremerton, Washington

PENINSULA COLLEGE

(Port Angeles)

History and Development

Peninsula College, Port Angeles, was established in 1959 to serve the students of the Olympic Peninsula. The first building was completed in 1961 and is a compact unit housing classrooms, laboratories, library and a student center. Total evaluation of the college and facilities is seven hundred thousand dollars. A 75-acre tract has been purchased, and preliminary planning has been done for a new campus for Peninsula College.

Instructional Program

Peninsula College will offer the traditional academic courses and the following technical-vocational courses: electronics, small appliance repair, forestry and wood products, practical nursing, and secretarial, clerical and bookkeeping.

The program of vocational-technical education courses is designed to prepare students for entrance and advancement in the occupations associated with business and industry. Peninsula College awards the Associate of Applied Arts degree for completion of a program of study in a vocational-technical field.

The college has limited vocational-technical offerings at the present time, but plans to make some essential additions as the college becomes more established and has time to reflect the occupational needs of the community.

Fees

(Annual student cost for Washington residents)

General Fees	$135.00

For further information write to:

Director of Adult Education
Peninsula College
Grace Street
Port Angeles, Washington

RENTON VOCATIONAL SCHOOL

(Renton)

History and Development

Renton Vocational School was established in 1945 as an outgrowth of the World War II industrial program and is part of the Renton Public School System. It is located in the heart of Renton. It is presently housed in three temporary buildings for the day program. The evening program which is also conducted during the day for shift workers, makes use of both the high school facilities and vocational school facilities.

Future plans are to expand the present program to include a full-time 2-year post-high school program aimed at preparing the student for employment in trade and industrial business and service occupations. The expanded school will be established under the name Renton Technical Institute and will have a valuation of one and one-half million dollars.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student*
Full time	4	45

Renton's program has been, mainly, adult extension courses for employed workers, representing one of the largest adult education programs in the State. Immediate future plans include expansion of the program into the day preparatory vocational-technical area.

Fees

Fees range from $18 to $90 per year.

For further information write to:

Director of Vocational Education
Renton Vocational School
1220 4th Avenue North
Renton, Washington

SEATTLE PUBLIC SCHOOLS

Adult-Vocational Division

History and Development

Seattle Public Schools Adult-Vocational program began in 1903 with less than two hundred students. Today it houses thousands of students in eleven major locations throughout the city. Main locations are at Edison Technical School, Holgate Technical School and branches. Rapidly expanding demands for adult and vocational education have been recogized by the Seattle School Board, which in 1962 authorized the acquisition of about 25 acres of land on Seattle's Beacon Hill as the site for a future post-high school adult and vocational facility.

Instructional Program

Classes are offered in thirty trades, business education, distributive education, homemaking, family life, general academic, art, crafts, trade extension and apprenticeship. The oldest as well as the largest vocational training center in the State, Seattle offers the only fully-accredited day time four-year high school program for adults, having graduated 363 students in 1961-62. Enrollment is not limited to Seattle residents but is open to others as well, providing an area training opportunity.

The Adult-Vocational Division cooperates closely with labor, business, and management, and, through advisory committees, seeks to provide the best possible trade and technical training, anticipating future training needs as well. The up-to-date curriculum is currently reflected in the new data processing courses, for example, ranging from beginning key punch operation to advanced programming, using an electronic computer.

In the trade areas and business education, satisfactory completion of a course of study entitles a student to a Certificate of Proficiency. The Certificate of Proficiency and six months of successful employment in the field for which he was trained entitles a student in these trades and in business education and distributive education areas to receive a diploma.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Vocational-technical	92	1,900

Student Services

Eligibility to enter the program is determined by the results of an evaluation of personal interviews, tests, previous educational records and other pertinent information. Day and evening vocational guidance services are available to prospective students as well as to those already enrolled. For much of the program, registration is conducted on a quarterly basis. For some classes, registration is continuous, with new students admitted as openings occur. The Adult-Vocational Division of Seattle Public Schools maintains a comprehensive testing and placement program and also uses the cooperative testing services of the Washington State Employment Service. Through these services, students are helped to discover their abilities and aptitudes and, after training, are helped to find suitable employment.

Fees

No tuition charge is made by the Adult-Vocational Division of Seattle Public Schools, although there is a nominal fee for enrollment. No additional fee is charged for non-residents.

For further information, write to:

Adult-Vocational Education Division
Seattle Public Schools
815 Fourth Avenue North
Seattle 9, Washington

SKAGIT VALLEY COLLEGE

(Mount Vernon)

History and Development

Skagit Valley College, located in Mount Vernon, was established in 1926. In 1955, a thirty-five-acre site was purchased for a permanent campus. The science building was built in 1958, and by 1959 the campus was complete with new classrooms, shops and laboratories. Additional new facilities now in the planning stage consist of a library and vocational-technical facilities which will be located on an adjacent 10-acre site purchased in 1962.

Instructional Program

Vocational-terminal preparatory programs are provided in such fields as agriculture, secretarial science, clerical training, civil engineering technology, practical nursing, electronics technology, power mechanics and mid-management.

A junior college diploma is issued to those students satisfactorily completing a two-year program. Night school classes are offered in additional technical-vocational areas. Pre-professional training is also a vital part of the total curriculum.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	54	840
Vocational-technical	8	160

Student Services

Students participate in an active and directed activities program which includes club memberships, music groups, dramatics, sports, and social programs.

Fees

(Annual student cost for Washington residents)

General Fee	$120.00
Fixed Fees (ASSVC fee) charged to all students	36.00
	$156.00

For further information write to:

Director of Admissions
Skagit Valley College
Mount Vernon, Washington

SPOKANE TECHNICAL AND VOCATIONAL SCHOOL

(Spokane)

History and Development

The Spokane Technical-Vocational program had its origin in 1922 and apprentice related classes commended in 1935. The program started in North Central High School as a printing vocational course and it grew steadily until the training demands of World War II brought its importance to the front. It was moved to the old Hawthorne Grade School during war time where it remained until construction was completed on the first wing of a new school in 1956. Another unit was constructed in 1958, and the final construction was started in the Fall of 1962 with classes to begin in September, 1963. The complete educational facility, located on a 10½-acre tract will represent an investment in excess of two million dollars.

The vast Inland Empire is the source of students and job placements for this area vocational school. Operated as part of the Spokane Public School System, its opportunities for training are open to all young people at the same low registration fee.

Instructional Program

Students who wish to enroll at the Spokane Technical-Vocational School may satisfy their interests in any of 22 distinctive fields of training. Courses vary in length from one to two years' duration, with certificates awarded upon satisfactory completion of the program.

Prospective students are given aptitude tests and counseled as to their interests and ambitions. They are then assigned to a training program in electronics, commercial art, practical nursing, dental assisting, business education, industrial instrument repair, watch repair, food trades and management, data processing, engineering aides, machine drafting, machine shop, sheet metal, auto mechanics, body and fender repair, printing, auto-diesel, aircraft engine and airframe repair, industrial mechanics and welding, arc and acetylene.

A large evening program is conducted at the Spokane Technical-Vocational School, with specialized classes being organized at the request of groups in various industries. Apprentice related training classes are also conducted under the auspices and guidance of industrial advisory committees. 263 night classes were conducted during the school years 1961-62.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student*
Full time	50	800

Fees

General Fee (per year)	$20.00

For further information write to:

Director of Vocational Education
Spokane Technical and Vocational School
East 3403 Mission Avenue
Spokane 24, Washington

TACOMA VOCATIONAL-TECHNICAL INSTITUTE

(Tacoma)

History and Development

The Tacoma Vocational-Technical Institute had its early beginning in the national defense training program during the years 1940-1945. It is an area training facility and enrollment is not limited to residents of the Tacoma School District.

The total valuation of the Tacoma Vocational-Technical Institute is three and one-half million dollars, which represents one of the largest vocational-technical education centers in the state.

The development of this facility has been made possible by the enthusiastic support and cooperation of labor, management, veteran, and other groups in the community working with the Institute officials. Joint labor-management advisory committees are utilized by the Institute in the operation of the various training programs.

Present plans call for the addition of a third building which will substantially increase the present capacity and also offer a number of new classes. Completion date on this expansion is approximately September, 1965.

Instructional Program

Classes are offered in the trade-technical, business education, distributive education, or home and family life education areas. The regular day program offerings include preparation for employment in twenty-seven different occupational fields.

A certificate of merit is awarded to those who satisfactorily complete a course of study in any of the day preparatory courses.

A diploma is given to those who earn the certificate of merit and complete six months of successful employment in the field for which they were trained.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Full time	60	1,663

Student Services

Entrance eligibility is based on the results of an evaluation of personal interviews, tests, previous educational records and other pertinent information. Complete vocational guidance services are available to the prospective student as well as to those who are currently enrolled.

Fees

(Per year)

Tuition—students 21 years of age and over	$143.50
Students under 21 years of age	No tuition

For further information write to:

Director, Vocational-Technical Education
Tacoma Vocational-Technical Institute
1101 South Yakima Avenue
Tacoma 5, Washington

WENATCHEE VALLEY COLLEGE

(Wenatchee)

History and Development

Wenatchee Valley College was established in 1939. In 1947, the college merged with the Wenatchee School District. The campus is situated on forty-five acres in suburban Wenatchee. A student center building, classroom building, and physical education building were added in 1962, making a total of seven campus-type facilities available.

Instructional Program

Terminal courses of one or two years are offered in secretarial training, agriculture, and practical nursing. There is no distinction between the evening and daytime divisions. Many of the evening courses are identical to those given in the day classes and carry full college credit. Others are designed to fit the needs or desires of a particular group of adults.

Faculty and Student Enrollment

	Faculty	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	35	652
Vocational-technical	4	78

Fees

(Annual student cost for Washington residents)

Fixed Fees charged to all students (full load)	$123.00
Student body fee	33.00
	$153.00

For further information write to:

Registrar or Director of Adult Education
Wenatchee Valley College
1300 Fifth Street
Wenatchee, Washington

YAKIMA VALLEY COLLEGE

(Yakima)

History and Development

Yakima Valley College was established in 1928 and has been under various organizational systems. Since 1947 is has been part of Yakima School District. It is a two-year community college offering a comprehensive program of college transfer courses, terminal courses, and community service activities related to instruction.

The college is located on twenty acres of land adjacent to Larson Park in Yakima. It has a number of buildings including a biological science building, a physical science and business administration building, fine arts building, an agricultural building, including a greenhouse and a shop area. The college has a fine student union center and a separately-housed library. Planning is under way for a terminal vocational facility to increase the college's offerings and to make possible the withdrawal of some college vocational classes from other district facilities. These vocational-technical facilities will have a valuation of seven hundred fifty thousand dollars, will house approximately 500 full-time students and will offer instruction in seven vocational-technical curricula.

Instructional Program

Courses offered at Yakima Valley College are grouped under the following principal instructional divisions:

Social Science Humanities
Biological and Applied Sciences
Physical Science and Engineering
Language and Literature
Physical Education
Business Administration and Economics
Terminal and Vocational Education
Evening Division

From the areas listed above, students may select courses which will constitute a meaningful program of general education, a university-parallel program, or a technical-vocational program. The selection is aided by the guidance and advice of trained expert counselors and by teaching faculty who are assigned the advisement of students under a well-developed program.

Faculty and Student Enrollment

(Fall, 1962)	*Faculty*	*Student (Full Time Day)*
Liberal Arts and pre-professional, lower division	86	1,395
Vocational-technical	4	105

Student Services

A wide variety of extra-curricular student activities is included as part of the college program. This includes such activities as student publications, including a weekly newspaper and a quarterly magazine in lieu of annual, intramural and intercollegiate athletics including football, basketball, track, baseball, skiing, wrestling, tennis, golf, drama, student government, and an increasing number of special interest clubs of various types.

Fees

(Annual student cost for Washington residents)

General Fee	$165.00

For further information write to:

Registrar
Yakima Valley College
South 16th Avenue and Lenox
Yakima, Washington

SECTION II

Description of Trade and Technical occupational training courses, nature of the work and employment outlook in the State of Washington

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TRADE AND TECHNICAL EDUCATION IN WASHINGTON

What is Trade and Technical Education?

Vocational educators must continuously define the role of trade and technical education in order to assure an adequate understanding among educators, counselors, industry and the general public.

Trade and technical education is "occupation-centered education" designed to train or retrain an individual for gainful employment in business or industry, accenting manipulative skills and technical knowledge necessary for satisfactory performance on the job.

In precise terms, the purposes of trade and technical education are:

- -- To complement the public education program and to prepare youth and adults for satisfying and productive employment.
- -- To assist employed workers to achieve greater satisfaction and success in present employment or to advance to more highly skilled jobs.
- -- To provide related instruction for apprentices.
- -- To provide retraining of workers who, due to personal reasons or economic changes, find it necessary to move to new employment.
- -- To assist in the development and improvement of supervisory personnel in all areas served by trade and technical education.
- -- To provide an administrative organization, staff, and facilities which can be expanded rapidly for training in the event of a national emergency.

Trade and technical education has three basic responsibilities:

- -- To help the individual gain marketable skills enabling him to provide better for himself and family.
- -- To provide a trained labor source for the nation's business and industry.
- -- To transmit the basic and new accumulation of technical knowledge and manipulative skills from our work force to each new generation of technicians and craftsmen.

How does Trade and Technical Education Operate?

There is virtually no limit to the kinds of trade and technical education programs which may be offered except by the imagination of the educator, the vocational interests of the students, and the needs of industry. The thirty-eight occupations described in Section II of this publication are the major trade and technical courses presently taught in the State of Washington. For these programs to be most effective for the student and for industry, they are occupationally centered and provide flexibility that will adapt to time, different locations, and special demands and conditions of the community so that the student may enter his chosen occupation in the shortest possible time.

Local advisory committees made up of representatives from labor and industry are required by regulation for each of the programs to ensure that the programs teach what is currently needed for successful employment. The advisory committee to

the school district indicates what occupations need be taught and what the course content should be and recommends those individuals in industry who would be most qualified to teach the different occupations. Basically, in order to qualify, the instructors must have at least three years of recent, full-time employment in industry beyond the learning or apprenticeship period.

These trade and technical programs are taught in shops and laboratories involving equipment that the craftsmen and technicians would use on the job. They average approximately $2,000 worth of specialized industrial tools and equipment per student, and most of the learning simulates processes used in industry so the student will be immediately productive when he enters employment.

A student's typical daily schedule in these trade and technical courses would vary from three to six hours per day in the shop or laboratory on projects pertaining to his occupational objective. In other words, 50% or more of the student's time would be in occupationally centered activity. Approximately 30% of his time might be in directly related courses such as technical drawing, technical math, industrial communications, etc. The remaining 20% of his time might be spent on indirectly related subjects such as economics, industrial relations, and electives. A student usually spends six hours per day in these classes for one or two years.

The real criteria of the effectiveness of these trade and technical programs is the acceptance by employers of the students from these programs and the rate at which these students progress on the job. We are fortunate that the employers in the State of Washington are increasing their recognition of the graduate of these courses as the best trained workers and are seeking out these people as preferred employees.

Why is Trade and Technical Education Necessary?

Unemployment in common labor and unskilled occupations is prevalent in America. At the same time there is a critical shortage of qualified skilled and technical workers. Manpower surveys predict continuing and increasing shortages in the technical occupations, with a correspondingly decreasing demand in the unskilled labor fields. Our technological development is accelerating, constantly and urgently requiring additional skills and knowledge. This technological development has enabled man's productivity to double with each generation. America's survival depends on her ability to train a work force of skilled and technically qualified people.

American industry has gone to the team approach to meet competition and to speed up technical breakthroughs. This industrial team consists of the engineer, technician, and craftsman, and its responsibility is to create ideas and convert them into goods and processes. The technician is the 'pivot' man on this team and has to understand the concept of automation and mechanism so the ideas of the engineers and scientists become a reality.

Quotes from President Kennedy's Panel of Consultants on Vocational Education (1962 - OE Pub. No. 80020)

By 1970, eighty-seven million Americans will be working full time. Fifty-eight million now at work will still be employed--they need training to keep pace with new methods, new materials, new opportunities. Many will require retraining as their jobs disappear due to automation and economic change. Vocational and technical education provide training and retraining. Twenty-six million young workers will start work between 1960 and 1970. Their aptitudes, skills and education must match the needs of changing economy. The eight out of ten who will not complete college must gain occupational competence in other ways. Vocational and technical education prepare youth for employment.

Schools must help these twenty-six million youngsters work their way through the challenging decade ahead. Of every ten youngsters now in grade schools, three will not finish high school. Seven will earn a high school diploma; of these, three will go to work, some as wives and mothers, and four will continue their education. Eight out of ten will not complete college, even though college enrollments will double, and only two will finish four years of college. How will they (the eight) fare in the changing world of work?

AIRPLANE MECHANICS

Airframe Mechanics

(DOT 5-80.120)

COURSE DESCRIPTION: The course constitutes training for a Federal Aviation Agency airframe license. The preparation for the license covers training in rigging and assembly, wood, fabric, finishes, sheet metal, welding and electrical systems. Whenever possible, the training involves work on aircraft being returned to service.

NATURE OF THE WORK: Airframe mechanics work on the plane's fuselage, wings, landing gear, and other parts which are not part of the engine, propellers, or instruments. Specialization as an airframe mechanic with a large firm may limit a mechanic's work to a particular part of the airplane. Disassembling complex airplane components, replacing damaged or worn parts, and assembling and testing the components is a general job description.

EMPLOYMENT OUTLOOK: A moderate increase in the number of airplane mechanics employed is expected during the 60's. However, anticipated rapid growth in business executive flying together with the moderate increase in commercial flying services will contribute to increased employment opportunities. Mechanics employed by the scheduled domestic airlines earned, on the average, $540 a month in late 1960. Other airplane mechanics generally had lower average earnings.

AIRPLANE

POWER PLANT MECHANICS

(DOT 5-80.130)

COURSE DESCRIPTION: The course constitutes training for a Federal Aviation Agency power plant license. Preparation for the license includes training on the maintenance and repair of all types of power plants used for aircraft. Specific course work is concerned with lubrication, ignition, maintenance, propellers, carburetion, and electricity.

NATURE OF WORK: Licensed airframe and power plane mechanics carry the responsibility for all work done in the maintenance and repair of civilian aircraft power plants. One mechanic on small aircraft frequently does the entire servicing job with little supervision, and he works on many different types of planes and engines.

EMPLOYMENT OUTLOOK: Mechanics employed by the scheduled domestic airlines earned, on the average, $540 a month in late 1960. Other airplane mechanics generally had lower average earnings. The number of mechanics employed outside of the scheduled airlines has been increasing rapidly. The FAA reports that the number of approved repair stations which do most of the maintenance and repair work on these airplanes has increased from 376 in 1955 to 700 in the mid-1960's.

SCHOOLS

Complete Training Program:

Edison Technical School
Clover Park Vocational Technical School
Spokane Technical and Vocational School

SOURCES OF INFORMATION

Federal Aviation Agency
c/o Boeing Field
Seattle, Washington

Federal Aviation Agency
U. S. Department of Commerce
Washington 25, D. C.

Aircraft Industries Association of America
610 Shoreham Bldg.
Washington, D. C.

National Aeronautics Association of U. S. A.
1025 Connecticut Avenue, N. W.
Washington 6, D. C.

International Association of Machinists
9th and Mt. Vernon Streets
Washington, D. C.

APPLIANCE SERVICEMAN

(DOT 5-85.043)

COURSE DESCRIPTION: Appliance service training combines practical shopwork experience with related technical knowledge. Theory involves elementary electricity and circuitry, and study of all components used in major domestic electricity and appliances and refrigeration equipment. Related training generally involves developing skill in using test equipment and service manual data.

NATURE OF THE WORK: The work performed by appliance servicemen involves finding why appliances are not operating properly and then installing new parts and/or making adjustments. There is considerable variety in the work, which also includes: driving and maintaining the inventory for service trucks; giving repair estimates; and ordering parts.

EMPLOYMENT OUTLOOK: Employment is expected to grow rapidly during the 1960's. Many new and complex appliances requiring greater maintenance and repair are under development. Average weekly earnings, 1960, ranged from $95-$115, with some highly skilled men earning $125.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Spokane Technical-Vocational School

SOURCES OF INFORMATION

International Brotherhood of
Electrical Workers of America
1200 15th Street N. W.
Washington 5, D. C.

Electrical Dealer
360 North Michigan Ave.,
Chicago 1, Illinois

AUTO BODY REPAIRMAN

(DOT 5-81.520)

COURSE DESCRIPTION: Training in automotive body and fender repairing provides skill in the art of metal straightening, preparation and painting of bodies, concealment of imperfections and welds, replacing of body component and repair panels, estimating, and the proper alignment of all automobile components. Related courses in mathematics, English, and industrial relations further prepare the student for his future.

NATURE OF THE WORK: Body and fender repairmen are specialists who do the shaping, finishing, and replacing of sheetmetal, and repairing or replacing of trim or glass. They may remove dents in automobile bodies and fenders and fill dents with solder. They remove bolts and nuts, and replace damaged parts. Welding breaks in body metal is often necessary to restore the auto body to its original shape.

In larger shops, the shop foreman, service salesman, or service manager generally prepares a cost estimate and tells the mechanic which repairs to make.

EMPLOYMENT OUTLOOK: Most skilled auto mechanics and body repairmen in automobile dealer repair shops are paid a percentage of the labor cost charges to the customer. Each repair job is assigned a fixed labor charge and the most highly skilled mechanics can earn considerably more than the average because they are able to make repairs in less time. Thousands of opportunities are expected to be available each year because there will be a need of additional mechanics to service the growing number of automobiles; retirement and deaths will probably create, on the average, about 12,000 openings each year during the 1960's.

SCHOOLS

Complete training program:

Bellingham Technical School
Clark College
Columbia Basin College
Lower Columbia College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Association of Machinists
1800 Connecticut Avenue North West
Washington 6, D. C.

International Teamsters Union
25 Louisiana Ave., N. W.
Washington 1, D. C.

Automobile Manufacturers' Assn.
320 New Center Building
Detroit 2, Michigan

AUTOMOBILE MECHANICS

(DOT 5-81.000 through .999)

COURSE DESCRIPTION: Training includes practical instruction in all types of maintenance and repair as commonly found in dealer and independent shops. Experience is gained on in-shop repair jobs.

Related technical training includes the principles necessary to proper understanding of the function and operations of a modern automobile and its components.

NATURE OF THE WORK: Automobile mechanics make inspections and tests to determine the causes of faulty operation, and repair or replace defective parts to restore the vehicle to proper operating condition. Typical maintenance and repair jobs done by mechanics are tuning the engine, replacing piston rings, aligning the front wheels, and adjusting or relining the brakes.

EMPLOYMENT OUTLOOK: Thousands of training opportunities are expected to be available each year during the 1960's for young people who want to learn to become automobile mechanics. Expected increases in population, consumer purchasing power, and in the number of families and two-car families will greatly increase the demand for motor vehicles in the 1960's.

Average hourly earnings of skilled automobile mechanics in 61 large communities were more than $2.60 an hour in late 1959 and early 1960.

SCHOOLS

Complete training program:

Bellingham Technical School
Clark College
Clover Park Vocational-Technical School
Columbia Basin College
Edison Technical School
Everett College
Lower Columbia College
Spokane Technical and Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Association of Machinists
1800 Connecticut Avenue North West
Washington 6, D. C.

International Teamsters Union
25 Louisiana Ave., N. W.
Washington 1, D. C.

Automobile Manufacturers Association
320 New Center Building
Detroit 2, Michigan

B A R B E R I N G

(DOT 2-32.01)

COURSE DESCRIPTION: Barber training courses contain related instruction in hygiene, skin and scalp diseases, and sterilization and sanitation. Practical instruction is included in using hand tools for shaving, hair cutting and styling, shampoos, hair tonics and massaging. Training courses prepare students to qualify for state licensing examinations.

NATURE OF WORK: In addition to cutting hair, barbers give hair and scalp treatments, fit hair pieces, and provide customers with other personal services such as shaves, facial massages, and shampoos. Barbers must know all hair styles and be alert to follow customers' wishes on the type of haircut wanted.

EMPLOYMENT OUTLOOK: Expected population growth will create demand for more barbers. Several thousand openings are expected each year for the U. S. Population shift tc suburban communities is expected to give rise to larger staffs and larger shops in these areas. Most full-time barbers earned between $50 and $150 per week during 1960. A barber's earnings depend on the size of the community, shop location and competition.

SCHOOLS

Complete training program:

Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Journeymen Barbers, Hairdressers, Cosmetologists, and Proprietors' International Union of America,
1141 North Delaware Street
Indianapolis 7, Indiana

National Educational Council,
Associated Master Barbers and Beauticians of America
537 South Dearborn Street
Chicago 5, Illinois

BOATBUILDING

(DOT 5-25.610)

COURSE DESCRIPTION: Training in boatbuilding skills includes the various phases of construction of new boats from layout to launching. Additional training in lofting, hull construction, joiner work, outfitting and finishing combine to make the student a productive craftsman. Students receive thorough familiarization with raw materials and manufactured items common to the boatbuilding industry.

NATURE OF THE WORK: Boatbuilders engage in new boat construction, maintenance and remodeling work. Layout, template making, hull set-up and construction are a few of the activities in the boatbuilding trade. New products are being introduced in the lamination and construction of fiberglass boats. The boatbuilding craftsman will use all types of hand and power tools, both stationary and portable.

EMPLOYMENT OUTLOOK: Employment opportunities in boatbuilding are expected to continue to increase rapidly. Pleasure craft and commercial boats are crowding the nation's waterways. Average hourly wage for skilled boatbuilders during 1960 was from $3.25 to $4.25.

SCHOOLS	SOURCES OF INFORMATION
Complete training program: Edison Technical School, Seattle Tacoma Vocational-Technical Institute	Shipwrights & Joiners Local 1184 (Loftsman-Shipwrights-Joiners-Boat-builders and Millmen) 2415 Western Avenue Seattle, Washington

CABINET AND MILLWORK

(DOT 4-32.100)

COURSE DESCRIPTION: Training in cabinet making and millwork includes both practical work experience and related technical knowledge to prepare the trainee for this field.

The related technical training includes the principles necessary to the proper understanding of the function and operation of modern equipment and its relation to the industry. The practical instruction is in all types of maintenance and construction as commonly found in the cabinetmaking field. This experience is gained by performance of actual jobs in the shop.

NATURE OF THE WORK: Cabinetmakers and millworkers perform the hand operations together with the utilization of such woodworking machines as are necessary to cut, shape and assemble prepared parts of furniture, store fixtures and office equipment.

Also, installation of hardware such as hinges, catches and drawer pulls may occur on production jobs and on special orders.

EMPLOYMENT OUTLOOK: An anticipated increase in the 1960's in construction activity is expected to provide thousands of job opportunities during this period. Average hourly wage rates for journeymen during 1962 were approximately $3.00 in metropolitan areas. Work is not seasonal nor is it hazardous to the careful worker.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Associated General Contractors of America, Inc.
1957 "E" Street North West
Washington 6, D. C.

National Association of Home Builders
1625 "L" Street North West
Washington 6, D. C.

United Brotherhood of Carpenters and Joiners of America
101 Constitution Avenue
Washington 1, D. C.

C A R P E N T E R S

(DOT 5-25.110 through .840)

COURSE DESCRIPTION: Training is concerned with care and handling of tools, machines, equipment and materials used in the trade. Knowledge of structural design and familiarization with the common systems of frame and form construction is supplemented by related training in drafting and blueprint reading.

NATURE OF THE WORK: Carpenters are engaged in nearly every type of construction activity. Skilled carpenters are able to do both "rough" (frameworks, subflooring, rafters) and "finish" (interior trim) carpentry. Specialization is common in large cities. Some carpenters specialize in installing acoustic panels; others in the installation of millwork and finish hardware, laying hardwood floors or building stairs.

EMPLOYMENT OUTLOOK: An anticipated increase in the 1960's in construction activity is expected to provide tens of thousands of job opportunities during this period. Average hourly wage rates during 1960 were $3.86 for journeymen. Some aspects of carpentry are seasonal.

SCHOOLS

Complete training program:

Bellingham Technical School
Edison Technical School, Seattle
Everett College
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Associated General Contractors of America, Inc.
1957 "E" Street North West
Washington 6, D. C.

National Association of Home Builders
1625 "L" Street North West
Washington 6, D. C.

United Brotherhood of Carpenters and Joiners of America
101 Constitution Avenue
Washington 1, D. C.

COMMERCIAL ARTIST

(DOT 0-44 & 0-81.04)

COURSE DESCRIPTION: Training is designed to equip the student as a beginning commercial or advertising artist, with a thorough foundation in the field. Specific training is offered in advertising theory, design, and composition; merchandise rendering, color; media; drawing for reproduction; and in package and post design.

NATURE OF WORK: Advertising and commercial artists are employed by many different kinds of organizations. Artists and layout men work closely with advertising managers, copywriters, and other advertising personnel in planning advertisements.

Some artists, as layout men, carry out art projects, planning the selection and arrangement of illustrations and lettering and determine color and other elements of design. Other artists work as letterers or as illustrators who make sketches and drawings.

EMPLOYMENT OUTLOOK: The volume of advertising is expected to rise during the 1960's because of growth in industry, products, services, and due to increased competition.

Starting salaries for inexperienced commercial artists during 1960 was between $50 and $80 per week. After several years qualified artists earned between $100 and $125 per week. Free lance artists have an opportunity for considerably high earnings.

SCHOOLS

Complete training program:

Clark College
Olympic College
Spokane Technical and Vocational School
Edison Technical School

SOURCES OF INFORMATION

National Society of Art Directors
115 East 40th Street
New York 16, New York

National Association of Schools of Art
50 Astor Place
New York 3, New York

Advertising Federation of America
655 Madison Avenue
New York 21, New York

Artists Guild Inc.
129 East 10th Street
New York 3, New York

COMMERCIAL PHOTOGRAPHY

(DOT 0-56)

COURSE DESCRIPTION: Training includes instruction in the skills and techniques used in the photographic crafts. The course involves basic and advanced instruction in the utilization of cameras, lighting, exposure meters and other equipment together with the acquiring of a knowledge of chemistry for photographers.

NATURE OF THE WORK: Professional photographers may either specialize in one kind of work or engage in almost all kinds of photography. The most common photographic specialties are portrait work, commercial photography, and industrial photography. Portrait photographers work mostly in their own studios, though they sometimes go to people's homes or other places to take pictures. Commercial photographers generally take pictures for use in advertising real estate, furniture, food, apparel, and other items. Industrial photographers take pictures that are used in company publications and for advertising company products or services.

EMPLOYMENT OUTLOOK: Employment opportunities are expected to be favorable through the mid-1960's for talented and well-trained photographers.

A moderate increase in employment of photographers is expected, with the growth in population.

Beginning photographers generally earned from $60 to $80 per week in mid-1960. Most experienced photographers in the Federal Government earn $4,345 or more a year; only a few earn over $10,000 annually.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Everett College
Clark College
Spokane Technical and Vocational School

SOURCES OF INFORMATION

Information about photography as a career, as well as a list of schools of photography is available from:

Professional Photographers of America, Inc.
152 West Wisconsin Avenue
Milwaukee 3, Wisconsin

National Association of Photo Lithographers
317 West 45th Street
New York 19, N. Y.

C O S M E T O L O G I S T

(DOT 2-32. 11 through . 31)

COURSE DESCRIPTION: Training includes all phases of the field of beauty culture: shampoos and rinses, scalp treatments, manicuring, haircutting, facials and additional related skills. Classroom training involves beauty salon management and legal aspects of the work. Practice on mannikins and other students begins the practice experience. At the completion of training, students are prepared to take state licensing exams.

NATURE OF THE WORK: Most beauticians provide their customers with a variety of services, largely related to the care of the hair. They give permanent waves and cut, style, shampoo, set, straighten, bleach, dye or tint the hair. Beauticians may also perform related services concerned with make-up and appearance. General duties of a beauty operator may occasionally include making appointments; cleaning the shop, equipment, and furniture; and sterilizing implements.

EMPLOYMENT OUTLOOK: Employment is expected to continue expanding to meet the needs of a growing population. Between 1954 and 1958, Bureau of the Census reports the number of beauty and barber shop combinations increase at 40%. It is difficult to estimate the basic wage of a beginning beautician because of the great variation in salary arrangements. Some estimates placed the basic wage in 1960 at about $50 a week. Expert operators in exclusive shops earn considerably more.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Everett Junior College
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

State Board of Cosmetology
Professional Division
Olympia, Washington

National Association of Cosmetology Schools
3839 White Plains Road
New York 67, N. Y.

National Hairdressers and Cosmetologists, Association
175 Fifth Avenue
New York 10, N. Y.

Beauty Career Council
420 Madison Avenue
New York 17, N. Y.

DATA PROCESSING

Key Punch Operators

(DOT 1-25.62)

COURSE DESCRIPTION: Key Punch training includes student orientation and familiarization with the role Key Punch plays in the total data processing operation. Trainees receive instruction on the Key Punch keyboard which stresses the development of speed and accuracy. The course generally includes training in the operation of the IBM 024 and 026 Key Punch machines and in the operation of the 056 verifier, together with training in Basic Key Punch and Alternate Key Punch Programming.

NATURE OF THE WORK: Key Punch operators record data in the form of punched cards for use by the Data Processing machines. Using a punch machine similar in operation and action to a typewriter, the operator transcribes written information into perforations on the tabulating cards.

EMPLOYMENT OUTLOOK: Thousands of job opportunities are presently available for qualified Key Punch operators. The demand for women in this industry far exceeds the supply. Approximate monthly earnings average $300. Experienced operators earn a slightly higher wage.

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Machine Operators

(DOT 1-25.63) Sorters
(DOT 1-25.64) Tab Operators
(DOT 1-25.66) Verifier

COURSE DESCRIPTION: Training as a machine operator begins with introduction and orientation to data processing and is followed by familiarization with IBM Punched Card Accounting. Training in theory and application is complemented with laboratory experience in wiring and operating such equipment as IBM accounting machines, collators, reproducers and sorters.

NATURE OF THE WORK: Data Processing machine operators wire and operate the data processing machines used in automated offices. Machine operators follow written procedures and flow charts drawn up by systems analysts responsible for developing over-all work flow process.

EMPLOYMENT OUTLOOK: Employment opportunities for qualified operators are excellent. Competition is keen for top jobs. Beginning tab operators during 1962 averaged $350-$400 per month. Experienced operators, skilled in the several machines averaged between $550 and $600.

Computer Programmers

COURSE DESCRIPTION: Training in computer programming includes introduction and orientation to the function of the IBM 1620 Data Processing System and study of basic programming. Case studies, exercises, and programming drills are reinforced by laboratory sessions. Advanced training includes the IBM 1401. Skills developed in using Tapes and Ramac are background for study of large scale computer systems and stored data programs.

NATURE OF THE WORK: Computer Programmers develop detailed plans and procedures and convert them into machine usable form for the effective use of Data Processing machines. Testing, debugging and supervising operation of equipment programmed to automate routine office and clerical functions, generally constitutes the Programmer's activities.

EMPLOYMENT OUTLOOK: Thousands of job opportunities for qualified programmers are expected to occur during the 1960's. Salaries are open as the competition for qualified personnel is severe. Industry recognizes a critical shortage of trained personnel. It is estimated that, between now and 1970, an annual average of 500 computer programmers will be needed in the State of Washington. Opportunities will continue to increase in business, industry and science.

SCHOOLS

Complete training program :

Centralia College
Clark College
Columbia Basin College
Clover Park Vocational-Technical School
Edison Technical School
Everett Junior College
Olympia Vocational-Technical Institute
Olympic College
Spokane Technical and Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Write to the particular school.

International Business Machines Corp.
590 Madison Avenue
New York 22, N. Y.

Business Equipment Mfgrs. Assn.
235 E. 42nd St.,
New York 17, N. Y.

Data Processing Management Assn.,
524 Busse Highway
Park Ridge, Illinois

DENTAL ASSISTANTS

(DOT 1-32.10)

COURSE DESCRIPTION: Training is directed toward the development of skills in the techniques of chairside assisting, dental office managment, dental X-ray and dental laboratory assisting. Related instruction includes dental hygiene, dental pathology, oral micro-biology, and applied psychology.

NATURE OF THE WORK: Persons employed as dental assistants have duties which include chairside assisting, laboratory, X-ray assisting, and receiving and dismissing patients. Dental assistants are employed in private offices, clinics and specialty practices. Receptionist, secretary and bookkeeping activities are daily experiences.

EMPLOYMENT OUTLOOK: Salaries are comparable to those of secretaries. Average weekly wage rates varied during 1960 between $75 and $85. Employment is expected to grow in response to population increases and increasing use of dental services.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Spokane Technical-Vocational School
Tacoma Vocational-Technical Inst.

SOURCES OF INFORMATION

American Dental Association
Council on Dental Education
222 East Superior Street
Chicago 11, Illinois

American Dental Assistants' Assn.
410 First National Bank Bldg.,
LaPorte, Indiana

DIESEL MECHANICS

(DOT 5-83.931)

COURSE DESCRIPTION: Training courses for students include the fundamental principles of the diesel engine combined with sufficient practical application to provide the future technicians with entry level occupational skills in the service, development and testing of diesel engines.

NATURE OF THE WORK: Diesel mechanics service diesel-powered equipment such as bulldozers, trucks, tractors and heavy-duty road building equipment. In addition to engine maintenance and repair, diesel mechanics may also work on brake and steering systems of diesel-powered equipment. Specialized training is necessary for mechanics who repair the larger engines, such as those used to run locomotives or electric generating equipment in industry.

EMPLOYMENT OUTLOOK: For a number of reasons the use of diesel engines as a source of power will increase: (1) industries using diesel engines will expand their activities; (2) the construction of the vast highway system will require large numbers of additional diesel-powered bulldozers, cranes and other construction machinery; (3) farm mechanization will continue; (4) the number of diesel-powered trucks and buses will increase; (5) diesel-powered taxicabs have come into limited use. Average hourly wage rate for diesel mechanics during 1960 ranged from $2.35 to $2.80.

SCHOOLS

Complete training program:

Clark College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Association of Machinists
1800 Connecticut Avenue North West
Washington 6, D. C.

International Teamsters Union
25 Louisiana Avenue N. W.
Washington 1, D. C.

Diesel Engine Mfgrs' Assn.
1 North LaSalle Street
Chicago 2, Illinois

D R A F T S M A N

(DOT 0-48)

Draftsmen specialize in some particular field of work. The largest field are mechanical, electrical, electronics, aeronautical, structural, and topographical drafting.

Mechanical and Fngineering Drafting

COURSE DESCRIPTION: Training in drafting related to engineering involves developing skills in using drafting techniques and provides practice with applied mathematics. A working knowledge of manufacturing methods, processes and materials complements the program.

Use and care of drafting instruments together with training in the theory of orthographic projection is stressed.

NATURE OF THE WORK: Draftsmen are employed according to the specialization of work performed such as electrical, mechanical or structural. Generally, their job is to transform plans into precise drawings, usually called layouts.

EMPLOYMENT OUTLOOK: As the engineering and scientific occupations grow, more draftsmen will be required. Industries employing most draftsmen are expected to expand further. With the increasing complexity of industrial occupations, plans and blueprints will become more involved requiring well-trained draftsmen.

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Architectural Drafting

(DOT 0-48. 05)

COURSE DESCRIPTION: Training in drafting related to architecture also involves developing general drafting skills.

Advanced training in knowledge and use of materials, building codes, structural tolerances and utilization of manuals and reference data complements basic training.

NATURE OF THE WORK: Plans architectural and structural features of buildings and like structures; sketches designs and details using drawing instruments. Makes engineering computations involved in the strength of materials, beams and trusses and estimates quantities needed and computes project costs.

EMPLOYMENT OUTLOOK: With the increasing complexity of industrial operations, design problems will become more and more involved, adding to the need for well-trained draftsmen.

Junior draftsmen averaged about $90 per week in 1960; lead draftsmen $146. Persons with post high school training or experience received higher starting salaries.

SCHOOLS

Complete training program:

Clark College
Columbia Basin College
Edison Technical School, Seattle
Lower Columbia College
Olympic College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

American Federation of Technical Engineers
900 "F" Street North West
Washington 4, D. C.

American Institute for Design and Drafting
18455 James Couzens Highway
Detroit 35, Michigan

DRYCLEANING

(DOT 5-57.110-12)

COURSE DESCRIPTION: Training includes waiting on customers, in addition to actual experience in cleaning, spotting, wet cleaning and inspection.

Related training in theory and study of fabrics utilizing National Institute of Dry Cleaning bulletins and texts, complements the course.

NATURE OF THE WORK: Operating dry-cleaning machines, receiving and sorting garments, determining appropriate cleaning fluids and removing spots from fabrics worn or displayed constitutes the nature of the work of the drycleaner.

Independent businessmen and small businesses generally expect persons to be versatile.

EMPLOYMENT OUTLOOK: Because of the presence of cleaning plants everywhere, the skilled craftsman is assured of employment wherever he moves about the country.

Average weekly wage for drycleaners in Seattle in 1962: Counterman, $79, Presser, $89, Spotter, $99.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Everett College

SOURCE OF INFORMATION

Seattle Laundry Workers and Dry Cleaners Union, Local #24
522 Denny Way
Seattle, Washington

National Institute of Dry Cleaning
909 Burlington Avenue
Silver Spring, Maryland

Laundry and Cleaners Allied Trades Association
95 Liberty Street
New York 6, N. Y.

ELECTRICIAN

(DOT 4-97.010) Construction Electricians
(DOT 4-97.420) Maintenance Electricians

COURSE DESCRIPTION: Training is designed to prepare the individual for employment as a beginning electrician, which normally leads into apprenticeship. Students receive both practical shop work experience and related technical knowledge to prepare them for this field.

Related technical training includes theory related to understanding the functions and operations of various electrical devices, together with code practices involved in the installation of services and devices.

Course work in algebra, trigonometry, physics, electricity and basic science provides a comprehensive background for acquisition of technical knowledge.

NATURE OF THE WORK: Construction electricians perform the various tasks related to electrical work on construction projects. They layout, assemble, install, and test electrical fixtures, apparatus, and wiring used in electrical systems. These systems are used to provide heat, light, power, air conditioning, and refrigeration in residences, office buildings, factories, hospitals, schools, and other structures.

Maintenance electricians (electrical repairmen) are skilled craftsmen who are responsible not only for the maintenance and repair of many different types of electrical equipment, but also for the modernization of such equipment to increase its efficiency. Equipment worked on by these skilled workers includes motors, transformers, generators, circuit breakers, controls, and lighting equipment used in industrial, commercial, and public establishments.

EMPLOYMENT OUTLOOK: Employment is available in the following areas: Inside Wireman, which embraces the following categories: (a) residential, (b) industrial, (c) construction; marine wireman, employed in the various shipyards in the area; motor shops, employed as a motor-winder and allied work; manufacturer's shop, construct switchboard panels, switches, etc.; utilities: City Light, Puget Sound Power & Light, and Bonneville Power Administration.

Over the 1960-1970 decade, the number of construction electricians is expected to rise rapidly at a faster rate than employment in most of the other skilled building trades.

In general, the earnings of maintenance electricians compare favorably with those of other skilled craftsmen.

Union minimum hourly wage rates for electricians averaged $4, as of July 1, 1960, according to a national survey of building trades workers in 52 large cities.

SCHOOLS

Complete training program:

Clark College
Edison Technical School, Seattle
Lower Columbia College
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Brotherhood of
Electrical Workers
1200 -125th Street North West
Washington 5, D. C.

National Association of Home Builders
1625 "L" Street North West
Washington 6, D. C.

National Electrical Contractors
Association
1220 - 18th Street North West
Washington 6, D. C.

National Joint Apprenticeship and
Training Committee for the Electrical
Industry
1200 - 18th Street North West
Washington 6, D. C.

ELECTRONICS TECHNICIANS

Industrial Electronics

(DOT 0-67)

COURSE DESCRIPTION: Training includes the fundamentals of electricity, magnetism, vacuum tubes, semi-conductors, transistors, basic and advanced circuitry, and complex equipment that are used to provide information about and the control of machines. Servo-mechanisms, computer fundamentals, radio control systems, automatic control devices, medical electronics, electronic heating devices, and magnetic tape for recording and reproduction are generally included in the course.

NATURE OF THE WORK: Persons employed in this field do installation, maintenance, calibration, and operate a variety of electronic control systems. They also use highly technical test and calibrating instruments.

EMPLOYMENT OUTLOOK: Jobs in industrial electronics are to be found in manufacturing, research laboratories, automated industries, government services, armed forces, hospitals and medical clinics, and telemetering. Industrial electronics is oneof Washington State's largest and fastest growing technician occupations. The average starting wage, after two years of training, is between $5,000 and $7,000 a year.

Communications Electronics

COURSE DESCRIPTION: Courses include the fundamentals of electricity, magnetism, vacuum tubes, semi-conductors, transistors, basic and advanced circuitry, and training in complex types of modern communications equipment. Generally, two-way communications training includes microwave techniques and shop practice.

NATURE OF THE WORK: Communications technicians work with AM, FM, TV, fixed and mobile two-way communications equipment, and test and calibrate instruments. Additional activities include live camera operation and magnetic tape recording and reproduction.

EMPLOYMENT OUTLOOK: Two-way communications are expanding and creating new job opportunities. Also, jobs can. be found in the government services, armed forces, manufacturing, research laboratories, two-way communications used by a variety of industries, and the radio and television broadcast companies in the field of entertainment and education.

Airline Electronics

COURSE DESCRIPTION: Training includes the fundamentals of electricity, magnetism, vacuum tubes, semi-conductors, transistors, basic and advanced circuitry, and complex equiment that are used for two-way communications, navigational aids, and landing aids, radio and radar control systems, servomechanisms, computers, FCC licensing, microwave, and measuring and testing instruments.

NATURE OF THE WORK: Persons employed in this field do installation, maintenance, calibration, and operate a variety of electronic measuring and control systems. They also use highly technical test and calibrating instruments.

EMPLOYMENT OUTLOOK: Employment opportunities in airline electronics will continue to expand as the world becomes more airborne. Electronics is vital to the safety of aircraft and new developments will continue to increase the number of technicians needed.

Electronics Technicians (cont.)

Service Electronics

COURSE DESCRIPTION: Training includes the fundamentals of electricity, magnetism vacuum tubes, semi-conductors, transistors, basic and advanced circuitry, and complex equipment that are used in high fidelity and stereophonic sound, black and white and color television, radios, automatic control devices for the home, magnetic tape recorders and players, automatic record changers, and test and calibrating instruments. Customer relations and the techniques of satisfying the customer are included in the course.

NATURE OF THE WORK: Work performed by appliance servicemen involves finding why appliances are not operating properly and then installing new parts or making adjustments. The work has considerable variety. Driving maintenance trucks, giving estimates on repair costs and ordering and installing parts are some of the activities.

EMPLOYMENT OUTLOOK: Employment opportunities in service electronics are with music and appliance wholesalers, music and appliance retail dealers, manufacturer's field technical representatives, independent electronics service companies, and automotive radio service companies. Employment opportunities will be good during the 1960's. A few thousand job openings probably will become available each year. Most of these openings will occur because of the growing number of electronic products in the home.

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In general, a technician's earnings depend upon his education, his technical specialty, and his work experience. Other important factors which influence his earnings are the type of employer for whom he works, the kind of work he does, and the geographic location of his job.

Starting salaries for the majority of post-secondary technical school graduates ranged from $4,500 to $6,500 a year in 1960.

Most of the graduates earn between $6,000 and $10,000 a year, after about five years of experience.

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SCHOOLS

Complete training program:

Bellingham Technical School
Centralia College
Clark College
Clover Park Vocational-Technical School
Columbia Basin College
Edison Technical School
Everett Junior College
Lower Columbia College
Olympia Vocational-Technical Institute
Olympic College
Skagit Valley College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Brotherhood of Electrical Workers
1200 15th St. N. W.
Washington 5, D. C.

Technical Institute Division, American Society for Engineering Education
University of Illinois
Urbana, Illinois

National Council of Technical Schools
1507 "M" Street North West
Washington 5, D. C.

National Joint Apprenticeship and Training Committee for the Electrical Industry
1200 - 18th Street North West
Washington 6, D. C.

ENGINEERING AIDES

(DOT 0-48)

COURSE DESCRIPTION: Training includes extensive preparation in related information and the techniques of drafting technology. In addition to training in designing and technical drawing, the aide (technician) receives training in engineering theory together with specialized knowledge of materials, machines and processes of production and/or testing. Training in the use of engineering handbooks and computing devices and instruments is generally included in the course.

NATURE OF THE WORK: The engineering aide (technician) does the routine engineering work which is of a practical rather than a theoretical nature. Aides often serve as the liaison between the planning engineer and the production personnel responsible for development of ideas into finished products. Frequently, technician jobs require use of complex electronic and mechanical instruments, experimental laboratory apparatus, drafting instruments, and an understanding of tools and machinery.

EMPLOYMENT OUTLOOK: Job opportunities are expected to increase rapidly during the 1960's, as scientists and engineers deal with ever increasing amounts of knowledge. From two to six technicians are expected to be required for each scientist or engineer. Most technical school graduates earn between $6,000 and $9,000 a year, after about five years experience.

SCHOOLS

Complete training programs:

Bellingham Technical School
Centralia College
Clark College
Columbia Basin College
Edison Technical School
Everett College
Highline College
Lower Columbia College
Olympic College
Skagit Valley College
Spokane Vocational-Technical School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

American Institute of Electrical Engineers
33 West 39th Street
New York City, N. Y.

Technical Institute Division, American Society for Engineering Education
University of Illinois
Urbana, Illinois

National Council of Technical Schools
1507 "M" Street North West
Washington 5, D. C.

Engineers Joint Council
29 West 39th Street
New York 18, N. Y.

FOOD SERVICE & RESTAURANT WORK

(DOT 2-26.32) Cooks and Chefs
(DOT 2-26.40 through .49) Dining Car Chefs

COURSE DESCRIPTION: Courses for cooks include study in the use and care of equipment; food standards - selection, preparation, and service of food and determining the size of servings; proper sanitation procedures--including the public health aspects of food handling; cooking methods, such as broiling and use of steam; and in the preparation of special dishes, such as soups, salads, and garnishes, or such egg dishes as souffles and meringues.

NATURE OF WORK: In large restaurants, several cooks may be employed, each a specialist in preparing a particular type of food--soups, meats, vegetables, sauces, pastries, or ice cream. Most small restaurants have only one cook, perhaps assisted by one or two helpers, who prepares all the food. To assist cooks, many large restaurants employ pantrymen or salad makers who prepare and mix ingredients for salads, certain desserts, and some other types of food. Dining car cooks prepare the meals served on trains. There may be from one to four cooks in a dining car kitchen, depending on the size of the kitchen and the number of customers expected.

EMPLOYMENT OUTLOOK: Thousands of openings in restaurant occupations are expected each year through the mid-1960's. Although many new jobs will be created by the growth of the restaurant business, most openings will result from turnover. Chefs generally earn from $5,000 to $15,000 annually, depending upon their training and experience. Some chefs whose reputations are well known receive more than $25,000 a year.

COMMERCIAL BAKING

(DOT 4-01.100) (GATB Profile GPQF)

COURSE DESCRIPTION: Training in commercial baking generally includes the making of breads and pastries for retail distribution and for consumption in the restaurant and cafeteria. Pastry making is often a part of the commercial baking course. Practical training includes making bread doughs, sweet goods, pastries, rolls, cookies, French pastries, cakes, etc. There is related training in sanitation, hygiene. Although a graduate may enter any one of the many special jobs in the baking industry, training prepares the student as an all-round baker.

NATURE OF THE WORK: Bakeries are highly mechanized today, requiring much less hand operation. In small bakeries, all-round bakers assisted by helpers usually carry through all the steps needed to turn out finished baked products. Large bakeries employ all-round bakers as working foremen in charge of one or more operations. These workers supervise the men and machines in their department and coordinate their activity with the work in other departments in order to meet production schedules.

EMPLOYMENT OUTLOOK: Total employment in the baking industry is expected to grow slowly during the 1960 decade as the demand for baked foods increases. Earnings of production workers in the baking industry averaged $89.06 a week, or $2.21 an hour, in 1960.

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DINING ROOM SERVICE

(DOT 2-27.01 through .12)
(DOT 2-27.95)

DINING CAR

COURSE DESCRIPTION: Training in this course prepares the student to become a waitress, hostess, cashier, waiter, or headwaiter. Practical restaurant experience includes table service, serving the customers, taking customers' orders, and placing the order in the kitchen. Other training includes preparing the service area and its cleaning, interpreting the menu, and taking cash. Related training includes safety, sanitation, hygiene, relations with fellow employees and the customer.

NATURE OF THE WORK: Waiters and waitresses spend most of their time taking orders, serving food, making out checks and sometimes collecting payments. Cooks and bakers are responsible for the preparation of food in large quantities. Few fields of endeavor offer the variety of positions in as many kinds and locations as does the food service industry--the fourth largest in the country, and second in the State of Washington.

EMPLOYMENT OUTLOOK: Over the long run, employment in this occupation is expected to rise fairly rapidly, as the restaurant business expands. Total earnings in this occupation depend not only on wages, but also on tips, which may comprise a high proportion of earnings. In 1959, wages (exclusive of tips) for unionized waiters and waitresses ranged from about $6 per 8-hour day in one midwestern city to about $12 a day in a West Coast city

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SCHOOLS

Complete training program:

Bellingham Technical School
Clark College
Columbia Basin College
Edison Technical School
Spokane Technical and Vocational Institute
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Education Director, National Restaurant Association
1530 North Lake Shore Drive
Chicago 10, Illinois

Hotel, Restaurant Employees and Bartenders International Union
525 Walnut Street
Cincinnati 2, Ohio

The National Council on Hotel and Restaurant Education
Box 7727 Benjamin Franklin Station
Washington 4, D. C.

American Bakers Association
20 North Wacker Drive
Chicago 6, Illinois

GENERAL OFFICE PRACTICE

(1-33.0)
(1-37.36)
(1-37.32)

COURSE DESCRIPTION: Training varies with the nature of the work the student anticipates. Secretarial courses and stenographic courses generally include work in typing and shorthand. Some knowledge of bookkeeping, business English and business law are considered of value to the student. Complete training courses with emphasis on machine operation or accounting are also available.

NATURE OF THE WORK: Persons employed in small offices may be expected to perform a variety of skills such as taking dictation and composing copy, answering telephones and recording information, managing or posting to accounts receivable and as many routine and specialized operations as may be unique to the particular job description. In larger offices, employees generally specialize in a phase of the total work flow.

EMPLOYMENT OUTLOOK: The National Office Management Association Survey, 1961, stated that during 1962, there would be 28,000 office workers hired in the Seattle area due to new positions and replacements. Average monthly salaries for secretaries ranged from $386 to $481. Clerks, machine operators, and typists, earned somewhat less. Accounting clerks ranged from $429 to $472 during the same period.

SCHOOLS

Complete training program:

Centralia College
Clark College
Clover Park Vocational-Technical School
Columbia Basin College
Big Bend Community College
Everett College
Highline College
Lower Columbia College
Olympia Vocational-Technical Institute
Olympic College
Grays Harbor College
Peninsula College
Skagit Valley College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute
Wenatchee Valley College
Yakima Valley College

SOURCES OF INFORMATION

Employment Opportunities for Women
(Women's Bureau Bulletin 263, 1957)
Superintendent of Documents
Washington 25, D. C. (Price 20¢)

National Office Mana

Employment Opportunities for Women
(Women's Bureau Bulletin 263, 1957)
Superintendent of Documents
Washington 25, D. C. (Price 20¢)

National Office Management Association
1927 Old York Road
Abington, Pennsylvania

INSTRUMENT CONTROL TECHNICIAN

(DOT 5-83. 971)

COURSE DESCRIPTION: Training is given in instrument theory and is supplemented with practical experience in calibration and servicing gained through operating and maintaining standard laboratory equipment.

Related instruction includes study of temperature, pressure, level, flow, measurement and control of automated industrial processes.

NATURE OF THE WORK: Instrument technicians calibrate instruments to coincide with standard measures, periodically inspect recording instruments, and make minor adjustments to ensure proper functioning.

EMPLOYMENT OUTLOOK: During the 1960's, as existing production processes become automated and as new installations are geared to operate through automatic controls, many technicians are needed to install, maintain and repair controls.

Instruments are becoming more important in industries that manufacture chemicals, petroleum, steel, paper and rubber. They are needed to produce and distribute gas, fuels and electricity. Space satellites and missiles require instruments; scientists, engineers and technicians in laboratories use instruments. All this accounts for the rapid increase of instrument control technicians during the 1960's.

SCHOOLS

Complete training program:

Lower Columbia College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Instrument Society of America
c/o United Electronics Lab
3947 Park Drive
Louisville 16, Kentucky

Federal Committee on Apprenticeship
U. S. Department of Labor
Washington, D. C.

Scientific Apparatus Makers of America
20 N. Wacker Drive
Chicago, Illinois

MACHINIST

(DOT 4-75. 010)

COURSE DESCRIPTION: Machinist training prepares the student for employment as an apprentice machinist. Related instruction is presented in classroom activities and skills are developed through practical shop experience.

In the related portion of the training, the student studies blueprint reading, mechanical drawing, trade mathematics, shop practices, trade terminology, metallurgy shop and machine safety, and types and hardening of metals.

Practical shop instruction includes the learning of proper speeds and the operation and uses of the various types of machine tools, such as: lathes, milling machines, shapers, planners, grinders, power saws, drills, etc. The student also is taught correct use of measuring and bench tools.

NATURE OF THE WORK: The all-round machinist is a skilled metal worker who shapes metal parts by using machine tools and hand tools. He makes standard shop computations relating to dimensions of work, tooling, feeds, and speeds of machining. He uses precision-measuring instruments such as layout tools, micrometers and gauges to measure the accuracy of his work to thousandths of an inch.

EMPLOYMENT OUTLOOK: A skilled machinist has excellent opportunities to advance into other technical jobs in process planning, machine programming, and tooling.

The employment of machinists is expected to increase especially in maintenance shops as industries continue to use a greater volume of complex machinery and equipment.

Average straight time hourly wage of journeymen machinists in metropolitan areas in 1962 was $3 per hour, plus fringe benefits.

SCHOOLS

Complete training program:

Bellingham Technical School
Clark College
Clover Park Vocational-Technical School
Columbia Basin College
Edison Technical School, Seattle
Everett College
Lower Columbia College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Association of Machinists
1800 Connecticut Avenue North West
Washington 6, D. C.

International Union, United Automobile Aircraft and Agricultural Implement Workers of America
8000 East Jefferson Avenue
Detroit 14, Michigan

International Union of Electrical, Radio, and Machine Workers
1126 - 16th Street North West
Washington 6, D. C.

NEEDLE TRADES

(DOT 6-27.016) HAND SPREADERS
(DOT 6-27.054) CUTTERS
(DOT 6-27.530) SEWING MACHINE OPERATORS

COURSE DESCRIPTION: Training in skills identified as cutting room and sewing room occupations includes the basic operations in cutting materials which have been spread to insure maximum fabric utilization. Power sewing machine skills are developed in the art of fashioning button holes, binding and miter, use of power attachments and other features.

NATURE OF WORK: Most work is in factories which manufacture women's and men's clothing, draperies and awnings. Sewing machine operators generally specialize in a single operation such as sewing shoulder seams, attaching cuffs to sleeves, or hemming blouses. The work of a cutter and a maker is frequently combined into the single job of cutter-worker. Cutters operate an electrically-powered knife which cuts through layers of matched cloth.

EMPLOYMENT OUTLOOK: Most production workers in this industry are paid on a piecework basis. Sewing machine operators, hand sewers, and pressers are generally paid on a piecework basis. Cutters are paid either piecework rates or hourly wages, depending upon the practice in the area or shop in which they work. In 1960, the average earnings of production workers in this industry were $55.69 a week or $1.56 an hour.

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Needle Trades (contd.)

EMPLOYMENT OUTLOOK: Demand for apparel in the 1960's will grow substantially and will be the major reason for the rise in employment. The increased need for apparel will be due mainly to clothe our rapidly growing population. Sewing machine operators, hand sewers, and pressers are generally paid on a piecework basis. Cutters are paid either piecework rates or hourly wages, depending upon the practice in the area or shop in which they work. In 1960, the average earnings of production workers in this industry were $55.69 a week or $1.56 an hour.

TAILORING

(DOT 4-26.101 and .201)

COURSE DESCRIPTION: The training for this course includes taking measurements, developing patterns, chopping (cutting), and trimming. Skills are developed in hand sewing, power sewing machine operation, and hand and machine pressing. Fabrication techniques are developed in the construction of all men's outer garments and mannish-tailored women's garments. The busheling (alteration) part of the field is also completely covered.

NATURE OF THE WORK: All-round tailors and dressmakers are able to make a garment from start to finish by hand or by machine. Some skilled tailors who are employed in plants making men's, women's, and children's outer garments may make up sample garments from the designer's specifications. In other plants, they may also perform the duties of designer and pattern-maker. Bushelmen, or alteration tailors, repair defects in finished garments that were rejected by the inspector. Shop tailors perform specialized hand or machine sewing tasks required for making many types of high quality garments.

EMPLOYMENT OUTLOOK: It is expected that the number of workers will increase moderately by 1970. However, most opportunities will occur because of the large numbers of people who will leave the industry. Approximate average hourly earnings for all-round tailors in men's and boy's coats and suits, 1960, was $2.15.

SCHOOLS

Complete training programs:

Edison Technical School, Seattle
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Amalgamated Clothing Workers of America
15 Union Square
New York 3, New York

Clothing Manufacturers Association of U. S. A.
220 Fifth Avenue
New York 1, New York

International Ladies' Garment Workers' Union
1710 Broadway
New York 19, New York

United Garment Workers of America
31 Union Square
New York 3, New York

PAINTERS AND DECORATORS

(DOT 5-27.010 through .920)
(DOT 5-28.100)

COURSE DESCRIPTION: Training includes instruction in color harmony; paint chemistry; estimating costs; and making, mixing, and matching paints. Additional training includes familiarization with materials commonly used in the trade: preparing surfaces; match and mix colors; applying various types of interior and exterior materials; and erecting scaffolding.

NATURE OF THE WORK: One of the painter's important duties is to prepare the surface for painting or decorating. He must be skilled in using painting tools; he must be able to mix paints, match colors and have knowledge of color harmony. He must know the characteristics of different kinds of paints and suitability of their use. He must know how to erect scaffolding including "swing stages" and "bosun chairs".

EMPLOYMENT OUTLOOK: Highly skilled and creative people will probably have good opportunities for employment in the 1960's. Factors that will contribute to this expansion are the growing population, increasing expenditure for home, office, business and plant surroundings and the growing recognition of the value of these services.

SCHOOLS

Complete training program:

Tacoma Vocational-Technical School

SOURCES OF INFORMATION

Brotherhood of Painters, Decorators and Paperhangers of America
217 - 219 North Sixth Street
Lafayette, Indiana

Painting and Decorating Contractors Association of America
2625 West Peterson Avenue
Chicago 5, Illinois

PRACTICAL NURSES

(DOT 2-38.20)

COURSE DESCRIPTION: Training in practical nursing includes the study of personal hygiene, nursing ethics, working relationships, body structure and function, care of infants, care of ill and convalescents. Nutrition, cooking, and nursing procedure, together with practical hospital experience prepares the student for State Board examinations to secure a Practical Nurse License.

NATURE OF THE WORK: Practical nurses assist in the care and treatment of the physically or mentally ill, under the direction of physicians or professional nurses. Their importance on the nursing team has increased over the past decade as they have been utilized more and more to perform many of the less complex nursing tasks, thus freeing professional nurses for more skilled and specialized nursing duties.

EMPLOYMENT OUTLOOK: Throughout the 1960's, employment opportunities for practical nurses should continue to expand rapidly. Factors affecting this rising demand for nursing personnel are the growth in population; increased public interest in good health; new medical discoveries; and the steady uptrend in hospital, medical, and surgical insurance coverage.

SCHOOLS

Complete training program:

Bellingham Technical School
Clarkston Public Schools
Clover Park Vocational School
Grandview Public Schools
Peninsula College
Spokane Technical-Vocational School
Walla Walla Vocational School
Grays Harbor College
Olympic College
Centralia College
Everett College
Lower Columbia College
Skagit Valley College
Columbia Basin College
Edison Technical School, Seattle
Tacoma Vocational-Technical Institute
Clark College
Wenatchee Valley College
Yakima Valley College
Big Bend College

SOURCES OF INFORMATION

National League for Nursing
Committee on Careers
10 Columbus Circle
New York 19, New York

National Association for Practical
Nurse Education and Service
475 Riverside Drive
New York 27, New York

National Federation of Licensed
Practical Nurses
250 West 57th Street
New York 19, New York

PRINTERS

(DOT 4-44 through 49)

COURSE DESCRIPTION: Training generally includes developing basic knowledge and skills in the various phase of the printing trade.

Hand composition, machine typesetting and presswork are laboratory experiences providing practical experience in the field. Also, some training is available in lithographic reproduction.

NATURE OF THE WORK: Although there are several processes used in printing, most job descriptions are located in composition, platemaking, and presswork. Setting type and feeding presses are part of the many and varied activities within the field.

The pressmen's basic duties are "to make-ready" and then tend the presses while they are in operation. "Make-ready" is the most delicate and difficult task, the object is to be sure printing impressions are distinct and uniform.

There are several processes in printing; most job descriptions are located in composition, platemaking and presswork.

EMPLOYMENT OUTLOOK: Many thousands of jobs will be available during the 1960's due to an expected growth in the industry and because of the need to replace persons leaving through retirement and death. All-round craftsmen are employed by small newspapers and in commercial shops. However, most employment opportunities are in one of the areas of specialization listed.

Wages in large cities are somewhat higher than the national average. Wage scales within the various job classifications may vary from $3. to $4. per hour.

SCHOOLS

Complete training program:

Clark College
Spokane Technical and Vocational School

SOURCES OF INFORMATION

American Newspaper Publishers, Assn.
750 Third Avenue
New York 17, New York

Book Manufacturers' Institute, Inc.
25 West 43rd Street
New York 36, New York

Education Council of the Graphic Arts Industry
1411 "K" Street North West
Washington 5, D. C.

Printers (Cont.)

International Brotherhood of Bookbinders
815 - 16th Street North West
Washington 6, D. C.

Lithographers and Printers National Association
1025 Connecticut Avenue North West
Washington 6, D. C.

Printing Industry of American, Inc.
5728 Connecticut Avenue North West
Washington 15, D. C.

Screen Process Printing Association
549 West Randolph Street
Chicago 6, Illinois

RADIO AND TELEVISION BROADCAST TECHNICIANS

COURSE DESCRIPTION: Training in this course provides for employment in the radio and television broadcasting field. Instruction is given in both production and engineering phases.

The engineering phase covers the operation and maintenance of all equipment found in a radio and television station. This phase also includes instruction directed towards Federal Communications Commission licensure.

In the production phases, instruction prepares the student to plan, prepare and produce live radio and television programs.

NATURE OF THE WORK: Radio and television broadcast technicians are employed in broadcasting stations. Their work consists of operating and maintaining transmitting and allied electronic equipment. They also program, develop script, edit news and handle announcing duties of various kinds.

EMPLOYMENT OUTLOOK: Opportunities for employment are excellent. The communications industry is expanding at a rapid rate. This expansion plus the many new developments in this field are creating a continuous demand for adequate trained personnel.

SCHOOLS

Complete training program:

Clover Park Vocational-Technical School
Edison Technical School, Seattle
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

National Association of Broadcast Employees & Technicians
80 East Jackson Blvd.,
Chicago 4, Illinois

RADIO AND TELEVISION SERVICE TECHNICIANS

COURSE DESCRIPTION: This course provides training for employment as an apprentice radio-television service technician. Additional on-the-job training and off-hour related classes are required to qualify as a journeyman in this field. There are also many other job possibilities in various related phases of the electronics field.

NATURE OF WORK: A service technician diagnoses trouble and makes the necessary repairs in a growing number of electronic products. These are television sets, radios, phonographs, hi-fi sound equipment, tape recorders and public address systems. Sales and installation work is also included in this field.

The class and shop areas are equipped with the latest of test equipment and reference materials. Actual live servicing projects make the instruction particularly effective.

EMPLOYMENT OUTLOOK: The continuing growth and expansion of the radio and television industry insures trained personnel in this field excellent employment opportunities. Supplementing the growth occurring in the use of radio and television sets in the increasing use of sound reproduction equipment such as stereo and hi-fi record players, tape recorders, public address systems and others.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Clover Park Vocational-Technical School
Spokane Technical and Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

International Union of Electrical, Radio and Machine Workers
1126 - 16th Street N. W.
Washington 6, D. C.

SHEET METAL

(DOT 4-80. 010)

COURSE DESCRIPTION: Training in sheet metal skills includes the study of sheet metal layout and modern shop fabrication methods. Parallel line, radial and triangulation methods are a significant part of the program. Basic and advanced techniques are taught in the handling and assembly of steel. copper, stainless steel and aluminum.

NATURE OF WORK: Sheet metal workers fabricate and install ducts which are used in ventilating, air-conditioning, and heating systems. Skilled workers fabricate and install a wide variety of products for commercial and industrial use. Installation and fabrication as determined by the job generally involves use of hand tools and power equipment.

EMPLOYMENT OUTLOOK: Opportunities for employment are excellent. Anticipated large expansion in new residential, commercial, and industrial construction will create new jobs during the 1960's. Minimum hourly wage rates for experienced sheet metal workers averaged $3. 90 during 1960.

SCHOOLS

Complete training program:

Edison Technical School, Seattle
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

Sheet Metal and Air Conditioning Contractors' National Association, Inc.
107 Center Street
Elgin, Illinois

Sheet Metal Workers' International Association
1000 Connecticut Avenue North West
Washington 6, D. C.

FURNITURE UPHOLSTERING

(DOT 4-35.710)

COURSE DESCRIPTION: This course provides training for employment in the furniture upholstering field. Practical shop experience is combined with related classroom work. Having the shop and class work arranged in this manner offers the best possible learning situation.

The best equipment, materials and processes are used in this course and there is also the possibility for a limited number of women to be trained in the allied sewing skills. Job opportunities are found in both furniture manufacturing concerns and custom upholstery shops.

NATURE OF THE WORK: Upon completion of the training received in this class, the student has the opportunity to complete an apprenticeship to become a journeyman upholsterer.

Included in this course is experience in remodeling and reconditioning furniture as well as construction of new items. Activities include cutting and sewing, cushion filling, springing up, pattern-making, outside covering and trimming, styling and designing.

EMPLOYMENT OUTLOOK: Employment opportunities will continue to be available for well-trained personnel in the furniture industry. Population growth and increases in the establishment of family units will continue to create demands for the services of this industry.

SCHOOLS	SOURCES OF INFORMATION
Complete training program: Tacoma Vocational-Technical Institute	Upholsterers' International Union of North America 1500 North Broad St., Philadelphia, 21 Pa.

WATCH REPAIRMAN

(DOT 4-71. 510)

COURSE DESCRIPTION: Training includes instruction in the setting up and use of complex equipment and tools used in the repair and maintenance of watches and related instruments.

Skills are developed in the techniques of diagnosing troubles, testing and servicing clock escapements, chronometers and other types of time measuring devices.

NATURE OF WORK: Watch repairmen or "watchmakers" repair and adjust watches, clocks, and other timepieces.

Repairmen diagnose troubles, remove damaged or defective parts and later replace parts and test work done.

In their work, watch repairmen use small lathes and handtools such as tiny pliers and screwdrivers.

EMPLOYMENT OUTLOOK: Employment of watchmakers is likely to rise slowly over the long run. Factors that will tend to increase the demand for watchmakers will be partially offset by other factors that will operate to decrease it.

Salaries of most beginning watchmakers ranged from about $60 to $80 a week in 1960. Experienced journeymen employed in retail stores generally received from $85 to $125 for a 40-hour week. Watch repairmen who are in business for themselves usually earn considerably more than those working for a salary.

SCHOOLS

Complete training program:

Edison Technical School
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

American Watchmakers Institute
18465 James Couzens Highway
Detroit 35, Michigan

WELDING

(DOT 4-85.020) Arc Welders
(DOT 4-85.030) Gas Welders
(DOT 6-85.010) Resistance-welding Operators
(DOT 6-85.215) Oxygen Cutters

COURSE DESCRIPTION: Courses in welding include theoretical and practical training in the welding of metals and alloys. Courses are available for beginning and advanced students. Instruction is given in arc, acetylene and inert gas equipment welding. Experience is gained through practice on all types of joints, using a variety of electrodes and filler metals.

Several schools offer only limited welding instruction as part of the pre-engineering curriculum. The average welder training program is nine months in duration.

NATURE OF THE WORK: Welders join metals by applying intense heat and sometimes pressure to melt the edges to form a permanent bond with or without the use of filler material. Welders are active in nearly all fields as they work with journeymen and tradesmen in industry.

EMPLOYMENT OUTLOOK: A rapid increase in the number of welding jobs is expected in the 1960's. About 5,000 job openings will occur yearly during this period. Average straight-time hourly wage for skilled welders in machinery manufacturing industries in 1959-1960 ranged from $2.12 to $2.95.

SCHOOLS

Complete training program:

Centralia College
Clark College
Columbia Basin College
Edison Technical School
Everett College
Lower Columbia College
Renton Vocational School
Skagit Valley College
Spokane Technical-Vocational School
Tacoma Vocational-Technical Institute

SOURCES OF INFORMATION

The American Welding Society
33 West 39th Street
New York 18, New York

International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers, and Helpers
570 New Brotherhood Building
Kansas City 1, Kansas

United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada
901 Massachusetts Avenue North Wes
Washington 1, D. C.

SECTION III

Description of Distributive Education courses in the State of Washington

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SECTION III
DISTRIBUTIVE EDUCATION

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INTRODUCTION TO DISTRIBUTIVE OCCUPATIONS

The distributive occupations described in this section are examples of the many jobs in the field of distribution and the many possible training programs available through the Distributive Education program. The following format will describe these jobs and training programs.

Training Description Section

Occupational Area Title.

Each training program is identified first by its job family--Retail, Wholesale, Service Sales, Financial-Service, and Sales-Supporting Occupations. The kinds of businesses identified with each job family generally conform to the Census of Business Classifications prepared by the U. S. Department of Commerce. This makes it convenient to apply current statistics to each category. Several kinds of businesses are combined in one training description where course offering and training needs are similar.

Types of Employment.

On the left-hand side of each occupational training description is a list of job titles that represent the opportunities that are available within the occupation. The list includes entry, employee, supervisory, and management-level positions. Code numbers listed are taken from the Dictionary of Occupational Titles and Current Supplements when the description reflects current job information.

Places of Employment.

When the occupational-area title does not suggest all the places of employment, an additional list will be included in the lower left-hand side of the page.

Available Training.

The programs and specific course titles are listed which are presently available through evening extension, community college, and technical-vocational schools. Possible new programs and program expansions are also described.

Although the emphasis of this study is placed on post-secondary training opportunities, there are also 60 Distributive Education High School Cooperative classes in operation at the present time (1963-64 school year) in the State of Washington.

Occupational Description and Job Requirements.

Occupational descriptions are based on information compiled from trade publications; interviews with business leaders, trade association leaders, and union leaders; the Dictionary of Occupational Titles; and the Occupational Outlook Handbook. Job requirements suggest particular personality traits and aptitudes that a person should generally have for success in the particular business.

Occupational Trends.

Trends are based on the assumption that Washington State will remain a growth economy and that technological advances will continue at the present high rate. On most of the training descriptions, a graph is included which illustrates the number employed and the trend of this employment in Washington during the years 1958 through 1961. A slight recession between 1960 and 1961 shows up on the graphs. This information was taken from two publications--total employment: Labor Force and Employment in the State of Washington, and only those covered by employment security: Employment and Payrolls in Washington State by County and Industry, by the Employment Security Department of Washington State, Olympia. All employment is in thousands except advertising, which is in hundreds.

Program Location Section

Following the "Training Descriptions" section is a current listing of centers that offer adult and post-secondary Distributive Education courses. These include -

Evening Extension

The evening extension program lists the types of courses given during the school year 1962-63.

Community College and Technical-Vocational School

All schools participating in the Mid-Management program for the school year 1963-64 are listed, as well as those with definite plans for establishing the program in 1964-65.

What is Distributive Education?

Where is it offered, and to whom?

Which occupations are "distribution occupations"?

Distributive Education is a program of vocational education which offers instruction and occupational training in distribution, marketing, and management.

The program includes instruction and counseling in entry-job, employee, supervisory, operative-management, and administrative-management levels of employment. To meet the expanding educational needs of the distributive occupations and the career plans of many of our youth, training is available in high school, community college, technical-vocational school, and evening extension programs.

Distribution occupations have been defined as those followed by proprietors, managers, or employees engaged primarily in marketing or merchandising goods or services in various business establishments, including retailing, wholesaling, manufacturing, storing, transporting, financing, and risk-bearing.

I. The High School Cooperative Program is designed to introduce a student to the field of distribution.

Many employee-training opportunities for entry-job occupations begin at the high school level. The student attends school in the morning and is employed part-time in the afternoon or evening. Class instruction, which includes basic units on merchandise information, business mathematics, personality development, job applications, principles of selling, etc. is coordinated with actual on-the-job experiences. Although the instruction is geared to the needs of the immediate job, the entry job is not considered an end in itself. The young worker is encouraged to think of his future employment in terms of the many distributive career opportunities which are available to him in line with his aptitudes and interests.

Continuing education in distribution is available after high school graduation. If the worker assumes full-time employment, he may participate in evening extension programs. If he wishes to combine further schooling with part-time work, the Mid-Management Program will meet his needs for more advanced training.

II. The Post-High School Cooperative Program of Mid-Management is offered at community colleges and technical-vocational schools.

Additional opportunity for education in employee, supervisory, and managerial skills is provided in the post-secondary school in an area referred to as the Mid-Management Program. This program is concerned with specific, as well as comprehensive, training in the field of distribution. The major fields of concentration are.

(1) Junior-Executive Development
(2) Merchandising
(3) Technical Occupational Development

Junior-Executive Development is the broadest of the three major fields of concentration and is concerned with developing practical managerial concepts--ways of getting work done through other people.

In Merchandising, attention is focused on the buying and selling functions of marketing.

Technical Occupational Development is the study of specific products and services (wholesaling, insurance, real estate banking, technical sales and other specialized areas). A further example of meeting specialized needs can be seen in the projected agri-business area. A person with an agricultural training background may decide to sell agricultural implements, manage a cooperative, etc. Each trainee, in addition to his course work, must have a minimum of 450 hours of planned, coordinated, on-the-job occupational training. His needs can be met in the Mid-Management Program.

A graduate of a community college or technical-vocational school has the opportunity for continuing education through evening extension programs or institutions of higher learning.

Schools of Business Administration at four-year institutions offer further opportunities for students who seek advanced training in marketing and management.

III. Of the three major levels of training offered within the Distributive Education program, the Evening Extension Program serves the training needs of the largest number of workers, employers, occupations, and levels of employment.

Regardless of the level at which an individual is employed, it is necessary to extend the educational opportunity to keep his skills and knowledge up to date. It is also necessary to provide additional training for those who wish to up-grade their positions and advance toward career objectives. Skilled craftsmen who are in business for themselves also see the importance of, and need for, management training. These, and many more, needs are met by the evening extension program of Distributive Education.

An over-all acceptance of a "continuous-education" philosophy is reflected by the increasing number of requests for expanded programs of adult Distributive Education which have been reported throughout the country.

FINANCIAL SERVICE OCCUPATIONS - Banking & Finance

Types of Employment

Account Executives (1-87.31)
Branch Manager (0-97.45)
Brokerage Clerk (1-06.86)
Cashier (1-01.52)
Collection Man (1-15.02)
Credit Analyst (0-98.05)
Loan Desk Manager (0-98.08)
Messenger (1-23.14)
Personnel Manager (0-39.83)
Public Relations (0-06.97)
Receptionist (2-25.38)
Salesman Securities (1-65.03)
Safe-Deposit Attendant (1-06.41)
Telephone-Information Clerk (1-06.88)
Teller (1-06.02)
Treasurer (0-97.04)
Trust Officer (0-98.08)

Places of Employment

Agricultural Credit Institution
Commercial Bank
Mutual Saving's Bank
Personal Credit Institution
Saving's Loan Association
Security Exchange

Available Training

Evening Extension Program - Many of the courses throughout the state are directed toward understanding Negotiable Instruments, Credit and Collections, Money and Banking and Analyzing Statements. Other courses are in related fields; Economics, Commercial Law, Accounting and Effective Speaking.

Community College and Technical-Vocational School Program - About twenty per cent of bank employees are in management positions; so the training is in the Mid-Management program: Principles of Management, Business Organization, Credit Management, Personnel Management and Marketing.

Occupational Description and Job Requirements

Distributive Education training is directed toward one-third of the bank employees - tellers and bank officials.

The teller comes in direct contact with the public; he creates the image of the bank. His personality, appearance, attitude and skills are of great importance.

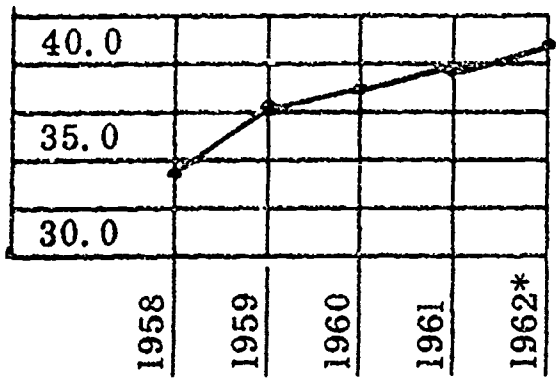
A bank officer makes decisions within the policy set by the board of directors. He must have a broad knowledge of business conditions and be able to relate them to the operations of his department. In the security investment field, the sales person needs to know how to use reference manuals, statistical and financial reports in order to study general business conditions, specific industrial trends and the outlook of individual securities. He must have practical knowledge of laws on income tax, and estates and trusts. The American Institute of Banking offers a very extensive in-service training program for bank employees.

Since all bank employees handle and are trusted with large sums of money, they must be able to meet standards established by banking companies.

An individual will usually start at $350 a month and be earning $400 by the end of the first year in a bank.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Banking is a growing business. Men and women are offered excellent opportunities to reach management - officer - positions. At present ninety per cent of the nation's business is transacted through check; this represents about 32 million checks daily.

The introduction of data-processing, the establishment of branch and drive-in offices are changing the type of positions available.

FINANCIAL SERVICE OCCUPATIONS - Credit

Types of Employment

Collection Man
Credit Analyst (0-98.05)
Credit Clerk (1-12.02)
Credit Counselor
Credit Manager (0-85.10)
Investigator (1-57.40)
Management Trainee (0-97.14)
Receptionist (2-25.38)
Teller (1-06.02)
Treasurer (0-97.04)

Places of Employment

Collection Agency
Commercial Bank
Counselling Service
Credit Bureau
Credit Checking Organization
Credit Union
Finance Company
Retail Establishment
Savings and Loan Association
Wholesale Establishment

Available Training

Evening Extension Program - On the Management level, a popular course has been Related Credits and Collections. For meeting special employee needs, classes have been offered in Credit and Collection, Related Commercial Law and Credit Financial Counseling. The last named course is the latest addition to the credit area and it was developed through the cooperative efforts of local credit union chapters and Distributive Education personnel. As needs and interests grow, it is possible to provide other classes in the credit field.

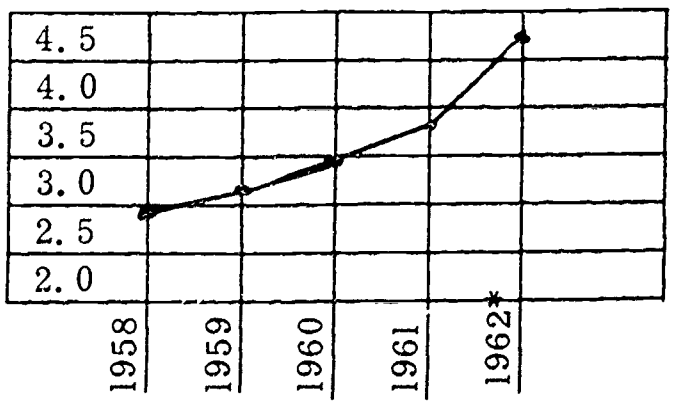
Community College and Technical-Vocational School Program - Several of the community colleges are presently offering a Credit Management course. The basic marketing course would also offer valuable information for the credit field.

Occupational Description and Job Requirements

Credit long has been a convenience in our business history; it has become a means of speeding up distribution. Since World War II, credit is used not only to purchase in large quantities but to purchase inexpensive convenience items on a delayed payment plan. Job opportunities are in interviewing, counselling, analyzing and checking credit and collections. The ability to take information and make wise decisions is of great importance. In many credit positions, a pleasant but firm manner must be developed. Collections often require considerable evening work.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

As our population increases, there will be a similar increase in the use of credit. This is especially true at the retail level. During the 60's, it is expected there will be a marked increase in new families; the purchase of everything needed for their new home will be largely by credit. More people will be needed for all these credit occupations.

FINANCIAL SERVICE OCCUPATIONS - Insurance

Types of Employment

Broker (1-57.10)
Claim Adjuster (1-57.40)
Investigator (1-57.40)
Life Insurance Agent (1-57.10)
Office Manager (0-97.12)
Personnel Manager (0-39.83)
Property and Casualty Insurance Agent (1-57.10)
Public Relations (0-06.97)
Salesperson (1-57.10)
Solicitor (1-57.10)
Underwriter (1-57.30)

Places of Employment

Commercial Bank
Insurance Office
Property Management Office
Real Estate Office

Available Training

Evening Extension Program - Several centers offer specialized courses for upgrading of insurance personnel. These courses include Liability and Casualty, - introduction, standard, and advanced courses - Property and Casualty Underwriters, Life Insurance, and Training for Office Contact Personnel. These courses are taught by experts recommended by the insurance industry.

Community College and Technical-Vocational School Program - The Mid-Management program offers a background of business courses such as Principles of Selling, Personal Adjustment to Business, and Business Communications, as well as the opportunity for individualized instruction in principles of insurance.

Occupational Description and Job Requirements

Since insurance companies are in business to sell policies, energetic well-informed salesmen are in demand. About two of every five insurance policies are sold directly to the individual and business firms. Agents and brokers are usually responsible for finding their own customers or "prospects" and help plan the kind of protection to fit each individual need. The insurance agent is compensated in several different ways - a straight salary, salary and commission, advance on future sales or a straight commission.

A recent survey of insurance agents brought out these qualities for success: (1) knowledge of insurance business, (2) personal sales ability, and (3) a broad acquaintanceship. Most companies prefer mature people - at least twenty-one years of age - who meet people easily.

One in ten of the people employed in insurance is in managerial positions.

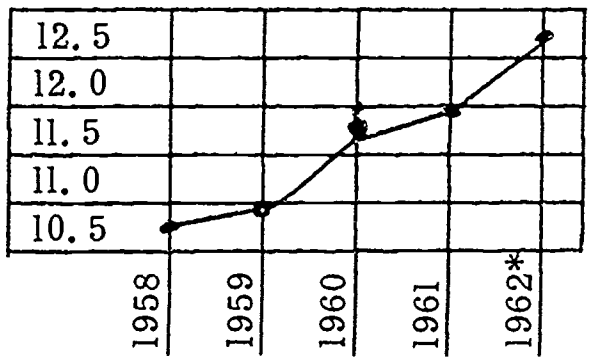
Occupational Trends

In Washington, insurance has grown more rapidly than other phases of the economy - finance and real estate. From 1947 to June, 1962. the number employed in insurance rose seventy-four per cent; at the same time total employment in this state rose twenty-eight per cent. This gives you some idea of the opportunity for employment and advancement in insurance.

The chart on the next page represents the total number of those employed in insurance.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

FINANCIAL SERVICE OCCUPATIONS - Real Estate

Types of Employment

Agent (1-63.10)
Appraiser (1-48.52)
Branch Office Manager (0-97.45)
Broker (1-63.20)
Business Broker (0-99.86)
Business Owner
Property Management (0-99.85)
Real Estate Developer (1-63)
Realtor (1-63)
Salesman (1-75)

Places of Employment

Building Contractor
Building Material Supplier
Commercial Bank
Farm Land Brokerage
Insurance Company
Property Management Office
Real Estate Office
Savings & Loan Association

Available Training

Evening Extension Program - Specialized courses in real estate include work in Real Estate Law, Residential Appraising, and Principles and Practices of Real Estate. These classes are organized with the cooperation of the National Association of Real Estate Boards and the society of Residential Appraisers.

Community College and Technical-Vocational School Program - In the Mid-Management program, such courses as Business Correspondence, Business Law, Principles of Accounting, Survey of Business and Business Mathematics added to special subjects in real estate and on-the-job experience prepare a person to develop a career.

Occupational Description and Job Requirements

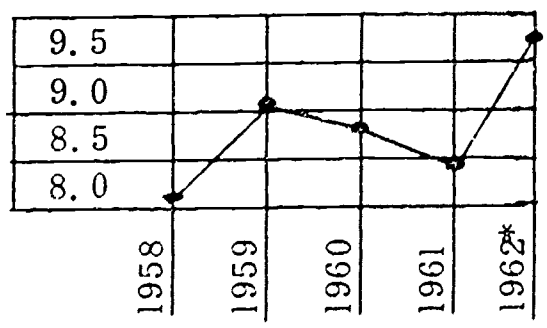
Real estate brokers are independent businessmen who not only sell real estate, but sometimes rent and manage properties, make appraisals, arrange for loans to finance purchases, and develop new building projects, manage their offices, advertise properties, and search for saleable properties.

A license is required for work as a salesman or broker. Before a license is issued a person must pass a written examination on Washington license laws and the fundamentals of real estate transactions.

Salesmen are employed by brokers to show and sell real estate. They employ well-trained people skilled in handling home-buyer problems.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

The average age of real estate salesmen and brokers is considerably higher than that of workers in most occupations. In recent years, a high percentage of people move each year; building is increasing. Growth in population and changing patterns of living account for a high level of real estate activity.

RETAIL OCCUPATIONS - Apparel, Acccssories Stores

Types of Employment

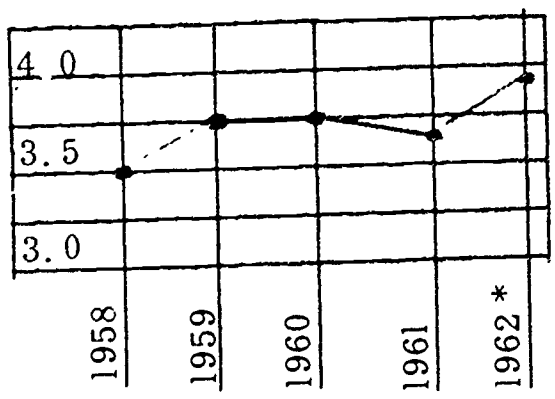
Advertising Manager (0-81. 02)
Buyer (0-74. 11)
Cashier (1-01. 52)
Checker (1-03)
Credit Clerk (1-12. 02)
Department Supervisor (0-97. 61)
Management Trainee (0-97. 14)
Merchandise Manager (0-74. 21)
Model (2-43. 41)
Sales Clerk (1-70)
Sales Person (1-75)
Store Owner

Places of Employment

Children's Wear Shop
Custom Tailors
Department Store
Discount House
Family Clothing Store
Fur Shops
Men's Furnishing Store
Shoe Store
Women's Accessory Store
Women's Ready-to-Wear Store

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Available Training

Evening Extension Program - A considerable number of apparel and accessory shops are small business operations. Many centers offer courses in Record Keeping for Small Businesses, Income Tax for Small Businesses, and Business Management for Specialty Stores.

For the employee, specific courses in merchandise information on textiles, their use and care, and the fashion side of the apparel business have been given.

If a student's career objective is the apparel merchandising business among their courses, they should include Retailing, Salesmanship, and Small Business Management.

Occupational Description and Job Requirements

A very great part of the apparel industry is geared to the fashion cycle. These relatively short buying and selling spans impose a distinct characteristic upon the training needs for the apparel industry. Those responsible for the merchandising of apparel must be sensitive to the buying patterns of customers, be interpreters of fashion trends and be skillful artisans in the use of color, materials and style. In such items as furs, leather and synthetic fabrics, a sales person should be up-to-date on the care and use of these goods. In selling fashion goods, the technical knowledge in pricing in all phases the fashion cycle is important.

Occupational Trends

Many trends point to a strong growth in the apparel industry. In the State of Washington, a twenty-five per cent population growth between 1960 and 1970 is projected for the young age group; they are very fashion conscious. The changing patterns of their personal life - college, career, marriage - affect the markets. The increasing number of leisure time activities will have a definite impact upon the apparel market.

RETAIL OCCUPATIONS - Food Stores

Types of Employment

Bakery Clerks (1-70.10)
Box Boy (1-23.14)
Buyer (0-74.11)
Checker (1-03)
Dairy Department Manager (0-72.22)
Demonstrator (1-56.01)
Display (0-43.30)
Grocery Manager (0-72.21)
Management Trainee (0-97.14)
Meat Department Supervisor (0-72.21)
Night Manager (0-72.21)
Produce Clerk (1-70.10)
Produce Manager (0-72.21)
Routeman (7-35)
Sales Person (1-75)
Stock Clerk (1-38.01)
Store Manager (0-72.21)
Store Owner
Variety Goods Clerk (1-70.10)
Variety Goods Manager (0-72.51)

Place of Employment

Delicatessen Store
Discount House
Neighborhood Grocery
Superette
Supermarket

Available Training

Evening Extension Program - Programs are developed in special areas; meats, produce management and merchandising, checker training and problems and show card lettering. It is a common practice for a program to be developed with the aid and sponsorship of a trade association or group of businessmen; in the above case the trade group would be The Washington Food Dealers Association.

Community College and Technical-Vocational School Program - For supervisory training, the Mid-Management curriculum offers not only on-the-job training and classroom instruction, but also experiences in specific areas of supervision such as "How to Deal With People" and "Personality Development".

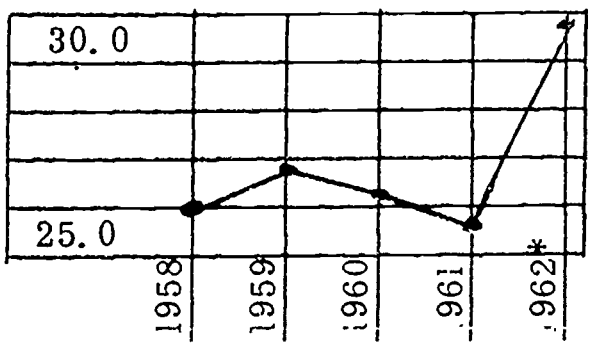
Occupational Description and Job Requirements

With the emphasis on volume selling in the grocery field, significant modifications or constant changes in the training program must be made. Because of the highly competitive nature of the business, a person must be able to work under pressure-speed and efficiency are the criteria. In the entry occupation the employee is in constant contact with the public - assists in carrying packages or directs customers to products they cannot find. This individual must be strong enough to lift heavy packages and cases for a major part of the day. If a store sells wine and beer, a person must be over twenty-one in order to be a checker. In produce work, the knowledge of the fundamentals of display are necessary to develop the sales necessary for perishable products. At the supervisory or management level, an individual devotes most of his time planning, organizing and directing the many activities of a modern store; supervisors generally work six days a week. The wage structure differs throughout the state. In general, the wages in Western Washington and the wages in a large metropolitan area are higher than those in outlying areas. In Seattle, a union contract specifies a wage of 1.77 1/2 an hour, as of September 29, 1962 for Beginner Clerk. A Journeyman Clerk (over one year's experience) as of the above date will be receiving $2.73 3/4 an hour.

Retail Occupations - Food Stores (Cont.)

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

The grocery industry has gone through a revolution in the last fifteen years. What has caused this? Many things: population increase, family income increase, variety and availability of produce. Stores are larger and more numerous.

All this has increased the need for managers, supervisors and other employees. The whole program of distributive education is geared to this need.

RETAIL OCCUPATIONS - Furniture
Home Furnishings
Equipment Stores

Types of Employment

Buyer (0-74.11)
Cashier (1-01.52)
Credit Clerk (1-12.02)
Customer Service (1-12.31)
Delivery (7-35.10)
Demonstrator (1-56.01)
Department Manager (0-74.13)
Display (0-43.30)
Floor Manager (0-75.10)
Floor Coverings Estimator (1-49.41)
Furniture Inspector (7-59.43)
Furniture Packer (9-59.01)
Interior Decorator (0-43.40)
Management Trainee (0-97.14)
Receiving Clerk (1-34.04)
Sales Person (1-75.44)
Store Owner

Places of Employment

China, Glassware Store
Drapery Curtain, Upholstery Store
Department Store
Floor Covering Store
Furniture Store
Home Furnishing Store
Household Appliance Store
Musical Instrument Store
Office Equipment Store
Radio & Television Store
Record Shop

Available Training

Evening Extension Program - The Washington State Furniture Dealers Association has cooperated with many school districts in offering merchandising courses in home furnishings. Among these are: The Furniture Store of Today, Designs for Setting, Table and Storage Units, Sleep Equipment, Lamps and Accessories, Selling Home Furnishings, Floor Covering and Interior Design and Decor. The general offerings of Principles of Selling, Human Relations in Selling, and Advertising would be valuable background courses.

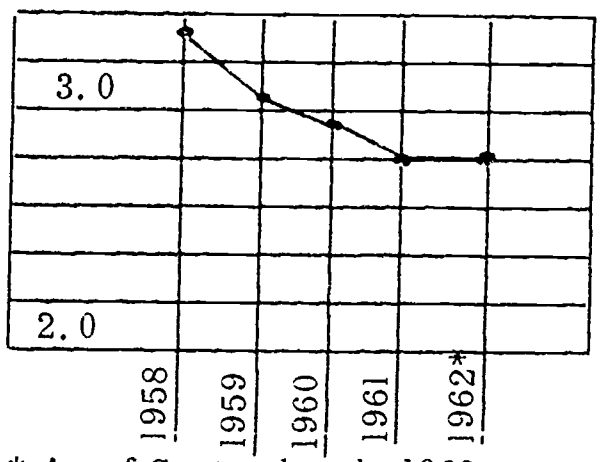
Community College and Technical-Vocational School Program - Although no course is offered in Home Furnishings Sales at the present time, a person can get individual experience in this field through the Mid-Management program. Here the student will receive actual on-the-job training in this specific field.

Occupational Description and Job Requirements

A salesperson displays and sells items such as furniture, bedding, floor coverings, drapes, television, radios, and other decorative home furnishings. The individual might be called on to advise on room layout, design period, styles, the construction of various pieces, harmonizing and complimentary color schemes. It is common for the sales person to take samples to a customer's residence to see the merchandise in all the relationships. An artistic talent is important for a person in this field. In addition to considering color, such factors as light, space, texture, must be considered with style and use.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Many factors point to the need of trained workers; some of these are: new families, increased income, wide range of attractive furnishings, a second home - a recreation area home. Self-service has not proved satisfactory in this area; expert advice for the buyer is necessary.

RETAIL OCCUPATIONS - Gasoline Service Station

Types of Employment

Service Station Dealer
Service Station, Manager (0-72.12)
Service Station, Salesman (7-60.50)

Available Training

Evening Extension Program - Courses have been offered in Management of Garages as well as employee training; they are specifically aimed at selling in service stations. The American Petroleum Institute has cooperated with schools in establishing educational programs.

Courses stress the importance of merchandise and business information, service station zoning, layout, operations, safety, lubrication, marketing research, management and accounting.

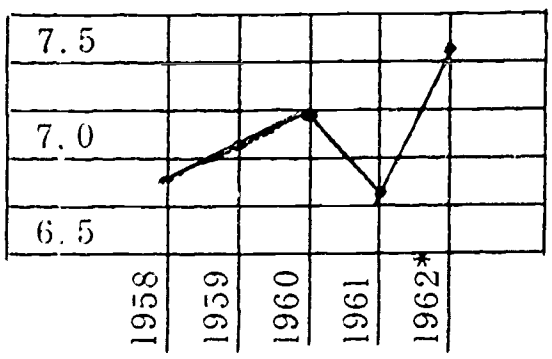
Community College and Technical-Vocational School Program - A number of students take their job experience in service station and petroleum distributing. In Yakima and Spokane, plans are being made for a full time training program for both station and jobber personnel. An example of a course that has the approval of the Marketing Division of the American Petroleum Institute covers the topics: (1) The Modern Service Station, (2) Selling in the Service Station, (3) Principal Products Sold in the Service Station, (4) Housekeeping and Maintenance, and (5) Services Rendered by Service Stations.

Occupational Description and Job Requirements

Meeting the automotive needs of the customer with the idea of giving service is important in this kind of salesmanship. If you enjoy meeting and helping people, if you like to work with machines, the service station occupations offer interesting work. With a relative low capital outlay, it is possible for a person to go into business for himself.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Competition in the service station industry is high. This along with the increase in highways and automobiles calls for well-trained people for this work. Learning from experience is no longer enough.

RETAIL OCCUPATIONS General Merchandise Group
Drug and Proprietary Group
Other Retail Stores

Types of Employment

Adjustment Clerk (1-12.31)
Advertising Manager (0-81.02)
Buyer (0-74.11)
Canvasser (1-55)
Cashier (1-01.52)
Checker (1-03)
Credit Clerk (1-12.02)
Credit Manager (0-85.10)
Customer Service (1-12.31)
Delivery (7-35.10)
Demonstrator (1-56.01)
Department Supervisor (0-74.13)
Display (0-43.30)
Floor Manager (0-75.10)
Inventory Clerk (1-01.41)
Management Trainee (0-97.14)
Merchandise Adjuster (1-12.35)
Merchandise Manager (0-74.21)
Night Manager (0-72.51)
Receiving Clerk (1-34.04)
Returned Goods Clerk (1-12.35)
Sales Clerk (1-70)
Sales Person (1-75)
Sales Promotion Manager (0-74.21)
Shelf Stocker (1-38.01)
Shopper (1-97)
Store Owner
Supervisor (0-97.66)
Telephone Solicitor (1-55.20)
Traffic Manager (0-98.92)

Places of Employment

Book Store
Camera Supply
Department Store
Discount House
Drug Store
Farm and Garden Store
Fuel Dealer
General Store
Gift Store
Jewelry Store
One-Price Store
Proprietary Store
Secondhand Store
Specialty Store
Sporting Goods Store
Variety Store

Available Training

Evening Extension Program - Principles of Selling, Personnel and Human Relations, Advertising, Supervisory Development, and specific merchandise study courses are offered when the need exists.

Community College and Technical-Vocational School Program - A Two year course called Mid-Management is offered. It includes two kinds of learning experiences - in school and on-the-job. Classwork inciudes Principles of Management, Marketing with emphasis on Retail Selling and/or Credit Management.

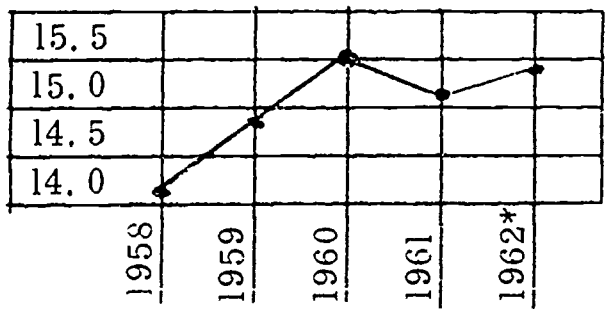
Occupational Description and Job Requirements

In the course of his career a salesperson arranges the display and sells directly from the sales floor. It is his purpose to know his stock and find out the desire of his customers so that he can make a choice from a number of possibilities. In order to do this effectively, he constantly checks over stock and helps make periodic inventories.

What are the characteristics of this kind of person? He will have a pleasing appearance and speaking voice. With experience, he will become more and more sensitive to people, their desires and how to make sales. He will be quick and accurate in handling money matters. With the ability to work well with people, to supervise them and to manage operations, a person can expect promotion to greater responsibility.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Rapid population growth, business expansion and rising income levels all point to an increase of employment in general merchandise occupations. As retailers adopt more self-service methods, people will need special training for the more difficult occupations. Salaries will tend to rise.

RETAIL OCCUPATIONS - Lumber
Building Materials
Hardware
Farm Equipment Dealers

Types of Employment

Buyer (0-74.11)
Cashier (1-01.52)
Credit Clerk (1-12.02)
Delivery (7-35.10)
Demonstrator (1-56.01)
Floor Clerk (1-75.93)
Inventory Control (1-01.41)
Lumber-Carrier, Driver (8-33.11)
Lumber Checker (6-29.51)
Lumber Grader (4-29.51)
Management Trainee (0-97.14)
Purchasing Agent (0-91.60)
Receiving Clerk (1-34.04)
Sales Person (1-75)
Stock Clerk (1-38.01)
Store Owner

Available Training

Evening Extension Program - Sales development workshops have been sponsored throughout the state under the joint sponsorship of the school districts and Western Retail Lumberman's Association. The basic course includes sales methods, knowledge of materials and customer relations. Other courses give experiences in estimating costs from plans and blue prints, credits and collection, product information and plan interpretation.

Community College and Technical-Vocational School Program - Offer general courses in Business Mathematics, Principles of Selling, Credit and Collection and Management.

Occupational Description and Job Requirements

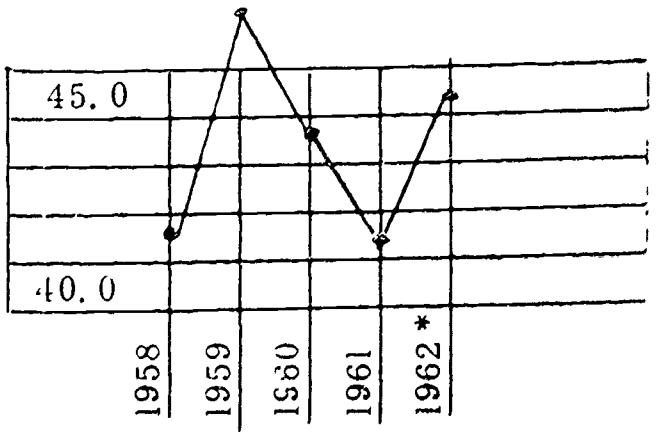
Two types of customers patronize these businesses; one is the expert - contractor, architect, designer and farmer; the other is the "do-it-yourselfer" who needs another kind of service - advice in general, assistance in figuring materials needed, possibly introductions to new products.

This is an occupation for the person with a creative imagination, ability to read blueprints, to figure costs and willing to pay attention to detail.

A beginning salesperson will earn about $350 to $375 a month.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Everyone - yard workers, office clerks - employed in modern building materials businesses is invaluable in the sales. Most of these businesses are being specialized - limit their lines. Self-service and cash and carryare on the increase. These trends mean that there is a need for especially trained people.

SALES OCCUPATIONS - Agri-Business
Farm Equipment & Supplies

Types of Employment

Business Owner
Commission Man (1-52. 21)
Consultant
Cooperative Manager (0-72)
Farm Manager (3-37. 10)
Farm Service Specialist (3-48)
Market Master (0-87. 50)
Public Relations (0-06. 97)
Salesperson (1-75)

Places of Employment

Cooperative
Farm Equipment Store
Farm Service Establishment
Farm Supply Store
Feed & Seed Store
Food Processing Plant
Government Opportunity
Grower Promotion Agency
Insurance
Nursery Stock
Poultry Distributor
Real Estate
Wholesale Grocery

Available Training

Evening Extension Program - An individual with an agricultural background has a good base for planning a career in any one of the occupations related to agriculture. The opportunities are: selling equipment, fertilizers or pest control materials, seeds, plants, produce; advertising or other promotional activities; managing processing plants or cooperatives. Courses in selling, advertising and management might be offered.

Community College and Technical-Vocational School Program - Serving agricultural equipment calls for special technical knowledge and skills; selling for or to the farmer requires other knowledge and skills. Courses in Principles of Marketing, Salesmanship and Human Relations could meet some training needs.

Occupational Description and Job Requirements

There are approximately 7,000 businesses in Washington State that could be classified as agri-businesses. They are concerned with selling for or selling to the farmer.

Farming itself is big business; there are problems of the market, sales and management.

Occupational Trends

A survey of agri-businesses of this state shows that they could use some 600 additional employees a year.

SALES OCCUPATIONS - Direct Selling
Mail Order
Vending Machine

Types of Employment

Advertising Manager (0-81.02)
Buyer (0-74.11)
Canvasser (1-55)
Catalogue Clerk (1-18.63)
Catalogue Office Manager (0-73.01)
Checker (1-03)
Demonstrator (1-56.01)
Direct Selling Salesman (1-55.10)
Management Trainee (0-97.14)
Order Filler (1-18.63)
Packer (7-68.136)
Routeman (7-35)
Vending Machine Operator (1-15.10)

Available Training

Evening Extension Program - Special knowledge and skills are needed for non-store retailing. To train for this service, courses are offered in Direct Selling, Route Selling and the Principles of Selling. For those who are in business for themselves, courses would include Traffic Management for Small Businesses, Record Keeping for Small Businesses and Administrative Management for Small Businesses.

Community College and Technical-Vocational School Program - Courses in direct selling generally are a part of the Mid-Management program; those would be Small Business Management, Sales Promotion, Merchandising and Advertising.

Occupational Description and Job Requirements

Direct Selling consists of (1) operating one's own business, (2) joining a sales staff that uses direct selling method, or (3) serving retail stores with house-to-house selling. Job duties include soliciting sales, interviewing, demonstrating and making out reports.

Mail Order - There are approximately thirty mail-order establishments in the State of Washington. Two-thirds of this number are establishments without payrolls and the other third are several very large business establishments. The larger establishments offer management trainee programs with opportunity for nation-wide, and even world-wide relocation at the end of training. Many of the entry positions deal with movement and care of merchandise. The growing use of suburban catalogue offices require a specially trained direct-selling staff.

Vending Machine Operator - A large per cent of the vending machine businesses is one-man operations. This makes it necessary for the individual to fill the roles of salesman, serviceman, bookkeeper, mechanic, merchandiser, investor, inspector, truck driver, and traffic manager. It is important to know how to find prime locations for vending machines.

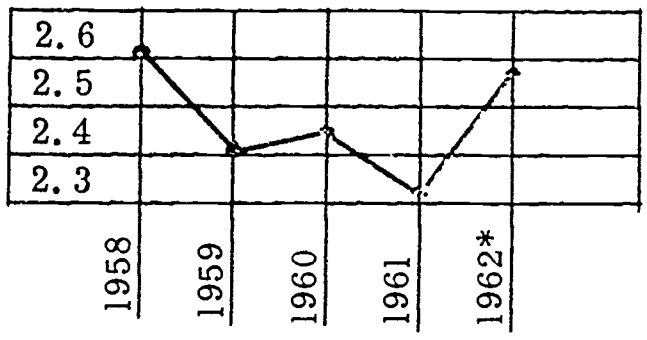
Occupational Trends

Direct Selling - New methods of direct selling - the home part idea - are opening up more opportunities for direct selling. There is a greater use of the telephone to promote sales. The salesman who canvasses his area first for leads is able to use his time more effectively by calling on interested customers, only.

Sales Occupations - Direct Selling, Mail Order, Vending Machine (Cont.)

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Types of Employment

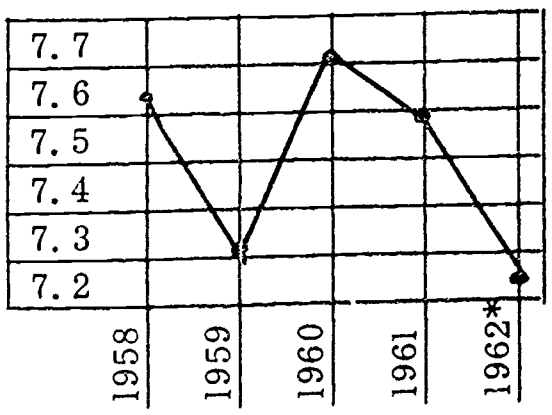
Account Executive (1-87.31)
Advertising Agent (0-81)
Advertising Man (0-81.04)
Advertising Manager (0-81.02)
Copy Writer (0-06.94)
Management Trainee (0-97.14)
Market Research Analyst (0-36.11)
Salesman (1-75)
Solicitor (1-57.10)
Space Buyer (0-81.05)
Time Buyer (0-81.05)

Places of Employment

Advertising Agency
Direct Mail Organization
Newspaper Company
Manufacturer
Outdoor Advertising Firm
Radio Station.
Retail Establishment
Television Station

EMPLOYMENT IN WASHINGTON

In Hundreds



* As of September 1, 1962.

Available Training

Evening Extension Program - A variety of skills - art and writing - are valuable in advertising. Courses generally offered are Effective Communications, Advertising, Display, Showcard Writing and Basic Copy Writing for Printed Media. It is possible to develop a sales promotion class for a specific business.

Community College and Technical-Vocational School Program - Advertising, Sales Promotion, Merchandising and Marketing as well as Psychology, Creative Writing and Public Speaking are classes offered in the Mid-Management program for sales promotion and advertising.

A flair for language is necessary for advertising. Most assignments require individual handling; so a person must like to solve problems. The creative person in advertising will observe keenly and be sensitive to persons and things.

Occupational Trends

A truer picture, but one for which data is not available, would include personnel in all distributive and manufacturing businesses that advertise. Indications are that the graph would be very different. The volume of advertising is expected to increase during the 60's because of the growth of industry, the development of new products and services, the increase of competition among producers, the trend toward self-service. Much advertising is on a nation-wide scale.

SALES-SUPPORTING OCCUPATIONS - Traffic Management
Warehousing
Storage
Transportation
Purchasing

Types of Employment

Baggage Agent (1-43.02)
Checker (1-03)
Claims Agent (1-48.08)
Claims Clerk (1-48.08)
Demurrage Clerk (1-34.16)
Export and Import Clerk (1-34.23)
Freight Agent (1-44.42)
Freight-Traffic Manager (0-98.62)
Industrial Traffic Manager (0-98.62)
Inventory Control Specialist
Management Trainee (0-97.14)
Passenger Agent (1-87.51)
Passenger-Traffic Manager (0-98.62)
Public Relations Representative (0-06.97)
Personnel Manager (0-39.83)
Reservation Clerk (1-07.50)
Router (1-34.11)
Sales Representative (1-87.50)
Shipping & Receiving Clerk (1-34.15)
Supervisor (0-97.66)
Tarriff Clerk (1-18.97)
Ticket Seller (1-01.53)
Traffic Consultant (0-97.66)
Traffic Clerk (1-34.13)
Traffic and Control Specialist
Traffic Manager (0-98.92)
Traffic Representative (0-97.66)
Transportation Agent (1-44)
Transportation -Traffic Manager (0-98.62)
Weighter (1-45.01)

Available Training

Evening Extension Program - There is a vast undeveloped area in training for job entry and up-grading workers in traffic management. Courses that have been offered are Traffic Management for Small Business, Export Expansion, Travel Industry and Purchasing.

Community College and Technical-Vocational School Program - The present post-secondary program offers background courses that would be valuable in a transportation management. These courses include Marketing, Economic Geography, Introduction to Business, Principles of Accounting, and Principles of Economics. Indications are that there is a growing need for training in packaging, use of standards, storage, terminal development, data processing and new technical methods of traffic management.

Occupational Description and Job Requirements

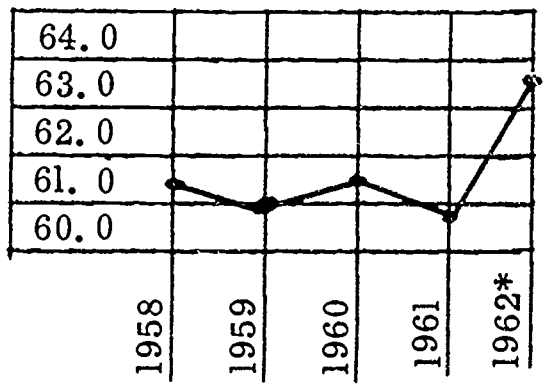
Traffic management has been called the science of distribution. This is the management of the movement of goods; not the operation of equipment that handles goods. The traffic representative sells transportation services - movement of goods and people by airplane, railroad, steamship or truck and other goods by pipeline.

People in these positions must be able to read, to understand transportation regulations in rates, laws, packaging, loading and storage. They must be quick and accurate in figures.

Sales-Supporting Occupations (Cont.)

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Nearly half our industrial plants do not have a traffic manager. As businesses continue to expand and establish branches, special expert attention will have to be given to delivery, packaging and storage.

Types of Employment

Bowling Alley Attendant (2-40. 11)
Camp Attendant (2-44. 10)
Children's Matron (2-43. 96)
Clubh ouse Attendant (2-43. 32)
Commission Man (1-52. 21)
Concessionaire (0-98. 50)
Concession Attendant (2-40. 21)
Doorman (2-40. 91)
Drive-In Theatre Attendant (2-40. 96)
Golf Course Attendant (2-40. 02)
Hostess (2-25. 36)
Locker-Room Attendant (2-43. 11)
Model (2-43. 41)
Receptionist (2-25. 38)
Recreation Establishment, Manager (0-98. 54)
Resort Operator
Service Establishment Attendant (1-96. 10)
Sightseeing Guide (2-36. 20)
Skating Rink Attendant (2-40. 52)
Tour Conductor
Travel Agent (1-18. 42)
Usher (2-48)

Places of Employment

Amusement Park
Automobile Association
Archery Range
Boat Rental
Boat Sales
Bowling Alley
Child-Care Center
Drive-In Theatre
Golf Course
Movie House
Retirement Home
Sightseeing Company
Swimming Pool
Travel Agency

Available Training

Evening Extension Program - The recreation and leisure field covers a large number of skills. On the management level, courses have been offered in Practical Business Services, Accounting for Small Business, and Administrative Management for Nursing Homes. On the employee level, a Travel Industry Course is being offered and a Principles of Selling course would be valuable. In many leisure activities, food is sold, work in Food Sales and Services would be of definite value.

Community College and Technical-Vocational School Program - The need of specialized training in recreation and leisure businesses has not developed yet, although much of the knowledge and skill common to all public-contact enterprises will be needed in this area. Emphasis in human relations, general psychology, public speaking, and Salesmanship will be valuable training. Management training in supervision, controlling, and directing a distributive enterprise has its counterpart in managing a recreational facility.

Occupational Description and Job Requirements

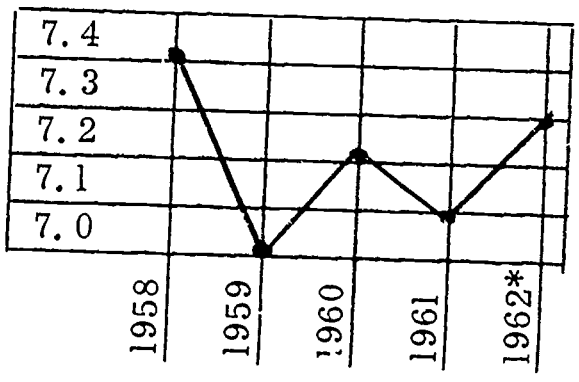
The recreation and leisure field is considered to be one of the rapid growth industries of the 1960's. This growth is developing because of the trend toward a shorter work week, greater discretionary spending power, an increase of retired persons, and the general popularity of participating recreation.

Jobs in this area put the individual in direct contact with the public. In many recreational activities, there is considerable night work; where service is offered on the around-the-clock basis, work shifts are set-up. Other activities are of a seasonal nature. All these conditions point up the importance of planning and control so that people will not find themselves in fad-type services that quickly disappear.

A person many times will work only with a specific age group - young children, teen-agers, retired person; it is important that he understands the problems and needs of a particular age group before working with them.

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

New innovations in recreation forms and facilities will be on the increase to meet the growing demand. For example, automatic archery appears to be a growing recreation business. Many business developers are planning complex recreational centers that combine facilities such as theatres, bowling alleys, swimming, ice skating. Strong promotional efforts will be made to encourage family, rather than individual participation, in activities. Planning is being done to incorporate retirement homes with the recreational facilities for the use of the occupants.

The need for management and operative talent, knowledge, and skills will be in great demand for many years.

SERVICE OCCUPATIONS - Restaurants
Hotels & Motels
Tourist Courts

Types of Employment

Banquet Manager (0-71.15)
Bartender (2-21)
Bell Men (2-22.11)
Bell Captain (2-22.01)
Bus Boy (2-29.51)
Car Hop (2-27.91)
Cashier (1-01.52)
Caterer (0-71.01)
Coffee Server (2-29.41)
Counterman (1-70.10)
Desk Clerk (1-01.53)
Doorman (2-40.91)
Elevator Operator (2-95.20)
Floor Girl, Cafeteria (2-27.22)
Food Checker (1-03.03)
Food Manager (0-71.15)
Fountain Dispenser (2-27.61)
Front Office Clerks (1-07.10)
Hostess (2-25.36)
Hotel Houseman (2-24.51)
Hotel Manager (0-71.13)
Hotel Soliciter (0-97.63)
Information Clerk (1-18.42)
Maitre d'Hotel (0-71.11)
Management Trainee (0-97.14)
Motel Manager (0-71.13)
Receptionist (2-25.38)
Recreational Worker (2-40)
Reservation Clerk (1-07.50)
Restaurant Manager (0-71.23)
Room Service Waiter (2-27.02)
Sales Representative (1-87.01)
Supervisor, Food Service (0-71.25)
Supervisor, Hotel Department (0-71.25)
Supervisor, Motel Department (0-71.25)
Tourist Camp Attendant (2-22.71)
Tourist Camp Manager (2-23.30)
Waiter (2-27.11)
Waitress (2-27.12)
Wine Steward (2-25.14)

Available Training

Evening Extension Program - Classes in waitress training are offered during the year in a number of centers in Washington. The course covers Personality Studies, Table Set-up, Preparing for the Guests, Understanding Restaurant Expense, and Menu Study.

At the request of a specific association, courses in restaurant, hotel and motel operation are given. For some purposes, courses in general administration and operational management are valuable.

Community College and Technical-Vocational School Program - Several vocational-technical schools offer a complete program of restaurant training that covers the trade including public contact. The community colleges offer general courses in principles of management and marketing.

Occupational Description and Job Requirements

At various levels of management, the individual is responsible for the supervision of a great deal of detail work; he determines and controls food budgets and supply inventories; he directs the purchase and maintenance of equipment.

In hotels and motels the primary job of the front employees such as bell man and desk clerk, is to greet guests, and perform a variety of other services in a courteous and efficient manner.

Places of Employment

Cafeteria
For Caterer
Cocktail Lounge
Coffee Shop
Country Club
Delicatessen
Drive-In
Fountain
Hotel
Industrial Cafeteria
Institutions
Lunchroom
Night Club
Restaurant

Waiters and waitresses spend most of their time suggesting and taking food orders from guests, serving food and beverages, making out checks, and sometimes collecting payments.

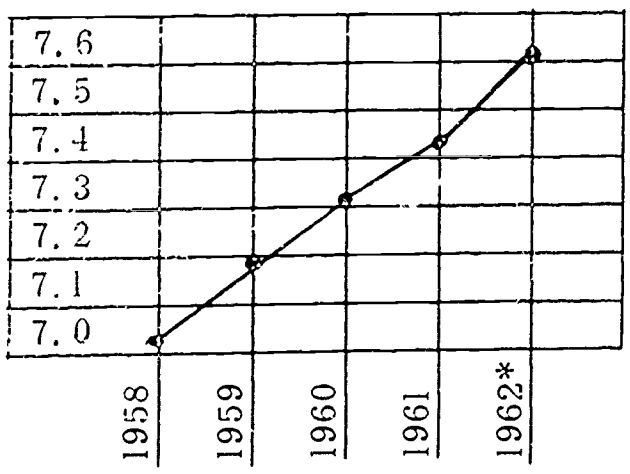
Job requirements vary at the different levels of employment. Entry jobs are usually service jobs where one must be watchful of the needs of others and be willing to meet their wishes. Those in managerial positions must have a working knowledge of all the areas for which they are responsible. This is gained by working in several positions in a restaurant or hotel and taking special management training at a community college or technical-vocational school.

Occupational Trends

Marked changes in our social and economic life - the increased family income, shorter working week; rapid communication and transportation - have increased leisure time, leading to tourism and other recreational activities. All these help expand the hotel and restaurant business.

EMPLOYMENT IN WASHINGTON

in Thousands



* As of September 1, 1962.

WHOLESALE OCCUPATIONS - Export
Import

Types of Employment

Export Agent (0-73. 01)
Export Broker (0-91. 80)
Export Manager (0-73. 01)
Export Trade Consultant
Foreign Buyer (0-74. 11)
Foreign Operations Director
Foreign Representative
Importer (0-73. 01)
Import Purchasing Agent (0-91)
International Salesman
Management Trainee (0-97. 14)
Traffic Manager (0-98. 92)

Places of Employment

Commercial Bank
Freight Forwarder
Marine Insurance Company
Retail Establishment
Transportation Company
Wholesale Establishment

Available Training

Evening Extension Program - Trade with other nations or groups of nations is taking on new aspects. The Department of Commerce is ccoperating with the school districts in a program - Export Expansion. The opportunities for increased trade as it will affect our state is covered. As the conditions for trade develop, it will be possible to add market training for specialized conditions in foreign markets, tariffs and U. S. Customs regulations.

Community College and Technical-Vocational School Program - Where the need exists a course in international trade is offered. The present courses in Economic Geography, Sales Promotion and Principles of Marketing give everyone a good base upon which to build an advanced program of study.

Occupational Description and Job Requirements

Importing and exporting are usually considered together, but their training needs differ. In importing, the businessman will be dealing with the needs of the U. S. market. Not only will they know where to buy materials but they will also learn United States customs regulations. The reporter will handle goods that meet the conditions, cultures and needs of foreign markets. A knowledge of foreign tariffs, laws and money values is necessary.

Our nation is encouraging businessmen to sell more abroad; the Department of Commerce helps with trade leads, free display space in United States trade centers abroad and information on foreign surveys - general conditions and needs.

Many importing businesses have grown from a small start by one person. They found out what our people need and would buy.

Recently the Port of Seattle checked on the number of people in wholesale and retail export - import trade, including banking and marine insurance; there were 850.

Occupational Trends

Washington is in a favorable position to increase international trade. The World's Fair and the greater use of the Columbia River as a trade land will have their effects. Important water ports are developing in inland Washington.

WHOLESALE OCCUPATIONS - Merchant Wholesalers
Manufacturers' Sales Branches
Petroleum Bulk Plants, Terminals
Merchandise Agents, Brokers
Assemblers of Farm Products

Types of Employment

Agent (1-63.10)
Business Owner
Buyer (0-74.11)
Broker (0-91.80)
Branch Manager (0-73.01)
Consultant
Credit Analyst (0-98.05)
Delivery (7-35.10)
Detail Man (1-85.33)
Exporter (0-73.01)
Importer (0-73.01)
Industrial Salesman (1-85)
Management Trainee (0-97.14)
Manufacturers' Representative (1-52.31)
Manufacturers' Salesman (1-52.31)
Market Master (0-87.50)
Market Research (0-36.11)
Order Clerk (1-18.63)
Packer (7-68.136)
Personnel Manager (0-39.83)
Pricing Clerk (1-12.33)
Purchasing Agent (0-91.60)
Rack Jobber (0-73.01)
Receiving Clerk (1-34.04)
Sales Engineer (1-86)
Salesman, Wholesale (1-85)
Sales Manager (0-97.61)
Sales Supervisor (0-97.61)
Shipping Clerk (1-34.13)
Stockman (1-38.01)

Available Training

Evening Extension Program - Wholesale training courses have been offered in Washington state school programs. Several helpful courses would be Special Problems in Wholesaling, Principles of Selling, Export Expansion, Traffic Management for Small Business. In a highly competitive business, it is possible there may be a need for more courses for the middleman distributor.

Community College and Technical-Vocational School Program - Approximately ten per cent of the students enrolled in Mid-Management programs in a recent school year were receiving their on-the-job training in wholesale industries. In the basic marketing course, the functions and principles of wholesaling are covered. As the need arises, an entire course in wholesaling can be offered.

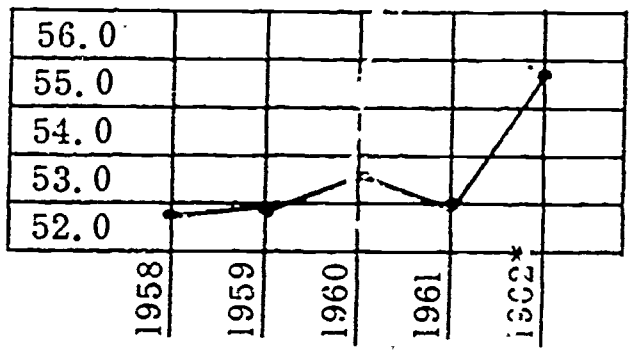
Occupational Description and Job Requirements

In wholesale selling, and manufacturer's sales, it is rather common for an individual to have a territory for which he is responsible. This territory might consist of part of a city in a large urban community, or it might cover several states in a sparsely populated area. The salesman's success depends on the development of repeat business with the same customers. In many low price merchandise lines, such as notions and toys, or as cigarettes, the salesman's principle responsibility is service. This service might include inventory work, re-stocking shelfs and display work. In heavy machinery or the chemical industry, a salesman might be part of a team of specialists that may work many months on one particular account. In some areas such as medical supplies, electronic equipment, or agricultural equipment, a salesperson needs a technical understanding in addition to his marketing training. Generally, the successful personality traits would be a pleasant, out-going personality, a great deal of persistence, the ability to get along with people, and the ability to sense the needs of the customer.

Wholesale Occupations (Cont.)

EMPLOYMENT IN WASHINGTON

In Thousands



* As of September 1, 1962.

Occupational Trends

Approximately thirty per cent of those employed in "Trade" industries in the state of Washington are in the wholesaling field. As more and more businesses combine their buying, a person in this occupation could be working on a committee of experts for this purpose. The trend is to the use of computers to check stock, sales, or buying patterns. All these cause changes from warehousing to sales promotion. Training of workers will be in sales and management.

EVENING EXTENSION CENTERS

Types of Evening Extension Courses Taught in Various Centers, 1962-63

County	District Name	Management Training Courses			Supervisory Training Courses			Employee Training Courses			Specialized Training Courses		
		Policy, Staffing Planning	Operational and Specific Phases	Specific Businesses	General	Specific Phases	Specific Businesses	General	Specific Phases	Specific Businesses	Insurance	Real Estate	Banking
Benton	Richland												x
Chelan	Wenatchee												
Clallam	Port Angeles												x
Clark	Vancouver		x	x				x			x	x	
Cowlitz	Longview								x			x	x
Franklin	Pasco		x	x				x			x		x
Grant	Moses Lake												x
Grays Harbor	Aberdeen												x
King	Auburn		x						x			x	x
	Bellevue		x					x	x				
	Lake Washington		x										
	Renton	x	x					x		x			
	Seattle	x		x				x	x	x		x	x
Kitsap	Bremerton							x					
Lewis	Centralia		x										x
Pierce	Clover Park							x					
	Tacoma	x			x			x			x		x
Skagit	Mt. Vernon		x							x		x	x
Snohomish	Everett			x								x	
Spokane	Spokane		x	x				x		x		x	x
Thurston	Olympia		x		x	x						x	x
Walla Walla	Walla Walla				x	x				x			x
Yakima	Yakima			x		x						x	

MID-MANAGEMENT CENTERS

CENTERS	STATUS
Big Bend Community College	Pre-Mid-Mgt. 1963-64 Active 1964-65
Centralia College	Active 1963-64
Clark College	Active 1963-64
Clover Park Vocational-Technical School	Active 1963-64
Columbia Basin College	Active 1963-64
Everett Junior College	Active 1963-64
Grays Harbor College	Pre-Mid-Mgt. 1963-64 Active 1964-65
Highline College	Pre-Mid-Mgt. 1963-64 Active 1964-65
Seattle (Edison Vocational-Technical School)	Active 1963-64
Skagit Valley College	Active 1963-64
Spokane Technical and Vocational School	Pre-Mid-Mgt. 1963-64 Active 1964-65
Yakima Valley College	Active 1963-64

TYPICAL MID-MANAGEMENT COURSES

Mid-Management Seminar and
Occupational Training (Required)

Accounting
Advertising
Business Communication
Business Finance
Business Law
Business Mathematics
Business Organization
Business Statistics
Credit Management
Import-Export Trade
Insurance
Marketing
Market Research
Merchandising
Personnel Administration
Personnel Management
Principles of Management
Real Estate
Retailing
Sales Management
Salesmanship
Sales Promotion
Small Business Management
Transportation
Traffic Management
Wholesaling

EMPLOYMENT SECURITY DEPARTMENT

LOCAL OFFICE DIRECTORY

Otto S. Johnson
Acting Commissioner
P. O. Box 367
Olympia, Washington
Telephone: 753-5000

Office	Address and Telephone	Manager	Geographical Areas Served
ABERDEEN	722 West Second Street P. O. Box 600 Tel: LEnox 2-7733	Fred L. Pederson	Grays Harbor Co. and SW corner of Jefferson Co.
ANACORTES	420 Commercial Avenue P. O. Box 348 Tel: CYpress 3-3191	Claude D. Long	San Juan Co., no. half Island Co., Skagit Co., (Anacortes vicinity only)
AUBURN	705 Auburn Avenue P. O. Box 547 Tel: TEmple 3-0250	Richard Hayashi	King Co. (Part)
BELLINGHAM	216 Grand Avenue P. O. Box 640 Tel: 734-7200	Paul J. Grandquis	Whatcom Co.
BREMERTON	636 Burwell Street P. O. Box 519 Tel: ESsex 7-3793	Charles R. Larson	Kitsap Co.
CENTRALIA	318 North Tower Ave. P. O. Box 689 Tel: 736-7651	Hugh S. Allen	Lewis Co. and portion of Thurston Co. south of Tenino
COLVILLE	894 So. Main Street P. O. Box 112 Tel: MUtual 4-2557 MUtual 4-2558	Charles R. Lotz	Ferry, Stevens and Pend Orielle Co.
ELLENSBURG	305 North Main Street P. O. Box 38 Tel: WAlnut 5-5305	Harry F. Hiner	Kittitas Co.
EPHRATA	54 "B" Street Southwest P. O. Box 1176 Tel: SKyline 4-3553	Harold D. Bliss	Grant Co. north of line formed by Frenchman Hills, Bonneville Power Line and GNRR Nespelem Area of Okanogan Co.

Office	Address and Telephone	Manager	Geographical Areas Served
EVERETT	3021 Colby Avenue P. O. Box 1229 Tel: ALpine 2-5101	Jack R. Martin	Snohomish Co. except Stanwood and vicinity, Southern Island except Camano Island & Sky-komish & vicinity in King Co.
LONGVIEW	1516 Hudson Street P. O. Box 76 Tel: 425-3100	Joe A. Johnson	Cowlitz and Wahkiakum Co.
MOSES LAKE	815 West Third Avenue P. O. Box 156 Tel: ROckwell 5-4554	John W. Rea	Grant County south of line formed by Frenchman Hills, Bonneville Power Line and GNRR Othello area of Adams Co.
MT. VERNON	1519 South Second St., P. O. Box 59 Tel: EDgewater 6-2161	W. R. Truax	Skagit Co. except Anacortes and vicinity, Stanwood and vicinity in ~~Snehomish, and~~ Camano Island in Island Co.
OKANOGAN	105 Oak P. O. Box 832 Tel: 422-2640	Daniel J. Medonich	Okanogan (except Nespelem area) and Chief Joseph Dam area in Douglas Co.
OLYMPIA	406 South Water St. Tel: 352-4881	Alice I. Helenius	Mason Co. and north Thurston Co. including Tenino
PASCO	524 West Clark St. P. O. Box 53 Tel: 547-3313	Charles A. Vedder	Franklin-Benton Co. excluding west-central part west of Benton City
PORT ANGELES	8th and Laurel Streets P. O. Box 992 Tel: 457-4435	Floyd J. Hill	Clallam and Jefferson Counties
RAYMOND	218 Duryea Street P. O. Box 392 Tel: 942-2486	Edwin S. Harding	Pacific Co.
RENTON	200 Second Avenue P. O. Box 478 Tel: ALpine 5-3481	Cecilia Partlow	King Co. (Part)

Office	Address and Telephone	Manager	Geographical Areas Served
SEATTLE	223 Taylor Avenue North P. O. Box 1748 Tel: MAin 3-8900 MAin 4-3650	James G. Scanlan	King Co. (Part)
SPOKANE	N. 1206 Howard Street C & P Office: South 17 Washington St., Tel: FAirfax 8-9810	C. Ellwood Lease	Spokane, Lincoln, Whitman and all of Adams counties except Othello area
TACOMA	1313 Tacoma Ave. South Tel: BRoadway 2-4271	LeRoy B. Rossman	Pierce Co.
TOPPENISH	9 Washington Avenue P. O. Box 832 Tel: 865-6605	Nathan A. King	Yakima Co. south of Union Gap-Benton, west-central part (Roza project area west of Benton City)
VANCOUVER	1601 Broadway P. O. Box 329 Tel: OXford 3-1463	J. F. McDonnell	Clark, Skamania and Klickitat Counties
WALLA WALLA	321 East Main Street P. O. Box 78 Tel: JAckson 9-3600	Leonard A. Pruss	Walla Walla Co., Columbia Co., Garfield and Asotin Counties
WENATCHEE	403 South Mission Street P. O. Box 1089 Tel: NOrmandy 2-8167	S. Wayne Wardle	Chelan and Douglas Counties (except Chief Joseph Dam area)
YAKIMA	403 West Chestnut Street Tel: CHestnut 8-2550	Robert A. Clarke	Yakima Co. north of Union Gap

VT 000 603

VT 000 603
New York Women and Their Changing World, A Report and Recommendations.

Governor's Committee on the Education and Employment of Women, Albany, N.Y.
MF AVAILABLE IN VT-ERIC SET.
Executive Chamber, State Capitol, Albany, New York.
Pub Date - Dec64 97p.

*FEMALES; *EMPLOYMENT OPPORTUNITIES; *EDUCATIONAL OPPORTUNITIES; EQUAL OPPORTUNITIES (JOBS); PART TIME JOBS; OCCUPATIONAL GUIDANCE; POST HIGH SCHOOL GUIDANCE; MAIDS; HOME STUDY; *ADULT EDUCATION; PRESCHOOL PROGRAMS; VOLUNTEERS; ASPIRATION; MARITAL STATUS
NEW YORK

The greatest single change in the employment of women in the last 10 years has been the increase in number of married women at work. Because this brings changing problems and opportunities, a special committee recommended action programs on education, employment, and opportunities. The program to further the education of New York State women focused on the following needs: (1) new life goals for women, (2) continuing education for married women, (3) new ways for women to find new goals at home, (4) new ways for mothers to continue their education at home, (5) reemployment for mature women, (6) state profit by its investment in teacher training, (7) educational enrichment for disadvantaged children, and (8) better understanding of the roles of women by boys and girls. The program to improve the community in utilization of womanpower focused on the need for: (1) knowing more about women's need for jobs and industry's need for women, (2) more understanding by industry of the present performance of women workers, (3) part-time work, (4) competent and certified homemaker's assistants for working mothers, (5) occupational guidance for educated women, and (6) opportunities for volunteer service. The programs to seek out practices which discriminate against women's employment focused on the need for: (1) restudy of protective labor legislation, (2) supplemental legislation to promote employment opportunities for women, (3) a new understanding and more flexible application of equal pay laws, (4) more top jobs for women in New York State Government, (5) more information about women well-prepared for high level appointments, (6) better communications about new opportunities for women, (7) a breakdown of the invisible barriers that limit the number of women in high level jobs. A general recommendation was that several people be appointed to determine how these specific recommendations could be carried out. Background information is given in 13 appendixes. (MS)

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New ways to encourage the education of women to make full use of their talents and training

A REPORT AND RECOMMENDATIONS FROM THE GOVERNOR'S COMMITTEE ON THE EDUCATION AND EMPLOYMENT OF WOMEN

VT000603

"Women can and should play a larger role in our professional, business, political and community life. The future need for leadership and talent in our state and nation demands that every resource be used to the full."

NELSON A. ROCKEFELLER
Governor of New York

"We have tried to look at the statistics
but see the people . . .
to understand the problems
but see them as opportunities . . .
and to make action recommendations"

MRS. OSWALD B. LORD
Chairman of the Committee

Members of the Governor's Committee on the Education and Employment of Women

Mrs. Oswald B. Lord, *Chairman*
Former U. S. Representative to the United Nations; member Advisory Council Johns Hopkins University's School for Advanced International Studies; Member of the Board, Atlantic Council of the U.S.A.

John R. Mulhearn, *Vice Chairman*
Vice President in charge of Personnel, New York Telephone Company

Mrs. Charles K. Bassett
Director 20th Century Club of Buffalo, Head of American Women's Voluntary Services, Inc., in Buffalo during World War II

Dr. Sarah Gibson Blanding
President Emeritus, Vassar College

Mrs. Orvil E. Dryfoos
Director of Special Activities, The New York Times

Lewis G. Harriman, Jr.
Vice President, Manufacturers and Traders Trust Company, Buffalo

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Attorney, Adviser on Legal and International Organizations Affairs to the United States Mission to the U.N.

Cecil J. North
Retired President, Metropolitan Life Insurance Company

Mother Eleanor M. O'Byrne
President, Manhattanville College of the Sacred Heart

Russell V. Stephenson
Vice President, Sales, Mohawk Airlines, Utica

Miss Ruth F. Sturm
Attorney, Law Assistant in the United States Customs Court, past President Business and Professional Women's Clubs of New York State, Inc.

Dr. Paul L. Ward
President, Sarah Lawrence College

Mrs. Charles S. Whitman, Jr.
Vice President of the Sheltering Arms Childrens' Service, member of the Bryn Mawr Regional Scholarship Committee

Dr. Val H. Wilson (deceased)
President, Skidmore College

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December 15, 1964

The Honorable Nelson A. Rockefeller
Governor, State of New York
Albany, New York

Dear Governor Rockefeller:

On December 23, 1963, you appointed a special committee on the Education and Employment of Women.

In your broad charge to the committee you pointed out that New York's growing population and the massive expansion of higher education facilities now under way make the work of this special committee of immediate urgency.

You charged us to think in practical terms of what New York State can do to help aid in

—the education of women to make full use of their talents and training; and

—the education of the community to make full use of its trained and talented women

You pointed out the size of the problem—that women represent more than half of the fast growing population of the State.

You stressed that the future need for leadership requires that every human resource be used to the full.

You reminded us that New York State has been in the forefront of the states in opening opportunities for all of its citizens, and you hoped that this committee would accept the responsibility of making sure that this continues to be true in respect to the education and employment of women.

You asked us to study and report to you in three areas:

1. To recommend what practical measures state agencies might undertake to widen employment opportunities for women
2. To suggest how state agencies can develop further opportunities for guidance, re-training, and continuing education, leading to paid or volunteer employment of women, especially married women whose children no longer need their full-time care
3. To review the social, cultural, and philosophical considerations which influence the education of women today with a view to the formulation of long-range recommendations for action by New York schools and colleges

The committee has worked hard. We have tried to look at the statistics but see the people, to understand the problems but see them as opportunities, to build upon the great volume of good work and good thought that has been given to the world of women by national, state, and local experts in many areas.

It has been a thoughtful committee, eager to return to you with a workable program; a committee of busy people, who came to meetings promptly, did their required reading thoroughly, and who found time in their active lives to serve on sub-committees and to go out and find knowledgeable consultants.

As a committee, we have been grateful for the active and generous cooperation of the State government offices consulted, we have welcomed and profited by the good advice of a great variety of women's organizations, educational experts, business and labor leaders, and, eventually, of several hundred New York State women who shared richly of their personal knowledge and experience.

We are especially appreciative of the experienced counsel of Dr. Ewald B. Nyquist, Deputy Commissioner of Education, of Miss Guin Hall, Deputy Commissioner of the Woman's Program of the New York State Department of Commerce, and the members of your New York Woman's Council. We are deeply grateful for the thorough, expert, and invaluable help of Miss Edith Baikie, as Executive Director, and her capable assistants.

And we have been encouraged by the personal interest you have shown in the work of the committee by coming to one of its meetings and by inviting its chairman to meet with your personal cabinet of State department heads to discuss the work of the committee.

The job is not done, for it never will be. The changing world of women will not stand still. But we have come to you with action recommendations. They have the approval and support of the entire committee. And it is our hope that the program you may adopt will do its part to contribute to the growth and development and full utilization of the talents of New York's women, today and in the years to come.

Sincerely,
MARY P. LORD
(*Mrs. Oswald B. Lord*)
Chairman, Governor's Committee
on the Education and Employment of Women

Briefly, the committee recommends

THREE ACTION PROGRAMS

1. **An action program on EDUCATION**
—to further the education of New York State women for their roles in today's world *(see pages 27 to 36)*

2. **An action program on EMPLOYMENT**
—to improve the community's utilization of its woman-power in full- or part-time, paid or voluntary employment
(see pages 37 to 46)

3. **An action program on OPPORTUNITY**
—to seek out discriminatory laws and practices and invisible barriers to the acceptance and employment of women
(see pages 47 to 58)

A brief outline of these three programs follows.

On EDUCATION,
the committee recommends:

AN ALL-STATE EDUCATIONAL CONGRESS to explore the changing roles of women and how education can better fit them for their new opportunities *page 28*

FELLOWSHIP AND SCHOLARSHIP AID FOR PART-TIME STUDENTS with definite goals of academic degrees *page 30*

EXPANDED EDUCATIONAL TELEVISION in an efficient network readily available to help and encourage women interested in further study *page 31*

A HOME STUDY PROGRAM at high school and college levels prepared by the State Department of Education for the continuing education of women who cannot leave home *page 32*

A PILOT COMMUNITY GUIDANCE CENTER to help women explore their needs for continuing education or training for volunteer, part-time or full-time paid employment *page 33*

A TEACHERS RESERVE to give inactive teachers opportunity and incentive to maintain their skills, to give the community the benefit of their training and experience and to serve as a model for other professional and industrial reserves *page 34*

PRELIMINARY EDUCATION PROGRAMS at pre-kindergarten levels for districts where the proportion of children from disadvantaged homes prevents reasonable achievements in the first school years *page 35*

A TEACHING UNIT for secondary American History classes on the changing roles of women through the 18th, 19th, and 20th centuries *page 36*

On EMPLOYMENT,
the committee recommends:

A PILOT STUDY ON WOMANPOWER, conducted under the direction of the Interdepartmental Committee on Manpower, in one of the ten regions of the state designated by the Office for Regional Development, to provide factual information on women available for employment, both part-time and full-time, to assess the merits of regional councils to estimate long-range manpower requirements, and to explore facilities available for training and guidance as a basis for future regional or state planning *page 38*

A RANDOM SAMPLE SURVEY of performance records of women workers in New York State industry and the use of the findings of this survey to interest industries in widening opportunities for women *page 40*

A CLEARING HOUSE for part-time and possibly for volunteer workers *page 41*

STANDARDS FOR CERTIFIED HOMEMAKERS' ASSISTANTS and a broad program for training, certification, and placement of homemakers' assistants, to give status and satisfaction to this vocation and to supply the working mother's need for competent child and home care *page 42*

GUIDANCE BOOKS to be released periodically on a regional basis to inform women of opportunities for continuing education and part-time and full-time paid and volunteer employment *page 44*

A CONSULTANT ON VOLUNTEERS in the State Social Welfare Department to stimulate training and utilization of volunteers and a joint educational and voluntary agency conference at the local and regional levels *page 45*

On OPPORTUNITY,

the committee recommends:

REVIEW OF NEW YORK STATE'S LAWS regulating hours of work and conditions of labor for women to see whether the present legislation is in effect discriminatory rather than protective *page 48*

ENACTMENT OF SUPPLEMENTAL LEGISLATION to enable State enforcement of provisions of the 1964 Federal Civil Rights Act and to promote employment opportunities for women *page 49*

RE-EXAMINATION OF NEW YORK STATE'S EQUAL PAY LAWS and conformity to the Federal Equal Pay Act *page 51*

A STUDY of measures which may be adopted to promote increased appointment and promotion of women to higher jobs in State government *page 52*

CONSIDERATION OF A REGISTER OF WOMEN IN NEW YORK STATE who are well qualified for high level appointive office *page 55*

A PUBLIC INFORMATION PROGRAM for the mass media on how the State and industry are helping women to meet their new roles and new problems *page 56*

A LONG-RANGE PROGRAM to improve the climate for the acceptance of women in management—starting with a Governor's Conference for Industry and a survey of the existing patterns of usage of women in upper level jobs *page 57*

For detailed outline of recommendations, turn to page 28.

The committee also recognizes and appreciates existing programs in New York State that are of particular value in the education and employment of women . . .

NEW YORK STATE'S COMMUNITY COLLEGE PROGRAM which offers women opportunity for vocational and technical training and the groundwork for a liberal education within reasonable distance of their homes

The State of New York now has 28 Community Colleges. These two-year colleges are open to all high school graduates or persons with equivalent educational background. They are operated at low cost to students who live within reasonable daily commuting distance. They provide post-secondary school education and experience for all students, college or university transfer education for students interested and competent to carry their studies to the Bachelor's degree, and programs of vocational training beyond the high school but below the professional level for students seeking immediate entry into the labor force. These colleges are particularly suited to provide guidance and training for women who wish to continue their education but are not in a position to leave home.

NEW YORK STATE'S COLLEGE PROFICIENCY EXAMINATIONS which provide new opportunity for continuing education, especially for married women

The New York State Education Department and colleges and universities throughout the state have sponsored the development of College Proficiency Examinations by which many colleges in the state cooperate to grant undergraduate credits to individuals who now have college level command of one or more of the subjects usually taught in college and wish formal evidence of their proficiency for personal satisfaction, job promotion, or degree credit. Test scores in the examinations provide a measure of the candidate's proficiency in a given subject. When accepted by a college for credit, they can be translated into undergraduate credits toward a college degree. The State Education Department will accept satisfactory test scores on appropriate examinations in lieu of required course credits for teacher certification and other legal purposes. Women who wish to start or continue college work but cannot attend regular classes while raising families, or women who want to continue their studies after their children are grown, as well as adults in or near retirement who wish to go back to college find

these College Proficiency Examinations particularly helpful. An analysis of the background of the candidates who took the examinations in the spring of 1964 showed that three out of five candidates were women and almost 80% of these were married, many with children. The average age was between 35 and 40.

THE WOMAN'S PROGRAM OF THE NEW YORK STATE DEPARTMENT OF COMMERCE which offers helpful services to women interested in starting their own small businesses and has also filled a useful role in consumer education and vocational guidance

The New York State Woman's Program was first created to meet the needs of women who wanted advice and counsel on operating small businesses from their farms and homes. Later, with the aid of the New York Woman's Council, a group of New York State business and professional women who serve as volunteer consultants, the committee has broadened its activities to include a variety of programs, services, and research activities contributing to the needs of women as employers, employees, and consumers.

NEW YORK STATE'S PIONEERING IN LAWS REMOVING BARRIERS AGAINST WOMEN and in equal pay laws. Today there are very few laws in New York State that restrict the activities of women.

These are the facts about New York State women

WHO? WHERE? WHEN? New York State's 6.5 million women represent 53% of the adult population of New York State. At the time of the 1960 census

22% were single
58% were married
20% were widowed, divorced or separated.

In New York State's labor force of almost 7,000,000 in 1960 approximately 2,500,000 were women. Across the state, 34.4% or one third of New York's workers were women—from a low of 29% in Nassau-Suffolk to 37% in New York City.

AREA*	*Women as per cent of all workers*
Albany-Schenectady-Troy	35
Binghamton	35
Buffalo	31
Elmira	34
Nassau-Suffolk	29
New York City	37
Rochester	35
Syracuse	34
Utica-Rome	34
Westchester	34

In the ten years from 1950 to 1960, women moved onto New York payrolls at a faster rate than men.

* Labor market areas are those established by the Division of Employment of the N.Y. State Department of Labor.

AREA	*Net percentage change from 1950 to 1960 in employment of* MEN	WOMEN
Albany-Schenectady-Troy	−2	+19
Binghamton	+7	+21
Buffalo	+6	+30
Elmira	+2	+17
Nassau-Suffolk	+90	+118
New York City	−7	+12
Rochester	+9	+24
Syracuse	+10	+28
Utica-Rome	+4	+26
Westchester	+24	+36

In 1940, 30.8% of the state's female population was in the labor force; in 1960, 37%. And in New York State, as elsewhere in the United States, married, mature women are found in the labor force in increasing proportions.

More two-job wives

As recently as 1950, only 21.6% of married women living with their husbands were in the labor force, while in 1960, only ten years later, this figure had gone up to 30.4, or almost one in three.

Women are coming back to work

This is not a peculiarity of New York State. All across the country, as the 1963 report of the President's Commission on the Status of Women makes very clear, women are rejoining the labor force and playing an increasingly important part in helping to produce today's high level of goods and services.

There are many reasons why. The higher ratio of service jobs to production jobs has brought new opportunities. Women went back to work in wartime, and a lot of them stayed. Women are living longer, staying young and active longer. Family health is far better than it was twenty years ago, so that women are less likely to be tied down by the care of the ill. Labor-saving equipment and prepared foods have cut women's time in the kitchen. Labor-saving machinery and shorter hours have opened up areas of employment once closed to women.

By 1960, even the best informed observers noted with some surprise that three-fifths of the entire increase in New York State's labor force during the fifties consisted of married women.

More married than single

In the New York City area, mecca for young women job seekers, single women predominate in the labor force (55%). But in all the rest of the industrial centers of the state, *more than half the women workers are married.*

Across the state, among all women 14 years and over in 1960

—52% of the single women were at work (and many of the rest were in school)

—40% of widowed, divorced, and separated women were at work (many of them heads of families)

—30% of married women were at work (we keep coming back to this)

As women reach different age levels the proportion who are working changes. But except for the child-bearing years, there is no age period which has not shown an increase in the proportion of women at work—even the group over 65. The median age of women workers went up to 42 years in 1960 (from 37 in 1950 and 32 in 1940).

Age group	*Women workers as per cent of all women in age group*		
	1940	1950	1960
14-17	7	10	13
18-24	60	55	54
25-34	41	35	36
35-44	30	37	43
45-54	22	31	50
55-64			38
65 and over	6	9	12

It is vital to the understanding of the recommendations in this report for both employers and women to realize that:

8 out of 10 of today's young women will be employed outside the home at some time during their lifetime.

Women who begin work before 20 and remain unmarried will, on the average, continue to work for 40 years (according to a recent national study).

Let's say it another way:

Women who never marry have a work-life expectancy of 40 years (the work-life expectancy of a man is 43 years)

Women who marry and stay married but do not have children will work, on the average, for 31 years

Married women with children who return to the labor market at 30 or so still have a long work-life expectancy

Let's say it again!

Today's single woman can expect to work

Today's married woman is likely to stay at work after marriage or go back to work

And today's woman who goes back to work is likely to keep on working

Why do women work?

The pin-money days are over. Single women work, as men work, to pay their bills. Married women work, as men work, to help pay the family's bills, to help the family get its share of the good life as they see it, to help pay for the education of their children, and to help meet community needs by their specific training or talents.

What do women do?

In the spring of 1960, women were doing a lot of different jobs in New York State:

	Number of employed women (a)	*Per Cent of all employed women*
All women employed	2,269,000	100
Clerical workers	770,000	33
Operatives	393,000	18
Professional and technical workers	295,000	13
Service workers	245,000	11
Sales workers	151,000	7
Private household workers	129,000	6
Managers, officials & proprietors	81,000	4
Craftsmen, foremen	30,000	1
Laborers	8,000	(b)
Farm laborers and foremen	6,000	(b)
Farmers and farm managers	4,000	(b)

(a) Figures are rounded to nearest 1,000 and do not add to total
(b) Less than ½ of 1%

It wouldn't be hard for anyone to guess that clerical workers headed the list. But some of the other groups are worth a second look. Who were the 300,000 "professional and technical workers"? 97,000 were teachers in elementary and secondary schools, 70,000 were nurses, 11,000 social and group workers, 11,000 dietitians, nutritionists, and librarians, and 12,000 were teachers of various special subjects outside regular schools and colleges. So it would seem that two-thirds of the professional and technical workers were concentrated in fields traditionally open to women.

There are more jobs for teachers, nurses, social workers and the rest today because there are more people, higher levels of health care, and greater understanding of the need for organized and scientific treatment of social problems.

There is more room for women than for men in such fields as teachers, nurses, and social workers, medical and dental technicians, dancing teachers, farm and home management specialists.

But what has happened in other professions? The number of women doctors, lawyers, and engineers is not increasing substantially. In fact, the number of women engineers in New York State dropped from 1950 to 1960, while the number of men engineers rose by 41%.

One area of "professional and technical" work not precisely defined is the "not elsewhere classified" group. This includes technicians and others in the intermediate, non-degree holding range between craftsmen and professional, often in engineering and electronics. It is a classification that grew strikingly from 1950 to 1960 and one in which the number of women increased. Men employed in the "not elsewhere classified" professional and technical occupations in New York State increased from 7,300 to 29,000, women from 3,900 to 9,600 in the ten-year period.

There was increased employment of women in administrative fields in the decade. In public administration the number of women officials and administrators increased by 37%. Two-thirds of this increase in supervisory jobs for women was in local government. State and Federal government operations employing New York State residents showed much less of a trend toward

the employment of women in higher level positions.

In banking, the number of women managers and officials more than doubled, from 1,133 to 2,478, while the number of men, although still predominant (22;000 in 1960) increased only 50%. Salaried women officials and managers grew in importance in the state's business services, a rapidly expanding field. The number of self-employed women in business services (primarily insurance and real estate) grew substantially, while the occupation of men in these fields declined. Opportunities for women in executive or administrative posts in retail trade continued to be important, especially in those stores where the customers are women.

There are more jobs for women as clerical workers, but important shifts are occurring in the relative importance of clerical work in different industries. Office machine equipment and data processing are eliminating many jobs in inventory control, payrolls, and billing. Clerical workers are relatively less important now in communications and utilities. But women hold more jobs in public administration, transportation (particularly airlines), wholesale and retail trade, finance, insurance, and real estate, business and personal services and in education.

Women outnumber men as medical attendants, bookkeepers, cashiers, file clerks, office machine operators, payroll clerks, receptionists, secretaries, stenographers, typists, telephone operators, and general clerical workers. There is a shift toward the employment of women as bank tellers, cashiers, and insurance adjusters. In 1950 there were twice as many men bank tellers as women. Today there are more women than men.

There is increasing employment of women as clerks and demonstrators in retail stores, as real estate agents and brokers, as cooks, counter help, and waitresses, and housekeepers and maids in institutions, as hospital and institutional attendants. There is real need for women as practical nurses and the need is not being met. There are many more women in cleaning jobs in offices, plants and institutions.

In today's fast-paced world, 10 years is a long time. We are halfway between census periods now. It is obvious that conclusions based on 1960 information may already be out of date and that there will be many more changes by 1970.

Part-time employment

One area about which we know too little is the extent of part-time work in New York State. In 1959, according to the last census, 64% of the women who worked were employed for 40 weeks or more, 36% worked less than 40 weeks. These less-than-full-year workers include factory workers who lose their jobs through seasonal or slack-work layoffs, women who work from 9 to 1 or other short shifts, many teachers who do not seek summer employment, teen-agers and other women who go into the labor market only for summer or Christmas jobs. Since 1955 part-time employment has been increasing at a faster rate than full-time. There seems to be a need for new ways to use part-time workers and new ways to help women find part-time jobs.

Here and there, new ways are being found. Hospitals, telephone companies, and other institutions are discovering imaginative ways to use women in less than full day shifts. Food processing companies find local farm and home women happy to pick up a few months' work at their peak seasons. And the general shortage of qualified workers in technical, medical and health fields is opening the way to part-time employment for many skilled professionals.

In the clerical fields the recent growth of commercial agencies to provide temporary or part-time typists or stenographers is an expanding source of full-time employment. Women who develop specialized skills like statistical or manuscript typing are in demand. And in every community there is a constant and growing need and a wide variety of opportunity for capable dependable volunteers.

Facts and figures in this section are from a detailed report prepared for the committee by Miss Irma Rittenhouse

"Look at the statistics — but see the people"

New York State has always been a leader *in considering the* welfare of women. The Woman's Program in the State Department of Commerce has given small business advice and vocational information to more than a million women since it was organized in 1945. There has been serious consideration of the educational needs of women in planning the Community College and Proficiency Examination programs. There has been recognition of women's need for full and part-time work in the New York State Employment Offices. There is healthy respect for the volunteer community and political contributions of New York women at state, national, and local levels:

The Governor's Committee on the Education and Employment of Women began its work in full awareness of these facts. We have had the friendly and cooperative help of New York State agencies. And we have tried to look at the statistics with deep understanding of the people they represent and the lives our women live.

We have thought in terms of

—better motivation and new goals for younger women, who are most likely to come back into the labor force at some time in their lives (and unlikely to see themselves in this picture when they are young)

—re-education and training of older women and home women who have lost or never acquired saleable skills

—ways to inform the business and industrial community of the specific needs and aptitudes of women, the advantage to the community of constructive use of its womanpower, and the intelligent ways many industries are adapting their requirements to women's special needs

The committee started with complete recognition of the essential importance to the State and the community of woman's roles as wife, mother and homemaker. We know that many women will never need or want anything more, and we know there is honest difference of opinion on whether it is socially desirable for women to return to the labor market. There is difference of opinion, too, on whether such things as today's young marriages are socially desirable. But women *are* marrying younger, having babies younger, completing their families younger. And women are coming back to work.

The committee recognizes that the return of married women to the New York State labor market is more than a whim. Some women come back, as they do in other states, because they are heads of families. Others come back to help the family pay its bills. Others come back to earn money for the education of their children. And some women come back to or never leave a job or profession for which they have special training and talent and they find personal satisfaction and self-fulfilment in their work.

Time did not permit special studies of the status of women in minority groups throughout the state. But we thought with compassion of the known fact that there are more wives and mothers at work among Negro women, many of whom are the chief support and mainstay of their families and who must leave home to earn money even while their children are young. We know that this should be kept in mind in these days when there is an awakening understanding of the community's responsibility to improve the social and economic status of the Negro and other disadvantaged groups.

But whatever the group, whatever the reasons, *the biggest single change in the employment of women in the last ten years has been the increase in numbers of married women at work.*

We do not regard this as alarming. We do not believe that the majority of New York State women live lives of quiet des-

peration or even extreme frustration. We believe that the women of New York State are at least as well adjusted as the women of other states in the Union and, for that matter, other times and places. The majority of our women are coping intelligently with the complex demands of busy lives, they are managing to be companionable wives, dedicated and understanding mothers, responsible members of the community, and frequently contributing members of the business and scientific and educational worlds.

We know that there has never been a time when so many New York State women have completed so many years of school. Probably there never has been a time when so many women have willingly accepted a share of community responsibility and put so many hours of womanpower into productive and worth while volunteer activities. Women's clubs and organizations have contributed to the growth and education of women. Hospitals and a wide range of community services are stronger for the dedicated work of trained volunteers. Today's children are sturdier, healthier, better educated than the children of past generations and that speaks well for their mothers.

We know that women in the labor force and women in the upper levels of business and professional service have gone a long way toward erasing the labels of "amateur" and "dilettante" once applied to women workers and that today in many fields women work capably and responsibly and cooperatively with men and there is good evidence that their contributions are recognized by increasing financial and personal satisfactions.

But the changing world of women brings changing problems as well as changing opportunities.

Let's look at a few

PROBLEM: There is increasing pressure for trained and talented women to go back to school or back to work. Yet it is harder and harder for these women to find capable help at home.

PROBLEM: A bright, educated woman with time on her hands but no specialized training may feel that her talents are under-used—but still have no notion where to look for guidance and retraining.

PROBLEM: Many women have a very real need to add to the family income, either because they are heads of families, as many

single, widowed or divorced women are, or because they have a natural desire to upgrade the education of their children. But jobs are hard to come by—and the cost of earning money is high.

PROBLEM: There are increasing numbers of women who need employment and who are trained only for those jobs most likely to be affected by automation.

PROBLEM: As the number of people over fifty increases, there are more older women who would like to be useful and who need to be needed. But what are they to do? And what does the community suggest?

PROBLEM: There is pressure on women to go back to school and pressure on education to prepare adult women for specific vocations. Yet there is very little accurate information on vocational needs of the future. As trained women pour into fields which have more than enough men or young job-seekers, what does this do to the labor market? (Today, for instance, there is a general assumption that openings in education will continue to be plentiful for mature women. Yet how long will this be true, when so many young teachers, children of the baby boom of the 40's, are pouring out of New York State institutions? On the other hand, New York State schools offer few courses in social work for older women, yet here the shortages are still acute).

PROBLEM: There is increasing need for trained technologists in many fields. Yet there is a shortage of facilities to train women in computer programming and other new and needed skills.

PROBLEM: There are more women in better paid jobs than at any time in history; but many women in business and the professions still feel there are invisible barriers to upper level jobs and in some cases, through lack of training or understanding, they are helping to create their own barriers.

PROBLEM: There is more variety of volunteer work than ever before, but women frequently discover that even volunteer work today requires more than just a willing heart.

It is not possible to look at the problems of the education and employment of women without realizing that all education and all employment depend on maintenance of an economic climate that encourages continued growth of products and services and constructive research and development. We know that New York State has many programs in support of business and industry.

We have considered all these things and more. As we have studied the problems and opportunities of today's women, it has seemed to us that the changing world of women is not yet completely understood and accepted even by the people living in it.

With the number and variety of ways to continue education, with the numbers of women pouring back into the labor market, with the new flexibility of school and industry hours adjusted to women's double responsibility of home and job, with changes in discriminatory practices in the employment and promotion of women, it looks today, as one woman put it recently, as though we may, in our generation, be nearing a milestone comparable to the admission of women to institutions of higher learning and the passage of the Suffrage Amendment.

Yet much remains to be done. Our young women still start very early in life to see their life goals in terms of home and marriage. Neither home nor school is completely preparing them to face the fact of life that most of them will need new goals and occupations for three or four decades beyond the child-rearing years.

It has been said that "middle age", for half of our married women, actually begins at about 32. Half of all married women are today 26 or less when the last of their babies is born. They are 32 or less when the youngest child enters school. And improved health conditions indicate that women today will live for 70 years or more. So at 32 many women face the responsibility of deciding what to do with 40 or more years.

But we have been thinking not only in terms of women and their personal needs but of the needs of the community. For it has seemed to us that the continuing education of women must have more specific goals than merely self-realization, in view of today's increasing pressures on the higher education resources of the nation.

The use of volunteers must have deeper goals than busy-work for the volunteer.

The establishment of a Teachers Reserve (see page 34) must have more meaning than just to make life interesting for the teacher.

Today's world demands and requires full use of its resources—and womanpower is a primary resource.

We know that New York State has done a forward-looking job of removing many of the basic barriers to equal rights for women. But it does seem that many of today's women, at various stages of their lives, find themselves with *equal rights but unequal problems,* difficulties and handicaps which in some cases could be alleviated.

Our recommendations are presented not as final solutions for all the problems of women at home and women at work but as an interim program that may improve the climate for women in our changing society and may at the same time help the community to explore some of its changing opportunities. It is our hope that the recommendations we are making may serve to alert officials in state and local government, private employers and educators to think in honest, realistic, and compassionate terms about New York State women.

Tomorrow!

There has never been a time in human history when a man or a woman has had so much reason to be aware of how fast tomorrow comes. How fast is tomorrow coming in automation? Will jobs for women, jobs for people, disappear? How fast is tomorrow coming in population? Is it exploding faster than our schools and communities can catch up? How fast is tomorrow coming in changing patterns of educational needs? Are we training our children for the little job that isn't there? Are we giving them enough or the right kind of education for the flexibility that tomorrow will demand? How fast is tomorrow bringing new needs, new problems, new responsibilities before we have quite caught up with the troubles of today? We don't believe that tomorrow should be allowed to swoop down on us without warning.

And so we suggest that in the particular area of the education and employment of women the Governor should consider the appointment of three or four people to determine how these recommendations can be carried out. We hope this group of people will consider particularly how activities relating to women can be coordinated within and among the State Departments of Civil Service, Commerce, Education, Health, Labor, Mental Hygiene, Social Welfare, and other departments, and how interested organizations and individuals on local, state, and national political and business levels can be kept informed of New York State's present and long range plans to keep abreast of the changing needs of women and the changing needs of the community for womanpower.

If all of this hard work results in

—a greater use of women's executive talents in the planning and management areas of government and business

—better retraining for women who want to return to work as their children grow up

—better understanding among employers of the value of mature women

—new developments that will make it possible for young women to continue to work toward serious goals and still know the joys of marriage and homemaking

—greater use of the homemaking skills of other women who are now untrained

then in this area at least, the committee believes, we shall be marching toward tomorrow!

For detailed description of how the committee did its work, see Appendix 1.

THREE ACTION PROGRAMS

presented to Governor Rockefeller
by the Governor's Committee
on the Education and Employment of Women

On the following pages, the committee presents details and clarification of the action programs outlined in brief on pages 5 to 8 of this book. These programs are a direct response to the three-way challenge presented by Governor Rockefeller.

Governor Rockefeller asked:

"How can State agencies aid in guidance, retraining, and the continuing education of women who may at some time return to the labor force?"

The committee recommends:

I. AN ACTION PROGRAM ON EDUCATION— to further the education of New York State women for their role in today's world

Governor Rockefeller asked:

"What can State agencies do to open up opportunities to women and make known to employers the availability of qualified women?"

The committee recommends:

II. AN ACTION PROGRAM ON EMPLOYMENT

—to improve the community's utilization of its womanpower

Governor Rockefeller asked:

"What long range measures might State agencies undertake to widen opportunities for women?"

The committee recommends:

III. AN ACTION PROGRAM ON OPPORTUNITY

—to seek out discriminatory laws and practices and invisible barriers to the acceptance and employment of women

It has been the object of the committee to think in practical terms of what can be done right now to make women's lives more meaningful to themselves and more useful to the community. We have thought very personally about the needs of New York State women, group by group, and we are introducing each action recommendation with an illustration of a particular woman to whom it might apply.

I. An action program on EDUCATION

to further the education of New York State women for their roles in today's world

NEED: NEW LIFE GOALS

RECOMMENDATION:

An all-state educational congress to explore the changing roles of women and how education can better fit them for their opportunities

> *Jane J is 17. If she follows the pattern of her age group in New York State today, she will marry before she is 21 and have her last child before she is 26. Beyond that, Jane's view of the future is dim. She has thought very little of a lifetime career. And very little in her education has prepared her to plan a life for herself beyond the years when her children will be grown. Nothing in her husband's education has prepared him to think of this eventuality. Are today's educational patterns really giving Jane the attitudes, life goals, and vocational training she will need?*

A woman's life goals are the product of her environment. They are the total result of her education from pre-school and kindergarten on. The committee, therefore, proposes an all-state Educational Congress on the changing roles of women and how to fit women's education to their opportunities.

It is our hope that this Congress, sponsored by the Governor and the State Board of Regents, will review the social, cultural and economic changes affecting the lives of today's women and will explore whether today's educational patterns from kindergarten to college should be re-adjusted to fit women more realistically for the roles they can play and the opportunities open to them to lead more effective and productive lives.

The Congress might examine the psychological factors in today's educational patterns that limit the long-time goals of today's women and are frequently unrealistic in terms of how many women, for one reason or another, will find their way back to the labor market. It should explore existing opportunities for young women and determine how present patterns of vocational and technical training are measuring up to the community's needs, especially with respect to the education of married women. It should examine employment opportunities for mature women and discuss what can be done to re-educate or retrain women to enter the working world —and how such good things as New York State's Community College Program and College Proficiency Examinations can help to

meet this need. The Congress should also consider the need for continuing growth and development of women at home and re-examine current guidance facilities and part-time educational programs.

It is the committee's belief that grade school years are not too early to explain to today's children that a woman may be the mother of John and Jane and also have activities and responsibilities outside the home. Grade school and high school are not too soon for a woman to acquire vocational skills and information about occupational opportunities. Along with vocational training should go realistic study of the role of women in the labor force today so that young girls will be encouraged to take their job preparation seriously and families will be prepared to recognize its importance. Young women workers need information and understanding of the possibilities for upgrading and continued training and should be encouraged to increase their occupational skills. When they leave the labor force to have their families, there should be plans to help them keep up in their fields and if necessary opportunities for retraining, as some companies are supplying now.

Technical education cannot be terminal in today's fast changing world. It is predicted that young workers entering the labor force will have to change their work skills and knowledge at least three times during their working careers. It is deeply important to have this understood by young people before they leave or drop out of high school, and it is desirable that women understand the need to maintain contact and retain work skills while they are raising their families.

Study of professional schools

The committee recommends that the Educational Congress also review the limitations affecting the acceptance of women in professional or graduate schools in New York State. Women represent a very small part of the student body of our graduate and professional schools and there is some reason to believe, the committee finds, that there may be some discrimination against the admission of women to many professional and graduate fields. Studies have shown that even where women leave these fields for a time for family reasons, they do return and use the education they have obtained. It is important that the principle of equal opportunity for all qualified persons to pursue their education in all fields be safeguarded.

For copy of questionnaire sent by the committee to New York State colleges and excerpts of their replies about continuing education, see Appendix 2. For location of Community Colleges, see Appendix 11

NEED: CONTINUING EDUCATION FOR MARRIED WOMEN

RECOMMENDATION:

Fellowship and scholarship aid for part-time students

Mrs. B. has young children. She is needed at home. But she would have time to embark on a planned program of part-time study if she could afford it.

Today there is no State aid program in New York State for women who, because of other obligations, can study only part-time (except a few graduate scholarships in science and engineering). The committee believes it is of the utmost importance that New York State consider the possibility of financial aid of this kind for part-time study. We recommend a reasonable initial appropriation for fellowship and scholarship aid to part-time students. This would be a selective program available only to qualified women who need financial assistance, who can assume a responsible share of the cost, who are embarking on programs with definite diploma or degree goals, and whose objectives are realistic in terms of background and aptitude.

It is our recommendation that this program be incorporated into New York State's present program of financial aid to higher education in the hope that this will make it possible for many capable, well motivated women to develop their own potential and be prepared to find their way back into the mainstream of community life and service. There would be definite advantages to the community in having a reservoir of trained and qualified womanpower.

For further information about the proposed program of financial aid for the continuing education of women on a part-time basis, see Appendix 3

NEED: NEW WAYS FOR WOMEN TO FIND NEW GOALS AT HOME

RECOMMENDATION:

Expanded educational television

Mrs. L. is a mature woman with a busy life at home and no immediate educational ambitions. She could be awakened to a wider world by television programs about opportunities for women and prepared to live in a wider world by educational television courses.

New York State is far behind many other states in Educational Television. The committee feels strongly that it is important for New York State to commit itself to the expansion of Educational Television into an efficient network readily available with help and encouragement to women interested in further education.

We believe that women should be able to find courses on the air that would prepare them for College Proficiency Examinations. Furthermore, it seems to us that the National Educational Television Network should be encouraged to arrange a number of programs concretely illustrating ways in which mature women are currently performing important functions outside the home to their own satisfaction. Other programs could demonstrate the real need for the talents and skills of trained volunteers at every level of community service. Others could encourage housewives to take part in political and community action programs. In this way we believe that educational television could play a very real part in clarifying the changing roles of women and encouraging recognition by the community of the importance of womanpower.

For further information on New York State aid to Educational Television and proposals for expansion, see Appendix 4

NEED: NEW WAYS FOR MOTHERS TO CONTINUE THEIR EDUCATION AT HOME

RECOMMENDATION:

A home study program at high school and college levels

> *Nancy Jo has a baby. Nancy Jo has had one year of college. Nancy Jo is ambitious. She would like to go on and get her degree. But she cannot leave home right now even to go to the nearest Community College. How can she continue her education?*

The committee hopes that the State Education Department will explore the possibilities of establishing a Home Study program in cooperation with the secondary schools, colleges and universities within the state. It would provide women at home (and sometimes their young husbands) an opportunity to prepare for College Proficiency Examinations and should be coordinated to make that newly-established program even more effective. There seems to be a real need for the expansion of home study plans to enable people at all age levels to establish credit for high school diplomas and for college work.

NEED: RE-EMPLOYMENT FOR MATURE WOMEN

RECOMMENDATION:

A pilot community guidance center

Mrs. A. is 39. Her children are in school. Her days are less crowded. She would like to go to work to build up funds for the education of her children and to feel more comfortable and secure about herself as a person, but she has only a limited education and she does not know where or how to look for a job. Where can she go for help?

It is the committee's hope that New York State might establish a pilot Community Guidance Center to help women explore their needs for continuing education or retraining for volunteer or part-time or full-time paid employment.

We believe the Guidance Center should be equipped to evaluate a candidate's capabilities, to suggest where and how she might acquire the vocational training or retraining she needs to become employable. It is our hope, too, that the Guidance Center would be well informed on community needs and be able to channel older women into paths of usefulness in volunteer service as well as full-time or part-time employment.

The State Department of Education, the State University and the Department of Labor should be invited to cooperate on this pilot program which might be located in a community college. It could well be a part of the pilot study program under the Interdepartmental Committee on Manpower. We believe it should focus on women who have not gone to college, as well as college educated women. It should be particularly helpful in directing women to community colleges and other sources of vocational training and should be responsible for preparing and distributing publications on vocational training and job opportunities for women at all educational levels.

Research and experimentation are needed in this area. If ways can be found through a pilot program to meet the needs of the older woman and the needs of the community, then this knowledge should be shared and a regional group of Guidance Centers could be developed to serve the women and the industry of the state.

Women who want to know about some available programs for continuing education now, are invited to read Appendix 2

NEED: TO PROFIT BY STATE INVESTMENT IN TEACHER TRAINING

RECOMMENDATION:

A Teachers Reserve

Mary J was a teacher. She quit teaching when her first baby was born. Today she is completely out of touch with her profession, yet population forecasts indicate that the community into which she has just moved will some day soon be deeply in need of teachers.

When a teacher quits teaching in New York State today, to marry, have a baby, bring up a family or for any other reason, her potential value as a teacher starts to slip. It is hard for her to find either an incentive for or a method of keeping up her skills, keeping informed about changing educational patterns, keeping prepared to return to her profession when she can.

A Teachers Reserve, which would be open to men and women but would inevitably be largely made up of women, would give the inactive teacher a way to keep in touch with her profession. By meetings, bulletins, and occasional opportunities for substitute teaching, it would enhance the intellectual lives of housewives who have been teachers. It would give the teacher incentive and opportunity to maintain professional competence toward the day when she can come back to the teaching force. It would provide the community with a core of trained teachers for emergency help as internes, part-time teachers, and reserve volunteers.

New York State is in a particularly happy position to organize an effective Teachers Reserve because of the teacher certification function of the State Education Department, the extension programs of its public and private colleges and schools and its professional associations of teachers.

It is the committee's hope that the successful organization of a Teachers Reserve would point the way to the development of other reserve units to provide training and stimulate incentive and status for temporarily retired nurses, home economists, and other professional groups. In this connection, it was interesting to learn that some New York State employers are maintaining their own reserves of former employees and conducting retraining classes for them.

For more details on the proposed Teachers Reserve, see Appendix 5

NEED: EDUCATIONAL ENRICHMENT FOR DISADVANTAGED CHILDREN

RECOMMENDATION:

Educational programs at pre-kindergarten levels

> *Mrs. K. is a day worker. She is a widow and the head of a family. She must leave small children at home when she goes out to work. The children need more than the day care Mrs. K. can afford. They are ready for the school system. By the time it is ready for them, they will be both nutritionally and educationally disadvantaged.*

The committee believes that there is a most important and urgent need for the education of children at pre-kindergarten levels—not just day care but educational enrichment to give the children of disadvantaged homes good background training for kindergarten and school.

The purpose of kindergarten is to prepare the child socially and mentally to profit from formal education, but for many groups today this cannot be done in one year. Without greater preparation the first-graders in many schools cannot achieve enough to avoid becoming progressively more maladjusted to the school system and later to society. On the other hand, a good start for the young child might prevent the development of such problems, and the mother who finds it necessary to have an outside job could feel more comfortable about the safety and growth of her children.

We suggest, too, continuing study of community patterns of day care centers to determine whether New York State's facilities are adequate to meet the needs of back to school and back to work mothers.

NEED: BETTER UNDERSTANDING OF THE ROLES OF WOMEN BY BOYS AND GIRLS (who will grow up)

RECOMMENDATION:

A teaching unit for secondary American history classes on the changing roles of women through the 18th, 19th and 20th centuries.

> *John and Jane are 10-year-old twins. John has definite ideas about what he will do when he grows up. Some of his ideas will change. But some of them will not. For John knows that he will go to school and probably to college, and then he will go to work. And from then on he will keep at work in one job or another until that far-away day he may die or retire. Jane has definite ideas about what she will do, too. She will grow up. She will marry. She will have a husband and a home and a child or children. And after that Jane's ideas come to a complete stop. As one young mother put it recently "It's hard to think that you have come to the end of your life plans at 24."*

Man's roles as an explorer, inventor, workman, industrialist, educator, statesman, farmer, warrior, and cowboy are fairly well explored throughout our educational system and our mass media. But the schoolchild rarely finds a woman's role spelled out in terms other than mother. The committee, therefore, recommends that the State Department of Education consider a teaching unit for secondary American history classes, on the changing role of women through the 18th, 19th, and 20th centuries (and in passing suggests that this might be program material for educational television). We particularly urge that the unit be used in classes for both boys and girls, for it is just as important for men to grow up understanding wide-ranging life goals for women as it is for women themselves to see their lives in a wider focus.

II. An action program on EMPLOYMENT

to improve the community's utilization of its womanpower

NEED: TO KNOW MORE ABOUT WOMEN'S NEED FOR JOBS AND INDUSTRY'S NEED FOR WOMEN

RECOMMENDATION:

A pilot study on womanpower

Mrs. Y. is well read, well informed, well motivated. She is staying at home while her babies are young. But she is keeping in touch with her profession and hopes to go back to work. But Mrs. Y. reads that automation and other technical factors may bring great changes to the labor market. Will there be a job for her to go back to?

In New York State today, as in many places across the country, nobody can really answer this question. We know some of the answers—the exploding population, the age shifts in the population mix, the shift from rural to urban living, the speed with which the machine is swallowing up many jobs for unskilled and semi-skilled labor. We know that full employment depends on the maintenance of a free economy, on encouraging the growth of products and services, and other economic factors. But we are still in the dark about many of the facts needed to make an accurate appraisal of the position of women within the labor market today and the manpower and womanpower needs for tomorrow.

The committee's studies have revealed a lack of factual information concerning womanpower resources available for employment both part-time and full-time, although there is evidence that more progress is being made than is generally known.

For this reason, the committee suggests that a pilot study of womanpower be conducted in one of the ten regions of the State designated in the report by the State Office for Regional Development, and that the Interdepartmental Committee on Manpower* be designated to carry out this special study on womanpower. This pilot study would:

—determine factual information on women available for employment, both part-time and full-time

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* This committee includes the State Commissioners of Labor, Commerce, Education, Social Welfare, Agriculture and Markets, and Director of Division for Youth.

—explore the possibility of appointing regional councils, each representing a major industry in the area and drawn from top leadership, to prepare annual 5-year forecasts of total manpower and womanpower requirements

—determine the most effective way to provide orientation and guidance counseling for women—hopefully at a nearby community college but elsewhere if no college is available

—appraise the facilities available in schools and community colleges for providing new and refresher training for women and recommend expansion of facilities if they are inadequate

—develop methods for the continuing exchange of information about the employment of women among State and private agencies, employers, counselors and potential employees

It is urged that this pilot study shall provide findings sufficiently detailed so they may serve as the basis for regional or State planning by the end of 1966.

NEED: FOR MORE UNDERSTANDING BY INDUSTRY OF PRESENT PERFORMANCE OF WOMEN WORKERS

RECOMMENDATION:

A random sample survey of performance records of women workers

Mr. O. is a small manufacturer. He has employed mostly young women workers who come and go and feels they lack serious interest in their work. He has never studied the employment records of mature women to see how well they compare with men on time away from work and other factors.

The committee recommends that the Interdepartmental Committee on Manpower make a survey of employers in New York State on a random sample basis. The survey would be expected to test the committee's findings:

—that significant numbers of women *are* performing successfully in key positions

—that some employers *have need for and are utilizing* the talented womanpower available in part-time, full-time, temporary and odd-shift arrangements

—that many women are reentering the labor market after raising families. Although it may take a little longer for them to get oriented, they turn out to be more reliable, dependable, capable of assuming increasing responsibility, and have lower turnover and lower frequency of absence

—that womanpower as a group is handicapped by certain special limiting factors. Among these are the high absence and high turnover of younger women, physical restrictions, the competitive disadvantage faced by mature married women from a man or woman with uninterrupted work experience

—that there are increasing numbers of women who have uninterrupted business careers and similar performance characteristics to men

For a suggested questionnaire for this study, see Appendix 6

NEED: PART-TIME WORK

RECOMMENDATION:

A clearing house for part-time workers

> *Mrs. K. is busy, very busy. But she would like to keep up her skills and interests outside the home. She could use extra money. So she would like to find part-time work and she does not know where or how to look for it.*

There are women who are happy to find part-time work for a month or two or a season. There are industries in New York State, such as food canning centers, where this is the only kind of work available. There are other women who want to work a day or two a week or a few hours a day. The committee finds indications that there is a growing desire for part-time work on the part of women who are not able to take full-time jobs and that regular employment agencies have very little advice or help for them. It is our suggestion that New York State develop a clearing house for part-time work in a New York State agency or as a function of the New York State Employment Service (and we suggest that the inclusion of opportunities for volunteer services might be considered).

NEED: COMPETENT AND CERTIFIED HOMEMAKER'S ASSISTANTS FOR WORKING MOTHERS

RECOMMENDATION:

Standards for certified homemaker's assistants and a broad program for their training, certification, and upgrading

> *Sara is a scientist. She has a capacity for hard, concentrated work, a trained brain, a real potential for important, deeply needed research. But Sara is a conscientious mother. How can she concentrate on her field of usefulness if she has no one she can trust with the children?*
>
> *Mary loves children. She has a limited educational potential. She might drift in and out of the labor market in various low-paid jobs for years. But she has no vocational training for housework. And because housework is today at the bottom of the status ladder she has no inclination to attempt it.*

The committee found a deep interest among New York women in the problem of the educated mother who wants to go back to her professional field but suffers from the lack of availability of competent help at home. We think this will continue to be a basic problem in the utilization of womanpower. It is our recommendation that the proper New York State agencies give serious consideration to the development of standards for Certified Homemaker's Assistants, and a broad program of vocational training, certification, and placement of these qualified homemaking aides to give status and satisfaction to the job and to supply today's need for competent child and home care.

It is hoped that vocational training for homemaking could be upgraded and made a more important part of the educational pattern in the public schools so that a girl might leave junior or senior high school with a Homemaking Proficiency Certificate and sound homemaking skills.

It is possible that the New York State Employment Service might serve as a placement agency for Certified Homemaker's Assistants. It would be desirable, too, to conduct a continuing public relations program to make the housekeeper known as a skilled employee and to encourage community respect for the standing of this vocation. It is hoped that this would bring employers up to new levels of understanding of the employer's obligation and responsibility. It would also be desirable to explore whether a refresher course in homemaking skills might be available to mature women and whether they, too, might find new satisfactions in homemaking outside the home, if the job is presented in new terms and with new status.

We suggest, too, that the state explore the possibility of developing standards of competency for *various grades* of household assistants—day care of children, cleaning, day and night care and household management, care of sick, etc. Several consultants have also urged that the committee note the increasing need for emergency homemakers. These homemakers, sponsored by a voluntary health or welfare agency, provide emergency aid to households where the mother in temporarily ill or absent. It is suggested that this should be given further consideration by the State Department of Welfare.

NEED: OCCUPATIONAL GUIDANCE FOR EDUCATED WOMEN

RECOMMENDATION:

Guidance books

Mrs. O is a college-trained woman who held a good job before she married. But her skills have grown rusty, she has done no further studying. She would like to feel that she can continue to grow as a person and to perform useful community service but she is a little vague about how to go about it.

There is a real need for a Guidance Book for educated women, presenting opportunities for continuing education, for part-time and full-time paid employment, and for worth while volunteer service. A book on a state-wide level would hardly be helpful, but the committee suggests that a New York State department be given funds to develop a pilot Guidance Book for one region in the state with the hope that it could be adapted by volunteer agencies or organizations at other local and regional levels. The book should be re-issued on an annual basis and could probably be sold at a self-liquidating price. The committee believes that there is a real need for this book and that it could be of key importance in awakening women to a wider world of opportunity and responsibility. We hope that it would be enriched by information on available educational patterns from the State Education Department, job opportunity information from the Department of Labor, a strong presentation of the need for intelligent, educated volunteers at the community level from the Department of Social Welfare, and occupational advice from the Department of Commerce. We believe that volunteer agencies would be happy to assist in its distribution and sale and that it could be of genuine service to women and to the community.

See Appendix 7 for description of some recent information booklets for women

NEED: OPPORTUNITIES FOR VOLUNTEER SERVICE

RECOMMENDATION:

Consultant on volunteers and a joint educational and voluntary agency conference sponsored by the Interdepartmental Health and Hospital Council*

Mrs. Y. is willing. She has a trained mind and executive ability. She is an effective speaker, and her talents are in demand by a variety of service organizations in her community. But Mrs. Y. feels sometimes that professional agencies are interested only in her ability as a doorbell ringer and make no real effort to put her trained skills to effective use.

There is probably no state that has more volunteers doing more effective work than New York State. While the figures are not available, it is quite possible that there is more womanpower expended in volunteer service throughout the state than in paid employment. Many of our hospitals, community services, state institutions, and political action groups would be in a sorry way without the strong, capable and devoted volunteers who help to keep them going.

But for all this good record, there is still a strong need, the committee feels, for better training, recognition and use of volunteers. We welcome the recent appointment of a Consultant on Volunteers in the State Social Welfare Department. We hope that this Consultant, working with the Interdepartmental Health and Hospital Council, may study plans for volunteer recruitment, volunteer training, and volunteer certification and that the State might consider a joint educational and voluntary agency conference not only to plan better methods of volunteer training but to educate agencies themselves on how to use volunteers effectively.

The new State Consultant on Volunteers may give fresh direction to the whole question of the place of the volunteer, how she can and should be trained, how the State Extension Service, Adult Education Centers and Community Colleges can contribute to her training, and what can be done to improve the patterns in which volunteers are used by state agencies.

The committee also recognizes and appreciates that the State Department of Social Welfare is pressing forward with the develop-

* This council includes State Commissioners of Education, Health, Insurance, Mental Hygiene and Social Welfare.

ment of places for the training and use of volunteers in public welfare (now authorized by the social welfare law).

Further exploration might be made of the desirability of a Central Bureau of Information for Volunteers, a study of the existing experiments of this kind, and the development of a pilot program other communities might want to adopt.

See Appendix 8 for 1964 State legislation on volunteers in public welfare and notice of appointment of consultant

III. An action program on OPPORTUNITY

to seek out discriminatory laws and practices and invisible barriers to the acceptance and employment of women

NEED: RE-STUDY OF "PROTECTIVE LABOR LEGISLATION"

RECOMMENDATION:

Review of the New York State Labor Law

Miss A applies for a job at X factory. She is turned down because they require people who can work until 2 A.M., and Miss A's employment would violate the law. Miss B, however, cleans office buildings in Manhattan at night. She works from 5 P.M. to 1 A.M. This does not violate the law.

New York State has many laws regulating hours of work and conditions of labor. Some of them apply solely to women, such as those limiting the hours of employment in a factory, hotel, restaurant, beauty parlor, or mercantile establishment, and prohibiting night work in certain instances. The question has been raised as to whether this legislation is discriminatory in effect rather than protective. There is no consistent philosophy behind it and there are different opinions about its value at the present time. Much of this legislation was enacted at a time when we did not have the protection for labor in general that exists today. In some cases the so-called "protective legislation" prevents women from receiving the same pay as men and in others it reserves the better night jobs for men.

The trend today is for wage and hour legislation and regulation of working conditions to cover all employees, not only women. The Federal Civil Rights Act may also have some effect on this type of legislation. The committee recommends that this legislation be re-examined and sample groups of the women concerned be interviewed by a competent private agency to find out the facts so that a logical legislative program, protective where necessary but not discriminatory, may be evolved.

Jury duty

The committee also suggests elimination of the provision of New York State law by which women may claim exemption from jury service solely on the grounds that they are women. We suggest that consideration should be given to replacing this provision by an exemption for men or women who are needed at home to care for a young child or invalid and that women should be educated to regard jury duty as an opportunity, a privilege, and a responsibility.

See Appendix 9 and Appendix 10 on Protective Labor Legislation and Jury Duty

NEED: SUPPLEMENTAL LEGISLATION TO PROMOTE EMPLOYMENT OPPORTUNITIES FOR WOMEN

RECOMMENDATION:

Enactment of supplemental legislation to enable State enforcement of the Federal Civil Rights Act of 1964

Mr. W wants to employ an accountant. He has always had a man. May he advertise for "accountant-male"?

Mrs. Y needs a housekeeper. May she advertise "Woman Wanted"? Will it be permissible under the Federal Civil Rights Act to specify the sex of an employee you want to hire?

Miss R applies for a position as a lawyer, for which she is qualified. She is refused employment because it is the policy of the firm to hire only men for legal positions.

New York State has taken the lead in removing legal restrictions on women. And this year a new law was passed stating that the opportunity to obtain employment without discrimination because of sex is a civil right.

Now the Federal Civil Rights Act of 1964, which applies to inter-state labor, has gone one step further. It provides that discrimination on the ground of sex is an unlawful employment practice except where sex is a bona fide occupational qualification. Jobs may no longer be classified by sex except where there is a rational basis nor may hiring or promotion be granted or refused on the ground of sex alone, nor may employees be excluded from training programs on the ground of sex. The prohibition against differences in compensation, terms, conditions, and privileges of employment appears to include all aspects of employer-employee relationships. The general effect of the legislation should increase opportunities of employment and advancement for women, although they may have to accept some changes in fringe benefits which they now enjoy. The Federal Act permits appropriate State agencies to enforce its provisions where such state machinery exists. In view of the long experience of New York State agencies in this field and their special knowledge of the particular interests and needs of New York women, it is recommended that legislation be enacted to enable appropriate State agencies to assume the enforce-

ment function of the Federal legislation and to extend coverage to all women employed in the State.

If State legislation is not enacted, there may be a difference between the standards set for inter-state labor and the standards applicable to intra-state labor. The enactment of State legislation making discrimination on the ground of sex an unlawful employment practice is an appropriate next step in New York's policy of removing barriers and providing opportunities for women. Furthermore, in order that new fields may be opened up to women, it is important that the exception on the ground of a "bona fide occupational qualification" be fairly interpreted. The committee urges that women's groups, employers, and State agencies be requested to make studies in order to formulate standards which will be acceptable to employers, employees, and the community.

For Legal References, see Appendix 10

NEED: NEW UNDERSTANDING AND MORE FLEXIBLE APPLICATION OF EQUAL PAY LAWS

RECOMMENDATION:

Re-examination of New York State's Equal Pay Law and conformity to the Federal Equal Pay Act

Mrs. A, who supports a daughter, assembles parts for filing cabinets. Mr. B., a bachelor, also assembles parts for filing cabinets at the same plant, and then trucks the finished cabinets to another department. He receives 11¢ more an hour.

New York was one of the first states to enact an Equal Pay Law. It provides that no employee shall because of sex be subjected to any discrimination in rate of pay. Mrs. A., in the example given, may complain to the New York State Labor Department, but, in view of long-standing judicial and administrative interpretations of the law, it is unlikely that a violation would be found unless the jobs were identical. The Federal Equal Pay Act, which went into effect in June of 1964, on the other hand, allows a comparison of jobs which may be substantially the same but not identical. Few jobs are, in fact, identical, and the real issue is whether the differences in pay are reasonable.

Women feel that they are discriminated against in pay because men are often given somewhat different duties and larger pay. Many times those duties could also be performed by women. The standard in the Federal Act is equal pay for equal work on jobs which require equal skill, effort and responsibility, and this allows for a more liberal interpretation. This law, however, does not apply to all women, and omits from coverage many in low paying intra-state jobs. Therefore, in order to provide for a uniform and more flexible interpretation of the principle of equal pay for equal work, which is generally recognized and accepted in this State, it is recommended that the State law be amended along the lines of the Federal law.

Need for new booklet

In view of recent changes in legislation and the rapid increase in the female labor force, today's women have need for current information. A new booklet detailing the rights they now enjoy, outlining the remedies provided by law, and explaining the laws in layman's language, should be prepared and distributed widely by appropriate State agencies.

For Legal References, see Appendix 10

NEED: MORE TOP JOBS FOR WOMEN IN NEW YORK STATE GOVERNMENT

RECOMMENDATION:

A study of measures which may be adopted to promote increased appointment and promotion of women to higher jobs in State government

Mrs. L. works in the State government. She has taken a Civil Service examination for an administrative post and is one of the three persons certified as eligible for promotion. She is well liked in her present job and has done good work. But when there is an opening on a high administrative level, Mrs. L. is apt to find out that it has been filled by a man.

The committee commends the fine work that New York State has done in upgrading women to positions of responsibility. But we suggest that the New York State government review the climate of acceptance for women at management or top supervisory levels among the agencies of the State and consider further measures which might be taken to improve the position of women and their promotion to higher posts in State Government.

The Civil Service Law provides that appointments and promotions shall be made by the selection of one of three persons certified as standing highest on the eligible list for the position. Certification may be limited to one sex only when the duties of the position relate to the custody or care of persons of the same sex, or work of any kind, the nature of which requires sex selection. The over-all percentage of women in government in New York State compares favorably with that of other states. The percentage of women in jobs paying over $10,000 per year compares favorably with that of the Federal Government, but the percentage is still very small (9.2% in competitive or noncompetitive, and 5.9% in exempt and unclassified service).

An analysis of twelve open competitive Civil Service examinations reveals that the number of women appointed does not compare favorably with the percentage of the women who pass the examination. These examinations were in fields where women are qualified and accepted, such as accounting, banking, guidance counseling, and for positions as senior attorney, business consultant, senior statistician, and laboratory technician.

A review of six promotion examinations in which 20% of the candidates were women and half of the group, including half the women, passed the examination, indicates that 30% received promotions but only 2 were women (6%).

Is there sufficient publicity about the civil service examinations open to women to attract well qualified women to government service? Does the Recruitment Unit make sufficient contacts with women's colleges? Is there sufficient understanding on the part of women in government that they are eligible to take examinations for administrative posts? Are they encouraged to do so? Is the climate such that they might expect promotion if qualified? Should the Governor send a special bulletin to each state agency urging a review of employment and promotion policies with a view to improving the status of women and suggesting that each department give special attention to the appointment and promotion of qualified women to policy making and administrative posts?

Are there too few women among the State Civil Service personnel officers? Should there be more women on the Board of Regents? What other measures could the State adopt to lead the way for business and industry in the important march of women to full equality of opportunity?

There are several areas where women might be encouraged to participate and to remain in State service after completing the program. These are the intern-training program for college graduates and the public administration trainee program. In addition, the fact that there are part-time opportunities in State government should be better publicized. Many agencies employ women on various part-time schedules, daily or in peak seasons. There are part-time openings, for example, for clerical personnel, accountants, nurses, clinical psychologists, consultants and research assistants.

The committee believes that not enough women are being encouraged to take examinations at professional levels, that women are not being informed of the relaxed restrictions in shortage areas, such as social work, library science, dietetics, etc.—and of the accelerated programs for institutional teachers, scholarship aid for public health institution and social work training, college proficiency examinations and other fine features of New York State's educational program. And we believe that volunteer and political groups should be encouraged to have more women in top leadership posts, and that a genuine effort should be made through New York State schools, colleges and organizations to encourage women to enter Government and politics.

It is also urged that the State Civil Service Department take appropriate steps in keeping records according to sex so that future analysis and research on women may be facilitated.

Insurance

Health insurance plans offered to employees through the State of New York make no distinction on the basis of sex. However, the life insurance available to State employees through the private Civil Service Employees Association provides for one schedule for men and another for women, with lower coverage for women. Some women desire higher coverage but may not purchase it. The Association and the insurance carrier are taking samplings to find out whether sufficient women are interested in higher coverage to make it feasible to offer it. Since individual selection is not legally permissible under group insurance plans, it is necessary that the plan meet the needs and wishes of the majority of the group. It is suggested that the Association and the carrier keep the question of the amount of insurance for women under scrutiny, so that women are not discriminated against.

For Civil Service Law references, see Appendix 10

NEED: MORE INFORMATION ABOUT WOMEN WELL-PREPARED FOR HIGH LEVEL APPOINTMENTS

RECOMMENDATION:

A register of qualified women in New York State

> *Mrs. S. is a woman of broad gauge experience, judgment, and capability. She is well known in her own community where she has done strong organizational and community service work. But she has held no national or state posts. She has not been politically active. It would only be by accident that her name would be mentioned when an appointive post for which she is eminently fitted might turn up.*

The committee has studied at length and recommends consideration of a Register of Women in New York State qualified for high level appointive posts. We suggest that the State explore the existing registers, such as the one maintained by the National Council of Women and another by the American Association of University Women, and that the State explore the possibility of encouraging a private agency to develop this register under a Foundation grant. But we hope it will be possible to develop a register in New York State that might eventually be coordinated with lists in other states. For the problem is acute. A women will not be chosen for a high level appointment if no one knows she is qualified—or that she exists. Since this is a national problem and one for all the states, the committee suggests to the Governor that this be placed on the agenda of the next Governor's Conference. We believe it is important to the long-range acceptance of women in management that government lead the way.

NEED: BETTER COMMUNICATIONS ABOUT NEW OPPORTUNITIES FOR WOMEN

RECOMMENDATION:

A public information program for the mass media on "What's New for Women"

> *Mary and Sue and Jane are clubwomen, churchwomen, politically active women. They think of themselves as well informed. Helen and Della and Grace are busy with home and children and don't pretend to know a lot about the outside world. But so many things have been happening in New York State lately, there are a lot of things both groups of women don't know—and would find interesting and relevant*

There are several existing programs strongly endorsed by the committee that should be better known. One is New York's chain of community colleges, well adapted to the needs of women who cannot leave home, able to supply vocational training with a liberal emphasis and motivation to prepare women for vocational and semi-skilled work. Another program not enough women understand is New York's newly adopted pattern of College Proficiency Examinations, a way to earn college credits without going to college.

It is suggested that the State initiate a public information program on "What's New for Women", starting with a Governor's press conference for the mass media—magazines, newspapers, TV commentators. The news program might also present the need for continuing education of women and continuing self-development by women, the little-understood likelihood that women today will work thirty years or more beyond the child-rearing age, the various steps New York agencies are taking to help New York women understand the need for strong life goals and ways to plan and implement their own self-development programs, especially the three action programs recommended in this report.

It is hoped, too, that this public information program would alert industry to the many ways forward looking companies are finding to adapt work schedules to the needs of married women, to create part-time opportunities, to keep in contact with women employees who left their service, and to improve the climate for women in their organizations. The random sample survey suggested on page 40 might supply useful material for the program.

It is particularly suggested that the department responsible for this continuing program explore the possibilities of special series for women on educational television.

NEED: TO BREAK DOWN THE INVISIBLE BARRIERS THAT LIMIT THE NUMBER OF WOMEN IN HIGH LEVEL JOBS

RECOMMENDATION:

A long range program to improve the climate for the acceptance of women in management

> *Mrs. J has a good job. She is well paid. She is well liked. But she feels that there will come a day when a man in her present position would move up to top management, and she will not. Mrs. J's name is legion. At every level of government, industry and business, there is apt to come a time when a woman meets an invisible barrier, simply because she is a woman.*

It is suggested that it might be desirable to hold a Governor's Seminar for Industry to discuss the improvement and upgrading of women in business. This conference might include discussion of areas of discrimination against women, discussion of retraining possibilities for women who want to come back into business, study of the few management training programs open to women in New York State universities now, and serious consideration of the actual and psychological factors that prevent the wider development of women executives. There might be a discussion of whether industry would welcome more courses of the Cornell type on management training for women.

This Seminar could be widely publicized and might help to destroy the stereotype of the woman worker which sometimes serves as a barrier to the promotion of women to management jobs. The committee believes that it could be effective and important.

A desirable outgrowth of this top level management conference would be active exploration on the part of individual companies of the possibilities for employing and upgrading women without bias in both full-time and part-time jobs. This should include a searching look at many kinds of jobs traditionally and tacitly labeled "for men only." Women have high potentials for sales jobs, for instance—selling products as well as services. They have demonstrated this in the fields of real estate and insurance as well as in fashion and cosmetics. Yet, oddly enough, there are few women members of major sales staffs. Another suggestion that business men might take home from a conference on womanpower would be the development of on-the-job training units beyond the

usual routine orientation to enable competent women to see possible patterns for advancement and growth within their organizations. Business should be urged to take a hard look at payroll records with a view to answering honestly whether women are being paid on the basis of competence. Organizations which have developed strong programs of upgrading women to management levels (and there are more than are generally recognized) should be invited to share the results of their experience.

The committee commends the good work that has been done by the New York State Woman's Program of the Department of Commerce. It suggests some consideration of extending the work of this department to include possible discussion with top management of what could be done to encourage the development of more high level jobs for women and encourage women to look for them. It is suggested, too, that educational television stations be urged to review the symposium on women presented in California and consider whether it would be possible to program some material of this kind in New York.

For women only

This report is primarily intended for legislators, educators, employers, labor leaders, officials of New York State departments and other people interested in improving and maintaining a favorable climate for the employment and upgrading of women. The committee hopes, though, that it will also be read by a great many interested women—women interested in maintaining and improving their own jobs, returning to the labor market, or educating or motivating young people.

It is obvious that before arriving at our final recommendations we have talked to many women and we have talked to many men about women — employers, department heads, government officials, educators, lawyers, experts in many fields.

It is only fair to women themselves to find a place in this book for the loyal opposition—the men and women who still believe, with some reason, that women themselves are responsible for some of the invisible barriers to progress, that women themselves do some of the things that keep them from growing in their jobs and as people, that women themselves create trouble for themselves, sometimes by taking themselves too seriously, by being too inflexible, too narrow in their views. "Men like people who are comfortable to be with," said one executive. When a woman learns to relax, learns to roll with the punches, learns to give as well as take, learns to carry her share of whatever trouble is going around, she increases her value to her department and her company. When a woman has to be handled with care, fuss-budgets about little things, finds it inconvenient to stay

long hours when long hours are called for, or to go to extra trouble, when a woman talks too much and keeps on talking, talks out of turn and doesn't know she's doing it, she is not only hurting herself but she is doing the whole cause of women in business a disservice.

Experienced women in business and government share with men a feeling that today's young women come to work with no great ambition to make the personal sacrifices necessary to go on to major jobs. They like to go home on time, to do their work well enough to get by but not any better. The woman who spends her own time to improve her ability, studies on her own time and acquires extra skills, the woman who looks around for extra things she can do and does them well without thought of immediate reward is rare enough in any job or office. She is the woman who doesn't need a book—she will get ahead on her own.

"The woman who plans to marry, have a family, and stay out of the labor market doesn't stay in a job long enough for advancement to higher positions" said one New York State department official, in a conference with our committee. "Many women don't want to bother with management, they are satisfied to earn a little money and don't want the extra work and worry that goes with a higher income."

"Lack of mobility is another factor," said another. "Women cannot or will not accept jobs in all parts of the state. There are openings for women lawyers in Albany, for instance, and lots of women lawyers hunting jobs in New York City."

"Night work is another obstacle," said one Government official. "Women will not accept posts in a department where night work is a fact of life."

New York State is leading the way in opening civil service examinations for administrative positions to women in secretarial grades—and many big business organizations are making a serious study of ways in which women can be encouraged and prepared for more responsible work.

But in the end it is still up to women. Good jobs go to people who are willing to accept hard, disciplined preparation, who are willing to work a little harder than the man or woman at the next desk, who are willing to make personal sacrifices when the job demands them, who can learn to take defeat and

disappointment in stride and bounce back, who rarely make life harder for people working with them, who are easy, relaxed, and confident, and who have a genuine desire to do a good job for the job's sake and let the rewards come when they may.

It seems very clear that the State can remove legal barriers, management can do its best to remove invisible barriers, but only qualities born and bred in a woman herself will remove the final barriers that keep her from top level achievement. It is our hope that through the work of this committee and others like it in many states women will be encouraged to think with new purpose and seriousness about their own qualifications for the jobs they seek, about the new opportunities that are theirs if they will look for them, about the new responsibilities that go with the opportunities. For it is not enough to open all the doors of the world to women. What matters more is that women should make a worth while contribution to their life and times when they walk through.

APPENDICES

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APPENDIX 1 How the Committee did its work

The Governor's Committee on the Education and Employment of Women was appointed and publicly announced by Governor Rockefeller December 23, 1963, without enactment of special legislation. The Governor had consulted regarding the appointments with the State Board of Regents, which has general supervision of the State's educational system at all levels, public and private. The Governor outlined his charge to the Committee in three parts and asked for a report and specific program of action within a year.

The Deputy Commissioner of Education and the Deputy Commissioner for the Woman's Program of the State Commerce Department were assigned as official liaison to the Committee. The Governor by special letter to the heads of the other State Departments requested their cooperation in the Committee's work. At a later date, the Governor had the Chairman of the Committee attend one of his Cabinet meetings to brief the department heads on the over-all goals of the Committee and to enlist their further interest and support. The Governor also attended one of the working sessions of the full Committee to give his general views on the Committee's work and his expectation of a far-reaching action program.

The Committee was assigned a full-time Executive Director from the Executive Chamber Staff and a full-time Secretary. Later, a Research Analyst and a Program Assistant were added. For certain special studies, professional consultants were engaged to prepare position papers and the staffs of the State departments gave full cooperation in supplying data, as requested. Due to the focus of the Committee's inquiries, the staffs of the Labor, Civil Service and Social Welfare Departments were particularly called upon, in addition to Education and Commerce, as already noted. Particularly helpful too was the participation of top officials of all the departments in an informal meeting with the Committee to discuss various aspects of the employment of women in State Service.

At the beginning of its work, and in advance of the first Committee meeting, the members were supplied with a set of general background materials relating to major issues and problems regarding the education and employment of women. A general outline of the possible subjects of study was prepared by the Chairman and staff for consideration at the Committee's first meeting, following numerous and helpful consultations with various experts in the field and with regional and Washington office officials of the United States Women's Bureau.

At its first meeting, February 28, 1964, the Committee divided responsibility for its work among subcommittees: Education, Employment Policies and Practices, State Civil Service and Law, Register of Women, later adding a fifth on Volunteer Work. These five subcommittees were asked to explore the various aspects of their respective assignments and report at the next meeting on their recommendations for concentrated effort.

On May 21, 1964, the reports of the subcommittees were considered and definite channels for further investigation were decided on. Thereafter, on June 11th, an interim report (not published) was sent to the Governor advising him of the areas of concentration of the Committee's deliberations.

The Committee, due to limitations of time, decided not to hold a public hearing but to secure counsel and advice in other ways. It publicized the scope of its inquiry and invited comments and suggestions from the public by means of general press releases as well as articles and notices in a

variety of State publications, such as the Bulletin to the Schools, State Personnel News, State University Newsletter, State Commerce Woman's Program reports and the like. It was brought to the attention of organized labor across the State through a personal memo and press release addressed to more than 400 local and regional union groups. The Committee also solicited the views of over 200 individuals and organizations particularly interested in problems of employment, education and women's activities by personal letters. These included union leaders, business and professional groups, state officials, women's associations, women legislators and experts in various fields. The presidents of all colleges and universities in the State were similarly addressed.

During the summer, intensive work went forward in subcommittee meetings and by consultants. The full Committee met again on September 30, 1964 to review the findings of consultants and to approve the reports and recommendations of the subcommittees. On October 15, 1964, the Committee acted on a draft report incorporating the recommendations already approved, and discussed with the Editorial Consultant the form the final report should take. At a last meeting, held November 11, 1964, the finished report was discussed, amended and approved. An Editing Committee of three members was authorized to act on any necessary changes. The final printed report was submitted to the Governor late in December.

The major work of Committee members and staff consisted of meetings of subcommittees, studying reports and other material, and interviews, conferences and other contacts bearing on their work. These can be briefly summarized as follows:

EDUCATION: There were numerous interviews, conferences and correspondence with college officials and others prominent in the field of education. Of key importance was the Chairman's personal letter enclosing a brief questionnaire to all colleges and universities in the State about their programs for continuing education for women. Special subcommittee meetings with Educational Television officials to explore possibilites were held with productive results.

EMPLOYMENT POLICIES: Meetings were held with representatives of the United States and New York Departments of Labor; Divisions of Manpower, Research and Statistics, Labor Statistics; Commerce and Industry Association, Chamber of Commerce, State University School of Industrial and Labor Relations; directors of Home Economics departments and Home maker services; Union research departments; and directors of the Seven College Vocational Workshop, and Alumnae Advisory Service. The cooperation of the Committee of the State Woman's Council of the State Commerce Department was secured to review a pilot questionnaire for companies employing women.

CIVIL SERVICE AND LAW: Meetings were held with officials of the Attorney General's office, the State Civil Service, the State Commission for Human Rights, and officials of the Departments of Commerce and Labor on the subject of possible discrimination. Reports on legal aspects of women's employment, and on numbers of women in the State service in different grades were also obtained.

REGISTER OF WOMEN: Meetings were held with officials of the New York State Library System, and with the National Council of Women and the American Association of University Women to discuss ways of setting up lists of qualified women.

VOLUNTEER WORK: Numerous interviews were held with various agencies using volunteers, with the New York State and New York City Departments of Social Welfare, and with representatives of important service organizations at a luncheon meeting. Reports and other material on work of volunteers were obtained and circulated.

GENERAL: Representative Committee members and staff attended a conference held in Washington in June for Governors' Committees on the Status of Women, under the auspices of the President's Interdepartmental Committee on the Status of Women. The purpose of the Conference was exchange of information and experience among State Committees and a member of the New York Committee spoke informally to the assembly. Members and staff attended a number of other official meetings and conferences relevant to the Committee's work.

On all matters, as they developed, Committee members were kept fully advised. Notes on all subcommittee meetings and conferences were sent to Committee members as well as copies of all written recommendations of substance sent to the Committee.

The Committee recognized from the beginning that time limitations would not allow for study and report on all the many problems important in the lives of women. Nor could the Committee act upon all the helpful suggestions which have come to it. A number of these proposals can be referred for consideration by interested State agencies and private organizations and for discussion at the various conferences which the Committee has proposed.

Special Consultants

Charles R. Dalton	*Special Assistant to the President, University of Rochester, Rochester*
Dr. Mauritz Johnson, Jr.	*Professor of Secondary Education, Cornell. University, Ithaca*
Dr. Esther Lloyd-Jones	*Professor of Education, Head of the Department of Guidance and Student Personnel Administration at Teachers College, Columbia University, New York*
Irma Rittenhouse	*Former Director of Research and Statistics in the Division of Employment, New York State Department of Labor*
Dr. Esther M. Westervelt	*Assistant Professor of Education, Teachers College, Columbia University, New York*

Dr. Westervelt was assisted by supplementary information developed from interviews at selected institutions by Miss Martha Gonski, doctoral candidate at Teachers College, Columbia University, and a member of the Evening Division Student Personnel Services at the City College of the City University of New York. Some data were also supplied by Miss Jeannette Scudder, Dean of Women at State University of New York at Buffalo, and graduate student at Teachers College, Columbia University.

The Subcommittee on Volunteer Work was given valuable assistance by Mrs. Christian A. Herter, Jr., Mrs. Robert Schwarz, and Mrs. Ruth A. Handy, on a volunteer basis.

Miss Gwenn Fink and Mrs. Paula Bruce gave generous assistance to the staff in preparation of materials.

Membership of sub-committees

EDUCATION

Chairman: Dr. Paul L. Ward

Members: Mrs. Charles Bassett
Dr. Sarah G. Blanding
Mrs. Orvil E. Dryfoos
Mr. Lewis G. Harriman, Jr.
Mother Eleanor O'Byrne
Mrs. Charles S. Whitman, Jr.

EMPLOYMENT POLICIES

Chairman: Mr. John R. Mulhearn

Members: Mr. Lewis G. Harriman, Jr.
Mrs. Carmel C. Marr
Miss Eleanor McMillen
Mr. Cecil J. North
Mr. Russell V. Stephenson

REGISTER OF WOMEN

Chairman: Miss Eleanor McMillen

Members: Mr. John R. Mulhearn
Miss Ruth Sturm

STATE CIVIL SERVICE AND LAW

Chairman: Miss Ruth Sturm

Members: Mrs. Carmel C. Marr
Mr. Russell V. Stephenson

VOLUNTEER WORK

Chairman: Mrs. Charles S. Whitman, Jr.

Members: Mrs. Charles Bassett
Mrs. Orvil E. Dryfoos

APPENDIX 2 Questionnaire sent to colleges and universities in the State of New York

GOVERNOR'S COMMITTEE ON THE
EDUCATION AND EMPLOYMENT OF WOMEN
22 West 55th Street
New York, N. Y. Ju 2-7030

For the information of this Committee, would you please answer the following three questions in the spaces below (add additional sheets if desired and any appropriate printed materials available).

Institutions which normally do not admit women students may still have replies to Question 3.

1. Please indicate what, if anything, your institution is doing to develop opportunities for adult women in regard to a) guidance, b) re-training, c) continuing education.

2. What plans, if any, does your institution have for special programs or services in the future for adult women?

3. What ideas do you and your colleagues have in connection with guidance, re-training and continuing education for women, which might be carried out by
   a) Your institution
   b) Some other higher education institution
   c) Some other agency

Please return by May 11, 1964 to:

Mrs. Oswald B. Lord, Chairman
Governor's Committee on the
Education and Employment of Women
22 West 55th Street
New York, N. Y.
(Second copy may be retained for your files)

_____
(Name of person completing form-please print)

_____
(Name of college or university)

_____
(Address)

A selection from the college questionnaire responses

NEW APPROACHES TO CONTINUING EDUCATION

Following are some interesting new broad modifications in programs of continuing education:

1. *Brooklyn College of the City University of New York*
Brooklyn College established a Special B.A. Degree Program for Adults in 1953. This program makes it possible for adults attending in the evening to attain a degree in about four years. If the students are able to attend some day classes, they may finish in three years. Brooklyn's plan was one of the first to provide academic credit for life experience (the idea of the proficiency examinations) and to help adults accelerate by tutorial service and independent study.

2. *C.W. Post College of Long Island University*
In 1961, C.W. Post set up the Center for Adult Studies. About 90% of those enrolled are housewives. This year about 1261 persons are enrolled and about 2/3 of them hope to earn a degree. About 25% of those enrolled drop out each term, but many are reported to make great progress. Participants may take only one course, but many take up to 12 credits. In most cases students take courses with the regular undergraduates at the College.

3. *New York University.* Division of General Education
In the Fall Semester of 1964, the Division of General Education will offer an Associate in Arts Degree Program for adults. This program will meet for two classes a night, two nights a week. It will take four years to obtain the degree.

4. *Queens College of the City University of New York*
Queens has set up an Adult Continuing Education program which permits a limited number of carefully selected adults to matriculate for the B.A. degree with advanced standing. Much of the study is based on interdisciplinary seminars in the Arts, Sciences and Social Sciences. (This program is similar to that of Brooklyn College.)

5. *Sarah Lawrence College*
Sarah Lawrence has set up a Center for Continuing Education which offers educational counseling to women beyond the normal college age who have completed some college work and wish either to complete work for their B.A. or pursue advanced academic work for some career purpose. The College received a three-year grant from the Carnegie Corporation which helped make the Center possible. Sarah Lawrence itself provides undergraduate and graduate programs in the liberal arts and also assists in a graduate program for the preparation of school teachers, in which the introductory courses are given on the Sarah Lawrence campus by New York University.

6. *Syracuse University*
Syracuse has a Center for Continuing Education for Women at the University College (the adult education division). Approximately 1400 women are enrolled annually as part-time students. In addition, about 600 adult women are enrolled each year in day or evening classes of the School of Education, Library School, College of Home Economics and other divisions. In 1963, with the aid of a Carnegie Corporation grant, the University established an additional counseling office to provide special guidance to women who have interrupted their formal education. Efforts are being made to adapt programs so they will be accessible to housewives who wish to prepare for entry or re-entry into professional careers.

COURSES AND ARRANGEMENTS OF PARTICULAR INTEREST TO ADULT WOMEN

1. *Adirondack Community College,* following a pattern which is found on several community college campuses (although no other reporting community college happened to mention it) makes it possible for the State University at Plattsburgh to offer on the Adirondack campus at Hudson Falls six graduate courses, which may be taken there for credit at Plattsburgh. Adirondack reports that most of those enrolled in these courses are women.

2. *The State University of New York at Albany* has opened a branch of its school of Library Science at New Paltz to provide training in librarianship to women from that area in part-time study through evening courses.

3. *Barnard College* of Columbia University is housing the Seven College Vocational Workshops which are sponsored by Barnard, Bryn Mawr, Mount Holyoke, Radcliffe, Smith, Vassar and Wellesley and financed by a grant from the Carnegie Corporation of New York. This series of ten workshop sessions is designed to help mature women college graduates re-orient themselves to the needs of the labor market and the community and to make use of their abilities and education in a productive way.

4. At *Cornell University,* the Extension Division runs a special seminar for Women in Management.

5. *Finch College* in New York City and *Molloy Catholic College for Women* in Rockville Centre report that they have allowed women to return to them to finish and qualify for their degree.

6. *Hofstra University* in Hempstead, L.I., opened its daytime courses to part-time students in 1964. This year 150 women are attending part-time and 25 are full-time students. Women now comprise ¼ of the undergraduates attending part-time and comprise ½ of the part-time graduate students.

7. *Nassau Community College* in Garden City, L. I., reports that adult women may arrange their schedules so that their classes meet between 10 a.m. and 3 p.m.

8. At *New York University, the Division of General Education,* in association with the Urban League, has given an intensive full-time 11 week training program for secretaries. These courses are intended to open up employment to Negro women. Those attending have ranged from young to middle-aged. Three such courses for 40-50 persons at a time have already been given.

9. *Pratt Institute* in Brooklyn and *Nazareth College* of Rochester have reported that they each hope to encourage their drop-outs to finish college and qualify for their degree.

10. *The College of Education of Rochester University* admits 25-30 women Liberal Arts graduates to a part-time program which ultimately leads to a New York State certificate for elementary school teaching.

11. *Staten Island Community College* is offering a course in School Records and Accounts for adult women who are interested in becoming clerks in the New York City public schools. Similarly, *New York City Community College* in Brooklyn offers three education courses in its Evening Division which will enable women to meet the licensing requirements for the post of School Secretary in the New York City public school system.

12. *The Cooper Union* conducts "an evening curricula in art and architecture that leads to academic certificates and for which transferable credits are given. More than ½ of this group is women."

SOME INTERESTING PROPOSALS

1. *The State University College at Fredonia* suggests that their institution should "encourage 'drop-outs' for marriage to include completion of education in their plans," and "facilitate part-time study programs for

women who are anxious to finish interrupted work toward a degree or just for personal development," and "provide information about scope of possibilities for employment, particularly in areas outside the traditional 'women's fields'," and "bring women into discussion groups with women students who successfully combined marriage, employment, community work to provide examples." And "explore possibilities for development of nursery schools (as during war years) which will allow women to finish school or take additional work. It is interesting that Mother is provided nursery care to learn bowling when she goes to the Modern 'Leisure Land'."

2. *The State University College at Buffalo* suggests that there be an establishment by the State University of an accredited Library School either at the State University of New York at Buffalo or the State University College at Buffalo in order to further the education of persons who have had undergraduate library work and enable them to fill the multitude of positions open within the State in the library field. Further, this College suggests that the State might establish a guidance program for mature women.

3. *Dutchess County Community College* suggests that "high schools must stress to girls the need for higher education and not in just the traditional areas; for example, women make excellent technicians in industrial areas; we are not doing a good enough job in this area at the secondary level of guidance." It is interesting to note that the State University College at Fredonia also stressed this point.

SOME GENERAL CONSIDERATIONS

The New York State College of Home Economics at Cornell University conducted a survey of their alumnae last year regarding attitudes concerning a refresher or continuing education. It is possible here to report only one or two of the many valuable findings. Findings were based on a survey of graduates of even numbered years from 1930 through 1956; 457 replies (50.6%) were received from a mailing to 904 alumnae. 60% of the respondents indicated some kind of interest in continuing education, and another 22% said either that they had been continuously active professionally and educationally or had recently embarked on a study program. (It is important to remember that these percentages are, of course, percentages only of the 50% who responded to the questionnaire at all. One has to assume that at least a fair share of the non-respondents were not at all interested in the questions.) Of 295 replies to a question regarding how long respondents had been employed since leaving undergraduate school, 110 had been employed two to five years. The length of the employment of the remaining number was: less than two years (59); five to ten years (59); and ten years or over (67). In response to a question regarding preference for full or part-time position, of 251 who answered the question 52% preferred part-time employment. Answers to the questions concerning interest in studying for credit indicated that few of the respondents would be willing to commute over an hour to classes. Furthermore, many of those living around New York City indicated that they would be unwilling to commute into the city for courses.

The response of the *New York State Veterinary College at Cornell University* indicates the way in which certain fields may be almost closed to women. The response to Question 1 was as follows: "We have no plans to develop opportunities for adult women. We have graduated 52 females since 1910. Very few have used their professional training for an appreciable number of years. Since we must each year deny admission to many well-qualified males, we shall probably educate very few females."

The response of the *King's College* at Briarcliff Manor suggests that institutions not presently engaged in adult education may be willing to embark upon venutures in this field. "As a four-year college, we have not done much in the adult field, but we *could*."

From detailed report on the Evaluation and Implications of the Questionnaire Returns, prepared for the Committee by Dr. Esther M. Westervelt, Assistant Professor of Education, Teachers College, Columbia University.

APPENDIX 3 Outline of suggested New York State program of financial aid for the continuing education of women on a part-time basis

1. *Financial aid is a great present need of mature women wishing to continue their education.*
   The aid should be available to those interested in legitimate part-time study.
2. *Such a plan implies* special conditions and should require
   a) evidence of need of assistance
   b) that recipient assume reasonable share of cost
   c) that program lead to a definite goal (diploma or degree)
   d) that program and objective be realistic in terms of applicant's background and aptitude
3. *Those eligible to participate* would be women residents of the State who can be admitted to begin or continue their education at any recognized post-secondary institution of higher learning. Age limitations should be made (possibly 28-50).
4. *Applications would include educational record and financial statement. They would be screened by a panel* including at least one educator, one member of the State Employment Office, one college financial aid officer and several citizens with different backgrounds.
5. *Acceptance of the candidate by the panel* would constitute a commitment of aid upon the student's completion of part or all of the program. The panel would not make any awards in advance.
6. *Amount of assistance would be set at one-half* the student's cost of tuition and fees for the segment of work completed as certified by the school or college. Alternatively, there might be a range of assistance; 1/3, 1/2 or 2/3 the tuition and fees according to needs of the student.
7. *Maximum awards would be set.* As illustration, the limit might be $1,000 for undergraduate and $2,000 for graduate. Hopefully this would be supplemented by the college, when needed.
8. *Students needing financial aid in advance* would have it made available through the existing New York Higher Education Assistance Corporation (NYHEAC) loans for part-time students. The amount of the loan would not necessarily be limited to tuition and fees but the grant of aid would be limited to a proportion of tuition and fees.

From detailed Report prepared for the Committee by Mr. Charles Dalton, Assistant to the President, University of Rochester.

APPENDIX 4 Subcommittee memorandum on educational television

Television offers many potential opportunities for women. In the area of education the availability of specific courses of instruction, cultural material and matters of general information can provide a positive benefit to women whose household responsibilities make concerts and museum going difficult, if not an impossible experience.

For women seeking new avenues of employment opportunity, educational television stations provide information and wider horizons of ideas not usually available through other media. Most important, they have opened the door to work situations in writing, production, personnel work, planning, costuming, scene design and assistantships to ranking executives and the like. The satisfactions which the medium can suggest to women are many and various.

In New York State educational television is provided primarily in two forms—(1) through programs produced and televised by local ETV Councils, chartered by the Regents; and (2) through closed circuit or low-powered open circuit facilities owned and operated by school systems and colleges. The State assists in the support of these programs through the allocation of funds appropriated for ETV by the Legislature. The present appropriation is $1.2 million.

The first New York State plan for educational television was enacted in 1952. In it provision was made for community action to meet educational television demands. The first educational television council was chartered in 1953 and up to the present time 9 councils have thus far been chartered. Simultaneous with the development of educational television councils for open-circuit broadcasting came an experimental plan and later the enactment of amendments to the Education Law for Local Assistance in the form of Aid-to-Schools programs for a five-year period of time. The Aid-to-Schools programs are based on the assumption that at the end of five years these school programs will be self supporting out of regular operational and capital outlay budgets of the public schools.

In 1962, in response to a recommendation by the Heald Committee on Higher Education, the Department completed a carefully developed plan for the use of television in higher education. (See *Television and Higher Education,* by Glenn Starlin). The "Starlin Plan" recommended a realistic and forward looking program for expanding ETV in the State with particular reference to its potential in meeting some of the increasing demands in higher education. It envisions a state-wide network which ultimately could link all institutions of higher learning. The report recommended "that the State approve funds for 1963-64 of approximately $1.25 million to initiate the first phase of the state-wide open-circuit educational television plan, and that additional funds of slightly more than a million dollars yearly be appropriated for development of other phases of the State plan through the next five years."

No funds have yet been appropriated to implement the state-wide network program. The present appropriation of $1.2 million, in addition to supporting the maintenance in the State Education Department of an educational communications office and a modest instructional technology program, provides matching grants to 24 school districts and pays for contracts made with the local councils for producing programs of value to the local schools and colleges. A library of kinescopes of video tapes of the programs locally produced with State funds is kept in the Department and is made available to television stations, schools and colleges.

Adequate support of educational television will enable the State to do the following:

1. Assist public school systems to implement cooperatively, needed rapid development of ETV systems for instructional services (at the present time hundreds of school systems are ready to move and are anxious for State matching funds);

2. Help communities that have been held back by the high, initial, capital outlay costs. Such communities can use State matching funds to move forward to the federal Government and by immediate action meet community ETV needs. Lack of action in activating open-circuit channels may find these latter revoked by the FCC;

3. Meet the pressing need of sharply increasing enrollments in institutions of higher learning through on-campus, and inter-institutional sharing of top-quality instructional personnel, material resources, and administrative services;

4. Continue and expand the Educational Media-Materials Distribution Service providing the State with a multi-million dollar service of high quality for use by all educational institutions and citizen groups of the State. For every dollar invested in this service, the materials-use brings no less than an *initial* 26 dollars worth of educational information to all, based on acquisition costs. Repeated use of this material in subsequent years multiplies the value of these acquisitions beyond predictable measure.

New York State has demonstrated its ability to evolve the nation's most comprehensive and all-inclusive educational television plan, and early vigorous action will mean that New York State can maintain its role of national educational leadership.

Based on a report prepared for the Committee by the Division of Educational Communications of Stato Education Department.

APPENDIX 5 Outline of possible format for a Teachers Reserve

A. REGISTRATION

1. Each teacher upon leaving active service for reasons other than retirement would be registered with an Office of Reserve Teachers in the State Education Department.

a. Registration would be done by officials of district in which teacher is last employed.

b. If a regular census of active teachers is initiated, registration would consist only of reporting

(1) Permanent serial number
(2) Mailing address
(3) Estimate of date of resuming active teaching
(4) Desired reserve status

c. Otherwise more complete information on grade or subject, experience, education, etc. would be necessary.

2. Reserve teachers would be classified as "participating" and "non-participating."

a. Non-participating teachers would be expected only to return annual questionnaires giving

(1) Change of address
(2) Revised plans for resumption of active teaching
(3) Data on further training acquired

b. Participating teachers engaged in activities under B (below).

3. Registration information will be useful to:

a. The State in long-range protection of need for teachers
b. Local districts seeking teachers for full-time, part-time or substitute appointments

B. PARTICIPATING RESERVE

1. Reserve teachers in a "participating" status would be required to maintain close contact with their profession to

a. Keep professional skills and knowledge current
b. Improve certification status

2. Educational opportunities would be provided through:

a. Formal university extension programs
b. Informal home study through correspondence and television courses
c. Organized local groups of reserve teachers

3. Experience opportunities would be provided through:
   a. Substitute teaching
   b. Increased use of part-time teachers
   c. Teacher-aide service
   (1) On a sustained basis, e.g., composition reading, team-teaching role
   (2) For brief periods, e.g., two weeks assisting a regular teacher
   (3) Sporadically, e.g., as consultant in in-service programs as in curriculum development, as "visiting teacher" for special topics

4. Existing extension programs of State University and private institutions would be utilized and extended to serve the Teachers Reserve
   a. Improved communication to inform reserve teachers of offerings
   b. Possible modification of Masters' degree requirements
   c. Some subsidy to encourage participation

5. State University and private institutions cooperate in establishing and operating correspondence course center
   a. Some commonly accepted courses with lessons graded at center
   b. Some reading courses with papers prepared under direction of individual professor at an institution
   c. Bulletins or monographs prepared for informal use or as text material for correspondence courses
   d. Coordinated television offerings

6. Local units of reserve teachers established and administered by Cooperative Extension Service
   a. Educational specialists added to staff of service at State and multi-county levels
   b. Use of reserve teachers for voluntary local leadership
   c. Active teachers serve as consultants to Reserve units
   d. Broad intellectual-cultural emphasis, as well as specific professional concerns

7. Professional affiliation through separate division of New York State Teachers Association
   a. Modest dues
   b. Divisional leadership and Board representation
   c. Reserve participation in zone meetings and House of Delegates
   d. Local units encompassing both participating and non-participating reserve members

C. OTHER CONSIDERATIONS

1. Participation in Reserve activities would be recognized by credit for certification and salary status upon resumption of teaching.
   a. Formal course work credited by institutions
   b. Home study credit recorded, but applied toward certification requirements only through Proficiency Examination Program
   c. Districts encouraged to recognize home study and participation in local Reserve units as part of total education for salary purposes
   d. Experience in schools of various kinds accumulated and reflected in step assigned on salary schedule upon re-employment

2. Employing officials might be expected to give preference to candidates who have been active participants in Reserve activities over non-participants.

3. Increased communication with all in-active teachers through a newsletter or some other medium would:
   a. Keep them informed of developments in education and opportunities for education and employment
   b. Encourage Reserve participation
   c. Keep alive an identification with the profession and a commitment to resume active service.

From detailed Report prepared for the Committee by Dr. Mauritz Johnson, Jr., Professor of Secondary Education. Cornell University.

APPENDIX 6 Subcommittee memorandum on proposed questionnaire on the employment of women

In its recommendation, the Subcommittee on Employment Policies and Practices has proposed that employers in the State be surveyed for current factual data on the employment of women. The Subcommittee felt that information from a carefully drawn questionnaire could reveal the variety of responsible positions in which women are performing successfully and demonstrate the manner in which some employers have made special part-time, full-time, temorary and odd-shift arrangements to utilize the talented womanpower available. In addition, such a questionnaire could help to identify the job performance characteristics of the several groups of women now in the labor force—the immediate post-school pre-marriage group, women who have returned to business after raising families, those that make business an uninterrupted career, those that attempt to work while raising a family, etc.

In working on the preliminary stages of this questionnaire, the Subcommittee has been fortunate in having the cooperation and suggestions of the New York Woman's Council of the State Department of Commerce and its Subcommittee on Business and Industry composed of women in key posts in these fields. This group has helped particularly in evaluating preliminary ideas for a questionnaire, and in suggesting ways in which procedures could be simplified and improved.

In the light of this helpful preliminary assistance, the Subcommittee makes the following suggestions as to procedures to be followed in constructing and administering a questionnaire:

1. That a method of random sampling be used rather than a survey of all the employers in New York State. This is proposed so that those making the survey can concentrate on approaching about 200 employers throughout the State. It is believed that reasonably accurate projections of the experience of small, medium and large firms can be made on the basis of such a sample. If the number of firms approached is relatively small, the employers can be interviewed personally. It is also felt that many companies will prefer to participate in a sample study in which individual firms are not identified.

2. It is urged that the State, before administering the questionnaire, send a highly qualified representative to hold a preliminary conference with the president or another high official of each of the firms selected. If survey objectives are clearly understood, they are more likely to be accepted and cooperation will be more readily achieved. At the time of these individual conferences, agreement should be reached as to whether employee records should be dealt with on a sample basis. This might be desirable in order to eliminate the necessity for excessive manual transcribing from employee records.

3. The survey questionnaire should be prepared by a professional survey agency to provide clarity, simplify format, and ensure that it will be easily understood. A test should be run to evaluate the questionnaire's effectiveness.

4. A standard job definition code should be used to obtain consistent job classification reporting. Since many government contractors are presently using a standard code in making "equal opportunity" compliance reports, the same code may be appropriate for this purpose.

5. To meet the objectives previously set forth, the following information should be obtained from employers participating in the survey:

a. total employment of women and men by job code
b. list of entry job codes
c. educational requirements for each entry job
d. numbers of female employees with high school, college or graduate degrees
e. level of education of women hired during the past year
f. other characteristics of women employed during past year (age, married or single, family responsibility, etc.)
g. age characteristics of women employees
h. absenteeism among women employees (figures for absenteeism by age bands)
i. evaluation of performance of women employees by age bands
j. data on separations (lay off, discharge, quit, leave of absence) by age bands
k. employee fringe benefits (with mention of any available only to men or women)
l. training or upgrading or other development programs offered to employees (with mention of any available only to men or women)
m. numbers of part-time women workers; types of jobs performed part time; schedules established; evaluation of performance
n. instances where jobs may have been created or duties or titles altered to attract women workers to employment
o. employers' comments, where available, on the comparative merits of men and women as employees
p. present or anticipated shortages of trained workers?

The Subcommittee believes that the data broadly outlined above would provide a profile of women in employment in the State at the present time. This could serve as a guide for employers who may not have made use of womanpower and could inform them of the possibilities inherent in this relatively under-utilized source of labor supply.

APPENDIX 7 Memorandum on present and possible guidance booklets

The need for local or regional booklets to help women workers or those women who are considering the possibility of paid or volunteer work has been widely attested to. Such booklets would seek to tell women what their region or community offers in the way of employment and training opportunities.

A general format for such booklets should be developed, with advice on how to keep the information up-to-date. Some or all of the following should be included·

a. Decisions facing a woman considering employment
b. Employment needs and opportunities in the community or region
c. Facilities (public and private) available in the community
   —*for pre-employment counseling*
   —*for guidance*
   —*for education, training or retraining courses*
   —*location of employment offices and agencies, public and private*
   —*other community resources if any, such as YWCA, adult education centers, etc.*
d. Groups or agencies having *non-paid* needs which qualified women could fill
e. Rights and responsibilities of women under existing federal, state and local laws

The local community or region probably can make the best decision as to whether all the points listed above should be covered, and which items of particular importance to the region should be treated in greater detail. Data appropriate to the community or region can be collected and references can be made to local sources of information, such as the State Employment Service offices, guidance and adult education courses in the high schools, two-year and four-year colleges in the area, the Commerce Department's Woman's Program, and the like.

Some of the recently published booklets brought to the Committee's attention are summarized below and would be helpful in development of a general format.

ARE YOU A WOMAN LOOKING FOR A JOB? Recently put out by the New York State Employment Service. Excellent advice and information for women who are considering whether or not to seek employment. Only six small pages, as follows:

1. Why you want a job
2. Problems which having a job may make for you
3. If a job *is* for you (list the things you have enjoyed doing previously, paid or unpaid, then talk over list with a professional vocational counselor)
4. How to be active in the search
5. The employer's viewpoint explained
6. Tips from successful job finders

There are no references to local agencies, other than the professional vocational counseling available at the New York State Employment Service. This is perhaps intentional, for the pamphlet can thus be distributed throughout the State and will apply to New Yorkers everywhere.

This little leaflet could be a supplement to all regional booklets or could be included (with permission) as a section in any of them.

SO YOU WANT TO GO TO WORK. A six page pamphlet put out by the Vocational Education and Extension Board of Nassau County, in Mineola, New York. Very inexpensively produced. This pamphlet gives straight information, does not suggest that the woman examine her reasons for wanting to go to work, needs of her family, etc. Intended for women seeking jobs, either as new workers or re-entrants to the labor market. It contains the following in five pages:

1. About one-half page—information on the New York State Employment Service: Listing of addresses and telephone numbers of local Employment Offices with names of persons in charge; states that Employment Offices offer counseling and guidance.
2. About one-half page—other assistance in the county: adult education programs, libraries, programs of New York State Department of Commerce, local colleges and private schools.
3. Almost two pages—occupations in which jobs are available; job requirements and salaries outlined for:

Office occupations
Food trades
Retailing and sales
Professional opportunities

There is also a one-page insert listing current training courses (by subject and location) in the Nassau County Public Adult Education Program.

OPPORTUNITIES FOR ADULT HIGHER EDUCATION IN NEW ENGLAND COLLEGES AND UNIVERSITIES. Prepared by the New England Board of Higher Education, Winchester, Mass. This is a directory of colleges and universities in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont, offering some courses to adult students, either as part of their regular undergraduate program or in a separate adult division. The pamphlet, published this Fall, is 54 pages long and contains the following:

a. List of colleges and universities by State with detailed key describing institution and course offerings
b. Six pages—list of non-credit courses and special programs
c. One and a quarter pages—list of approved counseling agencies in New England
d. One page—list of directories and other information sources

THE NEXT STEP. A 154 page paperback, published this year by the Radcliffe Institute for Independent Study, Cambridge, Mass. It includes a wide variety of education and employment (paid and volunteer) information on the Boston Metropolitan area. The section on employment opportunities is lengthy (34 pages) and addressed to mature women only. It covers the following:

Useful reading
Preparing a resume
Counseling facilities listed
Sources of employment information
Employment agencies
Samples of part-time jobs

COMEBACK. A British publication issued this year by the Women's Information and Study Centre, London, is also for mature women. The preface discusses the manpower needs of the country and the underutilization of mature womanpower. Data are set forth under the following headings:

Occupations
Proportion of women (in occupations)
Openings
Basic training courses
Refresher courses
Part-time work
There is a bibliography and a list of "some useful addresses."

MOTHERS AT WORK. This sixteen page pamphlet published by the Metropolitan Life Insurance Company is geared primarily to the needs of women who are considering paid employment and who may not have had the benefit of counseling from other sources. Its purpose is to help the prospective worker review the questions which she and her family will have to face if their lives are to continue smoothly and happily while the mother works. It deals clearly and intelligently with the following points:

Your stand-in
How do you manage
Sharing the work
Shortcuts
Time together
Effects on the family
About you—and your health

HOW THE NEW YORK STATE LABOR LAW PROTECTS YOU. Prepared in question and answer form by the New York State Department of Labor, addressed to both men and women workers. Where necessary, names and addresses of pertinent State offices are given. Contains very brief factual material on the following topics:

Employment of minors
Working hours for women
Payment of wages
Industrial home work
Employment agencies
Safety
Job training
Unemployment insurance
Employment of the handicapped
Workmen's Compensation
Disability benefits
Labor and management practices

APPENDIX 8 1964 New York State legislation on volunteers in public welfare

Chapter 455, Laws of 1964 (S. Int. 2930, pr. 4372)

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The social welfare law is hereby amended by adding thereto a new section, to be section one hundred fifteen, to read as follows:

§ No. 115. Training and utilization of volunteers.

Subject to the approval of the department, public welfare districts are authorized to sponsor and conduct programs for the recruitment, training and utilization of volunteers to assist welfare district employees in the performance of office duties and to aid in performing services in welfare districts including but not limited to the following:

a. friendly visiting of the indigent aged;
b. finding homes for foster children;
c. escorting and transporting recipients to clinics and other destinations;
d. aiding in location of improved housing;
e. teaching homemaking skills and aiding in budgeting and care of the household;
f. providing tutoring and other educational aid; and
g. giving information, screening requests and performing other services in waiting rooms of welfare centers.

§ No. 2. This act shall take effect immediately.

Chapter 488, Laws of 1964 (A.Int. 4475, pr. 5662)

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Subdivision three of section twenty of the social welfare law is hereby amended by adding thereto a new paragraph, to be paragraph (g), to read as follows:

g. to formulate plans for the recruitment, utilization and training of volunteers to assist in performing services and other duties in public welfare districts for the purpose of improving participation in public welfare programs.

§ 2. The sum of fifteen thousand dollars ($15,000), or so much thereof as may be necessary, is hereby appropriated out of any moneys in the state treasury in the general fund to the credit of the state purposes fund, not otherwise appropriated, and made available to the department of social welfare for its expenses in effectuating the provisions and purposes of this act. Such moneys shall be paid on the audit and warrant of the comptroller on vouchers certified and approved in the manner provided by law.

§ 3. This act shall take effect April first, nineteen hundred sixty-four.

Press release announcing state consultant on volunteers

"Mrs. Ruth Sherwood, Executive Director of the Volunteer Center, Inc. of Syracuse, has been appointed Senior Welfare Consultant on the use of volunteers, State Social Welfare Commissioner George K. Wyman announced today (November 6, 1964).

The post, a part-time position, has been created to implement legislation passed this year to promote the use of volunteers by local public welfare departments.

Mrs. Sherwood will guide and assist the local agencies to plan and carry out volunteer services to welfare recipients. The volunteers will be used for teaching homemaking skills and better management of the family budget; tutoring and other educational aid; transporting welfare recipients to clinics; finding foster homes for children; visiting the indigent aged; giving information, screeneing requests, and performing other worth-while activities to augment welfare services.

"The use of volunteers makes possible citizen participation in a direct and effective way," Commissioner Wyman said. "It enables the community to take a more direct hand in solving public welfare problems, and creates better understanding of the causes of dependency and what must be done to overcome those problems."

Mrs. Sherwood has had wide experience in the volunteer field. She has served in an executive and supervisory capacity on numerous volunteer organizations and committees. She is past president of the Association of Volunteer Bureaus of America.

She received her bachelor of arts degree from Vassar College, and has studied at the Sorbonne and New York University."

APPENDIX 9 Subcommittee memorandum on protective labor legislation

This term includes legislation limiting hours of work, establishing minimum wages, providing protection against health hazards and industrial accidents, and similar matters. The drive for such legislation began around the turn of the century when the public conscience began to be aroused about conditions of labor then prevalent. [1] From time to time such laws were held to be unconstitutional as interfering with an individual's freedom to contract, but such legislation is now considered to be a valid exercise of the police power of the state to protect the health, safety, or morals of its citizens. Much of this legislation was originally enacted to cover women only, partly because courts more easily upheld such statutes on the ground that women could properly be placed in a separate class because of their lesser physical strength and unequal competitive position.

Lochner v. *New York*, 198 U.S. 45 (1905), holding unconstitutional a limitation of employment in bakeries to 60 hours a week and 10 hours a day.

Muller v. *Oregon*, 208 U.S. 412 (1908), sustaining a statute limiting the hours of labor of women in launderies to 10 hours a day. The court stated that like legislation affecting men might be invalid, but held that

[1] Report of the Committee on Protective Labor Legislation, President's Commission on the Status of Women, p. 1.

the physical well-being of women was an object of public interest and care in order to preserve the strength and vigor of the race; that women were dependent on men and were not equal competitors; therefore, they were properly placed in a class by themselves and legislation designed for their protection could be sustained.

Bunting v. *Oregon,* 243 U.S. 426 (1917), sustaining legislation prohibiting work in factories and manufacturing establishments for more than 10 hours a day. This legislation was not limited to women, but the court found that the purpose was the protection of the physical well-being of citizens and that it was not unreasonable or arbitrary.

Adkins v. Children's Hospital, 261 U.S. 525 (1923), holding unconstitutional an act fixing minimum wages for women and children in the District of Columbia, as interfering with women's freedom to contract. *Overruled* in *West Coast Hotel Co.* v. *Parrish,* 300 U.S. 379 (1937), on the ground that freedom to contract is not absolute and may be restricted where the parties are not equal or where public health requires it. It was stated that the protection of women was a legitimate end of state power, that the requirement of a minimum wage was a means to that end; that women are in a class receiving the least pay, their bargaining power is weak, and they are ready victims of those who would take advantage of them.

United States v. *Darby,* 312 U.S. 100 (1941), sustaining the Fair Labor Standards Act of 1938 providing for the fixing of minimum wages and maximum hours for employees engaged in the production of goods for interstate commerce, on the ground that it is within the commerce power and is consistent with the Fifth and Tenth Amendments.

It is noted that New York State's minimum wage law applied originally to women and minors (Labor Law, former Article 19) and was later made applicable to males "to effectuate the aim of the article and to protect the minimum wage standards and rates provided for women and minors." (Sec. 663-a, former Article 19.) See *Mary Lincoln Candies, Inc.* v. *Department of Labor,* 289 N.Y. 262 (1942); *N.H. Lyons & Co.* v. *Corsi,* 3 N.Y. 2d 60 (1957). The present minimum wage act makes no distinction on the ground of sex. Labor Law, Article 19.

New York has many laws regulating hours of work and conditions of labor, a few of which apply solely to women.

In general, women may not work in a factory, hotel, restaurant, beauty parlor, or mercantile establishment, or in the distribution or transmission of merchandise or articles or as elevator operators or as messengers for a telegraph or messenger company more than 6 days or 48 hours in any week or after 12 midnight or before 6 A.M., with certain exceptions.

Exceptions as to the 48-hour week include:

Employment in certain canneries during certain seasons;

Employment in factories pursuant to a special permit of the commissioner, authorizing such employment for not more than 8 weeks in the last 6 months of the year;

Employment in resort or seasonal hotels and restaurants in areas having a population of less than 15,000, or solely as a singer or performer;

Employment in beauty parlors in cities and villages having a population of less than 15,000;

Employment in mercantile establishments during Christmas and inventory periods; or as writers or reporters in newspaper offices; as licensed pharmacists; or in florist shops the day before Easter, Easter Sunday morning, and December 23rd.

Exceptions as to the night-work prohibition include:

Employment in a factory where a permit has been issued by the commissioner;

Employment as a proofreader, linotypist, monotypist, or bindery worker in a newspaper, publishing house, or book bindery;

In the dining room or kitchen of restaurants if a permit has been issued; or employment in a restaurant as a hat-check girl, cigarette girl, flower girl, attendant in a ladies' room, or in hotels and restaurants as a singer or performer; or employment in resorts or seasonal hotels or restaurants in areas having a population of less than 15,000;

Employment as writers or reporters in newspaper offices; as pharmacists; or in florist shops the day before Easter, Easter Sunday morning, and December 23rd.

Labor Law, sections 173-176

Women may not be employed at core-making where an oven in which the cores are baked is in operation in the same room (Labor Law sec. 311); nor in or in connection with a mine or quarry (ibid., sec. 405); nor in a factory or mercantile establishment within 4 weeks after childbirth (ibid., sec. 206-b). Seats are required to be provided for women employees in factories, mercantile establishments, freight or passenger elevators, and hotels and restaurants. Labor Law, sec. 203-b.

The question has been raised as to whether this legislation is discriminatory in effect rather than protective. Some of it appears to be more for the benefit of employers or for male employees than women. The exceptions permit the employment of women for longer hours or at night during busy seasons or in certain occupations where they are specially needed. At other times, the restrictions may prevent them from receiving equal pay since they are prohibited from working overtime or at night. On the other hand, it may be that lifting the restrictions would reduce opportunities for women, especially those with families, since they might not be employed if they were unwilling to work longer hours or at night.

The restrictions that appear most discriminatory are those with reference to employment in hotels and restaurants as they prevent the employment of women as waitresses at the hours when tips may be highest, but allow the employment of women in other capacities where they do not compete with men.

Predecessors of this section have had somewhat different wording and have been held constitutional by the courts. In 1924, the section provided that in cities of the first and second class no female might be employed in restaurants between 10 PM and 6 AM, but the section did not apply to females employed as singers and performers, or as ladies' room attendants, nor those employed in dining rooms and kitchens of hotels, or in lunch rooms or restaurants conducted for employees only. The statute was challenged on the ground of interference with the freedom to contract and on the ground that it denied equal protection of the laws. *Radice* v. *New York,* 264 U.S. 292 (1924). On the first point, it was held that the statute was valid since the state had determined that night employment was sufficiently detrimental to the health and welfare of women to justify its suppression. On the second point, was held that the limitation of the prohibition to cities of the first and second class was not unreasonable and that the exclusion of certain employees and of employment in hotels and employees' lunch rooms did not render the statute unconstitutional; that the mere fact of inequality of classification was not enough; that inequality, in order to render a statute invalid, must be "actually and palpably unreasonable and arbitrary."

In *People* v. *Gobeo* 6 N.Y.S. 2nd 937 (1938), it was held that the prohibition of the employment of females in restaurants between midnight and 6 AM., but not prohibiting such employment in hotel dining rooms and kitchens, was not an unreasonable and arbitrary classification. It was pointed out that the criticism was more properly directed against the legislative policy involved than against the principles underlying the legislation itself.

APPENDIX 10 Subcommittee memorandum on legal references

Equal Pay

The New York State Labor Law provides:

"§ 199-a. Discrimination in rate of pay because of sex prohibited.
"No employee shall, because of sex, be subjected to any discrimination in the rate of her or his pay. A differential in pay between employees based on a factor or factors other than sex shall not constitute discrimination within the meaning of this section. The term 'employee' as used in this section shall mean any person employed for hire by an employer in any lawful employment; but shall not include persons engaged in domestic service in the home of the employer or labor on a farm, or employees of any corporation, joint-stock company, unincorporated association, community chest, fund, or foundation organized and operated exclusively for religious, charitable, scientific, literary or educational purposes no part of the net earnings of which inures to the benefit of any private shareholder or individual.
"'Employment' means any employment under contract of hire, express or implied, written or oral, including all contracts entered into by helpers and assistants of employees, whether paid by an employer or employee, if employed with the knowledge actual or constructive of the employer, in which all or the greater part of the work is to be performed within the state."

The (Federal) Equal Pay Act of 1963, 77 Stat. 56, 29 U.S.C. 206, declares that it is the policy of the Act to correct conditions in industries engaged in commerce or the production of goods for commerce where differentials in pay based on sex exist. It provides:

"Sec. 3. Section 6 of the Fair Labor Standards Act of 1938, as amended (29 U.S.C. et seq.), is amended by adding thereto a new subsection (d) as follows:
"'(d) (1) No employer having employees subject to any provisions of this section shall discriminate, within any establishment in which such employees are employed, between employees on the basis of sex by paying wages to employees in such establishment at a rate less than the rate at which he pays wages to employees of the opposite sex in such establishment for equal work on jobs the performance of which requires equal skill, effort, and responsibility, and which are performed under similar working conditions, except where such payment is made pursuant to (i) a seniority system; (ii) a merit system; (iii) a system which measures earnings by quantity or quality of production; or (iv) a differential based on any other factor other than sex: *Provided,* That an employer who is paying a wage rate differential in violation of this subsection shall not, in order to comply with the provisions of this subsection, reduce the wage rate of any employee.'"

The Federal law applies only to those covered by the Fair Labor Standards Act of 1938.

The State law has been interpreted to apply only when jobs are identical, and factors other than sex are held to justify a differential in pay even though the work is comparable. *Corsi* v. *Bentley Stores Corporation.* (Municipal Ct., Man., 1st Dist. #23060/1947; not reported.)

A Model Equal Pay Act for states is in the process of being drafted.

Amendments to the New York State law are recommended to bring it into conformity with the Federal statute which allows for a more flexible interpretation.

Equal Employment Opportunities

The New York State Executive Law, as amended L. 1964, c. 239, provides:

"§ 291. Opportunity for employment without discrimination a civil right.
"The opportunity to obtain employment without discrimination because of race, creed, sex, color or national origin is hereby recognized as and declared to be a civil right."
Section 296 of the same law provides, in part:
"§ 296. Unlawful discriminatory practices.
"1. It shall be an unlawful discriminatory practice:
"(a) For an employer, because of the age, race, creed, color or national origin of any individual, to refuse to hire or employ or to bar or to discharge from employment such individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment."

This section does not make discrimination on the ground of sex an unlawful employment practice. The enforcement provisions contained in the subsequent sections are therefore not applicable.

The (Federal) Civil Rights Act of 1964, 78 Stat. 241, provides in Title VII, among other things:

"Sec. 703. (a) It shall be an unlawful employment practice for an employer—

"(1) to fail or refuse to hire or to discharge any individual or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, or national origin; or

"(2) to limit, segregate, or classify his employees in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, sex, or national origin."

Discrimination by employment agencies and labor organizations and in training programs is also forbidden. Discriminatory help wanted ads are prohibited. (Sec. 703 (b), (c), and (d)).

It is further provided in section 703:

"(e) Notwithstanding any other provision of this title, (1) it shall not be an unlawful employment practice for an employer to hire and employ employees, for an employment agency to classify, or refer for employment any individual, for a labor organization to classify its membership or to classify or refer for employment any individual, or for an employer, labor organization, or joint labor-management committee controlling apprenticeship or other training or retraining programs to admit or employ any individual in any such program, on the basis of his religion, sex, or national origin in those certain instances where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of that particular business or enterprise, * * *

* * *

"(h) Notwithstanding any other provision of this title, it shall not be an unlawful employment practice for an employer to apply different standards of compensation, or different terms, conditions, or privileges of employment pursuant to a bona fide seniority or merit system, or a system which measures earnings by quantity or quality of production or to employees who work in different locations, provided that such differences are not the result of an intention to discriminate because of race, color, religion, sex, or national origin, nor shall it be an unlawful employment practice for an employer to give and to act upon the results of any professionally developed ability test provided that such test, its administration or action upon the results is not designed, intended or used to discriminate because of race, color, religion, sex or national origin. It shall not be an unlawful employment practice under this title for any employer to differentiate upon the basis of sex in determining the amount of the wages or compensation paid or to be paid to employees of such employer if such differentiation is authorized by the provisions of section 6(d) of the Fair Labor Standards Act of 1938, as amended (29 U.S.C. 206 (d))."

The enforcement provisions include the filing of charges with an Equal Employment Opportunity Commission, appointed by the President, investigation by said Commission, and an endeavor to eliminate the unlawful practice by informal methods of conference, conciliation, and persuasion. (Sec. 706(a)). A civil action may be brought in the courts. (Sec. 706(e)).

Priority of action is given to state authorities where there is a State law prohibiting the unlawful practice:

"Sec. 706.

* * *

"(b) In the case of an alleged unlawful employment practice occurring in a State, or political subdivision of a State, which has a State or local law prohibiting the unlawful employment practice alleged and establishing or authorizing a State or local authority to grant or seek relief from such practice or to institute criminal proceedings with respect thereto upon receiving notice thereof, no charge may be filed under subsection (a) by the person aggrieved before the expiration of sixty days after proceedings have been commenced under the State or local law, unless such proceedings have been earlier terminated, provided that such sixty-day period shall be extended to one hundred and twenty days during the first year after the effective date of such State or local law. If any requirement for the commencement of such proceedings is imposed by a State or local authority other than a requirement of the filing of a written and signed statement of the facts upon which the proceeding is based, the proceeding shall be deemed to have been commenced for the purposes of this subsection at the time such statement is sent by registered mail to the appropriate State or local authority."

Under this Act, enforcement in New York State on the grounds of discrimination on the basis of race, creed, color, or national origin would be in the hands of State authorities in the first instance. However, unless section 296 of the Executive Law is amended, enforcement where discrimination on the ground of sex is alleged would not be.

The Committee therefore recommends amendment to the State law in order to provide for uniformity of enforcement and coverage of all employees in the State.

Such legislation would be in accord with the policy of this State. *Wilson* v. *Hacker,* 200 Misc. 124, 101 N.Y.S. 2d 461 (1950); *Shpritzer* v. *Lang,* 79 App. Div. 2d 285, 234 N.Y.S. 2d 285, aff'd 13 N.Y. 2d 744. (1963).

In *Wilson* v. *Hacker, supra,* bartenders' unions were picketing a restaurant in order to induce the owner to enter into a union contract. She employed three barmaids who were not eligible for union membership; therefore, to comply with the unions' demands, she would have had to discharge the women and employ male bartenders. An injunction forbidding the picketing was granted unless the unions agreed either to admit the barmaids to membership or to modify their demands for a union shop, so as to exempt the barmaids from the requirement that all employees be union members. In the course of the opinion the court stated:

"Discrimination on the ground of sex, in the absence of any evidence of incompetence or bad moral character in the particular case, must be condemned as a violation of the fundamental principles of American democracy. The right to be free from discrimination on class grounds is one of our fundamental freedoms. It is true that the statute prohibiting discrimination by labor unions, Civil Rights Law, §43, does not enumerate sex as one of the forbidden grounds of discrimination, and it is likewise true that the other statutes in this state, aimed at the elimination of discrimination, do not in terms forbid discrimination on the ground of sex, e.g., Executive Law, §§ 125-136. However, the principle against discrimination is not limited to the instances covered by the particular statutory provisions. Those statutes merely provide special penalties or special procedures against discrimination. Under the present New York statutes, the special penalties or procedures cannot be invoked against discrimination on the ground of sex, but it does not follow that a court may not condemn such discrimination as a violation of fundamental principle and judge the legitimacy of union activities in the light of such principle."

In Shpritzer v. *Lang, supra,* it was held that a policewoman employed by the City of New York was eligible to take the examination for promotion to sergeant and that denial of eligibility solely because of sex was not warranted in law. The Appellate Division stated:

"Article 5, Section 6, Constitution of the State of New York states, in part: '[a]ppointments and promotions in the civil service of the state and all of the civil divisions thereof * * * shall be made according to merit and fitness to be ascertained, as far as practicable, by examination which, as far as practicable, shall be competitive. * * *.' * * *

* * *

"Under the language quoted above, unless it is not practicable the Constitution mandates promotion regardless of sex for those in civil service, by or as a result of competitive examination.

* * *

"We find no prohibition in statute or rule against the eligibility of policewomen to take the promotional examination for Sergeant. To place such a construction upon the language of Administrative Code. § 434a-2.0(d) is unwarranted, unreasonable, and demonstrates an archaic approach in light of modern day conditions. Moreover, such a construction amounts to a denial of petitioner's constitutional rights solely because of her sex unless it be demonstrated that some rational basis exists for the distinction.

* * *

* * * The capacity and ability of females to hold a superior office in a police department has been demonstrated by the experience of other cities. We conclude that the denial of eligibility is solely because of sex, is unwarranted in law and, in light of present day conditions constitutes an abuse of discretion * * *.

Jury Service

JUDICIARY LAW

Article 17. Jurors in Counties Within Cities Having a Population of One Million or More

"§ 599; Exemptions. Each of the following persons only, any inconsistent provisions of law to the contrary notwithstanding, although qualified, is entitled to exemption from service as a juror upon claiming exemption therefrom:

1. A clergyman or minister of religion officiating as such and not following any other calling.

2. A practicing physician, surgeon, or dentist having patients requiring his daily professional attention, a licensed pharmacist actually engaged in his profession as a means of livelihood, a duly licensed embalmer actually engaged in his profession as a means of livelihood, and an optometrist actually engaged in the pretice of optometry.

3. An attorney or counsellor at law, regularly engaged in the practice of law as a means of livelihood.

4. A person belonging to the armed forces of the United States, and the active national guard and naval militia of the state.

5. A member of a fire company or department or police force or department duly organized according to the laws of the state or any political subdivision thereof and performing his duties therein; or an exempt volunteer fireman, as defined in section two hundred of the general municipal law.

6. A captain, engineer, or other officer, actually employed upon a vessel making regular trips; or a licensed harbor or river pilot actually following that calling.

7. A woman.

8. An editor, editorial writer, a sub-editor, reporter or copy reader, actively and regularly employed in the handling or gathering of news for a daily, semi-weekly or weekly newspaper.

9. A person regularly appointed and actually engaged as a full time classroom teacher, department head, dean or principal in any private or public day school, or in any private college or university or any college maintained by the board of education or the board of higher education of the city of New York, or as superintendent, associate-superintendent or assistant superintendent of a day school system, and not following any other calling during regular school hours, while his school is in session and he is assigned to official duties therein. The provisions of this subdivision shall terminate July first, nineteen hundred sixty-three."

"§ 600: Evidence of exemption. The evidence of the right to exemption as prescribed in section five hundred and ninety-nine is as follows:

An affidavit, or a certificate or questionnaire pursuant to section twelve hundred thirty-two-a of the penal law, of the applicant or of another person in his behalf satisfactory to the county clerk stating the facts entitling the applicant to exemption, or in the case of an exempt volunteer fireman, the certificate provided for in *section* two hundred and two of the general municipal law.

Each such affidavit, certificate or questionnaire must be filed with the county clerk and must be kept open by him at all reasonable times to public inspection.

The right to exemption must be claimed at the time of examination for liability to serve as a juror, except that a woman may claim such right to exemption at any subsequent time. If a male fails to present such claim at such time, he shall be deemed to have waived the same and cannot be exempted thereafter except for reasons accruing after the time of examination. If, however, he claims exemption at the time of his examination and is not granted the same, he may present such claim for exemption to the court when drawn for jury service or may review such refusal in the manner provided by article seventy-eight of the civil practice act."

Article 18. Jurors in Counties Outside of Cities Having a Population of One Million or More

"§ 665. (This section is the same as section 599, supra, except that its contains no subdivision 9).

"§ 666. (This section is the same as section 600, supra, except that the last paragraph reads:)

The right to exemption must be claimed at the time of examination for liability to serve as a juror. If a person fails to present such claim at such time, he shall be deemed to have waived the same and cannot be exempted thereafter except for reasons accruing after the time of examination. If, however, he claims exemption at the time of his examination and is not granted the same, he may present such claim for exemption to the court when drawn for jury service or may review such refusal in the manner provided by article seventy-eight of the civil practice act."

Civil Service Law.

ARTICLE IV—RECRUITMENT OF PERSONNEL

Title A—Examination and Eligible Lists

"§ 50. Exemptions generally. * * *

* * *

7. Limitation of eligibility to one sex. The state civil service department or the municipal commission having jurisdiction may limit eligibility for examination to one sex when the duties of the position involved relate to the institutional or other custody or care of persons of the same sex, or visitation, inspection or work of any kind the nature of which requires sex selection.

Title B—Appointment and Promotion

"§ 60. Certification of eligible lists.

* * *

2. Certification on basis of sex. The state department of civil service or the municipal commission having jurisdiction may limit certification from an eligible list to one sex when the duties of the position involved relate to the institutional or other custody or care of persons of the same sex, or visitation, inspection or work of any kind the nature of which requires sex selection.

* * *

"§ 61. Appointment and promotion. 1. Appointment or promotion from eligible lists. Appointment or promotion from an eligible list to a position in the competitive class shall be made by the selection of one of the three persons certified by the appropriate civil service commission as standing highest on such eligible list who are willing to accept such appointment or promotion; * * *."

ARTICLE VIII— CLASSIFICATION AND COMPENSATION OF STATE EMPLOYEES

Title A—Classifications and Allocation of Positions

"§ 115. Policy of the state. In order to attract unusual merit and ability to the service of the state of New York, to stimulate higher efficiency among the personnel, to provide skilled leadership in administrative departments, to reward merit and to insure to the people and the taxpayers of the state of New York the highest return in services for the necessary costs of government, it is hereby declared to be the policy of the state to provide equal pay for equal work, and regular increases in pay in proper proportion to increase of ability, increase of output and increase of quality of work demonstrated in service."

APPENDIX 11 Community colleges in New York State — Fall 1964

Adirondack Community College at Hudson Falls
Auburn Community College at Auburn
Borough of Manhattan Community College at New York City
Bronx Community College at New York City
Broome Technical Community College at Binghamton
Corning Community College at Corning
Dutchess Community College at Poughkeepsie
Erie County Technical Institute at Buffalo
Fashion Institute of Technology at New York City
Fulton-Montgomery Community College at Johnstown
Hudson Valley Community College at Troy
Jamestown Community College at Jamestown
Jefferson Community College at Watertown
Kingsborough Community College at Brooklyn
Mohawk Valley Community College at Utica
Monroe Community College at Rochester
Nassau Community College at Garden City
New York City Community College of Applied Arts and Sciences at Brooklyn
Niagara County Community College at Niagara Falls
Onondaga Community College at Syracuse
Orange County Community College at Middletown
Queensborough Community College at New York City
Rockland Community College at Suffern
Staten Island Community College at New York City
Suffolk County Community College at Selden
Sullivan County Community College at South Fallsburg
Ulster County Community College at Kingston
Westchester Community College at Valhalla

Summary Bulletin, State University of New York, Albany, N. Y., Fall 1964

These two-year degree-granting colleges are created under the provisions of the Community College Law enacted in 1948 as part of the legislation creating the State University of New York. They come under the general supervision of the State University Board of Trustees, but are locally sponsored and operated either by cities, counties, or school districts. They receive State-local support, with the State providing, under present law, one-half of the cost of capital construction and one-third of the operating cost.

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APPENDIX 13 Acknowledgments

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A. The heads of the State University of New York, the City University of New York, and the private colleges and universities of the State cooperated in providing information on their programs and plans for women. Direct responses came from the following:

Four-Year Universities and Colleges

Bard College
Brooklyn Law School
Canisius College
City University of New York
  Brooklyn College
  City College
  Hunter College
  Queens College
Colgate Rochester Divinity School
Colgate University
College of Mount Saint Vincent
College of New Rochelle
College of Saint Rose
Colleges of the Seneca
  Hobart
  William Smith
Columbia University
  Barnard College
  College of Pharmacy
  Teachers College
Cooper Union
Cornell University
D'Youville College
Elmira College
Finch College
Fordham University
Hamilton College
Hartwick College
Hebrew Union College
Hofstra University
Institute of Public Administration
Iona College
Ithaca College
Juilliard School of Music
King's College
Ladycliffe College
LeMoyne College
Long Island University
  Brooklyn College of Pharmacy
  Mitchell College
  C. W. Post College
  Southampton College
  University Center
M. J. Lewi College of Podiatry
Manhattan College
Manhattan School of Music
Marist College
Marymount College
Mercy College
Mills College of Education
Molloy Catholic College for Women
Mount Saint Joseph College
Nazareth College
New York College of Music
New York Institute of Technology
New York University
Niagara University
Notre Dame College of Staten Island
Nyack Missionary College
Pace College
Polytechnic Institute of Brooklyn
Pratt Institute
Rensselaer Polytechnic Institute
Rochester Institute of Technology
The Rockefeller Institute
Rosary Hill College
St. Bonaventure University
St. John Fisher College
St. John's University
The St. Lawrence University
St. Thomas Aquinas College
Sarah Lawrence College
Seminaries:
  Baptist Bible Seminary
  Jewish Theological Seminary
  Maryknoll Seminary
  Union Theological Seminary
Siena College (Saint Bernardine of)
State University of New York
  SUNY at Albany
  SUNY at Buffalo
  SUNY at Stony Brook
  Downstate Medical Center
  Upstate Medical Center
  Graduate School of Public Affairs
  College at Brockport
  College at Buffalo
  College at Cortland
  College at Fredonia
  College at Geneseo
  College at New Paltz
  College at Oneonta
  College at Oswego
  College at Plattsburgh
  College at Potsdam
  Harpur College
  College of Forestry at Syracuse
  College of Ceramics at Alfred
  College of Agriculture at Cornell
  College of Home Economics at Cornell
  School of Industrial and Labor Relations at Cornell
  Veterinary College at Cornell
Syracuse University
  University College
  Utica College
Union College
Union University
  Albany College of Pharmacy
  Albany Law School
  Albany Medical College
The University of Rochester
Vassar College
Wagner College
Webb Institute of Naval Architecture
Wells College
Yeshiva University

Two-Year Colleges

Academy of Aeronautics
Adirondack Community College
Auburn Community College
Borough of Manhattan Community College
Briarcliff College
Bronx Community College

Broome Technical Community College
Catherine McAuley College
Cazenovia College
College of the Holy Names
Concordia Junior College
Dutchess Community College
Elizabeth Seton College
Erie County Technical Institute
Fashion Institute of Technology
Hudson Valley Community College
Jamestown Community College
Jefferson Community College
Miner Institute
Mohawk Valley Community College
Monroe Community College
Nassau Community College
New York City Community College
Niagara County Community College
Orange County Community College
Packer Collegiate Institute
Paul Smith's College
Queen of the Apostles College
Queensborough Community College
Rockland Community College
Seminaries:
Mater Christi Seminary
St. Joseph Seraphic Seminary
State University of New York
Agricultural and Technical Institutions:
at Alfred; Canton; Cobleskill; Delhi;
Farmingdale and Morrisville
Staten Island Community College
Suffolk County Community College
Voorhees Technical Institute
Westchester Community College

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Structuring Family Finance for Home Economics Teaching.

Nebraska State Dept. of Education, Lincoln. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep63 39p.; Annual State Homemaking Conference (45th, Nebraska Center for Continuing Education, August 15-18, 1963).

*CONFERENCES; CONSUMER ECONOMICS; *HOME MANAGEMENT; *MONEY MANAGEMENT; *HOMEMAKING EDUCATION; SPEECHES; EDUCATIONAL RESOURCES; INSTRUCTIONAL IMPROVEMENT; TEACHING METHODS; *FAMILY INCOME; CREDIT
*ANNUAL STATE HOMEMAKING EDUCATION CONFERENCE

The emphasis of the conference was on values and decision-making especially in teaching Family Finance. The report summarizes conference speeches and discussions to provide usable reference material for the teacher, and a means for reviewing ideas. Speeches were: (1) "The Structure of Family Finance and Its Place in the Home," by Helen Thal, (2) "Management--An Overview and Review," by Janet Wilson, (3) "Management of Family Income," by Helen Thal, and (5) "Identifying Concepts and Generalizations," by Helen Thal. There were group presentations on "Relating Values to Finance and Credit," "Understanding Credit," and "Objectives and Behavioral Outcomes Related to Credit." (MS)

ED027441

45TH ANNUAL STATE HOMEMAKING EDUCATION CONFERENCE

August 13-15, 1963
Lincoln, Nebraska

NEBRASKA CENTER FOR CONTINUING EDUCATION

Structuring Family Finance for Home Economics Teaching

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT 006115

State of Nebraska
DEPARTMENT OF EDUCATION
Vocational Education Division
10th Floor, State Capitol Building
Lincoln, Nebraska 68509

THE PURPOSE OF THIS CONFERENCE REPORT

1. To summarize the conference speeches, discussions, etc., in order--

2. To provide usable reference material for the teacher, and

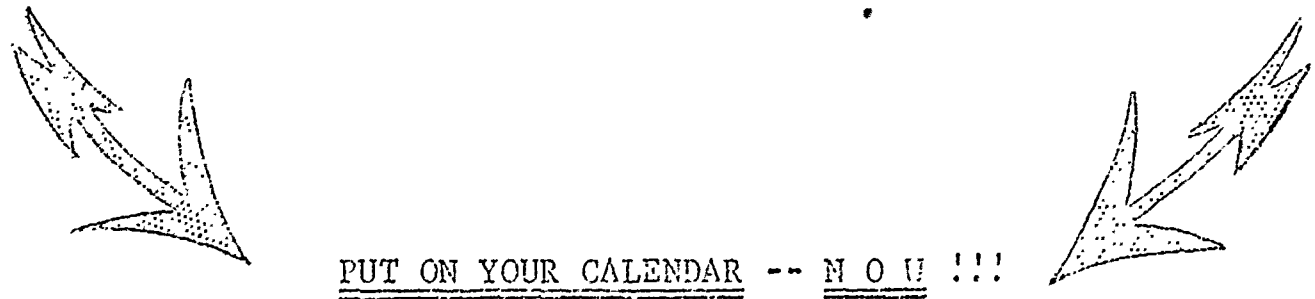
3. To provide means for reviewing and studying the many ideas presented at the conference.

4. To serve as a refresher through the year when preparing to work with students in the area of Family Finance.

OUR APPRECIATION

A great big THANK YOU to all of you who assumed and carried out the many responsibilities asked of you during the State Conference. Your help was indispensable to the functioning of the conference and is truly appreciated by us.

Rose Wanek, State Director
Janet Wilson, Consultant



PUT ON YOUR CALENDAR -- N O W !!!

1964 STATE CONFERENCE IS

AUGUST 7-10-19

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FORTY-FIFTH ANNUAL CONFERENCE PROGRAM

THEME: STRUCTURING FAMILY FINANCE FOR HOME ECONOMICS TEACHING

Goals for the Conference:

1. To identify major concepts about Family Finance that are significant to the secondary school Home Economics Program.
2. To examine methods and techniques for developing these concepts.
3. To become acquainted with the most pertinent pupil and teacher references in this area.
4. To make state-wide, district, and personal plans for improving the teaching of Family Finance.
5. To review progress made in revision of the curriculum.
6. To get acquainted with every teacher in one's district

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Miss Charlene Swanson - Elwood
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Miss Dorothy Ellermeier - Crete

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Miss Janet Wilson, Consultant, Homemaking Education, Lincoln

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(State Homemaking Education Committee)

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MONDAY, AUGUST 12

9:00-12:00 Meeting of Group Leaders with Miss Thal
9:00- 5:00 Small Curriculum Group
1:00- N.H.T.V.A. Program Committee
1:00- 5:00 Workshop for New Teachers
7:30- N.V.A. Program Committee

TUESDAY, AUGUST 13

Presiding - Miss Rose Wanek

8:00- 9:00 Registration - Dues - Tickets
9:00- 9:30 Opening of the Conference, Miss Rose Wanek
9:30-10:30 "The Structure of Family Finance and Its Place in the Home Economics Program" - Miss Helen Thal
10:30-10:45 Intermission
10:45-11:30 Continued - Miss Thal

11:30-12:45 FHA Advisory Board Meeting, Town & Country Restaurant

---

12:45- 2:00 "Management - An Overview and Review" - Miss Janet Wilson
2:00- 2:30 Coffee Break
2:30- 4:00 Group Work - "Relating Values to Credit and Finance"
4:00- Dues - Registration
4:00- NHTVA Council Meeting
7:30- AVA Program Committee
8:00- Tour of Sheldon Art Gallery

WEDNESDAY, AUGUST 14

Presiding - Mrs. Ann Irvine

8:00- 8:30 Registration - Dues
8:30- 9:30 "Management of Family Income" - Miss Helen Thal
9:30-10:00 Coffee Break
10:00-11:30 "Understanding Credit" - Panel

Mr. Max Denny, Executive Vice President, Nebraska Consumer Credit Association
Mr. Earl Heironymus, Credit Manager, Miller & Paine Department Store
Mr. Mort Novak, National Bank of Commerce, Lincoln
Miss Helen Thal, Moderator

WEDNESDAY, AUGUST 14 (Cont'd)

11:30-12:45 LUNCH

12:45- 2:00 "Identifying Concepts and Generalizations" - Miss Helen Thal
2:00- 2:30 Coffee Break
2:30- 4:00 Group Work - "Objectives and Behavioral Outcomes Related to Credit"
4:00- 4:20 NHTVA Council Meeting (old and new members)
4:00- 5:00 State Homemaking Education Committee
6:00- 9:00 NHTVA Annual Meeting and Special Program

THURSDAY, AUGUST 15

Presiding - Miss Martha Artist

8:30- 9:30 Report on Curriculum Study - Miss Rose Wanek
9:30-10:15 "Examining Other Aspects of Family Finance" - Miss Helen Thal
10:15-10:45 Coffee Break
10:45-11:30 "Examining Other Aspects" Continued - Miss Helen Thal

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11:30-12:45 LUNCH

1:45- 2:45 Plans for Next Year - Miss Rose Wanek
2:45- 3:00 Intermission
3:00- 4:00 District Meetings

District 1 - Room 221
District 2 - Room 210
District 3 - Room 214
District 4 - Room 223
District 5 - Room 225
District 6 - Room 217
District 7 - Room 219
District 8 - Room 213
District 9 - Room 215

FIRST GENERAL SESSION
Tuesday a.m., August 13, 1963

Opening Remarks - Miss Rose Wanek
"The Structure of Family Finance and Its Place in the Home Economics Program" - Miss Helen Thal

OPENING REMARKS:

These conferences have been held over the past 45 years, which takes us back to the era of the First World War. During that time our state was largely rural, and there were few modern facilities--in fact, many coal stoves were still in use. The main goals at this time were to help families develop better ways of living to raise standards of living.

In the 1930's we began to get more information from research and thus develop understandings in more areas; especially, in child guidance and development. This became a part of the homemaking curriculum.

During the 1940's the emphasis was on conservation due to World War II. The problem then was how to do without certain material things and make others last until the war was over.

After the war emphasis was placed on the need to evaluate what we stood for, what areas were of greatest importance to us, and how to live and make decisions in our complex world of today. Values and decision-making are focal points in our program today.

During this conference we will be developing a good beginning on the teaching of Family Finance. This area will certainly involve valuing and decision-making.

FILM STRIP, MARRIAGE AND MONEY

(Film Strip narrated by Miss Thal, Marriage and Money, available after September 1, 1963, on free loan basis from the Institute of Life Insurance, 488 Madison Ave., New York 22, N.Y. The film will also be for sale at $3.00 per film.)

This film shows the effects and problems of family finance on a young married couple. The husband is a filling station attendant and the wife had worked as a secretary every since they were married. The wife's extra earnings create a problem, as they allow justification for purchases that could otherwise not be made by the family. For instance, bowling is justified because it is exercise, a stereo is justified because music is their hobby, and a new car is justified because the husband is in a business connected with cars. The couple realizes, when debts begin to build up, that if the wife ceases to work they will have serious financial troubles. They must decide where to cut down before it is too late.

They decide they must set definite goals, and for this couple the goals turn out to be children and ownership of a service station. Once they have decided on these goals, they are able to work out a sound and workable budget. Such questions arise as: (1) Since savings should not depend on what is left, just what should be done with the wife's salary? (2) If they have a child, would this change their needs as far as life insurance and health insurance are concerned? They consider credit. Their stereo cost $240--no money down and $20 for twelve months. They could have purchased the same kind of set for $199.50 in cash. They paid $40.50 for the privilege of making monthly payments.

The couple have a baby and shortly thereafter the husband's employer becomes ill. The husband finds out that being the owner of a business means working 60 to 70 hours per week and a great many more responsibilities than he had realized. The owner then decides to sell the business, and the couple is faced with the decision of whether to buy the business even though they would have to enlist the help of a relative and borrow part of the downpayment from a bank. The husband is also offered a position in another filling station that would pay him $20 more per week than his present salary.

Having decided on their goals, developed certain consumer skills, and devised a flexible financial plan, this couple will be able to make a more intelligent objective decision between the two positions.

REMARKS - Miss Thal

The type of couple seen in this film will be the kind of couple on which we will focus our attention for the next few days. We are especially interested in the preparation needed by young people in order for them to deal with their financial problems.

Family finance has always existed, but has only recently been defined. It has always been dealt with in one way or another by families or individuals, but only in recent years have educators recognized that here was a fact of life and a body of knowledge that needed to be captured, structured and defined so as to be meaningful. Much trial and error has gone into this total effort, and the job is far from finished. Indeed, those of us involved in this endeavor are still not sure, still experimenting, still growing, and what we thought was good two years ago has been reworked, reshaped until it is hardly the same baby. But the movement has gained impetus and has grown in stature. Two years ago we presented ten areas of finance, suggested where they might fit the curriculum, and began working on concepts and generalizations. It looked like we were on the right track, except soon we were finding ourselves up some blind alleys. We did not really understnad why. Once the reason emerged, it appeared simple. I'm almost ashamed to tell you we were trying to deal with finance, not really dealing with families.

THE STRUCTURE OF FAMILY FINANCE AND ITS PLACE IN THE HOME ECONOMICS PROGRAM

Area of Family Finance
Management
Savings Credit Protection Social Security Investments Home Ownership Taxes Consumer Buymanship Legal aspects of Family Financing

At first the people studying family finance divided the area into ten classifications as shown by the chart. The longer and the harder they worked, the more they realized that by trying to put family finance into separate areas they were forgetting the family. The most important thing about family finance is the people. It is true that it is made up of many things--credit, insurance, taxes, etc., but still the most important thing is the people. By considering the family first the whole structure of family finance took on a different look.

People in the United States have a habit of looking at our society and taking its temperature in terms of averages. We agree with the image makers that it is an affluent society. For instance, teen-agers will spend eleven billion dollars this year; many families have two cars, two TV sets, two telephones, and some families now have two homes. Seven out of ten families own their own homes. We all know families like this, but upon careful examination it is apparent the picture is distorted. Not all families are middle class, Anglo Saxon, protestant, or white. Not all families have an employed parent, or consist of two parents and two and one-half children. In some families both parents work, and the number of older families is increasing. When we begin looking at how America lives, we discover that there are countless families that are in serious financial trouble and this is shown by the rising rate of bankruptcies. We do live in a money world. This is true. Money has different meanings to different people. You find that not all families and individuals share the same values and goals. For families where money is scarce, where ends are not meeting, there is far greater preoccupation with money than for families who have money left over. Financial decisions stretch in variety from one end of the continuum to the other. For some families, the major decision is to buy a loaf of bread with the funds available. Other families are grappling with a decision to buy a cabin cruiser. In between is a whole catalog of financial decisions with which families concern themselves.

One of the habits that we get into as teachers, is that we teach about money as though everyone came from a middle class family and use only middle class concepts in the teaching of this subject. We lose the interest of a great many students this way because these concepts and attitudes towards money are entirely foreign to them. We must keep in mind the many different types of families and their varying financial problems.

When we looked at the needs of youngsters we had in our classroom, family finance took on another look. And when we looked at how families live and deal with money, family finance took a different shape. For the needs of youngsters in families are not obtainable by money alone and how families use money and how they live with it is not in isolation. Family finance is an intimate part of family life. When we looked at how teachers were teaching and realized that family finance is not something taught in isolation, what we learned from teachers was that we were dealing with the food budget alone and separately, with the clothing budget alone and separately; we were teaching something called consumer buying alone and apart from family life, we were teaching something called budgeting and assumed we were teaching management or we were teaching something called consumer economics and let it pass for family finance.

Those poeple studying family finance consulted anthropologists and psychologists and found that there are certain basic needs that are common to all people regardless of their economic level or where they live or their place in society. These needs are as follows and are not given in any order of importance:

1. The need for security: This includes a great many factors--physical, emotional, and social. These probably supersede financial security, but financial security does have an effect on the others.

2. The need for independence: We have to learn to live independently and yet to live dependently among one another. Independence is also shown by the ability to make decisions, and many of these decisions precede decisions concerning finances.

3. The need for belonging: If a person feels secure and independent, then he has probably achieved belonging. In belonging to a family or a school or social group or community, you accept a certain amount of responsibility. The use of your resources can also contribute to this "belonging" and the responsibility that goes with it.

4. The need for a sense of well-being: This, of course, includes good health, but here it also means the well-being that comes from a sense of achievement. Again we can see the relationship of the use of resources to the achievement of this particular need.

5. The need for status: Vance Packard has changed the meaning of this word, but in this case we do not mean the kind of status achieved by the purchase of material things. We mean the achievement of each individual, in completing a particular goal that he has set for himself.

If these are the real needs then we have to understand how the use of our resources can help us achieve them. Surely they become significant in this thing called family finance.

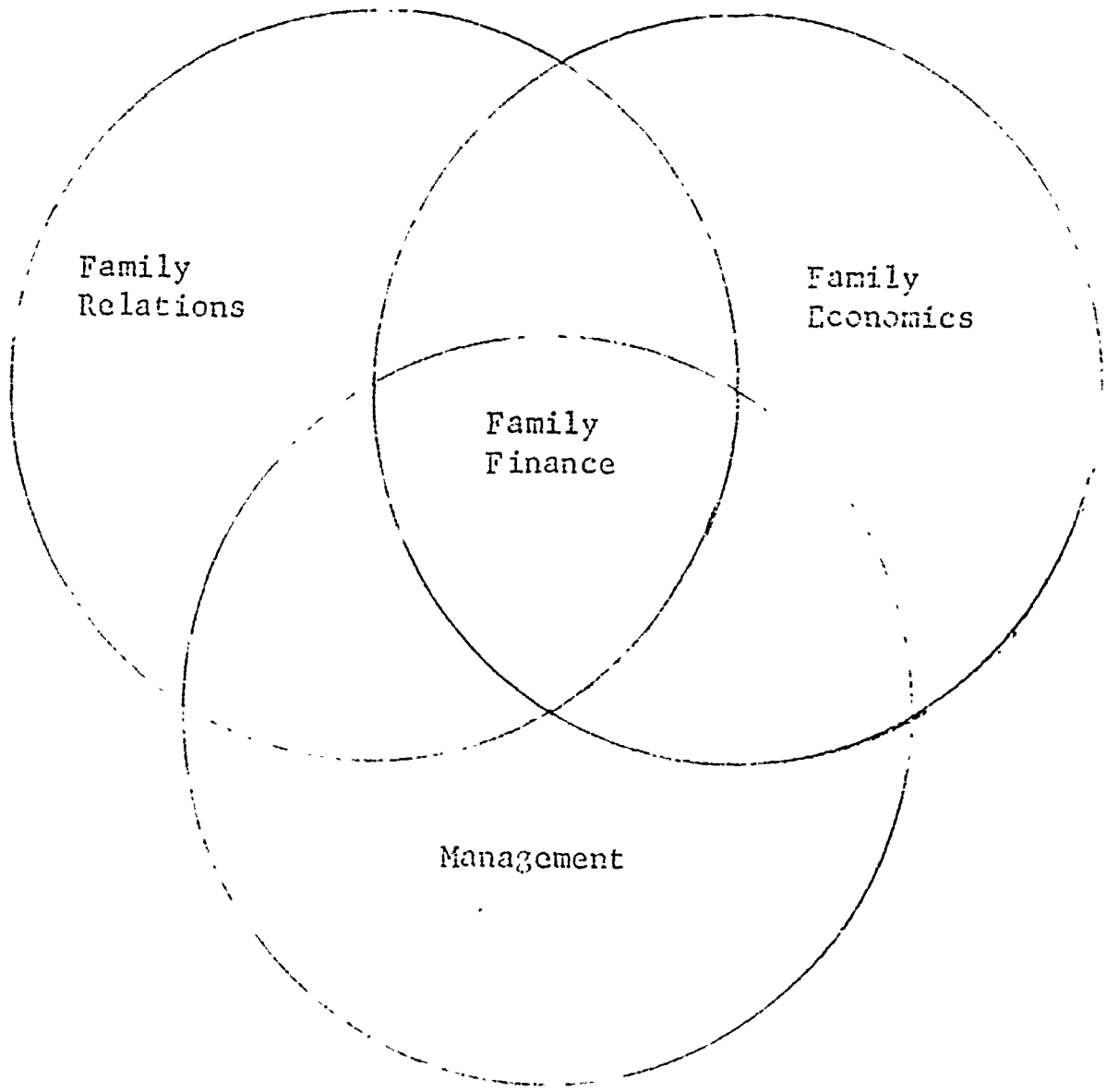
With one researcher here and someone over there, and all coming up with bits of this puzzle with more and more hard looking, the picture of family finance began to present itself in such a way that never for one minute left people out of focus, nor those needs that we have learned about. As long as people remain sharply in the fore, we are having to draw from three already defined areas of home economics. Herein lies the real meat, the real substance, the whole purpose for this entire business. From family relations we are drawing subject matter that deals with attitudes and feelings on the part of family members, how they feel about money and about each other. We lifted the entire concept of family life cycle in order to see how family needs change and how use of resources change.

> Families, like individuals, pass through a cycle of growth, maturation, and decline. The stages of the family cycle are marked by marriage, the birth of children, the emancipation of children, the return of the parents to a childless state, and the death of each spouse. At each stage, money is the weft in the fabric of family life, giving it color and design. Money has special meanings and is put to various uses in different phases of the family's development. The financial situation in any given phase of its development is influenced by what has or has not been accomplished in the earlier stages.
>
> The presence or absence of financial resources not only affects the degree of physical well-being of the family members, but also the quality of their personal relationships. It also influences the attitudes that an individual develops about money and its use which, in turn, play a part in determining his role in society and the nature of his relationships with his fellow men.[1]

To continue, from family economics we derived the material and content that provides us with the economic environment in which families live, in understanding of the concept of income, the theory of household economics, and the economic factors in society that influence or affect family life. From home management we take the whole concept of management, including values, goals, decision-making, and resources.

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[1]Feldman, Frances Lomas. The Family In A Money World. Family Service Association of America; New York, New York. (page 17)



These are all big ideas and as the three merge, we have what we now call family finance. All of these areas belong to home economics, and there is nothing that is unfamiliar or that you have not already taught. You began working on management in 1957, to it is one field in which you should be "experts." Management as seen in the diagram is the foundation on which we are going to build. A definition for family finance is that point at which family economics, family relations, and management meet in order to activate the achievement of family needs and goals. If this is a sound and workable definition, we shall see how it will enable us to put fences around the nine areas referred to earlier. Management has, of course, been removed. We will be able to make the remaining nine manageable. We are not trying to develop financial wizards, but effective family members who will have an understanding of what family finance will give to them. We do not have to show them how insurance or interest are figured, but rather just show them how these things are related to income.

SECOND GENERAL SESSION
Tuesday p.m., August 13, 1963
- Miss Janet Wilson

MANAGEMENT--AN OVERVIEW AND REVIEW

Several current definitions and philosophies of management are: "Using what you have to get what you want"..."A means of attaining goals"... "A process which is made up of many decisions directed toward certain ends or goals."

Dr. Myra Bishop states that, "Home management encompasses decision-making and organization. The function of management is either to stabilize and/or to change family situations. Management is the conscious mediation of a consciously selected value system and management is the realization of family values through the utilization of resources."

Malone and Malone state that, "To manage is to have control over resources, to organize, guide and direct their use, and to be responsible for the results that follow."

A clear-cut expression of the modern concept of management is found in Hatcher and Andrews new book, THE TEACHING OF HOME ECONOMICS. This states that it "is a process involving the effective use of available resources to achieve established goals."

Dr. Jeanne Riebel's description is, "Management is not a thing apart but is basic and applicable to all areas of family life. When we conceive of home management as a process of clarifying values and goals, assessing resources, becoming aware of obstacles, gathering information, determining possible solutions, making a decision, putting the plan into action, and evaluating results in terms of goal achievement, it becomes clear that management is a part of any and all aspects of home and family living."

What do we have here? We have key concepts in home management that seem to appear over and over.

Family		Home Management
	Resources	
Values		Decision making
Goals		Organization
Standards		

John Ruskin has said that, "Education does not mean teaching people to know what they do not know; it means teaching them to behave as they do not behave." What could be more pertinent to the concept of management? The education process in our democratic society today has as a major function that of helping individuals make wise and intelligent decisions in meeting the problems of everyday living. Ours is a rapidly changing world and new situations that cannot always be anticipated are likely to arise.

Therefore, individuals need to develop the ability to think critically and analytically so that they can make satisfying decisions. Goals will change, standards will change, problems will change, resources will change, but the decision-making process does not. Effective management might well be considered synonymous with intelligent decision making. An integral part of this is that the individual must be willing to take responsibility for the decision made, be willing to live with it, learn from it, profit from it. There is much satisfaction to be found in this too. Some situations cannot be changed--can we recognize these? Can we "accept the inevitable and praise its virtues?" Once a decision has been made, a series of forces that automatically affect other decisions is set into action. In this way we are influenced by decisions previously made and by anticipated future demands.

When communication among family members is a part of decision making and the implementation of decisions --- new practices, traditions, values, and beliefs emerge. Dissonance in a family choice can be reduced through communication among family members.

Isn't it obvious then that management is not "a thing apart" - but is part and parcel of every phase of home and family living. It is not work simplification (knowing how to make the bed with one trip around), or being able to set up a beautiful budget. It is a mental process that permeates all of everyday living. Therefore, every home economics teacher should check to make sure that she is not only teaching management throughout every unit, but also that she knows what she will teach about management.

Management is a mental process. The definition of personal and home management in its simplest form is: Using the things which may be available to us in such a way that they get for us what we want. We might, as Dr. Bea Paolucci suggests--think of management as a mobile. Like a mobile, management is dependent on the intricate movement of a number of components. In a mobile, a mere touch of one part sets into motion all parts; in management, a minute change in the use of one resource produces a change in all other resources, in each step of the process, in the goal, and its underlying values.

Select a goal in relation to values and resources, decide on the standard of performance possible and satisfactory, consider existing obstacles and whether they can be overcome. What are our limits? This implies that values represent an individual's preferences based on his conception of what is desirable and worthwhile. Values serve as a basis for making choices and decisions and as a guide for behavior. One person has said that "values are tools used in the process of choosing and selecting courses of action." A clear cut hierarchy of values helps a person perceive clear-cut goals for behavior in specific situations. Goals are most likely to be satisfactory for an individual if they are directed toward values that he considers important and that are not in conflict with each other. Enduring values of family living are love, health, comfort, ambition, knowledge, play, art, religion, efficiency in work. Each family makes choices in its use of resources on the basis of those values which it considers important. The extent to which these and other values are held and the importance attached to them will vary individually from family to family, and for one family as it progresses through the family cycle.

Many factors affect a person's values throughout life so that the need frequently arises to make decisions about retaining some, modifying others, or forming new ones. Values, goals, and actions are closely related, because what a person does depends upon his goals, which in turn reflect his values. A person who manages well has fairly definite goals and arranges them into a plan so that he knows what he expects to do. Goals are represented on the mobile by being placed at the top - a piece of screening symbolizes that some goals are distant, hazy, not yet clearly defined. Also that larger, distinct goals come into focus through definition and achievement of smaller goals. The modernistic star shows that other goals are clearly defined, specific.

What we refer to as the management process is represented on the mobile by a three lobed circular, overlapping object. It is placed between the goals above and the resources below, to show that the management process facilitiates goal achievement. It is so anchored that it moves only in one plane, illustrating that goals and resources may change, but the process remains stable. The primary colors were used for it because the three magic words are - planning, controlling, evaluating. This process is the vehicle between the use of resources and attainment or accomplishment of goals. This may also show that each step in the process is clearly recognized, but each flows into the other, possibly making it clear that frequently there is no definite beginning and ending, and the parts need not always be equally significant.

We recognize the fact that a standard of living is determined by the way one uses all resources. A standard may be thought of as a model having a recognized value to the person who accepts it. Use of resources is usually guided by one's standards as well as by values and goals. It is extremely important to realize that different situations lead to different standards. Criticism of another person's standards on the basis of one's own situation is unjustifiable. No one has the right to impose his standards on other people in the belief that his will bring about more satisfaction in everyday living. Satisfaction is relative only to the person who experiences it. Although some may actually prefer standards other than those they practice, satisfaction to them is achieved by following the standards which fit their particular situation. We are not teaching values or standards per se, only how to recognize them, evaluate them, maintain them.

Obstacles are going to arise, which may get in the way as far as progress towards a goal is concerned. This is where constructive attitudes are valuable resources--also entering the picture will be compromise, substitution of resources, knowledge, acceptance, or perhaps a new approach. This process requires creative thinking, an open mind, originality, a willingness to change - try new ideas, methods, etc. General and specific information are needed along with comprehension, insight, and imagination. Here we must have the ability to weigh advantages and disadvantages of possible ways of achieving a selected goal and follow through with a choice or decision.

Resources has been a word appearing over and over. 'Use of one's resources." And yet, how many people are keenly aware of the resources

available to them? Resources are the human and material factors used to achieve goals. Human --- a person's abilities, interests and skills, knowledge, energy, and attitudes. (Remember, your own and those of others.) Material --- time, money, goods and property, community facilities. Each is represented on the mobile by a symbol. The use of one resource alters the way one can use all other resources. We must be aware of the "interrelatedness of resources." Tap any one resource in the mobile, and all others will move and shift position. All resources are scarce to some degree. Seldom do we have all the resources we would like to possess. Therefore, a balance must be found. Take stock of what is available and decide not only how these can contribute toward a goal but what other uses can be, and in some instances, must be made. Or, if a resource cannot be used for more than one purpose, finding alternate ones may be necessary. Limitation of one resource may decrease the choice one can have in utilization of other resources. Likewise, an abundance of several resources increases the choices available.

Once the plan is made, action is taken. But the plan requires control while it is being carried out. The more complex the plan, the more control required. Also involved are guiding, directing, coordinating, integrating parts of the plan and/or plans. Adjustments will be necessary frequently. Even though we emphasize that the "preliminaries" just reviewed are mandatory, we find many persons leaping into the process at this point and then wondering why the action brought little satisfaction.

Organization as a key word in management is perhaps a blanket term--one intended to map out an area that would include the day to day activities of coping with resources, environmental factors and changing family demands that would recognize the dynamics of day-to-day management. Organization implies also the idea of the interweaving of resources in different ways to meet varying situations; and of reflecting the integrating of numerous factors necessary to keep the family moving on its course. Research done by Grace Tasker at Cornell resulted in this definition of organization: "Organization is the orderly design a homemaker creates by planning and coordinating the activities of a home."

Now that the plan has been made, and carried out, supposedly we are ready to evaluate. Evaluation follows action, yes, but planning is a form of action. I believe that evaluation should be constantly going on. It should be a part of one's thinking all the time. In this way we are able to appraise progress toward the goal so that improvement can be made while the goal is being carried out and then determine the extent to which the goal has been achieved. Evaluation of decisions needs to be in terms of the satisfactions derived from having made wise choices of resources to achieve the goal.

The ability to manage well as described here can be acquired. There are two forms of self-confidence: One a trait of personality, and the other a result of knowledge and ability, and certainly the latter would be boosted by acquisition of this process.

In summary, I would like to refer to Nickell and Dorsey in their interpretation of the Integrative Role of Home Management.

Think of realizing family values as the WHY or MOTIVATION (love, health, comfort, ambition, knowledge and wisdom, efficiency in work, play, art, religion), be specific about them, define degree. Then consider the WHAT or RESULTS - attaining family goals. What do you want? What results do you want? What goal is going to take you and/or your family closer to realization of or identification with these values? Then we can see that the management process is the HOW or METHOD.

Home management (HOW or METHOD) includes planning, controlling, and evaluating the use of the resources of the family:

Human Material

in such ways as to

Realize family values (why or motivation)

Attain family goals (what or results)

THIRD GENERAL SESSION
Wednesday a.m., August 14

Part I - Miss Thal

MANAGEMENT OF FAMILY INCOME

I have reviewed the evaluation sheets that you turned in at the end of the afternoon session on Tuesday and I find them revealing. First of all, I was right when I predicted yesterday that you already are up on management and we should spend no more time on it. You are tired of it and you want to hear no more about it. You told me that you are looking for answers and methods and I tell you there are no answers. And if there were you would be the first to tell me or somebody handy that the answers are wrong. Whose answers are you going to accept in the area of finance? The experts--but I tell you there are no experts--not even do textbook writers agree. You ask, "How much time should I spend on family finance?" "Should I teach interest rates?" "When should management be taught, at the beginning of the year or at the end?" "Give us a lesson plan in management--something that is practical." But what is practical to me will be hogwash to the next girl. You ask, "Does management have to be included in family finance?" Now, you cannot really expect answers to these questions. You expressed concerns relating to motivating pupil interest and I will talk about that in a minute. Therefore, in the light of your comments and questions, I am somewhat hesitant to push this business of management much farther.

I tried sincerely last night to search out of my own knowledge and understanding plus drawing on the experience and understanding of other people to see if there is a way of teaching family finance without management. Well, of course, there is. You can teach a straight course in finance--a week or two on money, a week or two on credit, a couple or three weeks on insurance, at least a week or more on social security. I personally question that this kind of approach is appropriate to the homemaking curriculum. I am imposing my values again and you do not want me to do that either. My thinking is in a real rut and you have challenged me to do something about it. I simply cannot see money as anything other than a resource; I better not use that word, "resource." It is something I can use to help me attain something I want. But I've got a host of wants, so I guess I'll have to make some choices. I've avoided that word, "decisions." But I guess now things are getting tough, I have to have some way of deciding what I want most. I really need a guide line of some kind to help me out. The only thing I know for sure is that my money is limited. Oh, well, maybe there is another way. If I had sufficient time each week I could give up paying a cleaning woman and I'd not send the laundry out. And if I had the skill and ability plus the time, I might be able to build my own stereo cabinet. But right away I'm in a jam because I see there are lots of things that determine for me how I must use my money, at least as long as I'm living as I am. Well, this could go on and on. As long as I see money as a resource, I cannot help thinking that it therefore requires managing and I already know from my own experience that the choices I make involving finances have been made in light of the availability of the other resources and also according to a priority system of needs and wants. All of which stem from

something I will call for the moment a "value system." And this brings us right back to where Miss Wilson took us yesterday afternoon.

Maybe you do not like the terminology. Maybe that is what is getting in our hair. Well, I'll go along with that. What are the basic elements involved here, in this thing called management? First of all, there is something to be managed. Secondly, there is somebody to do the managing. But there is no sense in managing just for the sake of managing. There's got to be a purpose. Perhaps it is to make the class picnic a success or to send the FHA girls to the State Fair. Or to buy a cashmere coat or to create a happy atmosphere in the classroom or at home. There is need for a purpose, but even before the purpose is determined, there was a lot of mental anguish and turmoil. Certain decisions were made which started a whole chain reaction. The decision to have a class picnic in the first place was followed by the decision as to where the picnic is to be held, and then deciding how to get there, what to eat, when to come home, to say nothing of deciding what method we can choose for financing this venture. This is a simple illustration, but I need it to try to straighten out the confusion in my own mind, because you see the rut I'm in is frightfully deep. I'm caught up to my ears in something called management. And I want decisions of one kind or another. And not all our decisions are made in the shopping center. We make decisions that start out being totally unrelated to finance. Your decision to get married, for instance, or to send a youngster to college, or to get Sally's teeth straightened. Financial decisions most often follow an earlier decision that reflects our individual goals and aspirations. And with that notion we begin to get a sense of how our dollars are bound up with ourselves and we catch the feeling of how intensely personal and intimate is this matter of money management or personal and family finance.

Our financial commitments extend way out into the future. We obligate money we have not yet earned. It is not unusual for a person to handle $350,000 in 25 years, and if we would figure how much money we have handled ourselves over the years it would be a sizeable amount. Most of us are now buying ahead--such things as college educations, homes, automobiles, retirement and pension plans. Most of us have certain financial assets or liabilities (as you wish to call them) forced upon us--Social Security, withholding taxes, pension plans, group insurance. These are deducted before we get our paychecks. They are of real significance to people, if they only knew something about them and why they are taken out of their paychecks.

I contend, therefore, that we have had introduced into the business of personal and family money matters, certain complexities that have not existed long enough for us to feel secure in dealing with them. These complexities are not confined to what to buy, where to buy and when to buy. They are not determined by the size of the income. Rather they arise out of the projection we make of where we are going and what we will become. This calls for judgment based on knowledge and understanding in order to make decisions that will take us in the right directions. The knowledge and understanding of such items as listed in the nine areas.

In family finance, of course, our principle resource to be managed is income. Now everybody knows what income is. We have learned from the economist that income is traditionally thought of as being in three forms: Money income; real income, which represents the goods and services we provide for ourselves at home plus our money; and finally, a psychic income, which is derived from the personal satisfactions we derive from the achievement of goals. Economists have also defined for us another kind of income, which we commonly call credit. The classical definition of credit is that it is a means of augmenting income, which means that credit is a means of enlarging or increasing income in size or amount.

Questions were also asked about motivation. How do you get people interested enough to want to learn? Books get written on this subject. You are not going to like my answer to this but I am going to give it anyway. There are about three ingredients involved here. First of all, students are motivated when the material we present comes in small parts and in terms that are meaningful to them. We tend to overcomplicate the whole business of management or finance or relationships and the reason we overcomplicate is because we do not have a hold of the subject matter sufficiently well to let go of the textbook and our college lecture notes. Secondly, students are motivated if the teacher is, and the teacher is motivated if she is at home with her subject matter and can see what there is in it that can be reduced to the level of understanding of her students. Third, students are motivated when they are involved. This means both doing and thinking. I think that what takes place in the classroom should be a learning-teaching situation that operates two ways.

THIRD GENERAL SESSION
Wednesday a.m., August 14
Part II - Panel Discussion

UNDERSTANDING CREDIT

Mr. Max Denney, Executive Vice President, Nebraska Consumer Credit Association, Lincoln
Mr. Earl Heironymus, Credit Manager, Miller and Paine Department Store, Lincoln
Mr. Mort Novak, National Bank of Commerce, Lincoln
Miss Helen Thal, Moderator

Mr. Max Denney: I represent the trade associations of Nebraska or the small loan companies and sales finance companies. These are the types of companies involved in the legislative hearings on the laws affecting this type of company.

In way of explanation, the differences between small loan companies and the sales finance companies are as follows: Small loan companies are those who make direct loans to the public for a specific rate of interest. Sales finance companies are those that purchase sales contracts from dealers who make direct loans to the public. As an example, if you wanted to buy a TV set, you would go to the department store and they would quote you a price for cash. You would then tell them that you want to buy on time and they would then quote you another price. You would then enter into a written contract, and your contract would be sold to a sales finance company at a discount. You would then make your payments to the finance company. Of course, you could get a loan from a small loan company and pay cash to the department store. You would then make payments to the small loan company.

Our standard of living is the highest of any country in the world. We have more TV's, automobiles, homes, etc., than anyone else in the world. How does it happen here? We are able to have all these things because of mass production. The mass production is possible because of mass consumption. One of the things that makes mass consumption possible is the fact people in America are able and are buying on credit. They buy more things at less cost than anywhere else in the world. Not only are those things you buy on credit, but also those you buy for cash at less cost.

What is credit? Sometimes in the dictionary it is defined as to have trust or confidence in, and this element must be present. Sometime ago Khrushchev made a tour of the country along with other Russians who made a study of production. When they returned to Russia they established a system of consumer credit, something never before allowed under Communism. They recognized that we have what we have in this country because of this system. I do not think it will work over there because you must have trust and belief between those giving and those receiving credit.

Japan and Germany, both conquered in the war, have progressed economically faster than any other country except the United States because they established a system of consumer credit similar to the one we have.

At the end of 1962 there were 63.5 billion dollars outstanding in consumer credit in this country. The assets to liabilities of all those individuals who are buying merchandise on credit are 22 to 1. I do not know of many businesses whose assets to liabilities are on that ratio. We do not have anything to worry about yet, but you must teach your students to use credit intelligently.

I wonder how many of us have thought what would happen if an order came from Washington, D.C., that no one in the United States could buy an automobile from this day forward unless they paid cash. Seventy per cent of the automobiles sold today are sold on time. Seventy-five per cent of the automobiles on the highways today are paid for. That shows that generally speaking our people are honest in their credit dealings. Immediately, 50 per cent of the normal automobile production would be stopped, 8 per cent less steel would be produced, 24 per cent less iron, 10 per cent less nickel, and 31 per cent less synthetic rubber. One-third of the work force in sales and services of automobiles would be cut. About 100,000 petroleum workers would be out of work. This is an example of how much our economy depends on credit. This is why it is absolutely imperative that our young people learn to use credit intelligently.

Mr. Mort Novak: Most larger banks have two basic types of credit. The direct loan department is similar to the small loan companies explained by Mr. Denney, and money is usually loaned for a specific reason. The indirect loan department is similar to the sales finance companies, and we purchase contracts from dealers. Commercial banks get about one-third of the business represented by the 63.5 billion dollars figure. Very few people do not believe in credit. People used to save for a certain item, but now they can buy the item and pay for it while they are using it. Many items are purchased on credit. In our indirect loan department I once counted one hundred fifty items, including horses and teeth, for which people had taken out loans.

The ratio of 22-1 mentioned earlier does not include real estate loans, but even with the real estate loans included the ratio is 2.7 to 1.

Another institution that has grown in recent years is the credit union. This is usually composed of employees of a large corporation who form a union to make installment loans available to their members.

Mr. Earl Heironymus: In a store the largest single asset is the accounts receivable. About 60 to 70 per cent of a store's business is done on credit, but this will vary with stores. For instance, Niemann-Marcus in Dallas, Texas, have 90 per cent of their business done by credit. You could not live without credit in some form today.

All stores incur a certain bad debt loss, and you must pay for it. It is actually very small--in our store it is less than one-half of 1 per cent of our credit sales.

We have several types of accounts: Thirty-day, revolving, contract, and lay-away. Lay-away is not actually credit as we hold the merchandise for a certain amount paid down, until the customer pays for the entire item. If you wish to pay your bill in full each month, you open a 30-day account. If you think that sometimes you will not wish to or will not be able to pay the full bill at the end of the month, you will open a revolving account. There are all sorts of plans for revolving accounts. Basically, however, you agree to pay a certain amount at the end of each month, and the store extends you credit for 10 or 12 times this amount, depending on the store. A variation of this is the chart plan where there is no fixed limit. In other words the store puts no limit on how much you can charge in one month, but you pay 10 per cent of the balance each month. The third type of account is a contract in which you are usually paying for one item or a group of items purchased at the same time. You then make payments until the balance is zero. If you wish to add other items you must renegotiate the contract. In Nebraska, as in many other states, revolving credit accounts are regulated by state law, which allows a maximum service charge of 13 per cent per year or 1½ per cent per month.

Question: What about credit ratings?

Mr. Heironymus: When a person applies for credit we consider their occupation, how they take care of their accounts at other stores. We get this information from the Credit Bureau which makes a business of having this information and other information such as how long they have lived in their present home, and where they do their banking. The Credit Bureau in Lincoln also publishes the Blue Book, which gives information on the credit rating of individuals. If the applicant lives outside of Lincoln, then we try to get a credit report from other sources.

Mr. Novak: At the bank we generally are involved with larger amounts of money so we make a more detailed investigation. We consider the general reputation of an individual.

Question: What about credit to teenagers?

Mr. Denney: We cannot give them credit unless they have a co-signer. A contract with a minor would not be binding.

Mr. Heironymus: Generally speaking, teenagers pay their accounts well. Our store does not have special teenage accounts as some stores do. In discussing this with other stores, I find that many have discontinued them because of lack of interest, not because the accounts were not paid. We usually try to get parents' consent on teenage accounts. Few of our teenage accounts are students, they are usually working.

Question: How do you figure the cost of credit?

Mr. Novak: This is difficult to explain. On most loans our bank rates are figured on a percentage per month. This is generally 1 per cent per month, and then each following month it would be 1 per cent of the remaining balance each time a payment is made.

Mr. Denny: There is now a bill in Congress, introduced by Senator Douglas, which would make it mandatory that all banks, stores, loan companies, etc., give to the customer at the time the loan transaction takes place the exact simple annual interest they are paying. Several of the senators on the committee hearing the bill tried to figure this on a typical loan and all came up with different answers. The problem was given to research assistants with Ph.D.'s and finally to the Library of Congress and none of them were able to find a simple way to figure this. Yet the bill would penalize anyone who loaned money and gave incorrect information on the amount of simple interest charged, by a fine of $5000 and one year in the penitentiary. When you buy something on credit, ask for the amount in dollars and cents, and shop around for credit and compare the costs in dollars and cents. It is difficult to know how much credit is too much, but anytime you buy something where the life of the item is shorter than the life of the payments, this is too much credit.

Question: Is it wise for people with once-a-year incomes to buy on credit?

Mr. Novak: We have seen the value of the farm plan made available to this type of earner. Payments are scheduled to suit the income of the individual.

Mr. Denney: From a historical standpoint this is the group of people who really started credit, because they didn't have money available for groceries and necessities and would arrange to pay for them when they sold their crops. This was the beginning of credit.

Question: When is it advisable for a family to go into debt?

Mr. Novak: There is no average credit customer. It is an individual matter for each family or individual. Some questions that might be asked are: (1) How much will the monthly payments be? (2) How many other payments are we making? (3) Will we have enough left after payments for other necessary expenses?

Mr. Denney: We often deal with people who are already in debt. We are trying to get loan companies to counsel people and to help them budget their income and not to extend themselves to the place they cannot pay their debts. Sometimes a consolidated loan, which is where the loan company takes over all the debts of an individual and then he makes one payment to the loan, is wise. We must remember that credit is a tool that people can use to improve their way of life and that no one can give it to you; you must earn the right to use it. There are three things considered in extending credit; character, capital, and capacity to pay.

Question: What do you mean by learning to use credit intelligently?

Answer: There were 148,000 cases of bankruptcy in the U.S. in the past year. This shows the need for teaching people how to use credit wisely. Yet in the bank we have less than one-half of 1 per cent loss on loans. Young people sometimes have a tendency to buy something better than they can afford, for instance a new instead of a used car, and then run into trouble trying to pay for it. Many of the things discussed in previous questions would be ways of using credit intelligently.

Question: If a family has an unusually high doctor bill, can they get a loan on this?

Answer: This was answered by both the Loan-Company and Bank representatives. Both make loans of this type.

Mr. Denney mentioned a booklet published by the National Foundation for Consumer Credit in Washington, D.C., which had been edited with the help of professional educators. These are available free by contacting Mr. Denney at 525 Stuart Building, Lincoln 8, Nebraska. He asked that they not be given to students to take home, but retained by the school.

Question: What is the penalty for going into bankruptcy?

Mr. Novak: It means you have to find a new source of credit. At the bank once an individual has taken bankruptcy we will not give credit. Most stores would refuse credit, but there are some loan companies who take risks and will extend loans to someone who has taken bankruptcy. But bankruptcy generally ruins your credit.

Question: At what point does the court allow bankruptcy?

Mr. Denney: There is no specific amount, the court considers each case. Generally when your assets are way under your liabilities, and your income and obligations will not allow you to pay your debts. There is no set criteria.

Question: What will I have left after bankruptcy?

Mr. Denny: This again depends on children and family. If you need certain items for your work you will be allowed to retain them. It does not wipe out any taxes that you owe.

Mr. Denney: In Nebraska there are seven separate and distinct laws that control credit or limit money to be used for purchasing items on time.

1. Installment Loan Law
2. Installment Sales Law
3. Personal Loan Section of Bank Law
4. Industrial Loan Law
5. Savings and Loan Law
6. Credit Union Law
7. Revolving Credit Law

In 1959 the first Installment Sales Act was passed, and in June of this year part of that act was declared unconstitutional by the Nebraska Supreme Court. The section in question did not have to do with the interest itself, but with the classification of motor vehicles by age. This allowed more interest to be charged for a new car than an older car. This is the section declared unconstitutional and this is what is now causing the controversy in the Legislature.

Question: Explain credit unions.

Mr. Denney: These came over from Europe and started about 1909 in the United States. They are formed by people who have a common bond in the nature of their work. They decide to deposit a set amount and then they can borrow from this fund. They are allowed to charge 1 per cent per month on a declining balance. The interest they pay on deposits is up to the union.

Question: Are loan companies regulated by the state?

Mr. Denney: Yes, all of them are supervised by the State Banking Department. Banks are chartered by this Department. Loan companies are inspected twice a year by the Department.

Question: What kind of accounts are used most by teenagers?

Mr. Heironymus: Revolving.

Question: Where can we get speakers to come to the schools and speak on this subject?

Mr. Denney stated he would speak in the schools in Nebraska, and there would be no charge.

Mr. Novak stated that bankers in most towns would be glad to speak on the subject.

Mr. Heironymus mentioned eleven films made by the University which are available to schools. Contact Mr. Robert Cole, College of Business Administration, University of Nebraska, Lincoln.

Modern Talking Picture Service in Omaha has a film titled "Littlest Giant" which is available to schools.

FOURTH GENERAL SESSION
Wednesday p.m., August 14

- Miss Helen Thal

IDENTIFYING CONCEPTS AND GENERALIZATIONS

A concept is a thought or opinion, or idea; what you know and understand about a thing; it is what you know and feel about something; it is a mental image of an underlying structure of objects and events. A generalization or principle refers to a proposition that connects two or more concepts. We have been discussing three concepts: Family finance, management, and credit. With the understanding that we form generalizations by linking concepts together, try to see what generalizations can be made.

Concepts are helpful in achieving transfer of learning. There are certain things we have to know before we can arrive at a generalization. In order to generalize students must first be familiar with the concepts and understand the relations between them. They must determine what each concept means before trying to relate them and they need background facts, knowledge and information in order to give meaning to any concept they are dealing with. Without knowledge and facts, concepts are shallow and are built on limited experience on the part of teacher and students.

The question was asked as to when to teach each aspect of management and family finance. When it should be taught in each grade. It must be done in terms of what we know about students at certain ages. In an article in Forecast the following was given: Early adolescent - teach understanding of what family income must do; middle adolescent - teach family needs and obligation; later adolescent - teach analysis of family income and family finance.

Although there are no hard and fast rules as to placement of subject matter, the above and the following chart may help the teacher in planning.

AREA	7 - 8	9 - 10	11 - 12
Management	* * *	* * *	* * *
Savings	* * *	* *	* *
Credit	*	* * *	* * *
Protection	*	* *	* * *
Social Security		*	* * *
Investments		*	* * *
Home Ownership		*	* * *
Taxes	*	* *	* * *
Consumer Buymanship	* * *	* * *	* * *
Legal Aspects of Family Finance			* * *

(The asterisks indicate suggested emphasis at various grade levels; three asterisks indicate strongest emphasis.)

FIFTH GENERAL SESSION
Thursday a.m., August 15
Part I - Miss Thal

EXAMINING OTHER ASPECTS OF FAMILY FINANCE

I had very interesting homework to do last night in reading all of your papers on new ideas and feelings. You told me a great deal. For instance, many of you see the whole concept of credit differently than you have before. Your understanding has progressed, your attitude has changed, you can see a new way of treating it, and as one said, "Credit is here to stay." One said, 'My concept of a concept has been clarified a wee bit.'

Several of you told me you are beginning to see how family finance can be taught in terms of generalizations because you can see how it can be related to families and not necessarily to finance. Many of you can see where you can have a kinder attitude to money management. Family finance is family centered. How real is the couple in the film we reviewed.

We will take your "Bothers Cards" to see if we can help you with your bothers. Many of you have the same bothers. Many of your bothers are relating to credit. I think most bothers were taken care of yesterday concerning cost of credit, its abuse, how much families can afford, and things like that.

I will answer some Bothers Cards right now.

BOTHER CARD NO. 1: "My bother is getting students interested in insurance terms."

Answer: My bother is also getting interested in insurance. I do not think the terms are important. I think it is important with regard to insurance that we understand it is not all the technical language insurance people use, but rather why families get and use insurance. If I were teaching high school students, I would be satisfied that insurance is one means that families have to protect themselves against severe economic losses. Several losses are fire, accident, automobile accident, prolonged illness, disability, retirement, and of course, death. Another thing I would hope to leave with my students is that some insurance provides protection only; for instance, fire, automobile, and health insurance. Some insurance combines insurance and savings; this is life insurance. People can use life insurance in a variety of ways. If my students were interested and if I thought as we were moving along it was important they should learn some technology, they should take a little time to do so; however, I do not feel it is important.

BOTHER CARD NO. 2: "My bother is how to get students to set up budgets and follow them."

Answer: We have not talked about budgets this week. I just concluded a workshop in Washington State, where we did not talk for two weeks about budgets. Budgeting and record keeping are just tools. Some

people like to use them, but there isn't any reason that says one must. We know because the income tax people have taught us that it is rather important to keep certain financial records; we do it if for no other reason than to use them when it comes time to file income tax. It is a good idea to look at them from time to time to remember other things, too. It is possible to keep them without a bookkeeping system, without a written item-by-item budget; it's taught more people to live without them. You must think that a budget is simply a plan. It isn't sacred, it can be torn up, you don't have to live by it, you have to live with it. I think if I were teaching, I would try like everything to enforce this kind of record keeping as a tool.

Bother Card No. 3. "My bother is teaching income tax. Do you think this is important?"
Answer: Taxes are part of life. But in my homemaking program, I think I would leave the filling out of the income tax form as something to be taught in the Business Education Department; I am not sure I could work it into my program. On the list of AREAS we have taxes, sure enough, but they are there for a different reason. When you think that taxes we pay are helping us to secure certain resources that we otherwise could not afford and that these resources become a significant contribution to personal and family finance, I think then it had to place in what we are doing. You see if a family had to provide its own water system, or if a family could not live where there was fire protection, the cost of insurance would skyrocket. If there were no public highways or parks, playgrounds, or swimming pools, certain contributions direct and indirect to family life would be lost.
I think that as far as taxes are concerned, we should remind ourselves and remind students that there is a direct relation in how we live and what we pay in taxes.

Let's leave the Bothers Cards a minute and run through the whole list. I will not identify the important ideas related to each of these.

1) Savings. I would lump savings and investments together and look upon them as a means a family has to help them achieve security. I don't think you can make savings real and meaningful to young people or young families unless we can convey the idea is not what you are saving , but what you are saving for. Once we get the ideathat you save for a particular purpose, if for nothing more than a new blouse next month, then it is real easy to save.

2) Investments, which I lump with savings is something I would not deal with at all in some communities. I would never bother with it at all, if I am going to bother with it, until the 12th grade. I think I would let it go entirely unless I were teaching in a community of upper income families or above; stocks do not have much meaning in underprivileged schools.

3) I would lump Protection and Social Security together and talk briefly about insurance. Social Security is one of the most important

financial assets most families in America possess. Unfortunately, it is one of our assets we know the least about, not that the Government has not informed us, but that we have not paid attention. It is important that girls and boys in school have some understanding of what that deduction form and pay check is all about. It is important they realize the asset it represents.

4) Home Ownership is a form of investment to many families; it is a form of savings.

5) Consumer Buymanship. It would be more helpful if we taught less about shopping in the supermarket or at the department store until the time comes when we can relate the shopping in those areas to the family as a whole.

6) Legal Aspects of Family Financing. Many of our financial transactions involve legal contracts. Many of the financial services we enjoy are regulated by law. We should acquaint ourselves briefly at least with some of the consumer legislation, know a little about protection, where we can ask this information, for instance your state insurance commissioner, your state banking department. It is important to know what you are doing when signing contracts. These kinds of things are imposed in the legal aspects of finance.

These AREAS overlap. Talking about Credit involves talking about Home Ownership; Home Ownership involves talking about Consumer Buymanship. That is just the way families deal with it. At a meeting in Hartford, Connecticut, three years ago at which there were about 18 to 20 from insurance companies in Hartford I had gone with my boss to sit in on the meeting. At lunch I startled my companions at the table by saying, "I think you fellows are all wet." I don't think families sit down on Sunday night and say this is insurance night. At any time they are talking about sending kids to college, about whether or not the wife should continue working, about need for a new automobile next year, about money to be put away for this and that. You don't build a program that way. One executive in this business said he hadn't thought of it that way. He had just assumed families deal with things one at a time; we don't make our decisions on that basis. The important thing here is to recognize that, because these areas overlap and are interrelated, they become hard to teach when we want to throw in all detail, but we can pool all details about how they are interrelated.

Bother Card No. 4. "How do you interest girls in family finance, personal or family?"
Answer: A group of teachers out in Washington got together in one area to decide they would use their home visitation to stimulate interest with mothers in inviting their cooperation in developing and teaching family finance in high school. Once the parent became comfortable with the teacher and learned the teacher was interested in helping her daughter to deal more effectively with money, the mother began to share with the teacher some of her own concerns about money.

Another teacher had on the bulletin board clipped from newspapers

pictures of six brides with a write-up concerning the wedding. She divided the class into 6 groups, each having a bride. Based on information, each group was to develop a case by reading what they could find about the bride, then trying to figure out what values were important to this couple by imagining how they would live; considerable time was spent on this. These cases finally became a point of departure.

Also, I have seen a teacher in New Jersey use stories of life from other countries comparing family life with African tribal life with life in New Jersey.

Several teachers I have been working with have been experimenting with developing profiles of how families live in their own community. One high school group developed 5 different age groups of families. This acquaints girls with the kinds of decisions each group makes that ultimately require financial decisioning also. It acquaints girls with difference in how families manage. In each case the instrument used to get the data was very carefully constructed so as not to be acquiring family secrets.

Another teacher uses cooperating families. She has 3 families--a family without children, a family with pre-school children, and a family with high school children; they are used all through the year. The families that are cooperating really feel a part of the program and feel as though they belong to the school and on the staff. They are not families that are ideal, not perfect, just close in that community. Families feel pleased to be asked. They share with the class the big decisions during the year and some of the little decisions.

Another teacher, teaching in an upper middle income community where the students had more money than they needed, took her class on a field trip. She took them to the County Poor Farm. Their big question became "How do people get that way?" From then on she didn't have very much trouble in maintaining interest.

Some years ago in Cleveland another teacher got her class interested in doing a survey to find out what it cost to be a senior in the public schools.

Panels don't always have to be people from the financial community. Mothers are very good, also new homemakers. In Tulsa Senior boys were used on a panel.

There are magazines to use. Magazines sometimes create a source image. Look at other magazines being read by low income families. There is some good material being read by low income family groups. TRUE STORY has tremendous circulation among blue collar families; TRUE STORY has some interesting material. It is trying to become a service magazine for women whose interests are not quite as sophisticated as readers of MCCALLS and LADIES HOME JOURNAL. Another good magazine which I know you probably use is the A & P magazine, FAMILY CIRCLE, and WOMAN'S DAY. A magazine that is extremely readable and relates to family money is CHANGING TIMES.

There are film strips, not many, and a few action pictures that deal with financial situations per se that I would use. I prefer film strips; they are much easier to deal with.

Bother Card No. 5. "I find it difficult to locate resource material."
Answer: You will receive a kit of materials. In the kit is an annotated bibliography of visual aids. This bibliography will give you a place to begin. You don't have to use that package. Select only what is really pertinent. A South Dakota teacher of 7th and 8th grades wanted to highlight about three or four ideas in a book that were pertinent to her class. She made a chart about four pages long. She didn't even give out the books until after giving out the chart.

Bother Card No. 6. "I am bothered about teaching family finance but lack resource in my community."
Answer: I am going to use Lakota, North Dakota, as my laboratory. Lakota has a population of about 1,000. It is a county seat town, so you know it is important. It is right on Highway 2 and on Great Northern Railroad; in North Dakota there is a state regulation saying all trains have to stop at county seat towns , so it is a rail center with two trains each day going west and two trains going east. Also Highway 1 goes north and south. It is a transportation center just as lots of towns in Nebraska are great centers. It does have a school superintendent, and he is a good resource person when he has time. It has a banker. There are two attorneys; one is rather young and the other is kind of old, father and son; they are good resource persons; they can see family finance in one big lump. There are two insurance men -- one is the Vocational Agriculture teacher...he also sells crop insurance; the other insurance man, who is quite elderly now, who was in the bank but is now selling life insurance in his retirement years. They talk more like visiting. Our town doesn't have any credit people but remember Mr. Denney, who says he will go anywhere in the state. Lakota has four clergymen; they are really marvelous. Lakota has loads of parents, young, middle-aged, and old; so does your town; from these folks you learn the problems of the retired, the financial problems of old people, how families manage to send kids to college, when they made the decision to send kids to college, how they planned for it. There are a lot of things families, parents, citizens up and down the street can contribute.

Not too long ago I was in a school in a town like Lakota where the teacher said there were just no resource people in town. After a session as we are now having, she made up a list of the resource persons she had called upon during the year. There wasn't anyone out of the city limits; they were all folks within her town. One was Mr. Jones, shoe repair man. What did the shoe repair man talk about? The shoe repair man knows about what goes into making a good pair of shoes. Our girls learned that some shoes are lined with paper. He brought shoes off the bench to use as illustrations. The class was extremely interested. I think we learned a lot that day and the girls have a different way of shopping for shoes now. It is just asking, inviting, and helping the people to help; they can step up the learning process.

Also another bother on this same card, "My bother about teaching finance is finding visual aids."

MOTHER CARD NO. 7: "I need help! on (1) subject matter, (2) methods, (3) enthusiasm for myself. You see, I have problems too."

Answer: I salute her! In your kit there is bibliography of resource material for the teacher to use. There is a single sheet called "Suggested Conference Library Materials." We must continue to build our own professional libraries. I suggest we take our list to a book store and choose one, two, or three that we think will be useful to us. Any one of those books on this list are valuable and will be helpful. My favorites that serve my purpose include Feldman's THE FAMILY IN A MONEY WORLD: she so carefully relates all of the subject matter here to family; she wrote this for social welfare workers; her treatment of the family life cycle is good, and especially her emphasis on family relations. Its cost is about $2.00.

I would back myself with at least one text on finance. PERSONAL FINANCE is very good; they use case studies; this is a college text.

No homemaking teacher is well equipped unless she has one good text. My favorite is Gross and Crandall, 1953 Edition.

Are you still bothered the way you were at first?

At this point a distribution of 3" x 5" cards was made. Each card recipient was instructed to write across the top, "When I get back to my school this fall, I'm gonna ..... " Then each person was to make her own commitment in writing and sign her name below it, and then place it in her purse for use as a reminder.

On the first day of our conference I called your attention to certain basic needs people have. People includes us. We too need security and are plagued instead with insecurity. I know all about insecurity and I even have a theory as to why we have it. Among other things we feel insecure because of the nobility of our calling. In the face of teaching we wonder if we measure up. And if my theory has any truth in it, then let me say let us be thankful for our insecurity. For if the day comes when any one of us has arrived, has reached that point where she can feel no further need for growth, for improvement, for stretching, then pity her poor students and pity her.

Just like all people, we too need independence. No independence implies freedom--a freedom to be rather than a freedom from. We do not escape some of the things we would like to free ourselves of, but we can always find ways to free ourselves for that which we want to be. We mainly want to be free to be ourselves, yet we often are afraid to be ourselves or we are uncertain as to what our self really means. I'm not sure I can tell you what self is, but I can share what I think I'm talking about. My self is that part of me that feels, that reaches out to you and shares your feelings. My self is that part of me that understands, not with my mind perhaps, but with my heart. My self is that part of me that cares--cares what happens to you, cares what happens to children in my classroom, cares what happens to people, whoever and wherever they might be. To be my self means that I can be open and responsive, that I can let myself go without embarrassment or shame. And once I can be myself, I'll have achieved a kind of independence that is not to be had with all the

gold at Fort Knox. Such independence implies a freedom of the spirit, a state of readiness for whatever comes, a quickening of mental ability that permits a degree of creativity. Books are being written by the stackful on the subject of creativity, and only a fool would dare to offer another definition, but let me try. Creativity is that quality that permits us to be different, to adapt old ideas to new situations, old tools to new skills, or to introduce new ideas to old situations, or to develop new skills with old tools. It is the capacity to draw upon whatever talent or ability or resource we have at hand and put them to use. It is the capacity to light candles in the minds of others, to inspire a song, to kindle the hopes, to encourage the dreams.

What of well-being, of belonging, of status? We too experience these needs. We too know what it is to wish for approval, for recognition, for appreciation. We too have the need for achievement and fulfillment. We too must find inner satisfaction from what we are doing. These are needs common to every man, and without securing a sense of well-being, without the assurance inside of belonging, of having roots, of fitting some special place and meeting another's unique need, we experience that gnawing loneliness that haunts us, even when our days are crowded with persons and activities. We too need to receive and to know acceptance, as well as to give and to be accepting. For giving and accepting are the teachers traditional assignments.

You are unique, simple because you are you. There is no other one like you. And too often our uniqueness is forgotten or submerged or put aside because of countless pressures to conform to an image we never created, an image we would not choose, and an image that will not go away. We are teachers. But what is a teacher? A teacher is a learner and a teacher at one and the same time. A teacher is a realist and a visionary. Her goals are set out far into the future, and often she has no way of knowing how near she has been to achievement. For her goals are to develop responsible parents, to develop emotionally stable citizens, to create a lifelong desire for learning, and too often she is not around long enough to find out how near she has come to achievement. A teacher is adaptable. She comes from one culture and embraces another. She comes from the mature world of adulthood and lives most of her professional life with immaturity. A teacher is an individual, a person in her own right, a human being. One who is not afraid to not know, a person with strengths and weaknesses unique to herself, a mixture of the idealist and the realist in whose breast hope springs eternal. A teacher is one whose self-concept is based on truth, understanding, and an abiding faith in the value of the individual. To this are we dedicated.

Last year I was on my way to San Diego, California, to conduct a workshop for home economics teachers. As I approached the city, there was a hugh billboard, set on a hill, facing the highway. I was startled by what it said. The message was written on a huge purple background, the lettering was in brilliant yellow. It consisted of four words: "Money matters, people count." I guess, after all, that is why we are here. That is why we are going home with our "Gonna List," and that is why it has been a good conference.

Thanks for participating as well as you have. Thanks for putting up with my scolding and recognizing that I did it because I care for you. Good-bye.

Responsive Remarks:

The conference group has said, "Thank you, Miss Thal." These things said here will make a difference to thousands of children in Nebraska this year.

Miss Helen Thal: Several of you, last night, asked about the book from which I was reading "colors." It is HAILSTONES AND HALIBUT BONES by Mary O'Neil, Adventures in Color, Published by Nelson and Doubleday, $2.95. It can be found in children's book departments.

FIFTH GENERAL SESSION
Thursday Morning, August 15

- Miss Rose Wanek

TRENDS IN GENERAL AND HOME ECONOMICS EDUCATION

SUMMARY:

1. There is much emphasis on intellectual development--thinking, decision making, and valuing aspect of personal and family living. Emphasis on the problem-solving process as a means to thinking, management and decision making; teaching for generalizations represent part of the effort in this direction.

2. There is a trend toward semester courses in more subjects. Homemaking program structure in large schools is including more one-semester courses which may include only two areas and sometimes only area for depth. These courses usually, but not always, have prerequisites.

3. The names "Home Economics" and "Homemaking" often are changed to be more explanatory; especially, the semester courses.

4. The college curriculum for secondary high school homemaking teachers is undergoing much experimentation in search for the most basic background for this major. Societal changes are considered.

   Example: Experimentation in teaching food preparation by demonstration only.
   Experimentation with no laboratory work in food preparation.

   The results will be interesting.

5. Consideration of ways to teach the students with different ability levels. Experimentation is being done, but more is needed

6. Much more involvement of the homes in all disciplines through home study. In homemaking, this involvement is needed through short-term, long-term home-learning experiences, and with the parallel in-school and longer-term home-learning experiences.

   Example: Blouse made in school and the shirt constructed at home with help in class.

   Planning and interpretation also are involving the homes more.

7. Laboratory work in high school is being shortened greatly to give time for the first trend--for students to learn and teacher to teach them the thinking process, the management process, and for adequate evaluation.

8. There is a brand new trend for which we are not yet trained--teaching for wage-earning at both the high school and adult levels. This is growing out of the new proposed legislation for Vocational Education.

9. National Legislation and Home Economics Education. (A briefing)

   1917 - Original Vocational Act by Senator Smith and Representative Hughes. Samll amount for Home Economics. Policies formulated indicate the family-centered program. Wage-earning not in the policies, but the law does not prohibit this.

   1946 - George Barden: More money for Home Economics.

   1960 - After Dr. James D. Conant's book, "Slums and Suburbs, A Commentary on Schools in Metropolitan Areas," on drop outs, which shocked the nation, President Kennedy appointed a nationwide committee to study the need for further Vocational Education.

   1962 - The report of the committee emphasized education for wage-earning. A group in Washington prepared a new bill, H.R. 4955, for the use of money for wage-earning. They recommended that the Smith-Hughes and George Barden acts be left intact, that the new bill be in addition to them.

   1963 - The House Subcommittee of the Education-Labor Committee had the responsibility of recommending a bill to the whole committee on Education and Labor, who in turn presented it to the whole House.

   The Subcommittee questioned whether any federal funds should any longer be appropriated for family-focused homemaking. They felt the program has been tried and found good, functions well, and local boards could now carry on without federal aid. They did not question the value, only the use of funds.

   In the end the Subcommittee compromised and allocated one-fourth of the Smith-Hughes and George Barden funds for wage-earning and left three-fourths for the regular program.

   Later the full committee accepted this, as did the whole House. Soon the bill will come up before the Senate.

Meaning of the bill as passed by the House:

a. Federal funds for the program will be only three-fourths of what we now have and these have been very short.
b. Nebraska has no state aid to schools. Some states do, so the shock will not be as hard as in Nebraska.
c. This bill does leave the structure for our regular program intact--
    - Teacher Education
    - State Supervision
    - Standards for local programs, etc.
d. The problem when the Senate considers the bill; traditionally a more liberal body than the House:
    1) Accept the bill as passed by the House, and so at least safeguard the ongoingness of our present program.
    2) Or make an effort to remove the one-fourth cut from the regular program. This involves the risk of losing all or gaining all.
e. Teachers will be informed as to what is happening in the Senate. "Tending" the welfare of our program costs money. AVA dues supply it. HAVE YOU PAID YOURS?
f. If Home Economics does not use money for wage-earning, the money goes to some other service.

HOMEMAKING EDUCATION
STATE PROGRAM OF WORK, 1963-64

I. An Attractive Department

Make special effort to grow in ability to produce beauty in the department by:

1. Adapting ideas such as seen in the displays at State Conference and from the Bulletin, "Work Material in Teaching Art."
2. Selecting and purchasing for the department some needed objects and materials for teaching art understanding and appreciation, and for keeping interesting and attractive arrangements.
3. Utilizing the beauty in nature that is free.
4. Sending Miss Crain information informally, even on the spur of the moment, about your experiences with the "room beautiful" and the material in the bulletin.

A description of what you did, what you obtained, how you used it; the parts of the Bulletin that helped you most; those that you felt you could not use; any additional procedures or ideas; anything that you and your students did which proved interesting and rewarding, or vice verca, will be appreciated.

All your experiences, if Miss Crain hears from you, will be a big help in revising the bulletin.

II. One path to "thinking"--the use of the problem-solving process.

Are assignments or problems for in-class and in-home learning experiences developed by you and/or the students by means of the problem-solving process?

1. A concisely stated assignment or problem.
2. Identification of available resources (what I have and what I will need); as book, other references, earlier learning, own experience, objects, people, money, time, place, etc., etc.).
3. A plan for study or work on the assignment or problem; including how students will participate in the class discussion, or report on an in-home learning, or how evaluation will be done.

At First: The teacher will guide every assignment and home-learning experience in class through Step 3 before she is finished with the assignment.

Before Very Long: She will identify the parts fo the process as she goes through them in an assignment. The students will learn the terms--Problem, Resources, Plan together, etc.

Later: She will ask students to make their own plans when the assignment or problem is given or selected. She will supervise this planning and the study that follows.

4. Act: This includes preparing the assignment or work on the home learning

and

the class discussion or report.

5. Evaluate: (as planned in the plan).

III. District Conferences on Family Finance. (SEE Attached sheet.)

VT 000 653

VT 000 653
Roman, John
Disadvantaged Youth Program in Business Education, Clerical Services.

Cincinnati Public Schools, Ohio
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 30Jun65 23p.

*DISADVANTAGED YOUTH; *BUSINESS EDUCATION; *CLERICAL OCCUPATIONS; *CURRICULUM GUIDES; *PROGRAM GUIDES; HIGH SCHOOLS

This sequence of courses was designed to provide prevocational business education for students ranking in the lower one-third in general scholastic ability. The content of the program is geared to the slow learner who may have reading and listening difficulty. Remedial courses in English, social studies, home economics, mathematics, and science can be combined with basic business courses, typewriting, record keeping, and terminal clerical courses. Clerical Services I, grade 10, is designed to furnish pupils with the elementary understandings, appreciations, and simple skills essential for economic citizenship. It includes basic business, handwriting and spelling, arithmetic review, simple record keeping, filing, typewriting, elementary duplicating techniques, and manually operated adding and calculating machine procedures. Clerical Services II, grade 11, includes personal record-keeping problems as well as simple business record-keeping applications. Clerical Services III, grade 12, is a terminal vocational course and is intended to provide achievement at the acquaintanceship and work-skill level. Objectives, course content, instructional materials, and teacher readings are listed for each grade level. Included are a discussion of general characteristics of disadvantaged youth, school and community cooperation, jobs on which these students are ordinarily employed, and special characteristics of the Clerical Services Program. (PS)

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U S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Disadvantaged Youth Program

in Business Education

Clerical Services

Cincinnati Public Schools

June 30, 1965

VT000653

.... A Report By

John C. Roman, Supervisor
Business and Office Education
Cincinnati Public Schools

Disadvantaged Youth Program in Business Education

(Clerical Services)

The schools face an exceedingly difficult challenge in educating disadvantaged children for the business occupations. However, manpower needs in a technological society can be met only through education. Occupational education at the secondary school level for the disadvantaged youth is the responsibility of business education teachers as well as every other teacher in the educational system.

Millions of disadvantaged Americans are found today in congested sections of large cities and in the rural areas. These people are the least effective producers in the Society. Many are incapable of effective employment in modern offices due to lack of skills and academic ability. They are placed at a severe disadvantage by their cultures. There are some individuals with such extreme handicaps who will never be able to enter the labor force. Yet, there are many disadvantaged students who could look forward to productive office employment in small businesses such as dry cleaning shops, motels, filling stations and retail stores.

Objectives of Clerical Services

In today's automated world, the clerical services program is designed to contribute to the personal efficiency of young, disadvantaged youth and also to make some contribution for the world of work. This

is significant for the person with low ability since office employment is not readily available to these pupils without minimum levels of educational and vocational skills.

Secondary school programs for the disadvantaged youth which have proved successful have as their objectives:

- To provide clerical services work of a laboratory nature so that habits and attitudes needed by effective workers can be developed
- To develope a curriculum which will permit pupils to attain minimum levels of vocational skills and educational achievements
- To arouse occupational aspirations for office and sales work
- To instill a good self-image in the individual
- To guide each pupil to a better understanding of his capabilities
- To provide necessary programs of study to help pupils become productive citizens
- To improve pupil relationships with teachers and employers
- To provide remedial services necessary for academic progress

General Characteristics of Disadvantaged Youth in Clerical Services Program

General range of intelligence 70 - 89

Scholastic retardation in language arts, reading, and number skills

Short span of attention

Irregular attendance

High mobility of residence

Low interest in group work and play

Lack of initiative

Slowness in acquiring social skills

Home background of poverty, conflict, instability

Indifference to school work

Violence is best defense and weapon

Reading retardation

Lack of confidence

Special Characteristics of the Clerical Services Program

The successful school program attacks the problem of the culturally handicapped on three fronts. It demonstrates to pupils a close relationship between school and life. It includes the remedial services in language arts, computation skills and other skills necessary for academic progress. It arouses aspirations which can help the pupil alter constructively the course of his life. Some specific teacher-pupil activities are listed below:

1. The teacher must strive to overcome the pupil's hostility to school environment.
2. Learning activites must be challenging but not beyond the pupil's capacity.
3. Ability to read is basic in Clerical Services.
4. Speech patterns of disadvantaged children differ from accepted English. Chances for success improve when speech therapy precedes or accompanies reading instruction.
5. A strong program of vocational education can serve to increase interest in school through job skills.
6. A program based upon an understanding of each pupil is a program which challenges each to try and within which each can experience a fair measure to success and failure.

7. The heart of the education process is found in the skill, dedication and personality of the teacher and his respect for the pupil.

Special Requirement for Facilities

Extended use of regular business education facilities is required in schools with large numbers of disadvantaged pupils. Typewriting, clerical practice and recordkeeping can be scheduled in regular classrooms. However, since class size is limited to 25, special room facilities are desirable where pupil numbers permit.

Each class period is two hours in length. This arrangement provides an extended period of time for remedial work, supervised study and laboratory practice.

School and the Community

The school in a disadvantaged district should seek to enlist local advisory help from business, education, labor unions, government, professions and management. Their cooperation can provide an accurate basis for adapting the curriculum to the realities of the economy. Each segment of education can provide the diversity of occupational education needed to meet the wide range of occupations and abilities among the disadvantaged youth of the nation.

Huffman states that "there are many misconceptions about developing a program for slow learners. Business and industry do not seek out slow learners for their jobs. However, if you visited the offices of business and industry you would find many of our 'so called' slow learners holding down respectable jobs. The term slow learner as

used by teachers refers to young people who are poor in reading, arithmetic, and abstract reasoning. Such a group will contain a high percentage of those who are alert and have excellent work habits."

The community will have to be sold on this program through field trips, office visitation and teacher-coordinator contact. Cooperative work experierce, of a limited nature, can be used to supply office help during peak emergency periods.

Influencing young people to prepare for office careers is nearly as much a concern of the business community these days as it is of the educational community. In May, 1965, Administrative Management Society's Education Division brought together 40 prominent leaders in the fields of business, business education, and guidance counselling to discuss just how business and the schools might cooperate to develop better qualified workers for the offices of today and tomorrow. One of the many important questions studied at the seminar was: How can schools develop the right kind of training to meet the changing skill requirements of business? Among others, these recommendations were made by the seminar participants:

1. To help determine curriculum, schools must cooperate with business to explore in depth the kind of training and education now needed for office occupations.
2. Surveys should be taken on both the local and national levels to provide this information. Assistance of the federal government, foundations, and universities should be solicited.

Concerning the problem of finding jobs for high school dropouts, one businessman had this to say: "One major problem of placing dropouts is

that most employers are hiring for promotion rather than hiring for the immediate job; this makes many dropouts ineligible, and may be an unrealistic approach since turnover is so high on many jobs."

Dr. Harold J. Reed, career devlopment specialist, U. S. Office of Education, had this to say about ability and the office employee:[1] "Contrary to what is often believed, our problem is not to get the most able students into office occupations; our problem is to get more of the appropriate students into office occupations." According to Dr. Reed "this so-called superior employee, because of lack of interest in a clerical job which tends to become routine, will create problems of absenteeism, discipline, and turnover, not to mention lower productivity." Businessmen should make available information to high school guidance counsellors and administrators regarding the wide range of job opportunities in offices.

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1. AMS booklet, "Guiding Young People into Office Careers" Administrative Management, July, 1964, p. 45.

GENERAL BUSINESS JOBS AT THE CLERICAL SERVICES LEVEL

The following business jobs on which students from the lower one-third in general scholastic ability are ordinarily employed are given below:

General Clerical

Mail Clerk
File Clerk
Keypunch Operator
Messenger
Receptionist
Telephone Operator
Addressograph Operator
Duplicating Machine Operator
Payroll Clerk
Checker
Rate Clerk
Calculating Machine Operator

General Service Jobs

Laundry Clerk
Cashier
Collator
Barber & Beautician
Marker
Clerk in retail store
Demonstrator
Wrapper
Checker
Stock Clerk
Appliance service
Service station attendant
Delivery man
Small businessman

CHARACTERISTICS OF BUSINESS JOBS ON WHICH LOWER ONE-THIRD IN GENERAL SCHOLASTIC ABILITY ARE EMPLOYED.....

No previous work experience

Requires knowledge of few specific procedures

Jobs ordinarily repetitive in nature

May deal with people, things, or both

Elementary knowledge of the business and its operations desirable

Little or no need to exercise judgment

Reading, writing, simple arithmetic, typewriting usually required

Accuracy and standards of performance important

Tasks are simple and few in number

Requires ability to follow oral and written instructions

Appreciation for ownership, management and labor

Business and economic information important

History of Clerical Services in Cincinnati Public Schools

In September, 1962 the first classes in business education for cultural disadvantaged youth were started at Central High School and Taft High School in Cincinnati. This program was a natural extension of the modified general program. It was designed originally for those pupils who had an interest in manual work and who did not intend to finish a regular high school program in vocational education.

Dr. Eleanor Brown, Professor of Office Administration at Kent State University, visited with business education teachers in Cincinnati in April, 1962 to conduct an in-service workshop concerning the low-achieving pupil. Basic level courses in clerical practice were reviewed from cities of Rochester, N.Y.; Sacramento, California; Philadelphia, Pennsylvania; and New York, N.Y. The scope of these programs was similar in some respects to our intended program, the content differed in many respects.

Present programs for in-service training program of clerical services teacher include:

(1) Regular meetings of teachers and supervisor to exchange project ideas for these classes.

(2) State Department of Vocational Education Summer Workshop on Clerical Service for Disadvantaged Youth at the University of Cincinnati, Summer, 1965.

DAVY PROVISIONS OF THE VOCATIONAL ACT OF 1963

When Congress passed the Vocational Act of 1963, business and office occupations were specifically included along with those subject matter areas that had previously been subsidized with federal monies. The intent of Congress regarding vocational business education is for occupational preparation below the professional level. Persons of all levels of ability are to be included; even persons with weak cultural backgrounds and retarded social development.

Eligibility of Pupils for DAVY

Although many school systems have special classes for the slow learner at the elementary level, fewer have such classes at the secondary level. Because of his low intelligence, the disadvantaged youth is not a special education student (below 70 I.Q.). He should not be a severe behavior problem. Usually his progress in school indicates low achievement in the academic oriented program. Care should be exercised in using I.Q. scores as the single criteria for admission to the program. The program should be made available especially to persons in high school with socioeconomic handicaps that prevent them from succeeding in regular vocational education programs.

Function of Clerical Services Program

Many of these high school students who are in the lower one-third in general scholastic ability were enrolled in regular vocational business education programs. Employers were not willing to accept these students in cooperative positions as stenographers, secretaries, bookkeepers, data processing machine operators, and others that require a high level business skill.

Current business courses at this time did not exist for the purpose of providing prevocational business education for the lower one-third in general scholastic ability. Hence, a sequence of courses entitled Clerical Services were introduced beginning in the tenth grade. The function of the courses was to provide for these students prevocational training for broad business occupation families such as general clerical service and general sales service. After three years of extensive investigation and experimentation with clerical services, the findings and results indicate that many pupils are able to achieve minimal skills for low-level clerical jobs in small business firms. Some pupils, through success in clerical services, are able to transfer to the regular general level courses in business education such as office practice and bookkeeping.

A New Clerical Services Approach for Manpower Needs of Future

Because clerical activities are the core of most office work, the clerical services program is fundamental to all office education. Demands for clerical workers in Ohio will continue to rise as paper work grows. Automation advances and data processing will change many routine service functions in the office. However, clerical jobs of all types in Ohio are expected to increase by 164,000--or 31 percent--between 1960 and 1970.[1]

The philosophy that education in our high schools must be provided for all of America's youth has brought an influx of students with limited abilities. All subject areas above felt the impact of these students. Recently, business education leaders have been concerned with guiding students into business courses other than the traditional stenography.

1. Papier, Wm. Manpower in Ohio, 1960 to 1970. Division of Research and Statistics BUC, Columbus, Ohio. 1963.

bookkeeping, distributive education and general office practice courses. The conscientious, well intentioned student who has limited achievement in reading and arithmetic skills can profit from the useful knowledge and skills taught in Clerical Services.

There are 25 sections of Clerical Services classes scheduled in the comprehensive and vocational-technical high schools in Cincinnati. The sections are divided as follows:

Clerical Services I - 18 sections - 481 pupils - 26.7 Av. Cl. Size

Clerical Services II - 5 sections - 137 pupils - 27.4 Av. Cl. Size

* Clerical Services III - 2 sections - 50 pupils - 25.0 Av. Cl. Size

Suggested Content and Sequence for Clerical Services

It is apparent that the traditional courses in vocational business education can be classified in a general way into one of four sequences:

(1) stenography

(2) bookkeeping and accounting

(3) office practice

(4) distributive education

Some large city systems have also added a data processing sequence for the academic student and in other large city systems a fifth sequence has emerged and has developed into a group of courses which we call the Clerical Services Program.

The content of the clerical services program is geared to the slow learner who may have reading and listening difficulty. Often another major difficulty of the slow learner is lack of computation skill. Other disciplines should be combined with business education in the joint effort

* - Original Sections of Clerical Services - Started in 1962 at Central and Taft High.

to help the slow learner in business education. Remedial courses in English, social studies, home economics, mathematics and science can be combined with basic business courses, typewriting, record keeping, and terminal clerical practice courses in the joint effort to help the slow learner.

Cincinnati Public Schools

Program of Studies in Senior High Schools

Grades 10 - 12

C L E R I C A L S E R V I C E S					
Grade 10	Per.	Grade 11	Per.	Grade 12	Per.
English II (Basic)	1	English III (Basic)	1	English IV (Basic)	1
Regional Geography	1	American History	1	Economic Relations	1
Math II (Basic)	1	Math II (Basic)	1	Consumer Math	1
Bio Science (Basic)	1	Physical Science (Basic)	1	Elective	1
Clerical Services I	2	Clerical Services II	2	Clerical Services III	2

Electives:

Reading Improvement

Art, Music

Speech

Home Economics

Homemaking

CLERICAL SERVICES I
Grade 10

Clerical Services I is designed to furnish pupils with the elementary understandings, appreciations and simple skills essential for economic citizenship. Pupils are provided experiences in arithmetic and communication skills through elementary clerical procedures. In addition, the pupil is encouraged to develop proper work habits and attitudes through experiences in typewriting and basic business.

Objectives

The following objectives are designed to guide pupils to:

- Develop an elementary understanding of how business organization operates in a free enterprise economy
- Understand the role of the consumer
- Acquire fundamental clerical skills essential for economic and social adjustment

Content

I. Basic Business (one period per day)

A. Reasons for business organization in a free enterprise economy
B. Types of business organization
C. The role of the consumer
D. The function of money
E. How goods and services are ordered and purchased
F. The processes involved in the distributing and delivering of goods and services
G. The processes involved in paying for goods and services
H. The function of insurance
   1. Protection
   2. Savings
   3. Types

II. Handwriting and Spelling

A. Legibility
B. Neatness
C. Columnar arrangements
D. Spelling

III. Arithmetic Review

A. Addition
B. Subtraction
C. Multiplication
D. Division

IV. Simple Record Keeping

A. Handling money
   1. Making change
   2. Counting money
   3. Examining checks
B. Simple banking services
   1. Endorsements
   2. Deposits
   3. Withdrawals
C. Personal budgeting
   1. Income
   2. Expenditures

V. Filing - Alphabetic and Numeric

A. Facility in the use of the alphabet
B. Facility in the use of number arrangements
C. Indexing rules
D. Procedures
E. Personal skills
   1. Accuracy
   2. Neatness
   3. Speed

VI. Typewriting

A. Fundamental operations
B. The keyboard
C. Typing drills and practice of elementary nature
   1. Simple tabulation
   2. Straight copy typing
   3. Rough drafts

VII. Elementary Duplicating Techniques

A. Fluid process duplicating
B. Stencil process duplicating
C. The use of the light table

VIII. Manually Operated Adding and Calculating Machines (where available)

A. Adding - listing machines
   1. Operating parts
   2. Addition
   3. Subtraction
   4. Multiplication
B. Calculating machines
   1. Operating parts
   2. Addition
   3. Subtraction
   4. Multiplication
   5. Division

CLERICAL SERVICES II
Grade 11

Clerical Services II includes personal record keeping problems as well as simple business record keeping applications. For that reason, this course is useful not only in preparing the slow learner for simple, routine clerical jobs in business but also will give practical training in how to handle his own personal business affairs. Here are some of the record keeping applications.

1. Recording receipts
2. Proving cash
3. Bank deposits
4. Writing and endorsing checks
5. Bank Statements and reconciliations
6. Student budgets
7. Family budgets
8. Social security
9. Purchase records
10. Sales records
11. Payroll records
12. Recording receipts and payments for small retail businesses

Textbook

In lieu of an adopted textbook, we are using Clerical Record Keeping which is recommended for a one year course for slow learners in the senior high school. The authors are Baron and Steinfeld, South-Western Publishing Company, 1959. Supplementary practice sets which can be purchased and charged to the Modified General Fund are Household Budgets and Records, South-Western Publshing Company, 1964 and Payroll Records-4th edition, by Pendery, South-Western Publishing Company, and Business Practice-5th edition, South-Western Publishing Company.

CLERICAL SERVICES III
Grade 12

Clerical Services III is offered in the 12th grade of the secondary school as a terminal vocational course for the basic pupil. The work provided in Clerical Services III is intended to provide achievement at the acquaintanceship and working-skill level. In its broadest sense, the Clerical Services course is intended to provide the following objectives.

- To provide a basic knowledge of business in general
- To give instructional background about office operations required of beginners in clerical jobs
- To develop the student's skill in performing fundamental operations, clerical procedures, and in operating the most common office machines
- To utilize the skills learned in typewriting
- To improve oral, written, and reading English skills as well as penmanship and fundamental office skills
- To help the students grow in right habits, attitudes, personal appearance, and business know-hows
- To acquaint the student with job opportunities, placement techniques, employment responsibilities and opportunities for the teacher

Course Content

The following course outline is a suggested list of topics that could be covered provided money, space, and number of students enrolled are taken into consideration.

I. Filing
II. Telephone techniques
III. Mail services
IV. Messenger service
V. Duplicating
VI. Adding and calculating machines
VII. Voice writing machines
VIII. Office style typewriting
IX. Reference books

Supplementary Materials

It is recommended that you use, where practicable, a practice set in filing and office typewriting. Several are recommended for purchase under the Modified General Budget.

Projects in Clerical Practice-2nd edition by Goodfellow and Rosenberg. South-Western Publishing Company

Household Budgets and Records South-Western Publishing Company, 1964.

Typewriting Office Practice-3rd edition by Agnew. South-Western Publishing Company.

Office Production Typewriting - Book II. Gregg Publishing Company, 1963.

Instructional Materials for Clerical Services Classes

Clerical Services I

Basic Textbook: Everyday Consumer Business - 1959. Prentice-Hall

Supplementary

1st semester - Applied Penmanship - 2nd edition. Lyon. South-Western Publishing Company. $1.35 *

Clerical Practice - Workbook. A. M. Rowe Company. 1954. $2.00 *

2nd semester - Household Budgets & Records - Practice Set. 5th edition. 1964. South-Western Publishing Company. $1.80 *

Clerical Services II

Basic Textbook: Clerical Record Keeping - 1959. Baron. South-Western Publishing Company. $1.40 *

Supplementary

1st semester - Working Papers & Supplementary Problems - Units 1-6. South-Western Publishing Company. $1.32 *

Household Budgets Practice Set - 1964. South-Western Publishing Company. $1.80 *

2nd semester - Clerical Payroll Procedures - 4th edition. South-Western Publishing Company.

Business Practice Set - 1961. L. A. Foster. South-Western Publishing Company. $2.00 *

Clerical Services III

Basic Textbook - Basic Clerical Practice - 1959. Felter.

Supplementary

1st semester - 130 Basic Typing Jobs - 1960. Prentice Hall. $1.20 *

2nd semester - Typewriting Office Practice - 1960. South-Western Publishing Company. $1.92 *

* Less 25% Discount

CLERICAL SERVICES

Teacher Readings

C AMS Guidance Booklet "Guiding Young People Into Office Careers," Administrative Management Society, Willow Grove, Pa. - July, 1964.

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Brown, Eleanor B. "They Can't Learn? Don't Believe It!" Business Education World, Vol. 40, No. 3, November, 1959, pp. 15-18, 42.

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Calhoun, Calfrey C. "The Challenge of the Slower Learner," Business Education Forum, Vol. 17, No. 8, May, 1963, pp. 25-27.

Cleary, Sister Mary Benedict "Suggestions for Course Offerings and Techniques Appropriate for the Teaching of the Slow Learner Enrolled in the Business Education Curriculum," unpublished master's thesis, Catholic University, Washington, D. C., 1960.

Clippinger, Ray L. "Business Training for Low Average Pupils in the Rochester (New York) Public Schools," The National Association of Supervisors of Business Education, NASBE Newsletter, October, 1962, p. 3.

Conant, James Bryant "Challenging All Pupils," Recommendations for Education in the Junior High School Years. Princeton, New Jersey: Education Testing Service, 1960, pp.25-26.

Cook, Fred S., and Eleanor Maliche "Entry Jobs: Availability for Our High School Graduates and Nongraduates," Business Education Forum, Vol. 18, No. 3, December, 1963, p. 16 and p. 18.

Del Turco, Lorraine "Handling All Levels of Ability in the Classroom," Business Education World, Vol. 44, No. 6, February, 1964, pp. 20-22.

Felter, Emma "How the Clerical Program Helps the Student, the School, and the Community." NABTE Bulletin, Vol. 28, No. 2. Winter, 1959.

Gehring, Virgil D. "Conflicting Opinions in Teaching the Slow Learner in Vocational Business Education--as Revealed in the Literature," unpublished master's thesis, University of North Dakota, Grand Forks, North Dakota, 1962. Abstract: National Business Education Quarterly, Vol. 32, October, 1963, p. 16.

Given, John N. "Can the Low Ability Student Complete the Commercial Course?" The Balance Sheet, Vol. XV, September, 1933, pp. 28-29 and 48.

Gowen, Agnes "Adjusting the Clerical Curriculum to the Low-Ability Student," Business Education Forum, Vol. 16, November, 1961, p. 25.

Haga, Enoch J. "Simplify Bookkeeping for Your Slower Learners," Business Education World, Vol. 41, February, 1962, pp. 12-13.

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Henderson, Braxton "Bookkeeping and the Low-Ability Student," The Balance Sheet, Vol. XLIV, No. 6, February, 1963, pp. 251-252.

Holt, C. C., and O. M. Henson "How Can the School Best Provide for the Slow Learner?" Bulletin, National Association of Secondary School Principals, Vol. XLI, April, 1957, pp. 162-163.

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Tonne, Herbert A. "Clerical Training for Low Ability Students," The Balance Sheet, Vol. XXXI, February, 1950, pp. 240-251.

Thorne, Marian H. "Guidance in the Basic Business Courses for Potential High School Dropouts," Business Education Forum, Vol. 19, No. 2, Nov., 1964, p. 17.

VT 000 662

VT 000 662
A Guide for the Review of a Program in Agricultural Education.
A
New York State Education Dept., Albany. Cooperative Review Service
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Apr65 13p.

GUIDELINES; CHECK LISTS; HIGH SCHOOLS; *VOCATIONAL AGRICULTURE; *PROGRAM EVALUATION

Attention is focused on the teaching and learning process in this instrument for the evaluation of vocational agriculture programs. Forms are included for review of: (1) program objectives, (2) program organization and administration, (3) curriculum materials and planning, (4) instructional activities and methods, (5) facilities, (6) selection, placement and followup, (7) public and professional relationships, and (8) program evaluation. Each section outlines a number of criteria which may be marked either as a strong aspect or one which needs improvement. A summary form provides space and guidelines for describing outstanding aspects, areas of weakness, means being used to overcome weaknesses, and suggestions for further improvement. (JM)

ED 027441

THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Cooperative Review Service

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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AGRICULTURAL

EDUCATION

Revised 4/65

The Cooperative Review Service is a partnership effort of the State Education Department and the local school system. It focuses principal attention on the teaching and learning process with primary emphasis on the adequacy of the curriculum; the training, experience and effectiveness of the instructional staff; the quality of library, laboratory and shop resources; and the extent to which the talents of all pupils are discovered and encouraged. The aim is to raise the quality of instruction and to advance the opportunities available to all pupils for better learning.

Instructions

- Note that items consist of standards and practices that generally characterize good school programs.
- Base your conclusions on the total program in the subject or service area, rather than on a single subject or grade level of the program.
- If you wish to qualify an item, enter an explanatory note in the space after it, or at the end of the section. If more space is needed, additional sheets may be attached. Identify by number and part all items which you have added as qualifying statements.
- If any important program features are not listed, insert a statement concerning these in the space headed "Comment" at the end of each selection.
- At the end of this Guide there is a SUMMARY for indicating strong aspects of the total program, and areas in which improvement is needed. Care in filling out this SUMMARY is especially important in future planning for program improvement.

Name of School: _____

Address _____

VT 00662

Note:

This guide or the supplement should be completed for each high school. In cases where the existing program may need to be studied for either expansion or combining with other schools, both the guide and the attached supplemental survey should be completed.

In districts where no agricultural education is now being offered the supplement should be completed as an aid in determining needs and in organizing an administrative plan for making courses available to all pupils having an interest in and the desire for this instruction.

A GUIDE FOR THE REVIEW
OF A
PROGRAM IN AGRICULTURAL EDUCATION

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Program Objectives		
1. Agricultural Education is accepted by the administration and school board as a program to provide:		
• Exploration of careers and opportunities in agriculture		
• Training for farming		
• Training in the non-farm agricultural occupations		
• Post high school training for out-of-school youth and adults ...		
• College entrance preparation		
2. Items listed in number 1 above are adapted to also serve the needs of disadvantaged youth who are interested in agriculture		
3. Training is of sufficient scope to prepare for successful careers in:		
• The operation and management of farms		
• The ornamental horticulture businesses such as in landscaping, nurseries, greenhouses and florist shops		
• The conservation of natural resources in soil, water, and wildlife and the development of outdoor recreation facilities..		
• The farm equipment business, including sales and service, mechanic, and operator		
• Agricultural business		
4. Vocational education is treated as a "learning by doing" process		
5. Adequate on the job instruction which stems from individual agricultural problems and provides assistance in learning skills, making decisions, and implementing good practices is provided		
6. Adequate agricultural experience is provided in harmony with the class instruction and problems encountered in training for agricultural occupations to assist in learning skills, making decisions, and implementing good practices		
7. The development of skills and the quality of workmanship required meet standards of utility for agricultural occupations for which preparation is being made		

Comments:

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Program Organization and Administration		
1. A full program based on the agriculture of the community and the needs of pupils interested in agricultural instruction is offered		
2. A program of other agricultural work experience with emphasis on planning and managerial responsibilities is required of each pupil.		
3. The agricultural program is suitable for a cross-section of the ability levels represented in the secondary school		
4. The program for out-of-school youth is an integral part of the vocational agriculture program		
5. A Future Farmer of America chapter program of sufficient scope to provide a variety of activities in harmony with the objectives in vocational agriculture is maintained		
6. Agricultural experience programs are planned with annual and long range goals in cooperation with parents (or others)		
7. Classes in vocational agriculture are scheduled to permit the teacher to carry out the vocational responsibilities of on-the-job instruction for pupils and out-of-school youth		
8. A teacher is employed during the school year and the summer months to meet on-the-job instructional needs of all pupils		
9. Classes in vocational agriculture are large enough to be justified, yet not too large to meet training objectives		
10. An annual program of work and a report on achievements is submitted to the school administrator		
11. Local supervision is provided for the program		
12. Recognized administrative channels are used for all agriculture department activities		
13. An annual budget and detailed request for equipment and supplies is prepared		
14. Adequate provision is made for transportation for on-the-job instruction, field trips, and other travel		
15. An annual inventory of all agriculture department equipment and supplies is prepared, filed, and/or submitted		

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Program Organization and Administration (cont.)		
16. An advisory board of five men is duly appointed by the board of education and meets at least once annually to advise on the school's agricultural program.....		
17. Adequate safety precautions and practices are in evidence in shop organization and routine		
Comments:		
Curriculum Materials and Planning		
1. Courses of study have been developed and are in use to meet the class and practical experience needs of pupils in the various classes		
• Copies are on file with the Bureau of Agricultural Education, State Education Department		
• The courses of study accommodate for individual differences, including flexibility in objectives and expected achievement of disadvantaged youth gauged to the abilities, aptitude, interests and needs of each pupil		
2. A teaching calendar with jobs taken from the courses of study fills opportune needs in developing pupil ability to conduct supervised practical experience programs		
3. Plans for instruction in relation to practical experience are developed and a record of this instruction is kept		
4. Written pupil agreements for all practical experience program activities are arranged with the parent or employer		
5. A record of suggestions and recommendations made and of pupil achievements in individual practical experience programs is maintained		
6. A committee of youth is used to plan the group instruction phases of the out-of-school youth program for several months in advance		
7. The school accepts responsibility for teaching out-of-school youth classes in those jobs which are needed		
8. The content of the out-of-school youth program is developed with sufficient flexibility to allow for the needs of early school leavers and other culturally deprived adults who are interested in agriculture		

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Curriculum Materials and Planning (cont.)		
9. A supply of up-to-date agricultural reference books is kept available for class use		
10. Up-to-date bulletins and other reference materials are filed so that they are readily available for use		
11. The department has access to appropriate agricultural magazines		
12. Testing equipment and supplies are available and in good order		
13. Specimens and other teaching aids are kept orderly		
14. Display and bulletin areas are arranged neatly and in good order		
15. Actual experience is used in preference to other teaching aids where possible		
16. Supplies of record forms used by pupils are kept on hand		
Comments:		
Instructional Activities and Methods		
1. The teacher gives evidence of having a sound vocational philosphy with respect to selecting and teaching agricultural jobs and units		
2. The teacher: • Helps plan and is intimately familiar with each pupil's practical experience program through instructional visits ..... • Keeps abreast of agricultural developments so that he can give instruction, advice, and recommendations		
3. The teacher contacts at their homes all potential enrollees in agriculture including disadvantaged youth, referred to him as having agricultural aptitudes or an expressed interest in agriculture, to become acquainted and establish amiable relations with them and their parents		
4. The teacher has a plan for each unit which provides a variety of learning activities, and which will be efficient in the use of time		
5. Pupils are motivated by applying instruction to problems found in their supervised agricultural programs and job situations.....		

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Instructional Activities and Methods (cont.)		
6. On-the-job instruction and follow-up is provided all pupils to assist in their successful progress		
7. Pupils are guided in the analysis of problems to determine the information needed		
8. The teacher guides pupils in obtaining information from selected references		
9. The teacher gauges his teaching to allow for individual differences of pupils, including background, ability and aptitudes		
10. During supervised study periods, the teacher helps pupils at work and gives individual help when needed		
11. Pupils are guided in preparing written plans for agricultural managerial jobs to be performed		
12. Teacher demonstrations are followed by pupil experience in the jobs as opportunities arise		
13. Disadvantaged youth are given additional demonstrations commensurate to their ability and are closely supervised during the initial stages of experiences in doing new jobs		
14. Production records, cash accounts, and inventories of home or other farms and other agricultural businesses are used in class instruction.		
15. The daily routine of class management is orderly and efficient. Courtesy and respect are evident in pupil-teacher relations		
16. Orderliness of tools and equipment as well as cleanliness of the shop is an organized responsibility of pupils		
17. Carefully prepared field trips are used to observe good practices, study needs, observe demonstrations, and get some types of work experience		
18. The teacher's success in instruction is evidenced by applications made by in-school pupils and out-of-school youth:		
• On farms of parents or of cooperating farmers		
• In ornamental horticulture operations or businesses		
• In conservation of soil and water resources, and outdoor recreation establishments		
• In farm machinery businesses		
• In agricultural businesses		

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Instructional Activities and Methods (cont.)		
19. Pupils keep adequate records of their agricultural program accomplishments		
Comments:		
Facilities		
1. The classroom has at least 400 sq. ft. of floor space with the minimum dimension at least 20 feet		
2. Adequate provision is made for:		
• Lighting		
• Heating		
• Ventilation		
• Type of Floor		
• Other.....		
3. The classroom is clean and attractively decorated		
4. The classroom is equipped with conference type tables and chairs for each pupil in the largest class		
5. A suitable instructor's chair and desk is provided		
6. The classroom is equipped with adequate bookshelves, bulletin files, and storage cabinets for teaching supplies and equipment		
7. The windows of the classroom are equipped for controlling the lighting conditions		
8. The department is tied in with the school's bell, time, and phone systems		
9. The teacher has access to and use of equipment and/or secretarial service for duplicating and typing		
10. The shop for classes of 12 has at least a minimum of 1,500 sq. ft. (or 1,600 sq. ft. for shop-classroom combination where classes are under 12) with sufficient additional space for larger classes		

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Facilities (cont.)		
11. Adequate provision is made for:		
• Lighting		
• Heating		
• Ventilation		
• Type of floor		
• Power accessibility and central control		
• Floor drain		
• Exhaust fan		
• Overhead door near grade level 14' width		
• Adequate wall and other bench area well located		
12. Tools and machines are adequate for the program and are kept in good and safe working condition		
13. Provision is made for orderly and safe keeping of tools and supplies		
14. The shop is adequately arranged for efficient instruction		
15. The shop has a wash area and locker space		
16. A laboratory area is equipped with:		
• Acid-proof table		
• Acid-resistant sink		
• Soil testing equipment		
• Milk testing equipment		
• Testing supplies		
• Storage facilities		
17. Special facilities for ornamental horticulture commensurate to the program being conducted are provided including a greenhouse of at least 800-1,000 sq. ft. and a headhouse-laboratory area of at least 400-600 sq. ft. for a class of 20 pupils		
18. A land laboratory of at least 10 acres is provided for classes of 20 pupils		
19. Supplies to be used regularly are kept available		
20. A variety of installations in the shop, laboratory and classroom allow try-out experiences in handling, using and working with plants and animals; performing tests; servicing, maintaining, and adjusting agricultural equipment, suitable to the ability of disadvantaged youth		

Comments

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Selection, Placement, Follow-up		
1. Pupils selected for vocational agriculture have expressed an interest in the subject and a willingness to engage in agricultural programs ..		
2. Disadvantaged youth are encouraged to enroll in agriculture based on tests and school information indicating that they have aptitudes for agriculture, irrespective of expressed interests and the teacher takes interest in them so that they willingly engage in practical experience programs in farming or other agricultural occupations		
3. The school guidance policy provides for enrollment in agriculture on the basis of interest and need rather than scholastic ability, and does not suppress enrollment of the academically talented.....		
4. Prospective enrollees and their parents are contacted during the summer months and acquainted with the program		
5. Desirable standards are established for pupils' practical experience programs, and assistance in placement on cooperating farms or agricultural businesses is given to those not living on farms or in families not operating agricultural businesses		
6. Desirable standards are established for pupils' agricultural work and experience programs and assistance in placement is given		
7. The agriculture teacher cooperates with guidance counselors in selecting pupils who wish to obtain training in agriculture		
8. The teacher shares with guidance counselors his knowledge of pupil's backgrounds including the culturally disadvantaged, which he gains through close working relations with youth and parents through visits to their homes		
9. Follow-up records are kept on the progress of out-of-school youths		
10. Assistance is given to all pupils at the conclusion of their formal school education to become satisfactorily placed in positions and/or guided into further education for which their training, experience, ability and aptitude have prepared them and in which they may develop to their fullest potential		

Comments:

Check (√) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Relationships - Public and Professional		
1. The teacher of agriculture:		
• Is personally acquainted with key individuals in the community who are in a position to help advance the vocational agriculture program. (These include farmers, landscapers, greenhouse operators, machinery dealers, operators of outdoor recreation businesses, businessmen, bankers, newspaper editor, board of education members, advisory board members, and others)		
• Is well acquainted with his superintendent, principal, and fellow teachers, and keeps them informed about the program of vocational agriculture.....		
• Holds active membership in professional, agricultural, and community organizations		
• Regularly attends professional growth meetings on a local, regional, and state basis		
• Has a plan for professional improvement and certification through advanced courses of a professional and technical nature		
2. Appropriate news releases approved by the school administrator are prepared for weekly and/or daily news media.....		
3. The agriculture department is represented on programs of school, civic, PTA, and agricultural organizations to acquaint them with the work of vocational agriculture		
4. An FFA banquet or similar activity is sponsored annually by the FFA chapter		
5. National FFA week is observed through appropriate activities		
6. Educational exhibits and/or demonstrations are sponsored by the FFA chapter		
7. The work of the vocational agriculture department is reported at regular intervals to the board of education through administrative channels		

Comments:

Check (✓) the column most applicable to each item: (If the item does not exist, or does not apply in your school system, please explain this under Comments, referring to the item by number.)	Strong Aspects	Needs Improvement
Program Evaluation		
1. An annual meeting of the advisory board is devoted to evaluation and suggestions for improvement		
2. The Comprehensive Examination in Vocational Agriculture is used as a means of evaluation		
3. Supervisory visits from local and state supervisory personnel are evaluative media employed		
4. The chapter activities program of the FFA are used as a measure of achievement		
5. Teacher critically reviews the total program periodically and formulates plans for desirable changes		

Comments:

SUMMARY

Use as many pages as needed to indicate:

A. Outstanding aspects, practices, and features of the agricultural program.

B. The area(s) of the agricultural program in which most improvement is needed.

C. What is being done to strengthen or improve the aspects of the agricultural program most in need of improvement?

C. Suggestions for further improvement of the program.

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GEORGIA

A plan for meeting Georgia's occupational training needs is set forth in this proposal. Project objectives are to determine the current status of vocational-technical education, outline a program to fulfill the goals of vocational education, and develop specific plans and a time table for implementation of those plans. Sub-committees working under a 15-man advisory committee will concentrate on specific areas to evaluate, plan, and schedule. Appendix 1 contains the composition of the component groups involved in the study. They are the advisory committee, sub-advisory committee, professional staff, and vocational education staff. Charts of the organization and time table for each phase are included. (DM)

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OFFICE OF EDUCATION

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DEVELOPMENT OF A MASTER PLAN FOR VOCATIONAL EDUCATION IN THE STATE OF GEORGIA

March, 1967

Dr. James E. Bottoms
Associate State Director of
Leadership Services

Georgia State Department of Education
Atlanta, Georgia

VT003654

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I. Statement of the Problem.

Changes in the scope of vocational education have been rapid since passage of the Vocational Education Act of 1963. Georgia has felt the thrust of these changes and anticipates an additional complex of changes in the structure, the scope, and the function of its vocational education program in the next five to ten years. Those engaged in state-level leadership of vocational education in Georgia want to anticipate, as best they can, the direction these changes might take. They want to develop a master plan for vocational education in the state of Georgia for the next five to ten years.

Thus, it is the purpose of this proposed project to set forth in a systematic and organized manner a plan to meet the occupational training needs of Georgia's people and to include in this plan the means and procedures for implementing a master plan for vocational education in Georgia. Implementation of this plan will be accomplished by the involvement of a broad range of individuals. This project should chart the course which vocational education could best take in Georgia during the next five to ten years.

The results of this project will serve to inform both the lay public and professional educators in Georgia of the scope and the quality of vocational programs needed in the state in order to meet the occupational training needs of Georgia's people. Further, the results of this project will serve to provide concrete direction which is needed in Georgia today in order to obtain legislative and financial support for Georgia's vocational education needs and programs of tomorrow.

II. Need for the Study.

Funding of this project will enable the vocational education leadership in Georgia to take an offensive approach rather than to be limited to a defensive strategy. Many critics of vocational education are quick to point to its shortcomings, while all too often the strategy taken by the vocational educators themselves is one of defending the status quo rather than of projecting programs to bridge recognized vocational education gaps. It is difficult to obtain tangible support for a program which fails to project its own shortcomings and fails to project steps to take in an effort to overcome these recognized shortcomings. The possibility of changing the status quo is far more likely to meet with success when change is initiated by leaders in the field where the change is to come rather than by members of an outside group. When vocational educators fail to develop and project their own plans for education change, they should not be surprised if such plans are formulated by someone other than vocational educators.

A cursory examination of the scope and quality of vocational education in Georgia reveals many unmet needs. A look at the occupational offerings in the vocational program reveals an imbalance, with agriculture and home economics dominating the high school program and with trade and industrial and technical education dominating the area school program.

Georgia's area vocational-technical schools will need a considerable increase in funds if these schools are to become comprehensive vocational programs designed to meet the needs of a broad range of students. Currently, the major source of funds for these schools comes from the state and federal level. A broader tax base will be needed at the local level to expand the scope of this program, particularly if the tax base of area schools is to be extended beyond a given school system or a given county line. This project could provide leadership in identifying ways to broaden the tax base to support growth of Georgia's area school program.

Many general educators have little concrete knowledge of vocational education program content. Many others hold attitudes not conducive to the development and growth of sound vocational programs. Further, there is a shortage of qualified vocational

education personnel at all education levels. The inaccuracy of a valid understanding of vocational education's potential and the limited source of qualified vocational education personnel can seriously handicap the further growth and development of sound vocational programs. These gaps can only be bridged if a means is established to enable a wide range of individuals with unique resources at their disposal to study problems and to project plans for closing identified gaps in the total vocational education program in Georgia.

Many students in Georgia who need vocational education programs are being denied this opportunity. Approximately 50 per cent of enrolled students leave Georgia's public schools before they can benefit from vocational education under current public school policies. State-level vocational education leadership has set forth plans for developing vocational departments in Georgia high schools with enrollments of 1,000 students or more. These programs will not be available to many students who could benefit from them, for only approximately 60 high schools out of the more than 500 in the state have large enough enrollments to support such vocational education departments. Some other plan needs to be developed to provide more comprehensive programs to Georgia's 440 smaller high schools.

Further, the Vocational Education Division in Georgia must set forth procedures for assisting local Georgia school systems in planning vocational programs based on students' vocational needs rather than on prescribed vocational service programs. In the past, each vocational service has implemented its program without regard to the needs of students taking them or to programs designed by others offering vocational education programs. This traditional approach of program planning along service lines, with primary emphasis on services rather than on individual student needs, will not produce the comprehensive types of vocational programs today--and tomorrow--in Georgia.

A wide base of lay Georgians must be involved in developing plans for a comprehensive vocational education program. This approach will take a great expenditure of time and money. It should, however, result in broad support for implementing plans developed. This approach should result in getting more people in the state to be concerned about vocational education, to recognize its full potential, and to be interested that all

Georgians who could profit from vocational education opportunities have the chance to profit from them.

Caution must be taken in the selection of a group of lay people to help develop plans for vocational-technical education. In particular, selection of individuals should not be limited to known supporters of vocational education. Too often, vocational educators have held the responsibility for planning programs to themselves. This can no longer be justified in today's complex society.

Today, a lack of clarity exists regarding the role and the responsibility of vocational education. Of course, even among vocational educators, there are differences of opinion regarding the goals and the objectives of vocational education. Some other professional educators and some in the lay public are often critical of vocational education for failing to serve some groups of students. Funding of this project should set forth a means of defining the goals and objectives of vocational education in Georgia, both the long-range goals and the short-range means of attaining them, which most of those involved in vocational education in the state could accept and move toward.

III. Objectives.

The objectives of this project is to outline the future course of vocational-technical education in Georgia for the next five to ten years and to identify the means and the procedures for accomplishing these objectives.

Specifically, there are three major objectives:

A. To determine the current status of vocational-technical education in Georgia. This major objective has several subordinate objectives:

1. To determine the goals and objectives of vocational-technical education in Georgia.

2. To examine the current vocational program at the secondary, post-secondary, and adult levels by studying the following factors:

a. Personnel;

b. Organizational structure;

c. External influences (laws) and policies;

d. Obstacles;

e. Budget.

3. To examine the needs and characteristics of Georgia's people, both in and out of school youth and adults.

4. To identify major gaps in current vocational programs by studying the characteristics of our citizens and by studying the occupational structure and its demands as related to vocational education program planning and evaluating.

B. To outline a program of vocational-technical education at the secondary, post-secondary, and adult levels designed to fulfill the goals of vocational education as identified in this project and to bridge existing

vocational education gaps. This major objective has two subordinate objectives:

1. To design existing programs and to design new programs needed to bridge current and projected vocational education program gaps.

2. To determine the current and projected resources needed to implement the program.

    a. Personnel;

    b. Organizational structure;

    c. External influences (laws) and policies;

    d. Obstacles;

    e. Budget.

C. To develop specific plans and timetables for implementing the comprehensive plans that have been developed for vocational-technical education. This will have several subordinate objectives:

1. To determine means for the Vocational Education Division to work with local systems in developing programs of vocational education.

2. To develop specific plans, time schedules, and responsibilities for implementing the following planning factors:

    a. Personnel;

    b. Organizational structure;

    c. External influences (laws) and policies;

    d. Obstacles;

    e. Budget;

    f. Program.

IV. Procedures.

The objectives of this project will be carried out through the use of an overall lay advisory committee composed of approximately 15 people. The objectives will also be carried out through the use of several subcommittees concentrating in specific vocationally related areas. The overall advisory committee will plan and direct the project with the subcommittees performing supporting tasks. A professional staff member from vocational programs in Georgia will be assigned to direct each subcommittee. Divided into three sequential phases--evaluating, planning, and scheduling--the project will run approximately 12 months. The same subcommittees will be used in different phases of the project. It is believed that through this approach, a maximum involvement of professional staff members as well as a broad base of lay public involvement and support can be achieved.

PHASE I To determine the current status of vocational-technical education in Georgia. Phase I of this master plan will be undertaken. In this phase, the following steps will be taken.

A. Form two lay subcommittees to work with the secondary, the post-secondary, and the adult level programs in development of objectives.

1. Present objectives to overall advisory committee for the formulation of goals for vocational-technical education in Georgia.

a. List major goals and priority order.

b. List goals for services at each level.

c. Each service area at the secondary, the post-secondary, and the adult levels will be asked to identify its major and subordinate goals.

(1) The secondary, post-secondary, and adult levels will be asked to formulate overall goals for each level.

(2) These goals will be further consolidated into major goals for vocational education, thus becoming Chapter I in the publication, "Master Plan for Vocational Education in Georgia."

B. To examine the current vocational program.

1. Establish several subcommittees with a professional person assigned to each committee to study by educational level each of the following factors:

a. Personnel.

(1) Determine what kinds of teacher education opportunities are available presently for vocational education teachers.

(2) Determine by service areas the number of teachers presently involved in vocational education and the number needed in future vocational education programs.

(3) Determine what kinds of teacher education requirements are in effect and what changes in teacher education requirements should take place in keeping with development of a master plan for vocational education.

(4) Determine what types of pre-service and in-service education opportunities are available to vocational education teachers.

(5) Determine the graduate-level educational opportunities available to vocational education teachers.

(6) Determine the scope of state-level leadership training offered.

(7) Determine the relationship between local vocational leadership and state vocational leadership.

(8) Determine the role of guidance counselors in relation to vocational education.

(9) Determine what steps have to be taken to insure for consistent recruitment of vocational education personnel.

b. Organizational structure.

(1) Determine to what extent assistance is given to local systems in planning a total vocational program.

(2) Review local plans and programs to determine what methods of evaluation are built into vocational education programs at the local level.

(3) Determine what specific steps are recommended for state level staff to take in assisting local schools in program planning.

(4) Determine the size of schools within school systems.

(5) Identify the nature of supervision given to local schools by state staff. Determine the adequacy of this supervision and make recommendations for improving such supervision by including in the recommendations the function of the relationship between local level leadership and state level leadership.

(6) Identify additional responsibilities attached to the role and the organizational structure of vocational education.

(7) Determine how policies of general education requirements in the state's public schools affect vocational education availability and offerings within curricula structure.

c. External influences.

(1) Determine whether local or state laws in existence hamper the development of vocational education program or plans.

(2) Determine how the policies of state and local boards of education might hamper vocational education plans or programs, recommending suggestions for solution, should such policies exist.

(3) Determine the policies of State Plans for vocational education and for general education to see which limitations these plans might have included in them to hamper the development of vocational education plans or programs.

(4) Determine the local tax base in Georgia and its relation to the development or extension of vocational education programs or plans.

(5) Determine new legislation which is anticipated or needed at the state level to implement new vocational education programs or to eliminate out-of-date existing programs.

d. Obstacles.

(1) Determine whether lack of student interests limits programming of occupational instruction in any field and make recommendations for steps to be taken to overcome this limitation.

(2) Determine whether lack of facilities, addition of new ones or improvement of existing ones, limits programming of occupational instruction in any field, specifying recommendations for steps to be taken to overcome this limitation.

(3) Determine whether lack of new equipment or need to replace old equipment limits programming of occupational instruction in any field, specifying recommendations for steps to be taken to overcome this limitation.

(4) Determine whether the influence of attitudes of educators who are not directly involved in occupational training hampers the development of vocational education programs.

(5) Determine whether or not there is effective articulation between vocational educators and others in education.

(6) Determine if there is an encompassing curricula structure in area vocational-technical schools.

e. Budget.

(1) Determine whether lack of pre-vocational auxiliary services limits the programming of occupational instruction which might otherwise be available, specifying recommendations for steps to be taken to overcome this limitation.

(2) Determine whether lack of funding limits programming in any occupational field, specifying recommendations for steps to be taken to overcome this limitation.

(3) Identify sources of funds and major categories of expenditures by service areas.

f. Programs.

(1) Determine additional offerings which sub-committees feel are needed in each service area.

(2) Determine the process used to add new vocational education course areas to those in existence:

(a) Determine criteria to be used.

(b) Determine if content of vocational courses is adequate to meet student needs.

(c) Determine what process is to be used in changing course content.

(3) For programs in existence, determine:

(a) Number of courses and description of each course offered.

(b) Enrollment in each course.

(c) Number who complete course.

(d) Number who do not complete course, reason for failure to complete.

(e) Descriptive data about students taking courses:

1) Age,

2) Sex,

3) Socio-economic background,

4) IQ,

5) Ambitions as related to course.

(f) Number of teachers in each field.

(g) Percent of students available for employment and employed in each field after completion of course.

(h) Number and location of schools with each program.

2. Establish three subcommittees. One committee will examine needs and characteristics of in-school youth. The second committee will examine the needs and characteristics of out-of-school youth and adults. The third committee will examine society's needs, in particular the occupational structure and trends. These three reports will be combined into a final subcommittee report.

a. Needs and characteristics of in-school youth.

(1) Determine what happens to students who enrolled in Georgia's high schools 12 years ago.

(2) Determine the percent of drop-outs in Georgia's schools in grades 5 - 12.

(3) Determine the need of Georgia's students for accurate vocational guidance, especially in early grades and identify means of providing this guidance.

(4) Determine the percent of high school graduates who seek post-secondary education: vocational, technical, academic.

(5) Determine the number of Georgia students who work while they attend school.

(6) Identify the number and location of in-school disadvantaged youth who could benefit from vocational education.

b. Needs of out-of-school youth.

(1) Identify the number and the location of out-of-school disadvantaged youth in Georgia who could benefit from vocational education.

(2) Identify the characteristics of out-of-school youth and adults:

(a) Age;

(b) Sex;

(c) Level of education;

(d) Socio-economic level;

(e) Income.

(3) Determine means of education out-of-school youth and adults to fit job openings in a rapidly changing technological society.

c. Needs of society.

(1) Identify trends in local, state, and national economics which affect planning occupational training.

(2) Identify the current occupational structure and the projected growth for vocational education and its related implications for vocational education.

(3) Identify rural-urban migration pattern and project these patterns with possible implications for vocational education programs and plans.

(4) Identify occupational areas which have unmet needs, reporting any occupational survey which indicates shortages or unfilled demands.

(5) Identify educational requirements of industry.

(6) Determine current distribution of jobs in local and state areas.

(7) Determine occupational projection for next ten years, in Georgia, and out-of-state as well.

(8) Provide information on the education, skill requirements, and worker characteristics for:

(a) Present and emerging jobs.

(b) Job functions.

(9) Identify population projections.

(10) Determine assumptions to be made with respect to overall occupational education requirements in Georgia.

(a) Trace the increase or decrease of total number and types of jobs.

(b) Site significant increase in jobs in specific occupations.

(c) Trace significant reduction requirements of jobs in particular industries or in program categories.

C. To identify gaps in current programs by relating needs of both individuals and society to current vocational programs.

1. Establish a subcommittee to relate and to identify current needs of individuals and society.

2. Establish subcommittees to relate these needs by reporting on the current status of vocational education.

PHASE II <u>To outline a program of vocational-technical education at the secondary, the post-secondary, and the adult levels designed to fulfill the goals of vocational education as identified in this project and to bridge existing program planning and evaluation</u>. Phase II of

this master plan will be undertaken. In this phase, the following steps will be taken:

A. Establish two subcommittees to outline programs needed at the secondary, the post-secondary, and the adult levels.

   1. These committees will report to the overall advisory committee where the three reports will be integrated into a total report.

   2. Make projections on service areas, then by overall vocational education levels.

B. Outline local and state personnel, organizational structure, external influences, obstacles, budget, and facilities and programs problems to be overcome in order to carry out the program projected in advisory committee and subcommittee sessions.

   1. Establish seven subcommittees simultaneously with a professional person assigned to each subcommittee to set forth the resources, the policies, and the personnel needed in order to accomplish programs outlined in Phase II.

   2. Set up subcommittees in the following areas to serve the secondary, post-secondary, and adult levels:

      a. Personnel;

      b. External influences;

      c. Budget.

   3. Other subcommittees will be set up for organizational structure and obstacles for secondary, post-secondary, and adult levels.

PHASE III <u>To develop specific plans and timetables for implementing the comprehensive plans that have been developed for vocational-technical education</u>. Phase III of this master

plan will be undertaken. In this phase, the following steps will be taken:

A. Identify activities, responsibilities, and time schedules for implementing plans set forth in Phase II.

1. Establish several subcommittees to deal with the following factors:

a. One subcommittee will deal with these factors at all levels:

(1) Personnel;

(2) External influences;

(3) Budget.

b. Separate advisory committees will be set up for organizational structure and obstacles.

B. Develop a model through which the Vocational Education Division will work with local systems in developing programs:

1. Establish a subcommittee to develop procedures through which the Vocational Education Division will work with local systems in program planning and a manual to be used by local systems, "How to Study Our Own Vocational System in Education."

V. Evaluation.

As this project is structured, the time schedule will be the means of evaluating the effectiveness of procedures in meeting the outline and scope of the objectives of the project. Thus, no formal evaluative techniques are being included in this project design. If, at a later time it seems appropriate to include more formal evaluative techniques in the project, they will be included as needed.

VI. Dissemination.

The final project reports, "A Master Plan for Vocational Education in Georgia," and "How to Study Our Own Vocational System of Education," will be disseminated by Georgia's Research Coordinating Unit to a wide array of people, both in and out of Georgia. These will include both lay people and public school people who will have a role in bringing about the changes identified by this project

VII. Time Schedule.

This project will require twelve months to complete. Beginning in July of 1967, and ending in June of 1968, this project will call on many lay public and vocational education personnel to carry it from initial investigation to project completion. Detailed time schedules and group composition outlines are included as appendices to this project proposal.

APPENDICES

APPENDIX I

COMPOSITION OF COMPONENT GROUPS
FOR
DEVELOPMENT OF A MASTER PLAN
FOR VOCATIONAL EDUCATION IN THE STATE OF GEORGIA

Overall Advisory Committee.

A broad range of individuals will be asked to nominate individuals to serve on the overall advisory committee and the subcommittees. Once the 15 overall advisory committee members have been selected, the State Superintendent of Schools will be asked to ask the Governor to appoint this committee. The overall advisory committee will aid in the selection of subadvisory committee members.

Selection of members for the overall advisory committee and the subadvisory committees will be based as nearly as possible on the following criteria:

1. Individuals who have a broad concept of what the master plan can do for vocational education in Georgia;

2. Individuals who are willing to give their time and who can make a definite contribution;

3. Individuals who are not biased either toward or against vocational education;

4. Individuals who have strong influence on others;

5. Individuals who represent racial balance;

6. Individuals who represent balance of men and women;

7. Individuals who represent geographic balance;

8. Individuals who represent economic balance.

If necessary, committee members will be paid for their travel in connection with this project. No other pay is anticipated being given to committee members.

The overall advisory committee will meet four times:

1. At the beginning of Phase I.

2. At the end of Phase I.

3. At the end of Phase II.

4. At the end of Phase III.

The overall advisory committee will be selected to guide the project and to be concerned with the broader concepts of the project. Some members of the overall advisory committee, however, may serve on the subcommittees.

Subadvisory Committee.

Eight subcommittees will be formed in the following areas:

1. One for personnel;

2. Two for organizational structure;

3. One for external influences;

4. Two for identification of obstacles;

5. One for budget;

6. One for redesign of program.

Three of these subcommittees will be used for secondary, post-secondary, and adult level investigations. In Phase I, these subcommittees will evaluate the status of vocational education. In addition, subcommittees will be used at varying intervals. In Phase II, these subcommittees will project specific changes which need to be made in their particular area in order to implement master plan projections. In Phase III, these same subcommittees will designate means for carrying out recommendations, identify those responsible for carrying out such recommendations, and determine appropriate time schedules for carrying out such recommendations. Other subcommittees will be used at different stages of this project.

Further, subcommittees will deal with these narrow and specified topics and will report their findings to the overall advisory committee. Subcommittee members will serve throughout the project to insure continuity of thought and direction.

The Professional Staff.

The professional staff will consist of a full-time director and one secretary, with other individuals from the Vocational Education Division of the State Department of Education and with the teacher education staff of the University of Georgia contributing a portion of their time to the project.

The director will be primarily concerned with management of the project to make sure it stays on schedule and to consolidate the work of different subcommittees.

Other professional staff members will be assigned to different subcommittees and will be primarily responsible for performing the work of the subcommittees.

The Vocational Education Staff.

Although the overall advisory committee and the subcommittees will be advisory in nature, the bulk of the work for producing a master plan for vocational education will rest upon the shoulders of the Vocational Education Staff. Every precaution will be taken to involve committee members and to inform them of what happens to their suggestions and proposals after presentation in committee meetings.

The Vocational Education Staff will be responsible for:

1. Presenting an overall plan;

2. Carrying out the plan;

3. Studying current data having implications for the plan;

4. Finalizing and implementing plans developed.

In addition to the groups cited here as being involved a master plan of vocational education for Georgia for the next five to ten years, a number of high level consultants will be brought into the state to work with subcommittee members and to advise others as the program moves along.

APPENDIX II

PHASE I

July, 1967 - August, 1967

Establish goals and objectives for secondary programs by service area and their overall objectives and goals. Lay subcommittee under direction of Associate Director or someone he names - consultant to be named

Selection of overall subadvisory committees - Project Director

1 Month
July, 1967

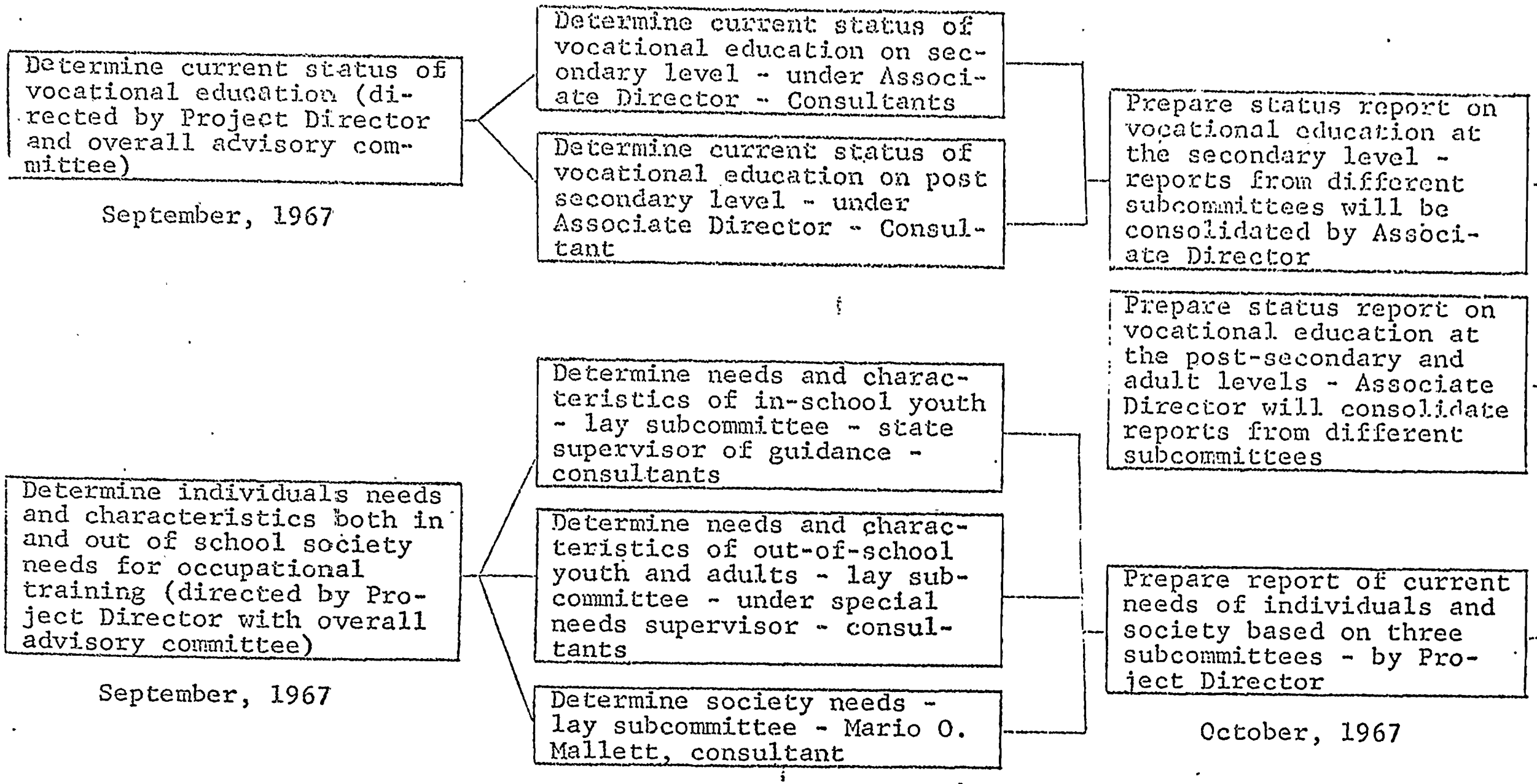
Conduct meeting of overall advisory committee to formulate plans

July, 1967

Establish goals and objectives for vocational education - organized by Project Director and overall advisory committee

Establish goals and objectives for post-secondary and adult education by service area and their overall objective. Lay subcommittee under direction of Associate Director, Area School Programs - consultant to be named

August, 1967


Determine current status of vocational education (directed by Project Director and overall advisory committee)
September, 1967
Determine current status of vocational education on secondary level - under Associate Director - Consultants
Determine current status of vocational education on post secondary level - under Associate Director - Consultant
Prepare status report on vocational education at the secondary level - reports from different subcommittees will be consolidated by Associate Director
Prepare status report on vocational education at the post-secondary and adult levels - Associate Director will consolidate reports from different subcommittees
Determine individuals needs and characteristics both in and out of school society needs for occupational training (directed by Project Director with overall advisory committee)
September, 1967
Determine needs and characteristics of in-school youth - lay subcommittee - state supervisor of guidance - consultants
Determine needs and characteristics of out-of-school youth and adults - lay subcommittee - under special needs supervisor - consultants
Determine society needs - lay subcommittee - Mario O. Mallett, consultant
Prepare report of current needs of individuals and society based on three subcommittees - by Project Director
October, 1967

PHASE II

September, 1967 - January, 1968

(End of Phase I)

Prepare status report on vocational education and report to overall advisory committee - Project Director

October, 1967

Two-day meeting of overall advisory committee

Identify current gaps in vocational education by relating needs to current program - subcommittee and Project Director - report to overall advisory committee and plan next step

October, 1967

Plan program designed to meet occupational needs of secondary youth - plan by service areas lay subcommittee - Associate Director - consultant

Plan program designed to meet occupational needs of post secondary youth and adults - by service areas - lay subcommittee - Associate Director - consultants

November, 1967

Item Resources Needed

Budget-Browne - lay advisory committee

Obstacles - lay advisory committee - Frances King

Personnel - lay advisory committee - G. L. O'Kelley

External influences - A. B. Racster

Organizational structure - R. H. Tolbert

Budget - Browne

Personnel - O'Kelley

Obstacles - Greeson

Organizational structure - Lloyd

External influences - Racster

February, 1968

Persons identified here will not necessarily be those who will be assigned to this group. They have been identified as a means of demonstrating how group members could be identified.

Determine program status - lay subcommittee - Ed Work - consultant (to be named)
Determine budget status - lay subcommittee - Johnny Browne - consultant (to be named)
Identification of obstacles - lay subcommittee - Frances King - consultant (to be named)
Identification of personnel status - lay subcommittee - Dr. G. L. O'Kelley, consultant (to be named)
Organizational structure - lay subcommittee - Dr. R. H. Tolbert - consultant (to be named)
External influences - lay subcommittee - A. B. Racster - consultant (to be named)
Program status - lay subcommittee - Clarence Collier - consultant (to be named)
Budget status (Same as above)
Identification of obstacles - lay subcommittee - Ray Greeson - consultant (to be named)
Organizational structure - lay subcommittee - John Lloyd - consultant (to be named
External influences (Same as above)

PHASE III

February, 1968 - June, 1968

- Program
- Budget
- Personnel
- External influences
- Organizational structure

Prepare a report on master plan for secondary school - Project Director - overall advisory committee

Develop a model for working with local systems in carrying out plans

Complete final r
on master plan f
vocational-techn
education and st
implementation i
mediately - over
advisory committ

Meeting of over
advisory
committee

June, 1968

Identify specific plans, activities, responsibilities, and time schedules for implementing programs projected and for obtaining resources needed and for overcoming obstacles

- Program
- Personnel
- Obstacles
- Organizational structure
- External influences

April 1, 1968

Prepare a report on master plan for post secondary and adults - overall advisory committee

May 1, 1968

Develop a model for working with local systems in carrying out plans

June, 1968

PHASE III

February, 1968 - June, 1968

s

ucture

plans, activities,
and time schedules
rograms projected
resources needed
obstacles

Prepare a report on master plan for secondary school - Project Director - overall advisory committee

Develop a model for working with local systems in carrying out plans

Complete final report on master plan for vocational-technical education and start implementation immediately - overall advisory committee

Final report released

Meeting of overall advisory committee

June, 1968

Develop a model for working with local systems in carrying out plans

June, 1968

Meeting of overall advisory committee

June, 1968

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68

Prepare a report on master plan for post secondary and adults - overall advisory committee

May 1, 1968

VT 000 666

VT 000 666
Cole, Lucy W.; Kaufman, Harold F.
A Case Study in Trade-Area Development, A Statistical Supplement. Progress Report in Sociology and Rural Life No. 30.

Mississippi Agricultural Experiment Station, State College
MF AVAILABLE IN VT-ERIC SET.
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*EMPLOYMENT TRENDS; *AGRICULTURAL TRENDS; *POPULATION TRENDS; *RURAL POPULATION; ADOPTION (IDEAS); FARMERS; AGRICULTURAL PERSONNEL; LABOR FORCE; FAMILY INCOME; STATISTICAL DATA; INDIVIDUAL CHARACTERISTICS; INDUSTRY; SOCIAL ENVIRONMENT
ALCORN COUNTY; MISSISSIPPI

As a supplement to "A Case-Study in Trade-Area Development," (VT 000 552), which is an interpretive study of field studies conducted in Alcorn County, Mississippi, from 1955-1960, this document contains 45 tables of statistics grouped into informational topics titled: (1) Place and People, (2) Occupational Changes, (3) Family Types, (4) Changing Neighborhoods and Development Organization in the Open Country, and (5) Organization of the Trade Area. It also includes a section on the structure of the Corinth Chamber of Commerce. (JM)

ED 027 434

Progress Report in Sociology and Rural Life No. 30
August, 1963

CIJE
45 p





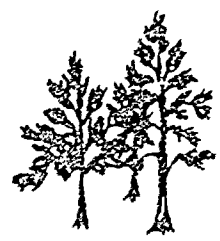
A CASE STUDY IN TRADE-AREA DEVELOPMENT A STATISTICAL SUPPLEMENT

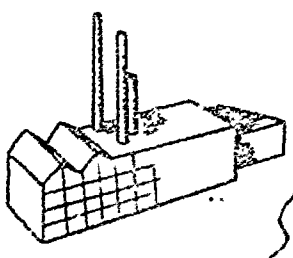




by

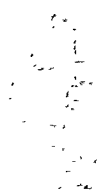
Lucy W. Cole and Harold F. Kaufman





Mississippi State University-Agricultural Experiment Station
State College, Mississippi-Henry H. Leveck, Director





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A CASE STUDY IN TRADE-AREA DEVELOPMENT

A STATISTICAL SUPPLEMENT

Compiled

by

Lucy W. Cole and Harold F. Kaufman

Progress Report in Sociology and Rural Life No. 30

August, 1963

Mississippi State University
Agricultural Experiment Station
State College, Mississippi

Henry H. Leveck, Director

Preface

This publication is a supplement to Mississippi Agricultural Experiment Station Bulletin 673, A Case Study in Trade-Area Development, Changes in Occupation and Social Organization in a Northeast Mississippi County, which is an interpretive report of field studies conducted in Alcorn County for the period, 1955-1960. The supporting statistical materials for the above bulletin, with the exception of a few tables in the bulletin itself, are found in this publication.

The tables included in this supplement were compiled from the 26 earlier Alcorn County publications listed in the Appendix of Bulletin 673, from unpublished data of the Alcorn County Survey of 1956, and from United States Census materials. For the convenience of the reader of the above bulletin, they have been brought together in this statistical supplement.

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PLACE AND PEOPLE

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Table 1. Population of Alcorn County by Beats, 1880-1960

Beats	Year									Percent Increase
	1880	1890	1900	1910	1920	1930	1940	1950	1960	1880-1960
All Beats	14,272	13,115	14,987	18,159	21,369	23,653	26,969	27,158	25,282	77
One	4,174	3,811	4,432	5,690	6,831	7,564	9,275	9,560	9,549	128
Two	2,567	2,634	2,540	2,801	3,565	3,671	4,325	4,280	3,639	42
Three	2,713	2,136	2,135	2,583	3,328	3,452	3,462	3,225	2,660	0
Four	2,938	2,384	3,693	4,665	4,780	5,886	7,189	7,595	7,557	157
Five	1,880	2,150	2,187	2,420	2,865	3,080	2,718	2,498	1,877	0

Source: United States Bureau of the Census.

Corinth is in Beats 1 and 4.
Kossuth Village is in Beat 4.
Rienzi Village is in Beat 3.
Beats 2 and 5 are open country.

Table 2. Percent Change in Population in Alcorn County, Mississippi, and the United States for Selected Years, 1870-1960

Selected Change Categories	Alcorn County	Mississippi	United States
Percent increase of total population, 1870-1950	160.3	163.1	290.8
Percent increase of total population, 1890-1950	107.1	69.0	123.6
Percent change in population, 1940-1960	-6.7	a	36.2
Percent change in population, 1950-1960	-6.9	a	18.5
Proportion of nonwhite population, 1880	30.0	57.7	13.4
Proportion of nonwhite population, 1960	13.2	42.3	11.4

Source: United States Bureau of the Census. The United States as used in this report refers to the 48 states as of 1950.

a. Less than one-tenth of one percent.

Table 3. Percent Distribution of Urban and Rural Population in Alcorn County, Mississippi, and the United States, 1900-1960

Year	Alcorn County		Mississippi		United States	
	Urban	Rural	Urban	Rural	Urban	Rural
1900	24.4	75.6	7.7	92.3	39.7	60.3
1910	27.6	72.4	11.5	88.5	45.7	54.3
1920	25.7	74.3	13.4	86.6	51.2	48.8
1930	26.3	73.7	16.9	83.1	56.2	43.8
1940	29.0	71.0	19.8	80.2	56.5	43.5
1950	36.0	64.0	27.9	72.1	64.0	36.0
1960	45.3	54.7	37.7	62.3	69.9	30.1

Source: United States Bureau of the Census.

Table 4. Percent Distribution of Rural Farm and Rural Nonfarm Population of Alcorn County, Mississippi, and the United States, 1940-1960

Area	Rural Farm			Rural Nonfarm		
	1940[a]	1950	1960	1940[a]	1950	1960
Alcorn County	55.4	46.2	27.2	15.6	17.8	27.5
Mississippi	64.1	50.4	24.9	16.1	21.8	37.4
United States	20.5	15.6	7.5	22.9	20.7	22.6

Source: United States Bureau of the Census.

a. Figures for 1940 are in accordance with the "old" definition of urban. Figures for 1950 and 1960 are by the "new" census definition.

Table 5. Proportion of Population by Race and Residence in Dependent Ages[a] for Alcorn County, Mississippi, and the United States, 1940 - 1960

Area	Year	White		Nonwhite	
		Urban	Rural	Urban	Rural
Alcorn County	1940	28.7	38.9	47.3	47.6
	1950	34.6	42.4	45.0	46.1
	1960	38.6	40.7	46.8	51.3
Mississippi	1940	28.3	38.4	29.8	41.8
	1950	31.9	39.9	37.0	47.9
	1960	37.9	41.3	47.3	52.9
United States	1940	32.6	35.0	37.2	41.0
	1950	32.6	39.0	32.6	45.3
	1960	39.0	42.0	58.2	51.1

Source: Compiled from United States Bureau of the Census.

a. The term "dependent ages" as used here refers to the population 14 years of age and under and 65 years of age and over.

Table 6. Median Years of School Completed by Persons 25 Years of Age and Over for Total Population and for Nonwhites in Alcorn County, Mississippi, and the United States, 1940-1960

Year	Alcorn County	Mississippi	United States
	TOTAL POPULATION		
1940	7.6 (Male)[a] 7.9 (Female)[a]	7.1	8.4
1950	8.3	8.1	9.3
1960	8.3	8.9	10.6
	NONWHITES		
1940	N.A.[b]	4.7	5.7
1950	6.2	5.1	6.9
1960	7.1	6.0	8.2

Source: United States Bureau of the Census.

a. County figures in 1940 were given only by sex.

b. Not available.

OCCUPATIONAL CHANGES

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Table 7. Changes in Employment Status by Sex in Rural and Urban Alcorn County, 1940-1960

Urban and Rural			Population Fourteen and Over	Percent in Civilian Labor Force	Number in Civilian Labor Force	Percent Civilian Labor Force Employed
Urban:	1940	Male	2,839	81.0	2,298	76.6[a]
		Female	3,362	41.2	1,386	81.0[a]
		Total	6,201	75.3	3,684	78.3[a]
	1950	Male	3,435	79.0	2,714	94.1
		Female	4,041	33.9	1,369	94.3
		Total	7,476	54.6	4,083	94.1
	1960	Male	3,781	75.1	2,840	92.0
		Female	4,643	39.9	1,851	95.8
		Total	8,424	55.7	4,691	93.6
Rural Non-farm:	1940	Male	1,422	81.2	1,155	71.9[a]
		Female	1,577	24.5	387	82.7[a]
		Total	2,999	51.4	1,542	74.6[a]
	1950	Male	1,597	70.5	1,126	95.6
		Female	1,723	17.5	301	94.0
		Total	3,320	43.0	1,427	95.2
	1960	Male	1,773	85.8	1,522	92.3
		Female	2,458	28.3	695	93.5
		Total	4,231	52.3	2,217	92.7
Rural Farm:	1940	Male	5,250	82.7	4,343	87.8[a]
		Female	4,960	9.2	457	79.6[a]
		Total	10,210	47.0	4,800	87.0[a]
	1950	Male	4,254	77.9	3,315	99.5
		Female	4,042	8.9	359	93.6
		Total	8,296	44.3	3,674	99.0
	1960	Male	2,511	67.3	1,691	95.5
		Female	2,384	24.4	582	94.3
		Total	4,895	46.4	2,273	95.2

Source: United States Bureau of the Census.

a. Those persons doing public emergency work were not included in the employed. In 1940 the following were doing public emergency work:

In Corinth, 290 males and 77 females,
Rural Nonfarm, 205 males and 36 females,
Rural Farm, 312 males and 52 females.

Table 8. Occupations of Civilian Labor Force, Alcorn County, 1940-1960

Occupations	Sex	Number of Workers 1940	1950	1960
Professional, tech. & kindred workers	Total	342	461	555
	Male	156	250	321
	Female	186	211	234
Farmers & farm managers	Total	2,611	2,475	1,092
	Male	2,551	2,443	1,064
	Female	60	32	28
Farm laborers & farm foremen	Total	778	270	369
	Male	763	250	336
	Female	15	20	33
Mgrs., officials & proprietors, especially farm	Total	513	612	706
	Male	462	545	665
	Female	51	67	41
Clerical, sales & kindred workers	Total	690	1,039	1,104
	Male	442	609	553
	Female	248	430	551
Craftsmen, foremen & kindred workers	Total	464	819	996
	Male	446	796	916
	Female	18	23	80
Operatives & kindred workers (drivers, deliverymen, etc., includes mfg.)	Total	1,258	1,409	2,256
	Male	713	871	1,083
	Female	545	538	1,173
Private household workers	Total	508	324	449
	Male	45	22	4
	Female	463	302	445
Service workers, except private household	Total	370	458	503
	Male	249	247	242
	Female	121	211	261

Source: United States Bureau of the Census.

Table 9. Selected Statistics on Manufacturing in Alcorn County and in Mississippi, 1935-1958

Year	Alcorn County			Mississippi		
	No. Establishments	No. Employees	Value added by Manf. ($1,000)	No. Establishments	No. Employees	Value added by Manf. ($1,000)
1935	19	907	$ 64	1,059	36,367	49,521
1939	17	1,011	1,449	1,235	52,064	72,661
1947	26	1,205	4,453	1,982	76,671	300,184
1954	34	1,748	5,780	2,252	90,641	467,625
1958	36	1,975	9,831	2,414	108,202	642,175

Source: United States Bureau of the Census.

Table 10. Selected Statistics on Trade and Services in Alcorn County and in Mississippi, 1933-1958

Trade and Services	Alcorn County					State of Mississippi				
	1933	1935	1948	1954	1958	1933	1935	1948	1954	1958
Retail Trade:										
Establishments	244	268	354	306	326	14,772	15,136	21,541	16,926	18,475
Persons:	491	683	1,230	1,243	1,155	32.985	38,054	46,012	73,159	80,346
Paid Employees	213	402	881	877	833	16,906	23,384	25,311	55,782	60,970
Proprietors[a]	278	281	349	366	322	16,079	14,670	20,701	17,377	19,376
Wholesale Trade:										
Establishments	26	23	33	30	35	1,248	1,243	1,742	1,863	2,264
Persons:	N.D.[b]	163	209	171	211	N.D.[b]	6,709	15,297	16,559	17,642
Paid Employees	135	126	183	134	179	5,023	5,076	13,961	15,246	16,172
Proprietors[a]	N.D.[b]	14	26	37	32	N.D.[b]	633	1,336	1,313	1,470
Services:										
Establishments	92	84	79	82	111	3,771	5,813	4,601	5,260	7,198
Persons:	134	147	272	324	387	8,084	10,913	16,045	21,276	26,353
Paid Employees	37	61	190	239	249	4,151	5,938	11,328	16,049	18,750
Proprietors[a]	97	86	82	85	138	3,933	4,975	4,717	5,227	7,603

Source: United States Bureau of the Census.

a. Proprietors of unincorporated businesses.

b. N.D. means no data were available.

Table 11. Percent Change of Land in Farms, Average Size of Farm, and Average Value per Acre in Alcorn County, Mississippi, and the United States for Selected Years

Year	Alcorn County			Mississippi			United States		
	Percent of land in farms (acres)	Average size of farm (acres)	Average value per acre	Percent of land in farms (acres)	Average size of farm (acres)	Average value per acre	Percent of land in farms (acres)	Average size of farm (acres)	Average value per acre
1870	-	-	$ -	44.2	192.9	$ 4.98	21.4	153.3	$ 18.26
1880	74.0	120.4	6.25	53.4	155.8	5.86	28.2	133.7	19.02
1890	76.2	117.0	4.41	59.2	121.8	7.25	32.7	135.5	21.31
1900	80.2	102.0	5.62	61.5	82.6	8.33	44.1	146.2	19.81
1910	85.9	87.0	11.90	62.5	67.6	18.01	46.2	138.1	39.60
1920	80.5	68.5	32.21	61.3	66.9	43.41	50.2	148.2	69.38
1925	80.9	66.7	26.86	54.1	62.4	28.60	48.6	145.1	53.52
1930	80.7	59.8	27.33	58.4	55.4	32.79	51.8	156.9	48.52
1935	81.6	71.5	15.25	66.2	63.1	18.87	55.4	154.3	31.16
1940	78.2	71.5	18.74	63.1	65.8	24.80	55.7	174.0	31.71
1945	79.1	71.3	27.82	64.6	74.4	33.01	59.9	194.3	40.63
1950	83.1	70.6	56.01	68.5	82.4	55.42	60.9	215.6	64.96
1954	77.1	80.0	62.75	68.5	95.9	73.56	60.8	242.2	84.25
1959	69.0	94.7	112.67	61.6	134.9	109.06	58.9	302.4	121.04

Source: United States Bureau of the Census. (Figures for 1959 from U. S. Census of Agriculture, Preliminary Series AC59-1.) Value of land and buildings based on 20 percent sample.

Table 12. Percent of Farms by Size in Alcorn County, Mississippi, and the United States, 1959

Size of Farms	Alcorn County	Miss.	United States
Under 50 acres	42.9	47.1	28.3
Under 100 acres	69.3	68.1	46.2
Under 180 acres	87.6	84.1	67.0
180 to 499 acres	11.4	11.4	23.9
500 acres and over	1.1	4.4	9.0

Source: United States Bureau of the Census, U. S. Census of Agriculture, Preliminary Series AC59-1.

Table 13. Percent of Farm Operators Working Off the Farm for Selected Years in Alcorn County, Mississippi, and the United States, 1949-1959

Farm Operators	Year	Alcorn County	Miss.	United States
Working off farm:	1949	35.3	39.3	38.8
	1954	45.6	42.3	45.0
	1959	46.7	46.7	44.5
Working off farm 100 days or more:	1949	15.8	44.4	60.0
	1954	19.1	51.2	61.9
	1959	30.0	29.9	30.1

Source: United States Bureau of the Census. (Figures for 1959 are from U. S. Census of Agriculture, Preliminary Series AC59-1.)

Table 14. Percent of Farm Tenants for Selected Populations for Selected Years, 1900-1959

Year	Alcorn County	Mississippi	South	United States
1900	47.3	62.4	47.0	35.3
1910	51.4	66.1	49.6	37.0
1920	47.4	66.1	49.6	38.1
1925	56.0	68.3	51.1	38.6
1930	59.1	72.2	55.5	42.4
1935	56.9	69.8	53.5	42.1
1940	53.4	66.2	48.2	38.7
1945	44.2	59.3	40.4	31.7
1950	41.1	51.6	34.1	26.8
1954	36.1	45.9	29.4	24.0
1959	30.7	32.3	23.1	20.5

Source: United States Bureau of the Census. (Figures for 1959 are from U. S. Census of Agriculture, Preliminary Series AC59-1)

Table 15. Percentage Classification of Farms in Alcorn County, Mississippi, and the United States for 1950, 1954 and 1959

Area	Year	All Farms	Commercial Farms Value of Sales			Other Farms		
			All Farms	$5000 & Over	$2500-4999	Under $2500	All Farms	Part-time[a]	Residential[b]
Alcorn County:	1950	100	64.8	0.9	5.7	58.2	35.2	17.8	17.4
	1954	100	63.9	3.8	13.5	46.6	36.1	13.9	22.2
	1959	100	52.8	7.4	17.7	27.7	47.2	34.7	12.5
Mississippi:	1950	100	62.4	2.9	6.3	53.2	37.6	14.7	22.9
	1954	100	68.8	5.8	14.1	48.9	31.2	12.9	18.3
	1959	100	53.1	13.0	16.1	24.0	46.9	31.4	15.5
United States:	1950	100	68.9	22.4	16.4	30.1	31.1	11.9	19.0
	1954	100	69.6	27.0	17.0	25.6	30.4	12.0	18.4
	1959	100	65.2	39.1	16.7	9.4	34.8	23.9	10.9

Source: United States Bureau of the Census. (Figures for 1959 are from U. S. Census of Agriculture, Preliminary Series AC59-1)

a. Part-time farm means "operator under 65 years of age and working off farm 100 or more days with income from other sources greater than farm products sold."

b. Includes .1 percent of "abnormal" farms in United States in 1950.

Table 16. Total Family Income, Gross Farm Income, and Nonfarm Income of 479 Rural Families in the 15-Community Alcorn County Survey, 1955

Families and Income	Total Income		Gross Farm		Nonfarm	
	Number	Percent	Number	Percent	Number	Percent
Number of families reporting	479	100.0	234	100.0	371	100.0
Amount of Income Reported:						
No income	3	.6	-	-	-	-
$ 1- 249	60	12.5	12	5.1	15	4.0
250- 499	62	12.9	29	12.4	48	12.9
500- 749	50	10.4	29	12.4	37	10.0
750- 999	43	9.0	15	6.4	34	9.2
1,000-1,499	53	11.1	52	22.2	51	13.7
1,500-1,999	47	9.8	33	14.1	36	9.7
2,000-2,999	70	14.7	37	15.9	66	17.9
3,000-3,999	41	8.6	14	6.0	37	10.0
4,000-4,999	26	5.4	5	2.1	25	6.7
5,000 or more	24	5.0	8	3.4	22	5.9

Source: Andrew W. Baird, Lucy W. Cole, and Harold F. Kaufman, Development of Human Resources in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 19, Sept., 1961.

Table 17. Change in Reisdence of 44 Former Farm Operators by Type of Occupational Change, Alcorn County Survey Panel Study, 1955-1958

Occupational Change	Number		Percent	
	Moved	Remained	Moved	Remained
Total no longer farming	12	32	27	73
Retired	1	14	7	93
Nonfarm employment	11	18	38	62

Source: Andrew W. Baird and Wilfrid C. Bailey, Farmers Moving Out of Agriculture, Miss. Agr. Exp. Sta. Bul. 568, Oct., 1958.

Table 18. Use in 1957 of Cropland of 44 Farm Operators Farming in the Alcorn County Survey Communities in 1954 but not in 1957

Use of Cropland	Number		Percent	
	Acres	Farms	Acres	Farms
Total cropland of operators farming in '54 but not in '57[a]	1,495	52	100	100
Worked by someone else in '57	883	21	59	42
Whole farm	368	9	25	18
Consolidated with other farms	136	4	9	8
Portion of farm rented out	379	8	25	16
Not farmed in 1957	461	36	31	69
Idle	278	14	19	27
Soil bank	183	22	12	42
Use not known in 1957	151	4	10	8
Total farms in 1957	1,495	a	100	a

Source: Baird and Bailey, op. cit.

a. Total adds up to more than 52 farms and 100 percent because some farms fell into more than one category.

Table 19. Comparison of 117 Alcorn County Farm Operators Farming Both in 1954 and 1957 With 44 Who Left Farming After 1954

Characteristics	Still farming	Left farming
Occupation:		
1954 (percent of)		
Full-time farmers	70	50
Part-time farmers	30	50
1957 (percent of)		
Full-time farmers	65	--
Part-time farmers	35	--
Median Income 1954 (dollars):		
Net family	541	679
Gross farm	1,351	1,009
Family nonfarm	250	750
Age 1957 (median)		
Still farming	50	--
Nonfarm employment	--	41
Retired	--	70
Education 1957 (median yrs. school completed)		
Still farming	8	--
Nonfarm employment	--	7
Retired	--	8
Farm Practice Score (1954 average)	6.2	5.1

Source: Baird and Bailey, op. cit.

Table 20. Average Age of Farm Operators and Percent 65 Years Old and Older in Alcorn County, Mississippi, and the United States, 1954 - 1959

Area	Average Age		Percent 65 Yrs. Old and Over	
	1954	1959	1954	1959
Alcorn County	48.5	49.4	16.1	14.2
Mississippi	48.7	51.2	15.3	18.0
United States	49.6	50.5	15.6	16.7

Source: United States Bureau of the Census. (Figures for 1959 are from U. S. Census of Agriculture, Preliminary Series AC59-1)

Table 21. Percent of Crop Land Harvested in Cotton and Cotton Yield in Alcorn County for Selected Years, 1930 - 1959

Year	Acres of Crop Land Harvested	Percent of Crop Land Harvested in Cotton	Acres of Cotton Harvested[a]	Pounds of Cotton per Acre	Production in Bales
1930	71,840	50.3	36,162	175	13,500
1935	70,382	32.6	22,932	163	7,990
1940	64,298	31.6	20,315	270	11,570
1945	67,236	30.6	20,580	342	15,000
1949	67,401	41.4	27,930	184	7,200
1954	54,300	31.8	17,280	432	13,500
1959	46,625	28.0	12,736	475	12,700

Sources: Mississippi Crop and Livestock Reporting Service, Base Books of Mississippi Agriculture, 1953 and 1955, and United States Bureau of the Census, U.S. Census of Agriculture, Preliminary Series, AC59-1, 1959.

a. Figures on acres of cotton harvested for all years except 1959 were obtained by getting 98 percent of cotton acreage in cultivation July 1st, assuming that all but two percent was harvested. This procedure was based on calculations for two years where figures were available for both acres in cultivation and acres harvested. Number of acres of cotton harvested in 1959 was copied directly from the preliminary figures of the Census of Agriculture.

Table 22. Number of Livestock in Alcorn County for Selected Years, 1925-1960

Year	All Cattle and Calves	Milch Cows	Beef Cows and Heifers	Hogs and Pigs
1925	7,850	4,562	128	4,562
1930	7,941	4,553	410	3,203
1935	12,702	6,610	934	6,415
1940	8,479	5,096	212	4,665
1945	11,099	5,461	886	5,680
1950	10,037	5,000	672	7,663
1955	13,900	6,200	7,700	7,100
1956	14,200	6,500	7,700	9,400
1960	14,700	5,700	9,000	10,500

Source: Mississippi Crop and Livestock Reporting Service,

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Table 23. Adoption of Practices by Farmers Living in Alcorn County, Mississippi, 1954

Practices	Number of Farm Operators to Whom Practice Applied	Percent of Farmers Hearing of Practice	Thinking Practice Best	Trying Practice	Using Practice
Nitrogen side-dressing corn	159	99.4	93.1	93.8	79.4
Buy fertilizer by plant food content	161	96.3	92.0	77.8	75.3
Certified cotton seed	150	99.3	97.3	95.3	71.3
Mow pastures	148	97.3	97.3	96.6	69.8
Thick spacing corn	159	96.9	73.1	77.5	65.6
Most fertilizer on better soil	161	92.0	80.9	66.7	56.2
Use warfarin poison for rodent control	161	92.6	74.7	74.7	52.5
Poison cotton four times or more	150	95.3	81.3	80.7	42.0
Hybrid seed corn	159	96.9	55.6	62.5	36.9
Keep written farm records	161	98.1	91.4	33.3	21.0
Cull bad trees	122	99.2	87.0	24.4	14.6
Soil tested	161	95.7	87.0	35.8	8.0
Average		96.5	84.0	68.6	49.0

Source: Wilfrid C. Bailey, Mississippi Community Fertilizer Experiment, Final Report, Miss. State Univ. Preliminary Report in Sociology and Rural Life No. 7, Mar., 1959.

Table 24. Trends in the Adoption of Each of Twelve Recommended Farm Practices by Alcorn County Farmers, 1954-1957

Practices Adopted	Number of Farmers Adopting Practices		Percent of Farmers Adopting Practices		Percent Difference
	1954[a]	1957[a]	1954	1957	
Sidedress corn	106	107	81.1	69.2	-11.4
Thick space corn	106	107	65.1	69.2	+ 4.7
Hybrid seed corn	106	107	37.7	55.1	+17.9
Certified cotton seed	99	85	79.8	85.9	+ 5.0
Poison cotton four times yearly	99	85	49.5	87.1	+32.3
Use warfarin	107	107	47.7	86.9	+39.3
Cull trees	80	73	35.0	60.3	+16.3
Mow pastures	100	103	53.0	52.4	0.0
Soil test within five years	107	107	35.5	35.5	0.0
Use more fertilizer on better soils	107	107	59.8	56.1	- 3.7
Buy fertilizer by plant food analysis	107	107	76.6	86.9	+10.3
Keep written records	107	107	19.6	39.3	+19.7

Source: Leslie J. Silverman and Wilfrid C. Bailey, Trends in the Adoption of Recommended Farm Practices, Alcorn County, Mississippi, 1954-1957. Miss. Agr. Exp. Sta. Bul. 617, Apr. 1961.

a. The total sample for both years was 107. These are the farmers in the respective years who had the relevant enterprise.

Table 25. Consistency and Change in Use of Farm Practices by Alcorn County Farmers, 1954-1957

Consistency or Change	Number	Percent
All practices	1,020	100.0
Practices followed both years	516	50.6
Practices changed, 1954 - 1957	266	26.1
Practices not followed either year	238	23.3

Source: Bailey, Mississippi Community Fertilizer Experiment, Final Report, op. cit.

Table 26. Contribution of Gainfully Employed Homemakers to Family Income by Homemaking Score Groups in Alcorn County, 1954

Homemaking Score Group	Number of Employed Homemakers	Median Family Incomes[a] All Families	Employed Homemaker Families	Median Earnings of Homemakers	Percent Contributed
All	88	$1,203	$2,650	$1,375	52
Superior	13	3,667	3,700	1,450	39
High	46	1,892	2,727	1,500	55
Middle	22	725	1,917	1,285	67
Low	7	716	1,875	1,125	60

Source: Ellen S. Bryant and Wilfrid C. Bailey, The Rural Working Homemaker, Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 20, Sept., 1961.

a. These are total family incomes and include earnings of all family members. Families where women worked on the farm were omitted and also a few families where the homemaker worked but where income data were not available.

Table 27. Occupation of Head of Household and Homemaking Practice Score Group of 487 Alcorn County Families, 1958

Homemaking Adoption Score Groups	Number of Families	Percent of Families by Occupation Group				
		All	Non-Farm Work Only	Farm and Non-Farm Work	Farm Work Only	No Gainful Employment
Superior Adopters (21-26)	36	7	16	5	2	1
Adopters						
High (16-20)	186	39	43	45	15	29
Middle (11-15)	172	35	23	38	50	33
Low (6-10)	72	15	14	12	31	20
Non-Adopters (0-5)	21	4	4	0	2	17
Total	487	100	100	100	100	100

Source: Wilfrid C. Bailey and Ellen S. Bryant, Adoption of Homemaking Practices in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 25, July, 1962.

Table 28. Percent of Families Adopting Fifteen Homemaking Practices by Homemaking Practice Score Groups, Alcorn County, 1958

Homemaking Practices	All Families	Score Groups 0-5	6-10	11-15	16-20	21-26
Yard well kept	74	12	28	68	97	100
Large garden	75	18	49	77	85	86
Preserved food	75	6	46	76	89	97
Made clothing	66	0	26	65	83	94
Refrigerator	93	29	86	94	100	98
Electric or gas cook stove	78	12	43	77	95	92
Inside flush toilet	24	0	1	6	39	94
Vitamins A and C	81	24	65	76	92	97
Safe milk	61	12	39	52	76	100
Chest X-Ray	29	6	10	10	45	81
Auto or pick-up	74	16	65	70	84	89
Daily newspaper	46	5	21	38	60	78
Service drives	7	0	0	1	9	36
Moth prevention	56	0	11	43	83	100
Clothing budget	6	0	0	2	7	36
Mean percent	56	11	33	50	70	75

Source: Wilfrid C. Bailey and Ellen S. Bryant, Adoption of Homemaking Practices in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Progress Report in Sociology and Rural Life No. 25, July, 1962.

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Table 29. Rural Neighborhoods of Alcorn County by Size Type, Organizations Other Than Religious, and Number of Services, 1954

Size Type	No. of Neighborhoods	Mean No. of Families Services	No. Secular Organizations Other Than Religious		
			None	One	Two or More
Large	9	200	29	-	1	8
Medium	10	96	14	1	5	4
Small	18	46	9	16	1	1

Source: Frank D. Alexander, Rural Communities, Organized Groups, and Public Agencies in Alcorn County, Mississippi, In Relation to Community Development, Particularly Educational Programs Through Rural Community Clubs. Miss. State College Division of Sociology and Rural Life, Preliminary Report in Community Organization No. 2, Nov., 1955.

Table 30. Occupation of Neighborhood Residents and Community Club Members, With Attendance of Club Members at Club Meetings in Eleven Alcorn County Neighborhoods, 1958

Occupation	Number in		Av. Attendance for Club Members	Percent		
	Neighborhood	Community Club		Neighborhood	Community Club	Av. Attendance for Club Members
All occupations	1,596	315	16	100	100	100
Full-time farmer	843	136	7	53	43	45
Part-time farmer	191	55	3	12	18	19
Nonfarm worker	334	101	5	21	32	31
Other	218	23	1	14	7	5

Source: Andrew W. Baird and Wilfrid C. Bailey, Community Development Clubs in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 597, May, 1960.

Table 31. Occupation of Heads of Families Belonging to Alcorn County Community Clubs in 1955 and 1958

Occupation	Number		Percent	
	1955	1958	1955	1958
All occupations	218	196	100	100
Full-time farmer	116	77	53	39
Part-time farmer	35	35	16	18
Nonfarm worker	51	71	24	36
Other	16	13	7	7

Source: Baird and Bailey, Community Development Clubs in Alcorn County, op. cit.

Table 32. Adding and Dropping of Farm Practices Among Club and Non-Club Members in Alcorn County, Mississippi, 1954-1957

Residents of Club & Non-Club Communities	Practices Added (Percent of Possible Improvement)	Practices Dropped (Percent of Possible Loss)
Community club members	68	9
Non-club members in club communities	37	20
Residents of non-club communities	40	16

Source: Baird and Bailey, Community Development Clubs in Alcorn County, op. cit. (Average of 12 Practices)

Table 33. Change in the Use of Recommended Farm Practices in Club and Non-Club Neighborhoods of Alcorn County, 1954-1957

Residents of Club & Non-Club Communities	Percent of Farmers		
	Using Practices		Changing Practices
	1954	1957	1954-1957
All communities	59	68	15
Club communities:	60	69	15
Club members	76	85	12
Non-members	49	59	20
Non-Club communities	47	59	26

Source: Baird and Bailey, Community Development Clubs in Alcorn County, op. cit. (Average of 12 practices)

Note that the non-club members in club communities and the residents of non-club communities had an average score in 1957 that was still below that of the club members in 1954.

Table 34. Participation in Discussion at Regular Club Meetings in Eight Alcorn County Community Clubs, 1955

Participants	People		Percent of Discussion
	Number	Percent	
Total	443	100	100
Participating in discussion:	115	26	---
Club president	--	--	32
Other club officers	--	--	38
All other members	--	--	30
Not participating in discussion	328	74	--

Source: Baird and Bailey, Community Development Clubs in Alcorn County, op. cit.

Table 35. Types of Regularly Scheduled Meetings of Alcorn County Community Clubs, 1954-1958

Type of Meeting	Number	Percent
All meetings	427	100
Educational meetings	327	77
Social meetings	46	11
Entertainment	28	6
Organizational	26	6

Source: Andrew W. Baird and Wilfrid C. Bailey, Community Development Clubs in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 597, May 1960.

Table 36. Summary of Educational Programs Presented at Alcorn County Community Clubs, 1954-1958

Subject	Number of Programs	Percent of Programs
All programs	446	100
Agricultural	208	47
Community	158	35
Homemaking	80	18

Source: Andrew W. Baird and Wilfrid C. Bailey, Community Development Clubs in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 597, May, 1960.

Table 37. Economic and Population Characteristics of Neighborhood Residents by Kind of Organization for Rural Development, Alcorn County, 1956

Economic and Population Characteristics	All Neighborhoods	Community Club Neighborhoods	Other Organized Neighborhoods	Unorganized Neighborhoods
Source of Family Income:				
Percent from farming and part-time farming	49	55	39	50
Percent from non-farm work	37	35	44	30
Percent heads not gainfully employed	14	10	17	20
Median Family Income	$1215	$1360	$1681	$823
Median Years School Completed:				
Male head	8.2	8.1	8.4	6.3
Female head	8.6	8.7	8.7	8.2
Median Sewell Socio-Ec. Score	70	72	71	67
No. Agr. Practices Adopted	1.8	3.4	2.6	1.3
Median No. Acres Operated	67	51	60	79
Tenure:				
Percent owners and owner-renters	61	61	52	69
Percent renters	27	31	25	19
Percent sharecroppers and laborers	12	8	23	12
Home Practice Score (perfect, 20)	14.6	15.7	15.0	12.6
Percent couples with children	53	55	50	53
Median size of household	3.6	3.7	3.4	3.5
Median age of male head	48.9	48.1	49.7	49.3
Median years residence in neighborhood of household head	22	21	20	25

Source: Lucy W. Cole and Harold F. Kaufman, Factors in Rural Neighborhood Development in Alcorn County, Mississippi. Miss. Agr. Exp. Sta. Bul. 625, July, 1961.

Table 38. Percent Distribution of Household Socio-Economic Scores in 15 Alcorn County Neighborhoods by Organization for Development, 1956

Neighborhoods by Kind of Development Organization	Categories of Socio-Economic Scores (The Sewell Socio-Economic Score was used)				
	Low 39-61	Medium Low 62-71	Medium High 72-81	High 82-91	All 39-91
All sample neighborhoods	20	35	29	16	100
Community Club neighborhoods	17	33	33	17	100
Other organized neighborhoods	21	33	23	23	100
Unorganized neighborhoods	29	40	28	3	100

Source: Cole and Kaufman, Factors in Rural Neighborhood Development in Alcorn County, Mississippi, op. cit.

Table 39. Number of Households in Five Community Club Neighborhoods of Alcorn County with Number and Proportion of Households Represented in the Community Club and the Home Demonstration Club, 1957

Neighborhoods	Number of Households	Number of Families		Percent of Families	
		In Community Development Club	In Home Demonstration Club	In Community Development Club	In Home Demonstration Club
All	693	161	6	23	4
A	295	47	24	16	8
B	139	40	-	29	-
C	111	26	20	23	18
D	80	29	-	36	-
E	68	19	-	28	-

Source: Cole and Kaufman, op. cit.

Table 40. Leadership Perception by Male and Female Household Heads in Three Groups of Alcorn County Neighborhoods, 1956

Names Mentioned	In Community Development Club: All	Community Club	Other Organized	Unorganized	In Home Demonstration Club: All	Community Club	Other Organized	Unorganized
1, 2, or 3 of top leaders	59	71	44	55	56	69	37	54
No names or none of top 3 leaders	41	29	56	45	44	31	63	46

Source: Cole and Kaufman, op. cit. (Data were obtained by compiling replies to the following question: "Who in this community would be the best people to go to if you wanted to get folks around here together to do something about bettering your community, such as improving the schools, churches, roads, etc.?" Try to get at least 3.)

Table 41. Percent of Household Heads Belonging to Secular Organizations in Three Groups of Alcorn County Neighborhoods, 1956

Household Heads in Secular Organizations	Percent of Household Heads Belonging to Secular Organizations in Three Groups of Neighborhoods: Community Club Neighborhoods	Other Organized Neighborhoods	Unorganized Neighborhoods
Total household heads in secular organizations[a]	28	18	12
Organizations inside neighborhood	18	6	0
Organizations outside neighborhood	14	13	12

Source: Cole and Kaufman, op. cit. (These data were secured prior to the organization of the last Community Club in the 15 sample neighborhoods, so the table shows only four Community Club neighborhoods instead of five.)

a. Since the same persons often belonged to secular organizations both inside and outside the neighborhood, the total of the two categories is not the same as the total for family heads belonging to secular organizations.

Table 42. Mean Number of Churches in Three Groups of 15 Alcorn County Neighborhoods for Selected Years Between 1921 and 1957

Neighborhoods	Mean Number of Churches 1921	1936	1942	1957
All neighborhoods	2.2	2.2	2.2	2.6
Community Club neighborhoods	2.3	1.7	1.7	2.5
Other organized neighborhoods	.6	1.0	1.0	1.5
Unorganized neighborhoods	1.7	1.6	1.6	2.1

Source: Cole and Kaufman, op. cit.

Table 43. Number and Percent of Families Attending Church Inside and Outside the Neighborhood in 15 Alcorn County Neighborhoods, 1956

Number of Families and Percent Attending Church Inside or Outside the Neighborhood[a]	All Neighborhoods (15)	Community Club Neighborhoods (5)	Other Organized Neighborhoods (4)	Unorganized Neighborhoods (6)
Number of families	487	227	160	100
Number of families attending church inside or outside the neighborhood	430	198	145	87
Percent of families attending:	100	100	100	100
Inside neighborhood	46	47	46	40
Outside neighborhood	54	53	54	60

Source: Cole and Kaufman, op. cit.

a. The following households were omitted: divided housholds where some members of the family attended church inside and others outside the neighborhood; families where household heads were not church members and did not attend regularly; and families on which no data could be obtained.

ORGANIZATION OF THE TRADE AREA

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Table 44. Indices of Economic Growth in Corinth and Alcorn County, Mississippi, 1952-1962 37

Table 45. B.A.W.I. Bond Elections, Alcorn County, 1946-1962 38

Structure of Corinth Chamber of Commerce 39

Table 44. Indices of Economic Growth in Corinth and Alcorn County, Mississippi, 1952-1962

Types of Indices	Years 1952	1962
Population		
City	9,785	13,161[a]
County	27,158	27,300[b]
Assessed Valuation		
City	$8,380,219	$12,029,730
County	9,529,728	15,065,481
Farms		
Number	3,050	1,882
Value per Farm	$3,899	$9,440
Value All Farms	$11,731,090	$16,992,000
Finance & Business		
Bank & Saving Loan Resources	$7,045,288	$26,254,342
Postal Receipts	$99,245	$168,941
Taxable Sales	$22,992,800	$38,858,572
Industrial		
Payroll	$5,574,000	$13,500,000
Number Employees	2,465	5,000
Utilities		
Telephone - County	3,000	6,113
Gas - City	1,400	3,072
Water - City	NA	4,600
Electric - County	6,561	9,126

Source: Corinth Chamber of Commerce.

a. Estimated by Corinth Chamber of Commerce.

b. Estimated by Department of Sociology and Rural Life, Mississippi State University, State College, Mississippi.

Table 45. B.A.W.I.[a] Bond Elections, Alcorn County, 1946-1962

Year	Industry	Amount of Issue	Vote For	Vote Against	District
1946	Berry Hydraulics (No Bonds Sold)	25,000	650	2	City
1948	Sanson Hosiery Mill (No Bonds Sold)	25,000	1,041	8	City
1950	Weaver Pants Co. (Expansion)	100,000	1,283	124	City
1951	Sanson Hosiery Mill (Expansion)	48,500	1,497	38	City
1955	The Wurlitzer Co. (New Construction)	850,000	1,844	20	City
1956	Kellogg Mfg. Co. (ITT) (No Bonds Sold)	1,250,000	3,511	15	1st-4th
1957	The Wurlitzer Co. (Expansion)	600,000	1,407	64	City
1959	King Manufacturing Co. (New Construction)	100,000	1,250	21	City
1959	Kellogg Mfg. Co. (ITT) (New Construction) (Bonds Sold -	1,250,000 947,000)	3,242	20	1st-4th
1960	Lifetime Pool Equipment Co. (New Construction)	225,000	602	18	3rd
1961	Southbridge Plastic (New Construction)	1,850,000	4,148	18	1st-4th-5th
1961	Garan Sportswear (New Construction)	400,000	1,380	17	City
1962	The Wurlitzer Co. (Expansion)	750,000	1,469	18	City

Summary

Number of bond elections	13
Number of expansions	5
Number of new constructions	5
Amount of bonds sold:	$5,860,500
For plant expansions	1,898,000
For new constructions	3,962,500

Source: Corinth Chamber of Commerce.

a. B.A.W.I.: Balance Agriculture with Industry.

STRUCTURE OF CORINTH CHAMBER OF COMMERCE

1963 Program of Work

The 1963 program of the Corinth Chamber of Commerce continues the work in progress by the various Chamber committees but with certain modification and realignments of duties. The economic progress of the Corinth area is the result of cooperative volunteer efforts by dedicated men and women to implement a well-conceived plan of community improvement. The accomplishments of past years provide the basis for a year of sound economic growth in 1963.

Committees and Objectives

Agriculture and Forest Development Committee

General: To work with existing agricultural agencies in Corinth and Alcorn County toward building a sound economic structure in all phases of agricultural activities in the area.

Specific:
1. To cooperate with the Tri-State Fair Livestock and Junior Dairy Show in setting up a permanent organization and to work with the organization where needed.
2. To publish a brochure on agriculture in Alcorn County.
3. To cooperate with the Educational Committee of the Tuscumbia Watershed Authority, and to publicize the needs of this type of program.

Airport Committee

General: To work with county, city, state, and federal agencies to maintain a first class airport and airline service.

Specific: To cooperate with proper authorities to provide full utilization and maintenance of the airport. Corinth has been given service on a "use it or lose it" basis.

Credit Bureau Committee

General: To formulate plans and policies for a more effective and useful Credit Bureau.

Specific:
1. To extend the scope of service rendered by the Credit Bureau.
2. To encourage more merchants to use the services of the Credit Bureau.

Highway Committee

General: To work with city, state, and county officials toward securing more and better roads and highways for the Corinth area.

Source: Corinth Chamber of Commerce.

Specific: To continue maximum efforts to secure a heavy duty road from Highway #2 north of Corinth across the northern section of Alcorn and Tishomingo Counties joining Highway #25 near state line.

Membership Committee

General: To stimulate interest among business and professional people to become members of the Corinth Chamber of Commerce.

Specific:
1. To provide funds through solicitation of members to carry on the 1963 program of work.
2. To contact new professional people and business firms that locate in Corinth during the year for membership in the Corinth Chamber of Commerce.
3. To expand the membership of the Corinth Chamber of Commerce to include all eligible persons and firms in the Corinth area.

Finance Committee

General: To supervise the financial transactions of the Corinth Chamber of Commerce.

Specific:
1. To prepare the budget for 1963.
2. To present a monthly financial report of the Corinth Chamber of Commerce to the Board of Directors.
3. To study the membership and dues structure and make recommendations aimed at achieving more equitable financial support for the Chamber of Commerce work.

Industrial Committee

General: To cooperate with existing industries and promote the further sound industrial growth of the Corinth area.

Specific:
1. To sponsor the enactment of a zoning ordinance for the industrial park area.
2. To prepare a statistical report on available labor in the Corinth area.
3. To survey and plot a 19-acre area in the Industrial Park as sites for small industries.

Publicity Committee

General: To keep the membership and public advised on the activities of the Corinth Chamber of Commerce.

Specific:
1. To cooperate with the newspapers and radio stations in providing the public with factual information on the activities of the Chamber.
2. To continue the publication of the Chamber of Commerce monthly news bulletin to members.

Travel Development Committee

General: To make the Corinth area more attractive to travelers and to promote tourist attractions of the Corinth area.

Specific: 1. To participate in the "Miss Hospitality" contest in cooperation with the Travel Department of the Mississippi Agricultural and Industrial Board.

2. To continue to secure historical markers to mark historical sites of Corinth.

Merchants Committee

General: To study and encourage the downtown developement of Corinth and to promote cooperation among all merchants in the Corinth area.

Specific: 1. To sponsor a Christmas parade and Christmas street decorations.
2. To promote work hours and holidays that will provide good service to customers and still provide adequate free time for merchants and employees.
3. To study and make recommendations for plans to facilitate the flow of traffic and to provide off-street parking in the central business district.

Program of Work Committee

To study the needs of the community, to identify long-range objectives, and to make recommendations for revising and broadening the scope of concern of the various standing committees in order to increase the efficiency, effectiveness, and area of service of the Corinth Chamber of Commerce.

VT 000 668

VT 000 668
Occupational Work Experience Program.

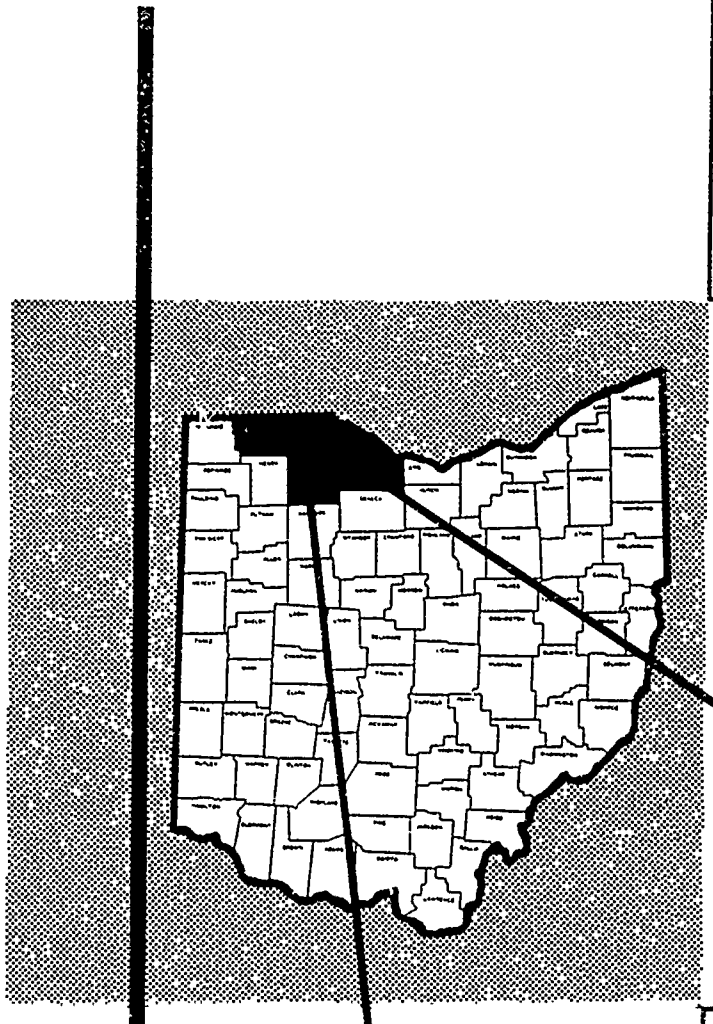
Penta-County Vocational School and Technical College, Perrysburg, Ohio
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct65 13p.

*PROGRAM PLANNING; *LOW ABILITY STUDENTS; HIGH SCHOOLS; *WORK EXPERIENCE PROGRAMS

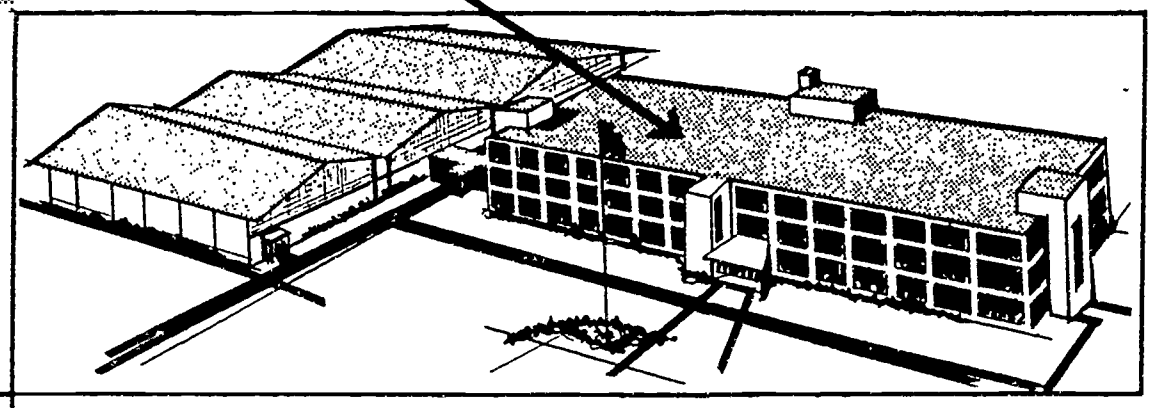
The purpose of this occupational work-experience program, planned on either a 1- or 2-year basis, is to assist the identifiable limited ability student (I.Q. 75 to 89) to find a place in employment at the unskilled or operator level. Examples of approved occupations from 122 listed are airlines porter, assembly line worker, bell boy, and baker's helper. Additional information includes advantages for the student and school, suggestions for acquainting the school faculty with the program, school-employer relations, advantages for employers, selection of the occupational teacher, qualifications of the teacher, student placement, minimum program standards, and facilities to be furnished by the school. An occupational work experience agreement form is included. (PS)

ED027441





OCCUPATIONAL WORK EXPERIENCE PROGRAM



- FULTON COUNTY
- LUCAS COUNTY
- OTTAWA COUNTY
- SANDUSKY COUNTY
- WOOD COUNTY

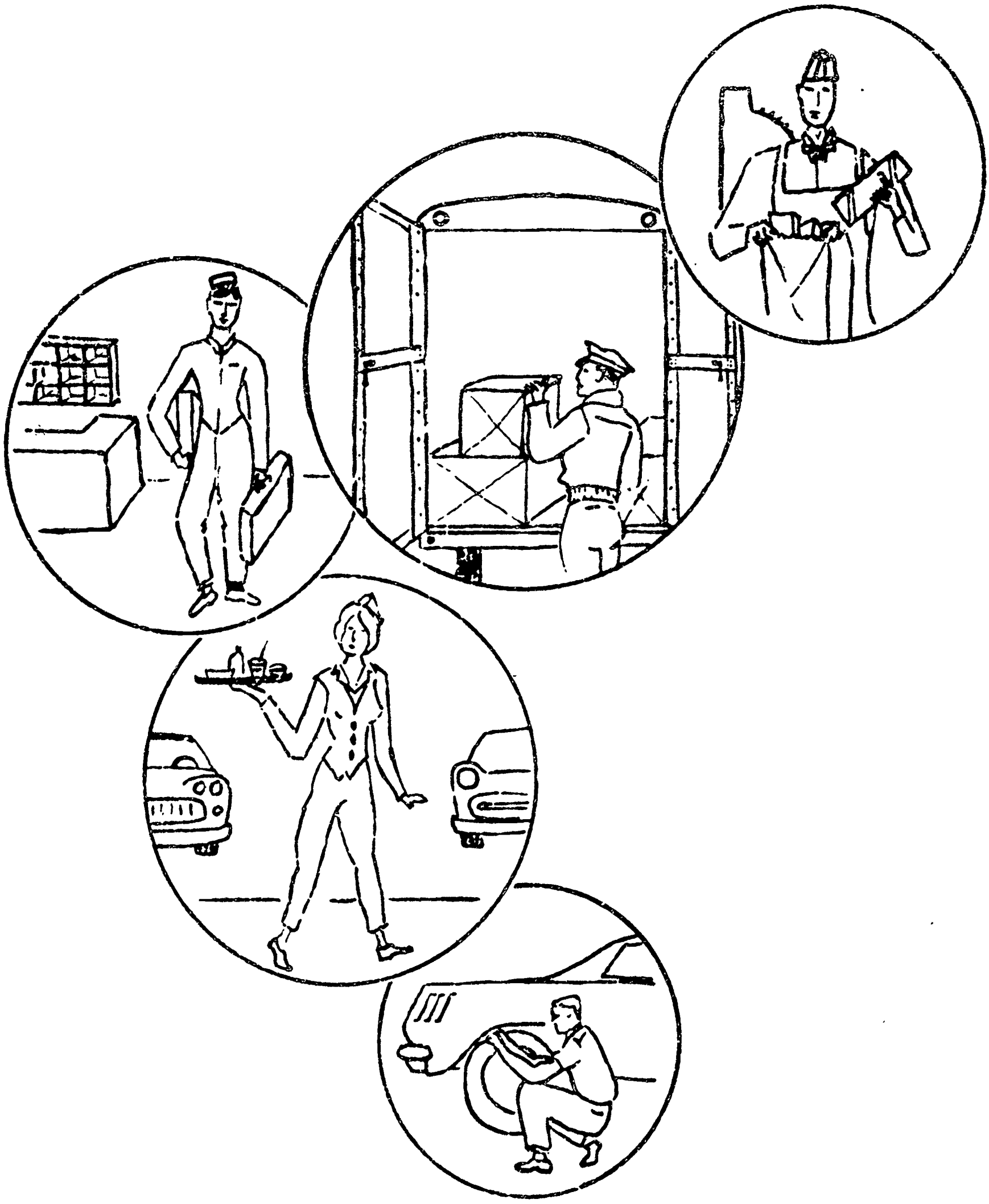
U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

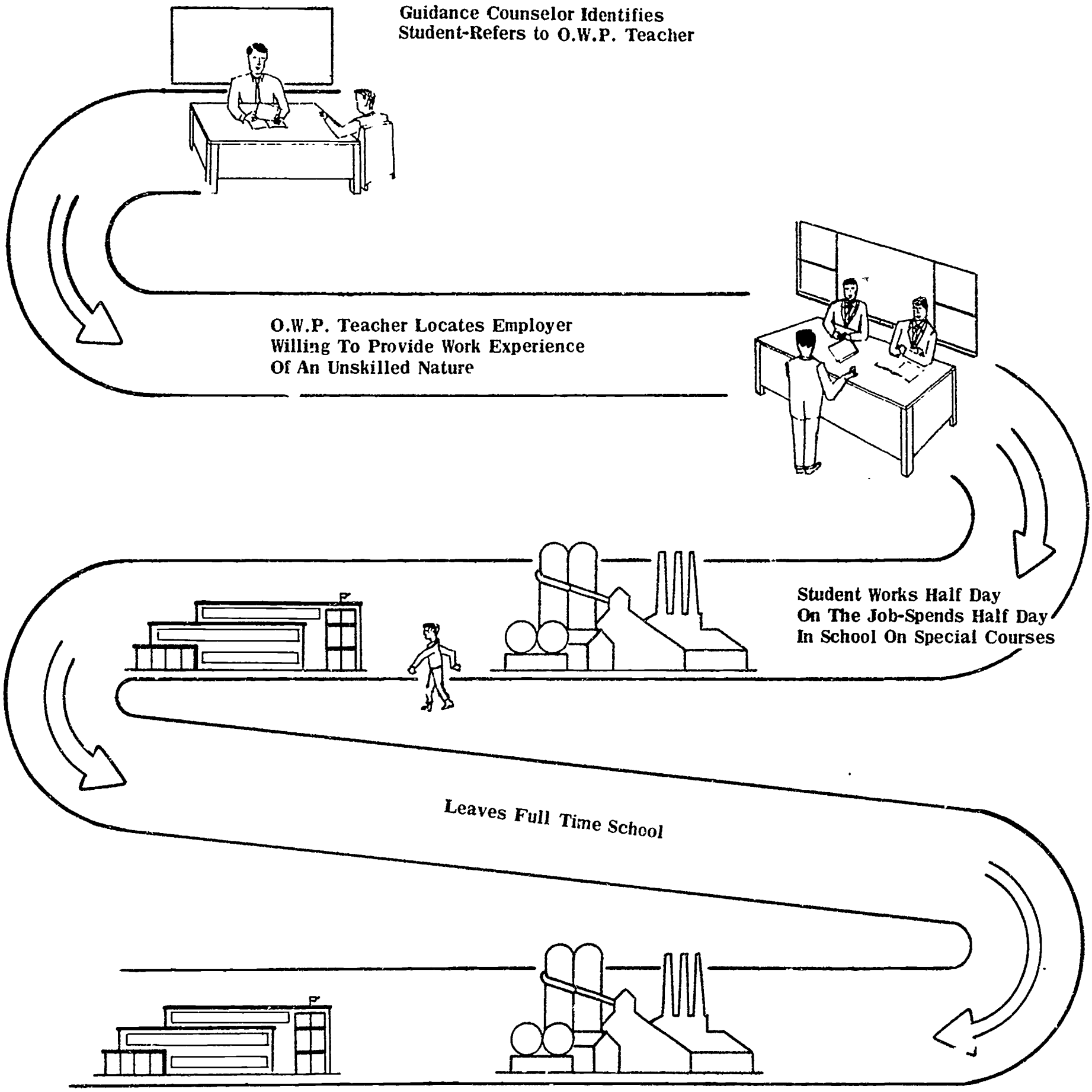
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VT 000 688

PENTA-COUNTY VOCATIONAL SCHOOL AND TECHNICAL COLLEGE

OCCUPATIONAL WORK EXPERIENCE PROGRAM





THE OCCUPATIONAL WORK EXPERIENCE PROGRAM AIDS IN TRANSITION FROM SCHOOL TO PRODUCTIVE EMPLOYMENT

PREFACE

The Occupational Work Experience Program is meant to serve the academic underachievers, the students between 75 and 89 I. Q. who have not yet found an interest in learning or school work.

Generally, such students are unhappy and discouraged in their school work which has caused them to fall behind their class. These are not necessarily slow learners, but rather represent those who, due to either lack of interest, below average reading ability, or other factors have not kept pace with the normal school program. These are the potential dropouts and may become the future unemployed within the community.

These students are capable of learning and with patience and a different type of school program often develop the spark of learning. In many cases these individuals catch up with their classmates and remain in school until graduation.

The Occupational Work Experience Program is intended to develop this "spark" by arranging a combination of suitable on-the-job employment experience and special academic work that will provide the student with a feeling of accomplishment and success that perhaps has previously been unattainable in the regular high school academic curriculum.

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THE [illegible]

PROGRAM DEFINED: The occupational work experience program is planned program on either a one or two year basis to assist the employable limited ability student (I.Q. 75 to 89) to find suitable employment at the unskilled or operator level. The major emphasis is one of job placement combined with school work, both aimed at helping the student become a productive citizen and continue his education as long as possible.

SCHOOL ELIGIBILITY: Available to schools which may operate at least one State Board of Education approved standard vocational unit at the skilled or technical occupational level for each 300 students grades 10-12, and recognize the need to serve, through this program, the less able student. Schools considering this program must have a well planned and operating program of guidance and testing services from grade 7 through 12 so that they may be able to properly identify and refer proper students.

STUDENT ELIGIBILITY: Any student, 16 years or over, who has been identified by trained guidance counselors as not being qualified for any of the regular skilled or technical occupations normally offered by public vocational education programs may be considered for this training. Students eligible for special education classes due to mental or physical handicaps may not be enrolled. Enrollment shall be limited to those with an I. Q. of not less than 75 and generally below 89, at least one year behind their grade level and two to four years below in their reading level. All students shall have had previous experience in either industrial arts, agriculture, general business or home economics activities.

APPROVED OCCUPATIONS: Only occupations of limited skill requirements, either physical or mental, which normally can be mastered in less than 1,000 hours can be utilized in this program. No occupations usually considered skilled, (frequently apprenticable) or which are offered in the regular vocational skilled or technical program can be approved.

Examples of approved occupations are:

A	B
Airlines Porter	Baker's Helper
Animal Hospital Clean-Up Man	Ballroom Furniture Man
Assembly Line Worker	Bathmaid
Automobile Seat Cover Installer	Bell Boy
	Bindery Woman
	Bodysander

B

Bottling Plant Worker
Bowling Lanes Clean-Up Man
Box Assembler
Bricklayer's Tender
Bundler (Garmet Factory)
Bus Boy
Butcher's Helper

C

Cafeteria Server
Candy Packer
Car Hop
Car Lot Man
Car Washer
Carpenter's Helper
Carpet Layer's Helper
Cement Mason's Helper
Chalker (Clothing Industry)
Charwoman
Cobbler's Helper
Cook's Helper
Copy Boy
Curtain Changer

D

Dairy Helper
Deck Hand
Dental Supply Messenger
Department Store Porter
Dishwasher
Driver's Helper
Dry Cleaner's Helper

E

Egg Candler
Envelope Machine Operator

F

Fabric Cutter
Farm Hand
Flatwork Ironer
Florist's Helper
Food Vendor
Foundry Worker
Furniture Assembler

G

Gardner
Gas Station Attendant's Helper
Glazier's Helper
Golf Course Worker

H

Hand Ironer
Hand Sewer
Hod Carrier
Hospital Cleaning Lady
Hospital Laundress
Hotel Carpet Washer
Hotel Houseman
Hotel Maid
Hotel Seamstress
Household Aide

J

Janitor's Helper

K

Kennel Man

L

Landscape Gardener's Helper
Laundress
Laundry Marker
Laundry Mender
Laundry Sorter
Laundry Spotter
Linen Checker
Linen Room Attendant
Lobby Maid

M

Maintenance Helper

Mail Clerk
Merchandise Wrapper
Markers Assistant
Men's Room Attendant
Mink Ranch Worker
Motel Yard Man
Moving Van Loader

N

News Boy

P

Packer and Wrapper
Painter's Helper
Park Worker
Parking Lot Attendant's Helper
Photo Plant Worker
Plastics Factory Helper
Plumber's Helper
Powder Room Attendant
Pressman's Assistant
Printer's Devil
Poultry Helper

R

Redcap
Refuse Collector
Riveter
Roofer's Helper

S

Section Man
Shipping Clerk
Shirt Presser
Small Motor Repairman's Helper
Sod Layer
Sprayman
Stationary Fireman's Helper
Stevedore
Street Department Worker
Store Display Assistant
Stock Boy
Supermarket Carry Out Boy

T

Tailor's Helper
Telegraph Messenger
Theater Usher
Thread Trimmer
Tile Setter's Helper
Tire Changer
Toy Stuffer
Trap Line Operator
Trash Fireman
Tree Trimmer's Helper

U

Upholsterer's Helper

W

Warehouseman's Helper
Well Driller's Helper
Window Washer

HOW TO ORGANIZE AN OCCUPATIONAL WORK EXPERIENCE PROGRAM

ACQUAINTING THE SCHOOL FACULTY WITH THE PROGRAM: The success of the program depends a great deal on the cooperation of the entire school faculty. This cooperation is impossible unless both the school administration and vaculty recognize the merits of the program and know why it is being added to the curriculum. The local superintendent of schools should call a conference of the school faculty in order to bring to its attention the needs of the less able youth for some form of occupational training and to explain how the program will benefit the student, the school, and the community. School facilties are generally willing to cooperate if they know the purposes and objectives of the program. Their help and guidance are essential to the guidance department in selecting and recommending students for employment. The Occupational Work Experience Program can assist in eliminating this problem as it provides a service to many of these low achieving students who are not qualified for the regular skilled level vocational offerings.

ADVANTAGES FOR STUDENTS: The Occupational Work Experience Program can provide students and the school with many advantages, some of which are:

1. It gives them an opportunity to develop an interest in a field of work.
2. They may graduate from high school with enough work experience to make them employable.
3. It provides the student who is dissatisfied with the academic or general curriculum the desire to remain in school and earn a high school diploma.
4. It assists the student who is in finanical need to remain in school.
5. The student's experience as a wage earner will have helped him develop the proper attitude toward work, the ability to get along with people, and a deeper appreciation and understanding of the community in which he lives.
6. It helps the student to make adjustments to working conditions in industry while still under the supervision of the school.
7. The student is provided an opportunity to succeed perhaps for the first time in a school activity.

ADVANTAGES FOR THE SCHOOL:

1. It does not have to purchase equipment since this is provided in the employer's establishment.
2. The program provides a means of projecting the school into the community.
3. It may keep a greater number of youth in school for a longer period of time.
4. It provides a direct avenue for meeting the community's needs for unskilled workers.
5. It provides a means of keeping the school abreast of business and industrial needs.

SCHOOL-EMPLOYER RELATIONS: Since this program is a cooperative endeavor

between the school and business and industrial employers, it is essential that both employers and employees be completely informed regarding the program and their wholehearted support and cooperation secured. Too often an employer enters the program only to assist the school, without being aware of the real merits of the program. Selecting new employees has always been a serious problem with employers, especially in establishments where the number of new employees does not justify the operation of regular selection and training programs.

MEETING OF SELECTED LABOR REPRESENTATIVES, BUSINESS AND INDUSTRIAL EMPLOYERS: To establish and conduct this type of educational program, the local school authorities should arrange a meeting of a selected group of business and industrial leaders, including representatives of any organized worker groups. At this meeting the need for providing opportunities for all the youth of the community should be discussed, together with various ways and means of meeting such a need. The purposes and objectives of the Occupational Work Experience program should be explained fully. Special effort should be made to develop within the group an appreciation and understanding of the fact that it is their responsibility to aid the school in providing employment opportunities for these less able young people within the community and that they either have to work for someone or become a part of the unemployed -- possibly on relief.

ADVANTAGES FOR EMPLOYERS: The advantages of the Occupational Work Experience Program for the employer should be pointed out to this group. This program:

1. Assists the employer in selecting unskilled and certain semi-skilled workers.
2. Provides employees with instruction of general information value such as job ethics, safety and first aid, and personal hygiene.
3. Insures continued school service to these beginning employees while on the job.
4. Correlates the work experiences of his employees with discussion of general employment practices and problems.
5. Allows the employer to supervise and help plan the development of his future employees.
6. Provides a full-time occupational teacher to assist the employer with employee problems at the level of this program's service.
7. This type of student tends to become a satisfied employee and stay with the employer.
8. Gives the employer an opportunity to render a valuable service to his community through the public schools.

SELECTION OF THE OCCUPATIONAL TEACHER: After it has been determined that there is need for an Occupational Work Experience Program, that there are sufficient number of satisfactory employment situations, and that there are an adequate number of students (15 to 25) who need the program, the next step is to secure an occupational teacher. The qualifications of a good occupational teacher are difficult to outline; he is responsible for the functions of coordinating, teaching, public relations, and counseling. He must be an individual with the

ability to meet and deal with business, industrial, and labor leaders of the community. To secure and maintain their co-operation, he must be familiar with business and industrial practices. The successful occupational teacher must have had employment experiences, outside the school, which are a distinct asset in supervising the employment experiences of the student and in discussing those general problems of all workers in the classroom. Above all the occupational teacher must like people and be challenged by working with the less able youth.

QUALIFICATIONS OF THE OCCUPATIONAL TEACHER: To meet the certification requirments of the Certification Division of the State Department of Education, the Occupational Work Experience teacher should have the following qualifications:

1. Education--Graduation from a college or university with a major or minor in special education--particularly how to work with the academically less able student.
   Note: If a major or minor in special education is not held, the individual shall complete a minimum of six semester (9 quarters) hours of work in special education courses either prior to or within the first hear of employment. The individual will not be required to complete the six semester hours of work in special education to continue certification. Instead he will need 100 clock hours which can be accumulated through our Occupational Work Experience Program workshops and working with teacher-trainer from the University of Toledo.
2. Teaching Experience--A minimum of two years of teaching experience in special education, one of the fields of vocational education or other similar activity shall be required.
3. Occupational Experience--A minimum of twelve (12) months of employment experience (outside of public education) in one or more occupations.
4. Special Qualifications--The individual shall have a sincere interest in working with the academically less able student. He must have the personal characteristics that would tend to develop in this level of student a respect for, and a willingness to confide in him.

STUDENT PLACEMENT: After the brief survey of the community has been made and students have been assigned, arrangements should be made to send the student, with an introductory memorandum, to an employer for an interview. The employer should be notified that certain students are to be interviewed, and a definite appointment made for each interview. The employer should notify the occupational teacher when he has tentatively employed a student. The minimum number of students enrolled in the program should not be less than fifteen (15) nor the maximum more than thirty (30). After the designated number of students have been accepted by employers, the occupational teacher completes the steps necessary for employing the student. These steps are:

1. Complete the Employment Agreement with the employer and the student.
2. Obtain part-time working certificate for the student. Ohio: Form A-1 front, A-2 back.

3. Have employer fill out pledge card. Ohio: Form A-3
4. Physical Examination. Ohio: Form A-4 front, A-5 back.
5. Obtain age and schooling certificate for the student. Ohio: Form B. Two copies signed by the superintendent of schools, one for the employer, the other to be retained by the superintendent of schools.
6. Have student secure Social Security Number.
7. Prepare in cooperation with each employer a brief written description of the on-the-job phase of the program.
8. Order the necessary reference materials (The Trade and Industrial Instructional Materials Laboratory, 112 Townshend Hall, 1885 Neil Avenue, Ohio State University, Columbus 10, Ohio, or other similar laboratories can be very helpful in advising the teacher in the selection, source, and use of the materials for the occupational adjustment lessons).

FACILITIES TO BE FURNISHED BY THE SCHOOL: The School is expected to furnish adequate classroom facilities for the occupational class. The classroom facilities for the occupational class. The classroom should contain tables and chairs, a chalkboard, bulletin board, a filing cabinet, and a desk for the teacher. A small glass enclosed conference space should be provided within the classroom. An adequate supply of general reference and resource materials must be furnished. The minimum essential equipment for such a classroom is as follows:

Classroom Equipment

1. One four-drawer, letter-size file cabinet.
2. One cabinet for instructional material.
3. One flat-top teacher's desk.
4. One large blackboard.
5. Two cork bulletin boards.
6. A telephone for the teacher's use.

PROGRAM STANDARDS: The program shall operate within the following minimum standards to receive approval from the State Board of Education:

1. A minimum of 15 clock hours each week shall be spent in employment (for wages) by each student excluding Saturdays, Sundays or Holidays.
2. A minimum of one half day shall be spent in school by each enrollee, attending classes which have been specially planned for this level student. The school shall provide appropriate flexibility in the regular high school subjects to make them of maximum use to each student.
3. A minimum of two 45 minute or one 60 minute period daily shall be devoted to occupational adjustment instruction and discussion. The general problems and needs of all workers become the basis of this instruction.
4. All employment shall follow state and federal regulations affecting the employment of minors.

OCCUPATIONAL WORK EXPERIENCE AGREEMENT

Date_____

1. _____ will be permitted to enter _____ (payroll job) for the purpose of gaining work experience.
2. The occupational training program is designed to extend over a (one or two) year period with a minimum of 15 hours (during school hours) per week, exclusive of Saturday work, and a maximum of 33 hours including Saturday, required for the work experience and one period in each school day for occupational information.
3. The wages to be paid the student are _____ per hr. in conformance with the Wage and Hour Provisions of the Fair Labor Standards Act of 1938 as amended.
4. The student, while in the process of work experience, will have the status of student worker, neither displacing a regular worker now employed nor substituting for a worker that would be ordinarily needed by the employer.
5. All complaints shall be made to and adjusted by the instructor.
6. The parent or guardian shall be responsible for the personal conduct of the student while in the work experience program.
7. The student will be working with or closely supervised by _____ who will be responsible for the work experience of the student.
8. The employer or his appointed supervisor will make a rating of the student's work each six weeks.
9. The instructor will visit each student regularly at work and will become acquainted with the person to whom the student is responsible while on the job.
10. The instructor may withdraw or transfer the student when it is mutually agreeable to all parties concerned.
11. The employment and work experience of the student shall be in accordance with federal, state, and local laws and regulations.
12. The student will not be employed in another part-time job which involves work beyond his Occupational Work Experience schedule.

_____ (Instructor)

_____ (Employer)

_____ (Parent or Guardian)

_____ (Student)

VT 000 673

VT 000 673
Cloyd, Helen M., And Others
Follow-Up Study of Business Education Graduates of Selected High Schools in Michigan.

Delta Pi Epsilon, East Lansing, Mich. Alpha Lambda Chapter
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 25May64 9p.

*GRADUATE SURVEYS; *HIGH SCHOOL GRADUATES; *BUSINESS EDUCATION; QUESTIONNAIRES; VOCATIONAL FOLLOWUP
MICHIGAN

An analysis of beginning jobs of the June, 1962, business education high school graduates was the basis for this study. Of the 641 business education graduates from 17 Michigan high schools who returned survey questionnaires, 443 indicated that they were employed as of January, 1963. The job classifications reported were office clerk (23 percent), retail clerk (20 percent), stenographer-secretary (17 percent), typist (10 percent), accounting clerk (7 percent), and others (23 percent). Predominant duties of the beginning workers involved the use of the typewriter, adding machine, and other office machines, and the performance of clerical office tasks. Shorthand appears as a small part of the office worker's duties, as it ranked lowest among the office duties of the beginning workers. Bookkeeping duties did not appear to be concentrated on any one stage of the bookkeeping process. The retail worker found greater opportunity for employment in the chain store and a majority of those employed in selling occupations were engaged in direct selling duties. The survey disclosed that 63 percent of the cooperative training students remained with the employer with whom they had taken their work training. (PS)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOLLOW-UP STUDY OF BUSINESS EDUCATION GRADUATES OF SELECTED HIGH SCHOOLS IN MICHIGAN

by

Helen M. Cloyd and others

An analysis of beginning jobs of business education high school graduates was the basis for study by the members of Delta Pi Epsilon at Michigan State University. The topic was chosen for research by Alpha Lambda Chapter based on a consideration of general group interest which held the promise of active group participation. Seventeen schools participated in the survey which included

VT000673

Big Rapids High School	Big Rapids
Byron High School	Byron
Dondero High School	Royal Oak
DeWitt High School	DeWitt
E. Lansing High School	E. Lansing
Eastern High School	Lansing
Everett High School	Lansing
Grosse Pointe High School	Grosse Pointe
T. L. Handy High School	Bay City
Arthur Hill High School	Saginaw
Jackson High School	Jackson
Melvindale High School	Melvindale
Ottawa Hills High School	Grand Rapids
Roseville High School	Roseville
South High School	Grand Rapids
Southwestern High School	Flint
Springport High School	Springport
Swartz Creek High School	Swartz Creek

The research methodology consisted of the following questionnaire sent at three-month intervals to June 1962 high school graduates from schools in which chapter members were teaching or schools which members sponsored for the study.

Name_____ Date Graduated (Exact)_____

No. of Semesters Business Courses Taken_____ Sex M___F___ Marital Status Single___ Married_____

Current Address (Street, City, State)_____

Are you employed Full-time?_____ Part-time?_____ If unemployed, are you looking for a job?_____

What is employers: Name_____ Address_____

Type of Business_____

Date of Employment_____ How did you find your job?_____

What is your job title?_____ Size of Business:
__5 or less empl. __25 plus empl.
__6 to 25 empl. __500 empl. or more

If you are an office worker complete left side below; if a distributive worker, the right side.

After checking blanks, circle the two most important activities.

TYPING
__Fill in forms
__Reports-Manuscript
__Report-Numbers
__Stencils
__Form letters
__Elec., __Manual
SHORTHAND (hrs weekly)
__Less than 5 hours
__5 to 15 hours
__Over 15 Hours
RECEPTIONIST_____
BOOKKEEPING
__Cashiering
__Journalizing
__Financial reports
__Posting __manual
__machine
__Payroll

OFFICE MACHINES
__Adding machine
__Bookkeeping mach.
__Dictaphone, etc.
__IBM (key punch)
__Key driven calc.
__Rotary calc.
__Flexowriter
__Mimeograph
__Other, explain
_____
__FILING-Type_____
OFFICE CLERICAL
__Telephone usage
__Switchboard
__Handling mail
__Other, explain
_____
_____

1. Do you sell?
Yes___ No
If yes, what lines of merchandise?___
_____
2. If no, what major duties do you have?
_____
_____
3. What type of distributive firm do you work for? (Ex.-Dept. store, food wholesaler, hotel, shoe store.)_____
_____
TYPE OF BUSINESS:
__Independent store
__Chain store
___

Have you had any additional schooling (training) since graduation? __Yes __No. If so, what type?_____ Where?_____
If you were a co-op trainee, are you still working for the same employer? ___Yes __No.
COMMENTS:_____

The questionnaire was given to the graduate with instructions for its completion and with the request that he return it by July 21, a reasonable time after graduation. Copies of the questionnaire were also sent to him on September 30, 1962 and January 31, 1963. It was anticipated that job-seeking graduates would have some results to report by the time of the third circularization. The committee defined a business education graduate for the purpose of the study as a graduating senior who had at least four semester business courses in the 10th, 11th, or 12th grades, and who was enrolled in a business course in June 1962.

The following chapter members oriented the graduates with the questionnaire used in the survey:

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Paul V. Braden	Wendell H. Lubbinge
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Fiovo J. Lauri	Dorothy J. Selinger

Mildred L. Williams

RESULTS OF BEGINNING JOB SURVEY

Questionnaires were sent to 839 high school graduates. Replies were received from 641 graduates, or 76%. Of the 641 students who returned the questionnaires, 443, or 69%, indicated that they were employed, or had been employed by January 1963. Therefore, the reports of these 443 graduates constitute the basis for the survey of beginning jobs. The information on the returned questionnaires

was tabulated by the Computer Laboratory at Michigan State University. All beginning jobs reported by the graduates were included in the tabulation.

The respondents to the questionnaire were predominantly girls (92%), and 80% indicated that they were single. Full-time employment was reported by 72% of the respondents, part-time employment by 28%. A majority of the respondents (65%) reported that they had worked at their jobs less than three months.

Employment of the graduates was indicated in these business areas:

Services	38%
Retail	26
Manufacturing	16
Other	20
Total	100%

The job classifications reported by 430 students were as follows:

Classification	Number Reporting	Per cent
Office clerk	98	23%
Retail clerk	88	20
Stenographer-secretary	74	17
Typist	42	10
Accounting clerk	29	7
Other	99	23
Total	430	100%

The variety of typewriting assignments handled by the 443 respondents showed:

Typewriting Assignment	Number of Activities	Per cent
Fill-in forms	185	28%
Form letters	157	24
Reports - statistical	118	18
Stencils	110	16
Reports - manuscripts	91	14
Total	661	100%

The use of electric or manual typewriters by 211 reporting workers was almost in equivalence as indicated below:

Typewriter	Number Reporting	Per cent
Manual	116	55%
Electric	95	45
Total	211	100%

Answers to the request that the respondents indicate the intensity of their shorthand usage revealed that shorthand was used:

WEEKLY Shorthand Usage	Number Reporting	Per cent
Less than 5 hours	90	75%
5 to 15 hours	14	12
Over 15 hours	19	15
Total	123	100%

The types of office machines used, in order of their frequency of usage on the job, showed the following:

Office Machine	Machine Usage Activity	Per cent
Adding machine	165	35%
Mimeograph	65	15
Dictaphone, etc.	50	11
Bookkeeping machine	37	9
Key-driven calculator	26	6
Rotary calculator	24	6
IBM - Key punch	16	4
Flexowriter	10	2
Other types	52	12
Total	445	100%

Bookkeeping operations included the following:

	Number of Activities	Per cent
Posting - manual	64	22%
Payroll	56	20
Financial reports	54	19
Journalizing	42	14
Cashiering	51	18
Posting - machine	19	7
Total	286	100%

Office clerical tasks included:

Clerical Tasks	Number of Activities	Per cent
Telephone usage	199	47%
Handling mail	164	38
Switchboard	55	13
Other	9	2
Total	427	100%

Filing was used by 174 employees (40%) in their occupations.

The following summary shows the office duties of the respondents:

	Number of Activities	Per cent
Typewriting	661	31.3
Office machines	445	21
Clerical	427	20
Bookkeeping	286	14
Filing	174	8
Shorthand	123	6
Total	2,116	100%

There were 417 students who indicated the method by which they secured their jobs. Of this group, 37% obtained their work by direct application; 35% through their school; 17% through friends or relatives; and 11% by other means. In the total survey group, there were 201 (45%) former cooperative training students who participated in the study. An average of seven business courses had been taken by the graduates surveyed. A majority of the graduates indicated (67%) that they did not have any additional schooling since graduation.

The survey disclosed that 63% of the cooperative training students remained with the employer with whom they had taken their work training. Chain stores accounted for 65% of the retail workers, and 42% of these workers were not engaged in direct selling.

CONCLUSION

The evidence from this survey suggests that beginning jobs for high school graduates from these selected high school in Michigan were most plentiful in the service and retail areas of

business. Office clerk and retail clerk positions appear to be the popular types of opening jobs for the high school graduates included in the survey. The use of the typewriter and office machines, and clerical office tasks appear as predominant duties for beginning workers. In addition to the typewriter, the adding machine is the most frequently used office machine. Telephone usage and mail handling appear as frequent office duties due to the high incidence of clerical workers in the survey.

Bookkeeping duties do not appear to be concentrated on any one stage of the bookkeeping process. As the number of respondents who indicated bookkeeping operations is in excess of those employed as accounting clerks, it appears that many bookkeeping operations are performed by office clerks.

Shorthand appears as a small part of the office worker's duties. This duty ranks the lowest among the office duties of the beginner workers. As the number of respondents who indicated shorthand usage is in excess of those employed as stenographers, it appears that many office clerks perform stenographic duties.

The retail worker finds greater opportunity for employment in the chain store. A majority of those employed in selling occupations were engaged in direct selling duties.

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The Research Committee is indebted to the many graduates who participated in the study, and to the Chapter members who cooperated in contacting graduating seniors. Special thanks are due to Dr. Peter G. Haines, Chapter Sponsor, for guidance and proffer of

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*INDUSTRIAL ARTS; *PROGRAM GUIDES; HIGH SCHOOLS

Information about the organization and administration of industrial arts departments is provided for teachers, supervisors, and administrators. Topics are: (1) organization and administration, (2) departmental organization, (3) departmental administration, (4) responsibilities and duties of the teacher, (5) classroom administration, (6) pupil personnel organization, (7) mechanical devices used in pupil personnel organization, (8) shop records, (9) supplies and equipment, and (10) safety and safety inspection. The appendix contains a sample form for: (1) acquainting parents with the program, (2) a shop personnel organization chart, (3) a supply order, (4) a project record, (5) a progress chart, (6) a procedure sheet, (7) an inventory form, (8) a material payment record, (9) a tool lending form, (10) requisitions, (11) a student fee card, (12) an operator's permit, (13) a student's cumulative record, (14) an Ohio school shop inspection form, (15) a standard student accident report form, and (16) an accident report form. (EM)

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Organization and Administration for Industrial Arts Education

DR. E. E. HOLT
Superintendent of Public Instruction

GLENN A. RICH, Director
Elementary and Secondary Education

P. S. WALDECK, Supervisor
Industrial Arts Education

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Organization and Administration for Industrial Arts Education

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PREFACE

It is recognized that in many instances the major interest of the student electing industrial arts is to use the tools and materials found in the department and through their use, fabricate a project of his interest. Through this interest it becomes the responsibility of the instructor to create in the mind of the student through many experiences an awakening to the many values and responsibilities of working with tools and materials.

Out of these experiences the student should recognize the importance and necessity of cooperating and working with others in the class, the use and care of tools and equipment, the care of the shop facilities, and the need for a plan of procedure for the completion of a job. The student must become aware of honest workmanship, source of and information on materials, the complexity and workings of industry and the part each play in the perpetuating of a great democracy. These and many more values come from that initial interest.

The major purpose of this publication is to provide teachers, supervisors and administrators a guide for one important facet of many learning experiences, the organization and administration of the industrial arts department. Many times the first impression gained on entering the department is the lasting impression; it should be good. Likewise, the impression on the student in his initial contact with the teacher should reflect those attributes the teacher expects from the student.

For the teacher beginning his first year of teaching, or even his first day of teaching, these suggestions should act as a guide to carry him through those eventful first days. It is desirous that these suggestions will develop a feeling of security which comes from well developed plans and a well organized department. For the administrator it can act as a guide for the improvement of his program.

In an attempt to analyze the job of teaching for some of the common problems and in setting up some techniques for solving these problems it is recognized that there is no "blue print" but many and varied ways of approaching and solving a problem. While the ingenuity of the teacher may be taxed in many ways, a well organized, orderly and clean department, will contribute much toward the assurance of a good program of Industrial Arts.

DR. E. E. HOLT
Superintendent of Public Instruction

GLENN A. RICH, Director
Elementary and Secondary Education

ACKNOWLEDGMENTS

This publication, Organization and Administration of Industrial Arts in Ohio has been made possible through the cooperative efforts of many people interrested in the expansion and improvement of industrial arts education in the schools in Ohio.

One major problem confronting teachers and administrators has been the need for a realistic approach to and a guide for developing the organization of the industrial arts department. With this in mind the committee has attempted to clarify the various types of shop facilities, the day by day duties of the teachers, various types of personnel organizations and suggested record forms which contribute to a more efficient and orderly program.

Recognition is given to the members of the Mid-Western Industrial Arts Association and to the faculty of the Department of Industrial Arts, Bowling Green State University, for developing and writing the major portion of this publication, and to those who reviewed it in its final form. Recognition is also given to those furnishing copies of records and pictures used.

Gratitude is expressed to the following committee members:

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* Now teaching in California.

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1. Introduction

Potential Offering

Suggested Scheduling

INDUSTRIAL ARTS EDUCATION IN OHIO

ORGANIZATION AND ADMINISTRATION

I. Introduction

Industrial Arts education, a major area of general education, appeals to the natural instincts of all boys and girls. The nature of its content, the atmosphere in which it is offered, the possibilities it offers for permitting the boys and girls to develop their natural curiosities and delve into the many intricacies of our industrial world, necessitates and permits an organization which is democratic. Experience in a well organized, orderly and clean shop should be one of the first prerequisites and goals of the qualified instructor for his boys and girls. These prerequisites will go a long way toward assuring a better program, a more workman-like attitude of students, and a better understanding by the students of their responsibilities toward group participation, not only in their class work, but in their homes and the industrial world in which they will be participants.

The organization and the administration of the industrial arts department varies very little in principle, regardless of the size and type of department, or the type of school system—county, exempted village or city. Due to variances found in the above, organization will differ in degree and by necessity. The degree of variability will be determined by such factors as class size, type of shop, adequacy of facilities, adequacy of equipment and breadth of program.

Factors also to be considered in the organization and administration of the Industrial Arts department will be whether it is a one-teacher department, a multi-teacher department or a large school system where a supervisor for the total program is available.

Again, the principle of shop organization will be similar, for the one-teacher department the responsibilities will evolve upon the instructor; for those systems with a multiple-teacher department, a department head is recommended; for those larger systems with several schools within the system, a supervisor is recommended. For the larger systems with an Industrial Arts supervisor, it is well that each department under his jurisdiction have a designated department head. The duties of those responsible for the organization and administration of the program, whether in the smaller system or in the larger system, will be comparable.

POTENTIAL OFFERINGS

The type of industrial experiences offered in the shops is limited only by the space available, finances, training of the instructor and the needs or dictates of the community. Below is a comprehensive list of offerings given in shops throughout the country.

1. Mechanical Drawing
2. Drawing and Planning
3. Machine Drawing
4. Industrial Drafting
5. Architectural Drawing
6. Blue-print Reading
7. Sheet Metal Drawing
8. Sign and Poster Work
9. Graphic Arts
10. Printing
11. Blockprinting
12. Bookbinding
13. Photography
14. Silk Screen
15. General Metal
16. Machine Shop
17. Sheet Metal
18. Forging
19. Foundry
20. Welding
21. Hand Metal
22. Ornamental Iron
23. Heat Treating
24. Art Metal
25. Electricity
26. House wiring
27. Radio
28. Hand woodworking
29. Machine Woodwork
30. Cabinet making
31. Woodfinishing
32. Woodcarving
33. Upholstery
34. Patternmaking
35. Aeronautics
36. Junior Aviation
37. Auto Mechanics
38. Engine
39. General Power Mechanics
40. Farm Mechanics
41. Industrial Mechanics
42. Carpentry
43. Building Maintenance

44. Home Mechanics
45. Cement and Concrete
46. Home Repair
47. Plumbing
48. Arts and Crafts
49. Plastics
50. Leather
51. Modelmaking
52. Plaster Carving
53. Jewelry
54. Kenne Cement
55. Basketry
56. Beadcraft
57. Braiding and Knotting
58. Rope Work
59. Ceramics
60. Weaving

Scheduling for Industrial Arts

Varying factors from school to school will enter into the scheduling for industrial arts. The potential or actual number of students electing industrial arts, the facilities, the teacher availability, all of which may be affected by the size of the high school enrollment.

Those schools having the 7th and 8th grade combined and using the same facilities for industrial arts, present another factor in the scheduling of facilities.

The minimum requirement of the Ohio High School Standards for Industrial Arts education, e.g. drawings, woodwork, general metals and electricity can be scheduled, regardless of any factor and should be, if the student is to have experiences in all areas available. The scheduling of recommended areas above the minimum requirements can also be included. Careful allocation of available time is the prime factor in scheduling a broad program. Industrial Arts should be included in the 7th and 8th grades and should be a broad offering.

Some school systems do schedule by areas, however, for the majority of schools it is recommended that the curriculum for Industrial Arts be indicated as Industrial Arts, I, II, III, and IV. In order to have continuity, the areas to be offered in each should be indicated.

If at all possible, those selecting the industrial arts curriculum should have had experiences in the four areas by the end of the 10th grade or Industrial Arts II. The program for the 11th and 12th grade or Industrial Arts III and IV may be somewhat flexible. Any new areas above the minimum and certain areas which are more compatable to these grade levels can be scheduled, some specialization in the area of the student's interest can be permitted, or the scheduling may be similar to Industrial Arts I and II, with emphasis on advanced work. Specialization, except in approved cases, is normally confined to the 12th grade or Industrial Arts IV.

In a one teacher department the organization is flexible in that the students can be rotated from area to area at will, however, unless the facilities are extremely small and the various areas are not adequately equipped it is recommended that the semester, or in some situations on a part of a semester basis be used as the unit for rotating. This applies particularly to the 9th and 10th grades or Industrial Arts I and II and the following is suggested:

INDUSTRIAL ARTS I

DRAWING ----------1st Semester
WOODWORK ----------2nd Semester

OR

DRAWING AND
GRAPHIC ARTS ----------1st Semester
WOODWORK AND
PLASTICS ----------2nd Semester

INDUSTRIAL ARTS II

DRAWING ----------1st Semester
GENERAL METALS ----------2nd Semester

OR

DRAWING—9 weeks ----------1st Semester
ELECTRICITY—9 weeks ----------1st Semester
GENERAL METALS ----------2nd Semester

Experiences in the graphic arts area if not a general unit offering and located in the drawing room can be provided by rotation on an assignment for a period of time from the drawing program. Time from the woodworking assignment can be allocated for plastics.

Many combinations of scheduling can be worked out. It is important that there is continuity in the offering, in the instruction, that broad experiences are offered and somewhat equal emphasis on all areas is assured by the completion of four years of work.

PROPOSED SCHEDULING FOR INDUSTRIAL ARTS

ONE TEACHER DEPARTMENT—COMPREHENSIVE SHOP

9th Grade	1 Section (A) Industrial Arts I
10th Grade	1 Section (B) Industrial Arts II
11th & 12th Grade	1 Section (C) Industrial Arts III & IV
7th & 8th Grade	7th (D) 8th (E) Industrial Arts—Exploratory

INDUSTRIAL ARTS DEPARTMENT

FIRST SEMESTER						SECOND SEMESTER					
PER	MON.	TUE.	WED.	THUR.	FRI.	PER	MON.	TUE.	WED.	THUR.	FRI.
1	DRAWING I.A.-I-A	—	—	—	—	1	WOOD I.A.-I	—	—	—	—
2	DRAWING I-A.-I-A	—	—	—	—	2	WOOD I.A.-I	—	—	—	—
3	DRAWING I.A.-II-B	—	—	—	—	3	ELEC. & METAL I-A.-II-B	—	—	—	—
4	DRAWING I.A.-II-B	—	—	—	—	4	ELEC. & METAL I.A.-II-B	—	—	—	—
6	IND. ARTS III & IV-C	—	—	—	—	6	IND. ARTS III & IV-C	—	—	—	—
7	IND. ARTS III & IV-C	—	—	—	—	7	IND. ARTS III & IV-C	—	—	—	—
8	7th Grade	7th	8th	8th	8th	8	7th	7th	7th	8th	8th
9	7th Grade	7th	8th	8th	8th	9	7th	7th	7th	8th	8th

Students in Industrial Arts I & II will be rotated on a semester basis in each of four areas. Drawing, woodwork, general metals and electricity, other areas can be included. A time schedule will be necessary.

Students in Industrial Arts III and IV may have the following options:

1. Rotated on a semester basis in selected areas.
2. Rotated on a yearly basis in selected areas.
3. Permitted to specialize with approval, in one area.

ONE AND ONE HALF OR TWO TEACHER DEPARTMENT

COMPREHENSIVE SHOP

9th Grade—3 Sections A.B.C.
10th Grade—1 Section D.
11th & 12th Grade—1 Section E.
7th & 8th Grade—2 or 3 double periods or single periods.

INDUSTRIAL ARTS DEPARTMENT											
FIRST SEMESTER						FIRST SEMESTER					
PER.	MON.	TUE.	WED.	THU.	FRI.	PER.	MON.	TUE.	WED.	THU.	FRI.
1	DRAWING 9th—A	—	—	—	—	1	WOOD 9th—B	—	—	—	—
2	DRAWING 9th—A	—	—	—	—	2	WOOD 9th—B	—	—	—	—
3	DRAWING 9th—C	—	—	—	—	3	METAL & ELEC.—10th	—	—	—	—
4	DRAWING 9th—C	—	—	—	—	4	METAL & ELEC.—10th	—	—	—	—
6	DRAWING 11th & 12th—E	—	—	—	—	6					
7	DRAWING 11th & 12th—E	—	—	—	—	7					
8	7th & 8th					8					
9	7th & 8th					9					

INDUSTRIAL ARTS DEPARTMENT											
SECOND SEMESTER						SECOND SEMESTER					
PER.	MON.	TUE.	WED.	THU.	FRI.	PER.	MON.	TUE.	WED.	THU.	FRI.
1	DRAWING 9th—B	—	—	—	—	1	WOOD 9th—A	—	—	—	—
2	DRAWING 9th—B	—	—	—	—	2	WOOD 9th—A	—	—	—	—
3	DRAWING 10th—D	—	—	—	—	3	WOOD 9th—C	—	—	—	—
4	DRAWING 10th—D	—	—	—	—	4	WOOD 9th—C	—	—	—	—
6						6	11th & 12th—E	—	—	—	—
7						7	11th & 12th—E	—	—	—	—
8	7th & 8th					8					
9	7th & 8th					9					

Three or More Teachers—General Unit or Unit Shops

3 Teachers—3 Shops

4 Teachers—3 Shops

a. 100% utilization.
b. 30 period per week per teacher.
c. Double periods—ninety (90) minutes.

Potential Industrial Arts—Sections

9th Grade—4 sections—1, 2, 3, 4.
10th Grade—3 sections—5, 6, 7.
11th Grade—2 sections—8, 9.
12th Grade—1 section—10*

For a multi-teacher department with general unit or unit shops, various combination of scheduling may be developed. In schools with large enrollment in industrial arts and minimum of facilities, quite often one teacher in excess of the number of shops can be used. While this assures high utilization of the shop facilities it does not provide free time for the care and organization of the facilities.

The following variation can be considered. With three teachers and three shop areas. Three sections of 75 students can be handled in one (1) double period.

Sections—1, 2, 3.
Shops—Wood, metals, drawing.
Teachers—A. B. C.

A—DRAWING						B—WOOD						C—METALS					
PER.	M	T	W	T	F	PER.	M	T	W	T	F	PER.	M	T	W	T	F
I	1	1	3	2	2	I	3	3	1	1	1	I	2	2	2	3	3
II	1	1	3	2	2	II	3	3	1	1	1	II	2	2	2	3	3

A—DRAWING						B—WOOD						C—METALS					
PER.	M	T	W	T	F	PER.	M	T	W	T	F	PER.	M	T	W	T	F
I	1	1	3	2	2	I	3	3	1	1	1	I	2	2	2	3	3
II	1	1	3	2	2	II	3	3	1	1	1	II	2	2	2	3	3
III	5	5	7	7	4	III	7	7	4	4	7	III	4	4	5	5	5
IV	5	5	7	7	4	IV	7	7	4	4	7	IV	4	4	5	5	5
V	6	6	8	8	8	V	8	8	6	6	6	V	9	9	9	9	9
VI	6	6	8	8	8	VI	8	8	6	6	6	VI	9	9	9	9	9
VII						VII						VII					
VIII						VIII						VIII					

* 12th Grade, No. 10 can elect to specialize in one (1) area for the year or can elect two (2) areas on a semester basis.

Specialization can be permitted in the eleventh and twelfth grades with rotation by semesters. It may be found that requests for specialization will not warrant the scheduling of special classes. Such students can be scheduled throughout the year in other class periods.

To operate the above program with three teachers will be a tremendous load. However, it can be operated with four teachers but leaving little time for care and organization of each department.

School systems of the enrollment indicated above operating on the 6-3-3 plan will find the load in the senior high shop much relieved.

Scheduling for the junior high program will necessitate planning 10 forty-five minute periods—5 double periods—for the 9th grade. Any of the above suggested scheduling can be considered.

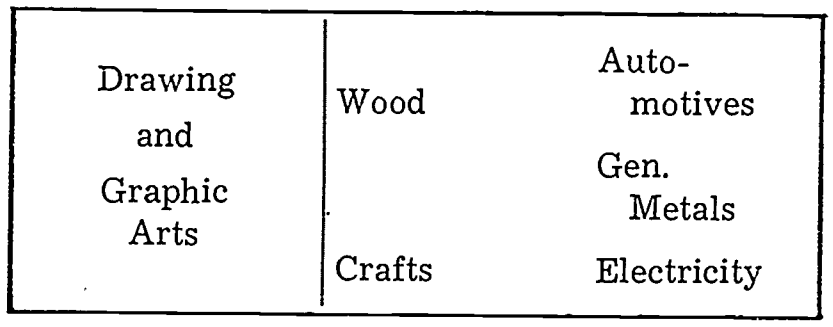
The above does not provide for the 7th and 8th grade programs. It will be necessary to provide additional facilities for the program.

For the 7th and 8th grades the program will be exploratory with experiences in a number of areas being required.

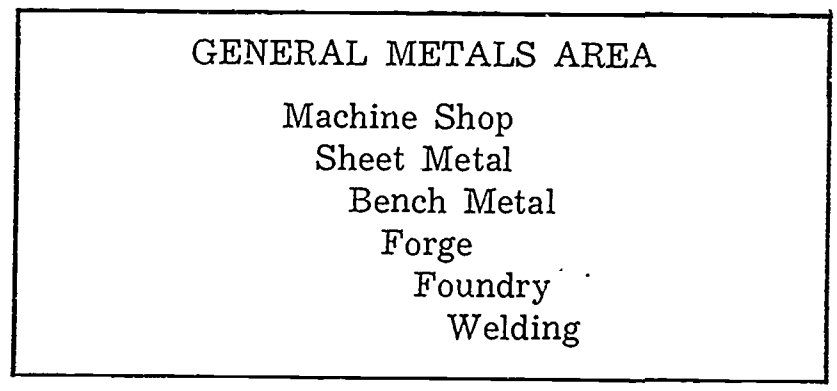
Areas to be encouraged will provide exploratory experiences in sketching, woods, metals, electricity, printing, linoleum blocks, plastics, leather and/or any materials of a crafts nature. Materials of a hobby nature can be worked in with the above.

The above areas apportioned over the two year period will permit time for a limited number of projects in each phase.

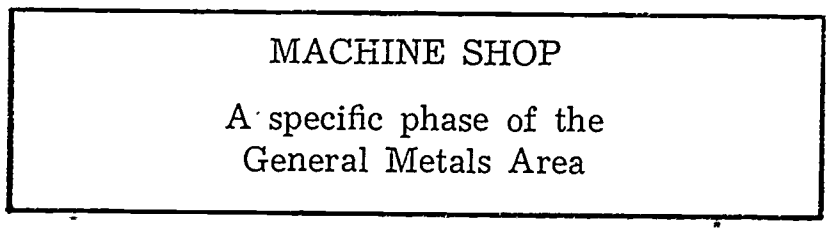
2. Departmental Organization



The General or Comprehensive General Shop



The General Unit Shop



The Unit Shop

DEPARTMENTAL ORGANIZATION

The organization of an industrial arts department evolves around the potentiality of the program, the potential Industrial Arts students, the availability of teacher personnel, and the adequacy of facilities.

Depending on those factors, the department may be organized in one of three types of shops or a combination of these, e.g. the general or comprehensive general shop, the general unit shop, or the unit shop.

The General or Comprehensive General Shop

The general or comprehensve general shop fits well into a school system whose enrollment justifies only one teacher for industrial arts. This type of shop permits the addition of a part time teacher as enrollment or demands increase. It is an economical plan for providing a wide range of activities and should include the opportunity for experience in drawing, general woodwork, general metals and electricity. Experience in other areas of an industrial nature can be included.

Characteristics of the General or Comprehensive General Shop

1. **Facilities**
   a. Shop area: provides opportunities for a wide range of experiences in many areas in one room.
   b. Drawing, Planning and Graphic Arts (adjoining the shop area).
2. **Organization**
   a. All areas may be in operation at one time
   b. Pupils rotate through areas
   c. Requires efficient organization
   d. High utilization of shop facilities
3. **Equipping the Shop**
   a. A minimum of equipment required in each area
   b. Some duplication is eliminated
   c. Standard equipment is recommended
4. **The Teacher**
   a. Requires above average experiences in many areas
   b. Special training in general shop organization is of value
   c. Integration of the experiences in many areas possible

For those, where facilities and finances are available, each area should be equipped so that they can be operated on a general unit plan or at least so that it will not be necessary to operate more than two areas at one time. This will also permit more specialization at the upper grade levels.

The General Unit Shop

The general unit shop provides experiences in several phases of work in a specific field of industry, e.g., a general unit shop for metals, will include machine shop, sheet metal, bench metal, forge, foundry and welding. This is normally under the direction of one instructor. However, for scheduling purposes in some school systems, more than one instructor may be assigned to this shop during the week.

Characteristics of the General Unit Shop

1. **Activities located in one room**
   a. Wide range of experiences for students in many areas of a specific field.
   b. Permits integration of various phases of similar nature.
   c. Students receive a more complete picture of a particular field of industry.
2. **Equipping the Shop**
   a. Standard equipment recommended.
   b. Requires several units of equipment for each area, per pupil.
   c. Larger schools will have some special equipment.
3. **Organization**
   a. Group instruction possible.
   b. Flexible in meeting student's needs.
   c. Integration of work of several phases of one field.
4. **One Teacher**
   a. Wide range of experiences.
   b. Permits and can require more specialization of the teacher.

The Unit Shop

The unit shop provides work experiences in a single phase of a field of industry, e.g., the machine shop phase of a general metals area or the cabinet making phase of a general woodworking laboratory.

Characteristics of a Unit Shop

1. **One Room**
   a. Large range of experiences in one phase of a specific field.
   b. High specialization possible.

2. **One Teacher**
   a. Special training essential.
   b. Teacher for each phase of work.
   c. Individual instruction simplied.
   d. Vocational emphasis possible.

3. **Limited to one phase**
   a. Greater student specialization.
   b. Scope is limited.
   c. Possibilities for coordination with other phases limited.

4. **Equipment**
   a. More of the industrial type.
   b. Some special equipment.
   c. Must be adequate to meet needs of class size.
   d. Duplication will be found.

3. Departmental Administration

The Teachers and His Responsibilities to:

The Shop

The Student

The Public

His Profession

DEPARTMENTAL ADMINISTRATION

The administration of the industrial arts department and the duties involved will be similar, whether it is a one-teacher department or a large city system with a designated head as supervisor.

In each situation the designated head or supervisor is responsible to the administrative head of the school system. For the operation of the various shop units, the teacher is responsible to the department or to the administrative head, which ever is the next in chain of command.

Upon those responsible for the administration of the industrial arts department, will fall the duties of developing, or through cooperation with others, assisting in the development of the curriculum, of planning new facilities or expanding old facilities, preparing requisitions in accordance with the needs of the department, and keeping the administrative head informed at all times on developments.

The Teacher and His Responsibilities

Educationally, the industrial arts teacher has responsibilities for his program, to the student, to the school, and to the community. Every industrial arts teacher has responsibilities for making his part of the school curriculum a wholesome, satisfying experience. He must meet his administrative and educational responsibilities successfully if this is to be attained.

Responsibilities for His Program

1. Plan and maintain a course of study (flexible) for all grade levels and all areas.
2. Be alert on new developments.
3. Present a broad program in light of the objectives and purpose of industrial arts. Must meet the minimum requirements of the Ohio High School Standards for Industrial Arts Education.
4. Make the best possible use of equipment and facilities available.
5. Plan for additional university work.
6. Plan for industrial experience.

Responsibility to the Shop

The general atmosphere in the shop will reflect directly the administrative abilities of the instructor. Students will exhibit an absorbing interest in their various jobs because tools and materials are available and because they have become a part of a definite shop organization. In helping to bring about such an atmosphere, the shop instructor should see that:

1. The shop is properly equipped and maintained.
2. An industrial arts library is maintained.
3. Suitable subject matter is selected.
4. Books and references for his curriculum are available.
5. Necessary materials and supplies are ordered in ample time to be on hand when needed.
6. An adequate pupil personnel system is functioning.
7. A method for checking tools and equipment is placed in operation.
8. An inventory of supplies and equipment is maintained.
9. Records and reports required by the administration are prepared and turned in on time.
10. A safety program is maintained (safety devices, first aid supplies, safety reports, and safety instruction and posters).
11. An industrial arts filing system is maintained.
12. An industrial arts club is formed, if practical.

Responsibility to the School

A good shop administration will be felt in other departments throughout the school system. It should be remembered that the administration has a responsibility toward the shop in seeing that there is a minimum of interference from jobs such as fixing broken chairs and tables, repairing bleachers, and other school maintenance. In discharging his administrative duties to the school, the shop instructor should:

1. Help to make industrial arts an integral part of the school curriculum, rather than a special subject.
2. Keep the school informed of activities in his department.
3. Efficiently discharge any other duties assigned him, such as homeroom, study hall, hall duty, teachers meetings, etc.
4. Make a special effort to coordinate his work with that of other departments of the school.

5. Accept assignments in other subject fields where part-time departments are in operation.
6. Avoid over emphasis of other teacher assignments to the detriment of industrial arts.

Responsibility to the Public

The industrial arts instructor should do everything he can to bring the school and the public into closer contact. He should realize the importance of the public support for his program. He should realize the value to be gained by being personally acquainted with the parents of his students. In this connection he should:

1. Spend wisely the funds allocated to his department.
2. Make a special effort to display the operation of his shop to the public through "open house" or special visitation arrangements.
3. Prepare an outline of the program planned and send this home for the parents review. (See appendix)
4. Seize every opportunity to speak to service organizations; PTA, or any other groups, regarding pertinent phases of his work.
5. Arrange trips to local industrial plants, invite key officials of these plants to speak to his classes.
6. Provide items of interest to local newspapers.
7. Dress appropriately and neatly for the occasion.
8. Use radio and TV scripts when possible.

Responsibility to the Student

The good industrial arts instructor is, above all, a teacher. His educational responsibilities rest primarily with his students. Under his leadership, they should grow steadily in knowledge and experience. In fostering this growth he should:

1. Be familiar with the home and background of each of his students.
2. Strive to rehabilitate students who have been unable to adapt themselves to other subjects.
3. Show a genuine appreciation for the accomplishments of each student on all ability levels.
4. Help his students to have new experiences through carefully planned class demonstrations, individual help, instruction sheets, special reference materials, and other class helps.

Because of the nature of the work in this department, he may do much to help students who are failing in other areas. However, the school administration should see that the industrial arts department is not used as a dumping ground for such students. The industrial arts teacher should maintain the scholastic standards set by the administration for classroom work.

Responsibility to his Profession

As an educator, his educational responsibility to the school also includes his belonging to and participating in professional organizations. General teaching organizations include:

1. Local teacher association (city or county)
2. District association
3. Ohio Education Association
4. National Education Association

Industrial arts organizations include:

1. Local (city or county)
2. Area and/or district
3. Ohio Industrial Arts Association
4. National (American Industrial Arts Association, American Vocational Association)
5. Engineering associations
6. Professional fraternities or societies

Responsibility to the Community

The industrial arts teacher is not making the most of his position if he limits his time entirely to his daytime classes. Hobby groups or adult classes may be a means for promoting a fine relationship between himself, his department, and the community. When such a program is provided, remuneration to the instructor for the extra work should be provided by the administration or by fees from the participants. Below are a number of suggestions for the organizations and administration of such a program.

Planning Evening Classes

1. Secure approval of the administration.
2. Talk to a number of parents or other adults in the community to determine what type of adult activity seems to be advisable.

3. Sound out—know hobbyists or craftsmen in the community—to determine whether they would be willing to devote some of their time to such a program.
4. For the hobby group, announce time and place for an organizational meeting.
5. Have the group organize itself according to hobby interests.
6. Determine amount and type of supplies needed.
7. Set up a set of account books for this group.
8. If at all possible, provide locker space or storage space for unfinished work.
9. Have on hand as many catalogues or sources of supply as possible.
10. Provide reference material.
11. If tools are distributed from a tool crib, arrange to have a dependable person on duty each meeting night.
12. Set up a clean-up routine.

Load

Keeping in mind that the quality of instruction in the industrial arts field, as well as in any of the other subjects, is greatly influenced by the teaching load, it is evident that careful consideration should be given to those factors which comprise the teaching load. Double period subjects should have free time during the day for program planning and organization.

Factors Affecting Load

An analysis of the duties of a teacher will find that the major factors affecting the load of the teacher will fall under the following responsibilities: :

1. Teaching duties
2. Administrative duties
3. Supervision of study halls
4. Supervision of extra-curricular activities
5. Advisory and counseling work
6. Community contacts

Other factors affecting the teaching load are the length of the school day, class size, the nature and scope of the work taught and subject combinations. The actual teaching load for the industrial arts program will be affected by the adequacy of the facilities and equipment available. For efficient operation, the laboratory should not be overcrowded. In all shops, the number of pupils that can be accommodated is approximately 50% of the number of work stations provided. With the above conditions met, twenty-four pupils maximum per class or teacher is recommended.

4. Responsibilities and Duties of the Teacher

Teaching

Administrative

Supervisory

Group Participating

Miscellaneous

RESPONSIBILITIES AND DUTIES OF THE TEACHER

For the teacher in his first year, the responsibilities and duties befalling him may at first seem staggering. These will vary from system to system, however, it is well that not only the new teachers, but those with experience, should have an understanding of these duties and a professional attitude toward them.

Teaching Duties:

1. Development of an industrial arts curriculum
2. Planning the individual courses
3. Lesson planning
4. Daily preparation
5. Preparation of materials for teaching
6. Presenting the instruction
7. Individual supervision and guidance
8. Testing
9. Reports to parents
10. Safety instruction

Administrative Duties:

1. Organization of the department (Work with the other members of the staff, department head, or supervisor)
2. Shop planning and organization
3. Material selection and procurement
4. Equipment selection
5. Supervising maintenance
6. Records and filing

Supervisory Duties:

1. Regular study hall assignments
2. Irregular and substitute study hall assignments
3. Sponsor of club (industrial arts, hobby, Hi-Y, etc.)
4. Class sponsor or advisor
5. Athletic contests, plays, gate assignments, etc.

Advisory and Counseling Works:

1. Assistance to regular counselor
2. Educational guidance to students
3. Vocational guidance to students, assistance in getting jobs
4. Scheduling students for classes
5. Advising with officers and committees of extra-curricular activities

Work on Individual and Group Projects:

1. Curriculum studies
2. Course revision
3. Laboratory planning and remodeling

Community Contacts

1. Cooperative relations with local industries and unions
2. Cooperative relations with other educational institutions
3. Cooperation with churches, PTA groups, service clubs, recreational groups, booster clubs, and chamber of commerce.

Shop Maintenance:

1. Sharpen hand tools
2. Sharpening power tools, saws, and cutters
3. Oiling tools and equipment
4. Adjusting and conditioning equipment
5. Repair and replacement of tools, equipment, and accessories
6. Preparing equipment for summer recess
7. Preparing equipment for opening of school in the fall

Miscellaneous Duties:

1. Building playground equipment
2. Supervision and building of stage equipment
3. Building odds and ends for administration and teachers

Maximum Loads:

The industrial arts teacher in a secondary school is a "regular" teacher. He should assume the same responsibilities and have the same privileges as all other members of the staff. His teaching is a part of general education, meaning education for all. In taking this point of view, it is assumed that an industrial arts teacher, because of peculiar duties connected with his work in handling and maintaining supplies, equipment, and records, shall have some time assigned for these special duties. Therefore, the load for an industrial arts teacher in schools organized on an eight, forty-five minute periods basis is recommended as six class periods per day. When six, sixty minute periods are used, five (5) periods of class work are recommended as a normal load. The industrial

arts teacher should have at least one period each day that is free of study hall or other activities to properly care for the shop.

Extra Services:

The industrial arts teacher, because of his background and type of facilities, may be called upon to do many odd and sundrious jobs—e. a., general school maintenance, production of shop equipment and accessories and many others. Primarily, the industrial arts facilities and the instructor has to be made available for the purpose of giving to the boys and girls educational experiences which will contribute to their growth. Exploitation of the student's opportunities and the instructor's talents for other than that which has educational value, shall be deplored and discouraged.

In any industrial arts department, a teacher should expect to do a reasonable amount of maintenance to his own shop, but certainly should not be expected to do the types of work just mentioned in addition to his own teaching load. Competent maintenance men should be employed to do this work or the industrial arts teacher should be employed during the summer months. Where teachers are asked to do this work, three alternate plans are suggested.

1. Relieve the industrial arts teacher of other extra curricular activities.
2. Pay the teacher for such services rendered above the normal teaching load
3. A combination of plans mentioned in (1) and (2) above

Where work for the school fits into the program and can be done by the industrial arts department, control should be placed so that it will not interfere with regular instructions. All such work should be acceptable to the instructor, approved by the administrative head, scheduled and routed to the instructor in ample time for inclusion in his program.

5. Classroom Administration

Pre-school Duties

Starting the First Day of School

Day by Day Operation

Closing the School Term

CLASS ADMINISTRATION

Pre-School Activities

Before the instructor starts his classes in the fall, it is advisable for him to spend some time in his shop. Ample time should be allowed for this to insure the school year getting off to a good start. Pre-class duties will vary in degree, depending upon whether he is starting the year in a new system or whether he has spent time in various systems. For the experienced teacher going back into his shop, many of the pre-school duties will have been taken care of at the close of the previous school year. Many of the pre-school duties will have to be planned again for the beginning of the second semester. For the new teacher beginning his first year or the experienced teacher in a new situation, this advanced preparation is most important so that he will be able to start his school year or semester the day his students enter the shop.

The following is a list or pre-school activities. This can also be used as a check list for closing the school year. It is recommended that a report on the conditions of the department be made to the administrative head.

1. **Shop Facilities**—Inspect and report to administration
   - *a. Condition of windows—broken glass
   - *b. Walls—patch plastering—paint
   - *c. Floors—repainting—repairing
   - *d. Switches — lights — doors — locks —
   - *e. Fire extinguishers
   - f. Plumbing

2. **Furniture**
   - a. Bench tops—refinish if necessary
   - b. Vises in working condition
   - *c. Desks in repair
   - *d. Cabinets, stools, chairs in condition

3. **Tools**
   - a. All hand tools sharp and equipped with safe handles
   - b. Hand saws sharp
   - c. Circular saws set and sharpened
   - d. Band saws set and sharpened
   - e. Jointer and planer knives sharpened
   - f. Shaper cutters sharpened
   - *g. Broken equipment repaired or replaced

4. **Machines**
   - a. Lubricated
   - b. In working condition
   - c. Guards in place
   - d. Tooled with sharp blades or cutters
   - e. Eliminate all hazards
   - f. Safety zones painted about machines

5. **Arrangement, and Care of Instructional Material**
   - a. Job sheet
   - b. Assignment sheets
   - c. Plan sheets
   - d. Operation sheets
   - e. Information sheets
   - f. Blue prints
   - g. Safety posters and information
   - h. Visual aids—models, mock up
   - i. Bulletin boards
   - j. Books
     1) Texts in usable condition
     2) Check new books on hand
     *3) Send worn books for repair
     4) Check and file bulletins
     5) Library shelves or cabinet for all books and pamphlets by areas
   - k. Chart and graphs
     1) Card file up-to-date
     2) Charts filed alphabetically
     3) Torn or multilated charts repaired or replaced
   - l. Models and mock-ups

6. **Pictorial Aids**
   - a. Flat pictures
   - b. Film slides and projectors
   - c. Motion pictures and projector
   - d. Opaque projector and pictures
   - e. Projection screen and other accessories
   - f. Provision for darkening room
   - g. Storage shelves for films, etc.

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* To be done by the maintenance department. Other activities to be done or supervised by the instructor.

7. **Supplies**
   a. Check supplies against requisitions
   b. Re-order materials not shipped
   c. Order additional supplies
   d. Store materials in cabinets and racks

8. **Washing and Cleaning Supplies**
   a. Soap
   b. Paper and cups
   c. Rags or waste
   d. Brooms and brushes
   e. Shop aprons

9. **Cabinets and Lockers**
   a. Provision for locks
   b. Materials arranged systematically
   c. Drawers and shelves labeled

Starting the First Day of School

With the proper pre-school planning, the first and most important day of the school year will be simplified. Many and varied will be the procedures used due to the type of shop operated, the class size, the requirement of the administration, etc. The teacher with a well planned program who gives some time to the planning of each day's activities can meet the challenge of the beginning of school with confidence. The teacher that improvise and plans as the school day progresses may lose the interest of the students and waste valuable class time.

The following is a suggested outline for the introduction of the boys and girls into the program, its facilities, and the many ramifications of procedure necessary for an efficiently organized course.

1. **Preliminary Procedure**
   a. Be on time and in room when class arrives
   b. Call class to attention in minimum of time
   c. Temporarily seat the students or arrange them for comfort and elimination of confusion
   d. Instructor should introduce himself and check to see that students are following their schedule—e.g. are in the right room
   e. Make only necessary announcements required by the administration or pertinent to the department on this, the first day
   f. Obtain necessary information required by the administration

2. **Overview of the Course** — (Briefly — this should be so presented as to gain their confidence, to create interest in the work)
   a. Explain the purposes (How Industrial Arts fits into the total program of education—vary by grade level)
   b. What they should expect from the course
   c. Short visit about the laboratory — (briefly) explain the physical setting, equipment, and materials, etc.)

3. **General Organization**
   a. Explanation of general polices
      1) What is expected of them at beginning of class period.
      2) What is expected of them at closing of class period.
      3) Conduct
      4) Safety
      5) Pupil permits
      6) Locker and storage facilities
      7) Selection of work for the year
      8) Costs connected with work
      9) Checking attendance
   b. Setting up permanent organization
      1) Prepare permanent roster: should include grade—registration or homeroom number — periods assigned to shop, etc.
      2) Assignment of locker and storage space
      3) Assignment of check numbers — if used
      4) Explain costs for which they will be liable
      5) How this cost is to be handled—materials purchase card or pay at the office
      6) Setting up personnel organization
         a) Assignment wheel
         b) From teacher's record
         3) Vertical assignment chart
   c. Safety organization
      1) Setting up the safety organization
      2) General safety rules
         a) Hand tools
         b) Power equipment

c) Conduct in shop
d) Good housekeeping

d. Material and tool storage
1) Issuing materials and supplies
2) Tool room and tool panels
3) Accessory equipment and supplies
4) Paint lockers and supplies

4. **Day by Day Operation**

a. Daily attendance

b. Announcements

c. Inspect machines daily
1) Operational malfunction
2) Lubrication
3) Dull blades or cutters

d. Maintenance of tools
1) Sharpen tools
2) Repair or replace broken tools
3) Oil

e. Shop Cleanliness
1) Sweeping room
2) Dusting shelves, etc.
3) Clean all machines
4) Check material storage
5) Safety
6) Clean all benches
7) Pick up and store all loose materials

f. Class instruction
1) Unit operation
2) Informational topics
3) Jobs and projects
4) Visual aids
5) Testing
6) Teaching techniques
7) Bulletin board and permanent exhibits
8) Ample reference materials

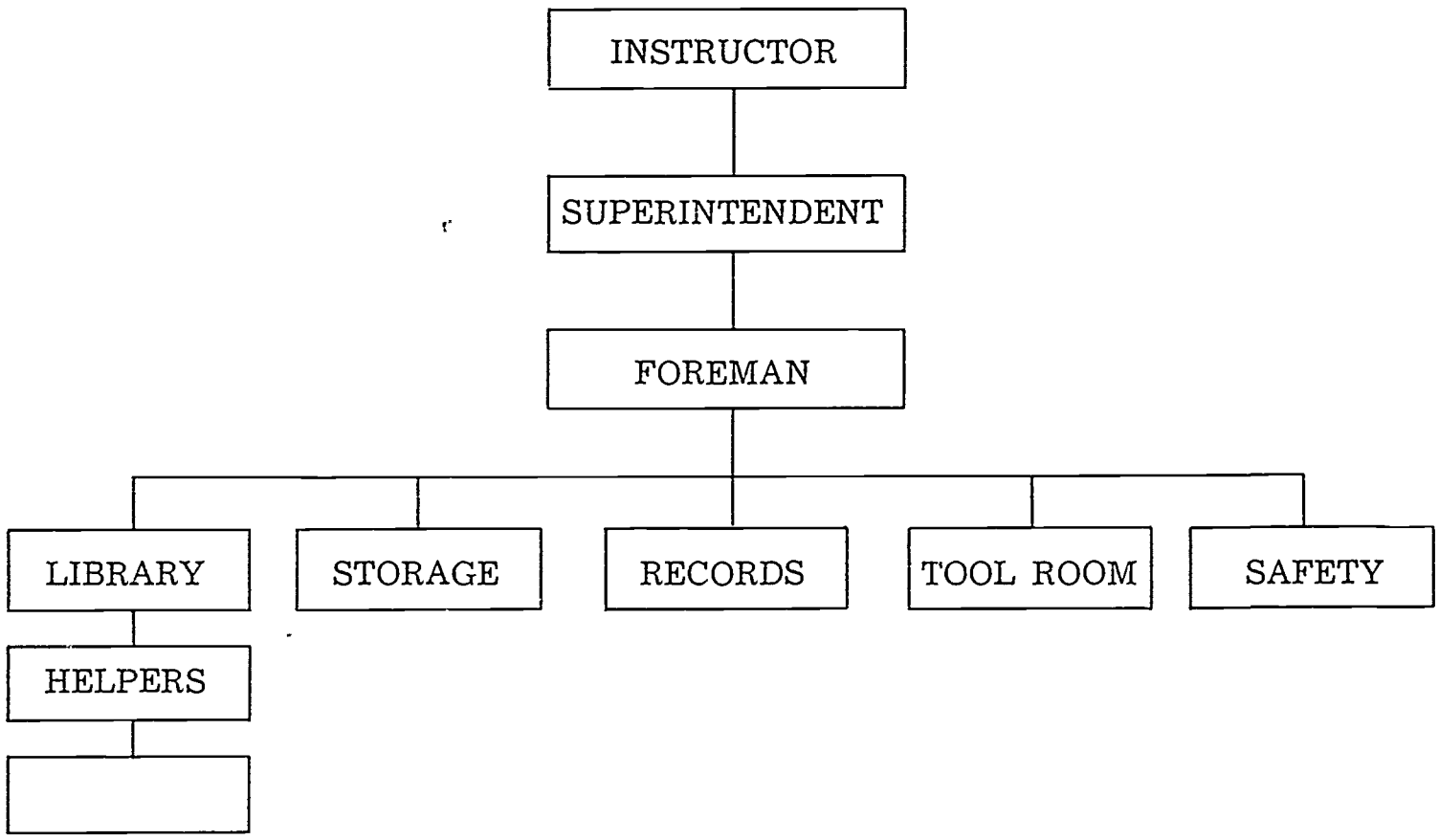
Closing the School Term

The proper closing of the school term is important for two reasons. First, it makes possible, arrangements for the repair of all tools and equipment and major changes in the shop facilities by the general maintenance department. Second, time can be saved for the instructor at the beginning of the next school term. For those school systems having semester terms, similar plans should be made well in advance so that needed supplies are available to start work immediately. A running inventory of needs, kept up to date, should be a "must" with all teachers.

The following is a suggested check list for closing the school year. A major portion of this work should and can be done by the students. Plans should be made so that the last week can be devoted to doing this:

1. Annual inventory
2. Submit annual requisition
3. Prepare list of machines for maintenance
4. Prepare list of electrical switches and lights for maintenance
5. Lock up small tools
6. Oil machined surfaces of machines
7. Oil hand tools
8. Store instructional material
9. Lock windows. Note and report condition of glass and shades.
10. Arrange for storage of supplies delivered during the summer
11. Loosen leather belts
12. Close paint cans and carefully clean and store all paint brushes
13. Arrange to have machine and hand saws sharpened
14. Submit required records to the administration
15. Shop records should be completed and filed in shop office
16. Sand and finish bench tops
17. Paint up where needed—benches and machines
18. Put tool panel and/or room in condition
19. Straighten up storage rooms
20. Get rid of excess and unusable materials
21. Lock power equipment

6. Personnel Organization



PREREQUISITE FOR GOOD TEACHING

Good Housekeeping

Orderliness

Organization

PUPIL PERSONNEL ORGANIZATION

Organization of the personnel of each class unit is instructive to the student and helpful to the instructor. If properly organized, it should result in better work and more accomplishments in the shop than would otherwise be possible. A plan embodying the following objectives will warrant a personnel organization in any shop.

1. A true meaning of individual and group organization effort
2. Cooperation for the good of all
3. The assumption of responsibility which may be carried into later life
4. Familiarization with line organization in industry
5. Bringing to light and guiding the timid pupil
6. Creates leadership and initiative ability
7. Promotes democracy

The results and efficiency of the organization depends upon the choice of the leader. A good organization has a good leader. The instructor should assume the responsibility for the organization, by aiding in personnel selection, for the various assignments.

Pupil Personnel Organization

Any pupil personnel organization should be developed in light of its objectives. It cannot be over emphasized that such an organization is not a cure for all evils or that the instructor will be free from all work. It should be pointed out that a good organization will require the instructor to do much work in order that it functions properly. However, a good organization that assigns as many of the routine duties as possible to the students, will have time left for the teacher to concentrate on the problems of instruction. The following is a suggested organization (See appendix for chart). It should be planned so that:

1. It is definite.
2. Authority is direct from the chief administrator through the lieutenants, department heads, and foreman.
3. Some typical line position—
   a. General superintendent
   b. General foreman
   c. Foreman for each department
   d. Leadman or assistant foreman
   e. Pupils—helpers

Developing the Organization

1. Study the pupil
   a. By test (Mental ability and mechanical aptitude) if necessary.
   b. By interview and observation to determine past performance, interest, and background.
2. Appoint some officers as needed.
3. Elect officers if it seems appropriate.
4. Have students assist in writing specifications for the job.
5. Have organization charted to fit the situation.
6. Outline definite duties.
7. Study the duties of the job in various industries.
8. Suggestions for starting an organization.
   a. Develop the personnel organization gradually.
   b. Fit the organization to your school.
   c. Avoid too many officers.
   d. Abandon any position which cannot be made to function or is irrelevant.

Selection of Personnel for Organization

1. The Superintendent
   a. He should be a **capable student** and a **good leader.**
   b. He should possess a **pleasing personality** and be a person from whom a **student will take suggestions.**
   c. He is appointed by the instructor or elected by the students.
   d. His job may last one semester, but if other students show similar leadership ability, the time may be shortened depending on the situation. In many cases the superintendent may serve in this capacity for the entire year.
2. The Shop Foreman
   a. He should have characteristics and abilities similar to the superintendent.
   b. He will be appointed by the superintendent, the instructor or elected by the students.
   c. The job may be rotated from week to week or from month to month as the instructor sees fit.

d. It is the duty of the foreman to see that all assignments in his department are executed properly.

3. The Workers
   a. They will serve under the foreman.
   b. They are appointed to their jobs by the superintendent and foreman.
   c. Their jobs are generally rotated from week to week.

Suggested Duties

1. The Superintendent
   a. Check attendance at the beginning of class.
   b. See that all supplies and equipment are inspected and returned.
   c. Be responsible for carrying on classes in temporary absence of the instructor.
   d. Assist the instructor as much as capability will allow.
   e. See that all special assignments made by the instructor are carried out.
   f. See that clean-up duties are properly performed by the foreman and his assistants.
   g. Bring to the instructor any criticism by the student body which is for the general welfare of the class.
   h. Close class.
2. General Foreman
   a. Transmit any orders given him by the instructor or superintendent.
   b. Be an advisory counselor to the members of his working squad.
   c. Be responsible for the clean-up duties assigned to him and his workers.
   d. Report to superintendent needed repairs or other discrepancies noted.
   e. Promote good will throughout the entire shop.
   f. Safety inspection at the end of shop period or at any other time.
3. Workers. (Job assigned to the workers by the foreman or instructor)
   *a. Floors
      1) Check for misplaced tools, usable stock or supplies.
      2) Excessive accumulations of waste materials should be placed in waste cans.
   b. Windows
      1) Be sure all windows are closed and locked at the end of the period.
      2) Keep window sills dusted and free of unnecessary materials.
      3) Adjust blinds at the end of the period.
      4) Report broken locks to the foreman.
   c. Library
      1) Return all misplaced books to the shelves.
      2) All magazines and pamphlets must be returned to their proper places.
      3) Handle all book assignments.
      4) Check all books returned to the library.
      5) Check the shelves at the end of the period for neatness.
      6) Keep the books well arranged on the shelves.
      7) Report any violation of library rules to the foreman.
4. Planning Area
   a. See that all equipment is properly taken care of at the end of the period.
   b. Keep tables arranged to assure best light.
   c. Arrange books, magazines, and other reference material in planning area.
   d. Store all visual aids.
   e. Report any damage or lost equipment.
5. Tools and Tool Cabinets
   a. Arrange tools—check for missing tools —check tools at the beginning and end of class periods.
   b. Lock cabinets at the end of the period.
6. Benches
   a. Close all vises—see vises are cleaned.
   b. Brush bench tops—check to see that bench tops are clean.
   c. Arrange benches and tables in their proper places.
   d. Leave no tools on benches or tables.
   e. Report any misuse of benches.
7. Machinery and Accessories
   a. Turn off all power.

*Note: The shop floor should be swept at least once a day by the school janitor.

b. See that all machines have been cleaned.
c. Report defective machines to foreman.
d. See that accessories are returned to proper place.
e. Check for hazards.

8. Finishing Equipment and Supplies
   a. See that finished materials are returned to proper place.
   b. See that materials are placed in neat order.
   c. Be sure lids on containers are tight.
   d. See that brushes are clean and in proper places.
   e. See that finishing table top is clean.
   f. Report any lost or damaged equipment.
   g. Place flammable materials in safety cans.
   h. Check for apparent hazards.

9. Lumber Storage
   a. Arrange lumber neatly.
   b. Discard all scrap materials.
   c. Check for hazards.

10. Glue Pot
   a. Keep the glue pot clean.
   b. Keep supply of glue ready for use.
   c. Keep glue pot properly filled.
   d. Keep water reservoir filled.
   e. Keep glue at proper consistency.
   f. Report any damage to glue pot to foreman.
   g. Clean glue bench.
   h. See that all clamps are clean and in proper order.
   i. Check for hazards.

11. Ceramics Area
   a. Pick up all clay and plaster and return to proper containers.
   b. Return tools and equipment properly cleaned to their places.
   c. Clean off wheel at the end of the period.
   d. Wash all bench tops.
   e. Place projects in storage cabinet.
   f. Report lost or damaged equipment to the foreman.
   g. Check drain and traps used by this area.
   h. Check for hazards.

12. Crafts
   a. Return tools and equipment to proper places.
   b. Detach all equipment from power supply.
   c. Place all projects and extra parts in cabinets.
   d. Report lost or damaged articles.
   e. Check for hazards.

13. Electrical Area
   a. Return all tools to storage place.
   b. Detach all equipment from power supply.
   c. Place all projects and extra parts in cabinets.
   d. Report lost or damaged articles.
   e. Check for hazards.

14. Graphic Arts
   a. Clean the press.
   b. Distribute forms to type cases.
   c. Return furniture to case.
   d. Clean imposing table.
   e. Put away all tools and equipment.
   f. Place type cases in cabinet.
   g. Report lost or damaged articles.
   h. Arrange printed matter and paper stock.
   i. Check for hazards.

15. Metals
   a. Clean the machines.
   b. Turn off gas and power for all equipment.
   c. Return tools and supplies.
   d. Place scrap materials in containers provided.
   e. Check material storage.
   f. Check project storage.
   g. Clean up foundry sand.
   h. Store foundry flasks.
   i. Report lost or damaged equipment.
   j. Check for hazards.

16. Welding
   a. Arc Welding
      1) Check face shields and goggles.
      2) Check electrical connections.
      3) Discard all unusable materials.
      4) Inspect condition of curtain.

5) Check for hazards.

b. Gas Welding
   1) See that tanks are turned off.
   2) Check gages.
   3) Check hose.
   4) Check goggles.
   5) See that tanks are secure.
   6) Report all hazards.

17. Photography
   a. Return developing and printing fluids to storage.
   b. Return films and papers to storage.
   c. Clean all equipment.
   d. Turn off the water.
   e. Detach electrical equipment.
   f. Pick up scrap paper.
   g. Report lost or damaged articles.

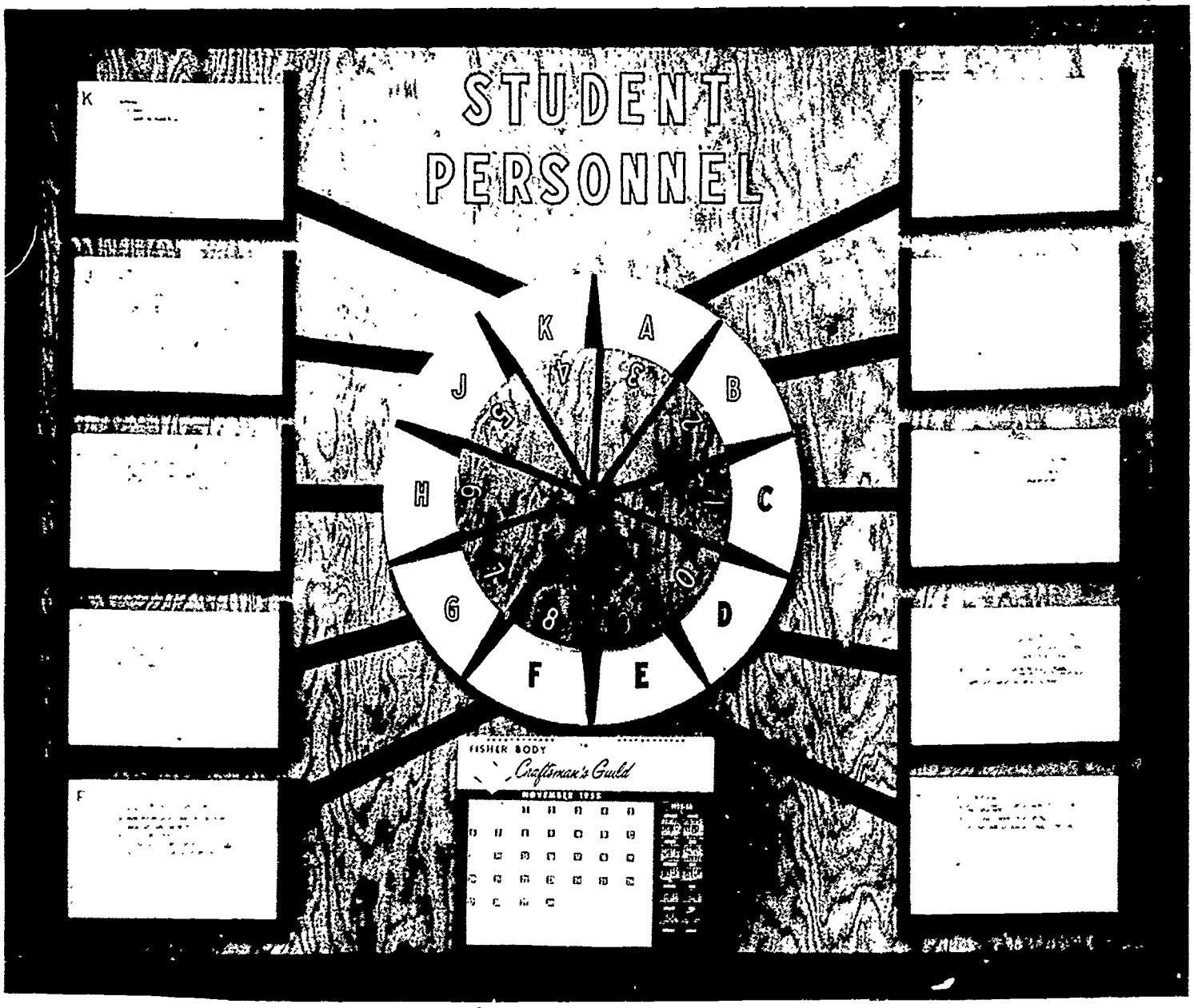
18. Transportation
   a. Return all tools.
   b. Put all hoisting equipment in place.
   c. Place testing equipment in proper place.
   d. Clean table tops and put away supplies and parts.
   e. Place flammable materials in safety can.
   f. Clean up excess grease and oils.
   g. Report lost or damaged articles.
   h. Check for hazards.

19. General Woods Area
   a. Dust and clean all machines.
   b. Oil and grease when necessary.
   c. Check all guards.
   d. Report all hazards.

20. Bulletin Boards and Exhibit Areas
   a. Keep in neat order.
   b. Clean and dust regularly.
   c. Discard obsolete material.
   d. Keep bulletin board up-to-date.
   e. Rotate safety posters and visual materials.

21. General Maintenance
   a. Maintain tools.
   b. Maintain equipment.

7. Mechanical Devices for use in Pupil Personnel Organization



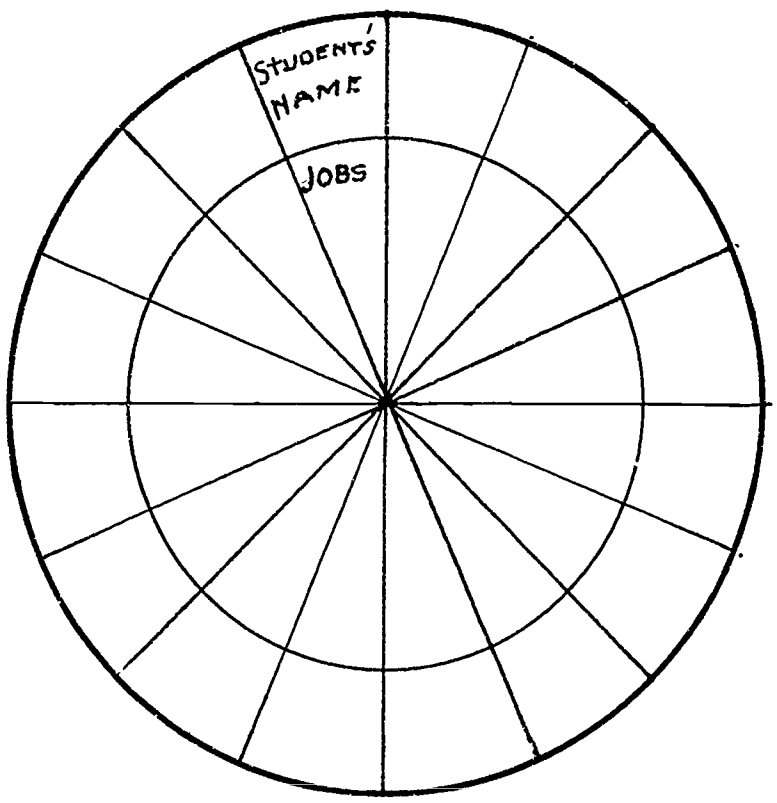
Akron Public Schools

Student personnel board used to designate assignments. Center disc rotates to show assignment. Cards list duties. Cards are sealed in cellophane to keep them clean.

In Industrial Arts the students learn the value of working with each other and the importance of assuming their responsibilities in its organization and administration.

MECHANICAL DEVICES FOR USE IN PUPIL PERSONNEL

THE JOB WHEEL



The job wheel is a simple device in setting up a system that will assign and rotate students through jobs for the care and maintenance of the department.

The job wheel consists of a small inner wheel rotating on a larger out-side wheel. The students names are placed on the outer wheel. The jobs are placed on the inner wheel. Rotation of the inner wheel daily, or weekly, automatically assigns the jobs.

Students assigned are usually considered foreman for the specific job.

The responsibility of an orderly department falls on all students. The responsibility of the assigned foreman is to see that each student does his part.

It may be necessary to have one for each class. If check numbers are assigned these can be placed on outer circle and can thus be used for all classes.

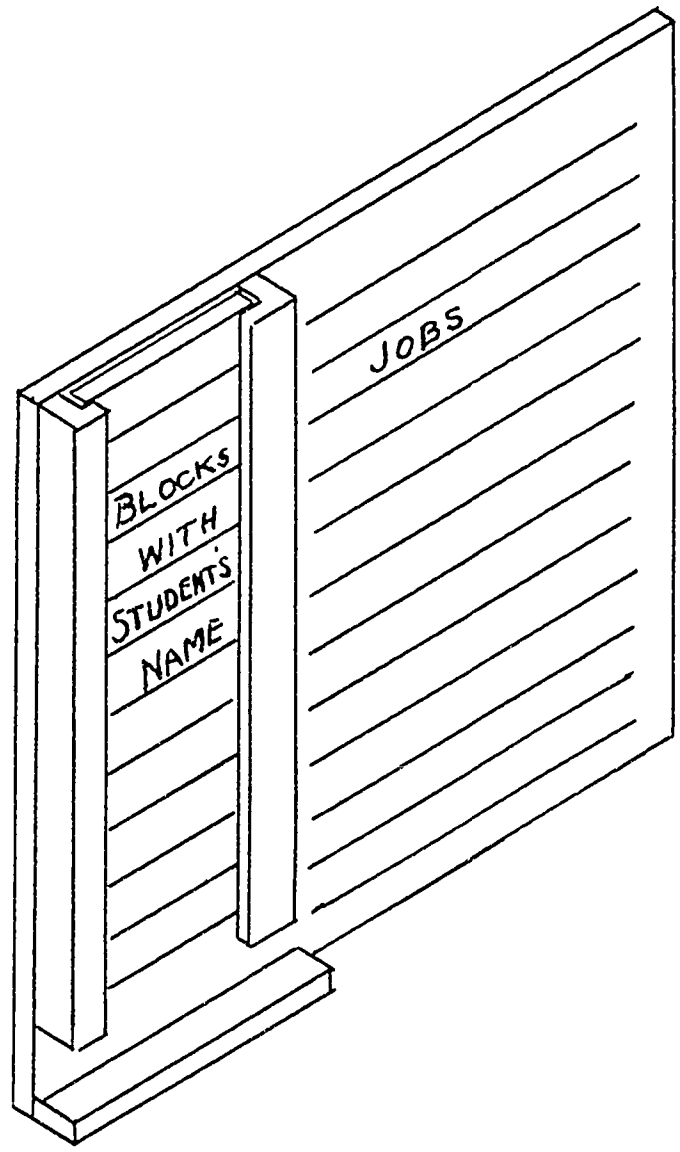
THE WOOD BLOCK

The wood block is another technique for assignment and rotation of students to various jobs.

Wood blocks are cut to fit in a prepared channel. Students names are placed on each block. The various jobs are indicated opposite.

Rotation is accomplished by removing the last name from the bottom and placed on the top. Time of rotation can be determined by the teacher.

Individual block container can be had for each class. As classes change the block container of the previous class can be removed and the block container for the incoming class can be substituted.



A few suggested methods or mechanical devices which may be used in administering the personnel duties follow:

1. Job Wheel ---------- A wheel with the jobs or pupils names or both are marked on it so the jobs rotate by turning the wheel.

2. Lists ---------- Typed lists with the jobs noted. Names are added as the jobs are rotated. Duplicate sheets with jobs and students names listed. Jobs for the assigned period are indicated by a check mark.

3. Wooden Blocks ---------- Students' names are placed on wooden blocks or strips which may be placed opposite a specific job or duty.

8. Shop Records

Teachers Records

Cumulative Shop Record

Progress Charts

Inventory Forms

Budgets

Machine Operation Permit

Outside Work Order

Lesson Plans

Requisition Forms

Student Requisition Form

Most Important in Any Efficiently Operated Department.

SHOP RECORDS

A well organized and administered industrial arts shop will require the keeping of records. These will vary with the school or teacher, but should provide sufficient data for successful teaching and for filling required reports. Any record should be carefully planned and organized so it will:

1. Obtain information that will be usable.
2. Do the job for which they are planned.
3. Be simple in form and easy to file.
4. Be easy to record the information.

It is recommended that the instructor have one or more legal-size metal file cabinets for the records so information may be easily and instantly available. The following paragraphs indicate typical records and reports which may be used in the industrial arts shop.

Teacher's Record Book

The teacher's record book is used for recording the names of the students enrolled in each class, pertinent information necessary for the organization of the class, and information needed for future reports. In many school systems this is furnished and required to be kept by the instructor and turned in at the end of the term.

Personnel Cumulative Shop Record (See appendix)

The cumulative shop record is an accounting of the student's achievements from the time he enters the shop until he graduates or leaves the school or department. In some cases, space may be provided for follow-up data. The record should contain information which will give the teacher a true picture of the student and his work. It should help the teacher give an accurate description of the student after he has left the shop. Since the information is confidential, it should be kept up to date by the teacher and stored in a locked file. The record may be kept on file cards or in individual folders as the teachers wishes.

Typical information included is:

1. Previous industrial arts course
2. Courses taken in school
3. Occupational interests
4. Hobbies
5. Outside work experiences
6. Personality traits
7. Aptitude and interests
8. Mental ability
9. Physical abilities
10. Marks on shop projects
11. Marks on tests
12. Course classification
13. Space for comments

If this information is on record in the school office or guidance office, and is available to the instructor, it need not be duplicated. For quick reference and for ease of keeping it up to date, the teacher should have one in his files.

A Shop Project and Time Record (See appendix)

This is sometimes called a plan of procedure or job sheet. It provides a record of the projects and problems done by the student, the materials and supplies used, and the time required to complete the project. From such a form, the required information can later be transferred to the cumulative record. The form is usually filled out by the student and checked by the teacher. It may include:

1. Name, class, date, and section
2. Name of project
3. Date started—date finished
4. Estimate of time required to do project
5. Actual time required to do project
6. All materials used
7. Steps to follow
8. Tools required
9. References
10. Space for simple sketch
11. Space for teacher checks
12. Grade

Lesson Plan Forms

These may be in sheet form or as a bound book. It is helpful for recording the approach used by the teacher for a given lesson. It is also helpful as a guide for substitute teachers to follow during the absence of the teacher. These may be purchased. Some school systems furnish and require their usage.

Progress Charts (Picture)

The progress chart is posted on the bulletin board so that the student may have a visible record of his progress. It may be of any convenient size and type. It may include any or all of the following information:

1. Student's names (arrange alphabetically)
2. Work station assignments

3. Work assignments
4. School property issued
5. Project marks
6. Assignment marks
7. Test marks
8. Average and final marks
9. Other information

Inventory Forms

Inventory forms should be provided for both equipment and supplies. A record should be kept in the shop and in the principal's office. A teacher new to the system should always ask for the inventories and check the equipment and supplies in the shop against the lists. These are generally a standard form and furnished by the Board of Education.

1. Equipment inventory (See appendix)
   a. Name, number, make, catalog number, and description
   b. Unit and total cost when new
   c. Date of purchase
   d. Source of purchase
   e. Serial numbers
   f. Condition
2. Expendable Equipment Inventory
   a. Quantity on hand
   b. Description
   c. Remarks—Condition

Such an inventory needs to be kept up to date. New equipment should be added. Broken and worn out equipment should be deleted and/or show disposition made. Such lists, facilitate the ordering of replacements, broken parts, and the making out of equipment lists.

Budgets

The budget should provide not only for materials and supplies but replacement of expendable tools, broken parts, new equipment, and replacement of obsolete equipment.

1. Material and Supply Budget. This should provide for any items used in the department other than tools or machinery.
2. Equipment budget
   a. Replacement of tools and parts worn out or broken during school year.
   b. Additional equipment which provides for small new tools
   c. Special equipment budget
   d. To replace obsolete machinery or equipment
   e. Provide for additional machinery or equipment
   f. Provide new equipment for a new area or shop

Machine Operation Permit

This form is a written permit signed by the parent, giving permission for the student to operate the equipment listed on the permit when properly instructed and checked by the teacher.

The machine operating permit does not legally absolve the instructor from liability, if negligence on his part is apparent.

Outside Work Order (See appendix)

In order to control the outside work which may be assigned for completion of the industrial arts shop approval should be had from the main office, the principal and the teacher involved. All work should be planned far enough ahead so that it will not interfere with the regular class work. Any work which lacks educational value should be frowned upon.

Accounting for Funds

Policies should be established for the collection and distributions of monies collected in connection with the operation of the industrial arts department.

1. Fee Cards (See appendix)
2. Flat Fees—Each student may be required to pay a set fee and vary with the area of work.
3. Individual Receipts (See appendix)—In all cases, receipts should be given for the monies paid in by the students and should indicate the amount and for what purpose. Each student should keep a duplicate set of records for his own information. A periodic check should be made to see that student's records and the official records agree.
4. Annual Report on Funds (See appendix—An annual report on collection of monies involving the industrial arts activities should be made to the proper authorities. This should cover not only the collections but the non-payment for materials used or fees. A copy of the report should be kept on file in the school office. Again, this report will have to conform with the policies of the Board of Education.

Requisition Forms

Requisition forms for the purchase of equipment and supplies may vary with each school. These forms are normally supplied by the Board of Education. The instructor will provide all necessary specifications pertinent to the equipment and supplies ordered. The following should be supplied if intelligent ordering is to be done.

1. Description of material
2. Source
3. Catalogue number
4. Quantity
5. Specifications
6. Catalogue and page number
7. Cost
8. Date required

Annual Report

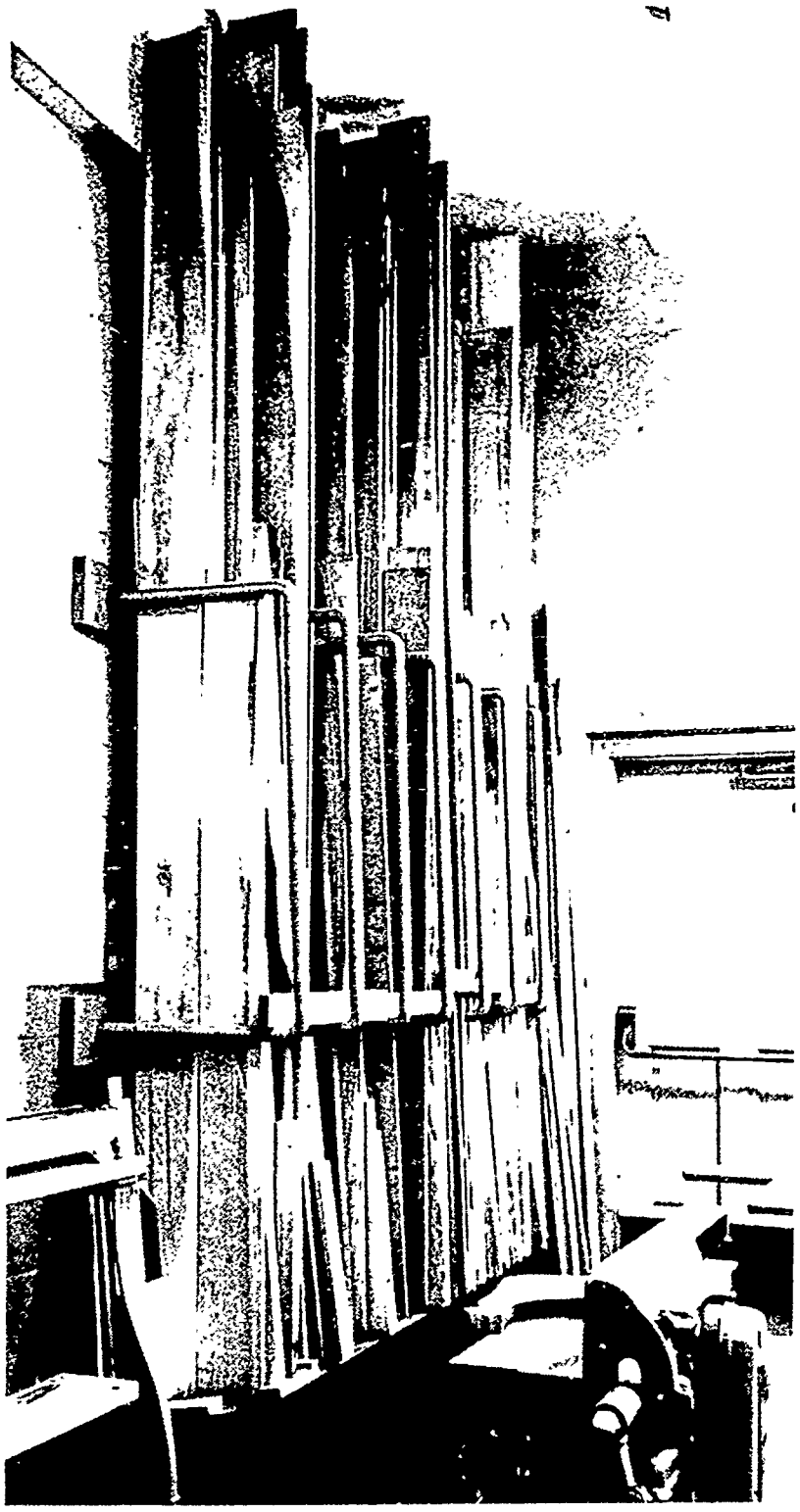
It is well for the shop teacher to make an annual report at the end of the year whether it is required or not. It will place on record the accomplishments of the year and recommendations for the improvements of the shop. Most administrators will welcome suggestions for improvements.

Supplies and Equipment

One of the major problems facing industrial arts teachers is how to best handle supplies. The original planning of many school shops has not included adequate storage. Make-shift provisions have necessarily been made to accommodate various shop needs.

In new shops, master plans can be instituted from the first with a general supply center strategically located and accessible to all shop areas. For those not so fortunate, it is important that a great deal of study be given this one phase of shop organization. Efficient operation, conservation of material and general over-all appearance of the department is a "must".

9. Supplies and Equipment.

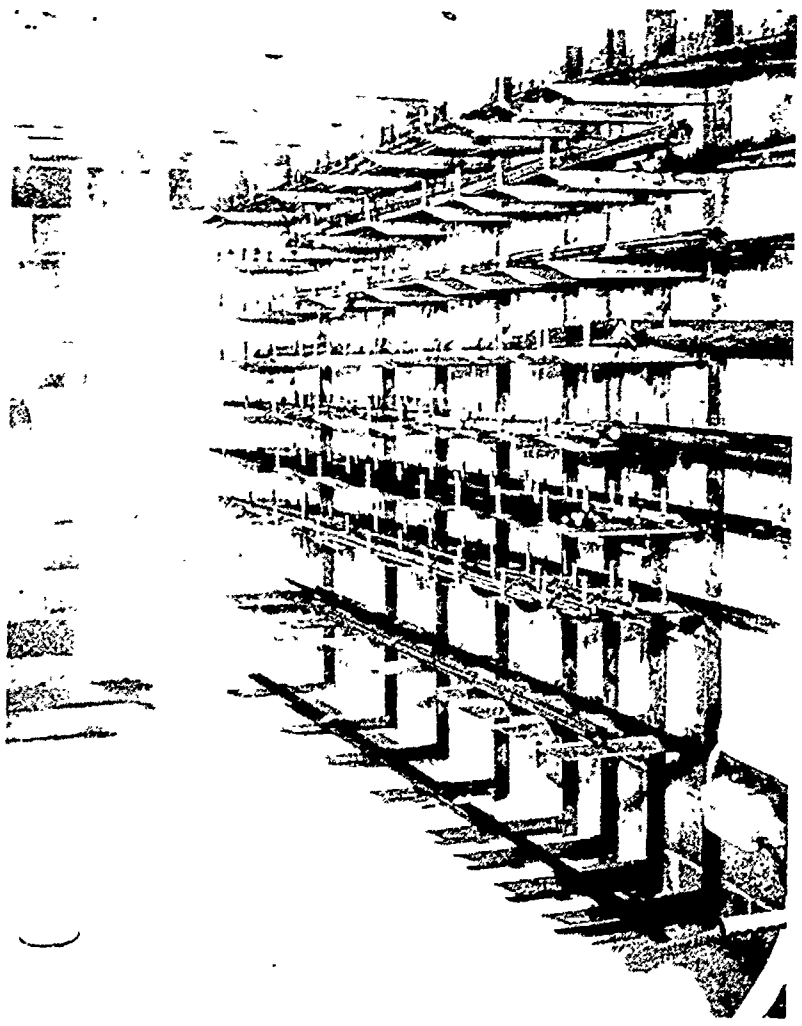


AKRON PUBLIC SCHOOLS

Storage of Tools

Storage of Supplies

Storage of Equipment



WARREN PUBLIC SCHOOLS

Well organized storage facilities contribute to efficient and economical operation of the Industrial Arts Department.

STORAGE OF SUPPLIES AND EQUIPMENT

There are many ways to store supplies and care for equipment. Each shop has to develop the method that is best suited to its location, needs, and space available. Listed below are a number of methods used:

1. **General Storeroom**
   Where a large number of supplies are kept on hand, a room adjacent to the shop or shops using the supplies is convenient. However, it should be placed where it is easy to unload the incoming supplies.

2. **Cupboards**
   When a few supplies are kept on hand or when a number of shops use a large general storeroom, cupboards prove satisfactory. These are sometimes used in addition to a storage room to keep special supplies near the area of work.

3. **Lockers**
   To keep the student's material available for him at all times, lockers should be provided. This helps keep student materials separate and also aids good housekeeping.

4. **Racks** (See appendix)
   Storage of large pieces of material such as lumber or steel may be stored on open or closed racks. Where there is a limited space for storage, vertical racks may prove more satisfactory, than horizontal racks.

Storage of Tools and Special Equipment

The storage of tools will depend on the type of shop, the amount of equipment, the room available, and practices of the shop. The following are methods which may be used:

1. **Tool Room**
   The tool room or tool crib is a centrally located room where tools are kept. It keeps tools together and lends itself to easy tool control, but it sometimes result in the waste of time when it is located some distance from the work area.

2. **Locked Cupboard or Tool Panel**
   This type permits the location of tools near the work area. It is sometimes used in addition to the tool room for special tools.

3. **Open Tool Panel** (See appendix)
   The open tool panel placed on the wall in the shop is a convenient and efficient method of tool control. Placed in or near the area of work it eliminates loss of time required in going to and from a tool crib. Properly arranged, a sight check is all that is needed at the end of the period.

4. **Portable Panels**
   Tools and equipment used in many parts of the shop or in various shops may be mounted on portable tool panels. If they are too heavy to carry, they may be mounted on casters and rolled to the place to be used.

5. **Racks, Benches or Bench Drawers**
   Tools used with a particular machine or in a particular area may be conveniently stored at that place in small racks, benches, or in drawers. Care must be taken to provide for regular checking to prevent loss of tools.

6. **Tool Kits**
   Special tool kits for students, such as drafting kits in drawing or kits in machine shop and carpentry may be provided. Students specializing in an area of work may be issued tool kits to instill greater responsibility and a respect for tools.

7. **Tool Identification**
   Any type of tool storage needs to be arranged so the return of tools to the correct place is easily done. One method used is to paint the outline of the tool on the tool panel or storage rack. This makes it difficult to rearrange the storage space when necessary. Another method uses thin masonite, plywood, or masking tape which is cut out to the outline of the tool and placed back of the tool hanger. These are not only easily moved, but are easy to see on the rack.

Recommended for more efficient operation and conservation of space in the storage of tools is the tool panel, either locked or open, on the wall in and near the area they are to be used. For large centers where many special tools are found, it may be necessary to have a special storage center.

For all schools there will be need for space to store those special tools either of great value or seldom used. This may be a special tool room or steel cabinets.

Where a number of storage cabinets or panels are used, some methods must be used so that tools are returned to the correct tool panel. This is easily done by marking each set of tools or equipment with a different color of enamel. By using the same color on the panel, the return of tools to the correct place is simplified. The use of this procedure by all departments will assure the return of tools to their proper location when used outside of the shop to which they are originally assigned.

Tool Control

Most teachers will find it to their advantage to use their pupil personnel in checking the tools and equipment. It is important that a regular routine for checking the tools be adopted. Students may be selected or elected to issue the tools from various types of storage. Below are methods frequently used:

1. **Tool Checks**

   These may be small discs of metal or cardboard with a number stamped on it. The tool checks are kept in the tool room. A number is assigned to each student. When a student withdraws a tool, his assigned check number is left in its place. When the tool is returned, the check is removed and returned to the check rack.

2. **Tool Slips**

   Two methods are suggested. While acceptable as a technique of tool control, the time involved for filling out slips does not contribute to efficiency.

   (a) Each period students signs on a sheet of paper what tools are received from the tool storage.

   (b) The student name placed on a small tag or card is placed where the tool is removed.

When no student is assigned the responsibility for the issuance of tools, in case of tool panels, one or more should be responsible for checking to see that all tools are in place before the class is dismissed. Nothing will help more to keep tools in good condition than to have a definite place for each tool and keeping each tool in that place.

10. Safety and Safety Instruction

The Ten Commandments of School Shop Safety.

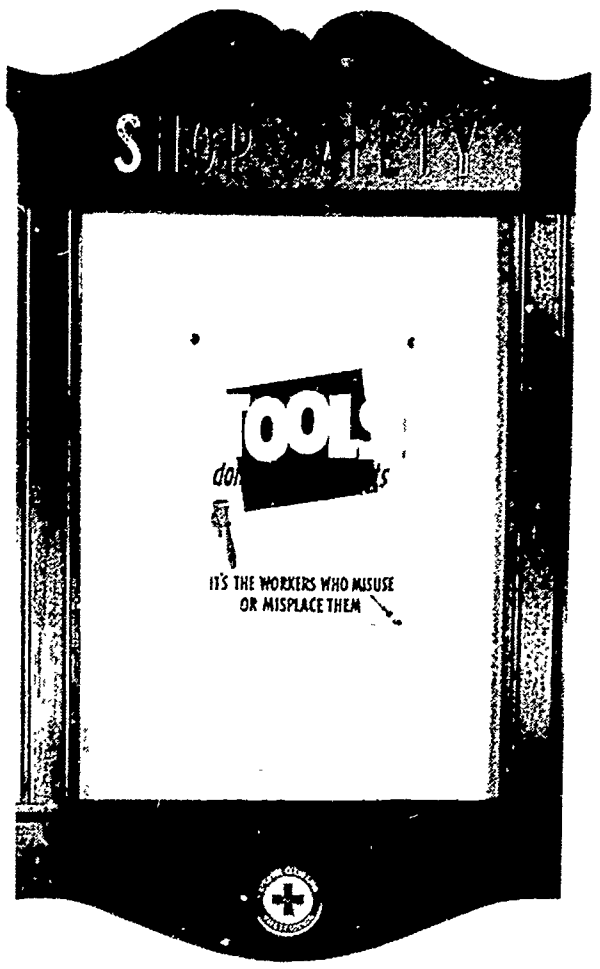
Safe Guarding of Equipment.

School Shop Inspection.

Student Accident Reporting.

Safety Personnel Organization.

Safety Bulletins — Safety Instructional Materials rate a special spot in the Industrial Arts Department.



Cleveland Public Schools

SAFETY AND SAFETY INSTRUCTION

The thing that makes our highly interesting world of today possible is the fact that we have been able to make it relatively safe. If we did not meet and study the control of each of these dangers as they appear, living in the world of today would be practically impossible. Since industrial arts represents our industrial civilization in school life, it is imperative that we incorporate safety education as a part of the instruction for each job that a student undertakes.

Shop presents the hazards of moving parts, sharp edges, flammable materials ,and electrical dangers. The movement of the pupils creates additional hazards especially in crowded areas. Therefore, safety education should be given first consideration in all school shop organization, planning, and instruction. The forming of safe habits have a carry-over value which may have an application in formal daily living.

In the same way that "teaching" implies a drawing out process, so may we develop, through the teaching of safe practices the initiative and personal needs of the student to develop desirable safety habits. It may be simply said, "The right way is the safe way".

Shop Arrangement

Work stations and work areas should be arranged so maximum visability of all activity may be obtained from any one position. Main traffic aisles used for carrying materials or travel should be at least five feet in width. Auxiliary aisles for travel within an area should be three feet or more. These aisles may be marked by painting with a color contrasting with the floor or by outlining with a two-inch colored strip.

Machinery and hot metal zones should be isolated from lines of traffic. An orderly arrangement for supplies, tools, materials, and loose equipment should be set up. Safety zones to avoid congestion around machines by painted lines two inches wide is recommended. Sequence of operations and tool usage should determine the relative position of equipment. Power tools should be given preference in location in reference to light.

Architectural Safety

Lighting

Good lighting will provide at least 40 foot candles at bench height and should be supplemented with additional local lighting where precision work is carried on.

Power Control

Power and light controls should be centralized on a convenient control panel and protected by lock and key. The control panel should be located in the shop so the instructor need not go into halls or other rooms to control his equipment.

Exhaust Fans

The finish or spray booth should be provided with an outside exhaust. Foundry, forging, welding, and automotive areas should also be equipped with an exhaust to the outside. The finishing room and spray areas should be equipped with non-arcing light and control switches to prevent explosions or fire. The construction of a properly designed hood is important for the exhausting of fumes and smoke from these areas.

Floors

Floor materials should meet the needs of the various areas. Non-skid areas should be provided on floors around dangerous machines such as the saw or shaper. Low platforms made of wood strips may be used in front of machines by short students while they are operating the machine. Wood or end grain block is recommended in all areas with the exception of the automotives and hot metals area. Concrete floors are recommended for these areas.

Shop Temperatures

Over heating a shop will cause sluggishness, while discomfort and reduction of dexterity through insufficient heating tend to increase the normal hazards of the shop. Inadequate ventilation tends to reduce alertness and affect general health, bringing on fatigue.

Fire Extinguishers

Fire extinguishers of the correct type should be readily available. Where there is little fire hazard or for woodwork, the acid type extinguisher may be satisfactory. For electrical, paint, oil or grease fires carbon dioxide extinguishers are recommended.

Safeguarding Equipment

All machines should be lubricated periodically and superfluous oil or grease carefully wiped away. Always stop the machine before cleaning, oiling, adjusting, or setting cutting tools.

When operating a machine, give it your undivided attention. Multiple plugs or semi-permanent electrical connections should not be used as outlets. Power equipment should never be connected to lighting circuits.

Students should not be allowed to operate machines until properly instructed.

Check adjustments and set up of a machine before turning on the power to see that it performs freely.

See that the areas around the hot metals unit and melting furnaces are free of fire hazard. The floor should be concrete.

All polished or finished surface of machinery should be coated with non-rust preservatives to prevent rusting during the summer vacation.

Design

Machine should be of unit type to provide maximum efficiency, safety, and flexibility of arrangement. Combining a circular saw, mortiser and jointer on a single base reduces the usefulness and efficiency of each machine, besides resulting in unnecessary interference and hazards.

Machines should be designed and used for only one type of work. A drill press, for example, which is in constant demand should not be expected to serve as a router, a shaper, a sander, and a hollow-chisel mortiser in addition to its principal function, drilling.

Machines should be fastened to the floor on individual bases, preferably enclosed on all sides to facilitate cleaning.

The equipment provided in a laboratory or shop should be of a size or capacity which will take care of the bulk, but not necessarily all, of the work which any one would like to do.

All motors should be equipped with overload protective devices of the thermal-relay or circuit breaker type. These devices should be incorporated in the motor switch control box.

The size, capacity, and power of any machine should be determined with reference to age, strength, height, and maturity of the pupils who are going to operate it. Equipment of good quality should have first consideration over quantity.

All machine tools should have individual motor drives, controls, and stands. The power of any machine should be adequate to operate the equipment under its full rated capacity and/or speed without unduly overloading the motor.

"V" type belts are preferred to flat belts from the standpoint of power, transmission, and general efficiency. Flat belts, however, if used should be of the endless type and may be preferred on occasion as a protective measure because of slippage on excessive overloads. This is particularly true where machines may be locked by jamming as in the case of an engine lathe, milling machine or shaper.

All reciprocating or revolving machine parts that work at high speeds should be balanced and counter balanced to reduce vibration to a minimum.

Machine standards should be sturdy and rigid in order to provide a solid base free from weaving and twisting.

All handles, wheels, and mechanical controls should be easily accessible to the operator, arranged so as not to interfere with each other and electroplated with an anti-corrosive metal for added visibility and ease of movement with the hand.

Speed controls should be convenient, safe, positive, and of a range sufficient for the work for which the machine was designed and the experience level of the operator.

The use of detached knobs or wrenches for adjusting and operating a machine should be avoided as far as possible.

Machine parts such as saw blades, drill press spindles and mortiser bits should be easily and quickly adjusted and interchanged without damage to the parts.

Machines might well include housing space for extra parts and attachments that are used exclusively with that machine. They should not interfere with the movements or comfort of the operator.

Machines should be designed to allow the optimum amount of working space around the point of operation.

Power machines should be provided with switches placed within the operator's natural reach and vision while the machine is in operation but located so accidental switching is avoided.

Where possible, motors should be housed within the machine but made easily accessible for maintenance. Safety switches of the magnetic or theremal type are recommended for all power machines. Machines should be designed to operate with a minimum noise factor.

Guards

Essential safety features should be designed and supplied as an integral part and not as a separate item of equipment.

All moving parts of power-driven machines should be guarded or enclosed except those used directly in the operation involved.

All hand-operated machines that present hazards such as squaring shears, punch presses, and paper cutters should be provided with effective guards.

All moving parts of motor driven equipment and spindles should be free of projections such as set-screws, knobs, keys, and threaded spindles unless properly guarded.

Guards should be simple in design and positive in action. Guards that adjust themselves automatically to the work being done are recommended over manual types.

All grinding equipment should be provided with local lighting and with shields of laminated safety glass.

Color

There are a number of systems for the use of color to aid in the promotion of safety in the shop. Below is one suggested method for increasing the safety factor of the shop.

High visibility yellow: alternate 2′ diagonal strips of yellow and black are used for low beams, truck bumpers, stairway risers.

Alert orange: to mark members of parts of equipment that might electrocute, cut, crush or otherwise injure.

White, grey or black: traffic lines

Bright red: any equipment for fire fighting (fire, only)

Safety green: shelf for goggles, safety bulletin boards

Light green or blue: for walls and background, tool cabinets

Light blue grey: apply to machines, benches, bench bases, fixed equipment

Focal buff: used for critical parts of machines to reflect light

Safety green and white: medicine cabinet (white cabinet with green cross)

Off white or cream: ceiling (for maximum reflection)

School Shop Safety and Safety Inspection

THE TEN COMMANDMENTS OF SCHOOL SHOP SAFETY

1. LEARN the safe way to do your job before you start.
2. THINK safety—act safety at all times.
3. OBEY safety rules and regulations.
4. WEAR proper clothing and protective equipment.
5. CONDUCT yourself properly at all times—horseplay is prohibited.
6. OPERATE only the equipment you are authorized to use.
7. INSPECT tools and equipment for safe condition before starting work.
8. ADVISE your instructor promptly of any unsafe condition or practice.
9. REPORT any injury immediately to your instructor.
10. SUPPORT the safety program; take an active part in safety meetings.

SAFETY INSPECTION (See Appendix)

The best safety inspection is for each student to be continually on the alert for violations of safe practices. Certain routine duties may well be delegated to a class member as safety engineer, with assistants. The school shop inspection form may be used as a guide.

It is important that the instructor report all hazards, through the administration, to the Board of Education. This report and recommended corrections should be kept on file. If those responsible, are not informed of known hazards, the responsibility for accidents will most surely fall upon the instructor.

SCHOOL SHOP INSPECTION FORM (See Appendix)

Periodic inspection of the department should be made by the teacher. This also can be a cooperative effort using the shop safety organization for periodic check. The shop inspection form found in the appendix is an excellent check list. Enthusiasm for safety on the part of the teacher and cooperative effort on the part of all students can make the department free of hazards.

STUDENT ACCIDENT REPORT FORM (See Appendix)

The reporting of accidents, the correct procedures in taking care of accidents in the shop is of prime importance for all concerned. The instructor should be familiar with the policies set up by the Board of Education for reporting and taking care of injuries.

The accident report form found in the appendix can be used in its entirety or can be made to conform with the local policy. **Any accident or in-**

jury in the shop should be investigated and a record made and filed with the proper authorities.

SAFETY ORGANIZATION

The Safety Organization for the industrial arts department, the positive instruction given for the elimination of hazards and for the safety of the student is one of the most important phases of a student personnel organization.

Each shop area may have its own organization, with a safety engineer and assistants. For schools with a number of shops the above may hold, but for a more effective program, an organization which will coordinate and integrate the functions for the entire industrial arts program is recommended.

A safety engineer can head the entire program with safety engineers assigned from each of the areas, and as such can act as the Safety Council for the department. Each area safety engineer will have as many assistants as needed to have an effective and efficient safety program.

RESPONSIBILITIES OF THE SAFETY ENGINEER AND ASSISTANTS

A check sheet may be used and the following are suggested items of common, potential hazards found in the shop area which fall under the responsibilities of the safety engineer.

1. Sleeves, aprons and neckties
2. Paint on danger zones
3. Soldering furnaces, flammable material, rubbish
4. Tools rests, belts
5. Flying chips, slippery floors
6. Care and use of goggles
7. Tools handles, dull tools, improperly ground and mushroomed tools
8. Lumber rack, scrap boxes
9. Sharp, splinter like edges on stock
10. Misplaced supplies
11. Cords, plugs and lights
12. First aid and accident report
13. Loose bolts and nuts
14. Periodic use of safety inspection forms
15. Be familiar with accident report form

Instructor

The instructor is responsible for:

1. The organization of a safety education program.
2. Object lessons—make full and immediate use of community accidents or near accidents through discussion as lessons to reduce their occurrence.
3. The safe use of tools and equipment.
4. The safe operation of hazardous machinery.
5. The overall appearance of the shop (Shopkeeping).
6. Cooperating with the safety engineer in the correction of safety violations.
7. The reporting of facts to the office, the school nurse or physical defects or illness.
8. The safeguarding of machines and equipment.
9. The regular scheduling of safety inspections and maintenance of equipment and machinery.

Agencies

A number of outside groups have an interest in the safety instruction and operation of the school shop and have materials available which will be of value to the shop teacher in developing his safety program.

1. **Fire Department**—Some fire departments make regular checks on school shops and point out hazards and suggest remedies.
2. **Insurance Inspectors**—They make regular periodic inspections of the shop and sometimes have literature of value to the shop teacher.
3. **Industrial Commission of Ohio**—Inspectors from the Division of Safety and Hygiene make periodic visits to check proper guarding of equipment, their safe operation and other factors which will contribute to safe operation. He makes suggestions where corrections are to be made. The Industrial Commission of Ohio has available Bulletin No. 203—"Specific Requirements and General Safety Standard of the Industrial Commission of Ohio for Workshops and Factories."

APPENDIX

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SPRINGFIELD LOCAL SCHOOL
ONTARIO, OHIO

To the Parents:

In order to give you a better understanding of the Industrial Arts courses, we have prepared this outline.

Your attention is especially directed to the safety regulation.

Robert Coon, Instructor
L. C. Stingel, Superintendent

_____, 19____

I have examined the outline of the Industria Arts courses.

_____
Parent's Signature

The Industrial Arts Department of the Springfield Local School, Ontario, Ohio, gives to the parent of each student for review, their course of study. The outline includes the objectives, a brief statement of procedures and areas of work by grade level.

The above statement is placed at the front of the outline and returned with the outline signed. If no changes are made in the program the signed page is detached, another inserted for the next year or future use.

INDUSTRIAL ARTS PROCEDURES

1. All Industrial Arts students must pay $1.50 non-returnable fee. This fee covers breakage, usage and expendable supplies.

2. All students in Industrial Arts I and II must have their drawing workbooks.

3. All students must have a shop card before working on a project. The card value is $2.00 and is purchased in the office. All money remaining on cards at the end of the school year is refunded. This card is used to purchase material.

4. All material must be paid for before it is used. There is no credit given.

5. All students must have a project in their area of work.

6. There will be no "horseplay" in the shop.

7. All beginning students using power tools must first secure the instructor's approval. Later when familiar with the tools, they may secure permanent approval.

8. All students will put their tools away and assist in cleaning the shop at the end of the period.

9. All assignments must be handed in when due, unless the student is absent or excused.

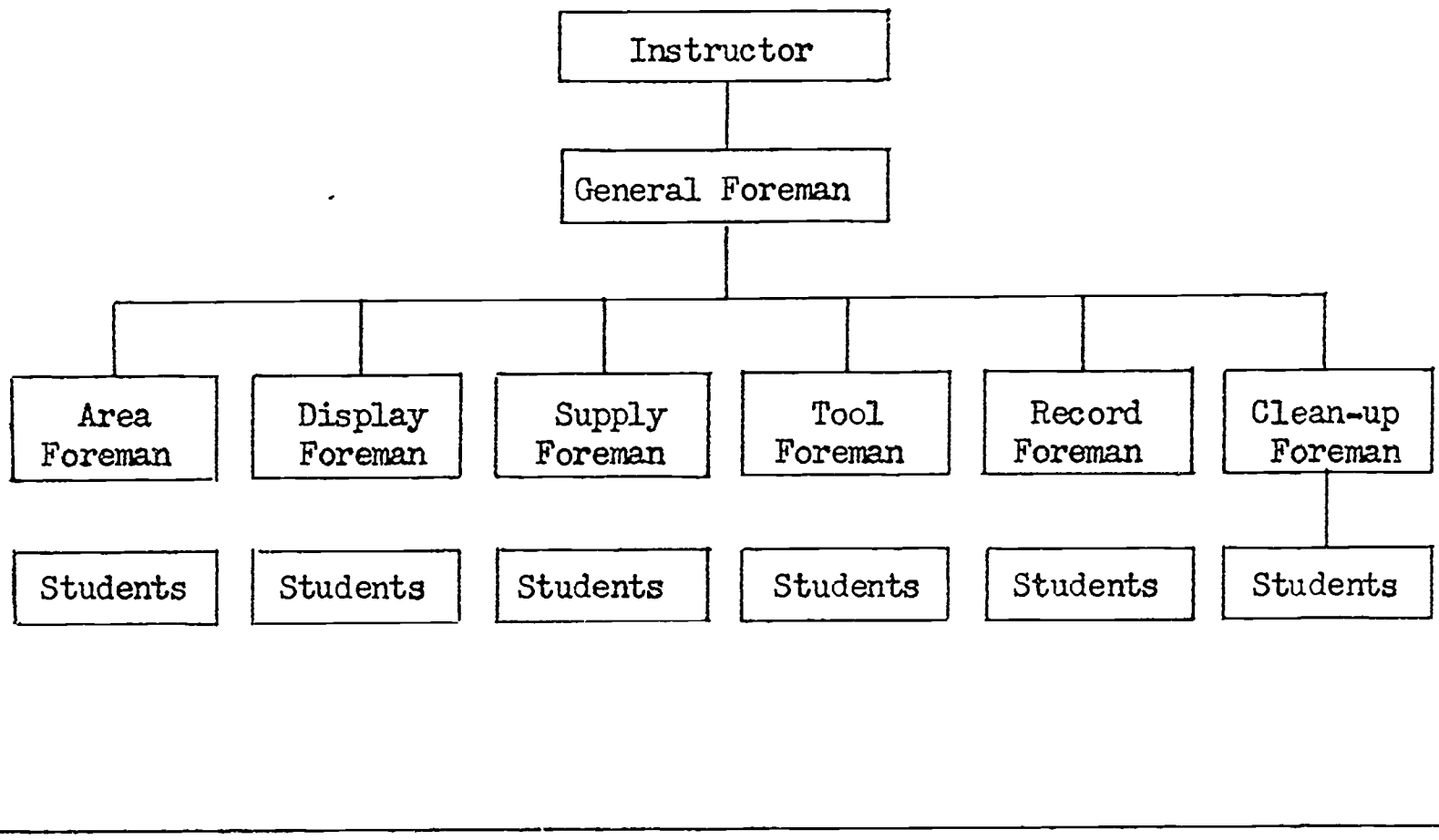
10. All students are reminded that other students' projects and work are not to be handled or disturbed.

11. All safety precautions must be observed. Failure of a student to do so is ground for removal from shop classes.

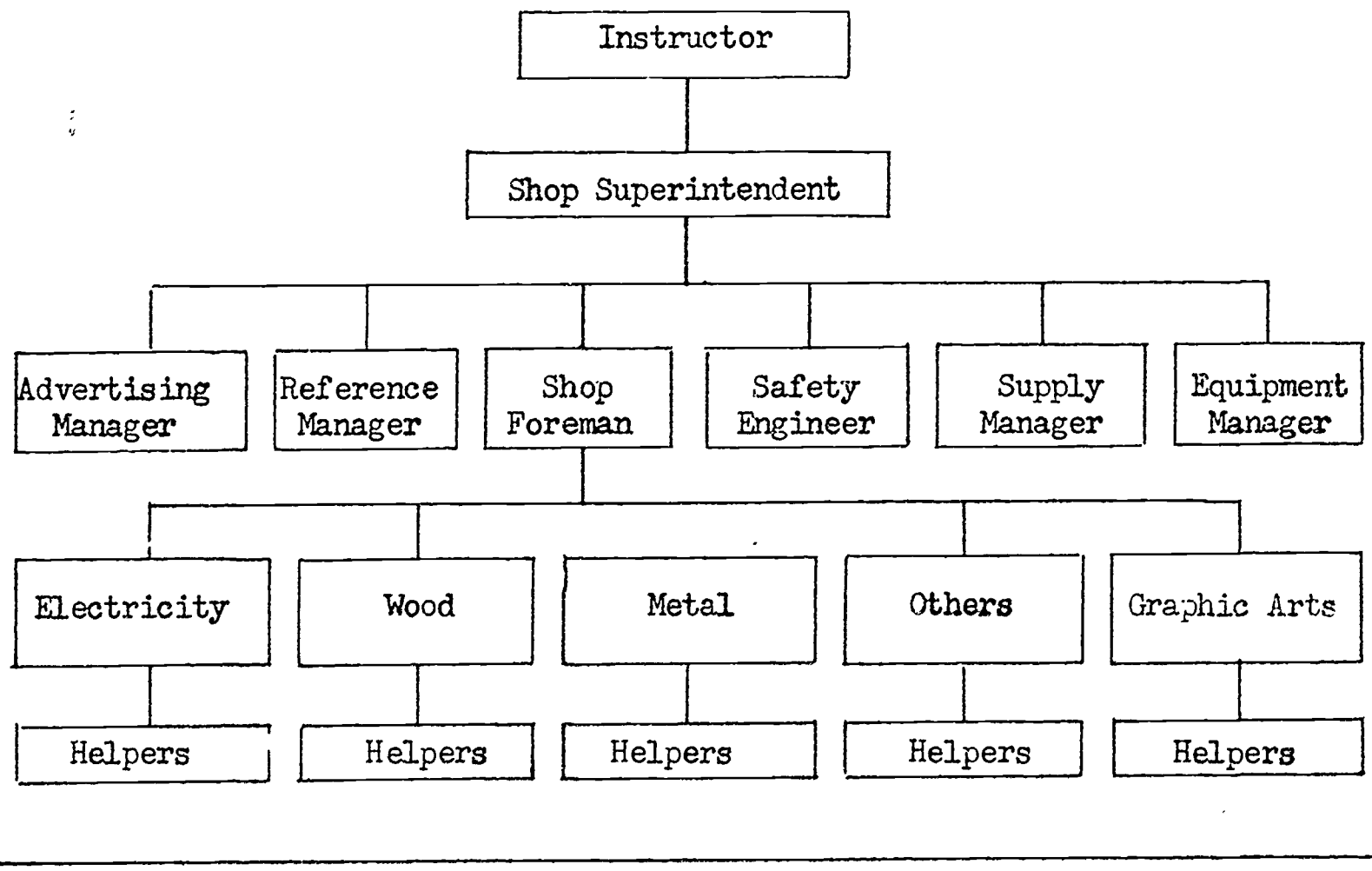
12. The school is not responsible for accidents.

Note: The above are suggestions used by Mr. Coons, at Ontario and are included in the material in the Industrial Arts program reviewed by the parent.

SHOP PERSONNEL ORGANIZATION



SHOP PERSONNEL ORGANIZATION



COLUMBUS PUBLIC SCHOOLS

Industrial Arts Department

METAL AND ELECTRICAL SUPPLIES

Date ..... , 19 ...

School _____ Instructor

Article		Article		Article	
Belt Dressing	Stick	1 x 6–32 Round Hd.	Box	Steel Wool, No. 00	Roll
Belt Lace, #1 Rawhide	Ft.	1½ x " " "	Box	" " No. 0	Roll
Brushes, Bench	No.	⅜ x 8–32 " "	Box	" " No. ½	Roll
Bucket Ears, No. A	No.	½ x " " "	Box	Stove Bolts and Nuts	
" " No. B	No.	⅝ x " " "	Box	⅛ x ½ Flat Head	Box
" " No. C	No.	¾ x " " "	Box	[illegible] Stamp	No.
" " No. D	No.	1 x " "	Bar	Tape, Friction	Roll
" " No. E	No.	Towels (Paper)	Pkg.	" Rubber	Roll
" " "	Box	Solder, 50–50	Bar	Wire, #14 Insulated, 200'	Roll
1 x " " "	Box	" Acid Core	Roll	" #18 Annuncr. 7 lb.	Spl.
1¼ x " " "	Box	" Rosin Core	Roll	" #20, Magnet, 5 lb.	Spl.
1½ x " " "	Box	Solder Flux		" #24 " 5 lb.	Spl.
⅜ x 6–32 Round Hd.	Box	Artisan	Qt.	" #28 " 8 lb.	Spl.
½ x " " "	Box	Ruby Fluid	Qt.	" #24, Black Annealed 6 lb.	Spl.
⅝ x " " "	Box	Sal Amoniac	Block		

Checked ..... Director _____ Principal

Approved ..... Asst. Supt.

SHOP PROJECT and TIME RECORD CARD

_____ School

Name _____ Period _____ Date _____

Area in which work is being done _____

Projects	Started	Finished	Total Hours	Cost	Paid	Grade
		Totals				

CLASS PROGRESS CHART

SCHOOL_____

DATE_____

AREA_____

GRADE_____

Learning Units to be accomplished

COURSE OUTLINE

SCHOOL_____

DATE_____

AREA_____

GRADE_____

Jobs and Projects

PROCEDURE OR JOB SHEET

_____ High School

Industrial Arts Department

Name _____ Class _____ Period _____

Project _____ Date Started _____ Date Finished _____

1. A detailed working drawing has been approved Yes___ No___
2. Draw a free hand sketch on the back of this form
3. Indicate the source from which your idea was obtained

BILL of MATERIAL

Material	Quantity	Part	Size	Unit Cost	Cost

PROCEDURE

Steps to be done	Tools & Machines to be used

Approved by _____ Date _____

INVENTORY FORMS

SUPPLIES and MATERIALS

_____School

Inventory by_____ Department_____ Date_____

INSTRUCTIONS: List all supplies and materials on hand.
Use separate Inventory form for supplies e.g., bolts, screws, etc., and materials, e.g., lumber, steel, etc.

Total value of supplies on hand			

BOOK INVENTORY

INDUSTRIAL ARTS DEPARTMENT

_____HIGH SCHOOL

Title	Date	Author	Condition

Columbus Public Schools

INDUSTRIAL ARTS EDUCATION

STUDENT COLLECTION AND PAYMENT RECORD

SCHOOL _____ SHOP _____

INSTRUCTOR _____ _____ TERM ____19 ____19 _____

STUDENT'S NAME	GRADE	AMOUNT REC'D		DATE	REMARKS
		Fee	Material		
	TOTALS				

RECEIVED _____ DATE _____ 19 ____
School Treasurer

MACHINERY INVENTORY FORM

Name of School _____

Department _____ Inventoried by _____

Quantity	Equipment	Discription	Date Acquired	Acquisition value	Condition

TOOL LENDING FORM

This form must be filled out before permission will be granted for the removal of tools or equipment from this department.

This form is to be initialed by the person responsible for returning the tools or equipment in good condition, and at the time indicated below.

NAME OF TOOL/S _____

_____

_____

DEPARTMENT LOANING _____

*PERSON BORROWING _____

STUDENT _____

DATE OUT _____ RETURNED _____

*Must be initialed before tool/s are taken from the department.

OUTSIDE WORK ORDER

In order that some control will be placed upon requests for work to be done in or by the Industrial Arts Department from persons outside of the department this work order must be completed and approved as indicated.

WORK REQUESTED _____

_____

PURPOSE _____

REQUESTED BY _____ DATE _____

SCHOOL _____ DEPARTMENT _____

WHEN NEEDED _____ MATERIALS FURNISHED ____ YES ____ NO ____

COSTS CHARGED TO _____

ASSIGNED TO _____ SCHOOL _____

SUPERVISOR _____

_____ 195__ ADMINISTRATIVE HEAD _____

DATE APPROVED

TEACHER ASSIGNED _____

CENTRAL HIGH SCHOOL

INDUSTRIAL ARTS DEPARTMENT

LIMA, OHIO

REQUISITION NO._____ DATE_____

TO Department Head: The following is needed for:

Unit of work_____ Year_____

Quantity	Specifications	Unit Price	Amount
		Total	

Date Needed_____ Signed_____

Remarks: _____

_____

_____

Received_____

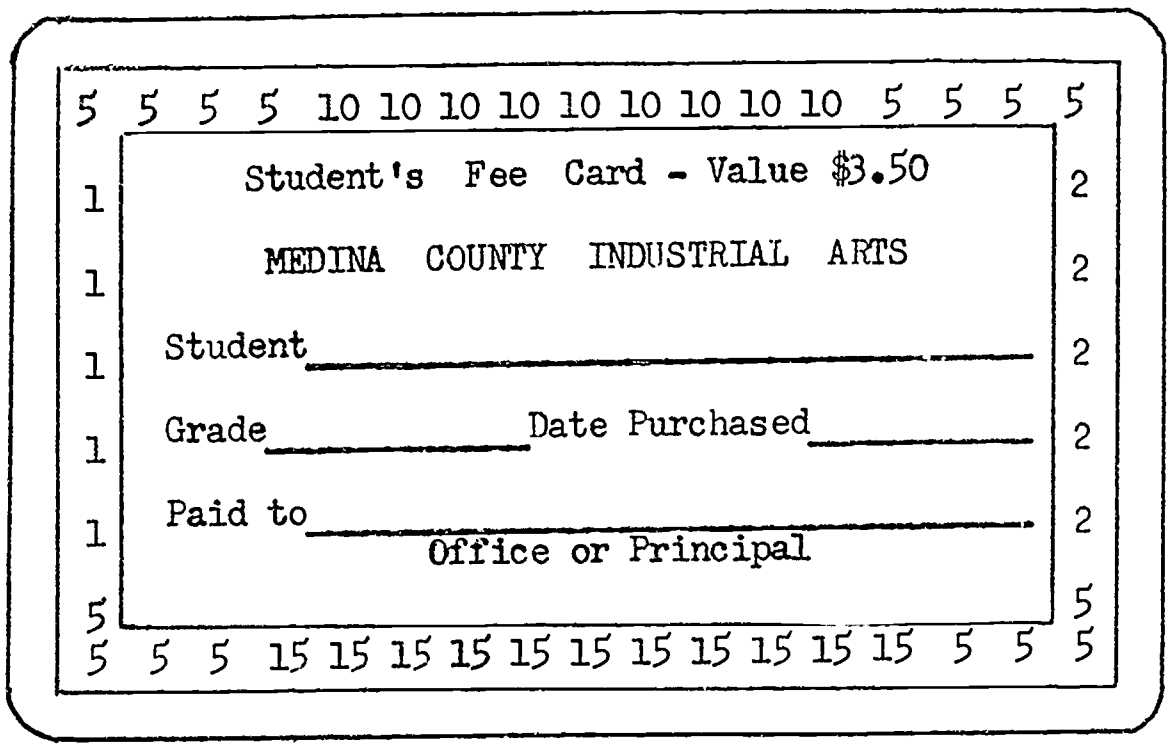
_____School

STUDENT'S RECEIPT

Name_____ Date_____

Paid For_____
Project or Materials

Amount Paid_____ Received by_____
Office or Instructor



STUDENT REQUISITION FORM

INDUSTRIAL ARTS DEPARTMENT

_____ SCHOOL

Name_____ Grade_____ Total Cost_____

Problem_____ Date_____

INSTRUCTIONS: Design and plan must be approved before work is begun.

No. pes.	Part	Material	Size	Unit Cost	Total Cost
				Total Cost	

I have received the above material and agree to pay the sum of $___.___ for the same.

Design and Plan approved_____ Signed Pupil_____
Instructor

_____ PUBLIC SCHOOLS

Industrial Arts Department

LUMBER REQUISITION

Date _____ 19___

_____ School _____ Instructor

BOARD FEET	THICKNESS	VARIETY	S-2-S	RGH.

SQUARES

BOARD FEET	SIZE	VARIETY

PLYWOOD

SQUARE FEET	SIZE	VARIETY	G-1-S	S-1-S	G-2-S	S-2-S

CHECKED _____ Director

APPROVED _____ Asst. Supt. _____ Principal

MACHINE OPERATING PERMIT

Name _____ has completed all requirements for operating the power equipment listed below. All operating tests and safety test has been satisfactorily completed.

This permit is for operation of the _____

Date _____ Instructor _____

This permit will be revoked if any of the operational procedures or safety instruction pertiinent to this equipment are violated. Re-instatement of this permit will be at the discretion of the instructor.

PARENT'S PERMIT SLIP

Name _____

has my permission to operate the machines and tools in the Industrial Arts shop for the year 19__ - 19__.

In case that an accident should occur we prefer that he receive medical treatment from Dr. _____.

Signed by his parents or legal guardian:

_____

_____

Dated _____

INDUSTRIAL ARTS CUMULATIVE RECORD

_____ PUBLIC SCHOOLS

_____ JUNIOR-SENIOR HIGH SCHOOL

Name _____ Home Room _____
Last First Middle

Address _____

Date Entered _____ Admitted From _____
Date of Birth _____ Birth Place _____
Resides with _____ Relationship _____
Entered Junior High School _____ Date of Graduation _____
Entered Senior High School _____ Date of Graduation _____

AREA/S of SPECIAL ABILITIES Final Grade _____

1. _____ 3. _____
2. _____ 4. _____

Signed by Date _____

_____ _____
Principal Instructor

Grade ____ Semester ____ Date ____

AREA/S of EXPERIENCE

1. Drawing _____ Grade _____
2. _____ Grade _____
3. _____ Grade _____
4. _____ Grade _____

Periods Per Week ____ Sem. Grade ____

Attitude _____ Ability _____
(Indicate above as: Poor, Fair, Good, or Excellent)

Grade ____ Semester ____ Date ____

1. Drawing _____ Grade _____
2. _____ Grade _____
3. _____ Grade _____
4. _____ Grade _____

Periods Per Week ____ Sem. Grade ____

Attitude _____ Ability _____
(Indicate above as: Poor, Fair, Good, or Excellent)

Comments _____

_____

Signed _____
Instructor

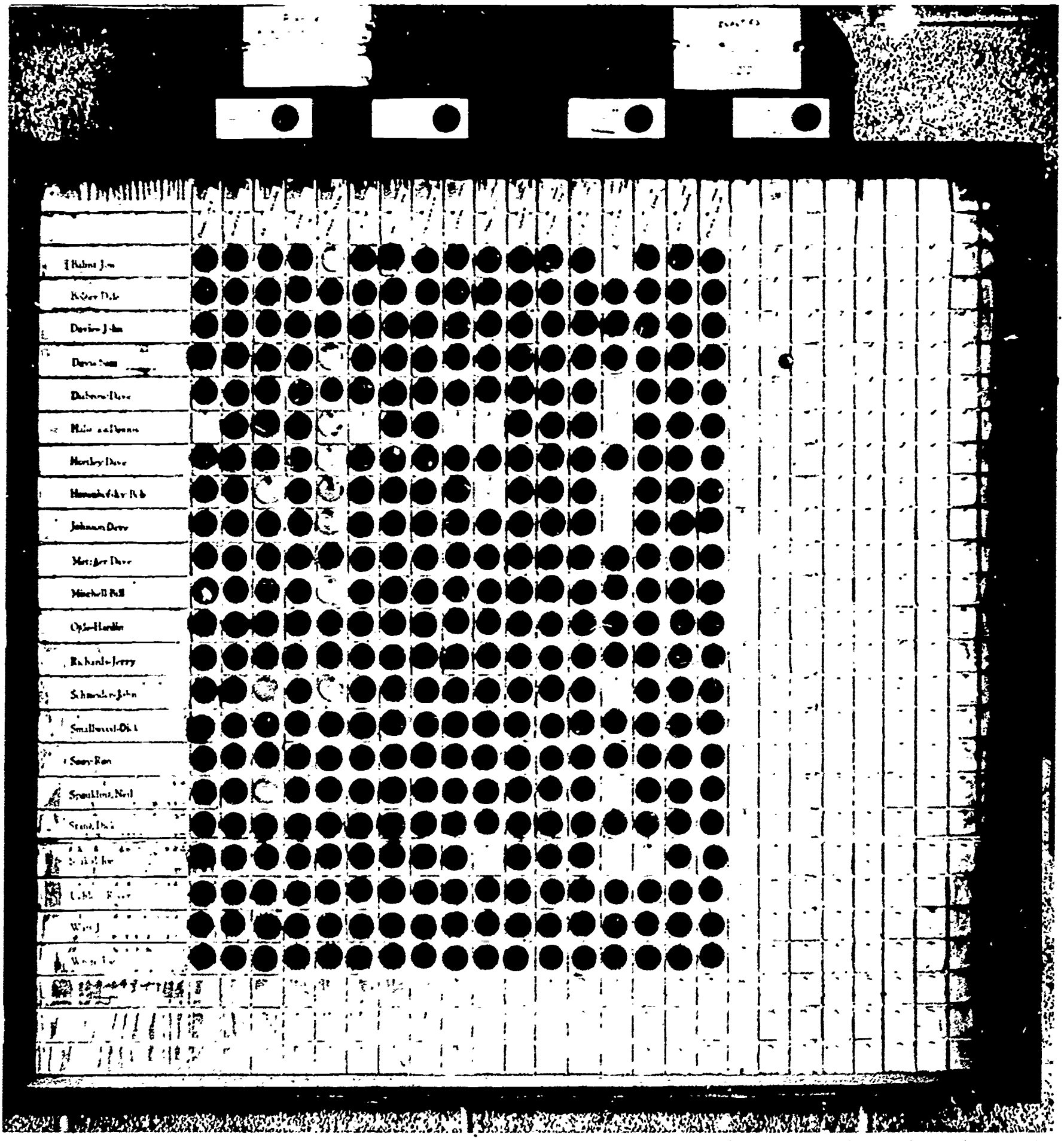
Cumulative records are recommended for use in the industrial arts department. It should follow the student from one department to another and should be adequate to cover his work through the junior and senior high school years.

This should give a complete picture of the work completed, his attitudes and special abilities which will act as a guide for future recommendations. The information can be combined with his academic record or filed in conjunction with it.

Elyria Public Schools

Elyria, Ohio

SAFETY CHART



Printed by permission of Elyria High School.

The purpose of this safety chart is to bring before the student the importance of safety and proper know how in the operating of various power equipment. This chart is used for the advanced class, which is composed of juniors and seniors.

At the beginning of the school year, a week or so is spent in going over the operation, purpose and safety of each machine. Those included are jointers, planers, table saws, wood lathes, drill press, mortiser, table sander, portable sander, router, electric hand drill, grinder, band saw, jig saw, and spray gun. This procedure will work well in other departments.

The class roster is found on the left hand side of the chart. The names of the power equipment are along the top side.

A written test for each machine is available to the student upon his request. He must pass this test 100% before he is allowed to operate the machine.

If he should pass the test, a green tag is placed by his name under that machine. If he should fail the test, a black tag is used.

If at any time during the year a student should disobey a safety rule, use the machine improperly, or do another's work, he is penalized for one week and is not permitted to operate the machine during that week. Then he must take the test over and again pass it 100%. The second penalty is one month, the third penalty is the remainder of the school year. During this penalty period, a red tag is used.

The student is allowed to take the test no more than five times throughout the school year. If he is unable to pass the test by then he must do the work with hand tools.

A record is kept by the instructor of all tests taken, the date and penalties of each student. All tests are filed for future reference.

A yellow tag is used when a student has shown, by continued failure on safety tests, that it might be dangerous for him to use a particular machine. A yellow tag is placed by his name to show that he is not to use the machine until he has been given the final O.K. by the instructor.

D. A. Morris
Supervisor of Industrial Education

Robert Hersman
Instructor

STATE OF OHIO

DEPARTMENT OF EDUCATION

COLUMBUS

SCHOOL SHOP INSPECTION FORM

School ..... City..... County ..... Date.....

Address ..... Shop ....

Inspection made by..... .....Title.....

.....

.....

Directions: The inspector when asked to rate an item or items, will draw a circle around the letter applicable. The following letter scheme is to be used.

S—Satisfactory (needs no attention)
A—Acceptable (needs some attention)
U—Unsatisfactory (needs immediate attention)

The inspector should make recommendations in all cases where a "U" is circled. Space is provided at the close of the form for such comments. Designate the item covered by the recommendations by using the code number applicable, as II-2.

I. THE GENERAL SITUATION

1. Who is responsible for the safety program in this shop? .....
2. Has a previous safety inspection been made of this shop? .....
3. If yes, by whom? .....
4. Date of that inspection .....
5. Have the recommendation of that inspection been carred out? If not, indicate why not and list exceptions. .....
6. Give your evaluation for the total rating for I. THE GENERAL SITUATION.....S A U

II. GENERAL PHYSICAL CONDITION

1. Machines, benches, and other equipment are arranged so as to conform to good safety practices.....S A U
2. Rate the condition of stairways.....S A U
3. Rate the condition of aisles.....S A U
4. Rate the condition of floors. .....S A U
5. Rate the condition of walls, windows, and ceiling.....S A U
6. The illumination is safe, sufficient, and well placed..... S A U
7. Rate the ventilation. .....S A U
8. Rate the temperature control. .....S A U
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained.....S A U
10. Teacher and pupils know location of and how to use proper type for various fires.....S A U
11. The number and location of exits is adequate.....S A U
12. Proper procedures have been formulated for emptying the room of pupils and taking adequate precautions in case of emergencies. .....S A U
13. Lockers are inspected regularly for cleanliness and fire hazards. .....S A U
14. Locker doors are kept closed. .....S A U
15. Give your evaluation for the total rating of II. GENERAL PHYSICAL CONDITION.....S A U

III. HOUSEKEEPING

1. Rate the general appearance as to orderliness. ..... S A U
2. There is adequate and proper storage space for tools and materials... ..... S A U
3. The benches are kept orderly..... ..... S A U
4. The corners are clean and clear. ..... S A U
5. Special tool racks, kept in orderly condition, are provided at benches and machines. ..... S A U
6. The tool, supply, and/or material room is orderly. ..... S A U
7. Sufficient scrap boxes are provided. ..... S A U
8. Scrap stock is put in scrap boxes promptly. ..... S A U
9. Materials are stored orderly and in a safe condition. ..... S A U
10. A spring lid metal container is provided for oily rags and waste..... S A U
11. All waste materials and oily rags are promptly placed in the containers. ..... S A U
12. Containers for oily rags and waste materials are frequently and regularly emptied..... S A U
13. Dangerous materials are stored in metal cabinets. ..... S A U
14. Give your evaluation for the total rating for III. HOUSEKEEPING. ..... S A U

IV. EQUIPMENT

1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc. ..... S A U
2. Danger zones are properly indicated. ..... S A U
3. All equipment control switches are easily available to operator..... S A U
4. All machines are "locked off" when instructor is out of room..... S A U
5. Brushes are used for cleaning equipment. ..... S A U
6. Non-skid areas are provided around machines. ..... S A U
7. Machines are in safe working condition. ..... S A U
8. Machines are guarded to comply with Ohio Industrial Code. ..... S A U
9. Adequate supervision is maintained when students are using machines and dangerous tools..... S A U
10. Tools are kept sharp, clean, and in safe working order. ..... S A U
11. Give your evaluation for the total rating for IV. EQUIPMENT. ..... S A U

V. ELECTRICAL INSTALLATION

1. All switches are enclosed. ..... S A U
2. There is a master control switch for all of the electrical installations. ..... S A U
3. An electrician changes fuses of over 30 amperes. ..... S A U
4. Electrical outlets and circuits are properly identified. ..... S A U
5. Give your evaluation for the total rating for V. ELECTRICAL INSTALLATION..... S A U

VI. PERSONAL PROTECTION

1. Goggles are provided and required for all work where eye hazards exist..... S A U
2. If individual goggles are not provided, hoods and goggles are properly disinfected before use..... S A U
3. Shields are provided for electric welding. ..... S A U
4. Aprons or shop coats are worn in the shop..... S A U
5. Rings and other jewelry are removed by pupils when working in the shop. ..... S A U
6. The proper kind of wearing apparel is worn for the job being done. ..... S A U
7. Leggins, safety shoes, etc. are worn in special classes such as foundry, etc., when needed. ..... S A U
8. A respirator is used when spraying in the finishing room. ..... S A U
9. Give your evaluation for the total rating for VI. PERSONAL PROTECTION. ..... S A U

VII. INSTRUCTION

1. Shop safety is taught as an integral part of each teaching unit. ..... S A U
2. Safety rules are posted. ..... S A U
3. Printed safety rules are given each student. ..... S A U
4. The pupils take a safety pledge. ..... S A U
5. The shop makes use of a safety inspector. ..... S A U
6. There is a shop safety committee. ..... S A U
7. Safety contests are promoted. ..... S A U
8. Motion and/or slide films on safety are used in the instruction. ..... S A U
9. The shop has a safety suggestion box. ..... S A U
10. Safety tests are administered. ..... S A U
11. Safety posters are in evidence. ..... S A U
12. Talks on safety are given to the classes by industrial men. ..... S A U
13. Tours are taken of industrial plants as a means of studying safety practices..... S A U
14. Periodic safety inspections of the shop are made by a student committee..... S A U
15. Men from industry make safety inspections of the shop. ..... S A U
16. Give your evaluation for the total rating of VII. INSTRUCTION. ..... S A U

VIII. ACCIDENT RECORDS

1. Adequate accident statistics are kept. ..... S A U
2. Accidents are reported to the proper administrative authority..... S A U
3. A copy of each accident report is filed with the State Department of Education. ..... S A U
4. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards. ..... S A U
5. Give your evaluation for the total rating of VIII. ACCIDENT RECORD. ..... S A U

IX. FIRST AID

1. An adequately stocked first aid cabinet is provided. ..... S A U
2. The first aid is administered by a qualified individual. ..... S A U
3. The school has two or more individuals qualified to administer first aid. ..... S A U
4. Give your evaluation for the total rating of IX. FIRST AID. ..... S A U

RECOMMENDATIONS

Code No.	

STATE OF OHIO
DEPARTMENT OF EDUCATION
COLUMBUS

STANDARD STUDENT ACCIDENT REPORT FORM

Use this form to report all accidents to students

Injuries requiring a doctor's care or keeping a student out of school one-half day or more, should be reported regardless of where the student was when injured (on school property, enroute to or from school, at home, or elsewhere).

1. Name of Pupil..... Age:..... Sex: M ( ) F ( )
2. Address of Pupil..... Grade or Classification.....
3. School..... Township or city.....
4. Time Accident Occurred: Hour.....A.M.....P.M. Date .....
5. Place of Accident: School Building; School Grounds; To or from School; Home; Elsewhere

6. Nature of Injury / Part of Body Injured

Nature of Injury			Part of Body Injured		
Abrasion.....	Fracture		Ankle.....	Hand.....	Finger.....
Amputation.....	Laceration		Arm.....	Head.....	Foot.....
Bruise.....	Puncture		Back.....	Knee.....	Tooth.....
Burn.....	Scratches		Elbow.....	Leg.....	Wrist.....
Concussion.....	Sprain		Eye.....	Nose.....	Others (specify)
Cut.....			Face.....	Scalp.....	.....
Others (specify).....					.....

Permanent Impairment.....Death.....

7. Description of the Accident

How did accident happen? What was student doing? Where was student? List specifically unsafe act and unsafe conditions existing. Specify any tool, machine or equipment involved.

.....
.....
.....

8. REMARKS: What recommendations do you have for preventing other accidents of this type?

.....
.....
.....
.....

9. Total number of days lost.....(To be recorded when student returns to school.)

ADDITIONAL INFORMATION ON SCHOOL JURISDICTION ACCIDENTS

Injuries, however slight, to students while under school jurisdiction, should be reported promptly. Unless otherwise defined by administrative ruling or court action, school jurisdiction accidents are those occurring while students are on school property, in school building and on the way to and from school.

10. Teacher in charge when accident occurred (Enter name):.....
11. What action was taken immediately and by whom?
    - First-aid treatment.....By whom? (Enter name): .....
    - Sent to school nurse.....By whom? (Enter name): .....
    - Sent home.....By whom? (Enter name): .....
    - Sent to physician.....By whom? (Enter name:.....Physician (Name).....
    - Sent to hospital.....By whom? (Enter name):.....Hospital (Name) .....
12. Was a parent notified? No.....Yes.....When:..... How:.....
    By whom? (Enter name): .....
13. Location: Specify activity:

Athletic field	.....	Laboratories	.....
Auditorium	.....	School Grounds	.....
Class room	.....	School Shops	.....
Corridor	.....	Showers	.....
Dressing Room	.....	Stairs	.....
Gymnasium	.....	Toilet Room	.....
Home Ec.	.....	Other	.....

Signed: Principal: .....

Teacher: .....

PROCEDURE FOR REPORTING ACCIDENTS

All accidents occurring to pupils enrolled in the schools from the opening of school in September until the close of school in June should be reported, including accidents occurring on Saturdays, Sundays, holidays, and during vacation periods.

Reports should be made in duplicate. Keep the original; send the duplicate to the address given below:

1. When a pupil loses one-half day or more from school as a result of an accidental injury, the report should be retained until the child returns to school, at which time the report should be sent to the Division of Safety Education, Room 607, State Office Building, Columbus 15, Ohio.

2. When a pupil is not counted absent from school as a result of an accidental injury, a report form should be mailed the same day the accident occurs.

3. When a pupil is withdrawn on a Doctor's Certificate because of a serious injury, he is counted absent only up to the date of withdrawal. Report form should be mailed as soon as pupil is withdrawn.

4. When a pupil is withdrawn from school on account of accidental death, the report form should be mailed immediately.

5. When a pupil is still absent at the end of the first semester as a result of accidental injuries, the report should be retained until the child returns to school, unless he has been withdrawn.

6. When a pupil is still absent at the end of the school year in June as a result of accidental injuries, the report should be mailed then, counting the absence to the close of the school year.

7. When there are no accidents to be reported for the calendar month, write "No Accidents To Be Reported" and the name of the month and the school on the face of a report form and mail form to the Division of Safety Education, Room 607, State Office Building, Columbus 15, Ohio.

A separate form should be filled out for each accident.

All information asked for on the report form, such as age, grade, number of days absent, name of school, etc., should be given.

All accident forms should be signed.

WITNESSES

If the Local Policy Requires it, space for witnesses' name and address is given below:

Witness ..... Address .....

Witness ..... Address .....

Witness ..... Address .....

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OHIO

To test the hypothesis that instruction provided by the schools for practical nursing in Ohio is consistent with the daily work assignments received by the graduate practical nurse and that no additional training is needed to prepare the practical nurse for her occupation, information was gathered directly from: (1) currently employed licensed practical nurses, (2) clinical instructors in schools of practical nursing, and (3) the coordinators or directors of the schools concerned. The five survey instruments used to collect data were: (1) Instruction and Inquiry for Clinical Instructors, (2) Questionnaire for the Licensed Practical Nurses, (3) General Information Questionnaire for Licensed Practical Nurses, (4) General Information Questionnaire for Coordinators of Schools of Practical Nursing, and (5) Checklist for Coordinators and Clinical Instructors. Two of the nine conclusions were: (1) There seems to be no general conformity among the schools with respect to the curriculum or the choice of teaching materials, and (2) Present student selection devices are inadequate. Two of the seven recommendations were (1) that a basic philosophy of practical nurse education in publicly-supported schools be formulated and accepted by students, clinical instructors, and coordinators, and (2) that each faculty member make herself aware of the actual work situation in the hospital in which she serves, in order that she may not unwittingly mislead practical nurse students as to what they may expect in subsequent employment. This is a summary of a doctoral dissertation "Comparison of Work Assignments with Training in Ohio Public Schools of Practical Nursing," submitted to Ohio State University. (EM)

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Practical Nurse Education In Ohio

RE 000 913

RESEARCH BULLETIN NO. 3

VOCATIONAL TRADE AND INDUSTRIAL EDUCATION SERVICES
THE OHIO STATE UNIVERSITY THE STATE DEPARTMENT OF EDUCATION
COLUMBUS, OHIO

PRACTICAL NURSE EDUCATION IN OHIO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Based on a Doctoral Research Study by Gordon G. McMahon entitled "Comparison of Work Assignments With Training in Ohio Public Schools of Practical Nursing."

Study directed by Dr. C. B. Allen, Professor of Education, Western Reserve University, Cleveland, Ohio.

Research Bulletin No. 3

OHIO TRADE AND INDUSTRIAL EDUCATION SERVICES

Division of Vocational Education
State Department of Education
Columbus, Ohio

In Cooperation With
The Ohio State University
College of Education

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1964

Preface

This study is based on information gathered from three specific groups; first, currently employed licensed practical nurses; second, clinical instructors now employed in schools of practical nursing; and third, the coordinators or directors of the schools involved. This study should be of interest to any practical nursing school or to those members of state departments for vocational education who may be involved in the supervision of practical nursing education.

This study was carried on by Dr. Gordon G. McMahon under the direction of Dr. C. B. Allen of Western Reserve University. Dr. McMahon received considerable assistance from all of the schools of practical nursing in Ohio but particularly from the coordinators and their clinical instructors. Miss Martha R. Graves, Nurse Consultant, Ohio State Board of Nursing Education and Nurse Registration, and Mrs. Marjorie Galloway, Assistant State Supervisor of Practical Nursing Education, were instrumental in promotion of the study. Miss L. Gullette, who later became Assistant State Supervisor, was also very helpful. Dr. McMahon is particularly grateful to Miss Donna Bove and Miss Sara McCollough of the Choffin School of Youngstown for their help on the construction of the procedure list used in this study.

It is the purpose of this report to provide the results of this study to other states and other practical nursing schools which are concerned with curriculum development.

Acknowledgment is extended to Dr. Robert M. Reese for coordinating the results of this report with the Instructional Materials Laboratory, and to the staff of the Laboratory for printing and distributing this publication.

Earl C. Fowler, State Supervisor
Trade and Industrial Education

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I. *Introduction*

The need for nursing services is as old as humanity. The effort to provide those services is certainly as old as recorded history. It is only in recent years, however, that nursing has achieved the status of an organized and licensed occupation. Before Florence Nightingale gave stature to the calling, the nurse was anyone--mother, maiden aunt, neighbor--whose services were available for the care of the sick and, very frequently, the care of the entire household in which she was employed. She was, in every sense, a practical nurse, skilled in changing a poultice or delivering an infant and equally practiced in cooking and scrubbing. This combination housekeeper and nurse continued to carry the principal burden of nursing care long after the first schools were established to train nurses. The Public Health Service estimates that in 1900 there were as many as 109,000 practical nurses and midwives in the United States, contrasted with less than 10,000 professional nurses.[1]

As schools of nursing increased and hospital construction advanced, the two positions were reversed. By 1959, the number of professional or registered nurses had increased to more than half a million.[2] Even this tremendous increase could not keep pace with the demand for nursing care. Some way had to be found to supply the registered nurse with an assistant who was equipped to understand basic nursing procedures and to interpret intelligently the directions

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[1]U. S., Department of Health, Education, and Welfare, Public Health Service, Health Manpower Source Book, Section 9, 1959, p. 3.

[2]Ibid.

of professional nurses and doctors. Many of the traditionally self-trained practical nurses were still working; but without knowledge of hospital techniques, they could not fill the need.

The second world war gave impetus to the organization of schools dedicated to the development of a new type of practical nurse. State governments established licensing procedures and the federal government provided funds to assist in the establishment of schools under public control. Ohio's licensing law was not passed until 1956; but the need for trained practical nurses was so apparent that twenty-three schools were in operation by 1961, fourteen under the control of public education. Continuing studies, directed by the Assitant State Supervisor for Practical Nurse Education in the Vocational Division of the State Department of Education, are resulting in the organization of additional schools, where interest and need are clearly defined.

Unfortunately, practical nurse education is of such relatively recent origin that it is still in that stage of disagreement over basic purposes which usually precedes and frequently accompanies the establishment of a basic curriculum in any area of education. As recently as 1940, there were only ten recognized programs of practical nurse education in the United States. By 1960, the number had increased to 662, graduating 16,000 students annually.[3] This tremendous growth had been accomplished without a definition of practical nursing as an identifiable occupation, with the result that no universally accepted curriculum has emerged.

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[3]Margaret D. West and Beatruce Crowther, Education for Practical Nursing, 1960, Report of the Department of Practical Nursing Programs, National League for Nursing (New York, 1962), p. 8.

> In the past, instructional materials for preparatory programs have been selected from Professional Nursing literature and an attempt made to adapt these to Practical Nursing. As a result, many courses of study resembled shortened versions of the Professional Nursing preparation with loss of the major values in a curriculum planned around preparation for an identifiable occupation.[4]

Accurate delimitation of the occupation has been hampered by what leaders of professional nursing groups consider a failure on the part of doctors and hospital administrators to define the boundaries within which the practical nurse may function. This is difficult in a period when the tremendously accelerated demands for medical and nursing services have compelled doctors to delegate certain of their duties to registered professional nurses, who, in turn, have passed along increasing areas of responsibility to the LPNs. "Before 1900, nurses did not wield the clinical thermometer, or before 1930, the sphygmomanmeter, or before 1940, the intravenous needle."[5] Inevitably, there will continue to be a blurring of boundaries between the various levels of responsibility on the medical team, but there is a growing demand on the part of nursing's leaders for a better understanding of the roles and the learned capability of the RN and the LPN.

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[4]U. S., Department of Health, Education, and Welfare, Practical Nurse Education (Washington: U. S. Government Printing Office, 1958), p. 1.

[5]Lucille Petay Leone, "Design for Nursing," The American Journal of Nursing, LIV, No. 6 (June, 1954), 731-734.

II. *Purpose and Scope of Study*

There is a widely-held belief that the licensed practical nurse is being encouraged, or forced by the circumstances of her employment, to perform procedures for which she is inadequately trained. Among the resolutions adopted at the 1961 convention of the National League for Nursing was one which read:

> Resolved that the NLN exert every effort to encourage the assignment of responsibility to members of the nursing team commensuate with their preparation, experience, and competence in meeting the assessed needs of patients.[6]

An editorial in the Journal of the American Medical Association suggests that doctors, too, are concerned with the fact that the increased demand for medical and nursing services has resulted in the "delegation by doctors to nurses of many of the tasks they themselves once performed, . . . forcing nurses to turn over to inadequately prepared auxiliaries the ministrations that are the heart of nursing care."[7] The editorial continues with the statement that doctors and hospital administrators "must learn to distinguish more clearly between skill levels, perhaps even before all nurses understand and concur in the differentiations."[8]

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[6] "NLN Returns to Cleveland for Fifth Biennial," Nursing Outlook, IX, No. 5 (May, 1961), 293.

[7] "The Nurse and the Doctor," Journal of the American Medical Association, CLXXIII, No. 6 (June 11, 1960), 686.

[8] Ibid.

Such opinions, added to those openly expressed by persons close to the practical nurse training program suggested to the writer that at least a beginning on research into some of the problems involved in this field should be made.

It was decided that a reasonable approach might be made by posing the hypothesis that the instruction provided by the schools for practical nursing in Ohio is consistent with the daily work assignments received by the graduate practical nurse and that no additional training is needed to prepare the practical nurse for her occupation.

Testing of this hypothesis had to recognize the fact that the graduate practical nurse, licensed and employed, is completely outside the jurisdiction of her former school instructors. If the instruction offered in the school has covered most of the areas of the work assignment, the school can confidently feel that its function has been properly fulfilled. If work assignments do not reasonably match the scope of the school's instruction, some re-evaluation of curriculum may be in order.

The study was organized to secure information directly from three groups: (1) currently employed licensed practical nurses, (2) their clinical instructors, and (3) the coordinators or directors of the schools concerned. The survey technique, involving five questionnaires, was employed, with two separate questionnaires administered to a selected group of licensed practical nurses, an opinion questionnaire for the clinical instructors, another for the coordinators, and a curriculum survey for instructors and coordinators.

It was the intent of this study to secure a picture of the work assignments of the licensed practical nurses in

relation to their training in the schools of practical nursing, with supplementary opinions as to the adequacy of the program as viewed by all of the parties involved.

The study was limited to the Ohio schools of practical nursing which are under the administration of local boards of education and are supervised by the State Department of Vocational Education. Since it was not a purpose of the study to make comparisons between public and private schools, it was decided to limit the sampling to the fourteen schools which share similarity of course content, administration, organization, and supervisory services.

Delimitations of the Study

Since some of the other states have larger or more advanced programs and since vocational education in each state operates under an individual plan, making valid interstate comparisons very difficult, the study was limited to practical nursing in the publicly-supported schools in Ohio.

The scope of the study was further limited by the fact that its basis was that of the judgment of individuals rather than schools, making it necessary to limit the size of the sampling. When determining the number of LPNs to be included, consideration was given to the varying lengths of time the schools have been in operation. Quotas involving flat percentages of the total graduates would have resulted in large numbers of returns from some schools and only fractional returns from others. By setting a figure at six LPNs per clinical instructor, it was possible to secure a minimum of six returns from each school and a maximum from larger schools which better reflected the size of the program.

A further limitation was placed on the study by the selection of the procedures to be surveyed. Inclusion of all procedures taught would have resulted in a very voluminous and unwieldy questionnaire. The RNs who served on the selection committee, therefore, made what they believed to be a representative list for the nine hospital areas surveyed.

Only LPNs on hospital duty were included. Those doing private duty have little opportunity for post-graduate instruction, a factor of importance to the study.

No effort was made to compare the work of graduates of public with those of private schools. While both types of school may share the supervisory services of the State Board of Nursing Education and Nurse Registration, their curricula and practices are affected by substantially different forces.

Location, Size, and Organization of the Participating Schools

The following table shows the location of each of the fourteen schools and its size in terms of affiliating hospitals, admissions in 1962, and 1962 graduates. It will be noted that there is no positive relationship between the size of the city and the size of the program. Toledo has the greatest number of affiliating hospitals and the greatest number of graduates; while the large metropolitan areas of Cleveland and Cincinnati have fewer cooperating hospitals and fewer graduates. Dayton's program, too, is larger than Cincinnati's in terms of admissions and graduates. Many factors may influence the size of a school. The number of years the school has been in operation, the degree of its acceptance by the community, or the presence of private schools within the same city may be reflected in the size of a given program.

TABLE 1

GENERAL INFORMATION TABLE

	Affiliating Hospitals	Students Admitted in 1962	Students Graduated in 1962	LPNs Taking Part in Study	Age Range of LPNs Taking Part in Study	Clinical Instructors Taking Part in Study	Length of Pre-Clinical Training	Length of Clinical Training
Akron	3	80	70	35	20-62	5	17	32
Cincinnati	3	84	72	18	25-59	3	18	32
Cleveland	5	179	116	28	18-46	5	18	32
Columbus	3	63	45	12	20-51	2	17	33
Dayton	3	110	82	34	19-45	6	18	32
Elyria	1	29	42	6	34-53	1	40	32
Euclid	2	24	19	6	42-48	1	44	32
Hamilton	2	32	15	10	19-52	2	20	30
Lakewood	1	24	16	23	23-59	4	40	32
Lima	2	45	31	10	31-58	2	17	33
Marietta	1	33	12	5	29-43	1	17	35
Sandusky	3	45	36	14	19-51	3	18	34
Toledo	8	161	137	41	20-52	8	16	34
Youngstown	3	86	48	24	19-50	4	18	32
Total	40	995	741	266	***	47	***	***

The column showing the age-range of the LPNs who took part in the study is of interest only in the sense that it is suggestive of the permitted variation in age at the time of admission. The LPNs selected were to be graduates of the five years preceding 1962, so it may be seen that they could have been as young as 17 or as old as 57 at the time of admission.

While the typical program of Ohio's schools of practical nursing consists of 18 weeks of pre-clinical and 32 weeks of clinical training, the columns in the table listing weeks of training show several variations from this pattern. The large figures of 40 and 44 in the pre-clinical column are from schools with evening classes, which require a greater length of time for coverage of the pre-clinical course of study. The variation in the length of the clinical period is less, with a range of 30 to 35.

Method of the Study

With the cooperation of a panel of registered nurses, five questionnaires were prepared. Form I, an "Instruction and Inquiry for Clinical Instructors," combined instructions for the selection of LPNs to take part in the survey with questions for the clinical instructor. In the first section, the instructor was requested to:

(1) Select six LPN graduates of the local school. The number was set at six to insure a useable number of returns from the smallest school, which employs only one clinical instructor, and to limit the total from the schools having six and seven instructors. To afford meaningful comparisons between statements of students and faculty, graduation from the schools seemed advisable.

(2) Select an equal number from each hospital shift. Allegedly, varying types and degrees of responsibility appear on different shifts. It was felt, therefore, that the results would be more representative if all shifts were included, although no indication of the particular shift was requested on the completed forms.

(3) Attempt to select LPNs who were often assigned duties of average or greater than average responsibility. It seemed a valid assumption that an adequate test of the hypothesis would involve nurses who might conceivably be asked to perform procedures for which they had not been trained.

(4) Personally present the questionnaire to each selected LPN and to make sure she understood the directions.

(5) Assure the LPN of anonymity and complete freedom from personal criticism as a result of her participation in the survey.

(6) Set a time for the return of Form II, the "Questionnaire for Licensed Practical Nurses," and personally to check the boxes provided for "source of training". The decision to ask the clinical instructors to participate in the marking of the source of training was an attempt to increase the validity of the returns by a pooling of memory, particularly with regard to those items learned in the practical nursing school.

(7) Retain and return all six of the copies of Form II and to present Form III, a personal questionnaire, to the LPN, with instructions that it be returned directly to the author of the study.

This foregoing list of instructions constituted the first half of Form I. It was explained in detail at a meeting with the clinical instructors and the coordinator of each school. The second half of Form I was a self-explanatory series of questions designed to elicit from the clinical instructor answers to some of the questions basic to the study.

Form II, "Questionnaire for the Licensed Practical Nurses," which the clinical instructor presented and explained to the LPNs, consisted of a checklist of 164 procedures commonly performed in hospitals. While there exists some very basic disagreement as to what may properly be included in the training course for practical nurses, a comparison of the opinions of the RN panel, the Nurse Consultant for Practical Nurse Education on the State Board of Nursing, and the Assistant Supervisor in charge of Practical Nurse Education for the Department of Vocational Education showed that approximately forty percent of the procedures on Form II were considered too complicated for the learned capabilities of the LPN. Thus, a respondent marking the form would be able to give some indication of whether her work assignments were on or above the level of her training. The 164 procedures were divided into nine catagories, according to the hospital area in which the procedure might be used. By indicating that she was required to perform a procedure in a given area, the LPN would automatically give an indication of the nature of her responsibilities.

Form II was to be marked under the headings of Frequently, Sometimes, and Never, with an A, B, or C indicating the respondent's degree of confidence in her competence to perform each procedure. It was emphasized that an A might be placed in the Never column to indicate confidence in the ability to perform a procedure which the LPN was never actually asked to do.

The following example shows a cut from Form II:

	For LPN s			For Clinical Instructors
	Frequently	Sometimes	Never	
50. Apply urine collector				
51. Administer aerosol inhalations				
52. Care for patient in croupette				
53. Administer medications				
54. Restrain child for treatment				
55. Apply complicated dressings				
56. Remove complicated dressings				

The fourth line, marked For Clinical Instructors, was reserved for recording the source of training for each procedure. As previously explained, the instructor was asked to record the LPN's judgement of where she received her training. The numeral 1 would refer to the basic course in the practical nurse school; 2, was on-the-job post graduate training provided by professional personnel in the hospital; 3, post graduate in-service education in regularly scheduled hospital classes; and 4, learned by observation only.

The personal questionnaire for the LPN, Form III, "General Information Questionnaire for Licensed Practical

Nurses," was delivered by the instructor with only general instructions given for its completion. A stamped, addressed envelope accompanied Form III and it was returned directly to the author without being read by the instructor. The questions on Form III were intended to elicit answers which would enlarge the picture of the strengths and weaknesses of the program as reported on Form II.

The last of the personal-opinion questionnaires, Form IV, "General Information Questionnaire for Coordinators of Schools of Practical Nursing," was submitted to the fourteen coordinators. As the schools' administrators, and the only representatives--for purposes of the present study--of the pre-clinical phase, their opinions as to strengths and weaknesses were felt to be most important.

During the meeting with the coordinators and clinical instructors which was held in each center, copies of Form V, "Checklist for Coordinators and Clinical Instructors," were completed by all of the instructors and by the coordinator. Form V, a checklist, was identical with Form II except that the use and training columns were omitted. Each staff member was asked to decide whether a particular procedure was being taught for competence in the school. As was indicated, the procedures on Form II were listed under nine hospital service areas, and the LPN was instructed to mark a procedure only if she were performing it in the designated area. On Form V, however, the instructors were asked to disregard the area designations when marking. Since a procedure which was not taught in the area under which it was listed might be taught for competence in another area, it was necessary to make this stipulation in order to obtain a reasonably accurate count of the listed procedures taught in each school.

III. *Findings of the Study*

It was a basic assumption of this study that there are serious problems involved in curriculum planning in schools of practical nursing. While the compilation of a list of basic procedures and their related information which can be adequately taught in one year is relatively simple, there is no assurance that the graduate practical nurse will be asked to perform the procedures for which she has been trained. On the contrary, there is evidence that the heavy pressure of patient care and the absence of an adequate number of RNs may result in the delegation of nursing duties to LPNs without proper regard for the length or quality of their training.

The data resulting from this study were recorded in two general categories. First, an effort was made to determine the nature of the work assignments of the 266 LPNs involved; to discover the source of their training; and to draw some comparisons between the sources of training, as indicated by the LPNs, and the curricula of the practical nursing schools, as reported by their faculties. Second, the opinions of the LPNs, their clinical instructors, and the coordinators of the schools were recorded and categorized in an attempt to learn the strengths and weaknesses of the programs as seen by representative participants.

Work Assignments: The returns from Form II, the procedure checklist for LPNs, were tabulated in percentages, according to frequency of performance. Of the 164 procedures, each one was shown to be performed either frequently or sometimes, with confidence, by at least four per cent and at most eighty per cent of the LPNs. For 109 procedures, the figure reached or exceeded twenty percent.

Since the checklist included sixty-five procedures (forty percent of the total) which are not usually considered suitable for inclusion in a curriculum for practical nursing, it might have been assumed that those items would have shown few if any indications of use. The largest percentages of use occurred in connection with items most clearly concerned with general bedside nursing duties; but at least 48 or the 65 procedures mentioned above were being used by 10 percent or more, while 21 of these procedures were being performed by more than 20 percent of the LPNs. The significance of these small percentages is increased by consideration of the complexity of the duties involved. In addition, 30 LPNs were serving, or had served in supervisory capacities; and almost half of the 266 were on special service in the hospitals in which they were employed.

Source of Training: Returns from the procedure checklist indicated, further, that training in the procedures was received by some LPNs in the basic school course and by others through post graduate instruction. Of the 164 procedures listed, 101 had the larger percentages under the heading "Learned in School," while 63 had the larger percentage under "Learned Post Graduate." Most of the latter 63 are on the fringe or within the area usually reserved for the registered professional nurse. Forty-six of them are not approved for in-school training by the panel of RNs and the state supervisors who assisted in the preparation of Survey Form II.

The fact that every item was marked with respect to both in-school and post graduate instruction may mean that the procedure was first learned at the level indicated or that, in the opinion of the LPN, the most significant learning took place at that time. Since many of the nurses included in the study were, at the time of writing, still working in the hospital in which they received their clinical

training, it is quite possible that they could not be sure whether any given procedure was taught by an RN supervisor or other hospital personnel during the clinical period of their schooling or in a similar setting but at some time after graduation. An alternative explanation may be the fact that students in one school may actually receive instruction in procedures which are not formally taught or which are simply discussed or demonstrated in other schools.

Faculty Reports: To determine which of the procedures on a checklist were taught in each school, the coordinators and clinical instructors were requested to indicate whether their schools were teaching each procedure for competence. A tremendous variation in course content among the schools is indicated in Table II. No interpretation or value judgement was made on the basis of tabulation. The 164 procedures constituted a selected list and did not necessarily reflect the curricular offerings of any of the schools. Yet a range of 47, to 103, a difference of 56 items or 34 percent is wide. No allowance was made for the possibility of error in the reporting of procedures taught, since the form was marked in the presence of the writer. It was, therefore, assumed that a difference of approximately 34 percent actually existed between Schools A and N, with respect to instruction in the 164 selected procedures.

Comparison of Percentage of Procedures Being Taught and Percentage Being Used: The findings from the marking of the procedure checklist by LPNs and by the school faculties made it clear that all of the procedures were being performed by at least a small number of LPNs and that most of the items were being taught in one or another of the schools. More significant was the calculation of the degree of relationship existing between the reported use by the LPNs and the instruction reported

by the faculties. By using a figure based on the total possible number of indications of use for any group of procedures, it was possible to arrive at a "Percentage of Use" figure which could serve as a basis for comparison with "Percentage Taught."

Two illustrations of areas of instruction stressed and not stressed by schools of practical nursing are found in Tables 2 and 3. Table 2 is typical of the results obtained from the survey of a stressed area. The table involves the procedures listed under Pediatrics. Procedures used in the pediatrics division were being taught in 100 per cent of the practical nursing schools in the United States in 1960.[9] Thirteen of the fourteen Ohio schools were shown to be teaching 50 per cent or more of the 12 procedures under Pediatrics on the checklist, while use above 30 per cent was reported by graduates of 10 of the schools. Keeping in mind the fact that half of the 266 LPNs surveyed were on special service (which may or may not have involved work in Pediatrics) these percentages indicate an area of basic agreement between the schools and the employing institutions.

Table 3, on the other hand, compares the procedures taught and used in the Psychiatric Unit. Because only a few of the 40 affiliated hospitals afford a psychiatric service as such, the psychiatric unit is not usually included as one of the areas in the program for training practical nurses. However, as can be seen in Table 3, many of the schools were teaching some of the eight procedures which are common to this area. Schools B and D indicated that 75 per cent of the procedures were taught for competence, while seven others indicated that they taught 37 per cent of the items. In six schools, the LPNs indicated 30 per cent, or more, use of the procedures in their daily assignments. (It should be understood

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[9] West and Crowther, p. 35.

TABLE 2

COMPARISON OF THE PERCENTAGE OF THE PROCEDURES USED WITH THE PERCENTAGE TAUGHT IN SECTION e, PEDIATRICS

School	Percentage of Use of Procedures As Reported by LPNs	Percentage of Procedures Taught As Reported By Faculties
A	34	75
B	45	58
C	26	58
D	35	41
E	48	58
F	42	75
G	51	50
H	32	66
I	17	66
J	61	50
K	26	58
L	31	50
M	22	50
N	47	83
Average	37	59

TABLE 3

COMPARISON OF THE PERCENTAGE OF THE PROCEDURES USED WITH THE PERCENTAGE TAUGHT IN SECTION a, THE PSYCHIATRIC UNIT

School	Percentage of Use of Procedures As Reported by LPNs	Percentage of Procedures Taught As Reported By Faculties
A	12	62
B	38	75
C	12	0
D	15	75
E	27	50
F	17	25
G	32	62
H	14	62
I	30	62
J	42	37
K	8	25
L	12	25
M	58	62
N	34	0
Average	25	44

that in all cases the percentages listed for LPNs represent only those marking "use with confidence.") Nine of the schools reported teaching more than 30 percent. The extremes were School M, with graduates receiving instruction in 62 percent, and School C, with 12 percent application but no indicated instruction. School J had the closest general agreement between use and training, with 42 percent used and 37 percent taught.

Nine comparison tables were prepared, covering each of the nine hospital areas included in the procedure list. Ohio schools generally agreed with the curriculum offerings in the 494 schools surveyed in 1960 by the National League for Nursing. Leading curriculum areas nationally were Medical and Surgical, Obstetrics, Pediatrics, and Psychiatric Service, with Central Sterile Supply and Emergency Room well behind. Leading in the present study was Surgical Recovery Room, including procedures closely allied with the Medical and Surgical areas; Obstetrical Recovery Room; Pediatrics; Central Sterile Supply; and Psychiatric Unit. Thus, so far as the general areas of curriculum were concerned, the schools involved in this study were well in line with most of the other practical nurse schools in the United States.

The average percentages of use of the procedures in the areas taught were in approximately the same descending order as the percentages of procedures being taught, with a range from a high of 50 in Surgical Recovery Room down to 19 in the Operating Room and the Cast Room. Thus, daily work assignments for LPNs fell most heavily under the same areas that were emphasized in instruction, although work was being done in each of the nine areas covered by the study.

Opinions Expressed by LPNs, Clinical Instructors, and Coordinators

The opinions expressed by the three groups of respondents formed a valuable and enlightening addition to the statistics revealed by the analysis of Form II. It was clearly apparent from the marking of the procedure checklist that many of the LPNs were regularly performing only the items listed under one or possibly two of the service areas. Answers to the first question of Form III, "General Information Questionnaire for Licensed Practical Nurses," provided an explanation of this peculiarity. The question asked, "Are you on special service?" Of the 263 useable returns of Form III, 111 respondents answered "yes." By special service, they were indicating any special assignment, from the operating room to the out-patient clinic, from the emergency room to the newborn nursery.

Specialization tends to narrow the field of work of the hospital-employed LPN, since it usually follows special training. Since hospitals vary in their methods of procedure, before an LPN is assigned to a special service, or during the early part of such assignment, she usually receives precise training or instruction in the methods approved for that area. After the investment in the training of the LPN has been made, she may be assigned to the special service for the remainder of her work in that hospital. So it can be seen that in marking Survey Form II, she would report only a small number of procedures as a regular part of her daily work assignments.

The eleven questions on Form III brought responses indicating that a large number of licensed practical nurses were employed in special services of their hospitals and

that a few LPNs were serving in highly responsible supervisory positions. Many felt that their schools had failed to give them enough training in special areas, specific procedures, medication, and the emotional problems of patients. If they were again beginning their training, they would like to receive more training in the same areas but less training in areas generally concerned with home-nursing problems and with procedures commonly performed by nurse aides. More contact with patients early in the training period was suggested by more than three times as many LPNs as those who felt the present situation to be adequate.

Less than half of the LPNs had received additional training in the hospitals. Those who had received such training had been instructed in a great variety of procedures and in practices of a number of the hospitals' service areas.

Complaints against the practical nursing schools tended to fall into two general categories: (1) the LPN was not taught enough, and (2) the LPN had to learn too much in too little time. However, almost every graduate found reason to praise her school for specific strengths, either in the program or in the instruction.

Enough firm and candid opinions were expressed to suggest that employed graduate practical nurses would be an excellent source of information for future curriculum studies.

Opinions of Clinical Instructors: The questionnaire to clinical instructors was returned by 47 nurses. Two instructors, newly employed in their programs, declined to comment on some of the questions; but the responses on most of the forms were quite frank, especially in view of the fact that the instructors were invited to sign their

names and did so. Whereas the responses of the LPNs were centered upon their own personal interests, the clinical instructors seemed less interested in how they, personally, were affected by circumstances in the training situation than they were in how those circumstances affected the total school program.

Experience has shown that the clinical instructor must have, as a basic requirement for success in her position, a genuine interest in and sympathy with the practical nurse training program. One clinical instructor, after listing needed qualifications, such as "a bachelor's degree, some experience, interest, initiative, stability," added: "And maybe more importantly, how this person feels about practical nursing."

The open opposition on the part of some registered nurses places the RN clinical instructor in the equivocal position of appearing to act contrary to the best interests of her fellow professional nurses. She frequently encounters opposition ranging from indifference to open hostility. "My only wish," wrote one clinical instructor, "is that we could have more cooperation from the professional RN on the division."

Another instructor wrote:

> It is difficult to know how to deal with a few registered nurses who have not accepted practical nurses whole-heartedly, so do not particularly like to be bothered with them while they are in training. This is slowly being overcome, I believe, by improvements in the practical nursing program and by proving the value to the practical nurse students and graduates.

The comments of the clinical instructors indicated that they, as a group, are interested in and prepared to defend the basic concepts of practical nurse education. They complained of poor coordination between the two school areas, of unsatisfactory cooperation between school and hospital, of lack of firm curriculum guides, of poor selection of students; but they saw strengths in the very fact that the program is undergoing change and is improving.

One of the most interesting areas of discussion arose in answer to a question concerning the advisability of lengthening the training period to provide time for more extensive study. The division of the instructors on this question was 16 for and 28 opposed. It was clear that a majority did not favor extension. Most of those answering "no" added no written comment. Among the 16 answering "yes," however, there were 40 suggestions for adding emphasis to the program. For instance, four wanted more time to instruct in medications; three wanted more time for obstetrics; three wanted more in pediatrics; three, rehabilitation; and one, some experience in visiting nurse service. The fact that no area for additional training was mentioned by more than four instructors suggested that those who wished to see the school period lengthened were those who were pressed for time to cover specific areas. The opinion of the instructors who did not want an extension was well expressed in this comment: "The time at present is quite adequate for what they should be trained to do. Post graduate instruction is available for those who wish it."

Opinions of the Coordinators: A personal questionnaire was submitted to the coordinators of the fourteen schools in an effort to secure from them opinions relative to the strengths and weaknesses of the program as seen by those responsible for its administration. Analysis of their replies showed that the greatest strengths

of their programs lay in the cooperation between the schools and the affiliated hospitals; in the ability and willingness of the pre-clinical instructors to work together; in the good morale and enthusiasm of the members of the faculty; in the availability of good physical facilities for both phases of the program; and in the curricula, which were in a state of continuous revision.

Weaknesses which they saw in the program were few and varied. Many of the suggestions, however, related to the need for a more flexible curriculum.

Only one coordinator would lengthen the training period. Thirteen opposed any extension on the grounds that the allotted time is sufficient for training a practical nurse for the duties which she should be called upon to perform.

IV. *Conclusions*

This brief summarization of findings has necessarily omitted discussion of many important aspects of practical nurse training in Ohio. The following conclusions, however, are based upon a consideration of all of the data gathered for the study.*

1. The program of practical nurse education in Ohio's publicly-supported schools is being conducted without a universally-accepted definition of the occupation. There is verbal acceptance of the concept of practical nursing promulgated by the national nursing associations. But in practice, the pressure to provide practical nurses with skills known to be desired by prospective employers--the local hospitals--has led some schools to attempt to provide instruction in procedures too complicated for proper coverage in the limited amount of time available.

2. Coordinators and clinical instructors do not share complete agreement on either the principles or the practices of practical nurse education. There is appreciable failure of agreement with respect to the basic issues, such as: the length of the course, more and earlier patient contact, and the addition of experiences in hospital areas not presently stressed.

*A copy of the complete study, Comparison of Work Assignments With Training in Ohio Public Schools of Practical Nursing, may be obtained from the library of the Instructional Materials Laboratory, Ohio State University, Columbus, Ohio. A microfilmed copy may be obtained from the library of Western Reserve University, Cleveland, Ohio.

Many coordinators and instructors share the belief that it is the role of the school to prepare practical nurses for bedside nursing, leaving all additional training to the hospitals which employ the graduates. Not all faculty members agree, however, thus placing some schools in the position of having a faculty divided, in effect, by a difference in basic philosophy.

3. There is no conclusive evidence that LPNs are performing porcedures for which they have no training. There is evidence, however, that they are doing things for which the schools do not train them. Those hospitals which have accepted the licensed practical nurse as a responsible member of the nursing team are offering post-graduate training to selected LPNs. The present study offers no testimony as to the effectiveness of the post-graduate training or to the value of the services of the LPNs who have received the training, aside from the fact that 40 per cent of the LPNs surveyed are presently on some specialized service, rather than being employed as general-duty nurses.

4. There seems to be no general conformity among the schools with respect to curriculum or the choice of teaching materials.

5. Present student selection devices are inadequate. Some better formula for the determination of aptitude and probability of success in the occupation is needed.

6. Coordinators and clinical instructors are convinced of the worth of the educational efforts in which they are presently involved. They accept responsibility for their role in preparing a nurse whose degree of proficiency may affect the lives of many people.

7. Within the limits of their own self-interests, most hospitals furnishing facilities for the clinical training of

the practical nurse cooperate with the practical nursing schools.

8. Practical nurse education in Ohio is a new and a dynamic program. Its administration, organization, and curriculum are undergoing constant study in most of the individual schools. If the program is to retain its integrity as an agency for the training of a particular type of nurse, it must resist pressures to expand the curriculum beyond the limits implied in its basic purpose.

9. Research on a local level, consisting of an analytical study of the work experiences of local graduates is urgently needed as a basis for further revision of the curriculum.

Recommendations

On the basis of the findings in the present study, it is recommended:

1. That a basic philosophy of practical nurse education in publicly-supported schools be formulated and accepted by students, clinical instructors, and coordinators.

2. That a decision be reached, on the basis of the nature of the local situation, as to who is to be trained-- hospital nurses or household nurses.

3. That curriculum seek to eliminate or de-emphasize out-moded areas of instruction.

4. That each faculty member make herself aware of the actual work situation in the hospital which she serves, in order that she may not unwittingly mislead practical nurse students as to what they may expect in subsequent employment.

5. That an indoctrination period for new clinical instructors be conducted by coordinators, during which they establish the basic philosophy and make sure that each instructor is able to differentiate clearly between law, practice, and opinion as they affect the practical nursing field.

6. That the supervisor for practical nurse education for the state organize an indoctrination period for new coordinators, whether they come from the ranks of the instructors, or from outside the faculty.

7. That thorough and continuing research be carried on at the local level. The present study has value only as it presents an overall picture of public practical nurse education in Ohio.

M E M O R A N D U M

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A Study of Organized Occupational Education in Missouri Institutions of Higher Education.

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MISSOURI

Organized occupational education includes primarily post-secondary curriculums preparing graduates for immediate employment as technicians. Information about its recent background, present status and suggested future development is presented. Most of the data were obtained from seven U.S. Office of Education surveys of organized occupational education in institutions of higher education. Seven Missouri colleges and universities had graduates from engineering-related organized occupational curriculums. The private institutions offered more occupational education than the public. Nationally, the recommended ratio of educating five technicians for every one professional was reversed. Recommendations included: (1) Public junior colleges should provide a major thrust in developing organized occupational curriculums to meet the needs of business, governmental, and industrial employers in Missouri, (2) State colleges and the University of Missouri should offer occupational programs to meet the needs of employers in their service areas provided these programs could be smoothly coordinated with those which are related to their primary goal of preparing persons for the professions, (3) Private institutions should continue to respond to requests from their students to provide selected occupational courses as long as they have the resources to do so, and (4) All occupational programs should be governed by the same guidelines. (SL)

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A Study of

Organized Occupational Education

In Missouri Institutions of Higher Education

Prepared for

Missouri Commission on Higher Education

with assistance from

The Kansas City Association

Of Trust and Foundations

By

Ken August Brunner

August, 1965

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A Study of

Organized Occupational Education in

Missouri Institutions of Higher Education

Prepared for

Missouri Commission on Higher Education

Jefferson City, Missouri

By

Ken August Brunner

August, 1965

PREFACE

This study has been prepared to provide the Missouri Commission on Higher Education information about the recent past and present status of organized occupational education in Missouri with some indication of future needs and how they might be met.

Most of the data have been drawn from the seven surveys of organized occupational education in institutions of higher education which have been conducted by the United States Office of Education. To flesh out the bare bones of statistics, the study director spent two weeks in Missouri, February 15 through 19, 1965 and March 15 through 19, 1965. He had personal discussions with 53 officials of 25 institutions of higher education, seven local public school officials in five communities, several other community leaders around the state, five officials of the State Education Department, the research director of the Employment Security Bureau, and the members and staff of the Missouri Commission on Higher Education.

This study was conducted by Dr. Brunner in his private capacity and it should be clearly understood that no official support or endorsement by the United States Office of Education is intended, or should be inferred.

Ben Morton
Executive Secretary
Missouri Commission on
Higher Education

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ORGANIZED OCCUPATIONAL EDUCATION IN MISSOURI INSTITUTIONS OF HIGHER EDUCATION

Introduction

This report presents information about recent background, present status, and suggested future development of organized occupational education in Missouri institutions of higher education.

Organized occupational education is used in this report to refer to 2-year curriculums (and some 1-year and a few 3-year curriculums) at the post-secondary level which prepare their graduates for immediate employment as technicians or for other kinds of jobs which are found on the employment spectrum between those at the professional level, which usually demand a bachelor's or higher degree for entry, and those of craftsmen, clerks and others who perform fairly routine tasks which do not require specialized training beyond high school. Typically those who complete organized occupational curriculums successfully are awarded an associate degree, although in many cases they receive a certificate, diploma or other award. At least, that is the general practice throughout the United States. 1/ In Missouri it has been more customary to award associate

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1/ Ken August Brunner, "The Training of Subprofessional Personnel in the United States," a paper prepared for the International Conference on Middle Level Manpower, San Juan, Puerto Rico, October 10-12, 1962 (Mimeographed), pp. 25-29.

degrees only to students who have completed two years of a curriculum which, in four regular academic years, will result in the award of a bachelor's degree; whereas a certificate has been the usual award to those who have completed post-secondary terminal-technical or vocational curriculums in Missouri.

This brings out a further distinction between Missouri and the rest of the nation. In Missouri terminal is in common usage to describe 1- or 2-year college programs to prepare for occupational competency, 2/ but in the nation generally occupational education has come to be the preferred term. 3/ A new term was needed because of the essentially negative and contradictory meaning of terminal when coupled with education. It was also needed for another

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2/ See, for example, Missouri Commission on Higher Education, First Biennial Report (Jefferson City: November, 1964), pp. 20-24; Suggested Homework for the Participants in the 1964 Conference on Vocational Education (St. Louis: The St. Louis-St. Louis County White House Conference on Education, 1964), pp. 11, 69-73; and Missouri college catalogs.

3/ Ken August Brunner and D. Grant Morrison, Organized Occupational Curriculums in Higher Education (Washington: U.S. Department of Health, Education and Welfare, 1961), p. 2.

Kenneth H. Freeman and Edmund J. Gleazer, Jr., People, Purposes, Programs: Annual Report of the American Association of Junior Colleges (Washington: AAJC, January, 1965), especially pp. 22-23.

Norman C. Harris, Technical Education in the Junior College (Washington: AAJC, 1964), pp. 20-23 and passim.

G. Ross Henninger, The Technical Institute in America (New York: McGraw-Hill Book Co., Inc., 1959), p. 157.

Grant Venn, Man. Education and Work (Washington: American Council on Education, 1964), pp. 143-145 and passim.

reason. There has been a rapid development of the practice of allowing credit towards appropriate bachelor's degrees for so-called "terminal" courses. As a result, the former negative approach to 1- and 2-year occupational education has been replaced by a positive approach. A student with an interest in becoming an executive secretary instead of being told, either personally or by means of published college catalog statements, that she should avoid certain courses because they would not "transfer," i.e. they would not be creditable towards a bachelor's degree, is now more effectively helped to select the courses most appropriate to her immediate goal, preparation for occupational competency, with emphasis on the fact that the 2-year college occupational program leads to a recognized academic award, the associate degree. Should she decide later to go on for a bachelor's degree, the amount of "transfer" credit she will get for courses in her occupational curriculum would be decided by the institution from which she plans to obtain the bachelor's degree. The questionnaire form used in the United States Office of Education's survey of organized occupational curriculums in higher education puts the matter in its proper perspective in one of its criteria:

> The curriculum is designed to prepare students for immediate employment in an occupation or cluster of occupations. Individual courses in the curriculum

> may be creditable toward a bachelor's or first professional degree either in your institution or by transfer; however, the curriculum as an organized program is designed to educate or train primarily for occupational competence, rather than for transfer or degree credit. The curriculum, itself, and its objectives should be classified, not the intentions or possible subsequent careers of the students involved.

Estimates of proper proportion of professional to semi-professional workers.-- In 1947, the President's Commission on Higher Education estimated that "in many fields of work there are five jobs requiring two years of college preparation for every one that requires four years. "4/ A 3:1 ratio of technicians to scientists and engineers was suggested by a number of experts who were consulted by the President's Committee on Scientists and Engineers. 5/ In a nationwide survey of technical institute education sponsored by the American Society for Engineering Education, the survey committee found that employers would like to have two engineering technicians for every engineer in their employ between the years 1957 and 1967. 6/ For the purpose of that national survey, it was assumed that an engineer would be a person with a bachelor's or first professional degree and an engineering technician would be one who had had two years of college-level technical education and would probably have been awarded an associate

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4/"Establishing the Goals," vol. I, Higher Education for American Democracy (Washington: U.S. Government Printing Office, 1947), p. 69.

5/Karl O. Werwath, Final Report to the President's Committee on Scientists and Engineers. (Washington: Working Committee for the Development of Supporting Technical Personnel, June 30, 1957), p. 3.

6/Henninger, op. cit., p. 133.

degree. In a report prepared for the President's panel of consultants on vocational education, Emerson concluded that a 2:1 ratio of technicians to engineers is realistic and projected annual needs for 200,000 technicians over the next several years.7/

Probably the most conservative estimate is that of the Bureau of Labor Statistics, U. S. Department of Labor. It expects the demand for technicians to grow at the same rate as the demand for engineers and scientists over the 1960 decade, averaging 70,000 each year.8/ In another report, the Secretary of Labor estimated that "professional, technical, and kindred workers, who have been by far the fastest growing occupational group during the past decade, may increase at more than twice the average rate for all fields of work between 1960 and 1975."9/ From this it is evident that the Nation's institutions of higher education will at least have to double their efforts in providing graduates in 2-year and 4-year programs.

What the exact proportion should be of professional to technical or semiprofessional workers, of bachelor's degree recipients to associate degree and other occupational graduates is not clear. The suggested ratios range from

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7/Lynn A. Emerson, Technical Training in the United States (Washington: U.S. Department of Health, Education, and Welfare, 1963), p. 36.

8/Scientists, Engineers, and Technicians in the 1960's; Requirements and Supply, NSF 63-64 (Washington: National Science Foundation, 1964), p. 2.

9/A Report on Manpower Requirements, Resources, Utilization, and Training (Washington: U.S. Department of Labor, 1963), p. 100.

5:1 to 1:1. Accepting a ratio of somewhat over 1:1 and a "minimum goal of 100,000 new technicians a year," Venn calls for the educational system to triple its present effort in order to meet the projected needs for technical workers over the next few years. 10/ In any event, it is recognized that both levels of graduates, professional and technical or semiprofessional, must be increased.

Associate degrees related to bachelor's degrees.--If two years of college is accepted as the optimum preparation for entry into technical or semiprofessional jobs as four years of college (or more) is required for entry into jobs at the professional level, and if it were true that all those who successfully complete two years of college, either occupational or general education programs, receive associate degrees just as it is true that graduates of 4-year college programs receive bachelor's degrees, there should be evidence of at least as many associate degrees as bachelor's degrees being awarded each year to meet the minimum 1:1 ratio of professional to technical or semi-professional workers recommended above.

Some indication of the relative acceptance of the associate degree compared to the bachelor's degree can be obtained by studying the practice in a state like California. Over the past decade its higher educational

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10/Venn, op. cit., p. 134.

institutions have enrolled more students than those in any other State. Even though the available information is incomplete, it appears that California colleges and universities have also led in awarding associate degrees. For one thing, California produces one-fourth to one-third of the nation's junior college graduates, and 85 per cent of them receive associate degrees.11/ Also, the University of California averaged 1,100 associate degree awards a year between 1942 and 1959. Thus, this one university alone averaged more associate degrees each year than all higher institutions in 43 States. Only in New York, Texas, Massachusetts, Michigan, Illinois, and Missouri did the institutions of higher education, 2-year colleges as well as the 4-year colleges and universities, award as many associate degrees in any single year as the University of California. In the last year before the University of California discontinued its liberal policy regarding this award, 1958-59, 14,000 associate degrees were awarded in California, although most all of them were awarded by junior colleges in that state. (This was approximately the same as the number of associate degrees awarded that year by all of the nation's four-year institutions.)12/ That same year 385,000 bachelor's

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11/Edmund J. Gleazer, Jr., editor, American Junior Colleges, 5th edition (Washington: American Council on Education, 1960).

_____, editor, and Alice M. Carroll, associate editor, American Junior Colleges, 6th edition (Washington: American Council on Education, 1963).

12/Walter Crosby Eells and Harold A. Haswell, Academic Degrees (Washington: U.S. Department of Health, Education, and Welfare, 1960), pp. 12,21.

and first professional degrees were awarded in the United States, including 28,000 by California colleges and universities.13/ Thus, even when California placed a strong emphasis on the associate degree, its institutions of higher education awarded twice as many bachelor's degrees.

The next year for which reasonably complete information has been compiled is 1961-62. In that year all of California's 4-year colleges and universities awarded a total of only 540 associate degrees (less than those of Pennsylvania, New York, Florida, Missouri, Massachusetts and Michigan) but her junior colleges awarded approximately 2,000 more associate degrees than they had three years earlier, 16,000 (still well ahead of junior colleges in other states; in fact, twice as many as New York's 2-year institutions which ranked second in associate degrees awarded in 1961-62). The number of bachelor's and first professional degrees awarded by California colleges and universities increased to 31,700 in 1961-62. Thus, California's ratio of bachelor's to associate degrees remained at 2:1. A quick inspection of the 1961-62 data for the other states reveals only one other with a smaller bachelor's degree to associate degree ratio than Missouri's 4.6:1. It is Florida at 2.3:1.

13/Wayne E. Tolliver, Earned Degrees Conferred, 1958-1959 (Washington: U.S. Department of Health, Education, and Welfare, 1961),pp. 2, 29. In 1960-61, the Office of Education separated 4-year bachelor's and first professional degrees from 5- or more year first professional degrees. Prior to that time both of these categories were grouped together. In 1960-61 and in 1961-62 the ratio of the former to the latter was approximately 10 to 1 nationally and 8 to 1 in Missouri.

Estimated 2-year program graduates related to bachelor's degrees. -- Not everyone who completes two years of college is awarded an associate degree. In some cases they do not achieve the required quality point average; others-- primarily those who prefer to concentrate only on courses similar to those of the 4-year college to which they expect to transfer--do not take one or more courses specifically required for the associate degree. For that matter, the associate degree is primarily a junior college award; most 4-year colleges and universities award a certificate or diploma rather than an associate degree to students who complete a 2-year program.14/

In a 1959 survey of academic degrees, Eells and Haswell learned that 156 of the nation's 4-year institutions and 444 of the 2-year colleges conferred the associate degree. These institutions represented approximately one-ninth of the 4-year colleges and three-fourths of the 2-year institutions.15/ For 1958-59, graduates were reported by 401 4-year institutions and 440 2-year colleges in the U. S. Office of Education organized occupational curriculums survey. Although the number of 2-year institutions in

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14/Brunner and Morrison, op. cit., p. 21.

15/Eells and Haswell, op. cit., pp. 2-3, 21.

both surveys is almost identical, it is apparent that at least 245 of the 4-year institutions grant an award other than the associate degree to graduates of organized occupational curriculums. However, 4-year institutions reported approximately 14,000 graduates from 2-year organized occupational curriculums in 1958-59, the same as the total number of associate degrees awarded by them in 1958-59, and an additional 4,000 completed 1-year organized occupational curriculums in 4-year colleges that year. The nation's 2-year institutions graduated 56,000 in 1958-59, approximately 40,000 of whom were awarded an associate degree. Their reported 31,000 graduates from organized occupational curriculums that year may be assumed to be included.

It is not clear from the data on bachelor's degrees how many of them are awarded to graduates of curriculums specifically designed for job preparation. Liberal arts colleges, in particular, prefer to emphasize the non-vocational aspects of education. It is reasonable to assume that similar proportions of associate degrees and of bachelor's degrees are awarded to graduates of educational programs which are job-oriented. Therefore, rather than simply comparing the number of associate degrees awarded or the number of graduates of organized occupational curriculums to the number who received bachelor's degrees, the

total number of junior college graduates plus the occupational curriculum graduates from 4-year institutions is compared to bachelor's degrees to obtain a quick ratio of persons with two years of college education to those with four years of college education.

In 1958-59 there were 56,000 junior college graduates plus 18,000 graduates of organized occupational curriculums in 4-year institutions, or a total of 74,000. This compares with 385,000 bachelor's degree recipients. Using this more liberal interpretation of associate degrees (to include others who complete occupational programs), the nation's higher institutions produced five graduates of 4-year college programs for each one who completed one or two years, which is the reverse of the ratio suggested by the President's Commission on Higher Education in 1947.

In 1961-62 there were almost 69,000 junior college graduates. Adding to this number more than 16,000 graduates from organized occupational curriculums in 4-year institutions provides a total of 85,000. That same year 420,000 bachelor's and first professional degrees were awarded. The ratio is still 5:1, although there was slight movement favoring the 2-year program graduates.

Several references will be made in the next section of this report to the ratio of 2-year and 4-year program graduates in several Missouri institutions. Summary information will appear in a later section.

Summary of Occupational Education by Institution

A brief description of occupational education in a number of Missouri institutions of higher education appeared in the First Biennial Report of the Missouri Commission on Higher Education.16/ The section of this study which follows provides more detailed information about these programs. Most of the information comes from data supplied by the institutions to the United States Office of Education for its seven surveys of organized occupational curriculums. The surveys gathered data annually from 1955-56 through 1959-60 and biennially after that.

In addition to the criterion quoted in the first section of this report, requiring that the curriculum be designed to prepare for occupational competency, there are four other criteria for inclusion of a curriculum in the national survey: 17/

1. The general level is one to three years, beyond high school; therefore high school graduation is required for admission to the curriculum.

16/ The Commission, op. cit., pp. 20-24

17/ The survey for 1963-64 was expanded to include organized general studies curriculums also and the criteria were revised to reflect this change. However, the criteria used in the first six studies are most appropriate to the preponderance of the data in this report and they are the ones which are paraphrased here.

2. It is an organized,integrated program, not just a group of courses.

3. The curriculum requires full-time attendance for at least one but less than four academic years, or equivalent attendance part-time over a longer period.

4. Completion of it results in an associate degree or similar award.

Unless a curriculum meets all five of the criteria, it does not qualify. For that reason, several Missouri colleges and universities have not reported data regarding their informal programs even though they meet a similar need for technical and semiprofessional workers.

Complementing information is drawn from two other surveys of the United States Office of Education: (1) Opening (Fall) Enrollment in Higher Education, an annual survey which reported only students taking work normally creditable towards a bachelor's or higher degree through 1962, but was expanded in 1963 to include those in occupational or general studies programs not chiefly creditable towards bachelor's degrees, i.e. "terminal" students as compared to "transfer" or "degree-credit" students; (2) Comprehensive Report on Enrollment in Higher Education, a biennial survey for all categories of students, including resident and extension enrollments in "terminal-occupational" education not normally

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creditable towards a bachelor's degree. Data from appropriate reports of the latter two survey series serve to round out enrollment information and place in better perspective the data about occupational education in Missouri institutions of higher education.

Public junior colleges.--

Crowder College lists three 2-year occupational curriculums in its current catalog and eight "transfer" programs. Crowder College did not provide data for the 1963-64 United States Office of Education's survey of organized occupational and general studies curriculums because its programs did not meet all required criteria.

The secretarial science curriculum accounted for 14 students of the 364 reported in the Opening (Fall) Enrollment survey for 1964, Crowder's first year of operation. A hotel, motel and restaurant operation curriculum was offered the second semester and enrolled four students. Students will not be enrolled in the other occupational curriculum, drafting technology, until September, 1965. According to a college leaflet, Technical and Vocational Programs, a fourth curriculum, business management, will also be available at that time.

The occupational curriculums are regarded as "open-ended" rather than "terminal" curriculums. In other words, although designed to prepare for occupational competency in two years, the courses in them may carry transfer credit.

Jasper County Junior College was known as Joplin Junior College until July 1, 1964 when it separated from the city school system and began serving the entire county. Table 1 summarizes data Joplin Junior College provided in the surveys of organized occupational curriculums.

From five curriculums in the first survey enrolling 80 and graduating 15, to two, general secretarial and mechanical technology, in the fifth survey enrolling 57 and graduating 8 and three in the seventh enrolling 55 18/ and graduating 11, organized occupational curriculums have not bulked very large at Joplin. They accounted for approximately one-sixth of the graduates and enrollment in 1955-56 but only about 10 per cent of the graduates and five per cent of the enrollment in 1963-64. Clearly, greater emphasis has been placed on the programs for students who plan to go on from the junior college in order to obtain a bachelor's degree.

Through 1961-62 students in occupational curriculums were identified as "terminal" students. In the 1963-64 national occupational education survey they were identified as being in "open-ended" curriculums, and in the 1963 and 1964 opening (fall) enrollment surveys, as bachelor's degree credit students.

18/ The director of the evening program for the junior college told the study director tht 105 evening students in electronics and mechanical technology appeared to have been overlooked when the college reported 1964 enrollment in the national occupational education survey. Apparently also overlooked was optometric office technology listed by the Missouri Commission on Higher Education in its First Biennial Report, p. 22.

Table 1 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Joplin Junior College.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	1	--	--	2
Mechanical, general	--	--	--	1	--	--	--
Mech.drafting & machine des.	--	--	--	--	--	--	--
Automotive technology	--	--	--	--	--	--	--
Electronics	--	--	--	--	--	--	2
Non-engineering-related	15	9	10	6	8	6	9
General business	2	--	--	--	--	--	9
Sales & Distribution	1	4	2	2	--	--	--
Secretarial, general	5	3	5	2	8	6	--
Education	5	--	3	2	--	--	--
Medical or biological lab. technician	2	2	--	--	--	--	--
Total	15	9	10	7	8	6	11

Table [1] .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Joplin Junior College
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	8	--	9	--	19	31	30	--	E-R
--	--	--	--	--	--	8	--	9	--	--	--	--	--	Mech.
--	--	--	--	--	--	--	--	--	--	4	12	--	--	M.draft.
--	--	--	--	--	--	--	--	--	--	1	--	--	--	Auto.
--	--	--	--	--	--	--	--	--	--	14	19	30	--	Electr.
74	6	49	--	82	--	34	--	46	2	49	56	25	--	Non-E-R
5	--	--	--	--	--	--	--	--	--	--	--	25	--	Gen. Bus.
15	--	9	--	28	--	--	--	--	--	--	--	--	--	Sales
34	5	27	--	41	--	31	--	46	2	49	56	--	--	Sec.,Gen.
12	1	8	--	9	--	3	--	--	--	--	--	--	--	Education
8	--	5	--	4	--	--	--	--	--	--	--	--	--	Med/bio.la
74	6	49	--	82	--	42	--	55	2	68	87	55	--	Total OOC

The Master Plan Report of the junior college identifies all enrollments through 1964-65 as "liberal arts" (pages 3 and 6) or "non-terminal" (page 5) and refers to "the establishment of a new series of curricula which will add courses of a technical character, to train students in the clerical, automotive, machinery (repair, operation, design), technician(dental, optometric), radio and television, printing, etc. fields" (page 3). It projects no enrollment in them in 1965, 310 in 1970, 620 in 1975 and 931 in 1980, at which time this will represent one-seventh of the total student body of Jasper County Junior College.

This suggests that occupational education still connotes "terminal" education in this institution. It also suggests that the students now enrolled in the secretarial programs at the college and the engineering-related curriculums located at Franklin Technical School are either regarded primarily as liberal arts rather than occupational students or they have been ignored or overlooked in the Master Plan Report, as they may be in reports to the United States Office of Education.

The college is now, however, unaware of the need to put greater emphasis on occupational education. This is shown by the fact that it was engaged in a vocational-technical education survey of Jasper County at the time the study director visited the campus. The survey form used is included as an appendix to this report and it is

strongly recommended that the Commission urge other institutions of higher education to conduct similar surveys in their communities.

The Jefferson County Junior College District, Hillsboro, in its first year of operation, 1964-65, reported 25 students enrolled in general engineering technology and another 25 in business and commerce curriculums (secretarial and mid-management) of a total which approached 300 students. All students are regarded as enrolled in programs creditable towards a bachelor's degree whether in "transfer" or occupational programs.

The Junior College District of St. Louis opened its doors to 670 students in the 1962-63 school year. Its three campuses -- Forest Park, Florissant Valley, and Meramec Community Colleges -- together reported enrollments in the seventh survey of organized occupational curriculums as shown in table 2.

In the opening (fall) enrollment survey, the Junior College District reported 270 of 2,386 in 1963 and 1,089 of 4,999 in 1964 as in occupational or general studies programs not chiefly creditable toward a bachelor's degree. Strong support is being given the occupational curriculums by district and community leaders, including their service on seventeen advisory committees for occupational programs. The information bulletin gives three times as much space to occupational as to "transfer" curriculums. In addition, the JCD has widely distributed a high quality, attractive

...le 2--Summary of graduates and enrollment, by full-time and part-time ...nts, in organized occupational curriculums, 1955-56 through 1963-64, ...orted to the U.S. Office of Education by Junior College District, ... Louis.

Curriculum	Enrollment on or near October 1, 19--						Curriculum (abbreviated)
	1960		1962		1964		
	full-time	part time	full-time	part time	full-time	part time	
Engineering-related	--	--	--	--	131	33	E-R
Architectural techno.	--	--	--	--	25	7	
Chemical technology	--	--	--	--	5	3	
Civil technology	--	--	--	--	30	5	
Electrical technology	--	--	--	--	13	2	
Electronics techno.	--	--	--	--	12	3	
Gen. engineering tech.	--	--	--	--	25	10	
Industrial technology	--	--	--	--	2	--	
Mechanical technology	--	--	--	--	19	3	
Non-engineering-related					386	158	
Nursing	--	--	--	--	42	--	
Dental assistant a/	--	--	--	--	20	--	
Retailing & exec.sec.	--	--	--	--	164	--	
Physical distribution	--	--	--	--	--	14	
Applied fine and graphic arts	--	--	--	--	99	35	
Home economics	--	--	--	--	31	--	
Fire protection tech.	--	--	--	--	--	54	
Police technology	--	--	--	--	30	55	
Total-Organized Occupational Curriculums	--	--	--	--	517	191	

a/ A 1-year program

career pamphlet printed on a high quality stock that looks like vinly and a variety of leaflets describing these curriculums. These aids undoubtedly account for the increased proportion of students in occupational curriculums from 1963-1964. Still, it is clear that almost 80 percent of the students are in "transfer" programs.

The Junior College of Flat River was founded 40 years before the JCD in St. Louis. On page 3 of the college's 1964-66 Bulletin, one of the five "specific objectives of the college" is"3. To provide terminal courses for students who desire to seek employment after attending college for one or more semesters." On pages 25 and 26 a secretarial curriculum is outlined. Yet college officials informed the Missouri Commission on Higher Education early in 1965 that there were "no terminal-technical programs" at the college. A few months earlier they had reported 15 secretarial students for the First Biennial Report of the Commission and had reported to the United States Office of Education that 13 of 482 and 18 of 449 students were in occupational or general studies curriculums in the 1963 and 1964 opening (fall) enrollment surveys.

Table 3 summarizes the information reported for it in the seven United States Offices of Education surveys of organized occupational curriculums. No data on graduates were reported in the second, third, fifth and seventh

Table 3 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Junior College of Flat River.

Curriculum	Graduates July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	21	--	--	1	--	2	--
Accounting	4	--	--	--	--	--	--
Secretarial, general	3	--	--	1	--	2	--
Education	14	--	--	--	--	--	--
Total	21	--	--	1	--	2	--

Table 3.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Junior College of Flat River.
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric.
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	(abbreviated)
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
97	2	4	6	--	--	18	14	10	20	3	11	--	--	Non-E-R
22	--	--	--	--	--	--	--	--	--	--	--	--	--	Accounting
13	--	4	6	--	--	18	14	10	20	3	11	--	--	Secretar.
62	2	--	--	--	--	--	--	--	--	--	--	--	--	Education

surveys; nor on enrollments in the third and seventh surveys. Apparently the secretarial program has been enrolling and graduating students regularly, but officials of the junior college, in considering some of the surveys, decided that the curriculum did not satisfy all criteria. In 1964, for example, they acknowledged that 15 students were enrolled in secretarial courses but did not believe they met the criterion which requires that they be enrolled in a formal curriculum leading to some kind of regular award, such as an associate degree. Practically the only persons who take degrees are those planning to transfer. The others simply get jobs after one or more semesters of education without bothering either to follow an organized curriculum or to graduate.

Now that this institution is preparing to become the nucleus of a new one serving a larger district, its officers should be prepared to develop a clear set of educational goals, including the goal of meeting technical and semiprofessional occupational needs of the community. A community survey, similar to the one done in Jasper County, should follow quickly and then appropriate occupational curriculums should be developed to match those needs to the needs of students who will not be going on to a 4-year college after they finish the junior college.

Metropolitan Junior College became the name of the Junior College of Kansas City when its service area was expanded from a city to a district one year ago. It also has had as one of its "specific objectives," according to page 24 of the college's 50th anniversary Bulletin,

> 3. To provide two years of college work leading to a degree in programs of technical and specialized education correlated with the needs and the employment opportunities of the Kansas City metropolitan area.

Table 4 summarizes the information it reported to the United States Office of Education in the seven organized occupational curriculums surveys to date.

The report of 1964 enrollments in organized engineering-related occupational curriculums is out of line with those of earlier years and with that contained in the Commission's First Biennial Report. Apparently the changes in the United States Office of Education survey questionnaire were not clearly understood because during a conference with the study director college officials reported that 50-75 seemed a more likely enrollment than 952 in the drafting and general engineering technology programs.

The leading occupational programs have been accounting, general business, secretarial, and general engineering technology, each of which included a 1-year certificate or a 2-year associate degree option.

Table 4.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Junior College of Kansas City

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	6	1	1	2	5	3	--
Gen. Engineering Technology	6	1	1	1	4	3	--
Drafting & Machine Design	--	--	--	1	1	--	--
Architectural technology	--	--	--	--	--	--	--
Civil technology	--	--	--	--	--	--	--
Computer laboratory tech.	--	--	--	--	--	--	--
Non-engineering-related	95	15	9	20	28	12	14
Accounting	5	2	--	5	5	2	4
General Business	4	--	--	10	14	2	--
General secretarial	23	13	9	5	9	8	6
Education	18	--	--	--	--	--	--
Med. or biological lab. technician	15	--	--	--	--	--	--
Nursing	6	--	--	--	--	--	--
Home economics, general	24	--	--	--	--	--	--
Data processing	--	--	--	--	--	--	4
Total	101	16	10	22	33	15	14

Table 4 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Junior College of Kansas City. (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric.
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	(abbreviated)
--	--	--	--	21	--	23	9	15	20	50	69	317	635	E-R
--	--	--	--	21	--	23	5	15	15	2	3	317	635	Gen.Eng.T.
--	--	--	--	--	--	--	4	--	5	2	35	--	--	Drafting
--	--	--	--	--	--	--	--	--	--	31	25	--	--	Arch.Tech.
--	--	--	--	--	--	--	--	--	--	2	--	--	--	Civil Tech
--	--	--	--	--	--	--	--	--	--	13	6	--	--	Computer
349	25	130	26	101	--	63	77	106	492	116	330	295	347	Non E-R
1	2	5	6	--	--	--	16	--	21	43	81	80*	170*	Acctg.
--	--	--	--	--	--	32	42	52	305	22	53	30/*	--	Gen.Bus.
123	18	125	20	101	--	31	19	54	166	51	196	93*	175*	Gen.Sec'l.
137	5	--	--	--	--	--	--	--	--	--	--	--	--	Education
14	--	--	--	--	--	--	--	--	--	--	--	--	--	M/bio.lab tech.
12	--	--	--	--	--	--	--	--	--	--	--	46	--	Nursing
62	--	--	--	--	--	--	--	--	--	--	--	--	--	Home Ec.
--	--	--	--	--	--	--	--	--	--	--	--	46	2	Data Proc
349	25	130	26	122	--	86	86	121	512	166	399	612	982	Total OOC

*Distribution estimated from enrollment reported for business and commerce area.

/*Hotel and restaurant management. (1964)

In the 1957, 1959 and 1961 Comprehensive Reports on Enrollment in Higher Education, more than 90 percent of the students were identified as enrolled in programs leading to a bachelor's degree; less than 10 percent as in "terminal-occupational" programs. In the opening (fall) enrollment reports, 15 percent of the students in 1963 and 7.5 percent in 1964 were classified as in occupational or general studies programs not chiefly creditable towards a bachelor's degree. In 1959 the "terminal" students outnumbered those reported in the organized occupational curriculums survey two to one; otherwise the latter have been three times more numerous. Thus, two-thirds of the students in occupational programs have been considered to be in "open-ended" and one-third in "terminal" programs. Actually, the distinctions are not as clear as the foregoing statement may make them seem to be. Practically all of the students prefer to be identified as "transfer" students, rather than "terminals," almost entirely because of the higher status of "transfers." To satisfy these students, the Junior College of Kansas City has permitted wide latitude to the students in their choices of courses, not holding them to any set program or series of courses. To be sure, there is merit in this approach. The disadvantage is that the potential employer cannot be certain that one graduate of an accounting program will have been prepared to the same breadth and depth

as another. While it is convenient to the student to avoid certain courses while selecting others which appeal to him for a variety of reasons, he is not likely to have much confidence that the courses he is taking will give him a specific occupational competency. Especially is this likely to be the case when he is permitted (encouraged, in fact) to take "transfer" rather than "terminal" courses, substituting courses designed to prepare for further study in place of those designed to get him ready for a job.

Several attractive brochures describe business, engineering technology, medical and related sciences, and "drafting technology architecture" curriculums. Unfortunately, however, they also use the supermarket approach; instead of more effectively pinpointing curriculums which prepare for occupational competency in one brochure and "transfer" curriculums in a separate one. (Granted, in a few instances it is appropriate to use a combined, or fields, approach. Even then, if there are differences between the "transfer" and "terminal" curriculums, these differences should be clearly stated.) Reference can and should be made to the "transfer" programs in an occupational brochure, but only a sentence or two is needed, not a page. That page can be put to better use in describing the kinds of jobs held by persons who complete the curriculum.

Information like that contained in the mimeographed description, "Electronic Date Processing Training," prepared and distributed by the vocational-technical department of Kansas City Public Schools could be used to good advantage. Brochures prepared by the Metropolitan Junior College like "Why Be in the Dark" and "Night School" are extremely effective presentations and show that the talents at the college can be applied with success once the purposes and goals are clear.

Assistance of advisory committees is not acknowledged in the college Bulletin nor in any of the brochures. Advisory committees can provide excellent guidance and counsel as the college develops occupational programs and excellent two-way communication between the college and business and industry.

Moberly Junior College has had an average of 95 to 98 percent of all freshmen and sophomores enrolled in "transfer" programs. Clearly, this is the main effort of this relatively small institution. It has had from 150 to 192 total students over the past ten years. It reported data about one organized occupational curriculum, general secretarial, in the first, third, and fourth national surveys of occupational education. The United States Office of Education estimated that the same data were appropriate for the second and fifth surveys as for the preceding ones, although Moberly Junior College did not participate

in those two nor the one for 1961-62. The college dean responded to the queries of the Missouri Commission on Higher Education that Moberly had "no such programs" in 1963-64; however, during a personal visit, the survey director was provided the information for 1963-64 which appears, along with the other Office of Education data which are summarized in table 5.

It is somewhat difficult for Moberly data to fit into most reporting patterns because it is a 4-year junior college. As a result, high school juniors and seniors are also enrolled in some of the same courses as junior college freshmen and sophomores. This is true of the electronics course which enrolled an estimated eight college men in 1963 and three in 1964, but they are not included in the organized occupational curriculums survey because the criterion requiring high school graduation for admission is not applied to all students in this curriculum. As long as the enrollment is low and the high school and junior college students in the same school building, it will probably be difficult to provide a separate occupational program for each group of students. A clear commitment on the part of the college officials, along with careful planning and expert counseling is necessary for success.

Table 5.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Moberly Junior College.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	6	6*	4	1	1*	--	--
Secretarial, general	6	6*	4	1	1*	--	--
Total	6	6*	4	1	1*	--	--

*Estimated by United States Office of Education

Table 5.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Moberly Junior College.
(continued)

Enrollment on or near October 1, 19--														Curric. (abbreviated)
1956		1957		1958		1959		1960		1962		1964		
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
12	--	12*	--	13	1	11	--	11*	--	--	--	3*/	--	Non-E-R
12	--	12*	--	13	1	11	--	11*	--	--	--	3*/	--	Secret'l.
12	--	12*	--	13	1	11	--	11*	--	--	--	3*/	--	Total OOC

*Estimated by United States Office of Education.
*/ Estimated by survey director.

St. Joseph Junior College, soon to become known as Missouri Western Junior College, has not participated in any of the national surveys of organized occupational curriculums. All of its students are considered to be in "transfer" programs because arrangements have been made so that Kansas State College at Pittsburg will accept for full credit toward a bachelor's degree occupational as well as academic courses. St. Joseph Junior College, therefore, does not meet the national survey criterion that the occupational programs be designed primarily to prepare for occupational competency.

The last two pages of the 1965-66 Catalog of the college describe the electronic technology program. Together with the fact that the college retains as its technical education consultant the director of the Hillyard Vocational School, this suggests that in the near future it will have 2-year programs specifically designed to prepare students for occupational competency. In general, however, it appears that St. Joseph young people who want to prepare for a job will continue to go to the well-equipped Hillyard Vocational School or one of the city's privately-operated business colleges.

Trenton Junior College reported two graduates in 1957-58 and five students enrolled in the fall of 1958 in an associate degree education program. The small enrollment averaging under 100 students a year over the

past ten years, makes it appear unlikely that the college can afford to offer anything more than a minimal "transfer" program.

Private junior colleges.--

Central Technical Institute led all other Missouri institutions in the annual national surveys of organized occupational curriculums through that for 1961-62. Reports of 1963-64 graduates show that it was still the most productive Missouri institution. Although the number enrolled in part-time programs at St. Louis and Washington universities and the number enrolled in full-time programs in October, 1964 by the Junior College District in St. Louis surpassed those reported by Central Technical Institute, the full-time students were divided among three campuses of the St. Louis JCD. Thus, Central Technical Institute may still be considered the leading institution in terms of the number of persons it prepares to become technicians. Considering the further fact that the St. Louis JCD enrollments are spread among 16 or 17 curriculums, and Central Technical Institute's in two, the specialized leadership of the latter institution is even more impressive.

Data it furnished in the seven national occupational education surveys appear in table 6.

Central Technical Institute is the only institution in Missouri which has had its technology programs approved

Table 6 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Central Technical Institute

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955-56	1956-57	1957-58	1958-59	1959-60	1961-62	1963-64
Engineering-related	112	237	206	181	209	166	175
Electronics, gen. (3-year)	92	183	206	130	167	128	175
Radio & TV tech. (1-year)	20	54	--	51	42	38	--
Non-engineering-related	--	--	--	--	--	--	--
Total	112	237	206	181	209	166	175

Table 6 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Central Technical Institute (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
590	135	625	135	627	75	500	70	440	19	345	13	408	--	E-R
590	--	535	135	627	75	450	--	427	--	325	13	408	--	Electron.
--	135	90	--	--	--	50	70	13	19	20	--	--	--	Radio-TV
--	--	--	--	--	--	--	--	--	--	--	--	--	--	Non-E-R
590	135	625	135	627	75	500	70	440	19	345	13	408	--	Total OOC

by the Engineers' Council for Professional Development (ECPD). The United States Office of Education recognizes ECPD as the approved national accrediting agency for curriculums in engineering technology as well as in engineering. (Three Missouri institutions have ECPD approval for their engineering programs: St. Louis, Washington, and Missouri universities.)

Christian College has provided data in all organized occupational curriculum surveys to date. The information is summarized in table 7.

During the period of almost a decade covered by this national survey, Christian College has been de-emphasizing its occupational programs and concentrating on the liberal arts. In 1956 almost one-half of its young ladies were enrolled in occupational programs. In 1964 less than five percent could be so identified. However, 25 to 30 percent of the graduates are considered to have been prepared for jobs at the semiprofessional level, most of them having completed secretarial, home economics, or applied, fine or graphic arts curriculums.

Hannibal-LaGrange College has offered a small secretarial program for many years. In the first two national surveys it also had occupational programs in general business and education, but these programs were converted to "transfer" programs. The data are summarized in table 8.

Table 7 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Christian College

Curriculum	Graduates July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	2	--	--	--	--	--	--
Chemical technology	2	--	--	--	--	--	--
Non-engineering-related	112	120	36	32	25	29	11
Applied, fine, or graphic art	8	7	--	15	3	7	--
Business, general	6	11	--	9	--	--	--
Secretarial	15	25	13	7	6	8	6
Education	50	30	--	--	--	--	--
Dental hygiene	1	1	--	--	--	--	--
Med. or biological lab. tech.	6	10	10	--	1	4	--
Nursing	5	6	--	--	--	--	3
Home Economics, General	10	15	8	--	9	8	2
Clothing & Textiles	10	9	--	--	--	--	--
Bible Sdy. or religious work	1	2	--	--	--	--	--
Journalism	--	4	--	--	--	--	--
Library aide	--	--	--	--	--	--	--
Other	--	--	5	1	6	2	--
Total	114	120	36	32	25	29	11

Table 7 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Christian College.
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
1	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
1	--	--	--	--	--	--	--	--	--	--	--	--	--	Chemical
184	--	145	--	69	--	50	--	44	--	56	--	14	--	Non-E-R
4	--	23	--	--	--	20	--	10	--	11	--	--	--	Arts
--	--	13	--	--	--	20	--	--	--	--	--	--	--	Business
52	--	10	--	33	--	5	--	14	--	11	--	14	--	Secretar'l
85	--	54	--	--	--	--	--	--	--	--	--	--	--	Education
1	--	--	--	--	--	--	--	--	--	--	--	--	--	Dental hy.
10	--	11	--	7	--	--	--	--	--	8	--	--	--	Med/bio.lab
6	--	--	--	--	--	--	--	--	--	--	--	--	--	Nursing
15	--	18	--	18	--	--	--	12	--	20	--	--	--	Home Ec.
9	--	4	--	--	--	--	--	--	--	--	--	--	--	Clothing
2	--	2	--	--	--	--	--	--	--	--	--	--	--	Bible
--	--	9	--	--	--	--	--	--	--	--	--	--	--	Journalism
--	--	1	--	--	--	--	--	--	--	--	--	--	--	Library
--	--	--	--	11	--	5	--	8	--	6	--	--	--	Other
185	--	145	--	69	--	50	--	44	--	56	--	14	--	Total OOC

Table [8] .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Hannibal-LaGrange College.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	48	31	3	7	8	3	--
Business, general	8	11	--	--	--	--	--
Secretarial, general	3	5	3	7	8	3	--
Education	37	15	--	--	--	--	--
Total	48	31	3	7	8	3	--

Table 8 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Hannibal LaGrange College
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
77	--	87	8	18	2	17	2	20	--	14	--	--	--	Non-E-R
26	--	30	4	--	--	--	--	--	--	--	--	--	--	Business
8	--	12	2	18	2	17	2	20	--	14	--	--	--	Secretar'l
43	--	45	2	--	--	--	--	--	--	--	--	--	--	Education
77	--	87	8	18	2	17	2	20	--	14	--	--	--	Total OOC

Beginning in the fall of 1965, Hannibal-LaGrange College will begin a five-year arrangement with the Missouri Baptist Hospital in St. Louis. The college is to provide the first year of general education, after which the students are to move to the hospital for the final two calendar years of the program which will lead to their certificates as registered nurses. This kind of cooperative arrangement should be watched closely. It probably is the best way for a college to get involved in occupational education which it could not otherwise attempt because of its inability to build appropriate specialized laboratories and to hire the requisite high-caliber teaching staff.

The Hannibel public schools offer a variety of vocational programs, including electricity-electronics, automobile mechanics, practical nursing, and business occupations. Therefore, the college has not been conscious of any need to expand its occupational programs. Instead, it concentrates on providing programs which will be fully acceptable towards the bachelor's degree for the 65 to 85 percent of its graduates who will transfer to 4-year colleges and universities.

There will be even less need to offer occupational programs in the college in the future if an area vocational-technical school is established. Robert Scott, a University of Missouri graduate student, is currently

surveying the community to determine the need for such an institution and the ability of the community to support it.

The School of the Ozarks reported data in five occupational areas for the third national occupational education survey and in one, general secretarial, for the fourth and fifth, but a note was added to their return for 1959-60 that the programs had all been discontinued. Data are summarized in table 9.

Southwest Baptist College provided information in all seven of the national surveys of occupational education, as summarized in table 10. One-third of its students were enrolled in three occupational programs in the early survey years; less than five percent in the general secretarial program in the more recent years. This institution will probably continue to offer a secretarial program as long as students want one, but the emphasis on "transfer" programs will continue to build as the college moves toward its announced goal of becoming a bachelor's degree-granting liberal arts college.

Wentworth Military Academy reported its entire fall, 1962 enrollment to be in a general business program and six of its 57 graduates in 1961-62 as having completed this two-year program in preparation for occupational competency. Thus, it considered its program to be meeting the needs of the "transfer" as well as of the "terminal" students. It did not report occupational curriculum data in any of the other six national surveys.

Table 9.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by the School of the Ozarks

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related.	--	--	10	--	--	--	--
General engineering tech.	--	--	10	--	--	--	--
Non-engineering-related	--	--	19	2	5	--	--
Forestry	--	--	3	--	--	--	--
Music	--	--	2	--	--	--	--
Business, General	--	--	10	--	--	--	--
Education	--	--	3	--	--	--	--
Bible Stdy.or religious wk.	--	--	1	--	--	--	--
Secretarial, general	--	--	--	2	5	--	--
Total	--	--	29	2	5	--	--

Table 9 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by the School of the Ozarks
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbrevi-ated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	25	--	--	--	--	--	--	--	--	--	E-R
--	--	--	--	25	--	--	--	--	--	--	--	--	--	G.E.Tech.
--	--	--	--	90	--	35	--	2	--	--	--	--	--	Non-E-R
--	--	--	--	5	--	--	--	--	--	--	--	--	--	Forestry
--	--	--	--	15	--	--	--	--	--	--	--	--	--	Music
--	--	--	--	30	--	--	--	--	--	--	--	--	--	Business
--	--	--	--	25	--	--	--	--	--	--	--	--	--	Education
--	--	--	--	15	--	--	--	--	--	--	--	--	--	Bi. Study
--	--	--	--	--	--	35	--	2	--	--	--	--	--	Secretar'l.
--	--	--	--	115	--	35	--	2	--	--	--	--	--	Total OOC

Table 10.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Southwest Baptist College.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	107	58	27	31	43	9	68
Secretarial, general	13	7	6	12	13	9	1
Education	43	29	21	19	30	--	39
Bible Stdy or religious wk.	51	22	--	--	--	--	4
Other	--	--	--	--	--	--	24
Total	107	58	27	31	43	9	68

Table 10.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Southwest Baptist College (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
75	--	106	--	77	--	89	2	43	--	8	--	302	15	Non-E-R
10	--	21	--	32	--	31	2	13	--	8	--	89	7	Secretar'l
35	--	37	--	45	--	58	--	30	--	--	--	162	5	Education
30	--	48	--	--	--	--	--	--	--	--	--	--	--	Bi. Study
--	--	--	--	--	--	--	--	--	--	--	--	51	3	Other
75	--	106	--	77	--	89	2	43	--	8	--	302	15	Total OOC

William Woods College is carried among the private junior colleges in this report, even though it has recently begun offering baccalaureate programs, because it was a junior college during the first six national occupational education surveys. Data reported to the United States Office in the seven surveys to date appear in table 11.

In 1957 two-thirds of the students in William Woods College were reported to be enrolled in five organized occupational curriculums. This was reduced to one-third in seven occupational programs five years later as the college moved into four-year programs. In 1964, eight occupational curriculums enrolled only one-fifth of the students. Again, the emphasis is increasingly on degree-credit courses.

In earlier years, although graduates of William Woods College were considered to have completed an educational program which prepared them for occupational competency at the semiprofessional or mid-management level when they received their associate degrees, they were also considered adequately prepared for two more years of college and a bachelor's degree. Approximately one-third of them transferred to four-year colleges for that purpose five and ten years ago. The number who either transfer to another institution or stay on to get their bachelor's degrees at William Woods College may be expected to increase gradually but surely over the next ten years.

Table 11 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by William Woods College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	--	111	--	--	--	59	72
Fine Arts	--	6	--	--	--	2	6
Secretarial, general	--	25	--	--	--	22	14
Secretarial, medic. or dental	--	5	--	--	--	3	--
Home Economics, general	--	60	--	--	--	20	5
Retail Sales, purch. or mdsg.	--	--	--	--	--	8	6
Phys. Ed., health or recre.	--	--	--	--	--	2	2
Med. or bio. labor, tech.	--	--	--	--	--	2	--
Business, general	--	--	--	--	--	--	31
Other	--	15	--	--	--	--	8
Total	--	111	--	--	--	59	72

Table 11.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by William Woods College
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	227	--	--	--	--	--	--	--	157	--	83	--	Non-E-R
--	--	10	--	--	--	--	--	--	--	8	--	17	--	Fine Arts
--	--	*52	--	--	--	--	--	--	--	65	--	14**	--	Sec. gen'l.
--	--	*10	--	--	--	--	--	--	--	10	--	--	--	Sec., m/d
--	--	*124	--	--	--	--	--	--	--	45	--	12	--	Home Ec.
--	--	--	--	--	--	--	--	--	--	16	--	6**	--	Retailing
--	--	--	--	--	--	--	--	--	--	9	--	2**	--	Phys. Ed.
--	--	--	--	--	--	--	--	--	--	4	--	--	--	M/bio.lab.
--	--	--	--	--	--	--	--	--	--	--	--	30**	--	Business
--	--	*31	--	--	--	--	--	--	--	--	--	2**	--	Other
--	--	227	--	--	--	--	--	--	--	157	--	83	--	Total OOC

*Estimated by United States Office of Education
** Enrollment reported in three areas; partial distribution estimated by survey director.

Public four-year colleges.--

Central Missouri State College is the only one of the publicly-supported four-year colleges which reported data in all seven of the national surveys of occupational education. Its reports are summarized in table 12.

As would be expected in a four-year institution, occupational education is a minor activity. Even thcugh the enrollment increased to 304 in 1964, this still represents only four percent of the total student body In previous years the percentage in occupational programs averaged approximately two percent.

Worthy of comment is an attractive folder, "You Can Take It With You; Intensified Preparation; One- and Two-Year Terminal Programs," which the college publishes and distributes widely. It lists the courses included in ten curriculums, all two years in length except a 1-year program in business training. It could be improved upon by including descriptions of some of the jobs held by graduates of these curriculums. Although the programs are identified as "terminal," the folder points out that the student can, if he later wishes to do so, apply these courses toward a bachelor's degree.

In the 1959 and 1961 comprehensive enrollment surveys of the United States Office of Education students in these programs were classified as "terminal-occupational" students, but in the 1963 and 1964 opening (fall) enrollment surveys

Table 12.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Central Missouri State College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955-56	1956-57	1957-58	1958-59	1959-60	1961-62	1963-64
Engineering-related	--	--	--	--	--	4	5
Drafting & Machine design	--	--	--	--	--	--	1
Architectural technology	--	--	--	--	--	--	--
Civil drafting & design	--	--	--	--	--	3	--
Electrical, general	--	--	--	--	--	--	--
Electronics	--	--	--	--	--	--	2
Automotive technology	--	--	--	--	--	1	2
Other	--	--	--	--	--	--	--
Non-engineering-related	8	9	6	16	25	10	20
Agriculture, general	1	--	--	--	--	--	--
Secretarial, general	7	8	6	14	24	7	15
Home Economics, general	--	--	--	--	--	--	--
Accounting	--	1	--	2	1	--	4
Education	--	--	--	--	--	--	--
Med.or biological lab. tech.	--	--	--	--	--	--	--
Police technology	--	--	--	--	--	--	--
Business data processing	--	--	--	--	--	--	--
Business, general	--	--	--	--	--	3	1
Total	8	9	6	16	25	14	25

Table 12.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Central Missouri State College
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
14	--	5	--	6	--	13	--	23	--	7	--	61	--	E-R
--	--	4	--	--	--	1	--	[illegible]						Drafting
--	--	--	--	6	--	--	--	--	--	--	--	--	--	Architect
--	--	--	--	--	--	--	--	17	--	4	--	--	--	Civil dr.
--	--	--	--	--	--	--	--	1	--	--	--	--	--	Electrical
--	--	--	--	--	--	--	--	2	--	3	--	19	--	Electronic
--	--	--	--	--	--	--	--	3	--	1	--	17*	--	Auto.tech
14	--	1	--	--	--	--	--	--	--	--	--	--	--	Other
63	--	96	--	36	--	107	--	44	--	20	--	243	--	Non-E-R
1	--	3	--	1	--	12	--	2	--	2	--	5	--	Agric.
61	--	29	--	24	--	58	--	25	--	12	--	117*	--	Secre.
1	--	1	--	--	--	1	--	--	--	1	--	2	--	Home Ec.
--	--	7	--	4	--	11	--	--	--	3	--	23*	--	Accounting
--	--	18	--	--	--	--	--	--	--	--	--	--	--	Education
--	--	--	--	--	--	--	--	3	--	--	--	--	--	M/bio.lab
--	--	--	--	--	--	--	--	--	--	--	--	35	--	Police
--	--	--	--	--	--	--	--	--	--	--	--	15	--	Bus.Data
--	--	38	--	7	--	25	--	14	--	2	--	46*	--	Bus.gen'l
77	--	101	--	42	--	120	--	67	--	27	--	304	--	Total OOC

they were not reported in the "terminal" category. In the seventh national survey of occupational education, the college indicated that these were considered to be "open-ended" curriculums. Probably one-fourth of those who complete a "terminal" program go on to a bachelor's degree. All who have completed these programs have been placed in appropriate jobs, including about one-half of them who do not happen to be reflected in the data on graduates in table 12 because they did not bother to apply for the certificate.

According to college officials, the students in occupational programs are of the same caliber as those in baccalaureate programs.

Harris Teachers College has not reported any enrollments or graduates in organized occupational curriculums, Until 1960, reports show more associate degrees than bachelor's degrees were awarded by Harris Teachers College. At that time it was possible to teach after two years of college education. However, even then this institution regarded the associate degree program as preparation for further teacher education rather than as job preparation. Its junior college division was discontinued when the Junior College District was formed in St. Louis.

Lincoln University provided data in the two most recent national occupational education surveys. In each case one graduate was reported from a general secretarial

curriculum. Two other programs are available: general agriculture and industrial technology. The programs are "open-ended," leading to either a 2-year certificate or a bachelor's degree. Therefore, it is not possible to identify occupational students until they apply for the 2-year certificate.

Although 56 of the 1,703 students in the opening (fall) enrollment survey of 1964 were classified as "terminal" students, the dean explained to the survey director during a personal visit to the institution that technically they were "special students" who would be listed among "degree-credit students" after they had met all entrance requirements.

Northeast Missouri State College has not reported enrollments or graduates in the national occupational education survey, but the comprehensive enrollment report for 1957 includes 312 "terminal-occupational" students among a total enrollment of 2,427. All of the 4,109 in the 1961 comprehensive enrollment report of the United States Office of Education were identified as "degree-credit" students, as were those in the opening (fall) enrollment surveys of 1963 and 1964.

Reports to the Missouri Commission on Higher Education indicate that informal 1-year and 2-year secretarial programs are available and enroll over 100 women, many of whom go on to a bachelor's degree.

Northwest Missouri State College reported 20 graduates in 1956-57 and 29 students enrolled in October, 1957 in a general secretarial program. Other than that, they have not reported information about occupational education either to the United States Office of Education or to the Missouri Commission on Higher Education. Presumably the program has been discontinued or, at most, is being conducted quite informally.

Southeast Missouri State College has provided data in the five most recent national occupational education surveys. Data are summarized in table 13.

The associate degree nursing program has gained in the number of graduates and enrollment while the secretarial certificate programs show enrollment fluctuations, although the number of graduates has increased each year of the survey over that for the preceding year. In 1958 the 65 secretarial students represented approximately three percent of the opening (fall) enrollment at Southeast Missouri State College; in 1964 the 80 secretarial and nursing students represented about 1.8 percent of the opening (fall) enrollment.

New occupational offerings are a 2-year general business and 1-year and 2-year technical drafting certificate programs. The college has published attractive brochures about these programs. The one for the technical drafting certificate programs could serve as an excellent

Table 13.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Southeast Missouri State College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	--	--	3	2	12	18	25
Secretarial, general	--	--	3	2	5	7	11
Nursing, 2-year program	--	--	--	--	7	11	14
Total	--	--	3	2	12	18	25

Table 13.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Southeast Missouri State College. (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbrevi-ated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	--	--	65	--	57	--	68	--	69	--	80	--	Non-E-R
--	--	--	--	65	--	19	--	38	--	17	--	16	--	Secre.
--	--	--	--	--	--	38	--	30	--	52	--	64	--	Nursing
--	--	--	--	65	--	57	--	68	--	69	--	80	--	Total OOC

model for other colleges in Missouri and elsewhere. In addition to an outline of courses to be taken each semester and the award made to those who complete the programs (a certificate of completion), it states the purposes of the programs, describes the qualifications usually associated with success in them, the kinds of jobs for which successful students are qualified, employment outlook and how to get started in one of the programs. Several clear, sharp pictures illustrate the brochure very effectively. They show students using appropriate tools and equipment and an example of a finished student project, as well as exterior views of the college. The cover shows a portion of a newspaper "Help Wanted" column (probably a paste-up of several columns) with seventeen calls for draftsmen or designers.

Southwest Missouri State College has not reported in any of the national surveys of organized occupational curriculums.

High school guidance counselors as well as the college counseling service have been urging this college to provide these kinds of educational opportunities. Some of it has been done informally in the past, tailoring 1-year and 2-year business and industrial technology curriculums to meet the needs of students who for a variety of reasons decide they cannot remain for a 4-year degree.

Although dittoed curriculum guides have been used by the industrial education department, there were no published brochures. Nor did the college catalog recognize these occupational programs until the 1964-65 issue which (on page 138) announces those in industrial technology which will lead to a certificate. (Prior to this, no award was given to the students who completed a program of this kind.) The same catalog issue (on page 74) explains that business department advisers help plan individual programs for those students with immediate vocational objectives.

The Springfield Board of Education has published and distributed a pamphlet describing three 2-year post-secondary occupational programs which it offers in its School of Technology: mechanical technology, electronic technology, and electronic data processing. (A copy of it is appended to this report). The college acknowledges that the instruction in these programs is of high quality but it is not transferable to the college. Instead, applicants who have attended the public school post-secondary programs are permitted to by-pass certain college technology courses if tests show that they have mastered them. In general, students whose main interest is to become vocationally competent within two years are referred to the public schools and the students who plan to persist to a bachelor's degree and rank in the upper three-fourths of their high school classes are encouraged to go to the college.

The University of Missouri, Columbia has reported graduate and enrollment data in five of the national surveys of organized occupational curriculums. These data are summarized in table 14.

Representing well below one percent of the students in Columbia, they have occasionally been over-looked as evidenced by the response to a request from the Missouri Commission on Higher Education for information about these programs. On other occasions it has been pointed out by university officials that students in the less-than-baccalaureate secretarial and agricultural programs are difficult to identify until they apply for a certificate as evidence that they have completed a 2-year program. In any event, they receive full university credit for the courses taken in the 2-year occupational programs and are encouraged to continue on to a 4-year degree in business education or agriculture. Not so for the linotype (publishing and printing technology) program. It is described on pages 36 and 67 of the Missouri School of Journalism Accouncement, 1964-65 as a 1-year vocational curriculum which does not carry university credit.

The University of Missouri does not report any occupational programs at Rolla or St. Louis. Those at Kansas City appear in the next section of the report, among the privately-controlled 4-year colleges, since it was in that group until recently and the programs offered were the

Table 14.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by University of Missouri, Columbia

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	--	9	10	10	40	37	18
Secretarial, general	--	9	10	10	18	22	18
Floriculture & horticulture	--	--	--	--	1	--	--
Publishing & Printing Tec.	--	--	--	--	21	15	--
Total	--	9	10	10	40	37	18

Table 14.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by University of Missouri, Columbia (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbrevi-ated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	27*	--	30*	--	20	--	62	--	102	--	50	--	Non-E-R
--	--	27*	--	30*	--	20	--	48	--	89	--	50	--	Secretar'l
--	--	--	--	--	--	--	--	--	--	--	--	--	--	Flor./hort.
--	--	--	--	--	--	--	--	14	--	13	--	--	--	Pub./Print.
--	--	27*	--	30*	--	20	--	62	--	102	--	50	--	Total OOC

*Estimated by survey director.

result of policies established by officials of the University of Kansas City.

Private four-year colleges.--

Avila College, when it was still known as the College of St. Teresa, reported five students enrolled in 1962 in a 2-year certificate program in general business. Since then it has discontinued the program.

Central Bible Institute has reported enrollments and graduates in all seven national surveys of occupational education, as summarized in table 15. In general, the number of those taking the 2-year certificate program in bible study or religious work accounts for approximately ten percent of the total number of students.

Evangel College reported data in three of the national occupational education surveys, as summarized in table 16, but reported that the programs had been discontinued in 1960 although the student enrolled at that time would be allowed to complete her secretarial program.

Fontbonne College reported data in the three most recent national surveys of organized occupational curriculums. These data are summarized in table 17. The 2-year certificate program in general business is regarded as an "open-ended" curriculum; credits earned in it are accepted towards the bachelor's degree. Less than five percent of Fontbonne's students have elected the occupational program.

Table 15.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Central Bible Institute

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	62	39	22	15	19	10	9
Bible Stdy.or religious work	62	39	22	15	19	10	9
Total	62	39	22	15	19	10	9

Table [15].--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Central Bible Institute (continued)

Enrollment on or near October 1, 19--														Curric. (abbrevi-ated)
1956		1957		1958		1959		1960		1962		1964		
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	--	--	39*	5*	26	4	75	12	46	5	439	17	Non E-R
--	--	--	--	39*	5*	26	4	75	12	46	5	439	17	Bi. Study
--	--	--	--	39*	5*	26	4	75	12	46	5	439	17	Total OOC

*Estimated by survey director

Table 16 .--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Evangel College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	--	--	2	3	2	--	--
Business, general	--	--	--	1	--	--	--
Secretarial, general	--	--	2	2	2	--	--
Total	--	--	2	3	2	--	--

Table 16.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Evangel College (continued)

Enrollment on or near October 1, 19--														Curric. (abbreviated)
1956		1957		1958		1959		1960		1962		1964		
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	--	--	8	--	16	--	1	--	--	--	--	--	Non-E-R
--	--	--	--	1	--	2	--	--	--	--	--	--	--	Business
--	--	--	--	7	--	14	--	1	--	--	--	--	--	Secretar'l
--	--	--	--	8	--	16	--	1	--	--	--	--	--	Total OOC

Table 17.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Fontbonne College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955-56	1956-57	1957-58	1958-59	1959-60	1961-62	1963-64
Engineering-related							
Non-engineering-related	--	--	--	--	1	3	13
Secretarial, general	--	--	--	--	1	--	--
Business, general	--	--	--	--	--	3	13
Total							

Table 17.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Fontbonne College (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbrevi-ated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	--	--	--	--	--	--	21	1	--	39	--	--	Non-E-R
--	--	--	--	--	--	--	--	21	1	--	--	--	--	Secretar'l
--	--	--	--	--	--	--	--	--	--	--	39	--	--	Business
--	--	--	--	--	--	--	--	21	1	--	39	--	--	Total OOC

Missouri Valley College discontinued its organized occupational curriculums in 1959 but was reactivating a 2-year secretarial curriculum "by popular demand" according to a letter to the Missouri Commission on Higher Education. It is described on pages 101 and 102 of the 1965-67 Catalog of the college.

Table 18 summarizes the information Missouri Valley College reported in the first three national surveys of occupational education. There were small nursing and medical or biological laboratory technician programs in 1955-56 and fairly substantial education and general business programs through 1958. Approximately one-half of the students were enrolled in 2-year programs to prepare for occupational competency at the time the policy decision was made to discontinue occupational education and concentrate on the liberal arts.

Rockhurst College provided data in the first six national occupational education surveys, as summarized in table 19.

They have consistently been among the leaders in the number of students enrolled in accounting and general business programs. However, it has not been possible for college officials to state the exact number of students expecting to take the associate degree rather than the bachelor's degree. A rough rule of thumb has been used and that is to assume that approximately one-half of all

Table 18 .--Summary of graduates and enrollment,by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Missouri Valley College .

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	53	34	40	--	--	--	--
Business, general	7	6	7	--	--	--	--
Education	37	28	20	--	--	--	--
Med.or biological lab. tech.	5	--	--	--	--	--	--
Nursing	4	--	--	--	--	--	--
Other	--	--	13	--	--	--	--
Total	53	34	40	--	--	--	--

Table 18.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Missouri Valley College (continued)

Enrollment on or near October 1, 19--														Curric. (abbreviated)
1956		1957		1958		1959		1960		1962		1964		
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
182	--	78	12	224	18	--	--	--	--	--	--	--	--	Non-E-R
58	--	22	--	67	--	--	--	--	--	--	--	--	--	Business'
113	--	56	12	101	13	--	--	--	--	--	--	--	--	Education
9	--	--	--	--	--	--	--	--	--	--	--	--	--	M/bio lab
2	--	--	--	--	--	--	--	--	--	--	--	--	--	Nursing
--	--	--	--	56	5	--	--	--	--	--	--	--	--	Other
182	--	78	12	224	18	--	--	--	--	--	--	--	--	Total OOC

Table 19.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Rockhurst College

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	12	16	12	14	21	13	14*
Accounting & fin. Mgt.	5	7	6	6	5	6	7*
Business, general	7	8	3	8	16	7	7*
Executive assistant	--	1	3	--	--	--	--
Retail sales or merchandising	--	--	--	--	--	--	--
Total	12	16	12	14	21	13	14*

*Data reported directly to survey director by telephone.

Table 19.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Rockhurst College (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
20	354	18	380	--	390	--	420	--	450	--	500	--	650*	Non-E-R
10	177	9	180	--	150	--	160	--	150	--	225	--	275*	Accounting
10	177	9	180	--	150	--	200	--	300	--	275	--	375*	Business
--	--	--	10	--	40	--	--	--	--	--	--	--	--	Exec.asst.
--	--	--	10	--	50	--	60	--	--	--	--	--	--	Retailing
20	354	18	380	--	390	--	420	--	450	--	500	--	650*	Total OOC

students enrolled part-time were preparing for occupational competency short of the professional or baccalaureate level.

At Rockhurst, the associate degree requires completion of 80 semester hours of work, or two and one-half academic years; the bachelor's degree, 128 semester hours, or one and one-half more academic years of full-time study. This would be increased proportionately for part-time students. Thus, a part-time student who averages 12 semester hours a year could qualify for an associate degree in six and one-half calendar years and a bachelor's degree in four more years. Not many of the Rockhurst students elect to apply for the associate degree. In 1954-55 Rockhurst awarded 16 associate and 81 bachelor's degrees; in 1958-59, 14 associate and 135 bachelor's degrees; and in 1962-63, 14 associate and 190 bachelor's degrees. Of course, the preponderance of bachelor's degrees - probably 80 percent of them - were awarded to students who made college their full time concern. Even among part-time students, however, the associate degree is not particularly esteemed except by those who are not certain that they will be able to continue on to a bachelor's degree. At least, that is the situation at Rockhurst College.

The St. Louis Institute of Music reported two graduates in music education in 1963-64. This is the only time they provided information in the national survey of occupational curriculums.

St. Louis University has reported information to United States Office of Education for all seven surveys of enrollments and graduates in organized occupational curriculums. Three curriculums - accounting, general business, and retail sales, purchasing or merchandising - have had large enough numbers enrolled and graduated to place St. Louis University among the top three Missouri institutions for most survey years. Data are summarized in table 20.

Parks College of Aeronautical Technology, a part of St. Louis University which is located in East St. Louis, Illinois, provides occupational education for aviation. Parks data are not included in this study.

Like Rockhurst, approximately one-half of St. Louis University's part-time students were preparing for occupations below the professional level. In recent years, the number of students in occupational curriculums has remained fairly constant while the number of part-time advanced undergraduate and graduate students has increased.

At St. Louis University the associate degree requires one-half as much time and credit as the bachelor's degree. Over the past ten years, St. Louis University has awarded, on average, approximately four to five bachelor's degrees for every associate degree. When first professional degrees are included, the ratio increases to ten or twelve to one.

Table [20].--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by St. Louis University.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	50	73	114	105	69	52	55
Accounting	32	45	56	58	33	25	28
Business, general	13	18	36	35	25	24	18
Retail sales, purchasing, or merchandising	5	10	22	12	11	3	9
Total	50	73	114	105	69	52	55

Table 20.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by St. Louis University
(continued)

Enrollment on or near October 1, 19--														Curric. (abbreviated)
1956		1957		1958		1959		1960		1962		1964		
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	606	--	719	--	582	--	640	--	651	--	617	--	418	Non-E-R
--	269	--	342	--	260	--	264	--	269	--	253	--	170*	Accounting
--	246	--	286	--	250	--	293	--	298	--	284	--	178*	Business
--	91	--	91	--	72	--	83	--	84	--	80	--	70*	Retailing
--	606	--	719	--	582	--	640	--	651	--	617	--	418	Total OOC

*Enrollment reported in "business and commerce area;" distribution estimated by survey director.

Stephens College has awarded more associate degrees over the past ten years than any other Missouri institution, two-year or four-year. However, it is predominantly concerned with the liberal or general education of its women students rather than with providing them with occupational competencies. More important, it does not have organized curriculums for this purpose, but tailors the program each student will follow to her particular needs: general education, preparation for a 4-year degree, occupational education, or a combination of these and other possible goals.

Data were provided in the first national occupational survey only for graduates. They appear in table 21. The 149 students who completed an occupational program amounted to one-fourth of Stephens' associate degree graduates in 1955-56.

St. Paul's College wrote the Missouri Commission on Higher Education that it had no "terminal-technical education" programs, but reported in the seventh national occupational education survey 32 graduates in education and two in bible study or religious work in 1963-64, with 110 enrolled in the former and 69 in the latter curriculum on or near October 1, 1964.

Tarkio College reported 22 students enrolled in a 2-year occupational program in education in the fall of 1957. That program has been discontinued.

Table 21.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Stephens College.

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	149	--	--	--	--	--	--
Accounting	10	--	--	--	--	--	--
Radio & TV program product.	18	--	--	--	--	--	--
Secretarial, general	30	--	--	--	--	--	--
Secretarial, legal	5	--	--	--	--	--	--
Secretar'l, med.or dental	5	--	--	--	--	--	--
Secretarial, technical	5	--	--	--	--	--	--
Technical office assisting	10	--	--	--	--	--	--
Other	66	--	--	--	--	--	--
Total	149	--	--	--	--	--	--

University of Kansas City (now the University of Missouri at Kansas City) reported data in the second through sixth surveys of organized occupational curriculums, as summarized in table 22.

An average of 47 students has been enrolled in the 75 credit hour certificate program in dental hygiene during the reports period, and 11, on the average, have graduated each year. One other occupational curriculum, police technology, was tried in 1962 as an evening venture, but has been discontinued. (This program has been picked up by Central Missouri State College, at its Jackson County residence center in Independence.) The graduates of the certificate program can have the 75 credit hours applied towards a Bachelor of Science in Dental Hygiene which requires another 63 credit hours, or a total of 138.

Washington University has been among the Missouri leaders in terms of the number of organized occupational curriculums offered, the number of part-time students enrolled, and the number of graduates. This is shown by the data summarized in table 23. 19/

Based on the five years for which enrollment data were reported, annual enrollments averaged more than 800 part-time students. Approximately eight engineering-related and eight non-engineering-related curriculums

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19/ Data have been estimated for 1961-62. Washington University was the only large institution which did not provide data in that national survey, probably because of a change in administration of those in charge of evening programs.

Table 22.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by University of Kansas City (until 1963) University of Mo. at Kansas City (since 1963)

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	--	--	--	--	--	--	--
Non-engineering-related	--	15	17	24	24	25	26
Dental Hygiene	--	15	17	24	24	25	26
Police Technology	--	--	--	--	--	--	--
Total	--	15	17	24	24	25	26

Table 22.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by University of Kansas City (until 1963) University of Mo. at Kansas City (since 1963). (continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		.1964		Curric. (abbrevi-ated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	E-R
--	--	47	--	41	--	44	--	49	--	53	64	50*	--	Non-E-R
--	--	47	--	41	--	44	--	49	--	53	--	50*	--	Dent. Hyg.
--	--	--	--	--	--	--	--	--	--	--	64	--	--	Police tec.
--	--	47	--	41	--	44	--	49	--	53	64	50*	--	Total OOC

*Reported directly to survey director by the associate dean of the School of Dentistry, University of Missouri at Kansas City.

Table 23.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Washington University

Curriculum	Graduates						
	July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 - 62	1963 -64
Engineering-related	79	59	85	49	72	60*	60
Air-condt., heating, & refr.	7	5	8	4	2	--	--
Architectural technology	8	5	7	3	2	6	6
Structural technology	2	1	8	2	2	--	--
Chemical technology	2	2	2	--	2	--	--
Electrical technology	14	12	10	11	23	15	15
Industrial technology	22	19	19	10	24	18	18
Drafting & machine design	15	--	23	7	10	--	2
Mechanical technology, gen.	9	15	8	12	3	8	6
Civil drafting & design	--	--	--	--	4	8	8
Electronics	--	--	--	--	--	5	5
Non-engineering-related	48	42	47	43	71	82*	82
Commercial art & advertis.	3	1	2	--	--	1	1
Accounting	23	13	15	14	23	25	25
Business, general	6	13	15	18	21	21	21
Sales & Distribution	5	3	1	3	5	1	1
Executive ass't.or per. mgt.	--	2	4	--	1	6	3
Insurance and real estate	--	1	--	2	6	4	4
Transportation & traffic mgt.	--	5	6	1	5	2	2
Library aide	--	4	4	4	3	13	13
X-ray technology	--	--	--	--	--	6	6
Business data processing	--	--	--	--	--	1	1
Secretarial, gen. or prof.	--	--	--	1	--	--	2
Other	11	--	--	--	7	2	3
Total	127	101	132	92	143	142*	142

*No data reported in 1961-62; estimates for all curriculums made by survey director.

Table 23.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U. S. Office of Education by Washington University
(continued)

Enrollment on or near October 1, 19--														
1956		1957		1958		1959		1960		1962		1964		Curric. (abbreviated)
full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	full-time	part time	
--	332	--	713	--	808	--	170	--	**	--	333*	--	333	E-R
--	25	--	[illegible]										--	Air-Cond.
--	47	--	[illegible]								31	--	31	Architect.
--	17	--	[illegible]									--	--	Structural
--	11	--	[illegible]								4	--	4	Chemical
--	50	--	[illegible]								67	--	67	Electric.
--	73	--	[illegible]								[illegible]	--	[illegible]	Indust'l.
--	67	--	[illegible]									--	*/14	Drafting
--	42	--	210	--	[illegible]	--	38	--	--	--	56	--	*/42	Mechanic.
--	--	--	[illegible]	--	[illegible]	--	[illegible]	--	--	--	32	--	32	Civil
--	--	--	[illegible]	--	[illegible]	--	[illegible]	--	--	--	45	--	45	Electron.
1	251	--	516	--	476	--	258	--	**	8*	379*	8	368	Non E-R
--	12	--	20	11	[illegible]	--	--	--	--	--	14	--	14	Com'l art
--	62	--	205	--	[illegible]	--	47	--	--	--	120	--	*/120	Accounting
--	31	--	120	--	[illegible]	--	[illegible]	--	--	--	105	--	*/105	Business
--	48	--	61	--	17	--	1	--	--	--	15	--	*/4	Sales
--	--	--	27	--	[illegible]	--	--	--	--	--	30	--	*/15	Exec.Asst.
--	--	--	53	--	[illegible]	--	34	--	--	--	20	--	*/20	Ins/r/est.
--	--	--	15	--	[illegible]	--	19	--	--	--	10	--	*/10	T & Tr.Mg.
--	--	--	15	--	16	--	27	--	--	--	36	--	36	Library
--	--	--	--	--	--	--	--	--	--	8	--	8	--	X-ray
--	--	--	--	--	--	--	--	--	--	--	19	--	19	Data proc.
--	--	--	--	--	--	--	21	--	--	--	10	--	*/10	Secretar'l.
1	98	--	--	--	--	--	--	--	--	--	--	--	*/15	Other
1	583	--	1229	--	1284	--	428	--	**	8*	712*	8	701	Total OOC

Notes:
*No data reported in 1961-62; estimated by survey director for all curriculums.
** Enrollment data not available for 1960.
*/ Enrollment reported for 12 areas; further distribution estimated by survey director.

have been covered in each of the national survey reports. In both of these instances, Washington University has led other Missouri institutions. Each year an average of 120 graduates receives certificates from Washington University certifying to the completion of an occupational curriculum of 48 to 60 units. Only one other Missouri institution, Central Technical Institute, has averaged a greater number of occupational education graduates during the past decade. Still, Washington University awarded nine times as many bachelor's and first professional degrees.

Most of the occupational programs require four or five years of evening study. The evening courses, including those in occupational programs, were all originally counterparts of day programs. Many of the original day programs have since been discontinued. As a result, a number of curriculums are now available only in the evening program of University College. There is in process a gradual shift away from specific 48-credit certificate programs towards 60-credit general programs in the broad areas of business, technology, and industrial administration at Washington University. At present, this is a policy decision, but it presages a gradual de-emphasis of organized occupational education at Washington University.

All institutions. -- Table 24 summarizes the foregoing detailed information, by engineering-related and non-engineering-related curriculums, for each of the Missouri institutions of higher education which provided data in at least one of the seven national surveys of organized occupational curriculums.

The dominant Missouri institution in the production of graduates of engineering-related curriculums has been Central Technical Institute. The other six institutions which reported graduates had a combined production which amounted to 28 percent of the total number of engineering-related graduates between 1955-56 and 1963-64. Except for the large numbers of part-time engineering-related students reported by Washington University and except for apparent inconsistencies in the seventh survey by the Metropolitan Junior College-Kansas City when compared to those of previous years, the enrollment statistics for engineering-related curriculums also show the leadership of Central Technical Institute. In the first six national occupational education surveys, Central Technical Institute accounted for 93 percent of the full-time and 54 percent of the total enrollments in engineering-related organized occupational curriculums in Missouri. 20/

In the non-engineering-related curriculums area, leadership is more diffused. Stephens College, the leader in 1955-56 when it accounted for one-fifth of the non-engineering-related

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20/ For the purpose of making these computations, it was assumed that Washington University enrolled 333 part-time engineering-related students in 1960, although that information is not shown in table 24.

Table 24--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Missouri institutions of higher education.

Institution	Graduates, July 1, 19-- through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 -62	1963 -64
Engineering-related curriculums	199	297	302	233	286	233	242
Public 4-year institutions	--	--	--	--	--	4	5
Central Missouri State College	--	--	--	--	--	4	5
Private 4-year institutions	79	59	85	49	72	60*	60
Washington University	79	59	85	49	72	60*	60
Public 2- year institutions	6	1	1	3	5	3	2
Joplin Junior College	--	--	--	1	--	--	2
Jefferson County Junior College	--	--	--	--	--	--	--
Junior College Dist., St. Louis	--	--	--	--	--	--	--
Junior College of Kansas City	6	1	1	2	5	3	--
Private 2-year institutions	114	237	216	181	209	166	175
Central Technical Institute	112	237	206	181	209	166	175
Christian College	2	--	--	--	--	--	--
School of the Ozarks	--	--	10	--	--	--	--

Enrollment on or near October 1, 19--														Institution
1956		1957		1958		1959		1960		1962		1964		(abbreviated)
full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	
605	467	630	848	679	883	544	249	487	39	421	446	972	1001	E-R Curri
14	--	5	--	6	--	13	--	23	--	7	--	61	--	Pub.4-yr.
14	--	5	--	6	--	13	--	23	--	7	--	61	--	CMSC
--	332	--	713	--	808	--	170	--	**	--	333*	--	333	Pri.4-yr.
--	332	--	713	--	808	--	170	--	**	--	333*	--	333	Wash.U.
--	--	--	--	21	--	31	9	24	20	69	100	503	668	Pub. 2-yr.
--	--	--	--	--	--	8	--	9	--	19	31	30	--	Joplin JC
--	--	--	--	--	--	--	--	--	--	--	--	25	--	Jeff. Co.
--	--	--	--	--	--	--	--	--	--	--	--	131	33	JCD,St.L.
--	--	--	--	21	--	23	9	15	20	50	69	317	635	JC of KC
591	135	625	135	652	75	500	70	440	19	345	13	408	--	Pri.2-yr.
590	135	625	135	627	75	500	70	440	19	345	13	408	--	CTI
1	--	--	--	--	--	--	--	--	--	--	--	--	--	Christian
--	--	--	--	25	--	--	--	--	--	--	--	--	--	Sch. of Oz

Notes: *Estimated
**Not available

Table 24.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Missouri institutions of higher education. (continued.)

Institution	Graduates July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 -62	1963 -64
Non-engineering related curriculums	789	607	383	332	402	377	473
Pub.4-yr. institutions	8	38	19	28	77	66	64
Cent. Mo. State College	-	-	-	26	35	10	20
Lincoln University	-	-	-	--	--	1	1
Northwest Mo.St. College	--	20	--	--	--	--	--
Southeast Mo.St. College	--	--	2	2	12	18	25
Univ. of Mo., Columbia	--	9	10	10	40	37	18
Pri. 4-yr. Institutions	374	219	254	201	207	185	235
Avila College	--	--	--	--	--	--	--
Central Bible Institute	62	39	22	15	19	10	9
Evangel College	--	--	2	3	2	--	--
Fontbonne College	--	--	--	--	1	3	13
Missouri Valley College	53	34	40	--	--	--	--
Rockhurst College	12	16	12	14	21	13	14
St. Louis Institute of Music	--	--	--	--	--	--	2
St. Louis University	50	73	114	105	69	52	55
Stephens College	149	--	--	--	--	--	--
St. Paul's College	--	--	--	--	--	--	34

Enrollment on or near October 1, 19--														Institution
1956		1957		1958		1959		1960		1962		1964		
full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	(abbreviated)
1134	1244	1048	1696	898	1474	587	1417	602	1628	917	2001	2182	1555	Non E-R.
63	--	123	29	131	--	184	--	174	--	191	--	373	--	Pub.4-yr.
63	--	96	--	36	--	107	--	44	--	20	--	243	--	CMSC
--	--	--	--	--	--	--	--	--	--	--	--	--	--	Lincoln
--	--	--	29	--	--	--	--	--	--	--	--	--	--	NWMSC
--	--	--	--	65	--	57	--	68	--	69	--	80	--	SEMSC
--	--	27*	--	30*	--	20	--	62	--	102	--	50	--	U.Mo.,Col
203	1211	165	1627	312	1471	86	1322	146	1114	112	1604	676	1035	Pri.4-yr.
--	--	--	--	--	--	--	--	--	--	5	--	--	--	Avila
--	--	--	--	39*	5*	26	4	75	12	46	5	439	17	C.Bi.Inst
--	--	--	--	8	--	16	--	1	--	--	--	--	--	Evangel
--	--	--	--	--	--	--	--	21	1	--	39	--	--	Fontbonne
182	--	78	12	224	18	--	--	--	--	--	--	--	--	Mo.Valley
20	354	18	380	--	390	--	420	--	450	--	500	--	650	Rockhurst
--	--	--	--	--	--	--	--	--	--	--	--	--	--	St.L.I/Mu
--	606	--	719	--	582	--	640	--	651	--	617	--	418	St.L. U.
--	--	--	--	--	--	--	--	--	--	--	--	--	--	Stephens
--	--	--	--	--	--	--	--	--	--	--	--	179	--	St.Paul's

Notes: *Estimated
**Not available

Table 24.--Summary of graduates and enrollment, by full-time and part-time students, in organized occupational curriculums, 1955-56 through 1963-64, as reported to the U.S. Office of Education by Missouri institutions of higher education.

Institution	Graduates, July 1, 19--through June 30, 19--						
	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1961 -62	1963 - 64
Non-engineering related curriculums (continued)							
Tarkio College	--	--	--	--	--	--	--
University of Kansas City	--	15	17	24	24	25	26
Washington University	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32
Public 2-year institutions	137	135	[illegible]	[illegible]	37	20	23
Joplin Junior College	15	9	10	6	8	6	9
Jefferson Co. Junior College	--	--	--	--	--	--	--
Junior College Dist.,St.Louis	--	--	--	--	--	--	--
Junior College of Flat River	21	--	--	1	--	2	--
Junior College of Kansas City	95	15	9	26	2*	12	14
Moberly Junior College	6	6*	3	1	1*	--	--
Trenton Junior College	--	--	2	--	--	--	--
Private 2-year institutions	267	320	65	72	51	100	151
Christian College	112	120	36	32	25	29	11
Hannibal-LaGrange College	48	31	3	7	8	3	--
School of the Ozarks	--	--	19	2	5	--	--
Southwest Baptist College	107	58	27	31	43	9	68
Wentworth Military Academy	--	--	--	--	--	6	--
William Woods College	--	111	--	--	--	59	72

Enrollment on or near October 1, 19--														Institution
1956		1957		1958		1959		1960		1962		1964		
full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	full time	part time	(abbreviated)
(Non-engineering Related) continued														
--	--	22	--	--	--	--	--	--	--	--	--	--	--	Tarkio
--	--	47	--	41	--	44	--	49	--	53	64	50*	--	U.of K.C.
1	251	--	516	--	476	--	258	--	**	8*	379*	8	368	Wash. U.
532	33	195	32	201	1	126	91	173	514	168	397	734	505	Pub.2-yr.
74	6	49	--	82	--	34	--	46	2	49	56	25	--	Joplin JC
--	--	--	--	--	--	--	--	--	--	--	--	25	--	Jeff. Co.
--	--	--	--	--	--	--	--	--	--	--	--	386	158	JCD,St.L.
97	2	4	6	--	--	18	14	10	20	3	11	--	--	JC of FR
349	25	130	26	101	--	63	77	106	492	116	330	295	347	JC of KC
12	--	12*	--	13	1	11	--	11*	[illegible]	--	--	3*	--	Moberly JC
--	--	--	--	5	--	--	--	--	--	--	--	--	--	Trenton JC
336	--	565	8	254	2	191	4	109	--	446	--	399	15	Pri.2-yr.
184	--	145	--	69	--	50	--	44	--	56	--	14	--	Christian
77	--	87	8	18	2	17	2	20	--	14	--	--	--	H-La.Gr.
--	--	--	--	90	--	35	--	2	--	--	--	--	--	Sch.of Oz.
75	--	106	--	77	--	89	2	43	--	8	--	302	15	SW Baptist
--	--	--	--	--	--	--	--	--	--	211	--	--	--	Wentworth
--	--	227	--	--	--	--	--	--	--	157	--	83	--	Wm. Woods

Notes: *Estimated
**Not available.

graduates, did not consider that its programs satisfied the criteria for the national surveys after the first one. Christian College and Southwest Baptist College accounted for almost 30 percent of the graduates in 1955-56 and Christian, along with another private junior college, William Woods, accounted for [illegible] percent of the 1956-57 graduates. William Woods College [illegible] second in graduates for each survey in which it participated, the sixth and seventh as well as the second. St. Louis University and Washington University were the two leading producers of graduates from non-engineering-related curriculums in the third, fourth and fifth surveys, but St. Louis University dropped to third in 1961-62 and fourth in 1963-64. In the years 1958 through 1960, St. Louis and Washington universities accounted for two-fifths of the graduates. The two leaders in the sixth and seventh surveys, Washington University and William Woods College, produced 35 percent of Missouri non-engineering-related graduates those two years.

Rockhurst College, St. Louis University, and Washington University have reported the largest enrollments over the years of the surveys, but almost entirely of part-time students. Full-time enrollment leadership included the Junior College of Kansas City among the top three in the first six surveys. Christian College, Missouri Valley College and William Woods College have also been among the top three in full-time enrollments for one or more of the surveys.

Public institutions, both junior colleges and four-year colleges and universities, have been sharply overshadowed by the private institutions in both the engineering-related and non-engineering-related curriculum areas. Especially clear is the low number of graduates from public junior colleges, amounting to only about six percent of the total reported in the seven national surveys of organized occupational education.

Graduates of Organized Occupational Programs Related to Bachelor's Degrees Awarded in Missouri

It was noted in the introductory section of this report that Missouri institutions in 1961-62 awarded 10 associate degrees for every 46 bachelor's degrees. This ranked Missouri third among the 50 states. Only California (10 to 20) and Florida (10 to 23) came closer to meeting the ratio of five persons with two years of college education to every one with four years which was suggested by the President's Commission on Higher Education in 1947. When the information on others who had not received associate degrees but who had completed one to three years of organized occupational programs was added to the number who had received associate degrees and this total compared to 1961-62 bachelor's and first professional degrees, the national ratio was the reverse of that suggested by the President's Commission: 1 to 5, instead of 5 to 1.

Table 25 summarizes this information about Missouri. However, the associate degree graduates are not separated from other 2-year college graduates. 21/ Instead, graduates from the occupational programs are separated from the others. This has been done to show more clearly the trends in occupational programs as compared to other college programs.

The number of occupational programs graduates decreased from 904 in 1956-57 to 610 in 1961-62, or 33 percent. Nationally, during this 5-year period, the number of graduates from organized occupational curriculums increased 18.9 percent. Other programs in Missouri institutions which are shown in table 25 increased. The largest percentage increase was shown by master's degrees, 71 percent. In 1956-57 there were only 139 more master's programs graduates than occupational programs graduates. In 1961-62, however, Missouri institutions graduated almost three times as many from master's degree programs as they did from occupational curriculums.

The numbers of junior college graduates, other than those who completed occupational programs, increased 24 percent for public and 44 percent for private colleges. Thus, all 2-year programs graduates increased from 2,249 in 1956-57 to 2,460 in 1961-62, or nine percent. During the same time span, the number of bachelor's and first

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21/ About one-half of the Missouri junior colleges award all of their graduates associate degrees; the other one-half award associate degrees to from nine percent (Moberly) to 95 percent (Southwest Baptist) of their graduates.

Table 25.--Number and level of graduates from Missouri institutions of higher education, 1956-57 through 1961-62, and percent change

Level of graduates and type of institution	Number of degrees and number of institutions awarding them, by year										Percent change, 1956-57 and 1961-62
	1956-57		1957-58		1958-59		1959-60		1961-62		
	Grads	Ins	Grads	Ins	Grads	Ins	Grads	Ins	Grads	Ins	
Organized occupational curriculums (from table 24) - total	904	17	685	19	565	18	688	18	610	19	-33
Pub 4-yr ins.	38	3	19	3	28	3	77	3	70	4	****
Pri 4-yr ins.	278	6	339	7	253	6	279	7	245	6	****
Pub 2-yr ins.	31	3	26	4	31	4	42	3	23	3	****
Pri 2-yr ins.	557	5	301	5	253	5	290	5	272	6	****
Other graduates from public junior colleges (from Mo. Comm. on Hi. Ed.)	445	7	487	7	490	6	533	6	550	6	+24
Other graduates from private junior colleges (estimated)*	900	9	1,100	10	1,200	11	1,300	11	1,300	11	+44
Subtotal, 2-yr educ.	2,249	27**	2,272	27**	2,255	27**	2,521	28**	2,460	29**	+ 9
Bachelor's and first professional*** -.total	8,296	34	9,055	40	9,680	40	9,803	40	10,578	39	+28
Public inst.	3,961	8	4,340	8	4,863	8	4,898	8	5,324	8	****
Private inst.	4,335	26	4,715	32	4,817	32	4,905	32	5,254	31	****
Master's ***-total	1,043	14	1,131	15	1,329	15	1,392	14	1,783	12	+71
Public inst.	514	5	519	5	656	5	757	5	961	5	****
Private inst.	529	9	612	10	673	10	635	9	822	7	****
Doctorate***-total	148	5	134	5	146	5	183	5	200	5	+35
Public inst.	65	1	70	1	75	1	89	1	90	1	****
Private inst.	83	4	64	4	71	4	94	4	110	4	****

*Estimates are based on reports in American Council on Education, American Junior Colleges, 4th, 5th, and 6th editions, 1956,1960,1963.

** Not the total of preceding items; duplicates have been eliminated. Several junior colleges had graduates from organized occupational curriculums as well as from other kinds of programs.

***Source: U.S. Office of Education, Earned Degrees Conferred, 1956-57 through 1961-62.

****Not calculated.

professional degrees awarded increased from 8,296 to 10,578, or 28 percent. Nationally, the increase was 23.5 percent. Thus, Missouri institutions moved counter to the national trend in organized occupational curriculum graduates, but showed larger increases than the national average in bachelor's and first professional degrees. Most responsible for the decrease in graduates from organized occupational curriculums in Missouri, as shown in table 25, were the private 2-year institutions. Private 4-year institutions and public junior colleges showed small decreases. Public 4-year colleges had an increase, but the total number of organized occupational curriculum graduates from them accounted for less than one-ninth of the state total in 1961-62. The private institutions, 2-year and 4-year, produced 85 percent of Missouri's occupational education graduates in 1961-62. Nationally, private institutions graduate approximately 43 percent of the students who completed occupational programs.

The ratio of Missouri graduates from 2-year college programs to those awarded bachelor's or first professional degrees ranged from 10 to 37 in 1956-57 to 10 to 43 in 1961-62. These ratios are somewhat better than the national ratio of 10 to 50, but the Missouri ratio increased in favor of the graduates of the longer programs.

Missouri Occupational Curriculum Graduates Compared to National Data

Information reported by Missouri institutions of higher education in all seven national surveys of organized occupational curriculums appears in the preceding pages. This section presents information from the second (1956-57) and sixth (1961-62) surveys for two reasons. First, the data obtained the second time a survey is made are usually more reliable than those obtained the first time. Although nationally there was better than a 90 percent response to the first survey, data were provided by only 15 Missouri institutions. One of these institutions, Stephens College, after reconsidering the survey criteria, did not provide data in succeeding surveys. Nineteen Missouri institutions provided data in both the 1956-57 and the 1961-62 surveys. In each year, seven were public and twelve, private; although two public and three private which had participated in the second survey did not participate in the sixth, being replaced by five others. Washington University data for 1961-62 were estimated by the survey director because it did not participate in the sixth survey and these estimates are added to the information of the nineteen reporting institutions.

The second reason for basing discussion in this section on data obtained in the second and sixth surveys is simple and to the point. National summaries of information obtained

in the seventh survey have not yet been made. For that reason, in order to make meaningful comparisons between Missouri and the nation, the latest available data are those obtained in the sixth survey.

In its surveys of organized occupational curriculums the United States Office of Education gathers information about graduates and enrollments in approximately 40 specific engineering-related and 50 specific non-engineering-related curriculums. Missouri institutions of higher education provided data which indicated that they offered almost one-third of the engineering-related and one-half of the non-engineering-related curriculums each survey year. Table 26, for 1956-57, and table 27, for 1961-62, present the data reported by Missouri institutions of higher education.

Curriculums included by Missouri institutions in both survey years were:

Engineering-related:

architectural technology
chemical technology
electrical technology
electronics
radio and television technology
general engineering technology
industrial technology
drafting and machine design
mechanical technology

Non-engineering-related:

general agriculture
commercial art and advertising
fine arts, all types (other applied, fine and graphic arts)
accounting and financial management
general business

executive assistant
insurance and real estate
retail sales, purchasing or merchandising (sales and distribution)
general secretarial
medical and dental secretarial
transportation and traffic management
education (physical education, health and recreation)
dental hygiene
medical or biological laboratory technician
general home economics
bible study or religious work
library aide or assistant

Curriculums for which data were reported in 1961-62, but not in 1956-57 were civil technology, civil drafting and design, computer laboratory, automotive technology, music, publishing and printing technology, business data processing (programmer), technical or engineering secretarial, x-ray technology, and police technology. Those which had been dropped by 1961-62 were air conditioning, heating, and refrigeration, structural technology, wood technology, journalism, legal secretarial, clothing and textiles, and one classified as "other," the specific designation for which is no longer available.

It should be understood that the specific designations used are specific only in terms of classifications of the United States Office of Education. Several of the Missouri colleges and universities identify a few of their curriculums somewhat differently. Perhaps in one or two instances, too, they provided information about two or more of their curriculums in the one Office of Education category which was most appropriate.

Table 26. Graduates in 1956-57 and enrollment in 1957 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum

Curriculum and institution	Graduates, July 1, 1956-June 30, 1957		Enrollment on or near October 1, 1957	
	Men	Women	Full-time	Part-time
Technician level, engineering-related curriculums				
AIR CONDITIONING, HEATING AND REFRIGERATION Washington University	5	---	---	25
ARCHITECTURAL TECHNOLOGY Washington University	5	---	---	30
STRUCTURAL TECHNOLOGY Washington University	1	---	---	40
CHEMICAL TECHNOLOGY Washington University	2	---	---	30
ELECTRICAL TECHNOLOGY Washington University	12	---	---	218
ELECTRONICS Central Technical Institute	183	---	535	135
RADIO AND TV TECHNOLOGY Central Technical Institute	54	---	90	---
GENERAL ENGINEERING TECHNOLOGY Junior College of Kansas City	1	---	---	---
INDUSTRIAL TECHNOLOGY Washington University	19	---	---	160
DRAFTING AND MACHINE DESIGN Central Missouri State College	---	---	4	---
MECHANICAL TECHNOLOGY Washington University	15	---	---	210
WOOD TECHNOLOGY Central Missouri State College	---	---	1	---
Total, technician level, engineering-related curriculums	297	---	630	848

Table 26. Graduates in 1956-57 and enrollment in 1957 in organized occupational curriculums of 1, 2 or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum & institution	Graduates July 1, 1956 - June 30, 1957		Enrollment on or near October 1, 1957	
	Men	Women	Full-time	Part-time
Technician or semiprofessional level, non-engineering-related				
GENERAL AGRICULTURE				
Central Missouri St. College	---	---	3	---
COMMERCIAL ART AND ADVERTISING				
Washington University	1	---	---	20
FINE ARTS, ALL TYPES				
Christian College	---	7	23	---
William Woods College	---	6	10	---
ACCOUNTING				
Central Missouri State College	---	1	7	---
Junior College of Kansas City	2	---	5	6
Rockhurst College	6	1	9	180
St. Louis University	43	2	---	342
Washington University	12	1	---	205
GENERAL BUSINESS				
Central Missouri State College	---	---	38	---
Christian College	---	11	13	---
Hannibal-LaGrange College	10	1	30	4
Missouri Valley College	5	1	22	---
Rockhurst College	8	---	9	180
St. Louis University	18	---	---	286
Washington University	12	1	---	120
EXECUTIVE ASSISTANT				
Rockhurst College	1	---	---	10
Washington University	1	1	---	27
INSURANCE AND REAL ESTATE				
Washington University	1	---	---	53
JOURNALISM				
Christian College	---	4	9	---
SALES AND DISTRIBUTION				
Joplin Junior College	4	---	9	---
Rockhurst College	---	---	---	10
St. Louis University	8	2	---	91
Washington University	3	---	---	61

Table 26. Graduates in 1956-57 and enrollment in 1957 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum & institution	Graduates July 1, 1956 - June 30, 1957		Enrollment on or near October 1, 1957	
	Men	Women	Full-time	Part-time
Technician or semiprofessional level, non-engineering-related				
GENERAL SECRETARIAL				
Central Missouri State College	---	8	29	---
Christian College	---	25	10	---
Hannibal-LaGrange College	---	5	12	2
Joplin Junior College	---	3	27	---
Junior College of Flat River	---	---	4	6
Junior College of Kansas City	---	13	125	20
Northwest Missouri State College	---	20	---	29
Southwest Baptist College	1	6	21	---
University of Missouri	---	9	27 1/	---
William Woods College	---	25	52	---
LEGAL SECRETARIAL				
Moberly Junior College	---	6 1/	12 1/	---
MEDICAL AND DENTAL SECRETARIAL				
William Woods College	---	5	10	---
TRANSPORTATION AND TRAFFIC MANAGEMENT				
Washington University	4	1	---	15
EDUCATION				
Central Missouri State College	---	---	18	---
Christian College	---	30	54	---
Hannibal-LaGrange College	2	13	45	2
Joplin Junior College	---	---	8	---
Missouri Valley College	14	14	56	12
Southwest Baptist College	3	26	37	---
Tarkio College	---	---	22	---
DENTAL HYGIENE				
Christian College	---	1	---	---
University of Kansas City	---	15	47	---
MEDICAL AND BIOLOGICAL LABORATORY TECHNOLOGY				
Christian College	---	10	11	---
Joplin Junior College	---	2	5	---
NURSING, 3-YEAR PROGRAMS				
Christian College	---	6	---	---
GENERAL HOME ECONOMICS				
Central Missouri State College	---	---	1	---
Christian College	---	15	18	---
William Woods College	---	60	124	---

1/ Estimated.

Table 26. Graduates in 1956-57 and enrollment in 1957 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum & institution	Graduates, July 1, 1956 - June 30, 1957		Enrollment on or near October 1, 1957	
	Men	Women	Full-time	Part-time
Technician or semiprofessional level, non-engineering-related				
CLOTHING AND TEXTILES				
Christian College	---	9	4	---
BIBLE STUDY OR RELIGIOUS WORK				
Central Bible Institute	20	19	---	---
Christian College	---	2	2	---
Southwest Baptist College	14	8	48	---
LIBRARY WORK				
Christian College	---	---	1	---
Washington University	1	3	---	15
OTHER CURRICULUMS				
William Woods College	--	15	31	---
Total, technician or semiprofessional level, non-engineering-related curriculums	194	413	1,048	1,696

Source: Organized Occupational Curriculums, 1957. Washington, D.C. U.S. Office of Education Circular 568. (Correction made for error in recording St. Louis University as having reported engineering-related data.)

Table 27. Graduates in 1961-62 and enrollment in 1962 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum

Curriculum & institution	Graduates July 1, 1961-June 30, 1962		Enrollment on or near October 1, 1962	
	Men	Women	Full-time	Part-time
Technician level, engineering-related curriculums				
ARCHITECTURAL TECHNOLOGY				
Junior College of Kansas City	---	---	31	25
Washington University	6	---	---	31
CHEMICAL TECHNOLOGY				
Washington University	---	---	---	4
CIVIL TECHNOLOGY				
Junior College of Kansas City	---	---	2	---
CIVIL DRAFTING AND DESIGN				
Central Missouri State College	3	---	4	---
Washington University	8	---	---	32
ELECTRICAL TECHNOLOGY				
Washington University	15	---	---	67
ELECTRONICS				
Central Missouri State College	---	---	2	---
Central Technical Institute	128	---	325	13
Joplin Junior College	---	---	14	19
Washington University	5	---	---	45
COMPUTER LABORATORY				
Junior College of Kansas City	---	---	13	6
RADIO AND TV TECHNOLOGY				
Central Technical Institute	38	---	20	---
GENERAL ENGINEERING TECHNOLOGY				
Junior College of Kansas City	3	---	2	3
INDUSTRIAL TECHNOLOGY				
Washington University	18	---	---	98
AUTOMOTIVE TECHNOLOGY				
Central Missouri State College	1	---	1	---
Joplin Junior College	---	---	1	---
MECHANICAL DRAFTING & MACHINE DESIGN				
Joplin Junior College	---	---	4	12
Junior College of Kansas City	---	---	2	35

Note: Washington University data are estimates based on actual reports for 1963-64.

Table 27. Graduates in 1961-62 and enrollment in 1962 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum & institution	Graduates July 1, 1961-June 30, 1962		Enrollment on or near October 1, 1962	
	Men	Women	Full-time	Part-time
Technician level, engineering-related curriculum				
MECHANICAL TECHNOLOGY				
Washington University	8	---	---	56
Total, technician level, engineering-related curriculums	233	---	421	446
Technician or semiprofessional level, non-engineering-related				
GENERAL AGRICULTURE				
Central Missouri State College	---	---	2	---
ACCOUNTING AND FINANCIAL MANAGEMENT				
Central Missouri State College	---	---	3	---
Junior College of Kansas City	2	---	43	81
Rockhurst College	6	---	---	225
St. Louis University	21	4	---	253
Washington University	24	1	---	120
GENERAL BUSINESS				
Central Missouri State College	---	3	2	---
College of St. Teresa	---	---	5	---
Fontbonne College	---	3	---	39
Junior College of Kansas City	1	1	22	53
Rockhurst College	7	---	---	275
St. Louis University	24	---	---	284
Washington University	21	---	---	105
Wentworth Military Academy	6	---	211	---
EXECUTIVE ASSISTANT				
Washington University	6	---	---	30
INSURANCE AND REAL ESTATE				
Washington University	4	---	---	20
RETAIL SALES, PURCHASING, OR MERCHANDISING				
St. Louis University	3	---	---	80
Washington University	1	---	---	15
William Woods College	---	8	16	---
BUSINESS DATA PROCESSING (PROGRAMMER)				
Washington University	1	---	---	19

Note: Washington University data are estimates based on actual reports for 1963-64.

Table 27. Graduates in 1961-62 and enrollment in 1962 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum & institution	Graduates July 1, 1961-June 30, 1962		Enrollment on or near October 1, 1962	
	Men	Women	Full-time	Part-time
Technician or semiprofessional level, non-engineering-related				
GENERAL SECRETARIAL				
Central Missouri State College	---	7	12	---
Hannibal-LaGrange College	---	3	14	---
Joplin Junior College	---	6	49	56
Junior College of Flat River	---	2	3	11
Junior College of Kansas City	1	7	51	196
Lincoln University	---	1	---	---
Southeast Missouri State College	---	7	17	---
Southwest Baptist College	---	9	8	---
University of Missouri	---	22	89	---
Washington University	---	2	---	10
William Woods College	---	22	65	---
MEDICAL OR DENTAL SECRETARIAL				
William Woods College	---	3	10	---
TECHNICAL OR ENGINEERING SECRETARIAL				
Christian College	---	8	11	---
TRANSPORTATION AND TRAFFIC MANAGEMENT				
Washington University	2	---	---	10
PHYSICAL EDUCATION, HEALTH OR RECREATION				
William Woods College	---	2	9	---
COMMERCIAL ART AND ADVERTISING				
Washington University	1	---	---	14
MUSIC				
Christian College	---	2	6	---
William Woods College	---	2	8	---
PUBLISHING AND PRINTING TECHNOLOGY				
University of Missouri	15	---	13	---
OTHER APPLIED, FINE, AND GRAPHIC ARTS				
Christian College	---	7	11	---
DENTAL HYGIENE				
University of Kansas City	---	25	53	---

Note: Washington University data are estimates based on actual reports for 1963-64.

Table 27. Graduates in 1961-62 and enrollment in 1962 in organized occupational curriculums of 1, 2, or 3 years in Missouri institutions of higher education, by curriculum - cont.

Curriculum and institution	Graduates July 1, 1961-June 30, 1962		Enrollment on or near October 1, 1962	
	Men	Women	Full-time	Part-time
Technician or semiprofessional level, non-engineering-related				
MEDICAL OR BIOLOGICAL LABORATORY TECHNICIAN				
Christian College	---	4	8	---
William Woods College	---	2	4	---
NURSING, 2-YEAR PROGRAMS				
Southeast Missouri State College	---	11	52	---
X-RAY TECHNOLOGY				
Washington University	1	5	8	---
HOME ECONOMICS OR HOMEMAKING				
Central Missouri State College	---	---	1	---
Christian College	---	8	20	---
William Woods College	---	20	45	---
BIBLE STUDY OR RELIGIOUS WORK				
Central Bible Institute	4	6	46	5
POLICE TECHNOLOGY				
University of Kansas City	---	---	---	64
LIBRARY ASSISTANT				
Washington University	3	10	---	36
Total, technician or semiprofessional level, non-engineering-related curriculums	154	223	917	2,001

Note: Washington University data are estimates based on actual reports for 1963-64.

Source: Guide to Organized Occupational Curriculums in Higher Education, 1961-62. Washington, D.C. U.S. Office of Education Circular 771.

The organized occupational curriculums which showed 50 graduates or more in Missouri are:

1956-57

electronics	183
general secretarial	115
education	102
general home economics	75
accounting	68
general business	67
bible study or religious work	63
radio and television technology	54

1961-62

electronics	133
general secretarial	89
general business	66
accounting and financial management	58

These curriculums accounted for four-fifths of all graduates in occupational education in Missouri in 1956-57 and three-fifths in 1961-62. In the United States as a whole, however, the same curriculums provided well below three-fifths of the graduates in 1956-57 and somewhat less than two-fifths in 1961-62. Clearly, all of Missouri's most productive curriculums graduated fewer in 1961-62 than they had five years earlier. As mentioned in a previous section, Missouri's institutions graduated 33 percent fewer students from all organized occupational curriculums during the same 5-year period that the overall national effort increased 19 percent.

Most out of line with national trends were: accounting which showed a 70 percent increase nationally but a 10 percent decrease in Missouri; general secretarial, for which there was a national increase of 50 percent and a decrease

of 23 percent in Missouri; and electronics, with a 25 percent increase nationally and a 27 percent decrease in Missouri.

Comparison by rank order listing.-- Another way of finding out curriculums which produce more graduates in Missouri than the aggregate United States is to list in rank order the number of graduates in Missouri and in the aggregate United States. This comparison is made in table 28. Beyond the twelfth position, the rankings were not computed.

Four among the first five in Missouri were also among the first five nationally. Two curriculums held the same rank in Missouri as in the aggregate United States. Although Missouri graduated fewer in electronics in 1961-62 than in 1956-57 and nationally the number of electronics graduates increased, electronics ranked first in Missouri while it was fifth in the national statistics.

In Missouri four of the curriculums ranked among the first 12 were engineering-related curriculums; nationally only three engineering-related curriculums appeared among the first twelve. Electronics and electrical technology were among the first 12 on both lists. Missouri also included among the first 12 radio and television technology and industrial technology; mechanical technology was only on the national list. That leaves among the first 12, eight non-engineering-related curriculums in Missouri and nine non-engineering-related curriculums nationally. Five

Table 28.--Organized occupational curriculum rankings based on number of graduates, July 1, 1961 to June 30, 1962: Missouri and aggregate United States

Curriculum	Rank	
	Missouri	Aggregate United States
Electronics	1	5
Secretarial, general	2	1
Business, general	3	3
Accounting and financial management	4	4
Radio and TV technology	5	1/
Home economics or homemaking	6	1/
Dental hygiene	7	12
Industrial technology	8	1/
Electrical technology	9.5	7
Publishing and printing technology	9.5	1/
Library assistant	11	1/
Retail sales, purchasing, or merchandising	12	10
Education	1/	2
Practical or vocational nursing (mostly 1-year curriculums)	1/	6
Mechanical technology	1/	8
Secretarial, medical or dental	1/	9
Nursing--2-year programs	1/	11

1/ Ranks below 12th; exact rank not computed.

Source: Guide to Organized Occupational Curriculums in Higher Education, U.S. Office of Education Circular 771, OE-54012-62, 1965.

of them which are among the first 12 in Missouri are also among the first 12 nationally. The five on the national list but which are not among the first 12 in Missouri are education, practical or vocational nursing, 2-year (associate degree) nursing, mechanical technology, and medical or dental secretarial.

Further reference to this information on organized occupational education graduates will be made in the next section on enrollments. Information about graduates and enrollments in programs which are offered by other schools or institutions not considered a part of higher education will be presented in a separate section of this report.

Missouri Enrollments in Organized Occupational Education Compared to National Data

Enrollment information in the United States Office of Education surveys of organized occupational curriculums is for the first term of the academic year following that for which information about graduates is provided. For that reason, it should be more useful in identifying trends than the data on graduates. Graduates have already completed their organized occupational programs; enrollments represent students still in the process of education.

Enrollment information must, of course, be used judiciously. Several of the curriculums have predominantly part-time enrollments. It is not possible to predict how long part-time students have been or will remain in the

educational process before they will be reported as graduates. Nevertheless, their number is useful in developing trend data.

Tables 26 and 27 show that occupational curriculums in Missouri institutions of higher education which enrolled 200 or more were, in 1957:

Accounting	754
General business	702
Electronics	670
General secretarial	364
Education	254
Electrical technology	218
Mechanical technology	210

and, in 1962:

General business	996
Accounting and financial management	725
General secretarial	581
Electronics	418

Except for electrical and mechanical technology in 1956-57, only those curriculums which graduated at least 50 students enrolled 200 or more students the following fall term on both lists. It should be noted that 100 percent of the 1957 enrollments in those two curriculums consisted of part-time students with their normally low ratio of graduates to enrollments.

About three-fourths of Missouri organized occupational curriculum enrollments were accounted for by the foregoing curriculums: seven in 1957 and four in 1962. These same seven curriculums in 1957 accounted for more than one-half of the enrollments in the United States as a whole and the same four curriculums in 1962, less than one-half.

Nationally, non-engineering-related curriculums enrolled 34 percent more in 1962 than in 1957, but in Missouri these enrollments declined 24 percent. Two of Missouri's top four curriculums showed increases and two, decreases, over the five years. Missouri increased enrollments in general secretarial and general business curriculums somewhat more than the aggregate United States. On the other hand, Missouri's electronics enrollments decreased 38 percent when those of the aggregate United States increased 73 percent Missouri's enrollments in accounting and financial management decreased four percent when national totals almost doubled in this curriculum. The percent decline in electronics is due to a decrease of 332 students--about 50 percent--at the Central Technical Institute even though three other institutions which did not report on electronics curriculums in 1957 did provide enrollment data in electronics for 1962.

Comparison by rank order listing.--A simple rank order listing illustrates how Missouri's most popular curriculums, in terms of total enrollments, in 1962, compare with the most popular in the national generally. Table 29 presents this information.

Table 29.--Organized occupational curriculum rankings based on number of enrollments October 1, 1962: Missouri and aggregate United States

Curriculum	Rank	
	Missouri	Aggregate United States
Business, general	1	2
Accounting and financial management	2	4
Secretarial, general	3	1
Electronics	4	3
Retail sales, purchasing, or merchandising	5	8
Industrial technology	6	1/
Architectural technology	7	1/
Electrical technology	8	7
Home economics or homemaking	9	1/
Police technology	10	1/
Mechanical technology	11	6
Mechanical drafting and machine design	12.5	10
Dental hygiene	12.5	1/
Education	1/	5
General engineering technology	1/	9
Nursing--2-year programs	1/	11
Building and construction technology	1/	12

1/ Ranks below 12th; exact rank not computed.

Source: Guide to Organized Occupational Curriculums in Higher Education, U.S. Office of Education Circular 771, OE-54012-62, 1965.

As in the rank order listing based on graduates, table 28, the same curriculums appear near the top in table 29, based on enrollments, for both Missouri and for the United States. Six of Missouri's first eight in enrollments are also among the first eight for the national totals, and the first four in Missouri were ranked between first and fourth nationally also, although not in the same order.

The downward trend in electronics in Missouri is even sharper in enrollments than graduates and this curriculum, which in 1962 ranked third nationally in terms of the number of students enrolled, dropped from first in 1957 to fourth in 1962 in Missouri.

There were six engineering-related curriculums among the first "12" (13, actually; two tied for 12th) in enrollments for Missouri and there were five for the United States as a whole. In addition to electronics, electrical technology, mechanical technology, and mechanical drafting and machine design were the engineering-related curriculums ranked among the first "12" for both Missouri and the United States in enrollments rankings. The two ranked "high" for Missouri but which were not among the nation's first 12 in enrollments were: architectural technology and industrial technology.

Table 29 includes two engineering-related curriculums for the United States which are not among Missouri's top "12": general engineering technology and building and construction technology.

Non-engineering-related curriculums common to both Missouri and the United States were: general business; general secretarial; accounting and financial management; and retail sales, purchasing, or merchandising. Included among the top "12" by Missouri but not the United States were: home economics or homemaking, police technology, and dental hygiene. The United States, on the other hand, ranked two non-engineering-related curriculums among the first 12 which did not place that high in Missouri: education and 2-year (associate degree) nursing. These latter two are the only curriculums which appear among the first 12 on both tables 28 and 29 only for the United States.

To summarize tables 28 and 29: Twenty-two different curriculums appear among the top 12 curriculums in terms of graduates or enrollments. Eight curriculums are on one or both of the lists for Missouri and one or both for the aggregate United States; two appear on both Missouri lists and neither United States list; two are on both United States lists and neither Missouri list; six appear only on one of the Missouri lists, and four appear only on one of the United States lists.

Enrollments in Organized Occupational Programs Compared with Other Enrollments in Missouri

In order to understand better the role which Missouri institutions of higher education have been performing in organized occupational education, it is necessary to understand how enrollments in organized occupational programs

compare with other enrollments. This information is provided in table 30 for the years 1957 through 1960 and for 1962.

Opening (fall) enrollments data were gathered only for students in programs leading to a bachelor's or higher degree, either in the institution in which enrolled or, after transfer, in another one. Commonly, they are referred to as "degree-credit students". Data on enrollments in occupational programs may include "degree-credit students" as well as those students in programs which are not chiefly creditable towards a bachelor's degree, i.e. "terminal students."

Enrollments in organized occupational curriculums decreased between 1957 and 1962 in Missouri institutions of higher education--20 percent for full-time students and 4 percent for part-time students.

The largest decrease was recorded by the group of private 2-year institutions, both in number and percent. It shows a 50 percent decrease in the number of full-time students and a 91 percent decrease in the number of part-time students. In 1957 the full-time students in organized occupational curriculums enrolled by this group of institutions amounted to almost 70 percent of the total. In 1962 it still accounted for 60 percent of them.

Private 4-year institutions enrolled most of the part-time students in all five years shown in table 30, 92 percent in 1957 and 80 percent in 1962. The number enrolled

Table 30.--Opening (fall) enrollment of degree-credit students and occupational education students in Missouri institutions of higher education, 1957 through 1962, and percent changes between 1957 and 1962, by control and level of institutions.

Type of institution by enrollment category	Number enrolled (Number of institutions is in parentheses) 1957	1958	1959	1960	1962	Percent change, 1957 to 1962
Degree-credit students in institutions which did not report enrollments in organized occupational curriculums: 1/						
Public 4-yr	9,250 (5)	9,962 (5)	10,331 (5)	10,962 (5)	13,073 (5)	+40
Private 4-yr	10,003 (26)	9,972 (26)	11,437 (28)	26,181 (31)	14,776 (31)	+48
Public 2-yr	663 (3)	1,301 (2)	654 (2)	569 (2)	912 (3)	+38
Private 2-yr	2,561 (7)	2,876 (7)	2,763 (6)	1,263 (5)	1,254 (5)	-51
Total	22,477 (41)	24,111 (40)	25,185 (41)	38,975 (43)	30,015 (44)	+33
Degree-credit students in institutions which reported enrollments in organized occupational curriculums: 1/						
Public 4-yr	18,558 (3)	19,496 (3)	20,710 (3)	22,022 (3)	28,925 (3)	+56
Private 4-yr	27,073 (6)	28,331 (7)	27,339 (6)	15,504 (6)	31,361 (7)	+16
Public 2-yr	4,251 (4)	3,900 (4)	4,760 (4)	3,969 (4)	4,433 (3)	+ 4
Private 2-yr	1,324 (4)	1,174 (4)	1,366 (4)	1,685 (4)	2,117 (5)	+60
Total	51,206 (17)	52,901 (18)	54,175 (17)	43,180 (17)	66,836 (18)	+31
Enrollment in organized occupational curriculums (from table 24): Full-time students:						
Public 4-yr.	128 (2)	137 (3)	197 (3)	197 (3)	198 (3)	+55
Private 4-yr	165 (4)	312 (4)	86 (3)	146 (4)	112 (4)	-32
Public 2-yr.	195 (4)	222 (4)	157 (4)	197 (4)	237 (3)	+22
Private 2-yr	1,190 (5)	906 (5)	691 (5)	549 (5)	791 (6)	-50
Total	1,678 (15)	1,577 (16)	1,131 (15)	1,089 (16)	1,338 (16)	-20
Part-time students:						
Public 4-yr	29 (1)	--	--	--	--	-100
Private 4-yr	2,340 (4)	2,279 (5)	1,492 (4)	1,114 (4)	1,937 (6)	-17
Public 2-yr	32 (2)	1 (1)	100 (2)	534 (3)	497 (3)	+1,453
Private 2-yr	143 (2)	77 (2)	74 (3)	19 (1)	13 (1)	-91
Total	2,544 (9)	2,357 (8)	1,666 (9)	1,667 (8)	2,447 (10)	- 4

1/Source: annual Opening (Fall) Enrollment Survey, U. S. Office of Education, 1957 through 1960 and 1962.

in them on a part-time basis decreased 17 percent over the 5-year period. Combining full-time and part-time enrollments, the private institutions accounted for more than 90 percent of the occupational students in 1957 and more than 70 percent of them in 1962. The percentages for the 4-year institutions are 59 and 51; for the 2-year colleges, 32 and 21.

Thus, the two groups of institutions which accounted for the largest numbers of enrollments in occupational programs showed decreases over the 5-year period. Public institutions showed increases, but their occupational enrollments were relatively small. For example, the number of occupational students in public 4-year institutions increased 55 percent between 1957 and 1962. This is a sharper increase than the increase for degree-credit students in all eight public 4-year institutions, although it is almost the same as the increase in the three colleges which reported occupational students, 56 percent. For these three public 4-year colleges, however, only 8 of 1,000 students in 1957 and 7 of 1,000 in 1962 were enrolled in occupational programs.

Although the largest increases were in part-time enrollments, the total occupational enrollments in public junior colleges more than doubled between 1957 and 1962 while degree-credit enrollments increased 9 percent in all public junior colleges. This is significant, but it is evident, too, that public junior colleges in Missouri

continued to give greater attention to "transfer" programs, even when considering only the three of four which reported enrollments of occupational education students. Occupational programs accounted for 5 of 100 students in four public junior colleges in 1957 and 17 of 100 students in three public junior colleges in 1962.

Only one among the eight groups of institutions in table 30 showed a decrease in degree-credit students between 1957 and 1962, the private 2-year colleges which did not report data on occupational programs. There were seven of these institutions in 1957 and five in 1962. Stephens College, which enrolled 1,480 degree-credit students in 1957 was one of these junior colleges that year, but was classified among the 4-year colleges in the 1960 and 1962 opening (fall) enrollment surveys of the United States Office of Education. If data for Stephens were not included in the 1957 degree-credit enrollments in private junior colleges, this group of institutions would also show an increase by 1962.

Institutions which reported data on students in organized occupational curriculums showed 31 percent more degree-credit students in 1962 than in 1957; other institutions had a 33 percent increase. Of the total opening (fall) enrollments, institutions with reports on organized occupational curriculums accounted for almost 70 percent of the students in both 1957 and 1962.

The private institutions enrolled 55 percent of all students in the 1957 opening (fall) enrollment survey and 51 percent in 1962, approximately the same for those with and those without organized occupational curriculums both years. When it is recalled that these same private institutions accounted for 90 percent of the students in organized occupational programs in 1957 and 70 percent in 1962, their comparatively greater activity in occupational education vis-a-vis public institutions is even clearer.

Comparison of Missouri's Occupational Programs With Those of Connecticut, Massachusetts, New York, Washington and the Aggregate United States

In previous sections, Missouri data have been compared with national data in a limited way. These comparisons have been useful. They have served as check-points against which to measure the extent of Missouri's occupational programs. This section provides several more check-points.

In addition to national data, information is presented on four states. Three of them, Massachusetts, New York, and Connecticut, although all are in the northeast, represent differing approaches to occupational education. Massachusetts has heavily depended upon private institutions for occupational programs and other forms of higher education; New York has developed a system of public community colleges and technical colleges to meet her need for occupational education but has, like Massachusetts, depended

upon private institutions for other kinds of higher education. Massachusetts has recently launched an ambitious state system of regional community colleges which are to provide technical-occupational and liberal arts-transfer curriculums. Connecticut has a coordinated statewide system of public technical institutes and vocational schools for some occupational education, but has been heavily dependent upon private institutions for a variety of occupational education programs as well as for other kinds of higher education.

The fourth state, Washington, is similar to Connecticut in total population, and both are basically industrial states. Washington, however, has depended almost as completely on public institutions for higher education as the eastern states have on private colleges and universities. Washington's public junior colleges alone have provided a larger proportion of that state's graduates from occupational programs than have the private institutions for Connecticut or Missouri.

Comparison of graduates by engineering-related and non-engineering-related curriculums and by control.-- Information on graduates from occupational programs is summarized in table 31 for these five states and the aggregate United States. This information illustrates the differences among these states in their preparation of technical and semi-professional personnel. A quick inspection is enough to

Table 31.--Graduates in engineering-related and non-engineering-related organized occupational curriculums in public and private institutions in selected states and aggregate United States, 1956-57 and 1961-62

Year, type of curriculum, and control of institutions	Conn.	Mass.	Mo.	N.Y.	Wash.	Aggr. U. S.
1956-57						
Engineering-related						
Public inst.	66	14	1	1,833	286	6,915
Private inst.	254	888	296	847	--	6,400
Non-engineering-related						
Public inst.	55	200	68	2,318	398	17,791
Private inst.	395	1,000	539	1,257	11	13,680
1961-62						
Engineering-related						
Public inst.	55	134	7	2,224	309	9,149
Private inst.	323	1,151	226	1,170	--	5,828
Non-engineering-related						
Public inst.	57	180	86	3,931	694	21,011
Private inst.	488	2,598	291	1,459	5	17,284

Sources: Organized Occupational Curriculums, 1957. U. S. Office of Education Circular 568. (Correction made for error in recording St. Louis University as having reported engineering-related data)

Guide to Organized Occupational Curriculums in Higher Education, U.S. Office of Education Circular 771, OE-54012-62. (Estimates added for report not received by Washington University).

reveal that Massachusetts has depended even more heavily upon private institutions than has Missouri and Missouri more so than Connecticut, that New York has been more dependent upon public institutions than the aggregate United States, and that the state of Washington's private institutions provided less than one percent of that state's occupational graduates in 1956-57 and 1961-62.

Nationally, all categories but one show increases in 1961-62 over 1956-57 data. The exception is a 9 percent decrease in the number of engineering-related graduates from private institutions. Among the states, five cells show decreases: engineering-related graduates from Connecticut public institutions, non-engineering-related graduates from Massachusetts public institutions, non-engineering-related graduates from both Washington and Missouri private institutions, and engineering-related graduates from Missouri private institutions.

It was noted earlier in this study that there was a national increase of 19 percent in organized occupational program graduates between 1956-57 and 1961-62 and a 33 percent decrease in Missouri. Table 32 shows comparisons with the four other states and the aggregate United States by engineering-related and non-engineering-related curriculums and for the combined two categories of graduates.

Table 32.--Percentage increases for 1961-62 graduates over 1956-57 in engineering-related and non-engineering-related organized occupational curriculums for selected states and aggregate United States.

Type of curriculum	Conn.	Mass.	Mo.	New York	Wash.	Aggr. U. S.
Engineering-related	18	42	-22	27	8	12
Non-engineering-related	21	131	-36	51	54	22
Total	20	93	-33	40	35	19

All four of the other states showed organized occupational education graduate growth rates while there was a decrease in Missouri. On the basis of these comparisons, Missouri would appear to be well behind this sample of states, two of which rely heavily on private, two on public institutions to provide organized occupational graduates.

Comparison of enrollments by engineering-related and non-engineering-related curriculums and by control.--Similar comparisons using enrollment data are possible from data in table 33. The differences among the states are very much the same as those shown in table 31.

All but three of the full-time enrollment categories show increases for 1962 over 1957. The exceptions are non-engineering-related students in Missouri and Washington private institutions and engineering-related students in Missouri private institutions. Each of the four states and the aggregate United States show sharper full-time enrollment increases for public institutions than for private institutions.

Table 33.--Enrollment in engineering-related and non-engineering-related organized occupational curriculums in public and private institutions, 1957 and 1962, for selected states and aggregate United States by full-time and part-time students.

Year, type of curriculum & control of institution	Connecticut		Massachusetts		Missouri		New York		Washington		Aggregate United States	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
October 1, 1957												
Engineering-related												
Public institutions	173	--	40	866	5	--	4,921	3424	618	236	26,028	20,221
Private institutions	714*	1184*	1,921	3,914	625	848	2,793	3357	--	--	14,040	16,017
Non-engineering-related												
Public institutions	168	3	508	76	318	61	5,389	8316	876	66	51,543	29,034
Private institutions	1,049*	877*	2,631	331	730	1635	3,665	1753	40	10	33,147	14,764
October 1, 1962												
Engineering-related												
Public institutions	292	--	108	1,715	76	100	7,225	3183	873	392	36,180	28,624
Private institutions	720	1602	2,347	3,939	345	346*	3,183	2513	--	--	15,706	11,745
Non-engineering-related												
Public institutions	285	--	1,039	199	359	397	12,914	8254	1,379	461	74,307	45,159
Private institutions	1,406	1084	5,636	1,627	558*	1604	4,005	1167	10	--	43,396	19,608

*Partially estimated

Sources: Organized Occupational Curriculums, 1957. U.S. Office of Education Circular 568.(Correction made for error in recording St. Louis University as having reported engineering-related data). Guide to Organized Occupational Curriculums in Higher Education, U.S. Office of Education Circular 771, OE-54012-62. (Estimates added for report not received by Washington University.)

A number of cells reflecting part-time enrollment show decreases from 1957 to 1962. One national enrollment statistic declined; that for part-time engineering-related students in private institutions decreased, by one-fourth. This was also the only national cell to show fewer graduates in 1961-62 than in 1956-57. The only other important decreases shown in table 33 are for the two cells representing Missouri private institutions and all four cells reflecting part-time enrollment for New York. Since Missouri private institutions also showed fewer full-time students, their total enrollment would be lower in 1962 than in 1957. However, New York public institutions still show total enrollment increases of engineering-related and non-engineering-related students, but the private institutions show decreases in both these organized occupational areas.

Table 32 provided comparisons of graduate data for Missouri with that for four other states and for the aggregate United States, and table 34 shows similar comparisons of full-time enrollment data. Here again Missouri clearly lags behind the other states and the national data.

Table 34.--Percentage increases for 1962 full-time enrollment over 1957 full-time enrollment in engineering-related and non-engineering-related organized occupational curriculums for selected states and aggregate United States.

Type of curriculum	Conn.	Mass.	Mo.	New York	Wash.	Aggr. United States
Engineering-related	14	25	-33	35	41	29
Non-engineering-related	39	113	-12	87	52	39
Total	28	79	-20	63	47	36

Other Occupational Education Programs

The foregoing sections of this report have dealt with the present status of organized occupational education in institutions of higher education. However, it must be recognized that the Missouri occupational education profile is incomplete if stopped at this point. Not all of Missouri's (nor of the nation's) technical and semi-professional personnel are prepared in colleges and universities. Many are prepared in other kinds of schools.

Practical or vocational nursing programs. -- One example is preparation for practical or vocational nursing. It may be noted that there has been no discussion of practical or vocational nursing programs in Missouri's institutions of higher education, even though these programs were the sixth most productive of technical education graduates among the nation's higher institutions in 1961-62. In states where public junior colleges have a history of providing comprehensive educational programs of transfer, adult, and occupational courses, practical or vocational nursing is an important junior college curriculum. Thus, the public junior colleges of California, Washington, and Texas account for approximately two-thirds of the vocational or practical nursing graduates from higher institutions in the nation. At the same time, all of the higher education institutions provided only 10 percent of the

nation's practical or vocational nurses in 1961-62. Nationally, this program is more commonly located in public vocational schools and primarily it is a program which adults predominate as students.22/

Professional nursing programs.--The situation is almost as dramatic for professional nursing programs. Although the nation's institutions of higher education awarded 6,370 bachelor's degrees and 1,200 associate degrees in nursing in 1961-62, most of the registered nurses, 26,000 were still being prepared by 3-year hospital diploma programs. Furthermore, of these 6,370 bachelor's degrees, approximately 2,000 were awarded to nurses who had previously completed a diploma or associate degree program. Thus, over four-fifths of the professional nurses prepared in 1961-62 were graduates of programs not affiliated with institutions of higher education. 23/

Business and other specialized programs.--Throughout Missouri there are a number of private business schools, trade schools, and independent vocational schools which offer programs in electronics, automobile mechanics, air conditioning, radio and television servicing, and

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22/ "Practical Nurse Education." U.S. Department of Health, Education and Welfare, Division of Vocational and Technical Education, December, 1963. (Mimeograph)

23/ Since a number of comparisons are made in this report with 1956-57 data, it is worth noting that in 1956-57, initial nursing awards consisted of 3,516 (of a total of 5,750) bachelor's degrees, 276 associate degrees, and 26,141 diplomas. Thus, 87 percent of the nurses graduated that year were prepared in programs not affiliated with institutions of higher education.

other specialized fields. Information about these schools is difficult to obtain and evaluate because they are not included in recurring, systematic statistical surveys either by the United States Office of Education or of any Missouri agency. In general, it is enough to say that they meet the needs of limited numbers of students by providing highly specialized training programs to prepare for fairly specific jobs, and that education in the broader sense, which includes some socio-humanistic studies, is not usually a factor in their curriculum planning; even when included, it is very much secondary to their goal of rapid development of marketable job skills.

National Defense Education Act technical education programs. -- Under the National Defense Education Act of 1958 (NDEA), the Federal Government was authorized to provide matching funds to the states for training highly skilled technicians in defense-related occupational areas. At first the programs which developed were identified as "area vocational school programs" or "Title VIII technician training programs," but came to be generally known as "technical education programs." In this way they are distinguished from the old-line vocational programs in agriculture, distributive education, home economics, trades and industry, and the somewhat more recent practical nursing programs. Although some of the foregoing programs, especially the last-named, included high school graduates among their students, the majority were secondary level

courses and programs.

The NDEA technical education programs, however, from the beginning, 1959, have enrolled more post-secondary than secondary students in the full-time day programs. Extension or supplementary courses, that is, those offered at night or in the late afternoon for persons already on the job, have not been clearly identified at either the secondary or post-secondary level. Instead, they are tailored to upgrade or expand the skills of these workers. Total enrollment in NDEA technical education extension courses in 1962 was 96,000; in addition, there were 53,000 full-time day program enrollments, of which 40,000 were in post-secondary level programs. 24/

Figure 1 shows Missouri's relative ranking among the states in 1963 in total vocational education enrollments, preparatory and extension, and in each of the six categories of programs. 25/

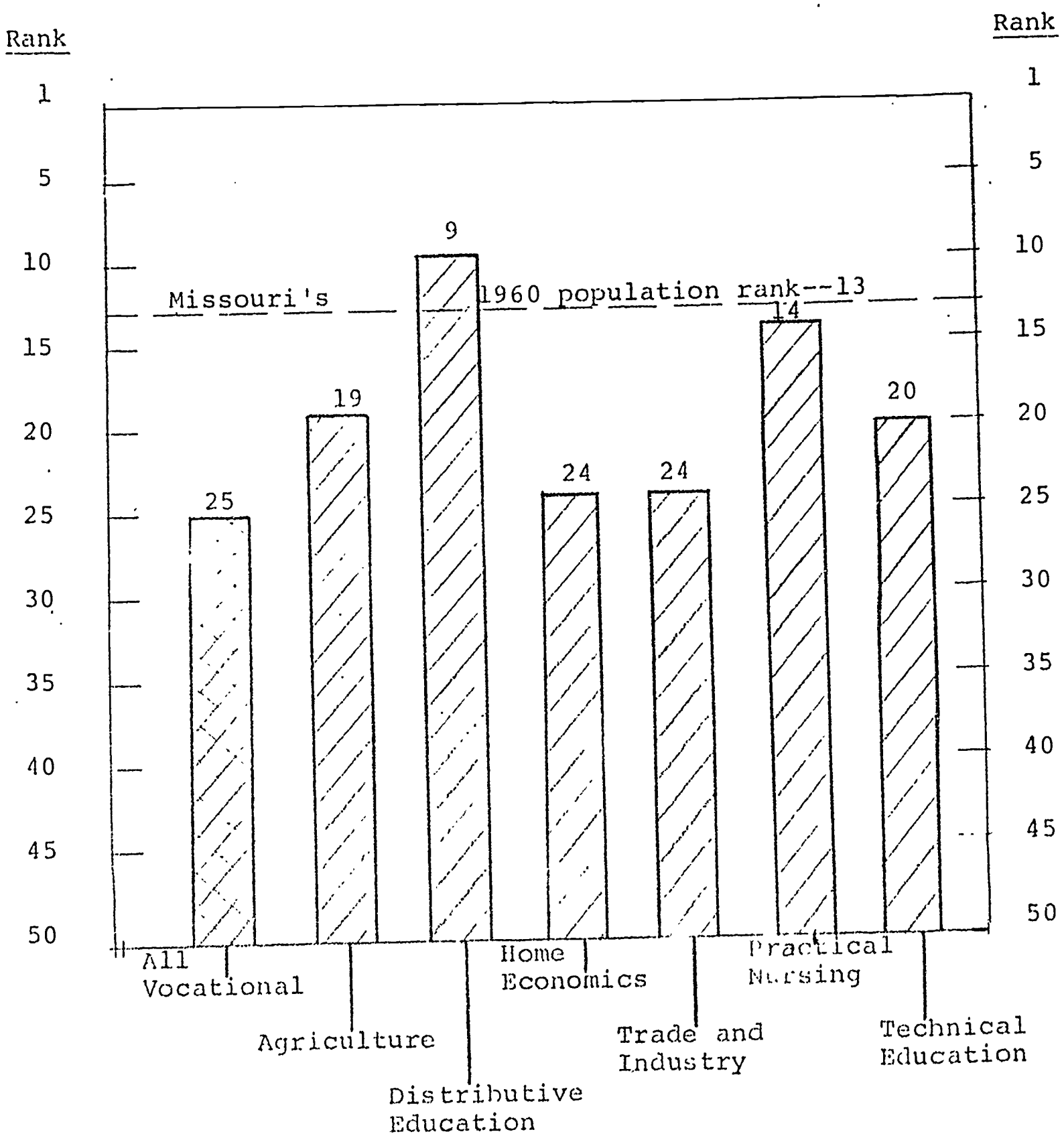
Recognizing the fact that Missouri ranked 13th in population in 1960, its rank at 25th in total vocational education enrollments suggests that, overall, it was not enrolling its share of students in 1963 in Federally supported vocational education programs. On the other hand,Missouri is among the leaders in distributive

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24/ "Progress in Technical Vocational Education Programs Under Title III of the George-Barden Act, Fiscal Years 1959-1964." U.S. Office of Education, Division of Vocational and Technical Education. June, 1965.(Mimeograph)

25/ Figure 1 was based on 1963 data because these are for the fiscal year of 1963, which ended on June 30, 1963. Thus, these are in the same year that fall 1962 organized occupational curriculum data were reported.

Figure 1.--Missouri's Rank Among the States in Vocational and Technical Enrollments in Fiscal Year 1963.



Note: In 1960, Missouri ranked 13th in population.

Source: Vocational and Technical Education: A Review of Activities in Federally Aided Programs, Fiscal Year, 1963. U.S. Office of Education Circular OE-80008-63. 1964.

education enrollments, ranking ninth, and enrolls close to its share of practical nursing students, ranking 14th. It falls well behind in the other four areas.

Comparisons of Missouri enrollments in vocational education with those of Connecticut, Massachusetts, New York, North Carolina, Virginia, Washington, and the aggregate United States.-- Table 35 compares Missouri's technical and vocational enrollments since 1959, when NDEA Title VIII programs were launched, with those of six other states and the aggregate United States. Four of the states are the same ones used for comparisons in the preceding section. North Carolina and Virginia have been added because they are, respectively, 12th and 14th in population, thus bracketing Missouri. North Carolina has a statewide system of industrial education centers which is very similar to Connecticut's system of technical institutes and regional vocational schools. Virginia has nine area vocational and technical schools in operation under supervision of the state education department as well as four technical institutes which are units of one of the state colleges or universities. Both New York and Massachusetts have depended upon their high schools to provide technical as well as vocational education. The legal requirement that technical, like other vocational programs, consist only of "less-than-college-grade" courses was the chief reason the public junior colleges in these states did not provide Federally supported technical education programs

Table 35.—Enrollments in Federally supported technical and other vocational education programs in selected states and aggregate United States, 1959 through 1963

State	1960 Population (in millions)	Enrollments (in thousands)									
		Technical education					Other vocational education				
		1959	1960	1961	1962	1963	1959	1960	1961	1962	1963
Connecticut	2.5	8.9	6.7	8.3	4.4	5.7	20.6	16.2	22.8	26.4	26.8
Massachusetts	5.1	0.6	0.8	1.2	1.4	1.6	68.7	64.4	66.4	68.0	70.9
Missouri	4.3	0.2	0.9	1.4	1.5	1.8	66.4	62.5	65.5	66.0	70.0
New York	16.8	1.0	1.7	2.6	3.3	6.2	207.1	195.5	185.4	191.5	238.5
North Carolina	4.6	--	1.1	1.6	2.0	3.3	128.2	134.4	141.8	163.7	170.7
Virginia	4.0	1.2	0.6	0.7	0.7	1.4	99.9	100.7	106.2	105.7	114.8
Washington	2.9	4.5	9.8	10.0	11.3	13.8	109.9	96.6	96.3	110.7	110.7
Aggregate U. S.	179.3	49	101	123	149	185	3,652	3,667	3,733	3,924	4,032

Source: Digest of Annual Reports of State Boards for Vocational Education. U.S. Office of Education, 1959, 1960, 1961, 1962, 1963.

until recently. Even the ruling that "less-than-college-grade" merely means that the courses cannot be creditable towards a bachelor's degree, did not persuade them. Both New York and Massachusetts, however, are expected to use junior colleges in the future development of vocational education under the expanded provisions of the Vocational Education Act of 1963, Public Law 88-210. Through 1963, in one-half of the states, institutions of higher education have been included among the schools which offer Federally financed technical education programs. Washington, for example, concentrated most of its technical education programs in its public junior colleges, although a few are in area vocational-technical schools. Connecticut has used both her state technical institutes, which are classified as institutions of higher education, and her secondary-level regional vocational-technical schools for such programs. North Carolina developed a new system of industrial education centers to meet the bulk of that state's vocational and technical education needs. In July 1963, it began to expand them into comprehensive junior colleges similar to those in California, Florida and Washington. Virginia has recently begun development of a statewide system of technical colleges to augment present facilities.

Table 35 shows that there were increased enrollments each year in both technical and other vocational education programs for the aggregate United States. Among the seven

states compared in table 35, however, only North Carolina showed annual enrollment increases in both technical education and other vocational education programs. All except Connecticut and Virginia showed increasing annual enrollments in technical education. This is partially explained by the fact that Connecticut and Virginia, with their statewide vocational school systems, were already enrolling technical students when the other states just got started in this program after passage of NDEA.

The information in table 35 shows that Missouri's population in 1960 was roughly equivalent to 2.5 percent of the national population. With this as a measure, it can be quickly reckoned from table 35 that Missouri accounted for less than her share of the nation's vocational students. Missouri enrolled 0.4 percent of the nation's technical education students in 1959 and less than 1.0 percent in 1963, and her enrollments in other vocational programs were approximately 2.0 percent of the nation's total in both 1959 and 1963. In total vocational education enrollments both states which are near Missouri in population, Virginia and North Carolina, exceeded Missouri. On the other hand, Missouri's enrollments have been about the same as those of Massachusetts even though the population differential favors Massachusetts, and neither New York nor Connecticut enrolled as many as Missouri in proportion to their 1960 populations. In 1959, Connecticut, with 1.4 percent of the nation's population, enrolled

almost one-fifth of the nation's technical education students, but accounted for only 0.6 percent of the remaining vocational enrollments. By 1962, Connecticut accounted for only three percent of the nation's technical education enrollments. Even this was enough to rank her ninth among the fifty states. Yet, Connecticut, in 1962, enrolled fewer technical education students than Washington, with a similar population base, had in 1959, and between 1959 and 1962 Washington increased these enrollments two and one-half times, whereas Connecticut lost half of them. At the same time, Connecticut showed more technical education enrollments each year than the other five states (except New York in 1963), each of which has a larger population.

The most important fact which emerges from table 35 is related to the dominance of Washington in technical education. It seems clear that it was able to do this because it had a system of public junior colleges which were ready, willing and able to provide vocational and technical education programs for their students in addition to the usual "degree-credit" or "transfer" programs. However, other factors should be considered before conclusions become too firm.

When only the post-secondary preparatory enrollments are considered, a somewhat different picture emerges. It is these enrollments which are more likely to be in programs similar in level and content to those of institutions

of higher education. A breakdown of preparatory enrollments is not available for 1959, but, with that exception, table 36 shows the distribution of the technical education enrollments among extension classes, secondary preparatory, and post-secondary preparatory curriculums for the same seven states used in table 35 and for the aggregate United States.

From this additional information several facts come to the fore. In Washington, 90 percent of the technical education enrollments were in extension classes in each of the five years, with approximately a 125 percent increase between 1960 and 1963. Connecticut's post-secondary enrollments in 1963 are somewhat less than those for Washington, with a similar population, and approximately the same as those for North Carolina with a population base like that of Missouri. Virginia, also close to Missouri in population, enrolled the same number of students in post-secondary technical education programs in 1959 as North Carolina, but showed only a slight increase by 1963, whereas North Carolina more than doubled these enrollments. Missouri's technical education enrollments were concentrated in extension classes, although by 1962, one-fifth were in secondary preparatory programs and, in 1963, an additional five or six percent in post-secondary preparatory programs. Although Missouri lags well behind the other states in vocational education, and particularly in technical education enrollments, it may be preparing to join a trend

Table 36.—Enrollments (in thousands) in Federally supported technical education programs, by extension, secondary preparatory, and post-secondary preparatory classes, in selected states and aggregate United States, 1959-1963 1/

State	Extension classes					Preparatory curriculums 1/								
							Secondary				Post-secondary			
	1959	1960	1961	1962	1963	1959	1960	1961	1962	1963	1960	1961	1962	1963
Connecticut	7.3	5.4	6.7	2.6	3.3	1.6	1.1	1.4	0.5	0.9	0.2	0.2	1.3	1.5
Mass.	—	0.4	0.6	0.8	0.9	0.6	0.3	0.4	0.4	0.4	0.1	0.2	0.2	0.3
Missouri	0.1	0.8	1.2	1.2	1.3	0.1	0.1	0.2	0.3	0.4	—	2/	2/	0.1
New York	—	0.2	0.1	0.2	0.9	1.0	1.5	2.4	3.1	5.3	2/	0.1	0.1	—
No. Carol.	—	0.5	0.7	0.5	1.6	—	2/	0.2	0.1	0.1	0.6	0.7	1.3	1.5
Virginia	—	—	2/	2/	0.7	1.2	—	—	2/	2/	0.6	0.7	0.7	0.7
Washington	4.2	9.0	9.0	10.1	12.0	0.3	—	2/	2/	—	0.8	1.0	1.2	1.8
Aggregate U. S.	29.3	68.3	83.6	95.8	108.7	19.2	7.3	11.8	13.0	19.7	25.6	27.4	40.0	56.2

1/ A breakdown of preparatory classes is not available for fiscal year 1959.

2/ Less than one-tenth of one percent.

Source: Digest of Annual Reports of State Boards for Vocational Education. U. S. Office of Education, 1959, 1960, 1961, 1962, 1963.

toward post-secondary classes which is apparent in North Carolina and Washington and evident in the data for the aggregate United States. 26/

It is likely that this trend will be accentuated over the next several years under the provisions of the new Federal vocational legislation enacted in December, 1963, Public Law 88-210.

26/ In fiscal year 1963, seventeen Missouri schools were listed in the Directory of Schools Offering Technical Education Programs (Washington: U.S. Office of Education, 1964), p. 38. They offered five extension courses, thirteen courses or programs of both the extension and secondary preparatory type, five of both the extension and post-secondary preparatory type, two of both the secondary and post-secondary preparatory type, and three of the secondary preparatory type. The five schools on the list which offered post-secondary preparatory courses or programs were: Franklin Technical School, Joplin; Board of Education, Kansas City; Linn Area Technical School, Linn; Moberly Junior College, Moberly; and Springfield Vocational-Technical School, Springfield.

A preliminary list for fiscal year 1964 included 24 Missouri schools with five extension classes, sixteen extension and secondary preparatory, five extension and post-secondary preparatory, three post-secondary preparatory and secondary preparatory, and eight secondary preparatory. Moberly Junior College was not on the 1964 list and Kansas City Junior College /sic/ replaced the Board of Education. The other three which were on the 1963 list of schools with post-secondary preparatory programs were also listed that way for 1964.

Summary, Conclusions, and Recommendations

A. The background information presented in this report can be summarized as follows:

1. Organized occupational curriculums in two college years provide education for technician and semiprofessional occupations.

2. In 1947, the President's Commission on Higher Education estimated that for every job which requires four years of college education there are five which require two years. Other estimates of the needed ratio of technicians and semiprofessional personnel to professional workers range from 3:1 to 1:1.

3. Almost all those who complete four college years are awarded bachelor's degrees. On the other hand, although a large number of those who terminate college after two years receive an associate degree, many others are awarded a diploma or certificate of completion, and a large number leave without any formal recognition.

4. California institutions, which award more associate degrees than those of any other state, granted twice as many bachelor's degrees as associate degrees in 1958-59 and in 1961-62. Missouri institutions awarded 46 bachelor's degree for every 10 associate degrees in 1961-62. This ranked Missouri third among the fifty states in the ratio of associate degrees to bachelor's degrees awarded.

5. Even the information on associate degrees is scanty, but it is more easily obtained than that on other awards and completions, so it provides a useful, though crude, measure of the number who complete two college years.

6. When the number of organized occupational curriculum graduates from 4-year colleges is added to the number of junior college graduates, it is estimated that the nation's institutions of higher education graduated 74,000 from 2-year college programs in 1958-59 and 85,000 in 1961-62. When these figures are compared with the number of bachelor's and first professional degrees awarded--385,000 in 1958-59 and 420,000 in 1961-62--the ratios are the reverse of the one suggested by the President's Commission on Higher Education, 1:5 instead of 5:1.

B. The data about occupational education in nine public 2-year colleges, seven private 2-year institutions, eight public 4-year institutions, and thirteen private 4-year colleges and universities in Missouri are summarized in this report. The following are some of the highlights from that summary:

1. Seven Missouri colleges and universities reported graduates from engineering-related organized occupational curriculums. Of these, Central Technical Institute provided 72 percent between 1955-56 and 1963-64. Central Technical Institute also accounted for 93 percent of the

full-time students and 54 percent of the part-time students in this area.

2. In the non-engineering-related area, the leadership in the number graduates included the following institutions at different times: Stephens College (only in 1955-56), Christian College, Southwest Baptist College, William Woods College, St. Louis University, and Washington University. The largest enrollments were reported by Rockhurst College, St. Louis University and Washington University--mostly of part-time students--and the Junior College of Kansas City, Christian College, Missouri Valley College (in the earlier years), and William Woods College --for full-time students.

3. Clearly, the private institutions overshadow Missouri's public institutions, public junior colleges as well as state colleges and the university, insofar as occupational education is concerned. Only six percent of the total number of graduates reported by Missouri institutions of higher education in the seven national surveys of occupational education came from public junior colleges.

C. Information on the ratio of occupational education graduates to bachelor's degrees awarded in Missouri between 1956-57 and 1961-62 revealed the following facts:

1. The number of Missouri occupational programs graduates decreased 33 percent; whereas there was a national increase of 19 percent.

2. During this period, Missouri public junior colleges increased the number of other graduates by 24 percent; private 2-year institutions, by 44 percent.

3. Total 2-year programs graduates increased from 2,249 to 2,460, or nine percent; the number of bachelor's and first professional degrees, from 8,296 to 10,578, or 28 percent. Nationally, the latter increased by 23.5 percent.

4. In Missouri, private institutions produced 85 percent of the occupational programs graduates in 1961-62; nationally, private institutions accounted for 43 percent of these graduates.

5. The ratio of Missouri graduates from 2-year college programs to those from 4-year programs ranged from 10 to 37 in 1956-57 to 10 to 43 in 1961-62.

D. More detailed comparisons of Missouri and national data in occupational education, by specific curriculums, are summarized in the following statements;

1. Curriculums with fifty or more 1961-62 graduates in Missouri were:

electronics 133

general secretarial.. 89

general business 66

accounting & financial management.58

These four curriculums provided three-fifths of Missouri's and somewhat less than two-fifths of the nation's 1961-62 occupational education graduates.

2. General business had 67 graduates in 1956-57, but the three other curriculums graduates substantially fewer in Missouri in 1961-62 than in 1956-57--electronics, 27 percent fewer; general secretarial, 23 percent fewer; accounting and financial management, 10 percent fewer. Nationally, these curriculums all showed increases in graduates as follows: accounting and financial management, 70 percent; general secretarial, 50 percent; electronics, 25 percent.

3. Occupational curriculums which ranked high nationally but for which Missouri institutions of higher education reported no graduates in 1961-62 were education and practical or vocational nursing.

4. Curriculums which enrolled more than 200 part-time and full-time students in Missouri in 1962 were the same four (above) with more than fifty graduates in 1961-62. These four curriculums accounted for three-fourths of Missouri's and less than one-half of the nation's occupational education enrollments in 1962.

5. Two of Missouri's four leading curriculums enrolled more in 1962 than in 1957: general secretarial and general business. Both had slightly greater increases in Missouri than in the aggregate United States. However, Missouri recorded decreases of 38 percent in electronics and four percent in accounting and financial management while the national totals in these curriculums almost doubled for the latter and increased 73 percent for the former curriculum.

6. Curriculums which ranked high nationally but for which Missouri institutions reported no 1962 enrollments were education and building and construction technology.

E. Information on enrollment in organized occupational curriculums in Missouri and other undergraduate enrollments revealed the following information:

1. Between 1957 and 1962 full-time students in organized occupational curriculums declined 20 percent; part-time students declined four percent.

2. The largest decreases, both in number and percent (50 percent in full-time and 91 percent in part-time students), were recorded by private 2-year institutions. In 1957 they enrolled 70 percent and in 1962, 60 percent, of Missouri's occupational students.

3. The private 4-year colleges and universities enrolled most of the occupational programs students attending on a part-time basis, 92 percent in 1957 and 80 percent in 1962.

4. Public institutions, in total enrollments in organized occupational curriculums, showed gains between 1957 and 1962. However, they enrolled only 30 percent of the occupational students in Missouri in 1962, after enrolling 10 percent of them in 1957. The improvement was substantial but largely because of decreases shown by the private institutions, rather than enrollment increases by public institutions.

5. Opening (fall) enrollment of degree-credit students increased 31 percent for Missouri institutions which reported occupational education data; 33 percent for other colleges and universities.

6. The three public 4-year colleges had 8 of 1,000 students in 1957 and 7 of 1,000 in 1962 enrolled in occupational curriculums. Four public junior colleges enrolled 5 of 100 students in occupational curriculums in 1957 and three of them enrolled 17 of 100 students in such programs in 1962. Clearly, occupational education is a minor activity in Missouri public institutions of higher education.

F. Compared with four other states:

1. Missouri showed decreases in occupational education graduates in 1961-62 from the number graduated in 1956-57 while those of Connecticut, Massachusetts, New York, and Washington increased even more than the national average.

2. In terms of full-time enrollments, Missouri showed decreases and the other four states as well as the aggregate United States showed increases between 1957 and 1962 in engineering-related and non-engineering-related curriculum areas.

G. Technical workers are also prepared by schools not affiliated with institutions of higher education. Included are hospital diploma schools of nursing, independent business and vocational-technical schools, and public vocational schools.

1. Data on the independent business, trade and technical schools are difficult to obtain and assess. In general, however, they provide intensive, specialized training for limited numbers of students.

2. Missouri, which ranked 13th in population in 1960, ranked 25th in total Federally reimbursed vocational education enrollments in 1963. Its best ranking was 9th, distributive education, and in "technical education," i.e. programs supported under Title VIII of the National Defense Education Act of 1958, it ranked 20th.

3. Comparisons were made with six other states--North Carolina and Virginia were added to the four used in other comparisons. They show that Missouri had fewer total vocational enrollments than Virginia or North Carolina, states with populations similar to that of Missouri, but Missouri about equalled enrollments in Massachusetts, a much more populous state, and neither New York nor Connecticut enrolled as many as Missouri in proportion to population.

4. Washington dominated technical education enrollments because of its system of public junior colleges and their readiness to provide technical and other vocational education as well as liberal arts or "college transfer" programs.

5. Among the NDEA Title VIII technician training programs, the post-secondary preparatory curriculums are most comparable to engineering-related occupational education programs in institutions of higher education. Nationally, in recent years these post-secondary preparatory programs have been showing more rapidly increasing enrollments than the other technical education programs, i.e. the secondary preparatory and the extension classes. In 1961, the post-secondary preparatory technical programs accounted for 22 percent of the technical education enrollments; in 1963, 30 percent.

6. Missouri's technical education enrollments were concentrated in extension classes, although by 1962 one-fifth were in secondary preparatory programs, and, in 1963, an additional five or six percent were enrolled in post-secondary preparatory programs. Thus, Missouri appears to be joining the trend towards post-secondary programs in the technical education curriculums which are financed with Federal vocational education funds under Title VIII of the National Defense Education of 1958 as well as state and local funds.

II. In the light of the findings presented in this study, the following recommendations are presented for consideration by appropriate authorities:

1. It is recommended that public junior colleges provide a major thrust in developing organized occupational curriculums to meet the needs of business, governmental, and industrial employers in Missouri generally and in their service areas particularly.

a. There should be other employment surveys like those of the St. Louis, Kansas City, Springfield-Green County, and Joplin-Jasper County areas upon which planning for new curriculums should be based. Especially commendable is the one recently completed by the Jasper County Junior College because it was specifically related to jobs for which the junior college can provide education. 27/

b. Attractive brochures like the one issued by the Junior College District in St. Louis should be published by all junior colleges to promote interest in the occupational programs.

c. The guidance workers and faculty advisers should become as fully informed about the occupational programs as they now are about transfer or academic programs. They, in particular, must indicate directly as well as indirectly that positions of status and respect

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27/ Several University of Missouri doctoral dissertations can also be of value, especially two 1962 studies: Robert L. Prater, "Employment Opportunities and Training Needs for Technicians in the State of Missouri With Projections Through 1970" and Donald Dean Wendt, "Employment Opportunities and Training Needs for Selected Service Workers in the State of Missouri With Projections Through 1970."

are readily available to successful graduates of occupational programs as well as to bachelor's degree graduates.

d. Job placement assistance for occupational program graduates must be given at least as much staff attention, time and financial help by junior college officials as they now devote to students who transfer to 4-year colleges and universities. Job placement assistance should gradually be given even more attention that transfers to 4-year institutions because every student should receive job placement assistance whereas only a fraction of them go on to a bachelor's degree.

e. Competent faculty for occupational programs have not been as difficult to obtain in Missouri as in many states. For one thing, relatively few faculty have been required and the University at Columbia and several of the state colleges have had programs of teacher preparation. But this is no time for complacency. Administrators should continue to insist on high occupational competency even in preference to the usual academic credentials as they recruit instructors for the increased numbers of occupational programs they will provide. Instructors of occupational courses must be integrated with academic instructors on faculty committees and as advisors to student government and other activities for successful articulation and general acceptance of occupational programs.

2. It is recommended that state colleges and the University of Missouri offer occupational programs to meet the needs of employers in their service areas provided these programs can be smoothly coordinated with those which are related to their primary goal, of preparing persons for the professions, such as the linotype program at the University in Columbia and dental hygiene at the University in Kansas City.

a. These occupational programs should be adequately publicized by using attractive brochures such as those distributed by Central Missouri STate College and Southeast Missouri State College. In addition, they should be clearly described in the college catalog. The general tone of the publications should be informational and not promotional, because with few exceptions the 4-year institutions should not make any special effort to recruit students into these programs.

b. Students in occupational programs should have the full support of the faculty, administration and student personnel staff just as the students who are registered in the other undergraduate programs.

c. Administrators of public 4-year institutions should not make any plans to expand their offerings of occupational curriculums. They should also guard against offering programs in competition to those of area vocational-technical schools and junior colleges. Instead,

they should stand ready to assist them in taking over responsibility for occupational education. As the competition to get into college becomes keener and the 4-year institutions raise entrance standards, they will have to phase out occupational programs because they will no longer have the kinds of students who would best be served by occupational education. In anticipation of this development, the administrators of the 4-year colleges and university branches should give their wholehearted support to the establishment of new junior colleges in nearby communities which would concentrate on occupational programs to meet the area's needs for technicians and semiprofessional workers of other kinds.

d. In anticipation of the increasing need for administrators and faculty for occupational programs in the junior colleges and vocational schools, the 4-year colleges and the University of Missouri should plan to develop new teacher preparation programs based on occupational programs of junior colleges. Appropriate officials of the 4-year institutions should work closely with those of the junior colleges in order that both kinds of institutions are satisfied that the first two years of an occupational program can adequately serve as a base for a teacher preparation program of two or three additional years at the 4-year institutions.

3. It is recommended that the private institutions continue to respond to the requests from their students to provide selected occupational courses as long as they have the resources to do this respectably. However, it is recognized that they will not be expected to and may not be able to respond to all requests which come to them for occupational programs. They are expensive to staff and equip. Whenever a private institution finds it cannot do a quality job of occupational education unless it were to over-tax its resources, a firm decision should be made not to undertake the program. A few experimental ventures like that of Hannibal-La Grange College in nursing education and that of the private universities in cooperation with the University of Missouri and the Junior College District in St. Louis in providing a technical education center of excellence suggest positive directions for the private institutions to move into the future in meeting occupational education needs.

4. It is recommended, further, that <u>all</u> occupational programs be governed by these guidelines:

a. The main goal of occupational education is to prepare graduates who are generally competent in a broad occupational area and equipped with the necessary skills to get and keep a job. Don't over-specialize or over-emphasize skill training when building occupational programs.

In this rapidly changing economy, the need for certain skills can disappear almost overnight. Missouri institutions of higher education should endeavor to prepare broad-based technical or semiprofessional workers who will be able to recognize the diminishing need for their special skills when this occurs and, at the same time, will begin to develop new skills for which a demand begins to be recognized.

b. Terminal education should not be used to describe these programs. In this rapidly changing society, education must be a continuing process and to imply otherwise runs counter to that prevailing philosophy. Programs to prepare for occupational competency in one or two college years need not be "blind alley" curriculums; they should be "open ended." Students who successfully complete them should not only be capable of working at the semiprofessional level, but they should also be able to get credit toward bachelor's degrees for most of the courses in their occupational programs.

c. Successful completion of an organized occupational curriculum should be recognized officially by the award of an associate degree, preferably an associate in applied science, reserving the associate in arts and associate in science degrees for graduates of two-year liberal arts programs. Certificates of completion should be the awards to persons who complete programs less than two college years in length.

d. The president of each college which offers occupational education should appoint a dean or director of occupational curriculums. These programs need support at the top echelons if they are to attract quality faculty, equipment, and students.

e. The president of each college which offers occupational education should appoint a local advisory committee to work with the president and his occupational dean to identify community needs for occupational curriculums, to develop programs to meet these needs, and to revise them in the light of changing job specifications.

f. Increased financial support should be provided for approved occupational education programs by the state as well as the local units of government. State funds should not be used to make it possible for the 4-year institutions to offer new or expanded programs of occupational education because the long-range view suggests rather plainly that they will gradually have to discontinue occupational education. Instead, they should adequately support those now approved. State funds should also provide a major stimulus to expand occupational education in the public junior colleges. This must be done to enable Missouri's institutions of higher education to produce the needed numbers of qualified technicians and other semiprofessional workers.

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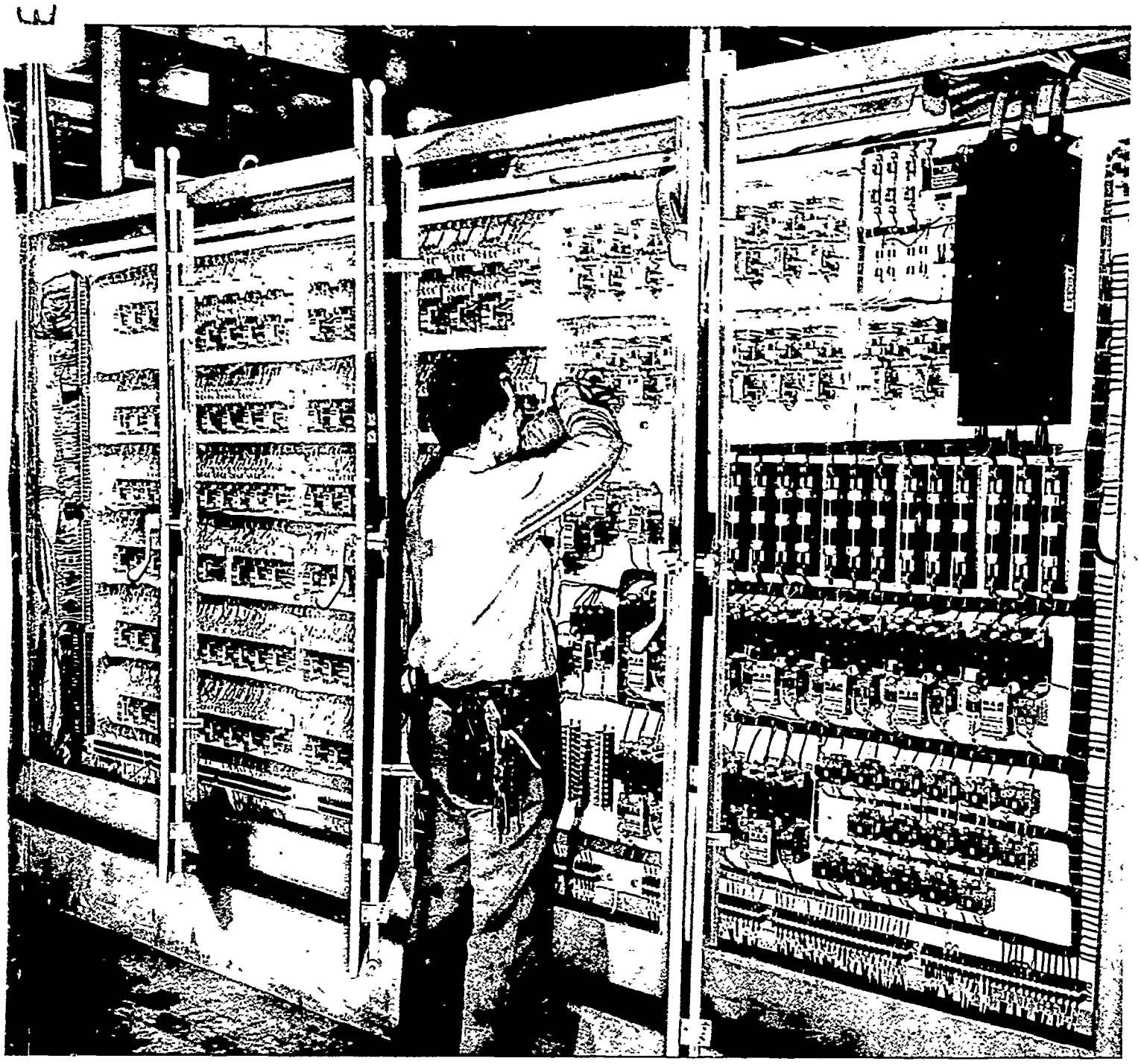
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One hundred and sixty case studies on the impact of automation are analyzed to show what aspects of the subject have been studied. These were conducted by various government agencies and private research bodies in 14 countries and cover 29 industries. The case studies have been regarded as investigations of the effects of the introduction of technological changes on the work situation in a plant. Tables show the distribution of the 160 studies by country, the distribution by country of the industries studied in declining order of frequency of coverage, and the kinds of problems examined at plant level. Summary statements point out that the effects of technological changes on occupational requirements, working conditions, and employment have been of concern to the majority of researchers. The changes in occupational requirements were uppermost in the minds of the researchers. Structural changes occuring in the work force, the impact on wages and labor-management practices regarding personnel adjustment have also received wide-spread attention. Inter-country comparisons show certain variations in the level of interest in different subjects. For instance, the change in social interaction was studied in 17 of 29 cases in France but only four of 28 cases in the Federal Republic of Germany and in 15 of 49 cases in the United States. Changes in occupational structure in both production and non-production labor were covered in almost all of the cases from the U.S.S.R. but in only about one-third of those included from the United States. (SL)

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LABOUR AND AUTOMATION



BULLETIN No. 2

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A Tabulation of Case Studies on Technological Change

INTERNATIONAL LABOUR OFFICE GENEVA, 1965

The I.L.O.

The International Labour Organisation was founded by governments for the purpose of international collaboration in securing the permanent peace of the world and eliminating social injustice through the improvement of conditions of labour. A special feature of its structure is that representatives of management and of labour organisations participate with government representatives in its proceedings. Established in 1919 it became in 1946 the first specialised agency associated with the United Nations. It has more than 100 member countries.

Over the years the I.L.O. has built up a large body of international agreements (" Conventions ") and recommendations relating to basic rights of labour, employment and training, conditions of work, social security and protection at work. These are the result of detailed discussion at the annual International Labour Conference, comprising four delegates (two representing the government, one representing management and one representing labour) from each member country, speaking and voting individually. The Conventions and Recommendations are not automatically binding, but governments must submit them to their national legislatures. Reports from the different governments on their implementation are examined annually by the Conference and there is also machinery for examination of complaints, including alleged violations of freedom of association.

Another major sector of the I.L.O.'s work consists in the provision of expert advice and technical assistance in matters connected with labour and social policy. Assistance is provided under the United Nations programmes of technical co-operation as well as under the I.L.O.'s regular budget. Much of this operational work lies in the fields of manpower training and utilisation, improvement of work methods and organisation, labour administration and the development of effective systems of industrial relations and social security.

These activities are organised by the International Labour Office, an international staff in Geneva with a field network in most parts of the world. The Office is also the permanent secretariat of the Organisation and a clearing-house for international information and research. It is headed by a Director-General appointed by a Governing Body of 24 government representatives, 12 representatives of management and 12 representatives of labour, which meets three times a year.

In addition to the activities mentioned, matters of concern to particular regions and industries are discussed periodically by special conferences and committees, and many specialised technical meetings are organised. An International Institute for Labour Studies, set up by the Organisation at Geneva, provides persons occupying positions of responsibility in the different countries with opportunities for advanced study of labour policy questions.

All these activities are closely co-ordinated with a view to fulfilment of the purpose for which the International Labour Organisation was created—the promotion of social justice and peace.

LABOUR AND AUTOMATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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BULLETIN No. 2

A Tabulation of Case Studies on Technological Change

Economic and Social Problems
Reviewed in 160 Case Studies

LABOUR AND AUTOMATION

In view of the widespread interest and concern attaching to the economic and social problems of automation and advanced technological change, the I.L.O. decided to publish a series of bulletins, of which this is the second. These bulletins form part of a broader programme for the study of the economic and social effects of automation, and provide a means for the dissemination of information on an international basis.

The bulletin series will include papers on new developments, reviews of published material, and reports on research findings, and will endeavour to present a broad picture of international experience and opinion. No specific periodicity is planned; the issues will be published according to the availability of appropriate material.

The series is designed for scholars and research workers but will also be of value to others interested in this field, such as persons associated with employers' or workers' organisations or government officials responsible for developing and implementing manpower policy. Each issue is available singly.

Bulletin No. 1, published in 1964, is entitled:

Automation: A Discussion of Research Methods

Cover photograph: A skilled electrician adjusting complex electrical panels which control the automation devices and transfer machines used in the engine plant of an automobile-manufacturing company.

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INTRODUCTION

Research concerning the impact of automation and other forms of technological change on work and workers has progressed rapidly in several industrialised countries in recent years. One of the earliest research methods to be applied, and one which is still providing useful results in this field, is the case study, concentrating on one firm or on a group of undertakings in a single industry or sector, with the aim of examining in detail the effects of the introduction of some type of new technology in that particular firm or industry.[1]

These studies of the impact of automation have been undertaken in a number of countries in relation to different industries, occupations or groups of workers, and a body of detailed information with regard to the impact of new technology is thus gradually being built up. This information has been published in a wide variety of media in different parts of the world, including government publications, reviews, pamphlets, books, popular magazines, and other types of publications.

The present bulletin analyses this material with a view to showing what aspects of the subject have been studied, and where. It tabulates 160 case studies carried out in 14 countries and covering undertakings in 29 industries. These are analysed according to content in six major categories of subject-matter (kinds of technological change, economic effects, effects on employment, occupational effects, adjustment of personnel, wage effects) and a number of sub-categories. It is thus possible to identify, by country, which case studies contain information about a

[1] See I.L.O.: *Automation : A Discussion of Research Methods,* Labour and Automation Bulletin No. 1 (Geneva, 1964), which reproduces the conclusions of a meeting of experts convened by the I.L.O. in March 1964 to examine the methodology of research on the social impact of automation, together with the background papers prepared for the meeting. A detailed description of the applicability of the case study technique to studies of technological change is contained in the conclusions of the experts.

particular industry and subject as well as the different subjects which are covered by a particular study.

In view of its character the tabulation does not analyse the findings of the case studies or permit conclusions to be drawn. However, besides offering a source of reference to those who are studying the effects of technological change, it may be of interest in connection with the planning of further research, since it provides a means of taking account of previous work when more intensive work in some areas is being projected or when investigations in new areas (geographical, industrial, occupational) or of types of problem which have so far been neglected are being planned.[1]

Kinds of Case Studies Included in the Tabulation

With one exception, only published[2] studies have been included. Of these, only studies dealing specifically with the impact of new technology have been tabulated. A number of excellent and well-known studies of social problems of a similar nature, but arising from different causes, have been excluded. Also eliminated were the many studies describing the technical and economic aspects of the introduction of new techniques, but not the social aspects.

Finally, studies carried out by mailed questionnaire or based on the collection and analysis of statistical material have been included only if these methods of investigation were complemented by visits to the plants which they covered.

Composite studies comprising a number of individual case studies are included in the following presentation in one of two ways: (1) if the results of the individual studies were separately reported, each is treated separately in the tabulation; (2) if separate reports were not issued, the composite study is included as a single unit with a reference number in *italics*, both in the list of sources (pp. 4-12) and in table IV (pp. 26-87), to indicate that it covers more than one plant.

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[1] This survey has been prepared by the staff of the Automation Unit of the International Labour Office. Many of the case studies which constitute the basis of table IV were reviewed by Mr. H. C. Hensen, who worked with the Unit in 1964 on loan from the Ministry of Labour and Social Affairs of the Federal Republic of Germany. The summary tables and the text were prepared by Mrs. E. Epstein.

[2] " Published " is here understood to mean made available to the public, whether in printed or in mimeographed or roneoed form. The one exception is the inclusion of the studies concerning the attitudes of workers to technological change in the iron and steel industry, made in six European countries between 1955 and 1957 under Project No. 164 of the European Productivity Agency (E.P.A.). Some, though not all, of the results of these studies have been published, but the detailed reports used for the present tabulation were mainly confidential, draft reports presented to the E.P.A.

The case studies included vary considerably in character. Thus studies based on a single visit to a plant and reported in a few pages are treated in the same way as full book-length descriptions of changes taking place gradually over a period of several years. The crosses appearing in the columns of the main tabulation (table IV) may therefore represent either a thorough discussion of the question indicated or a brief reference to findings.

The studies also vary greatly from the point of view of their origin and purpose. Many were financed by government funds and carried out by government agencies or officially supported research institutions, and were designed to assist in the formulation of public policy on the social problems arising from technological change. In a few instances the research was carried out on an international scale, with parallel studies being made in several countries simultaneously or in close succession, under the auspices of an international organisation. These efforts were designed to achieve a certain comparability in the observation of the effects of similar technological developments in different national situations. Independent research carried out in universities or private institutions is also well represented, both by studies made within the framework of a broad programme of research on the impact of technological change and by projects planned and carried out by individuals, sometimes in preparation for a university degree. Each research study inevitably bears the mark of the discipline concerned; in some cases the findings are interpreted in support of a philosophical thesis or social doctrine. Several of the cases included were carried out by representatives of the workers' movement, who concentrated particularly on the effects of technological changes on trade union structures, attitudes and possibilities for action. In a few cases the studies were made by persons employed within the firm concerned as industrial researchers or by members of the management.

Because the approach, methods, length and depth of the studies differ greatly, they are of unequal value as scientific evidence of the social consequences of technological change. Nevertheless, all have been included in this first attempt to survey the field, since together they give some indication of where the major emphasis has been placed and where the greatest gaps in information lie. In a further analysis of the findings themselves a more critical distinction would have to be introduced.

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and the Organisation for European Economic Co-operation (O.E.E.C.) at different stages in the progress of the research. Permission to include these studies in the present volume was obtained from the Organisation for Economic Co-operation and Development (the successor to the O.E.E.C.) and all the research institutes which had carried out the studies in the countries concerned.

Form of Presentation of the Material

The main tabulation of the 160 case studies covered according to their content is given in table IV (pp. 26-87). This is preceded by summary tables showing the number of case studies from each country, the frequency of coverage for each of the 29 industries for which studies were found, and the frequency of coverage of the different subject categories constituting the framework of the tabulation. The studies tabulated have each been given a serial number corresponding to the list of sources reproduced below.

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137. — — " Retraining of Airline Maintenance Mechanics ", ibid., pp. 21-24.

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146. — — " The Automation of Suburbia National Bank ", ibid., Appendix B.

147. — — " The Milwaukee-matic at Alger Electronics ", ibid., Appendix C.

148. — — " Automation at the Hamilton Electronics Company ", ibid., Appendix D.

149. — — " Automation at the Marlin Distributing Company ", ibid., Appendix E.

150. — — " Warehouse Automation at the V.C.P. Company ", ibid., Appendix F.

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1 THE CASE STUDIES REVIEWED

Table I shows the distribution of the 160 studies according to the 14 countries in which they were carried out. The largest number of studies—nearly one-third of the total—came from the United States This reflects not only that country's extensive experience of the problems arising from the introduction of automation but also the particular interest displayed by the United States Government in these problems. Of the 49 United States studies, 31 were carried out and published by official agencies at the federal or state level, in particular by the Bureau of Labor Statistics, the Bureau of Employment Security and, more recently, the Office of Manpower, Automation and Training—all units of the United States Department of Labor. Of the remainder, independent university research is represented by ten studies while a further seven were carried out by the American Management Association.

France and the Federal Republic of Germany are represented by 29 and 28 studies respectively. In both these countries officially supported research also predominates, but is carried out generally by private or government-sponsored research bodies rather than within government departments or agencies. In the case of France a number of the studies were carried out by the *Centre national de la recherche scientifique*, including ten conducted within the framework of a special research project on automation undertaken between 1956 and 1958. The present tabulation also contains two studies made by the *Institut des sciences sociales du travail.*

Six of the French case studies stemmed from projects undertaken at the international level by the former European Productivity Agency (E.P.A.). These include a study of the attitudes of steel workers to technological change, completed in 1957, papers prepared for a trade union seminar convened by the E.P.A. in 1956, and a more recent study concerning the

TABLE I. NUMBER OF CASE STUDIES TABULATED BY COUNTRY

Country	Single cases	Composite studies	Total
Australia	3	1	4
Austria	0	1	1
Belgium	4	0	4
Canada	1	5	6
France	26	3	29
Federal Republic of Germany	28	0	28
India	1	0	1
Italy	1	0	1
Japan	2	0	2
Netherlands	2	0	2
Sweden	7	0	7
U.S.S.R.	5	9	14
United Kingdom	10	2	12
United States	39	10	49
Total	129	31	160

impact of office automation. As will be seen below, a number of the case studies made in Western European countries which have been included in this survey were carried out within the framework of the international research projects of the E.P.A.

Five French studies analysing the effects of technological change on trade union action in particular cases have been included, as well as several long-term historical surveys of the effects of new techniques in certain industries—notably steel-rolling mills and the watchmaking industry.

Twenty-five of the 28 studies prepared in the Federal Republic of Germany constituted a special research project financed by government funds but carried out by a private organisation, the *IFO-Institut für Wirtschaftsforschung*. Two of the remaining studies were carried out within the framework of the international projects organised by the E.P.A., while the third is a study of office automation made by two university professors, also with government support.

Of the 14 studies included from the U.S.S.R., three were carried out by official research institutes and the remaining 11 were the work of individual researchers.

The United Kingdom is represented by 12 studies. Two were carried out and published by the Ministry of Labour. Seven others were undertaken within the framework of the international research projects sponsored by the E.P.A., and, of these, two were carried out by the Department of Social Sciences of the University of Liverpool. Other studies included from the United Kingdom were undertaken by the Tavistock Institute or by independent researchers.

In Belgium, Italy and the Netherlands a number of the case studies covered were part of the E.P.A. project on workers' attitudes to technological change in the steel industry. The seven Swedish studies were carried out within the framework of an E.P.A. study of automation.

In Canada all six studies included were carried out by the federal Government as part of a long-term research project on the training of skilled manpower.

The four Australian studies appear to have been done privately, although they are reported in the official bulletin published by the Department of Labour and National Service.

There are very few studies from Asian countries—only one from India and two from Japan—and none from Latin America.

It will be noted that most of the U.S.S.R. and Canadian studies are composite studies, whereas individual studies predominate for all other countries (except Austria).

Table II shows the distribution by country of the industries studied, arranged in declining order of frequency of coverage.

It should not be concluded, *a priori*, that the industries which have been the focus of most studies are those which have experienced the greatest impact of technological change. Decisions to undertake studies in the field under review are affected by factors other than the technological level of the industry or the existence of social problems arising from the introduction of new techniques—for example availability of funds, accessibility of plants, policy decisions of public authorities.

Nevertheless, the ten industries most frequently studied include automobile manufacturing, machinery, metal products, basic metals, petroleum and coal products, and banks and insurance, which are known to be areas particularly affected by the penetration of new techniques. However, the distribution of studies over a variety of different sectors gives an indication of the broad field in which technological changes are taking place.

The three countries with the greatest number of studies reviewed—the

TABLE II. FREQUENCY OF COVERAGE OF DIFFERENT INDUSTRIES [1]

Kind of industry [2]	Australia	Austria	Belgium	Canada	France	Federal Republic of Germany	India	Italy	Japan	Netherlands	Sweden	U.S.S.R.	United Kingdom	United States	Total
Automobile manufacturing (38)	—	—	—	*2*	6	1	—	—	1	—	—	*7*	—	3	*9* + 11 = 20
Machinery except electrical (36)	—	—	—	*2*	1	—	—	—	—	—	—	*9*+4	—	—	*11* + 5 = 16
Basic metals (steel) (34)	—	*1*	1	—	*2*+1	2	—	—	—	1	1	*1*	3	—	*4* + 9 = 13
Food products (20)	1	—	—	—	2	2	—	—	—	—	2	—	—	3	10
Metal products (35)	—	—	3	—	1	1	1	1	—	—	1	—	1	1	10
Electrical machinery (37)	—	—	—	*1*	1	1	—	—	—	—	2	*2*	—	3	*3* + 7 = 10
Insurance companies (63)	1	—	—	1	1	1	—	—	—	—	—	—	—	5	9
Footwear, clothing (24)	—	—	—	—	—	4	—	—	—	—	—	*2*	—	3	*2* + 7 = 9
Banks (62)	—	—	—	—	2	2	—	—	—	—	—	—	—	4	8
Petroleum and coal products (32)	—	—	—	—	3	—	—	—	—	—	—	—	2	2	7
Electricity, gas and steam (51)	1	—	—	—	1	—	—	—	—	—	—	*1*	1	3	*1* + 6 = 7
Agriculture (01)	*1*	—	—	—	—	—	—	—	—	—	—	—	—	*5*	*6*
Wholesale and retail trade (61)	—	—	—	—	—	3	—	—	—	—	—	—	—	3	6
Non-metallic mineral products (33)	—	—	—	—	1	2	—	—	—	—	1	—	1	—	5
Construction (40)	—	—	—	—	1	2	—	—	—	—	—	*2*	—	—	*2* + 3 5
Coal mining (11)	—	—	—	—	—	—	—	—	—	—	—	*3*	*1*	—	*4*
Paper and paper products (27)	—	—	—	—	—	2	—	—	—	—	—	—	—	*1*+1	*1* + 3 = 4
Printing and publishing (28)	—	—	—	—	2	—	—	—	—	—	—	—	—	2	4
Chemicals (31)	—	—	—	—	1	1	—	—	1	—	—	—	—	1	4
Transport (71)	—	—	—	—	1	1	—	—	—	—	—	—	—	2	4
Textiles (23)	—	—	—	—	—	1	—	—	—	—	—	*1*	1	—	*1* + 2 = 3
Communications (73)	—	—	—	—	—	—	—	—	—	1	—	—	—	2	3
Crude petroleum (13)	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
Stone quarrying, etc. (14)	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Other non-metallic mining (19)	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Miscellaneous manufacturing (39)	—	—	—	—	*1*	—	—	—	—	—	—	—	—	—	*1*
Government services (81)	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Business services (83)	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Personal services (85)	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1

[1] Studies of a composite nature, dealing with several different industries, are included in the table only in cases in which it was possible to identify the industries separately; the figures relating to such studies are given in *italics*.

[2] The figures in brackets are those used for the branches of activity concerned in United Nations Statistical Office: *International Standard Classification of All Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 1 (New York, 1958).

United States, France and the Federal Republic of Germany—show a broad range of interest, 17 different industries being covered in each. The 14 studies included from the U.S.S.R. cover ten different industries, and the 12 studies from the United Kingdom cover eight.

For the automobile industry, which occupies a predominant place among the industries covered, the U.S.S.R. and France have the largest number of studies. Five of the six French studies concern the Renault automobile works, which have had extensive experience in the development and use of automatic equipment. The U.S.S.R. has also an exceptionally large number of studies—12 in all (some of which are grouped in the composite studies)—in the field of " machinery except electrical ", the second most frequently covered industry.

The large number of studies made in the basic metals and metal products industries is due, partly at least, to the research project carried out by the E.P.A. several years ago in respect of this industry in Western European countries. It is noteworthy that there are no studies in these industries emanating from Canada and only one from the United States. However, the food products, electrical machinery and footwear and clothing industries are well represented in the studies from the United States, with three each. The Federal Republic of Germany has four studies and the U.S.S.R. two studies relating to the footwear and clothing industries.

Office automation has been particularly well covered in the studies coming from the United States, five of which deal with insurance companies and four with banking institutions. Studies in these sectors also come from Australia, Canada, and, more frequently, France and the Federal Republic of Germany. There are studies on the petroleum industry from the United Kingdom, France and the United States, while several studies of a composite nature in the field of agriculture have been included from the United States and one from Australia. Three studies each in the distributive trades, wholesale and retail, are included from the Federal Republic of Germany and the United States.

SUBJECTS COVERED IN THE CASE STUDIES

2

For the purpose of this analysis the case studies have been regarded as investigations of the effects of the introduction of technological changes on the work situation in a plant. The column headings in tables III and IV relate therefore to the kinds of problems which can be examined at plant level, disregarding those which may occur outside the undertaking (such as employment effects in the community or region as a whole, or the readaptation of displaced workers outside the plant). Similarly, in the choice of headings, the emphasis was placed on the economic, employment and occupational effects of the new techniques since it was to be expected that these were the aspects which were of the greatest importance and which would have been most frequently examined. Since the tabulation could not possibly indicate each topic which might be covered in a case study, the column headings were designed to be broad enough to include a general area while specific enough to discriminate between important elements of a topic. Some explanation of the kind of information coded in the different columns of the tabulation by subject-matter (tables III A and IV on pp. 21-22 and 26-87) is therefore in order.

Where a case study describes the general economic situation at the time of the technological change in the enterprise, this is indicated by a cross in column 2 headed " Over-all economic situation ". Similarly, where a case study gives information on the position of the enterprise in the industry, its profitability, business outlook, etc., this fact is indicated in column 3 headed " Business situation of enterprise ".

Indications of the type of technological change introduced in the enterprise and leading to the case study are given in column 4 headed " New machinery ", column 5, " New products ", column 6, " New materials", and column 7, "New control devices". In many instances the studies report more than one type of change occurring at the same time.

TABLE III A. FREQUENCY OF

Country (number of studies)	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
Australia (4) . .	2	3	4	3	1	2	4	4	3	3	2
Austria (1) . . .	—	1	1	1	—	—	1	—	1	—	—
Belgium (4) . . .	1	3	4	—	1	—	4	4	3	—	1
Canada (6) . . .	5	6	6	5	3	5	5	5	5	5	4
France (29) . . .	11	19	23	5	2	12	18	9	15	15	10
Federal Republic of Germany (28)	7	24	28	5	3	11	23	23	26	27	4
India (1)	1	1	1	—	—	—	1	1	1	1	1
Italy (1)	1	1	1	—	—	—	1	1	1	1	—
Japan (2)	2	2	2	—	2	2	—	2	2	2	2
Netherlands (2) .	2	2	2	1	—	1	2	2	2	2	1
Sweden (7) . . .	—	5	7	—	—	2	—	7	6	5	6
U.S.S.R. (14) . .	3	—	14	—	1	14	14	5	5	11	3
United Kingdom (12)	4	8	12	3	1	7	5	9	5	5	5
United States (49)	6	29	49	8	8	18	26	35	23	29	18
Total 160 . . .	45	104	154	31	22	74	104	107	98	106	57
Percentages of total	(28)	(65)	(96)	(19)	(14)	(46)	(65)	(67)	(61)	(66)	(36)

The heading of column 9, " Motives for technological change ", refers to reasons given in the case study, such as reduction of labour costs, improvement of quality, increase of output, etc.

The information given in a case study on the effects of a change on employment (columns 14 to 17) is indicated under four subheadings. A cross in column 14, " Change in total number of employed persons ", refers to total employment in the plant, which may have increased, decreased or remained the same after the change. A cross in column 17,

COVERAGE OF DIFFERENT SUBJECTS

Employment effects				Occupational effects						Adjustment of personnel			Wage effects	
Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems
4	1	3	3	4	2	2	4	3	2	4	3	1	2	1
—	1	1	—	1	1	1	1	1	—	—	—	—	—	—
4	—	3	3	1	1	1	4	3	3	4	4	3	4	4
5	1	3	3	5	5	4	6	2	1	6	6	2	1	—
19	5	10	14	17	19	14	28	22	17	21	20	15	15	17
27	16	15	27	23	25	15	28	28	4	20	18	21	23	25
1	—	—	1	1	1	1	1	1	1	1	1	1	1	—
1	—	1	1	1	1	—	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	—	1	2	2	2	1	2	2	1	2	2	1	2	—
5	2	1	6	—	1	—	2	6	3	5	3	5	2	—
9	1	1	7	13	13	12	14	13	2	11	11	—	5	2
6	—	2	10	4	5	4	9	9	8	6	9	9	5	6
32	8	9	35	17	16	16	32	25	15	38	32	31	30	14
117	37	52	114	91	94	73	134	118	60	121	112	92	93	72
(73)	(23)	(33)	(71)	(57)	(59)	(46)	(84)	(74)	(38)	(76)	(70)	(58)	(58)	(45)

" Displacement effects ", refers to information given in the case study on the transfer of workers out of the automated sector to other departments (whether or not total employment has changed).

The information given in a case study concerning occupational effects of the change (columns 18 to 23) may relate to structural changes in the workforce or industry studied, for example a change in the proportion of production to non-production workers (column 18 " Change in proportion of direct labour ") and a rising proportion of maintenance

workers or of highly skilled technical and professional staff (columns 19, " Change in occupational structure of direct production labour ", and 20 " Change in occupational structure of non-production labour ").

Column 22 headed " Changes in occupational conditions " refers to information both on conditions of employment (hours of work, overtime, shift work, promotion possibilities, etc.) and on the physical environment at the workplace, effects on safety and health, organisation and pace of work, and related matters.

Column 23 headed " Change in social inter-action " covers all references to changing relationships among workers and between workers and supervisors, at different levels within the undertaking, as a result of changes introduced in the work process. It also includes the reactions and attitudes of workers themselves to the process of change and to the new techniques and methods.

The first two columns (24 and 25) under the heading " Adjustment of personnel " refer to two aspects of adjustment: training programmes and recruitment. Under the former, where a study provides information concerning the training or retraining of workers for new types of jobs, this fact is noted. In the latter a cross indicates that methods of selection or recruitment of personnel for automated jobs are discussed in the case study, or that mention is made of the need to recruit new staff because of changes in qualifications required.

Column 26 entitled " Labour-management practices regarding personnel adjustment " covers references to many types of action, including information and communication procedures, methods of joint consultation and negotiation, redundancy compensation, transfer and retraining programmes, early retirement arrangements, etc. Also included here are any remarks concerning the effects of the introduction of new techniques on labour-management relationships generally.

A cross in column 27, " Effects on wage levels ", indicates that the study refers to the upgrading or downgrading of some workers, or to the reclassification of jobs consequent upon the introduction of automation. Studies which describe the effects on job evaluation programmes or on wage incentive plans are coded in column 28, " Effects on wage payment systems ".

Frequency of Coverage

The main tabulation of the 160 case studies by subjects covered is presented as table IV (pp. 26-87).

A general summary is given in table III B showing the frequency of coverage of the different subjects in the case studies. Some general

observations on the frequency of certain types of information in the case studies are given below.

Background Information

In two-thirds of the studies information was provided concerning the business situation of the undertaking surveyed and the motives for introducing technological changes; background information on the general economic situation at the time of the changes was less frequently presented.

Kinds of Technological Change

In almost all the cases studied the technological change involved new machinery; in approximately half of the cases new control devices had also been installed. There were not many instances involving new products or new materials, whereas two-thirds of the studies concerned " other " kinds of technological change. This category included changes in organisation and methods of work, shifts in plant location with construction of new facilities, and so forth. These occurred in conjunction with the other types of changes mentioned above.

Economic Effects

The economic consequences of the changes in terms of production capacity and/or productivity were mentioned in approximately two-thirds of the cases, whereas only one-third referred to any change in the structure of operating costs due to investment in new equipment.

Employment Effects

Within the framework of the four topics in the general category " Employment effects " almost three-quarters of the studies touched on the change in the total number of employees and on displacement effects. Relatively few studies provided any information on a change in age distribution or in the sex distribution of the workforce caused by the introduction of new techniques.

Occupational Effects

The overwhelming bulk of the studies dealt with the change in occupational requirements which grew out of the technological change. Another question that received a high degree of attention was that of changes in occupational conditions (covering, as has been explained, a wide variety of issues). Approximately half the studies provided a more detailed

TABLE III B. SUMMARY

Kind of information	Number of studies	Percentage of total
Background information:		
Motives for technological change	107	67
Business situation of enterprise	104	65
Over-all economic situation	45	28
Kinds of technological change:		
New machinery	154	96
Others	104	65
New control devices	74	46
New products	31	19
New materials	22	14
Economic effects:		
Change in productivity	106	66
Change in production capacity	98	61
Change in value of equipment	57	36
Employment effects:		
Change in total number of employed persons	117	73
Displacement effects	114	71
Change in age distribution	52	33
Change in sex proportion	37	23
Occupational effects:		
Change in occupational requirements	134	84
Change in occupational conditions	118	74
Change in occupational structure of direct production labour	94	59
Change in proportion of direct production labour	91	57
Change in occupational structure of non-production labour	73	46
Change in social inter-action	60	38
Adjustment of personnel:		
Kinds of training programmes	121	76
Recruitment of personnel	112	70
Labour-management practices regarding personnel adjustment	92	58
Wage effects:		
Effects on wage levels	93	58
Effects on wage payment systems	72	45

examination of the occupational effects by presenting data on changes in the proportion of direct production labour and information on the change in the occupational structure of direct production labour. Somewhat less than one-half of the cases touched on the occupational structure of non-production labour, while sociological and psychological questions were considered in roughly one-third of the studies.

Adjustment of Personnel

There was considerable interest in methods of adjustment of personnel, including training programmes and recruitment aspects. These topics were considered in three-quarters of the studies. Somewhat less interest was evinced in studies of labour-management practices.

Wage Effects

Approximately half of the studies examined the effects of technological change on wage levels; fewer studies were concerned with methods of wage determination or wage payment as affected by technological change.

Summary

It would appear from the survey that it is the effects of technological changes on occupational requirements, working conditions and employment which have been of concern to the majority of researchers who have undertaken case studies in many different countries. Although the frequency of mention of these aspects does not by itself indicate that they were the main subject of investigation in the majority of cases, a glance at the comments under the heading " Emphasis of study " (column 29 of table IV) shows that these topics. particularly changes in occupational requirements, were uppermost in the minds of most of the researchers. Structural changes occurring in the workforce, the impact on wages, and labour-management practices regarding personnel adjustment have, however, also received widespread attention.

Inter-country comparisons show certain variations in the level of interest in different subjects—for instance, the " change in social interaction " was studied in 17 out of 29 cases in France but only in four out of 28 cases in the Federal Republic of Germany and in 15 out of 49 cases in the United States. Changes in occupational structure of both production and non-production labour were covered in almost all the cases from the U.S.S.R., but only in about one-third of those included from the United States. The significance of such comparisons should not be exaggerated, however, in view of the scattered nature of the coverage achieved.

TABLE IV. SUBJECTS COVERED BY THE INDIVIDUAL CASE STUDIES

(The numbers in *italics* in the table refer to studies of a composite nature, covering more than one plant, which are reported collectively)

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	Kinds of technological change: New products	Kinds of technological change: New materials	Kinds of technological change: New control devices	Kinds of technological change: Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Economic effects: Change in productivity	Economic effects: Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Australia													
119	Agriculture (sugar cane harvest)	+	+	+	+	–	–	+	+	1959-1962	+	+	+
47	Bakery	–	+	+	+	–	+	+	+	1960	+	+	–
111	Insurance company	–	–	+	–	–	–	+	+	1959-1962	–	–	–
1	Gas production (industry)	+	+	+	+	+	+	+	+	1955-1962	+	+	+
Austria													
8	Steel and aluminium plants	–	+	+	+	–	–	+	–	1952-1959		–	–

* For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Australia																
119	+	−	+	+	+	+	+	+	+	−	+	−	−	+	−	Farm labour employment
47	+	−	+	−	+	+	+	+	+	+	+	+	+	+	+	Change in occupational requirements; training of personnel
111	+	+	+	+	+	−	−	+	+	+	+	+	−	−	−	Change in occupational requirements; recruitment and training of personnel
1	+	−	−	+	+	−	−	+	−	−	+	+	−	−	−	Change in production technology, in occupational requirements
Austria																
8	−	+	+	−	+	+	+	+	+	−	−	−	−	−	−	Change in occupational structure and requirements

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Belgium													
117	Steel mill	+	+	+	−	−	−	+	+	1945-1955	+	−	+
24	Steel mill (thin plate manufacturing)	−	+	+	−	−	−	+	+	1948-1955	−	−	−
25	Steel mill (central maintenance workshop in an iron and steel plant)	−	−	+	−	+	−	+	+	1946-1955	+	−	−
26	Steel mill (thin plate manufacturing)	−	+	+	−	−	−	+	+	1948-1957	+	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Belgium																
117	+	−	−	−	+	−	+	+	−	−	+	+	+	+	+	Organisation, administration, staffing (management view)
24	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	Change in production process; change in occupational conditions; workers' attitudes to change
25	+	−	+	+	−	+	−	+	+	+	+	+	−	+	+	Introduction of new machinery; change in working conditions; workers' attitudes to change
26	+	−	+	+	−	−	−	+	+	+	+	+	+	+	+	Introduction of new manufacturing process; transfer of personnel to new plant; change in working conditions; workers' attitudes to technical change

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Canada													
16	Heavy machine industry	+	+	+	+	−	+	+	+	1956	+	+	+
14	Electrical and electronics industry	+	+	+	+	−	+	+	+	1956	+	+	−
12	Automobile industry	+	+	+	+	+	+	+	+	1948-1958	+	+	+
13	Manufacturing of automotive parts (industry)	+	+	+	+	+	+	+	+	1948-1958	+	+	+
17	Manufacturing of household appliances (industry)	+	+	+	+	+	+	+	+	1957	+	+	+
15	Insurance company	−	+	+	−	−	−	−	−	1958-1960	−	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Canada																
16	+	−	−	−	+	+	+	+	−	−	+	+	−	−	−	Change in occupational requirements; training of personnel
14	+	−	−	−	+	+	+	+	−	−	+	+	−	−	−	Idem
12	+	−	+	+	+	+	−	+	−	−	+	+	+	+	−	Idem
13	+	−	+	+	+	+	−	+	−	−	+	+	+	−	−	Idem
17	+	−	−	+	+	+	+	+	+	−	+	+	−	−	−	Idem
15	−	+	+	−	−	−	+	+	+	+	+	+	−	−	−	Electronic data-processing occupations; job descriptions

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
France													
42	Manufacture of automobiles	+	+	+	−	−	+	+	+	1946-1956	+	+	+
92	Bank	+	−	+	−	−	−	+	+	1959-1962	−	−	−
101	Biscuits	−	+	+	−	−	+	+	−	1956-1958	+	+	−
102	Sugar cubes	−	+	+	−	−	+	−	−	1956-1958	−	−	−
103	Telephone directory	−	+	+	−	−	−	+	−	1956-1958	+	+	−
104	Typesetting	−	−	+	−	−	+	+	+	1956-1958	−	+	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(cont.)*																
42	+	−	−	+	+	+	+	+	+	+	+	+	−	+	+	Change in occupational requirements and conditions; training of personnel
92	−	−	−	−	−	−	+	+	−	+	+	+	+	−	−	Workers' attitudes to technical change; organisational changes
101	+	+	+	−	+	+	+	+	+	−	−	−	−	−	+	Occupational changes and requirements
102	+	−	−	−	+	+	+	+	+	−	+	−	−	+	+	Idem
103	−	−	+	−	−	+	−	+	+	+	−	+	+	+	+	Occupational changes; job classification; workers' attitudes to technical change
104	−	+	−	+	−	−	−	+	+	−	+	+	+	−	−	Occupational changes; workers' attitudes to technical change

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
France *(cont.)* **105**	Plaster slabs	−	+	+	+	+	−	−	+	1957-1958	−	−	−
106	Galvanised tin	−	−	−	+	−	+	+	−	1958	+	+	−
107	Lime and cement	−	+	+	−	−	−	−	+	1957-1958	+	+	−
108	Potash mines	−	+	+	−	−	+	+	−	1957-1958	+	+	−
109	Petroleum refining	−	+	+	−	−	+	−	−	1957-1958	−	−	−
93	Bank	−	−	+	−	−	−	−	−	1958-1959	−	−	−

* *For columns 14-29, see page below*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(cont.)*																
105	+	−	+	−	−	+	−	+	+	+	−	−	+	+	+	Changes in qualifications, job requirements, wages and classification systems
106	+	−	−	+	+	+	+	+	+	−	+	+	+	+	+	Occupational changes; working conditions
107	+	−	−	+	+	+	+	+	+	−	+	+	−	+	+	Employment; occupational changes; working conditions
108	+	−	−	+	+	+	−	+	+	−	+	+	−	+	+	Occupational changes; qualifications; interchangeability
109	+	−	+	−	+	+	−	+	+	−	+	−	−	−	+	Occupational changes; age distribution; training; interchangeability
93	−	−	−	−	−	−	+	+	−	+	−	−	+	−	−	Promotion problems; workers' attitudes to technical change

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
France *(cont.)*													
87	Office machines, electronic equipment	+	+	−	+	−	−	+	−	1958	+	+	+
88	Petroleum refinery	+	+	−	+	−	−	+	−	1958	+	+	+
89	Electrical machinery, household appliances. etc.	+	+	−	+	−	−	+	−	1961	+	−	+
123	Automobile manufacturing	+	+	+	−	−	−	+	−	1948-1954	+	+	−
32	Idem	−	+	+	−	−	+	−	−	1956-1957	+	+	+

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(cont.)*																
87	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	Organisation and structure; salaries; trade union activities
88	−	−	−	−	+	−	−	+	+	+	+	+	+	+	+	Financial structure; trade union organisation and action
89	+	−	+	−	+	+	+	+	−	+	+	+	+	−	−	Organisation and structure; trade union organisation and action
123	+	−	−	+	+	+	+	+	−	+	+	−	−	−	−	Occupational changes; skill requirements; professional standing
32	+	−	−	+	−	+	+	+	+	+	+	−	+	+	−	Changes in productivity, occupational requirements; adjustment of personnel; wages

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
1		2	3	4	5	6	7	8	9	10	11	12	13 *
France *(cont.)*													
86	Automobile manufacturing	−	−	+	−	−	+	−	−	1956-1958	−	−	+
156	Idem	−	+	+	−	−	−	−	−	1946-1956			+
4	Idem	−	−	−	−	−	−	+	+	1957-1959	−	−	−
5	Soap manufacturing	+	+	−	−	−	−	+	−	1959	−	−	−
31	Gas company	−	+	+	−	+	−	+	+	1956-1957	−	−	+
7	Insurance	−	−	+	−	−	−	−	−	1958-1962	−	−	−
11	Petroleum refining	+	+	+	−	−	+	+	−	1951-1956			+

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(cont.)*																
86	—	—	—	—	—	—	—	+	+	—	+		—	—	—	Working conditions; occupational changes; training
156		—	—	—		+	—			—			—	—	—	Working conditions; occupational changes
4	—	—	—	+	—	+	—	+	—	+	—		—			Organisation of work; job rotation; workers' attitudes to technical change
5	—	—	—	—	—	—	—		—	+	—		—			Idem
31		—	—	+	—	—	—	+	—	—			—	—	—	Problems of organisation; financial and labour economies
7	—	+		+	—	—	—		+	+	—					Change in working conditions; human aspects
11	+	—	+	+	+	+	+	—	+	—						Trade union activities and attitudes

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
France *(cont.)*													
44	Railway transport (S.N.C.F.)	−	+	+	−	−	−	+	+	1955	−	+	−
20	Steel mills	+	−	+	−	−	+	−	−	1956-1958	−	−	
155	Idem	+	−	+	−	−	−	−	+	1850-1955	−	−	−
79	Watchmaking industry	+	−	+	−	−	−	+	−	1900-1954		−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(cont.)*																
44	+	−	+	+	−	+	−	+	+	−	+	+	+	−	+	Occupational requirements and conditions; labour-management relations
20	−	−	−	−	+	−	−	+	+	+	+	−	−	−	−	Changes in working conditions, occupational requirements, social relations
155	+	−	−	−	+	+	+	+	+	+	+	+	+	−	−	Changes in working conditions, occupational requirements; social relations; workers' attitudes to technical change
79	+	+	+	−	+	−	−	+	+	+	+	−	−	−	−	Occupational changes; skill requirements; training; employment

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
France *(concl.)*													
28	Steel mill	−	+	+	−	−	+	+	−	1954-1957	+	+	−
Federal Republic of Germany													
67	Stone quarry and production of lithographic and other artificial stones	−	+	+	−	−	−	+	+	1954-1956	+	+	−
59	Manufacture of meat products	−	+	+	−	−	−	+	+	1952-1959	+		−
60	Manufacture of fish products	−	+	+	−	+	−	+	+	1956-1959	+	+	−
61	Manufacture of cloth	+	+	+	−	−	−	−	+	1956-1959	+	+	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
France *(concl.)*																
28	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	Workers' attitudes to technical change; occupational changes and requirements
Federal Republic of Germany																
67	+	+	+	+	+	+	−	+	+	−	+	−	+	−	−	Change in occupational structure of personnel
59	+	+	−	+	+	+	+	+	+	−	−	+	+	+	+	Change in occupational structure and requirements
60	+	+	−	+	+	+	−	+	+	−	+	−	+	+	+	Idem
61	+	+	−	+	+	+	−	+	+	−	+	−	+	+	+	Idem

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Federal Republic of Germany *(cont.)*													
62	Manufacture of men's head-gear	−	+	+	−	−	−	+	+	1951-1959	+	+	−
63	Manufacture of footwear	+	+	+	−	−	−	+	+	1956-1959	+	+	−
64	Idem	+	+	+	+	−	−	+	+	1957-1960	+	+	−
65	Idem	−	+	+	−	−	−	+	+	1954-1959	+	+	−
56	Manufacture of paper	−	+	+	−	−	+	+	+	1949-1959	+	+	−
57	Idem	+	+	+	−	−	−	+	+	1959	+	+	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Federal Republic of Germany *(cont.)*																
62	+	+	−	+	−	+	−	+	+	−	−	−	+	+	+	Change in occupational structure and requirements
63	+	+	−	+	+	+	−	+	+	−	−	−	−	+	+	Idem
64	+	+	+	+	−	+	−	+	+	−	+	+	−	+	+	Change in occupational requirements and conditions
65	+	−	−	+	+	+	−	+	+	−	+	+	+	+	+	Change in occupational requirements
56	+	−	−	+	+	+	+	+	+	−	+	+	−	+	+	Change in occupational requirements; change in wage payment system
57	+	+	+	+	−	+	−	+	+	−	+	+	+	+	+	Change in occupational structure

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Federal Republic of Germany *(cont.)*													
58	Manufacture of chemicals	−	+	+	−	−	−	+	+	1955-1959	+	+	−
66	Manufacture of building materials and mining of raw materials	−	+	+	−	−	+	+	−	1957-1959	+	+	−
68	Manufacture of stoneware	+	+	+	−	−	−	+	−	1959	+	+	−
53	Manufacture of wire	−	+	+	+	−	+	−	+	1959	+	+	−

* *For columns 14-29, see page below.*

Country and number of study		Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
		Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Federal Republic of Germany *(cont.)*	58	+	−	+	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational requirements; training; labour-management relations
	66	+	−	+	+	−	+	−	+	+	−	−	−	+	+	+	Change in occupational structure; labour-management relations
	68	+	−	+	+	+	+	+	+	+	−	−	+	+	+	+	Change in occupational structure and requirements
	53	+	−	+	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational structure and requirements; training; wage payment system

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Federal Republic of Germany *(cont.)*													
55	Manufacture of electrical machinery	–	–	+	–	–	+	+	–	1953-1959	+	↕	–
54	Manufacture of automobiles	–	–	+	–	–	+	+	–	1949-1959	+	↕	–
69	Construction	–	+	↕	+	+	+	+	+	1950-1960	↕	↕	+
70	Idem	–	+	↕	+	↕	+	+	↕	1952-1959	↕	↕	↕
71	Retail trade	–	–	↕	–	–	+	+	–	1953-1959	↕	↕	–

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Federal Republic of Germany *(cont.)*																
55	+	+	+	+	+	+	−	+	+	−	+	+	+	+	+	Change in occupational structure; wage payment system
54	+	−	−	+	+	+	+	+	+	−	−	−	−	−	−	Change in occupational structure and requirements
69	+	−	−	+	+	+	+	+	+	−	−	−	+	−	+	Change in occupational conditions and requirements
70	+	−	−	+	+	+	+	+	+	−	−	+	+	+	+	Change in occupational conditions and requirements; labour-management relations
71	+	+	−	+	+	+	−	+	+	−	+	−	−	+	+	Change in occupational structure; wage payment system

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Federal Republic of Germany *(cont.)*													
72	Mail order house	−	+	+	−	−	+	+	+	1953-1958	·	+	−
73	Wholesale trade	−	+	+	−	−	−	−	+	1958-1960	·	+	−
76	Credit bank	−	+	+	−	−	−	−	+	1955-1959	·	·	−
75	Insurance carrier (old-age and survivors' insurance, general scheme)	+	+	+	+	−	−	+	+	1954-1960	·	·	−
77	Transport (urban and suburban passenger lines)	−	+	+	−	−	+	+	+	1950-1959	+	·	+

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Federal Republic of Germany *(cont.)*																
72	+	−	+	+	+	+	+	+	+	−	+	−	−	+	+	Change in occupational structure and requirements
73	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational structure; adjustment of personnel
76	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	Change in occupational structure and requirements
75	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	idem; training of personnel
77	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational structure and conditions

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Federal Republic of Germany *(concl.)*													
74	Accounting service	−	+	+	−	−	−	+	+	1954-1959	+	+	−
33	Smelting and casting (radiators)	−	+	+	−	−	−	+	+	1952-1957	−	+	−
27	Steel mill	+	+	+	−	−	+	−	+	1945-1954	+	−	−
80	Accounting service in banks, insurance and industrial companies	−	−	+	−	−	−	+	+	1960-1962	−	+	+
India													
118	Manufacture of nuts and bolts	+	+	+	−	−	−	+	+	1962	·	+	+

* For columns 14-29, see page below

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Federal Republic of Germany *(concl.)*																
74	+	−	−	+	+	+	+	+	+	+	+	+	−	+	+	Change in occupational conditions and requirements
33	+	−	+	−	−	−	−	+	+	+	+	+	+	+	+	Job changes; skill requirements
27	+	+	+	+	+	−	−	+	+	−	+	+	+	−	−	Workers' attitudes to technical change
80	−	+	+	+	+	−	+	+	+	+	+	+	+	−	+	Change in occupational conditions and requirements; workers' attitudes to technical change; training of personnel
India																
118	+	−	−	+	+	+	+	+	+	+	+	+	+	+	−	Change in occupational conditions and requirements; effect on wage levels

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Economic effects			
				New machinery	New products	New materials	New control devices	Others		Duration of study period	Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Italy													
34	Production of seamless steel tubes	+	+	+	−	−	−	+	+	1950-1954	:	:	−
Japan													
121	Automobile industry	+	+	+	−	+	+	−	+	1 year	+	+	+
122	Chemical industry	+	+	+	−	+	+	−	+	1 year	+	+	+
Netherlands													
116	Postal and telecommunications service (P.T.T.)	+	+	+	+	−	+	+	+	1930-1960	+	+	+

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Italy 34	+	−	+	+	+	+	−	+	+	+	+	+	+	+	+	Change in occupational conditions and requirements; social inter-action; effects on wage levels
Jap. 121	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Education; social changes in the community
122	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Idem
Netherlands 116	+	−	−	+	+	+	+	+	+	−	+	+	−	+	−	Kinds of technological change; change in occupational requirements

TABLE IV *(cont.)*

Country and number of study		Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
		1	2	3	4	5	6	7	8	9	10	11	12	13 *
Netherlands *(concl.)*	**30**	Steel mill (Koninklijke Nederlandsche Hoogovens en Staalfabriken)	+	+	+	−	−	−	+	+	1951-1955	+	+	−
Sweden	**35**	Sewing-machine manufacturing	−	−	+	−	−	−	−	+	1957	−	−	+
	36	Electric fuses	−	+	+	−	−	−	−	+	1957	+	+	+
	37	Coffee roasting	−	+	+	−	−	−	−	+	1957	+	+	+
	38	Telephone switch-boards	−	−	+	−	−	−	−	+	1957	+	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Netherlands *(concl.)* 30	+	−	+	+	+	+	−	+	+	+	+	+	+	+	−	Kinds of technological change; change in occupational requirements; labour-management practices regarding adjustment of personnel
Sweden 35	−	−	−	+	−	−	−	−	−	−	−	−	−	−	−	Financial and labour economies
36	+	+	−	+	−	+	−	+	+	−	+	+	+	−	−	Financial economies; change in occupational requirements
37	+	−	−	+	−	−	−	−	+	+	+	−	+	−	−	Improvement in quality of product; working conditions
38	+	+	−	+	−	−	−	−	+	−	−	−	−	−	−	Financial economies

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
Sweden *(concl.)*													
39	Iron foundry, castings	−	+	+	−	−	−	−	+	1957	+	+	+
40	Glass manufacturing	−	+	+	−	−	+	−	+	1957	+	+	+
41	Milling and baking bread	−	+	+	−	−	+	−	+	1957	+	+	+
U.S.S.R.													
23	Manufacture of pistons	−	−	+	−	−	+	+	+	−	+	+	−
82	Various industries	−	−	+	−	−	+	+	−	+	−	+	−
2	Idem	−	−	+	−	−	+	+	−	+	−	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Sweden *(concl.)*																
39	+	−	−	+	−	−	−	−	+	+	+	−	+	−	−	Improvement in quality of product; working conditions
40	+	−	−	+	−	−	−	+	+	−	+	+	+	+	−	Labour economies; change in working conditions
41	−	−	+	−	−	−	−	−	+	+	+	+	+	+	−	Financial aspects; working conditions
U.S.S.R.																
23	+	−	−	−	+	+	−	+	+	+	−	−	−	−	−	Change in technology, occupational conditions
82	−	+	+	+	+	+	+	+	+	−	+	+	−	+	+	Change in occupational requirements, skill and wage structure
2	−	−	−	−	+	+	+	+	+	−	+	+	−	−	−	Effects on skills, structure and training of the labour force

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
U.S.S.R. *(cont.)*													
6	Various industries	−	−	+	−	+	+	+	+	−	−	+	−
19	Ball-bearing undertaking	−	−	+	−	−	+	+	+	+	+	+	+
21	Various industries	+	−	+	−	−	+	+	−	−	+	+	−
78	Idem	+	−	+	−	−	+	+	−	−	−	+	−
110	Idem	+	−	+	−	−	+	+	+	−	−	+	−

* For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
U.S.S.R. *(cont.)*																
6	+	−	−	+	+	+	+			−	+		−	−	−	Change in nature and content of work; job structure
19	+	−	−	−	−	−	−	+	+	−	+	+	−	−	−	Change in occupational requirements and conditions
21	+	−	−	−	+	+	+	+	+	−	+		−		−	Effects on occupational requirements, job structure and training
78	−	−	−	−	+	+	+	+	+		+	+	−		−	Change in occupational requirements, job structure and training
110	−	−	−	+	+	+	+	+	+	−	+	+	−	−	−	Effects on the structure and training of manpower; higher occupational standard for manpower

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
U.S.S.R. *(cont.)*													
120	Ball-bearing undertaking	–	–	+	–	–	+	+	+	–	+	+	+
115	Various industries	–	–	+	–	–	+	+	–	–	–	–	–
83	Petroleum undertakings	–	–	+	–	–	+	+	–	–	+	+	–
160	Tractor manufacture	–	–	+	–	–	+	+	–		–	–	–

*For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
U.S.S.R. *(cont.)*																
120	+	−	−	−	+	+	+	+	+	−	+	+	−	+	−	Change in occupational requirements, skills and wage payment systems
115	−	−	−	−	+	+	+	+	+	−	−	−	−	−	−	Change in occupational conditions, physiology and psychology of workers
83	+	−	−	+	+	+	+	+	+	−	−	−	−	−	−	Effects on occupational requirements, job structure and productivity
160	+	−	−	+	+	+	+	+	+	−	+	+	−	−	−	Effects on occupational requirements, skills and training of personnel

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
U.S.S.R. *(concl.)*													
9	Various industries	−	−	+	−	−	+	+	−	−	−	+	+
157	Idem	−	−	+	−	−	+	+	−	−	−	+	−
United Kingdom													
46	Petroleum refinery	−	+	+	−	−	−	−	+	1960-1963	+	+	+
85	Steel mill	+	+	+	+	−	+	+	+	1951-1955	+	+	+

*For columns 14-29, see page b

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
U.S.S.R. *(concl.)* 9	+	−	−	+	+	+	+	+	−	−	+	+	−	+	+	Change in occupational requirements, skills and job structure
157	+	−	−	+	+	+	+	+	+	−	+	+	−	−	−	Change in occupational requirements, skills, job structure and training of personnel
United Kingdom 46	+	−	−	+	+	+	+	−	+	+	+	+	+	+	+	Labour-management practices regarding personnel adjustment
85	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	Change in occupational conditions; social inter-action; personnel recruitment; labour-management relations

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United Kingdom *(cont.)*													
22	Power plant	+	+	+	−	+	+	+	−	−	+		−
114	Chain restaurants, tea trade	+	+	+	−	−	+	−	+	1951-1956-1957	−		
112	Steel plant, manufacturing seamless bearing tube	+	+	+	+	−	+	+	+	1953-1954	+	+	
113	Oil refinery	−	−	+	+	−	+	−	+	1956	−	−	−

*For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United Kingdom *(cont.)*																
22	+	−	−	+	−	−	−	+	+	+	−	+	+	−	+	Change in occupational requirements; labour-management relations
114	−	−	−	+	−	−	+	+	+	−	+	+	−	−	−	Technical aspects of administrative automation; manpower adjustment
112	+	−	+	+	+	+	+	+	+	−	+	+	−	−	+	Technological changes in production process; changes in occupational conditions
113	+	−	−	+	+	−	−	+	+	−	+	+	+	−	−	Technological changes in production process; changes in occupational conditions and requirements

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United Kingdom *(concl.)*													
43	Glass manufacturing	−	−	+	−	−	+	−	+	1956	+	−	−
29	Steel mill	−	+	+	−	−	+	−	+	1952-1957	−	−	−
125	Textiles	−	+	+	−	−	−	+	−	1961-1962	−	−	−
126	Steel mill	−	+	+	−	−	−	−	−	1961-1962	−	−	−
100	Offices in business and industry	−	−	+	−	−	−	−	+	1961-1963	−	−	+
124	Coal mining	−	−	+	−	−	−	+	+	1948-1950	−	−	−

For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United Kingdom *(concl.)*																
43	−	−	−	+	−	−	−	+	+	−	−	+	+	−	+	Consultation; collective agreements
29	−	−	−	+	−	+	−	+	+	+	−	+	+	+	−	Workers' attitudes to technical change
125	−	−	−	−	−	−	−	−	−	+	−	−	+	−	−	Communications procedures; workers' attitudes to technical change
126	+	−	−	+	−	−	−	−	−	+	−	−	+	+	−	Communications procedures on the introduction of new equipment
100	−	−	−	+	−	−	−	+	−	+	+	+	+	+	−	Impact of computers on staff; organisation; communications; redundancy
124	−	−	−	−	−	+	−	+	+	+	−	−	−	−	+	Changes in occupational conditions; social relations

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change: New machinery	New products	New materials	New control devices	Others	Motives for technological change	Duration of study period	Economic effects: Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United States													
10	Agriculture (green pea harvest)	−	+	+	−	−	−	+	+	1960-1961	−	+	−
159	Agriculture (blueberry harvest)	−	+	+	−	−	−	+	+	1960-1961	−	+	+
131	Agriculture (sugar beet cultivation)	−	+	+	−	+	−	+	+	1960-1961	−	+	−
142	Mechanised bakery	−	+	+	−	−	+	+	+	1950-1955	+	+	−
81	Mechanised meat packing plant	−	+	+	−	−	−	−	−	1959-1962	−	−	−
134	Pulp and paper	−	+	+	+	+	+	+	+	1947-1960	+	+	+

*For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States																
10	+	−	−	+	+	−	−	+	+	−	+	+	−	−	−	Impact of mechanisation on manpower requirements
159	+	+	+	+	−	−	−	−	+	−	−	−	−	−	−	Idem
131	+	−	−	+	−	−	−	+	+	−	−	·	−	+	−	Impact of mechanisation on seasonal hired labour
142	+	−	−	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational requirements; labour-management relations
81	+	+	+	+	−	−	−	−	−	−	+	+	+	+	−	Adjustment of personnel; training of displaced workers
134	+	−	+	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational requirements; training of personnel

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United States *(cont.)*													
143	Modernised petroleum refinery	−	+	+	+	−	+	+	+	1948-1956	+	+	+
45	Automobile factory	−	−	+	−	−	+	+	−	1956-1957	−	−	−
90	Power plant	−	+	+	−	+	+	+	+	1954	+	+	+
18	Insurance company	−	+	+	−	−	+	+	+	1947-1953	+	+	
49	Idem	−	−	+	−	−	−	+	+	1957	−	−	−

**For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
143	+	−	−	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational requirements; training of personnel; labour-management relations
45	−	−	−	+	+	+	−	+	+	+	+	+	−	−	−	Change in occupational conditions; change in social inter-action
90	+	−	+	+	+	+	+	+	+	+	+	+	−	+	−	Change in occupational requirements; change in social inter-action
18	+	−	−	+	+	+	+	+	+	+	+	+	−	+	+	Idem
49	+	−	−	+	−	+	−	+	+	−	+	−	−	+	−	Change in occupational conditions and requirements

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United States *(cont.)*													
141	Manufacture of electronic equipment	+	+	+	+	+	+	+	+	1955	+	+	+
128	Agriculture (potato harvest mechanisation)	−	+	+	−	−	−	+	+	1960	+	+	+
127	Agriculture (cotton harvest mechanisation)	−	+	+	−	−	−	+	+	1961	+	+	+
140	Airline reservation system	−	+	+	−	−	+	+	+	1952-1956	+	+	+
158	Steel mill (seamless pipes)	−	+	+	+	−	+	+	+	1949-1952	+	+	+

*For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
141	+	+	−	+	+	+	−	+	+	−	+	+	+	+	+	Change in occupational requirements; labour-management relations
128	+	−	+	+	+	+	−	+	+	−	−	+	−	+	+	Impact of mechanisation on seasonal hired labour
127	+	−	−	+	+	+	−	+	+	−	+	+	−	+	+	Idem
140	+	−	−	+	+	+	+	+	+	−	+	+	+	+	+	Change in occupational requirements; training; labour-management relations
158	+	−	−	+	+	+	−	+	+	+	+	+	+	+	+	Change in occupational requirements and conditions, in social inter-action

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13*
United States *(cont.)*													
133	Internal revenue service (southern regional office)	+	+	+	+	+	+	+	+	1960-1962	+	+	−
91	Light and power company	−	+	+	−	−	+	+	+	1953-1958	+	+	−
139	Insurance company	+	+	+	−	−	−	+	+	1953-1955	−	−	+
152	Clothing manufacture	−	−	+	−	−	−	−	+	1952	+	+	−
153	Idem	−	−	+	−	−	−	−	+	1952	+	+	−

*For columns 14-29, see page below.

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
133	+	+	+	+	+	+	+	+	+	−	+	+	+	−	−	Displacement effects; training of personnel
91	+	−	+	+	+	+	+	+	+	+	+	+	+	−	−	Effects of change on organisational structure, company policies, job structure, and employment
139	+	+	−	+	+	+	−	+	−	−	+	+	+	+	−	Effects of introduction of a computer on personnel; recruitment and training of new staff; impact on wage levels
152	−	−	−	+	−	−	−	−	−	−	−	+	+	+	+	Labour-management relations; wage and personnel adjustments
153	−	−	−	+	−	−	−	−	−	−	−	+	+	+	+	Idem

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
United States *(cont.)*													
154	Clothing manufacture	−	−	+	−	−	−	−	+	1952	+	+	−
3	Automobile manufacture	−	+	+	−	−	+	+	+	1958	−	−	−
50	Insurance company	−	+	+	−	−	−	−	−	1957-1958	−	−	−
132	Office automation in different industries	−	+	+	−	−	−	−	+	1955-1959	−	+	+
48	Various industries	−	+	+	+	+	+	+	+	1929-1961	−	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
154	+	−	−	+	−	−	−	−	−	−	−	+	+	+	+	Labour-management relations; wage and personnel adjustments
3	−	−	−	−	−	−	−	+	−	−	+	−	+	+	+	Labour-management relations; trade union action; wages
50	−	−	−	−	−	−	−	+	+	+	−	−	+	−	−	Workers' attitudes to office automation
132	+	+	+	+	−	−	+	+	+	−	+	+	+	+	−	Employment effects; older workers' problems
48	−	−	−	+	−	−	−	−	−	−	+	−	−	+	−	Re-employment experience of displaced workers; factors in success or failure; assistance programmes; labour mobility; economic costs of displacement

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
United States *(cont.)*													
51	Various industries	−	−	+	+	+	+	+	−	1947-1955	−	−	−
84	Food manufacturing (biscuits)	−	+	+	−	−	−	+	−	1961-1962	+	+	+
52	Offices in various sectors	+	−	+	−	−	−	−	+	1960	−	−	−
144	Insurance company	−	+	+	−	−	−	−	−	1961-1962	+	+	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
51	−	−	−	−	+	−	+	−	−	−	−	−	−	+	−	Changes in occupational structure, increase in proportion of high-talent manpower
84	+	+	−	+	+	−	−	+	+	+	+	+	+	+	+	Effects on morale of employees; occupational changes; wages; training, etc.
52	+	+	+	+	−	−	+	+	+	+	+	+	+	+	−	Individual and group reactions; effects on occupational and organisational structure
144	+	−	−	+	−	−	+	+	+	−	+	+	+	+	−	Methods of effecting change-over; employment and occupational effects

TABLE IV *(cont.)*

Country and number of study		Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
					New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1		2	3	4	5	6	7	8	9	10	11	12	13 *
United States *(cont.)*	**145**	Bank	−	+	+	−	−	−	−	+	1955-1964	−	+	−
	146	Idem	−	+	+	−	−	−	−	+	1956-1964	−	+	+
	147	Electronic equipment manufacturing	−	+	+	−	−	−	−	+	1960-1964	+	+	+
	148	Idem	−	−	+	−	−	−	−	+	1955-1963	−	+	+
	149	Wholesale distribution	−	+	+	−	−	−	−	+	1955-1963	−	+	−
	150	Idem	−	+	+	−	−	−	+	+	1958-1963	+	+	+
	151	Idem	−	−	+	−	−	−	+	+	1957-1963	+	+	+
	129	Printing and publishing	−	−	+	−	−	+	+	+	1963	+	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
145	+	−	−	+	−	−	+	+	+	−	+	+	+	+	−	Economic benefits of automation; employment and occupational benefits
146	+	−	−	+	−	−	+	+	−	+	+	+	+	−	−	Idem
147	+	−	−	+	−	−	−	−	−	−	+	+	−	−	−	Idem
148	+	−	−	+	−	−	−	−	−	−	+	+	+	+	−	Idem
149	+	−	−	−	−	−	−	+	−	−	+	−	+	−	−	Idem
150	+	−	−	−	−	−	+	−	+	−	−	−	−	−	−	Idem
151	+	+	−	+	−	−	+	−	−	−	−	−	+	+	−	Idem
129	+	−	−	+	−	+	−	+	−	−	+	+	−	−	−	Occupational changes; staffing requirements; job descriptions

TABLE IV *(cont.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
United States *(cont.)*													
130	Bookbinding	–	–	+	–	–	–	–	–	1963	–	–	–
135	Oil refining	–	–	+	+	–	+	–	–	–	+	–	–
136	Aircraft manufacturing	–	–	+	–	+	+	–	+	–	–	–	–
137	Airline maintenance	–	–	+	–	–	–	–	–	–	–	–	–
138	Telephone communications	–	–	+	–	–	+	+	–	–	–	–	–
94	Paper products	–	–	+	–	–	–	–	–	–	–	–	–

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(cont.)*																
130	+	−	−	+	−	−	−	+	−	−	+	+	+	−	−	Occupational changes; staffing requirements; job descriptions
135	−	−	−	−	−	−	−	+	−	−	+	−	−	−	−	Retraining programmes; performance of older workers
136	−	−	−	−	−	−	−	+	−	−	+	+	−	+	−	Idem
137	−	−	−	−	−	−	−	+	−	−	+	−	−	−	−	Idem
138	−	−	−	−	−	−	−	+	−	−	+	−	−	−	−	Idem
94	−	−	−	−	−	−	−	−	−	+	+	−	+	−	−	Information procedures; workers' attitudes to technical change

TABLE IV *(concl.)*

Country and number of study	Description of industry	Over-all economic situation	Business situation of enterprise	Kinds of technological change					Motives for technological change	Duration of study period	Economic effects		
				New machinery	New products	New materials	New control devices	Others			Change in production capacity	Change in productivity	Change in value of equipment
	1	2	3	4	5	6	7	8	9	10	11	12	13 *
United States *(concl.)*													
95	Telephone company	−	−	+	−	−	−	−	−	−	−	−	−
96	Drug company	−	−	+	−	−	−	−	−	−	−	−	−
97	Bank	+	−	+	−	−	−	−	+	−	−	+	−
98	Public utility	+	−	+	−	−	−	−	+	−	−	−	−
99	Bank	−	+	+	−	−	−	−	−	−	+	−	−

* *For columns 14-29, see page below.*

Country and number of study	Employment effects				Occupational effects						Adjustment of personnel			Wage effects		Emphasis of study
	Change in total number of employed persons	Change in sex proportion	Change in age distribution	Displacement effects	Change in proportion of direct production labour	Change in occupational structure of direct production labour	Change in occupational structure of non-production labour	Change in occupational requirements	Change in occupational conditions	Change in social inter-action	Kinds of training programmes	Recruitment of personnel	Labour-management practices regarding personnel adjustment	Effects on wage levels	Effects on wage payment systems	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
United States *(concl.)*																
95	−	−	−	−	−	−	−	−	−	+	+	−	+	+	−	Information procedures; workers' attitudes to technical change
96	−	−	−	+	−	−	−	−	−	+	−	−	+	−	−	Idem
97	−	−	−	−	−	−	−	−	−	+	+	+	+	−	−	Idem
98	−	−	−	−	−	−	−	−	−	+	+	−	+	−	−	Idem
99	−	−	−	−	−	−	−	−	+	+	+	−	+	+	−	Idem

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Horner, James T.
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Nebraska Legislative Council, Lincoln
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*VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *POST SECONDARY EDUCATION; *EDUCATIONAL NEEDS; AREA VOCATIONAL SCHOOLS; *HIGH SCHOOL STUDENTS; ADMINISTRATOR ATTITUDES; SURVEYS; GRADE 12; *EDUCATIONAL INTEREST; EDUCATIONAL FINANCE; QUESTIONNAIRES
NEBRASKA

To review the vocational-technical education program in Nebraska, an appointed legislative committee mailed a questionnaire with a letter of explanation to all state legislators requesting to contact communities in their districts interested in having a vocational-technical school and to have them submit relevant information. A questionnaire, requesting information about the senior class, was completed by school administrators. Of the 453 schools contacted comprising almost 20,000 high school seniors, 169 responded (37.3 percent). Some of the results were: (1) 53.9 percent of all 1964 high school seniors were planning to go to college, (2) In 1963, only 42 percent of the high school graduates enrolled in standard colleges, and less than 3 percent enrolled in vocational-technical schools, (3) 10 percent of the high school seniors were seriously considering enrolling in the vocational-technical schools, and (4) 1,753 seniors would attend a vocational-technical school if one were located in their area. One conclusion was that administrators are overly optimistic in their expectations of the numbers of high school seniors enrolling in college. Recommendations include: (1) The scope of vocational education subject matter needs to be broadened, (2) The location of vocational-technical programs should be reasonably close to all citizens, and (3) The state should offer vocational-technical education on a 12-month basis. (SL)

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Nebraska Legislative Council
Committee Report No. 139

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT ON THE NEED FOR

VOCATIONAL TECHNICAL SCHOOLS

IN NEBRASKA

Prepared for
The Nebraska Legislative Council
Committee on Vocational Technical Education

by
James T. Horner, Consultant
and Study Director
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The University of Nebraska, Lincoln

November, 1964

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1104 STATE CAPITOL LINCOLN November, 1964

TO THE MEMBERS OF THE
NEBRASKA LEGISLATIVE COUNCIL

Gentlemen:

Report No. 139 was prepared by the Legislative Council Committee on Vocational Technical Schools, composed of the following members: Senators Fern Hubbard Orme, chairman; Kenneth L. Bowen, Peter H. Claussen, Thomas H. Damrow, George Syas, Maurice A. Kremer, and Elvin Adamson.

The Report was made in accordance with provisions of Legislative Resolution No. 7, 1963 Legislature, which directed the Legislative Council to study the needs of additional vocational technical schools in Nebraska, and report its findings to the 1965 Nebraska Legislature, with recommendations.

The Report is submitted to the Legislative Council in general meeting for its amendment, approval, or disapproval. If accepted, it will then become an Official report of the Legislative Council to the 1965 Nebraska Legislature.

Respectfully submitted,
Jack W. Rodgers
Director of Research

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PREFACE

In his message to Congress, February 20, 1961, the late President Kennedy stated that,

> "The basic purpose of our vocational education effort is sound and sufficiently broad to provide a basis for meeting future needs. However, the technological changes which have occurred in all occupations call for a review and re-evaluation of these Acts, with a view toward their modernization."

The National Panel of Consultants, "charged with the responsibility of reviewing and evaluating the current National Vocational Education Acts, and making recommendations for improving and redirecting the program," set the stage for passage of the most comprehensive vocational legislative measure ever approved by Congress. It was the Vocational Education Act of 1963. Upon signing the Act, President Johnson remarked that,

> "Education is the key to our social and economic and technological and moral progress...Modern demands upon labor and industry require new skills and an up-grading of old skills, require more education and greater knowledge...Education is the cornerstone of our freedom."

The Legislature of Nebraska in Seventy-Third Session heard considerable debate attesting the concern of legislators and laymen for Nebraskans in a complex and rapidly changing occupational structure. Numerous proposals toward expansion of the State's efforts in vocational education were presented.

On February 4, 1963, a resolution was passed providing for the appointment of a Legislative Council study committee. The committee was charged,

> "to study the needs of additional vocational-technical schools in Nebraska and report its findings to the next regular session of the Legislature. The report shall contain recommendations as to whether other vocational-technical schools should be established in Nebraska and if other schools should be established, where they should be located."

The writer was engaged as consultant and to give assistance in a research endeavor toward learning Nebraska's Educational Needs for the World of Work. This report summarizes the study and other activities of the committee along with its conclusions and recommendations.

Introduction

"Education makes people more productive and versatile.
Productive, versatile people will build a
stronger and better America..."

The biggest single problem youth have in Nebraska today is that of qualifying for, landing and holding a job through which they can win economic security and live happy, successful, and useful lives as home members, workers, and citizens.

Today, less than 25 per cent of our labor force is employed in professional, technical, managerial, official, and proprietor occupations combined---those occupations generally requiring a college education. The remaining 75 - 80 per cent is employed as farmers, industrial workers, sales and clerical workers, and in other non-professional and service occupations. In spite of this, most of the offerings in our secondary schools and colleges are directed toward the professions and kindred occupations, and over 80 per cent of the students in these institutions are enrolled in general or college preparatory programs. This does not make sense!

The national need for semiprofessional and technician manpower is critical. The National Science Foundation, in a 1961 study, concluded that by 1970 the national need for technicians in industry alone would exceed 1,262,000. This figure, contrasted with the 630,000 employed in 1960, indicates that the supply must be doubled by 1970...No more than 35,000 technicians will be produced at the current annual rate of production from all sources (junior colleges, technical institutes, industry training programs, and armed services schools). In addition, other sectors of the economy, such as government, education, and health fields employed another 240,000 in 1960, and this figure too will double by 1970. Certainly there is a challenge here!

Not enough high schools offer vocational education. The National Panel pointed out that of the public schools surveyed, only 5 per cent offered

Distributive Education; only 9 per cent, Trade and Industrial; and less than 50 per cent offered Homemaking or Vocational Agriculture.

Vocational education programs are not preparing students for enough different kinds of jobs. A study of job training and subsequent employment showed that only ten boys studied vocational agriculture for every one hundred employed in that field. Only one was trained in Distributive Education for every two hundred employed in wholesale and retail trade and only one in Trades and Industrial education for every 220 employees in that field.

In spite of serious unemployment over the nation, thousands of specialized jobs are going begging. This is an unmistakable sign of the times. Jobs in specialized fields cannot be filled. These include in addition to professional, such skilled and semi-professional positions as engineering technicians, social and institutional workers, nurse's aids, draftsmen, secretaries, machinists, plant, animal and machinery technicians, cabinet makers, wholesale and retail employees, as well as operators of electronic computers and machine bookkeeping systems.

Many of the present jobless have been replaced by machines. The fact about automation is that while it eliminates some jobs, it creates new ones. The tragedy comes when the public and public officials have not adjusted to the new vocational demands.

We cannot allow machines to displace men, either in agriculture or industry, without providing those men with the opportunity to find and qualify for other employment. We cannot allow it simply because it deals with the welfare of human beings, with the future of our resources and our youth and adult citizens, with principles and ideals relating to human dignity and with values we regard as vitally important. With a more complex occupational structure, there is less and less need for unskilled workers. New occupations which call for

specialized abilities are developing steadily. The most rapidly expanding occupations require the most education and training. It is important that the training demands of a dynamic economy be understood and that the severe penalty on the individual without occupational education in today's competition be recognized. Vocational education materially reduces unemployment.

Schools that continue to educate y.. h alone are doing little more than playing at occupational education. Any serious effort at improving the economy of a community and the lot of its people must include adult education. The average employee will need to be prepared or retrained for entry into three different jobs in his lifetime. The average employee will continue to work for about 20 years more; he is working today without systematic education for his occupation or with training secured nearly 20 years ago.

The "disaster gap" in the Nebraska (and the U. S.) educational program is the opening between citizens with little education and the well-educated ones. Our society can no longer operate efficiently with the four year educational gap between the high school graduate and the college graduate.

TERMINOLOGY

Advancements in science and technology, leading to higher degrees of mechanization and automation, call for individuals with a higher level of education----technicians. The term technician education generally refers to post-high school programs, generally of two years duration emphasizing science and te. .nology which prepares one for a number of closely related occupations. Vocat..onal education prepares one for a specific occupation. Both, however, may be provided in the upper high school grades. They may be offered on a full-time or part-time basis, and may vary greatly in length. These programs fill a gap between the high school diploma and the baccalaureate degree.

GUIDING PRINCIPLES

Considerations of the committee involved the principles of:

(1) Economic development enhanced by vocational education

(2) Educational opportunity as a state responsibility

(3) Concentration and maximizing of resources

(4) Minimizing duplication

(5) Long-range planning

(6) Comprehensive program

(7) Proximity

(8) Interest

(9) Equity

COMMITTEE ACTIVITIES

Five committee meetings were held. Minutes of the meetings are on file at the Legislative Council. The first, in addition to formulating committee procedures regarding research and visitations, centered around interests as expressed by representatives from the University and the Junior Colleges. The Assistant Commissioner for Vocational Education summarized pertinent legal and financial metters. Consultative and research plans were outlined. Relevant literature was reviewed and made available for study by committee members.

The second meeting gave attention to interests of private schools and colleges as related to vocational technical education. A number of representatives made presentations before the committee.

The third and fourth sessions were devoted to visitations and hearings in 16 Nebraska communities expressing an interest in and/or appearing to be logical sites for vocational technical schools.

The recommendations were drawn up and the report approved at the fifth and final meeting of the committee.

In addition to formal meetings, a study of the needs as viewed by school administrators was conducted. The summary appears in Chapter II. Individual committee members studied related literature and visited with persons familiar with vocational technical programs in other states. Others participated in meetings where vocational education was the theme. Consultation was held with professional educators including the Commissioner of Education, Chancellor of the University, Dean of Junior Colleges and Coordinator of State Colleges. Also the Director of the Nebraska Vocational Technical School, and this writer accompanied the committee to each community where hearings were held.

Hearings were conducted in the following towns:

Alliance	Grand Island	Ogallala
Broken Bow	Hastings	Omaha
Chadron	McCook	O'Neill
Columbus	Norfolk	Scottsbluff
Curtis	North Platte	Sidney
		Wahoo

Legislators in the respective districts were contacted prior to the visits and had, along with local leaders, made necessary arrangements for the hearings. In addition, they had assembled local information requested by the committee related to the following questions:

To what extent can the community provide part-time work for school enrollees?
What transportation facilities are available?
What are the recreational facilities which would be available to school enrollees?
What housing facilities are available?
What building facilities and/or building sites are available to the state in your community; and what will be the cost, if any, to the state of Nebraska?
To what extent will the churches care for the religious needs of enrollees?
Can the community provide for the fire and police protection of all school property?
What number of students can be accomodated without the state being forced to erect special dormatory facilities?
To what extent has your entire community evidenced an interest in having a vocational technical school?
Do you have available any special studies indicating the interest and need for post-high school vocational technical education in your community and surrounding areas? (Industrial and student needs and interests).

The Committee has viewed its task as a vast one and has taken seriously its responsibility to fulfill a great need. Likewise, the attitudes, receptions,

and efforts in local communities toward analyzing real occupational education needs as a basis for first class educational programs for first class citizens have been gratifying. Although, much beyond the confines of this report, impressive study results, brochures and other factual data were presented and are on file. There appeared to be unanimous support in each community that additional vocational schools need to be established. It appeared also that nearly every community visited could justify the need for a school in that community at this time.

Each community was scrutinized in light of the following factors and their relevance to the establishment of area vocational technical schools:

1. Employment potential and the number of occupations for which training is to be offered.
2. Number of high school students, dropouts and adult students in the geographic area to be served.
3. Extent of student interest in the vocational offerings of the area vocational school.
4. Size and nature of geographic area to be served.
5. Extent of voter approval of the school in the geographic area.
6. Extent of industrial support for the school in the geographic area.
7. Amount of taxable wealth in the geographic area.
8. Type of legal governing body for the school.
9. Type of administration for the school.
10. Number and types of training agencies already in the geographic area.
11. Other features facilitating efficient operation of the school. (e.g., professional services).

CHAPTER II

VOCATIONAL-TECHNICAL EDUCATION INTEREST AND INTENT OF NEBRASKA SENIORS ACCORDING TO SCHOOL ADMINISTRATORS

Recognizing that education and training are sound investments in people, Nebraskans are asking themselves, how will the 8 out of 10 now in grade school who will not complete college, fare in the changing world of work?

This study was an attempt to shed light upon the subject of interest in the needs for vocational programs in order to make possible wiser decisions on the part of Nebraska legislators, educators and others engaged in modernizing and expanding vocational technical education.*

Procedure

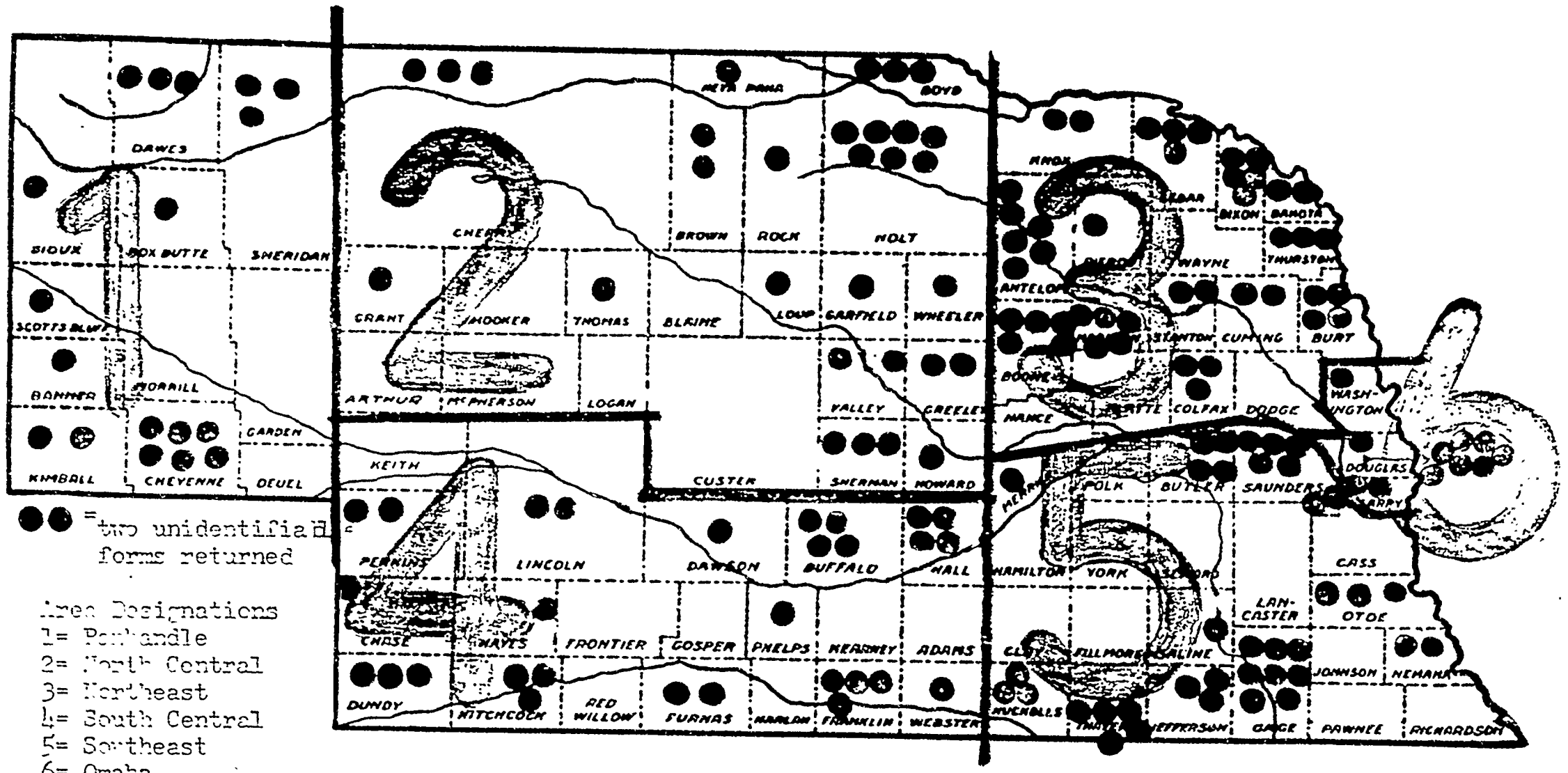
A one-page questionnaire was mailed to senators, along with a brief letter of explanation over the signature of Senator Fern Hubbard Orme, Chairman of the Legislative Council Committee on Vocational-Technical Schools. (See Form I and II Appendix A.) Legislators solicited and returned information from school administrators in their districts.

An arbitrary division of the state into six geographical areas was made. The data were analyzed by areas and totals for the State. Figure 1 shows delincations of the six areas along with a dot within counties to represent each responding school.

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*Certain limitations need to be made very clear at this point. Due to the nature of the information requested, some of the data are subjective. No claim is made for representativeness. It must be recognized that strong interest in gaining vocational programs in certain areas may have influenced the responses. There is no thought that this study should serve as the sole basis for establishing vocational programs, and certainly not vocational-technical schools. Other factors, to be mentioned later in the report, are quite as important.

Acknowledgments: Data collection forms were sent by the Legislative Council Committee; legislators forwarded the forms, school administrators supplied information; Charles Eggers, M.G. McCreight and H.W. Deems, Department of Vocational Education, advised and aided in tabulation and preliminary analysis. The writer is grateful to those mentioned. However, he assumes full responsibility for the report.



●● = two unidentified forms returned

Area Designations
1= Panhandle
2= North Central
3= Northeast
4= South Central
5= Southeast
6= Omaha

● = 1 school

Figure 1.

Six areas of the state along with a dot, by county for each school represented.

Area 1 includes 11 extreme western counties, referred to as the Panhandle area.

Area 2 includes 21 range area counties referred to as the North Central area.

Area 3 includes 17 Northeast area counties.

Area 4 includes 20 South Central area counties.

Area 5 includes 21 Southeastern area counties.

Area 6 includes 3 counties surrounding Omaha (i.e., Douglas, Sarpy and Washington) and is referred to as the Omaha area.

Data were received, analyzed and are herewith presented from 37.3 percent, or 169 of the 453 secondary schools in Nebraska. Statewide figures required for projections were obtained from the Research Section of the State Department of Education.

Results

During the school year 1963-64, 19,620 seniors were enrolled. Of those 9,882 were boys and 9,738 were girls. A sample of 42.1 percent of the boys and 41.0 percent of the girls, totaling a 41.6 percent sample was drawn. The data were projected to cover the entire senior enrollment, both at the state and a area levels. In calculating percentages and projecting from several samples to the whole, slight deviations occurred due to "rounding off". Table I shows the percentages of all Nebraska senior boys and girls represented in the sample by geographical areas. It was not surprising that the lowest percentage of response was from Area 5 in which the Nebraska Vocational Technical School (NVTS) is located.

Table I. Percentages of All Senior Boys and Girls Represented in the Sample, by Area

AREAS	PERCENTAGES		
	Boys	Girls	Total
Area 1	56.7	55.1	55.9
Area 2	49.5	51.6	50.6
Area 3	40.5	39.4	40.0
Area 4	31.8	31.3	31.5
Area 5	28.1	26.9	27.5
Area 6	57.8	55.9	56.8
State	42.1	41.0	41.6

According to the school administrators, 53.9 percent of all seniors are planning to go to college. There is apparently very little difference between the total college-going rate of boys and girls, 54.3 and 53.5 percent respectively. However, with the exception of Areas 5 and 6 higher proportions of girls plan to attend college. See Table II.

The 53.9 percent of seniors planning to attend college is in striking contrast with Glenny's figure of 35.9 percent as a maximum college-going rate for Nebraska in 1959.[1] Schindler reported that 44.8 percent of the 1962 Nebraska graduates enrolled[2]. The high proportion planning to attend college is also in contrast with 41.9 percent of the 1963 graduates who enrolled from the same schools. It is unlikely that the 53.9 percent college-going rate will materialize; IN WHICH CASE vocational programs become relatively more important than indicated in this report.

Table II. Percentages of 1963 Seniors Who Enrolled in Standard Colleges and 1964 Seniors Planning to Go to College , by Area

AREAS	1964 Percentages Planning to Enroll			1963 Percentages Enrolled
	Boys	Girls	Total	Total
Area 1	57.4	63.5	60.3	38.1
Area 2	42.6	51.4	47.3	35.2
Area 3	46.4	47.4	46.8	29.0
Area 4	54.2	55.7	54.9	41.9
Area 5	47.7	45.9	46.8	42.5
Area 6	67.4	61.0	64.3	49.8
State	54.3	53.5	53.9	41.9

[1] Glenny, Lyman A., The Nebraska Study of Higher Education, The Nebraska Legislative Council, Lincoln, Nebraska, 1961, computed from statistics p.p.11-12

[2] Schindler, W.A., "Nebraska School Enrollment Brief", State Department of Education, Lincoln, Nebr, December, 1963 p. 4.

Only in the Omaha Area did one half of last year's seniors enroll in college (49.8 percent). In the Northeast Area a low 29.0 percent of last year's seniors enrolled in a standard college. According to administrators no area has less than 46.8 percent of this year's seniors planning to enroll in college. Both the Omaha and Panhandle areas reported more than 60 percent. The fact that 10,572 of Nebraska's seniors plan to attend standard colleges, along with number and percentage breakdowns by sex and by area are presented in Table AI of the Appendix.

While only 42 percent of last year's seniors enrolled in standard colleges less than 3 percent enrolled in vocational-technical schools. The North Central Area led with a 4.4 percent enrollment in vocational schools, and the South Central Area had a low 1.3 percent. Between these two figures the Panhandle Area had 3.8, the Northeast Area had 3.6, Omaha Area 3.5, and the Southeastern Area 2.4.

In contrast with the 2.9 percent of last year's seniors who enrolled in vocational schools (shown in Table III) it was reported that 10 percent, 1994 of the present senior group, are seriously considering enrolling in NVTS or some other vocational school. More than 900 seniors were reportedly considering enrolling in NVTS. That is almost twice the current enrollment of the school.

Table III. Percentages of Seniors Planning to Attend and Last Year's Seniors Who Enrolled in a Vocational Schcol, by Area

AREAS	Numbers and Percentages Planning to Enroll						Last Year's Percentages Enrolled
	NVTS		Other		Total		
	Number	Percentage	Number	Percentage	Number	Percentage	
Area 1	96	6.6	137	9.4	233	16.0	3.8
Area 2	73	5.8	55	4.5	128	10.3	4.4
Area 3	190	6.1	338	10.6	528	16.7	3.6
Area 4	249	7.4	130	3.8	379	11.2	1.3
Area 5	257	5.0	267	5.2	524	10.2	2.4
Area 6	44	0.85	158	3.0	202	3.9	3.5
State	909	4.6	1085	5.5	1994	10.0	2.9

A factor of considerable concern is that of the limited clientele for which vocational-technical programs in Nebraska's public institutions have been provided. This is especially true with regard to programs for women. Hundreds of young women become wage earners, both prior to and after marriage. The National Panel of Consultants on Vocational Education reported that 3,000,000 women will switch from housework to jobs, 1960-1970. These wives, mothers and widows will also need marketable skills in the decade ahead.

Figure 2 depicts the numbers of male and female seniors seriously considering enrollment at NVTS, by area. Only 20 girls in the entire state, less than three-tenths of one percent, plan to pursue vocational education at NVTS. Figure 3 page 13 reveals that more girls than boys (6.3 percent of all girls and 4.8 percent of all boys plan to attend other vocational schools). For additional details on seniors considering enrolling at the Nebraska Vocational Technical School and those planning to enroll in other vocational schools, by sex and by areas, see Tables AII and AIII respectively in the Appendix.

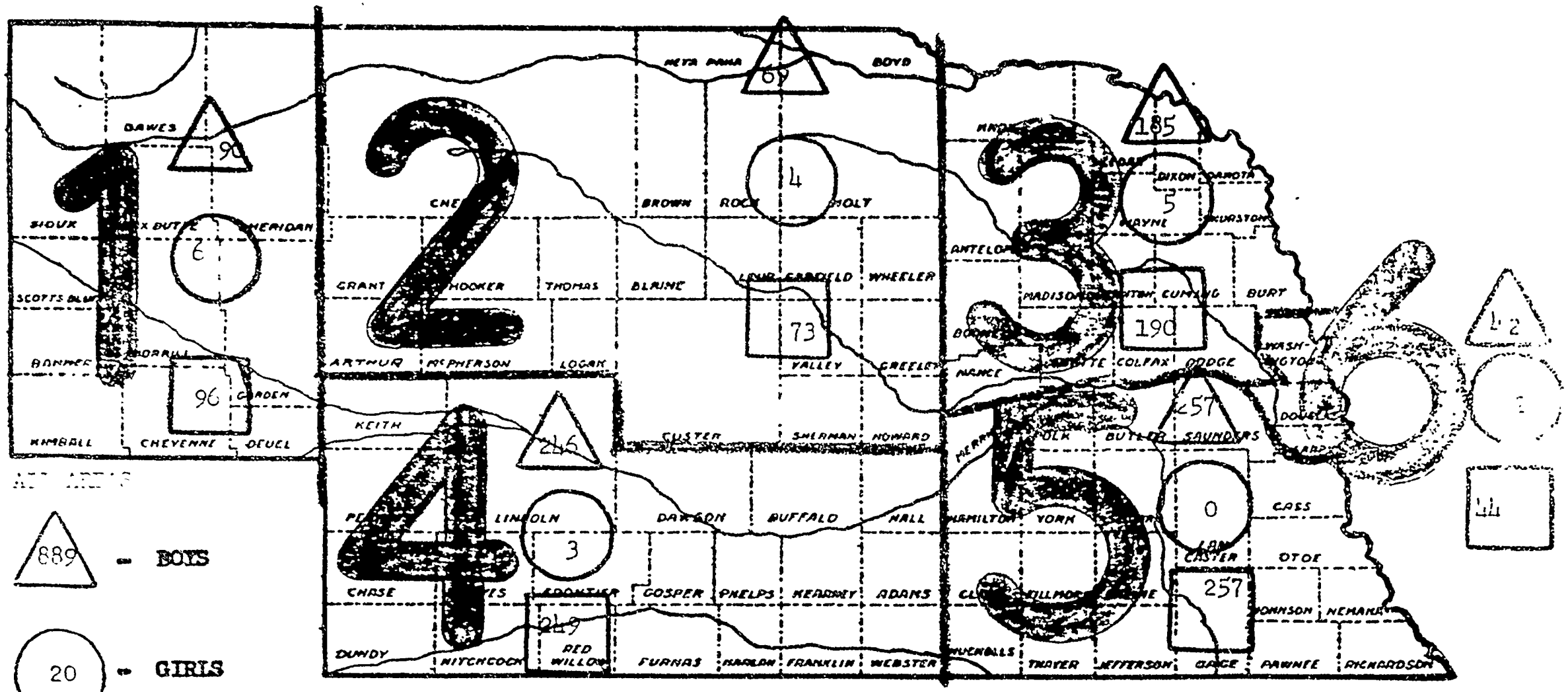


Figure 2

Number of Seniors Seriously Considering Enrolling at the Nebraska Vocational Technical School, by Sex and by Area.

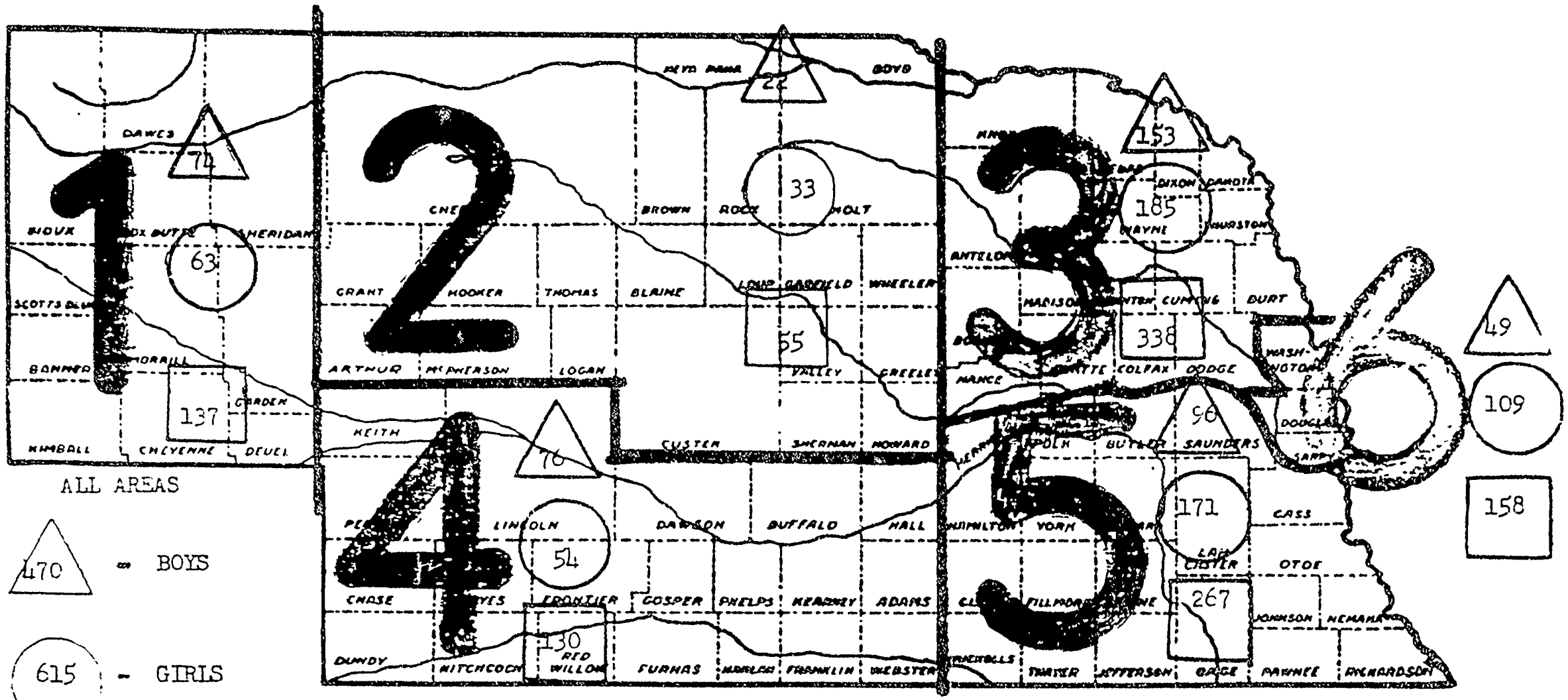


Figure 3

Number of Seniors Planning to Attend a Vocational School Other Than Nebraska Vocational-Technical School, by Sex and by Area.

A number of administrators provided unsolicited comments pointing up the need for more vocational education in more places, for more people in more kinds of jobs. Several excerpts follow:

> "I have been in the public schools for many years, for the most part as an administrator, and I am firmly convinced that one-half the staff and facilities of our high schools should be devoted to technical and vocational education.
>
> Too large a percent of our students do not intend to go to college and another large percent cannot go on. Their high school education is practically worthless as far as training them for a position or occupation wherein they can make a decent living in adult life. . . .
>
> We could have five times the number of vocational schools that we now have, scattered over the state and they would be filled. . . . I surely hope the state can provide several . . . We need them very, very much."
>
> "I would like to see a system of technical schools developed on the high school level . . . High school drop-outs need opportunities for vocational education."

Several suggested that, "Milford is in a poor location . . ." and that, "It is impossible to say how many would enroll or how much value it would be. More would be used if available." "I know others would attend if other schools were available." "Placing of a school in an area would build interest."

One man put it thusly: "The choice appears to be college or nothing. Milford seems as remote as the moon, they suppose it's there but no one ever goes there."

Projections were made from administrators' responses to the question of how many seniors would attend a vocational-technical school if facilities were located in their area of the state. Figure 4 and Appendix Table AIV indicate that 1753 would enroll - - three times the present maximum capacity of the Milford facility.

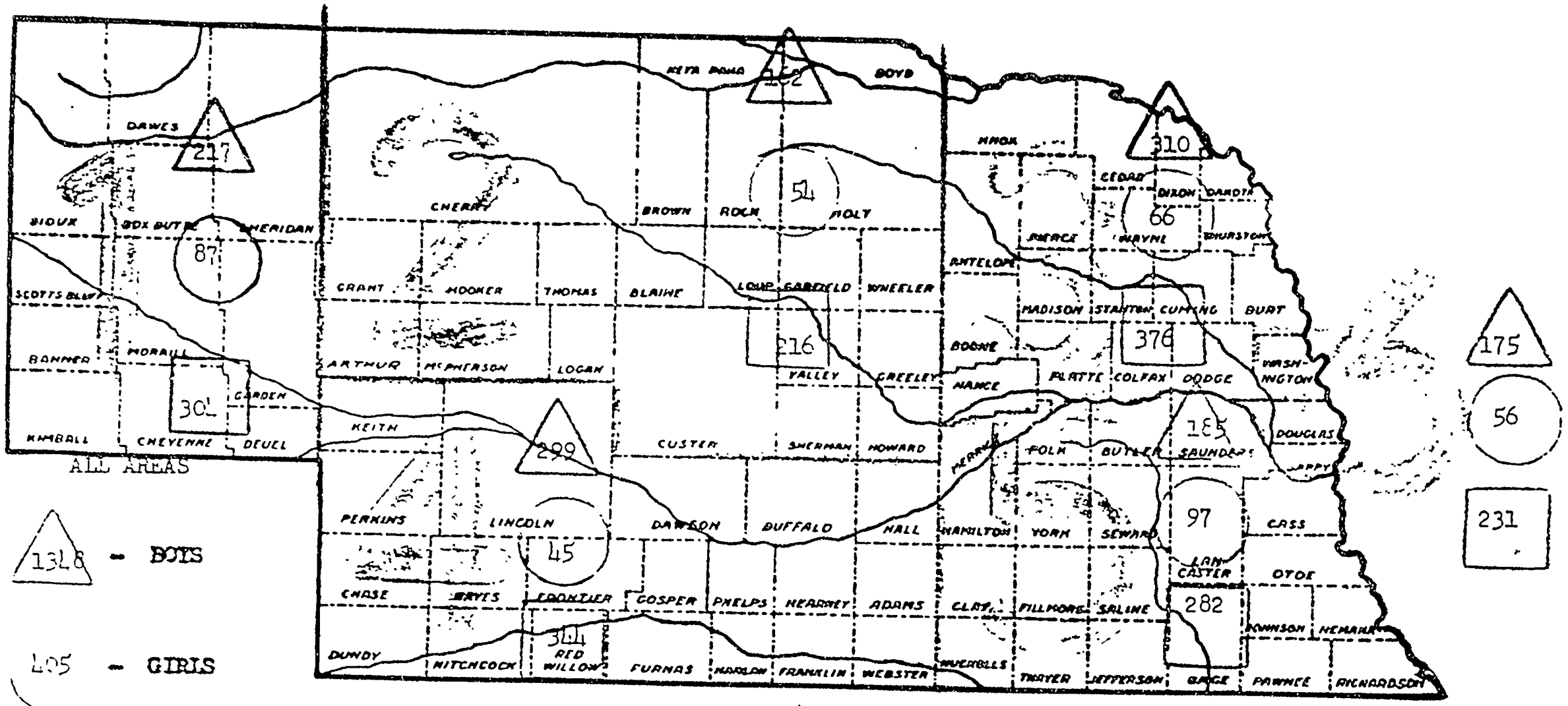


Figure 4

Numbers of Seniors Who Would Attend a Vocational-Technical School If It Were in Their Area.

There was a positive relationship, excepting the Omaha area, between distance of the area from NVTS and proportions who would attend if a vocational program were available in their area. That is, administrators in the Panhandle reported that 21 percent would attend, the North Central 17 percent and so on in descending order.

A question closely related to that of location of vocational schools is, how many seniors would enroll in NVTS but cannot due to a lack of finance.? A number greater than that currently attending NVTS, 591 were discouraged because of financial limitations. See Figure 5, page 17 for graphic presentation of this information. Also for details by sex and area see Appendix Table AV.

Comments such as the following by administrators left little doubt that a number of potential registrants were discouraged because of the limited capacity of present vocational education facilities:

> "A year ago four of our senior boys inquired about attending Milford, but they were behind on reservations then. . . The year before that five boys would have attended Milford had they been able to gain admission."

Another adminstrator asked, "Is there really any question about the need for more vocational programs ? It seems quite obvious if the waiting list is so long at Milford, and I personally know of several who would enroll if it were not for a waiting list. Don't be overly conservative in this matter of investing in the youth of Nebraska."

Table IV, pages 18-19 presents a recapitulation of responses of school administrators relative to interest and intent of Nebraska's high school seniors toward enrolling in colleges and vocational schools. The data appear by geographical area and by sex.

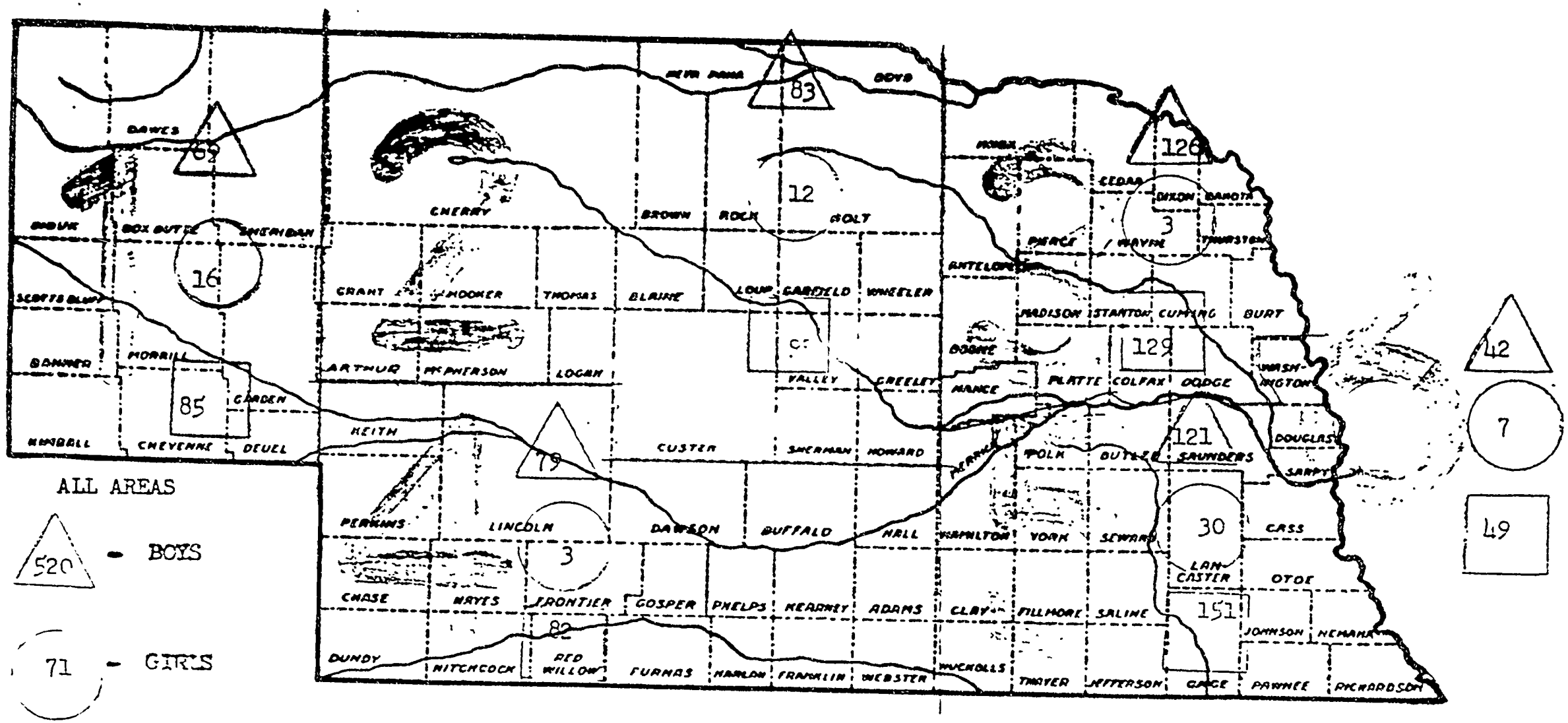


Figure 5

Numbers of Seniors Who Would Enroll in Nebraska Vocational-Technical School But Cannot Because of Financial Reasons.

Table IV. Interest and Intent of Seniors and Vocational Schools,

FACTORS		NUMBERS AND											
Seniors		AREA 1				AREA 2				AREA 3			
		B	G	T	%	B	G	T	%	B	G	T	%
Planning to go to College	Boys	431				251				760			
	Girls		452				327				726		
	Total			883				578				1486	
	Percentage				60				47				47
Considering Enrolling at Milford	Boys	90				69				185			
	Girls		6				4				5		
	Total			96				73				190	
	Percentage				7				6				6
Planning to Attend Vocational School Other than at Milford	Boys	74				22				153			
	Girls		63				33				185		
	Total			137				55				338	
	Percentage				9				5				11
Who Would Attend Vocational School in Their Area	Boys	217				162				310			
	Girls		87				54				66		
	Total			304				216				376	
	Percentage				21				17				12
Who Could Not Enroll in NVTS Because of Finances	Boys	69				83				126			
	Girls		16				12				3		
	Total			85				95				129	
	Percentage				6				8				4
NUMBERS IN SAMPLE**		751	711	1462		588	637	1225		1638	1532	3170	

*To nearest percent: some deviation occurred due to rounding-off in calculating and projecting percentages.

** NOT Totals: some seniors were included in more than one category while others were not included at all.

Relative to Enrolling in Colleges
by Area and by Sex

P E R C E N T A G E S*

AREA 4				AREA 5				AREA 6				TOTAL			
B	G	T	%	B	G	T	%	B	G	T	%	B	G	T	%
919				1227				1777				5365			
	943				1191				1568				5207		
		1862				2418				3345				10572	
			55				47				64				54
246				257				42				889			
	3				0				2				20		
		249				257				44				909	
			7				5				1				5
76				96				49				470			
	54				171				109				615		
		130				267				158				1085	
			4				5				3				6
299				185				175				1348			
	45				97				56				405		
		344				282				231				1753	
			10				6				5				9
79				121				42				520			
	3				30				7.				71		
		82				151				49				591	
			2				3				1				3
1696	1693	3389		2573	2595	5167		2637	2570	5207		9882	9738	19620	

School administrators were requested to indicate the numbers of seniors who would be interested in enrolling in certain specific programs. The list specified only the 11 subject matter fields or courses currently offered at the Nebraska Vocational-Technical School. They are:

Auto Body Technology
Auto Mechanics
Building Construction
Diesel
Drafting
Electronics
Electrical
Data Processing
Metals
Air-Conditioning
Welding and Metallurgy

The greatest interest reported was in Auto Mechanics Technology with 3.5 percent or 679 seniors. A very close second, with 3.3 percent, or 640 seniors was in the "others" category. Although many administrators merely inserted a figure, there were 18 different subjects specified. They included the following: Agriculture, Auctioneering, Business, Commercial, Clerical and Secretarial, Commercial Art, Communications, Cosmetology, Computer Repair, Dental Technology, Distribution, Equipment Operation, Masonry, Nursing, Printing, Refrigeration, and Wood Finishing.

The relatively new field of Data Processing ranked second in specified interest among seniors. Two percent or 392 seniors were reported to be interested in enrolling in such a course. Third, with 1.9 percent, 387 seniors were reported to be interested in enrolling in a program of vocational education in Auto Body Technology. Electronics, Drafing and Diesel Technology were ranked fourth, fifth and sixth. Each received 1.3 percent or 256, 246 and 245 interested seniors respectively.

Welding and Metallurgy Technology was rated a close seventh with 1.2 percent or 237 seniors interested. A 1.1 percent placed Building Construction Technology in eighth position, with 214 interested seniors. Dropping to less than one hundred interested seniors were ninth, tenth and eleventh placed pro-

grams as follow: Electrical 99, Metals 66, and Air-Conditioning Technology 48 or 0.51, 0.34 percent of the seniors respectively. The above data, as well as area distribution of interest in various programs, is presented in Table V.

Table V. Subject Matter Interests of Seniors by Area

INTEREST	AREAS 1		2		3		4		5		6		STATE	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Auto Mechanics	63	4.3	49	4.0	102	3.2	187	5.5	160	3.1	118	2.3	679	3.5
Data Processing	34	3.1	38	3.1	95	3.0	105	3.1	51	1.0	69	1.3	392	2.0
Auto Body	36	2.4	22	1.8	77	2.4	95	2.8	102	2.0	55	1.1	387	1.9
Electronics	34	2.3	34	2.7	35	1.1	89	2.6	18	0.4	46	0.9	256	1.3
Drafting	25	1.7	6	0.5	17	0.6	73	2.2	33	0.6	92	1.8	246	1.3
Diesel	30	2.1	28	2.3	45	1.4	73	2.2	55	1.1	14	0.3	245	1.3
Weld & Metallurgy	20	1.4	37	2.7	35	1.1	29	0.8	44	0.9	72	1.4	237	1.2
Building Construction	21	1.5	20	1.6	20	0.7	41	1.2	40	0.8	72	1.4	214	1.1
Electrical	14	1.0	8	0.7	23	0.7	22	0.7	7	0.1	25	0.5	99	0.5
Metals	9	0.6	4	0.3	0	0.0	16	0.5	18	0.4	19	0.4	66	0.3
Air-Condition'g	14	1.0	2	0.2	3	0.1	10	0.3	15	0.3	4	0.1	48	0.2
Others	21	1.5	8	0.7	3	0.1	16	0.5	4	0.1	588	11.3	640	3.3
Total	321	22.9	256	20.6	455	14.4	756	22.4	547	10.8	1174	22.8	3509	17.9

Area 1 - Panhandle

Fifty-seven percent of the senior boys and 55 percent of the senior girls or a total of 56 percent of the high school seniors were included in the Panhandle area sample (Table I, p.8). Approximately 60 percent of these senior students were planning to go to college. This was second only to the Omaha area with 64 percent. Projected numbers and boy-girl ratio can be obtained from Appendix Table AI, page 37. Table II, p. 9 shows the 60 percent figure in striking contrast with 38 percent of last year's seniors who went to standard colleges.

The number of seniors considering enrolling at the Nebraska Vocational Technical school was 96. Most of them, 90 were boys. Percentagewise Area 1 with 6.6 followed only the South Central area with 7.4. For specific figures see Table AII, p. 37.

Seventy-four boys, 9.9 percent and 63 girls, 8.9 percent or a total of 9.4 percent of the seniors in Area 1 plan to attend vocational schools other than Milford. Only the Northeast area reported a higher percentage (10.6) planning to enroll in other vocational schools. The 16 percent planning to enroll in all vocational schools is in contrast with 3.8 percent of last year's graduates who enrolled.

Compared to the 96 who plan to attend NVTS, 304 would enroll if it were in their area according to the administrators. About two and one-third times as many boys and 14.5 times as many girls would attend. Appendix Table AIV, p.38 shows the specific percentages and projected numbers. Area 1 reported the highest, 21 percent of seniors in this category.

Financial reasons will keep almost as many (85) Panhandle area students from attending the school at Milford as the 96 who now plan to attend. See Appendix Table AV, p. 39. In this category only the North Central area with 7.6 percent exceeds the 5.8 percent in the Panhandle.

In terms of subject matter interest in the Panhandle area, Auto Mechanics technology, Data Processing, Auto Body, Electronics, and Diesel technology ranked highest. See Table V, p. 22.

Area 2 - North Central

The North Central area of the state yielded a 51 percent sample, 50 percent of the boys, 52 percent of the girls (Table I, p. 8). Table II, p. 9 shows that 47 percent of the students were planning to attend college. Thirty-five percent had attended last year. Specifics on boy-girl ratio and projected numbers are on page 37, Table AI in the Appendix.

Although the North Central area actually enrolled a higher proportion than any other area, (4.4 percent) as shown in Table III, p.11only about 10 percent, 5.8 and 4.5 of the seniors plan to enroll in NVTS and other vocational schools respectively. Details on this item as well as the following are presented in Appendix Tables AI through A V.

For students who would attend a vocational-technical school if it were in their area of the state, the figure was 17.4 percent. This was second only to the Panhandle area with 21 percent.

With 7.6 percent Area 2 is highest in proportion of students who would enroll in a vocational school but could not because of financial reasons.

Auto Mechanics technology, Data Processing, Electronics, Welding and Metallurgy and Diesel technology were high interest programs in Area 2, Table V, p. 22.

Area 3 - Northeast

Forty-one percent of the senior boys and 39 percent of the senior girls, or a total of 40 percent of the high school seniors, were included in the Northeast area sample (Table I, p. 8). Approximately 47 percent of these senior students were planning to go to college. Such a low rate of anticipated college enrollment was reported in only one other area, the Southeast. Projected numbers and boy-girl ratio can be obtained from Appendix Table AI, page 37. Table II, p. 9, shows the 47 percent figure in striking contrast with 29 percent of last year's seniors who went to standard colleges.

The number of seniors considering enrolling at the Nebraska Vocational-Technical school was 190. Most of them, 185 were boys. Percentagewise Area 3 with 6.1 followed only the South Central and Panhandle areas with 7.4 and 6.6 respectively. For specific figures see Table AII, p. 37.

The Northeast area reported the highest percentage (10.6) and greatest number of its seniors (338) planning to enroll in vocational schools other than Milford. That is, 153 boys, 9.3 percent and 185 girls, 12.1 percent. The 16.7 percent planning to enroll in all vocational schools is in contrast with 3.6 percent of last year's graduates who enrolled.

Compared to the 190 who plan to attend NVTS, 376, or about two times as many would attend if it were in their area, according to the administrators. Appendix Table AIV, p.38, shows the specific percentages and projected numbers. Area 3 reported the highest number of seniors in this category.

Financial reasons will keep 129 or 4 percent of the Northeast area students from attending the school at Milford. See Appendix Table A V, p.39. In this category only the North Central area with 7.6 percent and the Panhandle area with 5.8 percent exceed 4 percent.

In terms of subject matter interest in the Northeast area, Auto Mechanics technology, Data Processing, Auto Body, Diesel, Electronics, Welding and Metallurgy technology ranked highest. See Table V, p. 22.

Area 4 - South Central

Thirty-one and one-half percent of all high school seniors were included in the Area 4 sample: 32 percent of the senior boys and 31 percent of the senior girls. This area returned the second smallest proportion (Table I, p.8) of any area in the state.

Approximately 55 percent of these senior students were planning to go to college. This was exceeded only by the Omaha and Panhandle areas with 64 per cent and 60 percent respectively. Projected numbers and boy-girl ratio can be obtained from Table AI, page . Table II, p.9 shows the 55 percent figure in contrast with 42 percent of last year's seniors who went to standard colleges.

The number of seniors considering enrolling at the Nebraska Vocational-Technical school was 249. All except 3 of them were boys. Percentagewise Area 4 led all other areas with 7.4. Numberwise the 249 was exceeded only by the 257 in the Southeastern area, wherein NVTS is located. For specific figures see Table AII, p.37.

Seventy-six boys, 4.5 percent and 54 girls, 3.2 percent or a total of 130, 3.8 percent of the seniors in Area 4 plan to attend vocational schools other than Milford. Only the Omaha area reported a lower percentage (3.0) planning to enroll in other vocational schools. Area 4 reported the low rate of 1.3 percent of last year's graduates attending vocational schools, while 11.2 per cent of this year's seniors were reportedly planning to enroll.

Compared to the 249 who plan to attend NVTS, another 344 or 10 percent would enroll if it were in their area according to the administrators. Appendix Table AIV, p.38, has the specific percentages and projected numbers.

Financial reasons will keep 2.4 percent, or 82 South Central area students from attending the school at Milford. See Appendix Table A V, p. 39. In this category also, only the Omaha area with less than one percent, reported proportionately fewer seniors with financial limitations.

In terms of subject matter interest in Area 4, Auto Mechanics technology, Data Processing, Auto Body, Electronics, Drafting and Diesel technology ranked highest. See Table V, p. 22.

Area 5 - Southeast

The Southeast area of the state yielded a low 27.5 percent sample, 28 percent of the boys, 27 percent of the girls, (Table I, p. 8). Table II, p.9 , shows that 47 percent of the students were planning to attend college. Only from one other area, the Northeast, was such low college enrollment anticipated.. Forty-two and one-half percent of last year's students enrolled in standard colleges, according to administrators. The number planning to go to college, 2418 was exceeded only by the 3345 in the Omaha area. Specifics on boy-girl ratio and projected numbers are on page 37, Table AI in the Appendix.

Although the Southeast Area actually enrolled 2.4 percent of last year's seniors in vocational schools, 10.2 percent, as shown in Table III, p.11 ,plan to enroll in NVTS (5 percent), and other vocational schools (5.2 percent) this year. Details on this item as well as the following are presented in Appendix Tables AI through A V.

For students who would attend a vocational-technical school if it were in their area of the state, the figure was 5.5 percent. This was second low only to the Omaha Area with 4.5 percent. Since NVTS is located in Area 5, it is assumed that administrators were suggesting the need for even closer proximity to vocational programs.

In this area 151, or 3 percent of the students would enroll in a vocational school but could not because of financial reasons.

Auto Mechanics technology, Auto Body, Diesel, Data Processing and Welding and Metallurgy technology were high interest programs in Area 5, Table V, p. 22.

Area 6 - Omaha Area

A total of 57 percent of the high school seniors were included in the Omaha Area sample (Table I, p.8). This represented the highest percentage of any area. Fifty-eight percent of the senior boys and 56 percent of the senior girls were represented. Approximately 64 percent of these senior students were planning to go to college. This was also the highest percentage from any area. Projected numbers and boy-girl ratio can be obtained from Appendix Table AI, page 37. Table II, p.9 shows the 64 percent figure in contrast with 49.8 percent of last year's seniors who went to standard colleges. From no other area did more than 42.5 percent of last year's seniors pursue college programs.

The number of seniors considering enrolling at the Nebraska Vocational-Technical school was a low 44, less than one percent. All but two were boys. For specific figures see Table AII, p. 37.

Forty-nine boys, 1.8 percent and 109 girls, 4.3 percent or a total of 158 or 3 percent of the seniors in Area 6 plan to attend vocational schools other than Milford. No other area reported so low a percentage (3.9) of students planning to enroll in vocational schools. Of last year's seniors 3.5 percent enrolled in vocational programs.

Compared to the 44 who plan to attend NVTS, 231 or five times as many would enroll if it were in their area according to the administrators. About four times as many boys and 28 times as many girls would attend. Appendix Table AIV, p.38 shows the specific percentages and projected numbers. Area 6 reported the smallest (4.5) percentage of seniors in this category.

Financial reasons will keep only 49, less than 1 percent, of the Omaha Area students from attending the school at Milford. See Appendix Table A V, p. 39. In this category no other area reported so small a percentage of seniors with financial restrictions.

Only in the Omaha Area was there pronounced interest indicated in "other" subjects than those listed on the form. Eleven and three-tenths percent, 588

of the seniors in Washington, Douglas and Sarpy counties reportedly would be interested in vocational programs not currently being provided at Milford. Perhaps the fact that only 8 percent of the interest in "other" programs came from outstate Nebraska could be attributed to a lack of familiarity with the possibilities on the part of administrators outside the Omaha Area. In terms of specified subject matter interest in the Omaha Area, Drafting technology, Building Construction, Welding and Metallurgy and Data Processing technology ranked highest. See Table V, p. 22.

Conclusions and Implications Drawn from the Study

The following conclusions and implications are drawn from responses of school administrators projected to represent almost twenty thousand seniors in 169 of Nebraska's secondary schools:

1. Administrators are overly optimistic in their expectations on college-going rate of high school seniors.

According to administrators, almost one-half to two-thirds of the students in each area were planning to go to college. Actually, only in the Omaha Area did a figure approaching one-half (49.8) of last year's graduates enroll. In the other five areas of the state the range was from 29 to 42.5 percent. The state average of administrators' expectancy of college attendance was 54 percent while the reported actual enrollment was only 42 percent of last year's seniors.

In addition, hundreds of Nebraska high school graduates register for college but never persist to complete the college program, or even the first year. Glenny[3] reported that less than one-half complete more than two years. The 1955-59 average college drop-out rate after initial registration for Nebraska students was 12.4 percent. Projecting that rate to this year's seniors planning to enroll in college yields more than 1300 college bound students who will not continue beyond their first registration.

Another 2450 seniors, 23.2 percent will complete one year or less of college. These 3750 students are obviously inclined toward advanced preparation and should seek some means of developing saleable skills. Thus, they might well become candidates for vocational-technical education.

Such statistics point to the need for effective guidance programs on the part of parents and in the secondary schools of Nebraska. The counselor, viewed as the most competent source of information on educational and occupational matters, needs current and accurate information about the world of work.

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[3]Glenny, op. cit., p. 25.

They should have test and biographical data on each student. They should be able to help young people decide whether they can or cannot succeed in a job or in advanced training.

While others may instill in students a false desire to go to college, the counselor advises them on whether they can make it. After helping them select occupations for which they may be best suited counselors should advise as to whether they should attend a standard college or pursue some other program of vocational preparation.

2. The scope of vocational education subject matter in Nebraska needs to be broadened.

Administrators indicated quite pointedly that if extended and expanded programs were available they would be patronized, and that certain programs not presently being provided are urgently needed. Analysis of occupational distribution and trends of the labor force reflect that while there is need to extend present programs to more people, there is likewise justification for expansion of vocational programs commensurate with the growth of jobs. Educational programs should encompass the breadth of occupations in which Nebraskans work.

It is imperative that programs preparing youth and adults for productive occupational life reflect trends such as the following:

Greater proportions of professional managerial and technical jobs in all fields with an accompanying decrease in need for unskilled laborers

Increase in agricultural service and technical jobs; fewer farmers, but with greater need for education and management ability

Increase in clerical, bookkeeping, data processing, sales and distribution work, as well as governmental, home and family, and institutional jobs

Increase in skilled craftsmen, service and operative jobs in the trades.

Increasingly, adults are demanding that educational facilities be provided for them. Men, and women too, particularly when they go back to work, need courses which will aid them in their jobs.

3. Vocational-technical programs should be provided reasonably close to all citizens.

Studies reveal that higher rates of advanced education occur in proximity of public institutions. The importance or nearness to vocational programs was emphasized in this study by the fact that the greater distance an area is from the present vocational schools, the stronger was the response that students would attend if such were in their area. Four times the number of students currently enrolled in the Nebraska Vocational Technical School would enroll in such programs if the geographical, and closely related financial barriers were not present. Geographical distance, eliminates more students than does financial limitation.

4. There is need for more vocational education programs at both the high school and post high school levels.

According to the United States Census of Population, 1960, Table 47, more than one-half, 52.3 percent of all Nebraskans 25 years of age or more did not complete high school. (Only 6.8 percent graduated from college.) Although improving, it is estimated that one out of every three or four Nebraska youth still does not finish high school.

Organizational structure should be such that high school students, high school drop-outs, graduates and adults can capitalize upon opportunities for training. Those who are employed and are preparing to advance on their present jobs or seek more favorable employment, as well as the unemployed who could become full-time students must be considered. Those with physical, mental, economic or other handicaps should be provided for as well.

It may be most desirable to provide certain types of programs through local comprehensive secondary schools, while others with high equipment requirements and/or limited enrollment potential may best be provided through new or existing facilities on an area basis. The area school concept should be considered for certain programs at both high school and post high school levels.

The review of related studies pointed out the problem that vocational-technical programs established in connection with four-year colleges may become engulfed in the "academic" atmosphere, while schools designed entirely for trade training may be too narrow. This thought lends support to the development of community colleges and the broadening of the functions of existing Junior colleges both in theory and practice toward the true community college concept.

5. The State of Nebraska should assume more legislative or supervisory and financial responsibility for training and retraining more of its youth and adults.

The "baby boom" youngsters of the 1940's are coming of age. Nebraska youth can expect keener competition for available jobs. An outcome of the increase in population, automation and other factors is a surplus of unskilled workers for the available jobs. At the same time many jobs requiring skilled workers go unfilled.

Nebraska, being quite rural-oriented, might well consider the following excerpts from Rural Youth Need Help in Choosing Occupations by Michigan State University sociologist, A. O. Haller:

> "The evidence is quite clear that, on the average, rural schools are still not doing as effective a job of preparing youngsters for the world of work as urban schools. We need to expand the facilities for providing instruction basic to all types of work in which young people will engage. It is taken for granted that college preparatory courses are satisfactory for those entering college, but a basic train-

ing program for others in not so easy to visualize . . . rural youth -- including farm youth - are on the average somewhat less well prepared for successful entry into the occupational world than are urban youth. Their college and occupational aspirations are lower. They also are less successful than urban youth in the sense that they have more trouble getting a permanent job and that their jobs are not as good.

Rural youth also tend to be less well educated. The schools they attend are not as adequately staffed and equipped on the average as are the urban schools. They tend to drop out of school at an earlier age.

Quality of schools. If a youth has to attend a school that lacks an adequate teaching program, he will be handicapped in competition for the better jobs. Research information is clear on this: The larger the high school, the higher the probability that youth will do outstanding work in college. The larger high schools tend to have the most elaborate teaching equipment -- libraries, laboratories, etc. -- and the most competent teachers. It is important that everyone recognize this tendency. Although many people appear to believe that smaller high schools are better places to learn, the reliable evidence supports the opposite tendency."

Facilities. This involves not only georgraphical proximity and quality of schools but also financial resources available. Advanced and vocational education costs money. Howard Rosen suggested in the May 1964 "Occupational Outlook Quarterly" that the Federal Congress looked toward it as an investment in the future of three quarters of a million youth, 18 to 24 years of age, who were neither enrolled in school nor employed. It recognized that the $1500 per student cost for training and redirecting into useful occupations was far less than the estimated $30,000 needed to support a "hard-core" unemployed person during a lifetime of dependency.

This report summarizes facts and opinions submitted by administrators projected to represent 169 secondary schools in Nebraska, relative to the number of students desiring and pursuing vocational technical education beyond the secondary level. The key findings follow:

1. Adminstrators indicated that 54 percent of the 1964 seniors are planning to enroll in standard colleges. Only 42 percent of the 1963 graduates actually enrolled. It is unlikely that the high college-going rate will materialize.
2. No more than 3 out of 10 seniors are expected to complete four-year college programs to enter professional work. Just one in ten plans to enroll either at Milford or another vocational school. Only two in ten would enroll if a school were located in their area.
3. More than nine hundred seniors were reportedly considering enrolling in the Nebraska Vocational-Technical School (NVTS) at Milford. About six hundred others were discouraged because of financial limitations. Still others were discouraged because of the limited capacity at Milford.
4. One thousand eighty-five, about twice the number currently enrolled at Milford plan to attend vocational schools other than Milford.
5. Projections show that 1753 seniors would attend a vocational-technical school if one were located in their area of the state -- three times the present capacity of the Milford facility.
6. Although present NVTS programs such as Auto mechanic, Auto body and Data processing technician ranked high in interest among seniors, several other technical training programs such as the following drew considerable write-in interest: agricultural, business, clerical and stenographic, cosmetology, distributive, foods, practical nursing and printing.

Chapter III

Conclusions and Recommendations

Nebraska must recognize a tragic recess in her educational program--vocational technical education. The resulting loss of manpower and brainpower to individuals, the state and to the nation is one of the greatest problems of our day. She should act to bridge the gap.

Education in Nebraska should be made more realistic in terms of abilities and interests of both youth and adults toward fulfilling the needs of the nation's labor market.

It is imperative that programs preparing Nebraska youth and adults for productive occupational life reflect trends such as the following:

Greater proportions of professional managerial and technical jobs in all fields with an accompanying decrease in need for unskilled laborers.

Increase in agricultural service and technical jobs; fewer farmers, but with greater need for education and management ability.

Increase in clerical, bookkeeping, data processing, sales and distribution work, as well as governmental, home and family, and institutional jobs.

Increase in skilled craftsmen, service and operative jobs in the trades.

One of the things that has been learned for sure about vocational education is that such education can best be provided immediately prior to or during the early stages of employment. Accordingly, there has been a tendency in recent years to confine vocational technical education to the upper two grades of the high school and to the post-high-school level, and to place increasing emphasis on adult vocational education. (Principle of Proximity).

Many states have already turned to the area vocational technical school as a means of providing functional vocational education. The Vocational Education Act of 1963 will accentuate this movement everywhere, as at least

one-third of the funds authorized under this Act are earmarked for area vocational schools or the training of post-high-school youth and adults.

Nebraska is long overdue for programs in this area! Nebraska should add this new avenue of opportunity! Keeping open this gateway is critically important in making it possible for the more than 80 per cent who do not complete a college program (one out of every three or four Nebraska youth still does not finish high school) to become prepared for the work in which they will engage.

Vocational technical schools are an important factor in attracting and holding industry in the state and in raising the economic level of the people. It has been established that industry keeps a sharp watch on the area around a vocational school as a place to put a factory. There is abundant evidence of a need for the State Government to become increasingly involved financially toward expanding and extending vocational technical programs. It is recommended that the Nebraska State Legislature, in order to develop an adequate system of such schools, take immediate action to provide funds and establish basic criteria and governing body, to develop an area vocational technical school, and in the near future, establish more such schools. (Principle of educational opportunity as a state responsibility). It could involve joint state-area efforts.

The latter approach would have the obvious advantage of more direct area involvement. Coupled with it, however, is the rather serious problem of equalizing the tax ability-tax effort ratio for each area. The state would perhaps need to finance 75 per cent of the cost in one area, while in another area it would finance only 25 per cent. (Principle of equity).

Advantages of the State operation include the rate of directness with which essential vocational technical education programs could be effected and

adjusted, coordination and efficiency, equity of tax effort and uniformly high standards.

It is visualized that the State's demands for certain vocational programs might require only one school, in which case State funding would seem most feasible. (Principles of balance and maximizing resources).

Involvement of the public via consulting committees to represent the world of work and interpret its requirements is encouraged. (Principle of interest and local need as basis for instructional programs).

The importance of the State administering, establishing and maintaining certain minimum standards and providing coordination and supervision of vocational technical education is obvious. Encouragement toward district or area organization on an efficient, convenient, and economical basis is a proper function of the State Board. (Principles of concentration of resources and minimizing duplication).

It is recommended that the state adopt a policy of furnishing state funds for the equipment and operation of a vocational technical education program, whether the program is in a separate entity or in another institution.

It is recommended that whenever the Legislature determines upon the basis of criteria and need a vocational technical school is to be established, the community involved should be encouraged to provide the facilities. That if the community cannot do this then the state may meet this responsibility.

The Legislature should assign broader responsibilities to the existing State Board for Vocational Education. Vocational technical education clearly must become an integral part of Nebraska's program of public education, both at the secondary and post-secondary level.

It is unanimously recommended that the state supported vocational technical schools be operated on a 12 month basis.

It is unanimously recommended that the State Board of Vocational Education be empowered to employ staff and/or enter into joint contract with other insti-

tutions to develop a comprehensive vocational technical education program.

Since some of the area schools proposed for Nebraska may be near existing public high schools, colleges and/or University facilities no single institutional structure is designated. Rather, the State Board is granted flexibility, and is encouraged to contract with the most appropriate institution in each area. For example, it is appropriate that the State Board should contract with the University for teacher education, curriculum development, teaching materials, research and staff. It might contract for facilities from a local high school and teachers from a College.

The committee feels it is desirable to establish a long-range program for vocational technical education, and that the Legislature might consider, among others, the following criteria: (Principle of long range planning).

a. to provide with State funds, a system of (6-10) post-secondary schools whereby (90) per cent of Nebraska's citizens are included within a (50-60) mile radius of one. This could include a State Foundation Program ($500 or 75 per cent) of the per pupil cost with local area providing the remainder -- or -- to provide the above at a maximum tuition rate of ($150) per student per year. (Principles of proximity and availibility).

b. to require that at least five kinds of vocational courses be provided for establishment of area schools. These to be coordinated. (Principle of comprehensive programs-balance).

c. to require a minimum of ($3000 per student) capital outlay for establishing area schools.

d. To require a minimum assessed valuation of ($50 million) financial base for establishing an area post secondary school --- ($20 million) for area secondary programs.

e. to require a minimum of (30,000) gross population or (2,000) high school student base of potential enrollment for establishment of an area post secondary school --- (20,000) population or (2,000) high school students for an area vocational program through a comprehensive high school.

f. to integrate a system and staff to accurately and continuously estimate employment needs and evaluate vocational technical education programs.

It is recommended that the first priority location for a vocational technical school should be North Platte. It is recognized that there are also critical

needs elsewhere in Nebraska, and that the Legislature should determine on the basis of need, where other schools will be placed.

The State Board should when feasible, contract with the North Platte schools and College and with the University (North Platte Station) for staffing. (Principle of concentrating and maximizing resources).

America knows, and Nebraska knows that Vocational Education is the individual's gateway to opportunity, and the state's roadway to a growing economy and the Nation's highway to prosperity.

If Nebraska's educational needs are to be met, politicians, parents, professional educators and the public must look beyond the vested interests of their own districts and join in the forging of a state-wide plan. Rather than a "my town or none" approach, we must cooperate and work toward a sound district organization within a sound state system. This philosophy was well expressed recently by Dr. Milo Bail, the President of Omaha University when he said, " The people of Omaha don't have horns and neither do the people of Lincoln. For once, let's not do something for Omaha or for Lincoln or for out-state or for in-state ... Let's do something for the whole state of Nebraska."

APPENDIX A

Table AI. Numbers and Percentages of Seniors Planning to Go to College, by Sex and by Area

AREAS	BOYS		GIRLS		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Area 1	431	57.4	452	63.5	883	60.3
Area 2	251	42.6	327	51.4	578	47.3
Area 3	760	46.4	726	47.4	1486	46.8
Area 4	919	54.2	943	55.7	1862	54.9
Area 5	1227	47.7	1191	45.9	2418	46.8
Area 6	1777	67.4	1568	61.0	3345	64.3
State	5365	54.3	5207	53.5	10572	53.9

Table AII. Seniors Considering Enrolling at the Nebraska Vocational Technical School, by Sex and by Area

AREAS	BOYS		GIRLS		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Area 1	90	12.0	6	0.77	96	6.6
Area 2	69	11.7	4	0.61	73	5.8
Area 3	185	11.3	5	0.33	190	6.1
Area 4	246	14.5	3	0.19	249	7.4
Area 5	257	10.0	0	0.0	257	5.0
Area 6	42	1.6	2	0.07	44	0.85
State	889	9.0	20	0.21	909	4.6

Table AIII. Seniors Planning to Attend a Vocational School Other Than Nebraska Vocational-Technical School, by Sex and by Area

AREAS	BOYS		GIRLS		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Area 1	74	9.9	63	8.9	137	9.4
Area 2	22	3.8	33	5.2	55	4.5
Area 3	153	9.3	185	12.1	338	10.6
Area 4	76	4.5	54	3.2	130	3.8
Area 5	96	3.7	171	6.6	267	5.2
Area 6	49	1.8	109	4.3	158	3.0
State	470	4.8	615	6.3	1085	5.5

Table AIV. Numbers and Percentages of Seniors Who Would Attend a Vocational-Technical School If It Were in Their Area, by Sex and by Area

AREAS	BOYS		GIRLS		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Area 1	217	28.9	87	12.2	304	21.0
Area 2	162	27.5	54	8.5	216	17.4
Area 3	310	18.9	66	4.3	376	12.0
Area 4	299	17.6	45	2.6	344	10.2
Area 5	185	7.2	97	3.7	282	5.5
Area 6	175	6.6	56	2.2	231	4.5
State	1348	13.6	405	4.2	1753	8.9

Table A V. Numbers and Percentages of Seniors Who Would Enroll in Nebraska Vocational-Technical School But Cannot Because of Financial Reasons, by Sex and by Area

AREAS	BOYS		GIRLS		TOTAL	
	Number	Percentage	Number	Percentage	Number	Percentage
Area 1	69	9.2	16	2.3	85	5.8
Area 2	83	14.1	12	1.8	95	7.6
Area 3	126	7.7	3	0.17	129	4.1
Area 4	79	4.6	3	0.19	82	2.4
Area 5	121	4.7	30	1.2	151	3.0
Area 6	42	1.6	7	0.28	49	0.95
State	520	5.3	71	.73	591	3.0

FORM No. 1

A Committee of the Legislative Council is [illegible] additional vocational technical school. [illegible] requested below will be of great value [illegible] needed, the type of training which should be offered, [illegible] located. Will you please complete the following [illegible] the Legislative Council, 1104 State House, Lincoln [illegible] cooperation.

1. Number of seniors in your high school. Boys_____ Girls_____

2. Number of seniors planning to go to college. Boys_____ Girls_____

3. Number of seniors seriously considering enrolling in the Nebraska Vocational School at Milford. Boys_____ Girls_____

4. Number of seniors who would enroll at Milford but cannot because of financial reasons. Boys_____ Girls_____

5. Number of seniors who would attend a vocational-technical school if facilities were located in their area of the state. Boys_____ Girls_____

6. Number of seniors who plan to attend a vocational school other than Milford. Boys_____ Girls_____

7. Number of last year's seniors who enrolled in a vocational-technical school. Boys_____ Girls_____

8. Number of last year's seniors who enrolled in a standard college. Boys_____ Girls_____

Indicate the number of seniors who would be interested in enrolling in the following programs such as are now being offered at the Nebraska Vocational-Technical School at Milford.

Auto Body Technology	_____	Electrical Technology	_____
Auto Mechanics Technology	_____	IBM Data Processing	_____
Building Construction Technology	_____	Metals Technology	_____
Diesel Technology	_____	Air-Conditioning Technology	_____
Drafting Technology	_____	Welding & Metallurgy Technology	_____
Electronics Technology	_____	Others	_____

Name of School Reporting_____

Fern Hubbard Orme, Chairman
Legislative Council Committee
on VOCATIONAL TECHNICAL SCHOOLS

F. Orme

FORM NO. II

A committee of the Legislative Council is conducting a study of the needs of additional vocational technical schools in Nebraska. Some communities have expressed an interest in having such a school located in or near their particular locality.

This Committee has requested the members of the Legislature to assist in gathering additional data as to the needs for more such schools and where they could best be located. They have been asked to contact communities in their districts which have an interest in a school being located there and request them to submit that information which they deem relevant to population, potential facilities, transportation, and any other which would have a bearing on the location of an additional vocational school.

If your community has an interest in such a school, the Committee would appreciate receiving the plans which have been developed or any other pertinent data. Address all replies to the Legislative Council, 1104 State Capitol, Lincoln, Nebraska 68509.

Sincerely,

Fern Hubbard Orme

Fern Hubbard Orme, Chairman
Legislative Council Committee
on VOCATIONAL TECHNICAL SCHOOLS

VT 000 829

VT 000 829
Changing Workforce Characteristics of an Automated Insurance Company, A Supplementary Report to A Large Life Insurance Company Automates, Workforce Implications of Computer Conversion. (Automation Program Report, no. 3 supplement).

Wisconsin State Employment Service, Madison
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*INSURANCE COMPANIES; *PERSONNEL; CLERICAL WORKERS; ELECTRONIC DATA PROCESSING; *EMPLOYMENT TRENDS; EMPLOYMENT PRACTICES; PROFESSIONAL PERSONNEL; ADMINISTRATIVE PERSONNEL; *AUTOMATION; *ORGANIZATIONAL CHANGE; INDIVIDUAL CHARACTERISTICS; EMPLOYMENT PROBLEMS; SALARIES; COMPARATIVE ANALYSIS

End-of-year personnel and payroll data for 1956 and 1962 were used to study the staffing pattern of all home office employees in affected, unaffected and created divisions before and after conversion to Electronic Data Processing (EDP). Some conclusions were (1) The outstanding result of conversion to EDP is a need for fewer new workers (this decrease occurred entirely in entry and routine classifications), (2) EDP eliminated more positions than it created, (3) Typing and shorthand ability, rather than college education, would enhance employability of female applicants, (4) The need for male workers in the home office dropped after conversion, and (5) A college education would enhance the employability of male applicants. Significant changes occurred in the following wage classification groupings: (1) the middle management and professional grouping increased, (2) the entry in routine clerical grouping declined, (3) the stenographic and secretarial grouping increased, (4) the unclassified grouping increased, and (5) the agency premium processing job was eliminated. (SL)

ED027441

UNITED STATES EMPLOYMENT SERVICE

Automation Manpower Services Program

Demonstration Project No. III

AUTOMATION PROGRAM Report No. 3 SUPPLEMENT

June 1964

CHANGING WORKFORCE CHARACTERISTICS OF AN AUTOMATED INSURANCE COMPANY

A Supplementary Report to
A LARGE LIFE INSURANCE COMPANY AUTOMATES
Workforce Implications of Computer Conversion

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT000829

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WSES-3076

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FOREWORD

Twenty Automation Manpower Services demonstration projects were started in eleven States during 1961-63, to gain experience with labor market problems arising from changing technology and mass layoffs. The projects are financed and guided by the United States Employment Service and conducted by affiliated State Employment Services.

The fundamental aim is to combine action and research to demonstrate what the Employment Service can do in rapidly changing labor markets.

In this general context, the projects are designed to:

1. Provide direct intensified personnel service to affected workers to promote occupational reorientation, minimize duration of unemployment, and to experiment with training and retraining techniques.

2. Analyze changing jobs and staffing patterns to gain information about evolving job content and training requirements in establishments affected by technological change.

3. Conduct labor market and related research in conjunction with these projects to develop procedures and methods that will assist the Employment Service in carrying out effective manpower actions in advance of the development of problems.

While the projects cover a broad range of remedial manpower actions -- from the use of training funds to development of aptitude tests for new occupations -- not every project includes the whole range of possible actions. Each project is tailored to the manpower problem presented by the particular case, whether it involves layoffs, in-plant workforce adjustments, reduced hiring, or the need for all-out community action.

As each of the present and future projects reaches a point at which summarization of experience and findings is possible, reports will be prepared for this series of Automation Program Reports, so that the project results may be disseminated throughout the public Employment Service system, and used to improve manpower planning and operations.

Louis Levine, Director
United States Employment Service

BUREAU OF EMPLOYMENT SECURITY, Robert C. Goodwin, Administrator

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PREFACE

The Wisconsin State Employment Service, in collaboration with the Automation Manpower Services Division of the United States Employment Service, has focused the attention of its Project on Automation and Technological Change on a large-sized life insurance company. This establishment, already one of the most efficient in the country in terms of costs per premium dollar, has been engaged for several years in computerizing hand-and-machine office procedures.

This report supplements an earlier report -- A Large Insurance Company Automates, Work Force Implications of Computer Conversion. It is an amplification of several portions of the original report -- those dealing directly with work force implication of the change.

In an attempt to disclose these implications a closed-end (before/after) pictorial framework is used. A comparison of work force personnel characteristics was made, using a date considered to be just prior to the computer and a date considered to be after completion of major conversion. (Prior computer: 12/31/56; after conversion: 12/31/62).

The summary statements, and tables from which they are derived, do not show any shorter-range trends and fluctuations within the six-year survey period. What they do show is the work force characteristics of the insurance company as a whole, and by major personnel breakouts. They also show characteristics of new hires for calendar years 1956 and 1962.

Thus, the breakouts do not stand alone in significance and should be interpreted in context of previous report. This earlier report has detailed the pre-computer operating status of the company and the greatly increased volume and complexity of employee workload. They also have described changes that are still taking place.

We appreciate the extensive cooperation given by personnel of the life insurance company. Without this cooperation the research, and this report would not have been possible.

We also wish to thank the members of the Manpower Services Division of the United States Employment Service and members of various departments within the Wisconsin State Employment Service who gave their time in aiding our studies.

F. J. Walsh, Director
Wisconsin State Employment Service

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INTRODUCTION

What happens to the work force of a large insurance company when it converts to Electronic Data Processing?

Does the company need more or less workers? Do salaries go up or down? Will workers with more or less education be employed? Will more or less women be employed? Will age and tenure go up or down? Does the company need more or less management?

Work force implications of computer conversion were approached piecemeal as conversion progressed in the original report - "A Large Insurance Company Automates". The method chosen by the project staff was to adopt the conventional tools and techniques available to the Employment Service analysts. These tools included the "Dictionary of Occupational Titles" (D.O.T. second edition), Descriptions and Coding Structure, and traditional job analysis tools such as staffing patterns and job analysis schedules. Changes in staffing and jobs, although analyzed only in areas affected or created by conversion, were reported in detail. Analysis was keyed towards clerical employment (company definition). Changes in salary, educational attainment level, age, tenure, and management requirements were reported by a summation of interviews and company publications.

In this report another approach is used. End of year personnel data for 1956 and 1962 for all home office employees was available from company payroll runs. These dates were generally considered, prior to automation -- 12/31/56, and after completion of major conversion -- 12/31/62, by company officials. Thus a detailed before/after pattern of all employees in affected, unaffected and created divisions was depicted on available company records.

The availability of detailed data, while not in a D.O.T. oriented form, still permitted a comparison of all white-collar employment prior to and after conversion through the use of company classifications. Affected areas of employment could be compared with unaffected areas of employment. Employment created directly by the adoption of the new methods, systems and procedures could be compared with employment in affected and unaffected areas, total employment, etc.

Educators, employment counselors, and other students of automation and technological change could be provided with information revealing trends. This information would be limited to generalizations on major trends, since company classifications were not exactly definable in terms of or directly related to other measures. Analysis of a single employer and only at two intervals also limits any trend projection. Nevertheless an opportunity was available to set the record straight on major or general changes in staffing and personnel characteristics.

Company officials agreed to permit use of the information for research purposes. This report is the result of an analysis of the data.

Data available from official company personnel and payroll records was key punched for tabulation. Groupings were arranged by division groupings -- Affected Divisions, Unaffected Divisions, and New Created Divisions; by personnel characteristics -- Average Tenure, Average Age, Average Annual Salary, and Efficiency Rating; by individual wage classification of Clerical, Managerial and Professional, and Total Employment Groupings, and by New Hires within these groupings. Definitions of these groupings are available in the glossary.

Division Groupings

Major division groupings* -- Affected, Unaffected, and New Created Divisions were formed by:

A. First assessing which divisions existing in 1956 had basic and drastic changes in methods, procedures and systems resulting from conversion to electronic data processing. They were classified as Affected Divisions and together formed the major grouping. Second assessing which 1956 Affected Divisions still existed and which of the 1962 divisions were directly descended from 1956 Affected Divisions. Together they formed the 1962 Affected Divisions major grouping.

B. Assessing which divisions were created, either due to the electronic data processing, or which divisions were performing new services made possible by EDP. These divisions were classified as New Created Divisions. If the Created Division did electronic data processing, it was titled a New Created Data Processing Division. These divisions were grouped into a major division grouping -- New Created Data Processing Divisions to identify the characteristics of the New Data Processing jobs. Since a new division in the Treasurer's Department was performing services to policy holders made possible by the computer, it was also desirable to identify the characteristics of these new jobs. Thus, the new created Treasurer's Division is also considered a major divisional grouping.

C. Remaining home office divisions were given the major divisional grouping classification of Unaffected Divisions.

D. In an attempt to emphasize and evaluate the impact of a major development occurring outside of this firm, a major divisional group, comprised of a minimum of 150 positions eliminated at independent agencies, was given major divisional grouping status. This grouping represents 150 or more positions eliminated at agencies when collection of premiums by agencies and financial compensation for this collection and processing ceased. No analysis of jobs at the one hundred agencies scattered throughout the country was possible. Thus no data on personnel characteristics of the workers collecting premiums in 1956 is available. In 1962 the premium collection function was handled in Affected, New Created Data Processing, and New Created Treasurer's Divisions.

* Major divisional groupings are diagramed on page 4.

Wage Classification*

Classification of workers into categories -- considered "Job Classifications" by the employer -- is actually a grouping more closely resembling wage classification. Examination revealed instances where several company classifications could be converted to one D.O.T. code, instances where numerous D.O.T. codes were present under one company classification, and instances where an identical D.O.T. code appeared under more than one company classification. Analysis of this information with the Milwaukee Occupational Field Center -- currently revising the second edition of the D.O.T. -- led to the decision to consider company classifications as wage classifications rather than job classifications. Definitions of major wage classification groupings are explained in the glossary.

While detailed data for all personnel characteristics was available in individual wage classifications, presenting such data would extend the size of this document to the point of being unintelligible. A narrative representing significant comments in summary form is substituted for the detailed numerical presentation.

In an effort to indicate the nature of work performed within individual wage classifications, available job titles are included in the summary of changes occurring within the twenty-eight Wage Classifications. Available data is not uniform or necessarily complete. In most instances company job titles were available and meaningful; in other instances D.O.T. job titles made available through a prior job analysis completed by Employment Service staff were more meaningful. Titles presented were selected on a basis of providing the most revealing representation. Where D.O.T. job titles are used and a staffing pattern is available, it is also used regardless of whether or not it agrees with staffing totals for 12/31/62.

Personnel Characteristics

Characteristics of workers as recorded on payroll or personnel computer and tabulating machine runs are summarized and presented by major groupings of wage classifications and divisions. They are also delineated by sex and new hires. Definitions of personnel characteristics are explained in the glossary.

Matched Workers

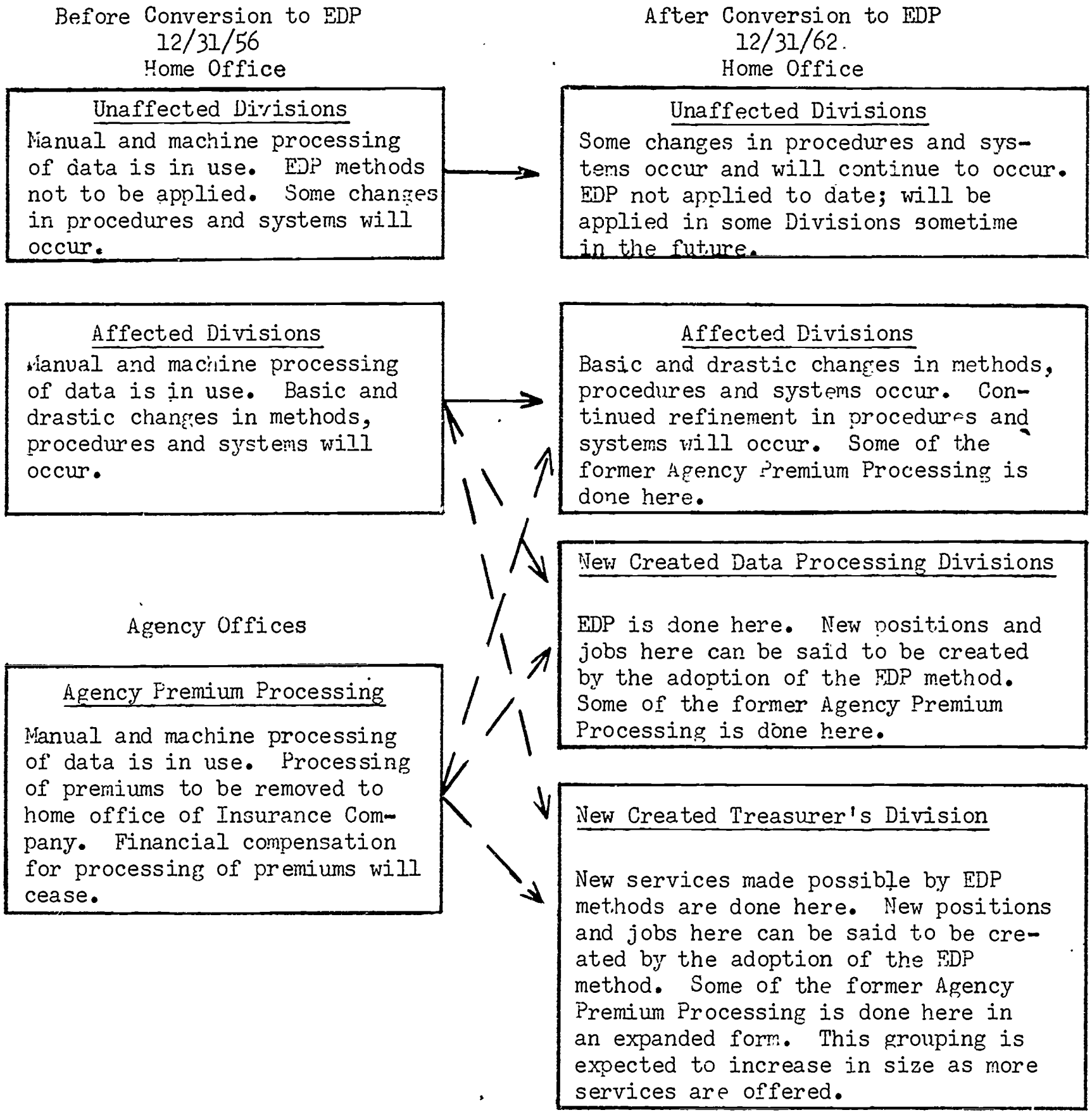
Attempts to compare characteristics of workers employed both in 1956 and 1962 were abandoned, since no payroll number was used and numerous name changes occurred when female employees married.

*Wage classifications comprising the various major divisionals are diagramed on page 5 and wage ranges are illustrated on page 49.

Note: Maintenance and restaurant wage classifications and part-time or temporary employees are excluded from this report.

Figure 1

CHANGES OCCURRING
IN MAJOR DIVISIONAL GROUPINGS

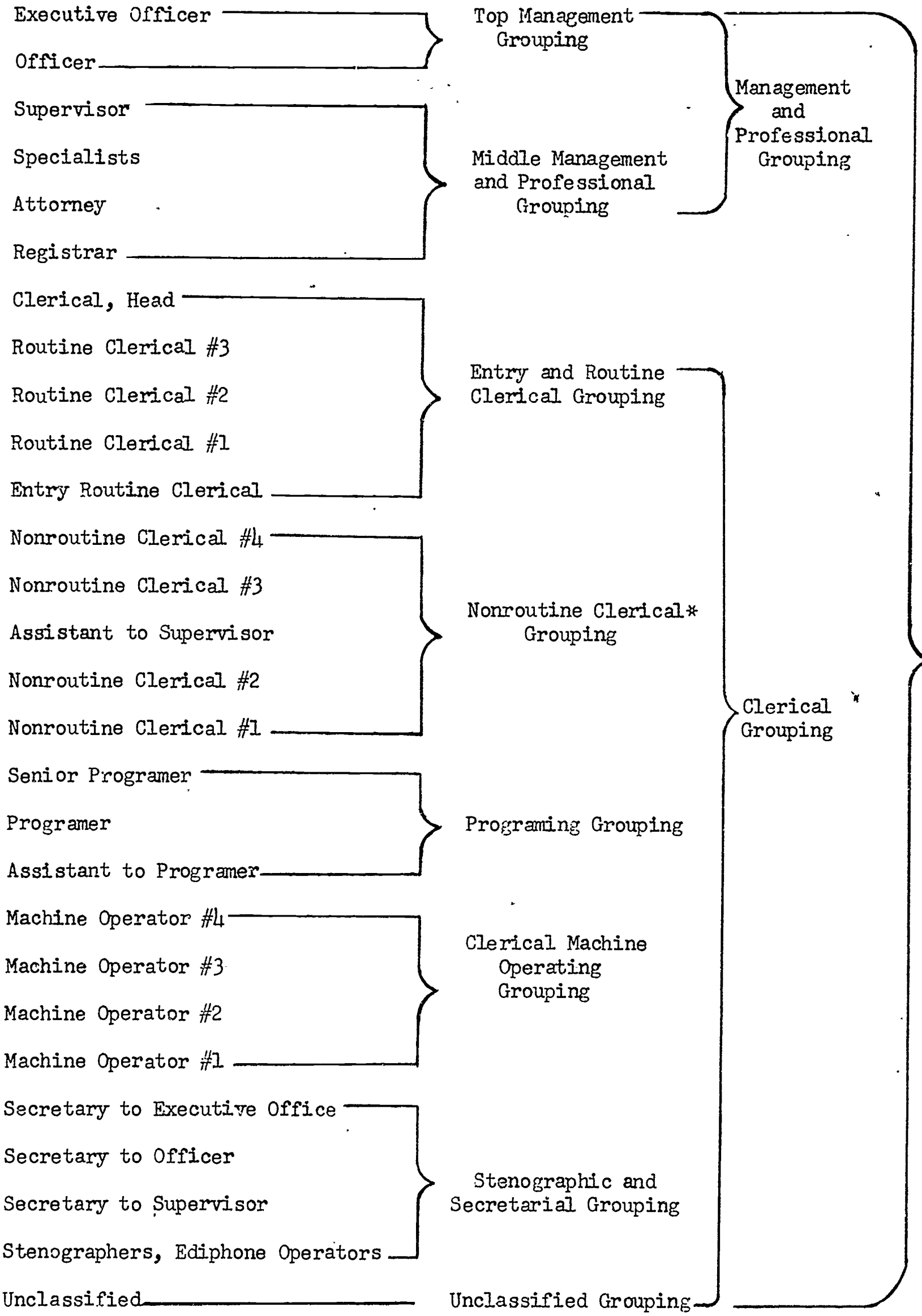


Note:
Solid line - indicates a continuation of function after initial major conversion to EDP.

Broken line - indicates movement of some or all functions to another grouping.

Figure 2

WAGE CLASSIFICATIONS COMPRISING THE MAJOR DIVISION GROUPINGS



* Some of the positions in this grouping could be considered as lower level management.

SUMMARY AND CONCLUSIONS

Automation research such as this, and in general, has thus far been limited to descriptive reports of what occurred or what exists. Thus conceptualization resulting from automation research has also been limited. What then may be concluded from, or what is implied in, the figures presented in this report? Opinions expressed are based primarily on data in this report. They are, however, reported within a fuller context of the original report, A Large Insurance Company Automates, Work Force Implications of Computer Conversion. They are directed toward two concerns:

EDP and the need for workers
EDP and company changes in distribution of occupations - implications for manpower development.

EDP AND THE NEED FOR WORKERS

EDP has had a profound effect both on the number of and type of workers needed. This is especially true when we consider the labor market into which the computer was projected.

The outstanding result of conversion to EDP is a need for fewer new workers, as illustrated by the drop in the number of new hires during 1962. This decrease occurred entirely in Entry and Routine Clerical classifications.

The number of positions created by conversion to EDP was not extensive. The number of new hires for these positions was insignificant in 1962.

EDP eliminated more positions than it created. Conversion to EDP resulted in a net loss of approximately fifty-five positions (95 more at the home office and a minimum of 150 less at the agencies).

If centralization of work at a central computer site is a predominate result of EDP; employment opportunity will shift with it. While computer sites can be anywhere, it is expected that most computer sites will be in large cities. Thus employment opportunities would be increased in large cities at the expense of other areas.

The Need For Female Workers

While the total number of positions at the home office is slightly higher, the change in the rate of hiring is significant. Many girls graduating from high school this June who would have entered the labor market thru employment at this firm must now look elsewhere. More girls will be seeking employment since the number of Wisconsin high school graduates will jump fourteen percent this year and an additional ten percent next year.

Employment opportunities in clerical work at the independent agencies scattered across the nation will also be reduced as the premium collection function is now performed at the computer site - the home office.

Typing and shorthand ability, rather than college education, would enhance employability of female applicants at this firm. The number of women with college degrees or some college did not increase significantly while the number classified as doing work requiring typing and shorthand ability did. This trend was more pronounced where EDP was applied, although a majority of Secretarial and Stenographic employees were assigned where EDP was not applied.

The Need For Male Workers

Although the number of New Hires that are male may continue to increase, it should remain a small portion of the total. EDP temporarily increased the need for male workers at this company, although not significantly. Now that EDP is fully operational, the need for male workers has dropped below that of the pre-computer days in Affected areas. Unaffected areas will, however, hire an increasing number of men. Young male high school graduates have not been hired in significant numbers at this firm for some time. Fewer will be hired in the future.

A college education would enhance the employability of male applicants. The number of men with college degrees increased during the conversion period, while the number doing Entry and Routine or Nonroutine Clerical work, not requiring a college education declined at the home office. This trend was more pronounced where EDP was applied, although three-fourths of all men with college degrees hired in 1962 were assigned where EDP was not applied.

Since male applicants must possess a minimum of some college if they are to be considered by this employer, few if any of the additional male high school graduates entering the labor market will be hired by this employer.

In contrast to the decline in employment opportunities for women at the agencies, employment opportunities for men have and should continue to expand. While not covered in this report on the home office, it is important to mention the increase in employment opportunity in sales work. The number of full time agents has increased considerably and is now an entry area for significant numbers of college dropouts as well as college graduates.

EDP AND COMPANY CHANGES IN THE DISTRIBUTION OF OCCUPATIONS - IMPLICATIONS FOR MANPOWER DEVELOPMENT

Five major changes occurred in the distribution of occupations. Significant changes occurred in the following wage classification groupings:

The Middle Management and Professional Grouping increased
The Entry and Routine Clerical Grouping declined
The Stenographic and Secretarial Grouping increased
The Unclassified Grouping increased
The Agency Premium Processing job was eliminated*

* This function would probably be classified as Routine and Entry Clerical under the home office classification structure

Changes in Wage Classifications clearly reveal the type of upgrading that occurred. No standard for determining changes in "Skill" level is in use,* nevertheless when the number of Entry and Routine Clerical positions dropped, the level of occupational mix was raised. Increases in the Middle Management and Professional Grouping, the Stenographic and Secretarial Grouping, and the Unclassified Grouping added to the "Upgrading".

Where EDP was to be applied a higher percentage of workers were classified as Entry or Routine Clerical. This percentage dropped after EDP was applied, but it also dropped where EDP was not applied revealing the affect of the company-wide decision not to fill vacancies until the conversion to EDP was over.

It also indicated that changes in the procedures and systems associated with EDP may have affected employment where the EDP method was not applied.

Where EDP was done few Entry and Routine Clerical positions were created, indicating the need for "Skill", while where the new services are done, (made possible by EDP) the proportion of Entry and Routine Clerical workers was extremely high.

In addition, where EDP was to be applied, a much higher percentage of workers were rated, indicating work was more routine, more susceptible to efficiency rating, and less influenced by education - as indicated by lower educational attainment levels of workers. After EDP was applied the percent rated did not decrease, nor did the educational level rise significantly.

Top Management Grouping

The slight increase in this Grouping occurred in the Officer Classification of areas affected or created by EDP. Changes in the distribution resulted from transfers of existing personnel rather than New Hires.

Knowledge of company operations and experience, rather than higher educational attainment, was characteristic of management transferred to the area where EDP was applied. Older management with more tenure, higher salaries, and less formal education were transferred to the area where EDP was applied. It is important to note this occurred during conversion.

The Middle Management and Professional Grouping

The size of this grouping increased sharply. The increase occurred entirely in the Specialist Wage Classification as the Number of Supervisors remained constant.

* Although as stated in the original report the third edition of the Dictionary of Occupational Titles will measure "Levels of Complexity".

Changes occurring in classifications above the Clerical level indicate more emphasis should be placed on specialized training leading to professional or semiprofessional occupations and less emphasis should be placed on training for managerial occupations.

Systems analysis was initially accomplished by training existing personnel. This employer coupled knowledge of company operations with the knowledge of data processing available from the IBM Company specialist. This internal method of staffing is still the basic source of systems analysts although promotion to this level is probably faster than in pre-computer days, especially if the new worker possesses mathematical training on a highly sophisticated level.

The Entry and Routine Clerical Grouping

During the conversion period, the size of this grouping declined while total home office employment increased. Significant as this divergent movement by the major subgrouping may seem, when we add the decline at the agencies it becomes even more serious.

The decline in the need for "paper shufflers" has grave implications that female high school graduates entering the labor market without adequate commercial training will not obtain employment.

If this and other firms we have studied are fairly representative of companies in which "paperwork" is a substantial product, EDP has reduced the need for keyboard actuated capture of data.

With the exception of the typist and the possible exception of the key punch operator and the verifier, training of workers for keyboard actuated work is only a short range solution to the employment needs of applicants.

The trickling down of keyboard actuated equipment to smaller employers (now at reduced rentals and purchase prices) has slowed the reduction in the number of workers needed to operate the machines. But to quote an official at the local IBM sales office "This thing (EDP) is going right down to the corner retailer". Thus, operators of keyboard actuated machines which are needed now, will not be needed sometime in the future.

The need for additional key punch training courses is not clear. Improved optical scanning may reduce this type of work. What is clear, however, is the current need for adequately trained key punch operators as trainees are frequently not able to meet acceptable standards.

Nonroutine Clerical Grouping

While this grouping increased slightly, twice as many women and fewer men made up the total. Changes in this Grouping reveal changes in promotional channels.

The grouping is a channel for a small but increasing movement of women to Managerial and Professional positions. Its traditional role as a channel for movement of men to these classifications has declined. The continued decreasein the number of men in Clerical Classifications, especially in the Entry and Routine Clerical Classifications indicates this trend will continue.

Programing Grouping

The number of Programing positions created is not large when compared with total employment at this firm.

Programing personnel initially were obtained by testing and training existing home office personnel. Once the initial staffing was accomplished, outside hiring of programers occurred. These are usually college graduates. Employees selected for programing training that possessed only limited formal education are doing only lower level programing.

While this firm has completed initial conversion and is now recruiting experienced programers or trainees from the outside, initial conversion to electronic data processing is still occurring in many firms. It is safe to assume that both internal and external channels are still open to those seeking employment as a programer.

"Quickee" courses in programing are not accepted by employers who can give this type of familiarization to employees themselves or send them to training sessions at computer manufacturers training facilities.

Clerical Machine Operating*

A number of console operator positions were created by conversion to EDP. Here as well as in the Programing Classification the number of positions created is not large.

Responsibility for the operation of the large computer (Senior Console Operator) is considered a Managerial or Professional Classification by the employer and is included in the Middle Management and Professional Grouping.

The decline in the number of tabulating machine operators had not cul minated by 12/31/62. Thus the size of this unit is overstated.

Training of computer console and peripheral equipment operators has thus far been handled mainly by the employer. Employees are usually sent to the equipment manufacturer's training facilities. The value of this type of training before securing employment with a given employer is limited, since employers usually do not accept it, although they will accept experienced workers. Channeling of entrants into this type of work has been predominately based on first obtaining employment with an automating firm.

* Tabulating machine and computer console operators are grouped in this classification. Operators of other types of office machines (keyboard actuated) are included in the Entry and Routine Clerical Grouping.

The Stenographic and Secretarial Grouping

This Grouping increased at a rate far above that of total employment.

Typing training must be given to more students as EDP has thus far generated more typing work than it has eliminated.

Improvement in the quality of training is imperative because the level of work is more complex. Repetitive typing is eliminated by EDP; non-repetitive typing is generated. The ability to set up varied formats, special tables, etc. will now be required. This ability can be acquired only if a sufficient number of hours are allotted to typing training.

Unless training in typing is improved and given more status in secondary schools we will face a continued and increased paradox of more employment opportunities we cannot fill, while more and more unqualified applicants are available.

Shorthand training must also be extended to more students. As in the past, it must be extensive enough to fully train the individual. Marginal training is not of value.

If the short duration of employment experienced by most of todays female workers limits the expertise a girl can acquire, young men could again be directed toward this vocational area.

Finally, it must be noted that the appropriateness of the above statements must be continuously updated in this era of rapid technological change. Improved methods of converting input data could further alter the above needs. This should be watched for, along with other potential improvements.

Unclassified Grouping

While changes in corporate structure had already slowed the movement from office boy to Managerial or Professional status, it was probably completely severed by the computer.

Growth in the size of this classification reveals the role it plays as a channel for movement of college trained workers to Managerial and Professional Classifications.

Rather than place the college trained employees in inappropriate wage classifications they are placed in the Unclassified Category.

SYNOPSIS OF THE "WORKERS"

Overall characteristics of company personnel did not change drastically during the six-year conversion period.* In contrast overall personnel characteristics of New Hires and the amount of new hiring did change.

Additional internal changes resulting from transfers and changes in channeling of New Hires occurred. These changes would tend to balance out in the overall comparison. Thus if the impact of EDP is to be assessed one must evaluate change by contrasting areas where EDP was or was not applied, where it is done, and where new units have been created.

Within this structure it is also desirable to compare the characteristics of New Hires with all workers and to compare personnel characteristics of women with those of men. Finally comparisons of wage classifications within this structure add more informative contrasts. However a problem arises when we compare too many areas, because even though they are distinctly different, the comparisons run together. As a result the distinctions become confused and all seem alike. Our solution is to summarize comparisons by personifying groupings. Thus we speak symbolically of the Average Man, the Affected Worker etc.** The resulting image is much more revealing.

THE AVERAGE WOMAN

The Average Woman fared considerably better in 1962 than in 1956. Her salary was substantially higher. Her educational attainment in 1962 remained somewhat similar to that of 1956. She also had a little more tenure. On the negative side, she remained single and was one year older. However, this, too, had its good points as it enabled her to enter Managerial and Professional classifications or advance from Routine to Nonroutine clerical work.

While the Average Woman working in Unaffected Divisions was somewhat indistinguishable from her counterpart working where EDP was applied, a shade of difference was evident. Close examination revealed that the mythical Average Unaffected Woman was almost two and one-half years older and had aged a trifle faster than her counterpart -- the Average Affected Woman. She received a slightly higher salary, had a bit more tenure, and had reached a somewhat higher educational level.

Although she had few co-workers, salaries paid the Average Woman in the New Created Data Processing Divisions were considerably higher than those paid in all other groupings. She was younger, had less tenure, a less routine job and a higher educational attainment level.

The Average Woman in the New Created Treasurer's Division had more co-workers than her counterpart who worked with EDP. While her salary and educational attainment level were lower, her age and tenure were higher. She was, however, similar in characteristics to her counterparts in Unaffected and Affected Divisions.

* Since the majority of workers employed in 1956 were employed in 1962, some of the average characteristics of workers would tend to be identical.

** Commentary based on the change in average characteristics or distribution of characteristics from 12/31/56 to 12/31/62. Grouping titles are defined in the glossary - page 34.

New Hires

The average female New Hire also fared better in 1962. Her salary was higher and she was younger. Her educational level was almost identical to that of her 1956 counterpart. Most likely she was single although she was slightly more inclined to be married. She had a sharply reduced number of colleagues in 1962. Eighty percent of these co-workers had stopped their formal education after high school graduation.

Few colleagues were assigned both where EDP was applied and where it was not applied. The number assigned where EDP was applied was distinctly smaller. Only one new hire was assigned to do EDP work, while a number of new hires were assigned to the unit providing new services made possible by EDP.

All female new hires were assigned to Clerical classifications. None were assigned to Managerial or Professional classifications. More were doing Stenographic or Secretarial work and less were doing Entry and Routine Clerical work, although the latter was still predominant.

THE AVERAGE MAN

The Average Man fared better in 1962 than in 1956. His salary was slightly higher, he was one-half year younger, had one more year of tenure, a less routine job, a higher educational level and was married.

He had more colleagues in 1962. Most of his co-workers were high school graduates, although, surprisingly, almost as many had college diplomas. Fewer were high school dropouts and about the same number were college dropouts.

Despite a narrowing of the gap, the Average Man in Unaffected Divisions still fared better than his associate in Affected Divisions. He received a higher salary, was younger, apparently did less routine work and had higher educational attainment.

Salary paid the Average Man in the New Created Data Processing Divisions was not as high as that paid in most other groupings. However, considering his younger age and shorter tenure he did quite well. His salary compared favorably with that of other groupings.

The Average Managerial and Professional Man prospered to a greater extent than the Average Clerical Man. He had more colleagues, while his Clerical counterpart found himself in a classification with fewer co-workers. His salary was of course much higher, he had more tenure, a higher educational level and was older.

New Hires

The average male New Hire also fared much better in 1962. Salary was up sharply. He was slightly older and his educational level ascended sharply. He had more colleagues in 1962. College diplomas abounded, as few of his co-workers stopped their formal education short of college.

Fewer colleagues were assigned where EDP was applied, while more were working where EDP was not applied. Two were doing the EDP work. Co-workers employed where EDP was applied received a much lower salary, but were much better off in 1962 than in 1956, as average salary in this grouping increased a whopping 65 percent.

The average male Clerical New Hire may not have fared as well as his Managerial and Professional counterpart, but the gap closed significantly. Salaries rose thirty-four percent for the average newly hired male Clerical worker compared to less than two percent for the average newly hired male Managerial and Professional worker.

THE UNAFFECTED WORKER

As completion of major conversion to EDP occurred the Unaffected Worker improved his situation. There were more Unaffected Workers in 1962. Salaries were higher, although they did not increase as much as they did for Affected workers.

Tenure did not change during the six-year conversion period. Unaffected Workers were older in 1962, slightly more inclined to be married and also more inclined to have completed college.

Work in 1956 was less routine than that done by the Affected Worker. There was a trend toward specialization during the conversion period. This was especially true for Unaffected Workers doing Middle Management and Professional tasks. A decline occurred in the amount of work which was Entry and Routine Clerical. This decline was not as great as it was for the Affected Worker. Stenographic and Secretarial work comprised a distinctly larger segment of the work. Unclassified work segments increased. This reflected changes in hiring and promotional channels which resulted in assignment of workers here rather than to inappropriate pay ranges.

New Hires

The portion of the work handled by New Hires was smaller in 1962, but did not decline as extensively for the Unaffected Worker as it did for the Affected Worker. The decline was virtually limited to the Entry and Routine Clerical segment. Stenographic and Secretarial work handled by the New Hires expanded.

THE AFFECTED WORKER

Completion of major conversion to EDP found the Affected Worker in a favorable situation. He had stood the test of conversion well. Thus far, the biggest casualty was the reduction in the percentage of New Hires in this category. Any other major decline was averted when major portions of the work formerly handled at independent agencies was assigned to the Affected Worker.

The Affected Worker actually prospered in the six-year conversion period. His salary rose thirty-one percent, twice as much as that of the Unaffected Worker. He did, however, start with a much lower salary and he did not reach the financial compensation level of the Unaffected Worker.

The Affected Worker was one year older in 1962, had no greater tenure and had only a slightly higher educational attainment level. Work was slightly less routine and he had more of a voice in management. While the pre-

dominant characteristic of his labors was still Entry and Routine Clerical work, it consumed less of his time. Considerably more time was spent in Stenographic and Secretarial work.

EDP was more considerate of the Managerial and Professional work. This type of work increased, while the Clerical portion of work -- the proportionately dominant segment -- contracted slightly.

New Hires

The proportion of New Hires in this composite worker diminished. The Entry and Routine Clerical portion shrank to one-third its former size. The Stenographic and Secretarial segment increased from one-fifteenth of the 1956 New Hires to one-fifth of the reduced 1962 recruitment.

THE ELECTRONIC DATA PROCESSING WORKER*

The EDP Worker was more prosperous than his co-workers, in Unaffected Divisions, Affected Divisions or the New Treasurers' Division. Age and tenure were lower than that of the Unaffected Worker or Affected Worker. His salary and educational attainment level was well above that of any other composite worker.

The Managerial and Professional EDP Worker's situation did not compare well when contrasted with Unaffected or Affected Managerial and Professional workers. Salary was much lower and age was only slightly lower. Educational attainment was slightly above that of the Affected Worker, but below that of the Unaffected Worker. Tenure was lower than that for the Affected Worker and higher than that for the Unaffected Worker.

In contrast, the Clerical EDP Worker compared much more favorably. He was much better paid, younger, had less tenure and more formal education than any other Clerical worker.

New Hires

New Hires were almost nonexistent in 1962. All were assigned to the Clerical EDP work. Salaries were substantially higher and age was higher than that of other Clerical New Hires. All were college graduates.

THE NEW CREATED TREASURERS' DIVISION WORKER**

This Worker providing a new service made possible by EDP did not fare as well as the Unaffected, Affected and EDP Workers. Salary was lower for him than for any of the others. Educational attainment is below that of the Unaffected and EDP Worker, but above that of the Affected Worker. He is younger and has less tenure than all of the others. Work appears to be more routine than elsewhere with the major portion being Entry and Routine Clerical work. Little Managerial or Professional and no Stenographic or Secretarial work is involved.

* Commentary based on average characteristics or distribution of characteristics 12/31/62. It must be noted that this grouping was staffed prior to 1962. Only turnover replacements were added in 1962.

** Commentary based on average characteristics or distribution of characteristics 12/31/62. It must be noted that this division was very recently established and is continuing to grow.

Salary paid for Managerial and Professional work is much below that paid elsewhere and few were doing it. Age is somewhat younger than elsewhere and tenure is extremely short. All Managerial and Professional Workers were college graduates.

The Clerical Worker was also paid less than his counterpart in other groupings. However, the gap was not as great. Educational attainment is below that of all other Clerical Workers except the Affected Clerical Worker. Age and tenure is lower than all but the EDP Clerical Worker.

New Hires

New Hires comprised a considerable portion of the New Created Treasurers' Department work since the unit was newly formed. All were doing Clerical work and virtually all were classified as doing Entry and Routine Clerical work.

THE AGENCY PREMIUM PROCESSOR

Little is known about the characteristics of the Agency Premium Processor. This Worker was a composite formed from premium processors at one hundred independent agencies scattered across the nation. This much is known: A minimum of one hundred-fifty positions formed this worker, apparently all were women, and the work was considered Clerical, probably Entry and Routine Clerical. A minor portion of the work may have been Stenographic or Secretarial. This Worker no longer is needed to process premiums and may be doing sales oriented work or have given up employment. No information is available on whether she was or was not laid off.

STAFFING OF WAGE CLASSIFICATION GROUPINGS

Twenty-eight company wage classifications were included in the comparison of the pre-conversion and post-conversion insurance company work force. Grouping wage classifications was necessary if meaningful and distinguishable presentation of the data was to be accomplished. Eight wage classification groupings were formed.*

Tables illustrating the number of positions in the groupings are presented on page 22. The tables are grouped to illustrate changes which occurred in All Divisions, Unaffected Divisions, Affected Divisions, New Created Data Processing Divisions and the New Created Treasurers Division. In addition a grouping represents the Agency Premium Processing function. A separate table illustrates changes in new hiring on page 23.

Brief narrative summaries of the changes in wage classifications are given below. Two distinct comparisons are made--first, staffing of wage classification groupings 12/31/56 is compared with staffing 12/31/62, and second, staffing of wage classification groupings 12/31/62 in division groupings is compared with staffing in All Divisions on 12/31/62. In the instance of New Created Division groupings, only the latter comparison is possible.

STAFFING OF WAGE CLASSIFICATION GROUPINGS WHERE EDP WAS NOT APPLIED

A. Comparing Wage Classification Groupings in Unaffected Divisions 12/31/56 with 12/31/62, revealed that since 1956 while staffing remained approximately the same:

A decline occurred in the size of the Top Management Grouping. The decline occurred amongst men, as only one woman was classified in the Top Management Grouping in 1956 and none were assigned in 1962.

Middle Management and Professional positions increased significantly. Women filled one-third of the increase.

A considerable reduction occurred in the size of the Entry and Routine Clerical Wage Classification Grouping. The decline was greater numerically amongst women, but greater percentage-wise for men. It is related to a corresponding increase in the Stenographic and Secretarial Grouping.

While the growth in the Nonroutine Clerical section was small, growth in the number of women filling these positions was marked.

No Programing or Clerical Machine Operating positions were in the Unaffected Division Grouping.

* Wage Classification Groupings are diagramed on Page 5

An increase occurred in the Stenographic and Secretarial Wage Classification Grouping (all women) corresponds to a decrease in the Entry and Routine Clerical Classification. This results basically from a reclassification of positions and is in itself significant as it implies a change in the content of the positions.

Unclassified positions increased considerably. The increase was predominantly male.

New hires declined notably in total. The decline occurred entirely in the Entry and Routine Clerical Wage Classification; all other classifications increased with the exception of Top Management, which declined one position.

B. Comparing Wage Classification Groupings in areas where EDP was not applied (Unaffected Divisions) 12/31/62 with the combined wage classification in Total Employment 12/31/62 revealed:

The decline in the size of the Top Management Wage Classification occurred despite an overall increase in this classification.

Although the Middle Management and Professional Grouping expanded considerably; the expansion was less percentage-wise than the overall increase in this classification.

The decline in Entry and Routine Clerical Wage Classifications was slightly greater percentage-wise in the Unaffected Divisions grouping.

Nonroutine Clerical positions increased insignificantly. The increase was slightly less than the overall increase of Nonroutine Clerical positions. This increase was sharp percentage-wise for women (small in number) while an actual decrease occurred for men.

No Programing or Clerical Machine Operating positions were in the Unaffected Division Grouping.

Stenographic and Secretarial positions increased considerably numerically even though the percentage increase was much below the overall increase.

Unclassified positions expanded sharply. Virtually the entire increase occurred in the Unaffected Divisions Grouping.

New Hires dropped significantly but at a somewhat slower rate in the Unaffected Divisions Grouping. The decrease of New Hires in the Entry and Routine Clerical Wage Classification was at a somewhat lesser rate in the Unaffected Division Grouping. Secretarial and Stenographic New Hires increased almost identically percentage-wise to that of the combined total for the wage classification.

STAFFING OF WAGE CLASSIFICATION GROUPINGS WHERE EDP WAS APPLIED

A. Comparing Wage Classification Groupings in Affected Divisions 12/31/56 with 12/31/62, revealed that since 1956 while total staffing remained approximately the same:

A significant increase occurred in the number of Top Management positions. All of these positions were staffed by men.

Middle Management and Professional positions increased substantially. The increase was basically an increase of men as almost no women are in this classification.

Entry and Routine Clerical positions dropped notably. The decline was greater numerically amongst women and percentage-wise amongst men.

An insignificant increase occurred in the Nonroutine Clerical Wage Classification, although a sharp increase occurred in the number of women staffing this classification.

One individual was classified as a Programer in 1962.

Clerical Machine Operating positions diminished only slightly. Further reductions would seem possible when redundances are eliminated. A notable occurrence was the increase in the number of women in this classification despite the overall decrease.

The number of Stenographic and Secretarial positions (all staffed by women) expanded a remarkable ninty-two percent. This increase, along with the decrease in the size of the Entry and Routine Clerical Classification is partially the result of the reclassification of positions.

Unclassified positions declined slightly. The decline occurred amongst men.

New Hires dropped sharply, especially in the Entry and Routine Clerical Wage Classification. One individual was hired directly into the Nonroutine Clerical Classification in 1962, none in 1956. A decrease occurred in number (small in size) hired for Clerical Machine Operating. The number hired for Stenographic and Secretarial work increased significantly while the number of Unclassified workers hired increased by one.

B. Comparing Wage Classification Groupings in areas where EDP was applied (Affected Divisions) 12/31/62 with the combined Wage Classification in Total Employment 12/31/62 revealed:

A considerable increase in the size of the Top Management Wage Classification occurred in Affected Divisions during a slight overall increase in this classification.

The size of the Middle Management and Professional Grouping expanded, but slightly less percentage-wise than the overall Total Employment rate.

The decline in Entry and Routine Clerical Wage Classifications was slightly greater percentage-wise in Affected Divisions. This decline was much greater percentage-wise for men (small in number).

Nonroutine Clerical positions increased at a less significant rate in the Affected Divisions Grouping. The increase was very sharp percentage-wise for women (small in number), while an actual decrease occurred for men.

Only one individual was classified as a programer in the Affected Divisions Grouping.

Clerical Machine Operating declined in Affected Divisions while an overall increase occurred. In the Affected Divisions Grouping less men and more women were used; but overall more men and women were used.

Stenographic and Secretarial positions (all women) increased much more percentage-wise in Affected Divisions.

Unclassified positions declined somewhat. The slight decline occurred amongst men.

New Hires declined much more in the Affected Division Grouping with the overwhelming impact in the Entry and Routine Clerical Classification. The percentage drop was very sharp for men; however, they comprised only a trifle of the New Hires. Hiring of Clerical Machine Operators, occurring only in this grouping, declined. Stenographic and Secretary hiring (all women) increased much more percentage-wise in Affected Divisions. Unclassified hiring remained small in number, but increased by one.

STAFFING OF WAGE CLASSIFICATIONS IN THE NEW CREATED DATA PROCESSING DIVISIONS (Created as a direct result of EDP)

A. Since these divisions did not exist in 1956, no comparison 12/31/56 and 12/31/62 can be made.

B. In comparing Wage Classification Groupings in the New Created Data Processing Divisions 12/31/62 with the combined Wage Classification Groupings in Total Employment 12/31/62, the comparison reveals that in the New Created Data Processing Divisions:

A notable number of Top Management, and Middle Management and Professional positions were created. Men staffed all but one of these positions.

Few Entry and Routine Clerical positions were created. This was especially mall when the overall size of this Wage Classification Group is consid.red. All of the positions were staffed by women.

Few Nonroutine Clerical positions were created. Although small in number, the staffing of this classification with more women than men was a reversal of the overall situation.

Programing positions were centered in this grouping as only one position existed outside of the New Created Data Processing Divisions. While staffed predominantly by men this Wage Classification did provide a substantial number of positions for women.

A substantial number of Clerical Machine Operating positions (all staffed by men) were created.

The number of Stenographic and Secretarial positions created was insignificant when compared with the total increase in the number of positions in this classification.

One Unclassified position was created. It was staffed by a man.

New Hires were insignificant and limited to the Programing Wage Classification.

STAFFING OF WAGE CLASSIFICATIONS
IN THE NEW CREATED TREASURER'S DIVISION
(Created as a direct result of EDP)

A. Since these divisions did not exist in 1956, no comparison 12/31/56 and 12/31/62 can be made.

B. In comparing Wage Classification Groupings in the New Created Treasurer's Division 12/31/62 with the combined Wage Classification Groupings in Total Employment 12/31/62, the comparison reveals that in the New Created Treasurer's Division:

No Top Management positions were created. Two Middle Management and Professional positions were created. Both were staffed by men.

The number of Entry and Routine Clerical positions created was extensive. This reversed the trend elsewhere as the total number of positions in this classification decreased markedly. Virtually all of the positions were staffed by women.

The number of Nonroutine Clerical positions created was also notable, although in this classification it was consistent with the growth overall.

One unclassified position staffed by a woman was also created.

New Hires (all women) were fairly extensive as this division was only recently created. It also was expected to continue to grow. Almost all new Hires were in the Entry and Nonroutine Clerical Wage Classification.

FIGURE 3

STAFFING OF WAGE CLASSIFICATION GROUPINGS
BY MAJOR DIVISIONAL GROUPINGS

WAGE CLASSIFICATION GROUPINGS	BEFORE CONVERSION TO EDP 12/31/56 HOME OFFICE — ALL DIVISIONS TOTAL	MALE	FEMALE	AFTER CONVERSION TO EDP 12/31/62 HOME OFFICE — ALL DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	85	84	1	90	90	0
MIDDLE MANAGEMENT & PROF.	104	103	1	140	132	8
ENTRY & ROUTINE CLERICAL	728	55	673	655	36	619
NONROUTINE CLERICAL	239	196	43	256	165	91
PROGRAMING	0	0	0	20	15	5
CLERICAL MACHINE OPERATING	19	13	6	28	20	8
STENOGRAPHIC & SECRETARIAL	143	0	143	204	0	204
UNCLASSIFIED	89	63	26	109	80	29
	1407	514	893	1502	538	964

	UNAFFECTED DIVISIONS TOTAL	MALE	FEMALE	UNAFFECTED DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	81	80	1	71	71	0
MIDDLE MANAGEMENT & PROF.	71	71	0	86	81	5
ENTRY & ROUTINE CLERICAL	361	25	336	307	18	289
NONROUTINE CLERICAL	110	88	22	113	74	39
PROGRAMING	0	0	0	0	0	0
CLERICAL MACHINE OPERATING	0	0	0	0	0	0
STENOGRAPHIC & SECRETARIAL	116	0	116	149	0	149
UNCLASSIFIED	65	44	21	85	62	23
	804	308	496	811	306	505

	AFFECTED DIVISIONS TOTAL	MALE	FEMALE	AFFECTED DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	4	4	0	14	14	0
MIDDLE MANAGEMENT & PROF.	33	32	1	42	40	2
ENTRY & ROUTINE CLERICAL	367	30	337	317	16	301
NONROUTINE CLERICAL	129	108	21	133	88	45
PROGRAMING	0	0	0	1	0	1
CLERICAL MACHINE OPERATING	19	13	6	16	8	8
STENOGRAPHIC & SECRETARIAL	27	0	27	52	0	52
UNCLASSIFIED	24	19	5	22	17	5
	603	206	397	597	183	414

	NEW CREATED DATA PROCESSING DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	5	5	0
MIDDLE MANAGEMENT & PROF.	10	9	1
ENTRY & ROUTINE CLERICAL	3	0	3
NONROUTINE CLERICAL	3	1	2
PROGRAMING	19	14	5
CLERICAL MACHINE OPERATING	12	12	0
STENOGRAPHIC & SECRETARIAL	3	0	3
UNCLASSIFIED	1	1	0
	56	42	14

	NEW CREATED TREASURER'S DIVISION TOTAL	MALE	FEMALE
TOP MANAGEMENT	0	0	0
MIDDLE MANAGEMENT & PROF.	2	2	0
ENTRY & ROUTINE CLERICAL	28	2	26
NONROUTINE CLERICAL	7	2	5
PROGRAMING	0	0	0
CLERICAL MACHINE OPERATING	0	0	0
STENOGRAPHIC & SECRETARIAL	0	0	0
UNCLASSIFIED	1	0	1
	38	6	32

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

ALL 150 POSITIONS ARE CONSIDERED CLERICAL. NO ACTUAL BREAKOUT BY CLASSIFICATION OR SEX IS AVAILABLE. MOST POSITIONS ARE STAFFED BY WOMEN, PROBABLY IN THE ENTRY AND ROUTINE CLERICAL CLASSIFICATIONS; SOME CLASSIFICATIONS MAY HAVE BEEN PARTLY STENOGRAPHIC. ALL POSITIONS TO BE ELIMINATED WERE FINANCED BY THE HOME OFFICE.

FIGURE 4

STAFFING OF WAGE CLASSIFICATION GROUPINGS – NEW HIRES*
BY MAJOR DIVISIONAL GROUPINGS

WAGE CLASSIFICATION GROUPINGS	BEFORE CONVERSION TO EDP 12/31/56 HOME OFFICE — ALL DIVISIONS TOTAL	MALE	FEMALE	AFTER CONVERSION TO EDP 12/31/52 HOME OFFICE — ALL DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	3	3	0	2	2	0
MIDDLE MANAGEMENT & PROF.	4	4	0	7	7	0
ENTRY & ROUTINE CLERICAL	274	12	262	129	9	120
NONROUTINE CLERICAL	1	1	0	1	1	0
PROGRAMING	0	0	0	3	2	1
CLERICAL MACHINE OPERATING	5	2	3	3	1	2
STENOGRAPHIC & SECRETARIAL	29	0	29	44	0	44
UNCLASSIFIED	21	12	9	24	19	5
	337	34	303	213	41	172
	UNAFFECTED DIVISIONS TOTAL	MALE	FEMALE	UNAFFECTED DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	3	3	0	2	2	0
MIDDLE MANAGEMENT & PROF.	4	4	0	7	7	0
ENTRY & ROUTINE CLERICAL	154	4	150	83	7	76
NONROUTINE CLERICAL	1	1	0	0	0	0
PROGRAMING	0	0	0	0	0	0
CLERICAL MACHINE OPERATING	0	0	0	0	0	0
STENOGRAPHIC & SECRETARIAL	21	0	21	32	0	32
UNCLASSIFIED	16	8	8	17	14	3
	199	20	179	141	30	111
	AFFECTED DIVISIONS TOTAL	MALE	FEMALE	AFFECTED DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT	0	0	0	0	0	0
MIDDLE MANAGEMENT & PROF.	0	0	0	0	0	0
ENTRY & ROUTINE CLERICAL	120	8	112	38	2	36
NONROUTINE CLERICAL	0	0	0	1	1	0
PROGRAMING	0	0	0	0	0	0
CLERICAL MACHINE OPERATING	5	2	3	3	1	2
STENOGRAPHIC & SECRETARIAL	8	0	8	12	0	12
UNCLASSIFIED	5	4	1	6	5	1
	138	14	124	60	9	51
				NEW CREATED DATA PROCESSING DIVISIONS TOTAL	MALE	FEMALE
TOP MANAGEMENT				0	0	0
MIDDLE MANAGEMENT & PROF.				0	0	0
ENTRY & ROUTINE CLERICAL				0	0	0
NONROUTINE CLERICAL				0	0	0
PROGRAMING				3	2	1
CLERICAL MACHINE OPERATING				0	0	0
STENOGRAPHIC & SECRETARIAL				0	0	0
UNCLASSIFIED				0	0	0
				3	2	1
				NEW CREATED TREASURER'S DIVISION TOTAL	MALE	FEMALE
TOP MANAGEMENT				0	0	0
MIDDLE MANAGEMENT & PROF.				0	0	0
ENTRY & ROUTINE CLERICAL				8	0	8
NONROUTINE CLERICAL				0	0	0
PROGRAMING				0	0	0
CLERICAL MACHINE OPERATING				0	0	0
STENOGRAPHIC & SECRETARIAL				0	0	0
UNCLASSIFIED				1	0	1
				9	0	9

AGENCY OFFICES

AGENCY PREMIUM PROCESSING (NO INFORMATION ON THE NUMBER OF NEW HIRES IN 1956)

* NEW HIRES – HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS

Tables illustrating average personnel characteristics or distribution of personnel characteristics are presented on page 28. The tables are also grouped to illustrate changes which occurred in All Divisions, Unaffected Divisions, Affected Divisions, New Created Data Processing Divisions and the New Created Treasurers Division. In addition, the grouping of Agency Premium Processing positions is also represented as a reminder of its elimination during the conversion process. Separate tables illustrate the change in Total Employment (all Managerial, Professional and Clerical Employment), Managerial and Professional Employment, Clerical Employment, and for New Hires within these groupings are presented on pages 28 thru 33.

Brief narrative summaries of changes in personnel characteristics are given below. Again two distinct comparisons are made--personnel characteristics present on 12/31/56 are compared with those present on 12/31/62, then personnel characteristics present on 12/31/62 in division groupings are compared with personnel characteristics in All Divisions on 12/31/62. Only the latter comparison is possible for some division groupings.

PERSONNEL CHARACTERISTICS WHERE EDP WAS NOT APPLIED (UNAFFECTED DIVISIONS)

A. Comparing characteristics of employees in Unaffected Divisions 12/31/56 with 12/31/62, revealed that since 1956:

Total staffing remained approximately the same, though more women and fewer men were employed.

Average salaries increased - more, percentage-wise for women than for men.

Average age remained about the same, with women's average age rising and men's average age dropping.

Average tenure changed little as women's rose and men's dropped.

In total, more employees were "rated for efficiency" - more women and less men.

More women and fewer men were married.

Educational attainment rose slightly - more employees were college graduates.

B. Comparing characteristics of employees in areas where EDP was not applied (Unaffected Divisions) 12/31/62 with the combined Total Employment 12/31/62, revealed:

A slightly higher percentage of men staffed Unaffected Divisions.

Average salaries were higher in Unaffected Divisions. Women's average salaries were almost the same in both Unaffected Divisions and Total Employment; men's average salaries were considerably higher in the Unaffected Divisions.

Average age was only slightly higher in the Unaffected Divisions.

Average tenure in Unaffected Divisions was almost identical to Total Employment, although men had slightly less tenure in Unaffected Divisions.

Fewer employees in Unaffected Divisions were rated for efficiency.

Slightly more employees in Unaffected Divisions were married.

Educational attainment was higher in Unaffected Divisions, especially amongst men.

PERSONNEL CHARACTERISTICS WHERE EDP WAS APPLIED (AFFECTED DIVISIONS)

A. Comparing characteristics of employees in Affected Divisions 12/31/56 with employees in Affected Divisions 12/31/62, revealed that since 1956:

Total staffing remained approximately the same, though more women and fewer men were employed.

Average salaries increased, but more for men than for women.

Average age remained about the same except for a slight rise in average age of men.

Average tenure showed no significant change.

In total, more employees were "rated for efficiency"; however, more women and fewer men were rated.

Marital status changed slightly - more of the women employees were married.

Educational attainment rose as more college dropouts and college graduates were employed.

B. Comparing characteristics of employees staffing areas where EDP was applied (Affected Divisions) 12/31/62 with the combined Total Employment 12/31/62 revealed:

A slightly higher percentage of women staffed Affected Divisions.

Average salaries were lower in Affected Divisions, especially for men.

Average age was slightly lower for Affected Divisions - higher for men and lower for women.

Overall, average tenure was slightly higher in Affected Divisions, where it was significantly higher for men, but slightly lower for women than average tenure of Total Employment.

About the same number of employees were "rated for efficiency".

Slightly more employees in Affected Divisions were single.

Educational attainment was lower in Affected Divisions, especially among men.

PERSONNEL CHARACTERISTICS OF THE NEW CREATED DATA PROCESSING DIVISIONS (Created as a Direct Result of EDP)

A. Since these divisions did not exist in 1956, no comparison 12/31/56 and 12/31/62 can be made.

B. In comparing characteristics of employees in the New Created Data Processing Divisions 12/31/62 with the combined Total Employment 12/31/62, the comparison reveals that in the New Data Processing Divisions:

A significantly higher percentage of the staff were men.

Average salaries were much higher - average salaries of women were higher and average salaries of men were lower.

Average age was lower, especially for men.

Average tenure was lower, especially for men.

Fewer were "rated for efficiency".

More employees were married.

Educational attainment was much higher - a high percentage of employees were college graduates.

PERSONNEL CHARACTERISTICS
OF THE
NEW CREATED TREASURER'S DIVISION
(Created as a Direct Result of EDP)

A. Since this division did not exist in 1956, no comparison 12/31/56 and 12/31/62 can be made.

B. In comparing characteristics of employment in the New Treasurer's Division 12/31/62 with the combined Total Employment 12/31/62, the comparison reveals that in the New Treasurer's Division:

A significantly higher percentage of the staff were women.

Average salaries were much lower, both for men and for women.

Average age of both men and women was slightly lower.

Average tenure was lower, especially for men.

Few employees were "rated for efficiency" - more women and less men were rated.

Slightly more employees were married.

Most employees were high school or college graduates. No high school dropouts and only a few college dropouts staffed the New Treasurer's Division.

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS - TOTAL EMPLOYMENT
(ALL CLERICAL, MANAGERIAL AND PROFESSIONAL EMPLOYEES)

BEFORE CONVERSION TO EDP
12/31/56
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL STAFFING: 1407 (M-514, F-893)
AVERAGE SALARY: $4801/YR.
AVERAGE AGE: 33 YEARS
AVERAGE TENURE: 12 YEARS
PERCENT "RATED": 57%
PERCENT MARRIED: 37%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 9%
HIGH SCHOOL GRADUATE: 71%
COLLEGE DROPOUT: 8%
COLLEGE GRADUATE: 12%

UNAFFECTED DIVISIONS

TOTAL STAFFING: 804 (M-308, F-496)
AVERAGE SALARY: $5412/YR.
AVERAGE AGE: 34 YEARS
AVERAGE TENURE: 11 YEARS
PERCENT "RATED": 46 %
PERCENT MARRIED: 38%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 8%
HIGH SCHOOL GRADUATE: 64%
COLLEGE DROPOUT: 10%
COLLEGE GRADUATE: 18%

AFFECTED DIVISIONS

TOTAL STAFFING: 603 (M-206, F-397)
AVERAGE SALARY: $3986/YR.
AVERAGE AGE: 32 YEARS
AVERAGE TENURE: 12 YEARS
PERCENT "RATED": 70%
PERCENT MARRIED: 36%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 10%
HIGH SCHOOL GRADUATE: 79%
COLLEGE DROPOUT: 7%
COLLEGE GRADUATE: 4%

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

(APPROXIMATELY 150 POSITIONS)
(NO INFORMATION ON PERSONNEL CHARACTERISTICS ON 12/31/56)

AFTER CONVERSION TO EDP
12/31/62
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ABSCREED)

TOTAL STAFFING: 1502 (M-538, F-964)
AVERAGE SALARY: $5849/YR.
AVERAGE AGE: 34 YEARS
AVERAGE TENURE: 12 YEARS
PERCENT "RATED": 61%
PERCENT MARRIED: 40%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 5%
HIGH SCHOOL GRADUATE: 70%
COLLEGE DROPOUT: 9%
COLLEGE GRADUATE: 16%

UNAFFECTED DIVISIONS

TOTAL STAFFING: 811 (M-306, F-505)
AVERAGE SALARY: $6331/YR.
AVERAGE AGE: 35 YEARS
AVERAGE TENURE: 11 YEARS
PERCENT "RATED": 50%
PERCENT MARRIED: 41%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 5%
HIGH SCHOOL GRADUATE: 64%
COLLEGE DROPOUT: 9%
COLLEGE GRADUATE: 22%

AFFECTED DIVISIONS

TOTAL STAFFING: 597 (M-184, F-413)
AVERAGE SALARY: $5226/YR.
AVERAGE AGE: 33 YEARS
AVERAGE TENURE: 12 YEARS
PERCENT "RATED": 75%
PERCENT MARRIED: 37%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 7%
HIGH SCHOOL GRADUATE: 78%
COLLEGE DROPOUT: 8%
COLLEGE GRADUATE: 7%

NEW CREATED DATA PROCESSING DIVISIONS

TOTAL STAFFING: 56(M-42, F-14)
AVERAGE SALARY: $6607/YR.
AVERAGE AGE: 31 YEARS
AVERAGE TENURE: 9 YEARS
PERCENT "RATED": 59%
PERCENT MARRIED: 55%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 54%
COLLEGE DROPOUT: 7%
COLLEGE GRADUATE: 39%

NEW CREATED TREASURER'S DIVISION

TOTAL STAFFING: 38 (M-6, F-32)
AVERAGE SALARY: $4240/YR.
AVERAGE AGE: 29 YEARS
AVERAGE TENURE: 8 YEARS
PERCENT "RATED": 66%
PERCENT MARRIED: 34%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 86%
COLLEGE DROPOUT: 3%
COLLEGE GRADUATE: 11%

NOTE: M DENOTES MALE - F DENOTES FEMALE

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS - TOTAL EMPLOYMENT
(ALL CLERICAL, MANAGERIAL AND PROFESSIONAL - NEW HIRES)

BEFORE CONVERSION TO EDP
1956 CALENDAR YEAR*
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL NEW HIRES: 337 (M-34, F-303)
AVERAGE SALARY: $2569/YR.
AVERAGE AGE: 21 YEARS
PERCENT MARRIED: 15%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 1%
HIGH SCHOOL GRADUATE: 79%
COLLEGE DROPOUT: 12%
COLLEGE GRADUATE: 8%

UNAFFECTED DIVISIONS

TOTAL NEW HIRES: 199 (M-20, F-179)
AVERAGE SALARY: $2691/YR.
AVERAGE AGE: 21 YEARS
PERCENT MARRIED: 8%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 1%
HIGH SCHOOL GRADUATE: 75%
COLLEGE DROPOUT: 12%
COLLEGE GRADUATE: 12%

AFFECTED DIVISIONS

TOTAL NEW HIRES: 138 (M-14, F-124)
AVERAGE SALARY: $2392/YR.
AVERAGE AGE: 20 YEARS
PERCENT MARRIED: 2%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 1%
HIGH SCHOOL GRADUATE: 85%
COLLEGE DROPOUT: 13%
COLLEGE GRADUATE: 2%

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

(NO INFORMATION ON THE NUMBER OR CHARACTERISTICS OF NEW HIRES IN 1956)

AFTER CONVERSION TO EDP
1962 CALENDAR YEAR*
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ABSORBED)

TOTAL NEW HIRES: 213 (M-41, F-172)
AVERAGE SALARY: $3663/YR.
AVERAGE AGE: 21 YEARS
PERCENT MARRIED: 15%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 71%
COLLEGE DROPOUT: 14%
COLLEGE GRADUATE: 15%

UNAFFECTED DIVISIONS

TOTAL NEW HIRES: 141 (M-30, F-111)
AVERAGE SALARY: $3775/YR.
AVERAGE AGE: 25 YEARS
PERCENT MARRIED: 16%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 71%
COLLEGE DROPOUT: 11%
COLLEGE GRADUATE: 16%

AFFECTED DIVISIONS

TOTAL NEW HIRES: 60 (M-9, F-51)
AVERAGE SALARY: $3376/YR.
AVERAGE AGE: 20 YEARS
PERCENT MARRIED: 13%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 71%
COLLEGE DROPOUT: 22%
COLLEGE GRADUATE: 7%

NEW CREATED DATA PROCESSING DIVISIONS

TOTAL NEW HIRES: 3 (M-2, F-1)
AVERAGE SALARY: $5686/YR.
AVERAGE AGE: 27 YEARS
PERCENT MARRIED: 67%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 0%
COLLEGE DROPOUT: 0%
COLLEGE GRADUATE: 100%

NEW CREATED TREASURER'S DIVISION

TOTAL NEW HIRES: 9 (M-0, F-9)
AVERAGE SALARY: $3141/YR.
AVERAGE AGE: 19 YEARS
PERCENT MARRIED: 0%
EDUCATION (PERCENT DISTRIBUTION):
HIGH SCHOOL DROPOUT: 0%
HIGH SCHOOL GRADUATE: 78%
COLLEGE DROPOUT: 11%
COLLEGE GRADUATE: 11%

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

NOTE: M DENOTES MALE - F DENOTES FEMALE

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS
(ALL MANAGERIAL AND PROFESSIONAL EMPLOYEES)

BEFORE CONVERSION TO EDP
12/31/56
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL STAFFING:	189 (M-187, F-2)
AVERAGE SALARY:	$11,977/YR.
AVERAGE AGE:	47 YEARS
AVERAGE TENURE:	20 YEARS
PERCENT "RATED":	11%
PERCENT MARRIED:	92%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	17%
HIGH SCHOOL GRADUATE:	24%
COLLEGE DROPOUT:	6%
COLLEGE GRADUATE:	52%

UNAFFECTED DIVISIONS

TOTAL STAFFING:	152 (M-151, F-1)
AVERAGE SALARY:	$12,915/YR.
AVERAGE AGE:	46 YEARS
AVERAGE TENURE:	18 YEARS
PERCENT "RATED":	9%
PERCENT MARRIED:	92%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	13%
HIGH SCHOOL GRADUATE:	19%
COLLEGE DROPOUT:	7%
COLLEGE GRADUATE:	61%

AFFECTED DIVISIONS

TOTAL STAFFING:	37 (M-36, F-1)
AVERAGE SALARY:	$8,120/YR.
AVERAGE AGE:	49 YEARS
AVERAGE TENURE:	29 YEARS
PERCENT "RATED":	19%
PERCENT MARRIED:	89%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	35%
HIGH SCHOOL GRADUATE:	43%
COLLEGE DROPOUT:	3%
COLLEGE GRADUATE:	19%

AFTER CONVERSION TO EDP
12/31/62
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ABSORBED)

TOTAL STAFFING:	230 (M-222, F-8)
AVERAGE SALARY:	$13,338/YR.
AVERAGE AGE:	46 YEARS
AVERAGE TENURE:	20 YEARS
PERCENT "RATED":	12%
PERCENT MARRIED:	90%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	7%
HIGH SCHOOL GRADUATE:	25%
COLLEGE DROPOUT:	8%
COLLEGE GRADUATE:	60%

UNAFFECTED DIVISIONS

TOTAL STAFFING:	157 (M-152, F-5)
AVERAGE SALARY:	$13,846/YR.
AVERAGE AGE:	45 YEARS
AVERAGE TENURE:	17 YEARS
PERCENT "RATED":	10%
PERCENT MARRIED:	91%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	6%
HIGH SCHOOL GRADUATE:	17%
COLLEGE DROPOUT:	9%
COLLEGE GRADUATE:	68%

AFFECTED DIVISIONS

TOTAL STAFFING:	56 (M-54, F-2)
AVERAGE SALARY:	$12,848/YR.
AVERAGE AGE:	50 YEARS
AVERAGE TENURE:	28 YEARS
PERCENT "RATED":	18%
PERCENT MARRIED:	86%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	13%
HIGH SCHOOL GRADUATE:	41%
COLLEGE DROPOUT:	7%
COLLEGE GRADUATE:	39%

NEW CREATED DATA PROCESSING DIVISIONS

TOTAL STAFFING:	15 (M-14, F-1)
AVERAGE SALARY:	$10,646/YR.
AVERAGE AGE:	43 YEARS
AVERAGE TENURE:	21 YEARS
PERCENT "RATED":	27%
PERCENT MARRIED:	93%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	53%
COLLEGE DROPOUT:	7%
COLLEGE GRADUATE:	40%

NEW CREATED TREASURER'S DIVISION

TOTAL STAFFING:	2 (M-2, F-0)
AVERAGE SALARY:	$7300/YR.
AVERAGE AGE:	37 YEARS
AVERAGE TENURE:	2 YEARS
PERCENT "RATED":	0%
PERCENT MARRIED:	100%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	0%
COLLEGE DROPOUT:	0%
COLLEGE GRADUATE:	100%

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

APPARENTLY NO PROFESSIONAL OR MANAGERIAL POSITIONS WERE INVOLVED IN PREMIUM PROCESSING AT THE AGENCIES. ALL 150 POSITIONS WERE CONSIDERED UNDER THE CLERICAL WAGE CLASSIFICATION.

NOTE: M DENOTES MALE – F DENOTES FEMALE

PERSONNEL CHARACTERISTICS
OF MAJOR GROUPINGS
(ALL MANAGERIAL AND PROFESSIONAL - NEW HIRES)

BEFORE CONVERSION TO EDP
1956 CALENDAR YEAR*
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL NEW HIRES:	7 (M-7, F-0)
AVERAGE SALARY:	$8371/YR.
AVERAGE AGE:	32 YEARS
PERCENT MARRIED:	86%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	0%
COLLEGE DROPOUT:	0%
COLLEGE GRADUATE:	100%

AFTER CONVERSION TO EDP
1962 CALENDAR YEAR*
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ABSORBED)

TOTAL NEW HIRES:	9(M-9, F-0)
AVERAGE SALARY:	$8522/YR.
AVERAGE AGE:	30 YEARS
PERCENT MARRIED:	78%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	11%
COLLEGE DROPOUT:	0%
COLLEGE GRADUATE:	89%

UNAFFECTED DIVISIONS

SAME AS FOR ALL DIVISIONS - NEW HIRES

UNAFFECTED DIVISIONS

SAME AS FOR ALL DIVISIONS - NEW HIRES

AFFECTED DIVISIONS

NO NEW HIRES

AFFECTED DIVISIONS

NO NEW HIRES

NEW CREATED DATA PROCESSING DIVISIONS

NO NEW HIRES

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

APPARENTLY NO PROFESSIONAL OR MANAGERIAL POSITIONS WERE INVOLVED IN PREMIUM PROCESSING AT THE AGENCIES. ALL 150 POSITIONS WERE CONSIDERED UNDER THE CLERICAL WAGE CLASSIFICATION.

NEW CREATED TREASURER'S DIVISION

NO NEW HIRES

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

NOTE: M DENOTES MALE - F DENOTES FEMALE

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS
(ALL CLERICAL EMPLOYEES)

BEFORE CONVERSION TO EDP
12/31/56
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL STAFFING:	1218 (M-327, F-891)
AVERAGE SALARY:	$3687/YR.
AVERAGE AGE:	31 YEARS
AVERAGE TENURE:	10 YEARS
PERCENT "RATED":	64%
PERCENT MARRIED:	29%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	8%
HIGH SCHOOL GRADUATE:	78%
COLLEGE DROPOUT:	9%
COLLEGE GRADUATE:	5%

UNAFFECTED DIVISIONS

TOTAL STAFFING:	652 (M-157, F-495)
AVERAGE SALARY:	$3663/YR.
AVERAGE AGE:	31 YEARS
AVERAGE TENURE:	10 YEARS
PERCENT "RATED":	55%
PERCENT MARRIED:	25%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	7%
HIGH SCHOOL GRADUATE:	76%
COLLEGE DROPOUT:	10%
COLLEGE GRADUATE:	7%

AFFECTED DIVISIONS

TOTAL STAFFING:	566 (M-170, F-396)
AVERAGE SALARY:	$3716/YR.
AVERAGE AGE:	31 YEARS
AVERAGE TENURE:	11 YEARS
PERCENT "RATED":	74%
PERCENT MARRIED:	33%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	8%
HIGH SCHOOL GRADUATE:	82%
COLLEGE DROPOUT:	7%
COLLEGE GRADUATE:	3%

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

(APPROXIMATELY 150 POSITIONS)
(NO INFORMATION ON PERSONNEL CHARACTERISTICS ON 12/31/56)

AFTER CONVERSION TO EDP
12/31/62
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ABSORBED)

TOTAL STAFFING:	1272 (M-316, F-956)
AVERAGE SALARY:	$4495/YR.
AVERAGE AGE:	31 YEARS
AVERAGE TENURE:	10 YEARS
PERCENT "RATED":	70%
PERCENT MARRIED:	31%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	5%
HIGH SCHOOL GRADUATE:	77%
COLLEGE DROPOUT:	9%
COLLEGE GRADUATE:	9%

UNAFFECTED DIVISIONS

TOTAL STAFFING:	654 (M-154, F-500)
AVERAGE SALARY:	$4527/YR.
AVERAGE AGE:	32 YEARS
AVERAGE TENURE:	10 YEARS
PERCENT "RATED":	60%
PERCENT MARRIED:	29%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	4%
HIGH SCHOOL GRADUATE:	76%
COLLEGE DROPOUT:	9%
COLLEGE GRADUATE:	11%

AFFECTED DIVISIONS

TOTAL STAFFING:	541 (M-130, F-411)
AVERAGE SALARY:	$4437/YR.
AVERAGE AGE:	31 YEARS
AVERAGE TENURE:	11 YEARS
PERCENT "RATED":	81%
PERCENT MARRIED:	32%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	6%
HIGH SCHOOL GRADUATE:	82%
COLLEGE DROPOUT:	8%
COLLEGE GRADUATE:	3%

NEW CREATED DATA PROCESSING DIVISIONS

TOTAL STAFFING:	41 (M-28, F-13)
AVERAGE SALARY:	$5130/YR.
AVERAGE AGE:	27 YEARS
AVERAGE TENURE:	5 YEARS
PERCENT "RATED":	88%
PERCENT MARRIED:	41%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	54%
COLLEGE DROPOUT:	7%
COLLEGE GRADUATE:	39%

NEW CREATED TREASURER'S DIVISION

TOTAL STAFFING:	36 (M-4, F-32)
AVERAGE SALARY:	$4070/YR.
AVERAGE AGE:	29 YEARS
AVERAGE TENURE:	8 YEARS
PERCENT "RATED":	70%
PERCENT MARRIED:	31%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	91%
COLLEGE DROPOUT:	3%
COLLEGE GRADUATE:	6%

NOTE: M DENOTES MALE - F DENOTES FEMALE

PERSONNEL CHARACTERISTICS OF MAJOR GROUPINGS
(ALL CLERICAL – NEW HIRES)

BEFORE CONVERSION TO EDP
1956 CALENDAR YEAR *
HOME OFFICE

ALL DIVISIONS (EXCLUDING AGENCY PERSONNEL)

TOTAL NEW HIRES:	330 (M-27, F-303)
AVERAGE SALARY:	$2446/YR.
AVERAGE AGE:	21 YEARS
PERCENT MARRIED:	4%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	1%
HIGH SCHOOL GRADUATE:	81%
COLLEGE DROPOUT:	12%
COLLEGE GRADUATE:	6%

UNAFFECTED DIVISIONS

TOTAL NEW HIRES:	192 (M-13, F-179)
AVERAGE SALARY:	$2484/YR.
AVERAGE AGE:	21 YEARS
PERCENT MARRIED:	5%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	1%
HIGH SCHOOL GRADUATE:	77%
COLLEGE DROPOUT:	13%
COLLEGE GRADUATE:	9%

AFFECTED DIVISIONS

TOTAL NEW HIRES:	138 (M-14, F-124)
AVERAGE SALARY:	$2392/YR.
AVERAGE AGE:	20 YEARS
PERCENT MARRIED:	2%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	1%
HIGH SCHOOL GRADUATE:	85%
COLLEGE DROPOUT:	12%
COLLEGE GRADUATE:	2%

AGENCY OFFICES

AGENCY PREMIUM PROCESSING

(NO INFORMATION ON THE NUMBER OR CHARACTERISTICS OF NEW HIRES IN 1956)

AFTER CONVERSION TO EDP
1962 CALENDAR YEAR *
HOME OFFICE

ALL DIVISIONS (AGENCY FUNCTIONS ASSORBED)

TOTAL NEW HIRES:	204 (M-32, F-172)
AVERAGE SALARY:	$3446/YR.
AVERAGE AGE:	21 YEARS
PERCENT MARRIED:	13 %
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	73%
COLLEGE DROPOUT:	15%
COLLEGE GRADUATE:	12%

UNAFFECTED DIVISIONS

TOTAL NEW HIRES:	132 (M-21, F-111)
AVERAGE SALARY:	$3451/YR.
AVERAGE AGE:	21 YEARS
PERCENT MARRIED:	12%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	76%
COLLEGE DROPOUT:	12%
COLLEGE GRADUATE:	12%

AFFECTED DIVISIONS

TOTAL NEW HIRES:	60 (M-9, F-51)
AVERAGE SALARY:	$3376/YR.
AVERAGE AGE:	20 YEARS
PERCENT MARRIED:	13%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	71%
COLLEGE DROPOUT:	22%
COLLEGE GRADUATE:	7%

NEW CREATED DATA PROCESSING DIVISIONS

TOTAL NEW HIRES:	3 (M-2, F-1)
AVERAGE SALARY:	$5686/YR.
AVERAGE AGE:	27 YEARS
PERCENT MARRIED:	67%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	0%
COLLEGE DROPOUT:	0%
COLLEGE GRADUATE:	100%

NEW CREATED TREASURER'S DIVISION

TOTAL NEW HIRES:	9 (M-0, F-9)
AVERAGE SALARY:	$3141/YR.
AVERAGE AGE:	19 YEARS
PERCENT MARRIED:	0%
EDUCATION (PERCENT DISTRIBUTION):	
HIGH SCHOOL DROPOUT:	0%
HIGH SCHOOL GRADUATE:	78%
COLLEGE DROPOUT:	11%
COLLEGE GRADUATE:	11%

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

NOTE: M DENOTES MALE – F DENOTES FEMALE

GLOSSARY

DIVISION GROUPINGS

Affected Divisions	A grouping of divisions where extensive changes in methods, systems and procedures have occurred prior to 12/31/62, as a result of conversion to Electronic Data Processing. Thus an area where EDP was applied.
Unaffected Divisions	A grouping of divisions where no extensive changes in methods, systems and procedures have occurred prior to 12/31/62, as a result of conversion to Electronic Data Processing. Thus an area where EDP was not applied.
New Created Divisions	A grouping of divisions created prior to 12/31/62, as a direct result of conversion to Electronic Data Processing or to perform a service made possible by the new methods, systems and procedures. Thus an area comprised of positions created as a direct result of EDP.
New Created Data Processing Divisions	A grouping of all data processing department divisions considered new created.
New Created Treasurer's Division	The treasurers department division considered new created.
All Divisions	A grouping of all affected, unaffected, and new created divisions.

COMPANY WAGE CLASSIFICATION

AND MAJOR GROUPINGS

Clerical Classifications	Classifications considered clerical in the wage classification structure of the subject employer. Some of the jobs in this classification would be considered Professional under the job classification structure of the Dictionary of Occupational Titles.

Managerial and Professional Classifications	Classifications considered managerial or professional in the wage classification structure of the subject employer. A few of the jobs in this classification would be considered Clerical under the job classification structure of the Dictionary of Occupational Titles.
Total Employment - or Clerical, Managerial and Professional Classifications	A grouping of clerical classifications with managerial and professional classifications. This grouping includes all home office employees of the subject employer, except maintenance and restaurant employees.
Wage Classification	A classification of company positions by responsibility and authority for salary determination.

PERSONNEL CHARACTERISTICS

Personnel Characteristics	Six personal characteristics of individual workers which were recorded, both in 1956 and in 1962 (defined below).
Average Tenure	The average length of time, in years, that a particular group of employees has been continuously on the payroll of this employer.
Average Age	The average age, in years, of a particular group of employees.
Average Annual Salary	Average annual salary of a particular group of employees.
Efficiency Rating	An efficiency rating given annually to company employees. Individuals are rated on a three point scale - Top 25th percentile, Middle 50th percentile, and Lower 25th percentile. To be rated, an individual must have been one of at least eight workers doing similar work and must have been employed on the job a sufficient length of time to warrant a comparison. Thus the work must have a somewhat routine nature if the worker is to be rated.

Educational Attainment Level	The formal educational attainment, measured by percentage distribution, as broken out into the following four categories: 1 Not high school graduates (high school dropouts) 2 High school graduates 3 Some college education (college dropouts) 4 College graduates
Marital Status	Marital Status broken out into: Married, which includes separated, as against single, which includes divorced or widowed.

MISCELLANEOUS DEFINITIONS

New Hires	Hired during the year and on the payroll at the end of the year.
EDP	Electronic Data Processing

INDIVIDUAL WAGE CLASSIFICATIONS

The twenty-eight wage classifications which were grouped into the eight wage classification groupings are presented in this section of the appendix. Included under each wage classification are: a description of job tasks, company job titles (when they are other than the title of the specified Wage Classification), comments on staffing and staffing changes, a staffing table and comments on changes in Personnel Characteristics.

Management and Professional Grouping

Top Management Grouping
- Executive Officer
- Officer

Middle Management and Professional Grouping
- Supervisor
- Specialists
- Attorney
- Registrar

Clerical Grouping

Entry and Routine Clerical Grouping
- Clerical, Head
- Routine Clerical #1
- Routine Clerical #2
- Routine Clerical #3
- Entry Routine Clerical

Nonroutine Clerical Grouping
- Nonroutine Clerical #4
- Nonroutine Clerical #3
- Assistant to Supervisor
- Nonroutine Clerical #2
- Nonroutine Clerical #1

Programer Grouping
- Senior Programer
- Programer
- Assistant to Programer

Clerical Machine Operator Grouping
- Machine Operator #4
- Machine Operator #3
- Machine Operator #2
- Machine Operator #1

Stenographic and Secretarial Grouping
- Secretary to Executive Officer
- Secretary to Officer
- Secretary to Supervisor
- Stenographers, Ediphone Operators

Unclassified Grouping
- Unclassified

Table I

WAGE RANGES

CLERICAL WAGE CLASSIFICATIONS

RANGE	
9	Nonroutine Clerical #4
8	Nonroutine Clerical #3 Assistant to Supervisor Senior Programmer
7	Nonroutine Clerical #2 Machine Operator #4 Programmer
6	Secretary to Executive Officer
5	Nonroutine Clerical #1 Clerical Head Machine Operator #3 Assistant Programmer
4	Routine Clerical #3 Secretary to Officer Machine Operator #2
3	Routine Clerical #2 Secretary to Supervisor Machine Operator #1
2	Routine Clerical #1 Stenographer, Ediphone Operator
1	Entry Routine Clerical
U	Unclassified

TOP MANAGEMENT GROUPING

EXECUTIVE OFFICER

All of the following company job titles come under Wage Classification "Executive Officer".

Company Job Titles

President	Treasurer
Vice President	Director of Personnel Service
Actuary	Director of Markets Research
Secretary	Director of Agencies
Medical Director	General Counsel
Director of Underwriting	Comptroller

Comments:

A drop of one employee in this classification (all were men) was the result of one vacancy caused by turnover. In 1956, no Executive Officers were assigned to areas where EDP was to be applied; since 1956, two Executive Officers were assigned to areas where EDP was applied. No new hires directly into this classification occurred in either year.

Average salary increased 15% during the six-year period, both where EDP was applied and where EDP was not applied.

Educational attainment of Executive Officers did not change materially in the six-year period; almost all were college graduates in both years. Eleven of fourteen men in 1956 and twelve of thirteen men in 1962 were college graduates.

Average age decreased 0.4 years, and average tenure increased 2.4 years. The two Executive Officers attached to areas where EDP was applied were slightly older and had much more tenure than the men attached to areas where EDP was not applied.

EXECUTIVE OFFICER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	14	13	-1	-7%	14	13	-1	-7%				
UNAFF DIV	14	11	-3	-21%	14	11	-3	-21%				
AFF DIV		2				2						
NEW TREAS												
NEW D P DIV												

TOP MANAGEMENT GROUPING

OFFICER

All of the following company job titles come under Wage Classification "Officer".

Company Job Titles

Associate Actuary
Assistant Actuary
Assistant Secretary
Assistant Medical Director
Assistant Director of Underwriting
Assistant Treasurer
Manager of Data Processing
Asst. Mgr. of Data Processing
Mgr. of Methods & Procedures
Personnel Manager
Asst. Director & Staff Economist
Superintendent of Agencies
Supt. of Education & Field Training
Superintendent of Advertising
Supt. of Advanced Underwriting Trng.
Editor of Field Publications
Asst. Supt. of Agencies
Asst. Supt. of Educ. & Field Trng.
Manager of Investments
Supt. of Securities & Asst. Secy.
Investment Research Officer
Manager, Residence Mortgages
Asst. Manager, Residence Mortgages
Mgr., Commer'l Mortgages & Real Est.
Asst. Mgr., Commer'l Mort. & Real Est.
Manager, Farm Mortgages
Asst. Manager, Farm Mortgages
Supt., Mortgage Services
Supt., Mortgages & Asst. Secretary
Assistant Counsel
Legislative Representative
Assistant Comptroller
Auditor
Manager of Purchases
Secretary Board of Trustees

Comments:

More Officers were used in 1962 than in 1956. The number assigned to areas where EDP was applied increased significantly, and five new positions were created as a direct result of conversion to EDP. The number of Officers staffing areas where EDP was not applied declined. Three new hires directly into this classification occurred in 1956, and two new hires directly into this classification occurred in 1962. All new hires directly into this classification were assigned to areas where EDP was not applied.

Average salary increased 22% for all employees in this classification and 4% for new hires. The average age of new hires was 3.3 years younger in 1962 than in 1956. Average salary where EDP was applied increased 110%; average salary where EDP was not applied increased 16%; and average salary of officers in positions created as a direct result of EDP was considerably lower than average salary of other Officers.

Educational attainment of Officers was higher in 1962 than in 1956. More were college graduates and fewer were high school or college dropouts or high school graduates. Educational attainment was higher for officers assigned to positions created directly as a result of EDP and was nearly as high as those where EDP was not applied. All new hires directly into this classification were college graduates, in both years.

Average age increased 1.0 years, and average tenure increased 1.7 years. Where EDP was applied, average age increased 11 years, and average tenure increased 7 years. Average age and tenure remained constant where EDP was not applied. Average age of Officers assigned to new positions created by EDP was considerably lower than average age for all Officers, including those assigned to areas where EDP was not applied. However, average tenure of these Officers was only slightly less than the average tenure for all officers.

OFFICER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	71	77	6	8%	70	77	7	10%	1			
UNAFF DIV	67	60	-7	-10%	66	60	-6	-9%	1			
AFF DIV	4	12	8	200%	4	12	8	200%				
NEW TREAS												
NEW D P DIV		5				5						

MIDDLE MANAGEMENT AND PROFESSIONAL GROUPING

SUPERVISOR

D. O. T. TITLE	Code	Number Where EDP Was Applied	Number Where EDP Was Not Applied
Accountant	0-01.20	1	1
Public Relations Man	0-06.97		1
Lawyer	0-22.10		2
Actuary	0-36.55	1	1
Clerical Technician	0-69.97	1	
Manager, Restaurant	0-71.23		1
Purchasing Agent	0-91.60		1
Manager, Office	0-97.12	15	16
Superintendent, Maintenance	0-97.56		2
Total		18	25

Note: One position directly created by EDP had no current job description. Job content was not concrete enough to warrant job analysis.

Comments:

The number of employees staffing this classification was slightly higher in 1962 than in 1956; however, it was equal to the 1955 staffing. Thus, the total number of Supervisors remained constant, except for minor fluctuations resulting from turnover. In 1962 one Supervisor staffed a position which was directly created by conversion to EDP. One less Supervisor was used in areas where EDP was applied, and two more were used in areas where EDP was not applied. No new hires directly into this classification occurred in either year. More women were in this classification in 1962, but the total number of women remained small.

Average salary increased 15% for all Supervisors (17% increase for men). Average salary increased 13% where EDP was applied and 17% where EDP was not applied. Average salary for women was considerably less than average salary for men. Average salary for women declined 9% as a number of women with less tenure entered this classification.

Educational attainment increased significantly. Educational attainment in both years was slightly higher in areas where EDP was not applied.

Average age declined 0.2 years, and average tenure declined 0.9 years - a result of more women in this classification in 1962 with lower age and tenure. Average age and tenure was slightly higher where EDP was applied and slightly lower where EDP was not applied.

SUPERVISOR STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	42	44	2	4%	41	39	-2	-4%	1	5	4	400%
UNAFF DIV	23	25	2	8%	23	22	-1	-4%		3		
AFF DIV	19	18	-1	-5%	18	16	-2	-11%	1	2	1	100%
NEW TRFAS												
NEW D P DIV		1				1						

MIDDLE MANAGEMENT AND PROFESSIONAL GROUPING

SPECIALISTS

D.O.T. Title	D.O.T. Code	1962 No. Where EDP Was Applied	1962 No. Where EDP was not Applied	1962 Job Directly Created by Adaptation of EDP in New: D.P. Div.	Treas. Div.
Accountant, Cost	0-01.10	1			
Accountant, General	0-01.20	1			
Accountant, Tax	0-01.40	1			
Auditor	0-01.60	2			
Accounting System Expert	0-01.70	1			
Research Writer	0-06.85		1		
Public Relations Man	0-06.97		3		
Lawyer	0-22.10	2	9		
Economist	0-36.11		5		
Statistician	0-36.51		9		
Actuary	0-36.55		4		
Director, Educational	0-39.81		1		
Manager, Personnel	0-39.83		3		
Manager, Labor Training	0-39.87		2		
Production Planner	0-68.505				1
Employment Interviewer	0-68.71		1		
Contract Clerk	0-69.84		1		
Clerical Technician	0-69.97		1		
Systems Analyst	0-69.985	1		3	
Superintendent, Bldg.	0-87.10		1		
Manager, Office	0-97.12	1	5		
Manager, Sales	0-97.61		1		
Trust Officer	0-98.13	1			
Death Claims Examiner	1-08.06	1			
Agent - Contract Clerk	1-08.41		1		
Correspondence Clerk	1-16.01	1			
Console Operator (Senior)	1-25.17			4*	
Supervisor, Machine Records Unit	1-25.67	1		1	
Underwriter	1-57.30		5		
INA	INA	6	2	1	1
	Total**	20	55	9	2

Note: Ten Specialist positions had no job descriptions. Job content had changed prior to our conversion to D.O.T. codes and was not concrete enough to warrant job analysis.

* Also should be coded D.O.T., 0-97.12, Manager, Office, as these positions have two distinct functions, supervisory and operational.

** Taken during 1962 but not on 12/31/62. Therefore totals are not in agreement with staffing on 12/31/62.

INA - Information not available.

Comments:

Many more workers were in this classification in 1962, both in areas where EDP was applied and in areas where EDP was not applied. EDP directly created eleven new positions in new divisions, performing new functions. The growth was greater, percentage-wise, where EDP was applied. Four new workers in 1956 and five new workers in 1962 (all men) were hired directly into this classification. No new hirs were assigned to the area where EDP was applied, or to the new divisions performing new functions.

Women were not in this classification in 1956, but were used in 1962.

Average salary increased 18% for all workers, and 27% for new hires. Average salary increased more during the six-year period in areas where EDP was applied.

Average age dropped 0.4 years; average tenure dropped 0.2 years. Average age in 1962, in areas where EDP was applied, was 7 years higher than in areas where EDP was not applied. Average tenure in 1962 was 9 years more for workers in areas where EDP was applied than for workers in areas where EDP was not applied.

Educational attainment of workers in this classification was higher in 1962 than in 1956. In 1962 educational attainment was highest in areas where EDP was not applied, but increased more percentage-wise where EDP was applied.

All new hires (four men in 1956 and five men in 1962) directly into this classification, were college graduates, with the exception of one man in 1956.

SPECIALISTS STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	52	90	38	73%	52	87	35	67%		3		
UNAFF DIV	39	55	16	41%	39	53	14	35%		2		
AFF DIV	13	24	11	84%	13	24	11	84%				
NEW TREAS		2				2						
NEW D P DIV		9				8				1		

MIDDLE MANAGEMENT AND PROFESSIONAL GROUPING

ATTORNEY

Company Job Title

Attorney *

Comments:

The number of workers classified as Attorneys in the company wage classification formula was two less in 1962 than in 1956. All were men and attached to the area where EDP was not applied. Two new hires directly into this classification occurred in 1962, while none occurred in 1956.

Average salary increased 5% in the six-year span. Average salary of new hires was considerably lower than the average salary of all Attorneys.

Average age dropped 7 years and average tenure declined 10 years. The average age of new hires was 13 years younger than the average age of all employees in this classification.

Educational attainment increased. All were college graduates in 1962, while in 1956 three of seven attorneys were not college graduates. All new hires were college graduates.

ATTORNEY STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	7	5	-2	-28%	7	5	-2	-28%				
UNAFF DIV	7	5	-2	-28%	7	5	-2	-28%				
AFF DIV												
NEW TRFAS												
NEW C P DIV												

* D.O.T. Title Lawyer, Corporation 0-22.10

MIDDLE MANAGEMENT AND PROFESSIONAL GROUPING

REGISTRAR

Company Job Title

Registrar *

Comments:

The number of employees in this classification (all men) declined from three to one in the six-year period. There were no new hires directly into this classification.

Salary of the one remaining registrar was 0.8% above the average salary of registrars in 1956.

The age of the remaining Registrar was five years above the 1956 average age of Registrars, and the tenure of the remaining Registrar was 1.7 years above the 1956 average tenure of Registrars.

REGISTRAR STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	3	1	-2	-66%	3	1	-2	-66%				
UNAFF DIV	2	1	-1	-50%	2	1	-1	-50%				
AFF DIV	1		-1	-100%	1		-1	-100%				
NEW TREAS												
NEW U F DIV												

* D.O.T. Title Apraiser, Real Estate 1-48.52

ENTRY & ROUTINE CLERICAL GROUPING

CLERICAL, HEAD

Wage Classification Description: Supervision of entry routine clerical work in large groups, or routine clerical, or stenographic work in small groups.

Comments:

Slightly less workers were used in 1962. More women and less men were used in 1962. There were no new hires directly into the wage classification in either 1956 or 1962. No new positions, created directly by automation, were given this classification.

Average salary increased 16%. Salary where EDP was applied increased 35%; where EDP was not applied, salary went up 7%.

Workers had more education in 1962 - More were college graduates, less were high school graduates, and none had less than high school education.

Average age of workers went up, especially amongst men. Average tenure remained stable, rising for men and declining for women. Tenure of women declined where EDP was not applied and rose where EDP was applied.

CLERICAL, HEAD STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	19	17	-2	-10%	7	3	-4	-57%	12	14	2	16%
UNAFF DIV	12	12			6	3	-3	-50%	6	9	3	50%
AFF DIV	7	5	-2	-28%	1		-1	-100%	6	5	-1	-15%
NEW TREAS												
NEW D P DIV												

ENTRY & ROUTINE CLERICAL GROUPING
ROUTINE CLERICAL #3*

Wage Classification Description: Operations that require the following of a large number of rules, which are, however, very definite and specific:

1 - Doing the work, or leader of routine clerical work in small groups, in addition to sharing in the routine duties.

2 - Checking the work, responsibility for small unit of same, or doing above work without subsequent check.

3 - Working on cases where the selection of rules that apply depends upon the complete picture of a situation. This may include correspondence where there is latitude in working, but not in action.

All of the following company job titles come under the Wage Classification "Routine Clerical".

Company Job Titles

Payroll Clerk	Loan Processor
Calculating Machine Operator	Payment Teller
Key Punch Operator	Dictaphone Transcriber
Bookkeeping Machine Operator	File Clerk
Typist (Clerk)	Stenographic Clerk
Claim Examiner (Analyst)	Graphotype Operator
Unit Head	Medical Information Bureau (File Clerk)
Correspondent	

Comments:

More workers were used both where EDP was applied and where EDP was not applied. New hiring directly into this classification increased. Many more women were used and a few less men were used. Eight new positions, created directly by automation, were given this classification.

Average salary in this classification went up 11% for all employees, and 46.8% for new hires. The increase where EDP was applied was almost identical with the increase where EDP was not applied.

Most workers hired in 1962 had some college or were college graduates. The educational level of employees in this classification was slightly higher in 1962 than in 1956.

Average tenure and age declined, especially where EDP was applied, and the decline occurred amongst women. Average age of new hires was slightly higher in 1962 than in 1956.

ROUTINE CLERICAL #3 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	152	186	34	22%	29	25	-4	-13%	123	161	38	30%
UNAFF DIV	74	89	15	20%	12	10	-2	-16%	62	79	17	27%
AFF DIV	78	89	11	14%	17	15	-2	-11%	61	74	13	21%
NEW TREAS		7	7							7	7	
NEW D P DIV		1	1							1	1	

* Third step in a three-step structure of classifications

ENTRY & ROUTINE CLERICAL GROUPING
ROUTINE CLERICAL #2*

Wage Classification Description: Operations that require the following of a large number of rules which are, however, very definite and specific:

1 - Doing the work, or leader of Routine Clerical work in small groups, in addition to sharing in the routine duties.

2 - Checking the work, responsibility for small unit of same, or doing above work without subsequent check.

All of the following company job titles come under the Wage Classification "Routine Clerical".

Company Job Titles

Payroll Clerk	Assembly Clerk
Calculating Machine Operator	Loan Processor
Key Punch Operator	Payment Teller
Bookkeeping Machine Operator	File Clerk
Typist (Clerk)	Graphotype Operator
Duplicating Machine Operator	Medical Information Board (File Clerk)
Control Clerk	Unit Head

Comments:

The same number of workers were used in both years. New hiring directly into this classification declined. A few more women were used. Only two men were in this classification in 1962. Nine new positions, created directly by automation, were given this classification.

Average salary in this classification went up 21% for all employees and 12% for new hires. The increase where EDP was applied was almost identical with the increase where it was not applied. Average salary for men increased 8%, and average salary for women increased 22%.

The educational level in this classification did not change materially.

Average age did not change. Average tenure declined 0.7 years.

ROUTINE CLERICAL #2 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	214	213	-1	-.4%	9	2	-7	-77%	205	211	6	2%
UNAFF DIV	94	91	-3	-3.1%	4	1	-3	-75%	90	90		
AFF DIV	120	113	-7	-5.8%	5	1	-4	-80%	115	112	-3	-2%
NEW TREAS		7	7							7	7	
NEW D P DIV		2	2							2	2	

* Second step in a three-step classification under this title

ENTRY 3: ROUTINE CLERICAL GROUPING

ROUTINE CLERICAL #1 *

Wage Classification Description: Operations that require the following of a large number of rules whichare, however, very definite and specific. Doing the work, or leader of Routine Clerical work in small groups, in addition to sharing in the routine duties.

All of the following company job titles come under the Wage Classification "Routine Clerical".

Company Job Titles

File Clerk
Calculating Machine Operator
Key Punch Operator
Bookkeeping Machine Operator
Graphotype Operator
Duplicating Machine Operator
Control Clerk
Payroll
Typist (Clerk)
Stenographic Clerk
Messenger
Payment Teller
Assembly Clerk
Medical Information Bureau (File Clerk)

Comments:

Less workers were used, especially where EDP was not applied. New hiring directly into this classification was 65% lower in 1962. Most workers in this classification were women; therefore less women were employed. Twelve new positions, created as a result of EDP, were given this classification.

Average salary increased 33% during the six-year span. This occurred both where EDP was applied and where it was not applied.

The education level of workers in this classification did not change materially.

Average age and tenure changed very little.

ROUTINE CLERICAL #1 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	257	182	-75	-29%	9	5	-4	-44%	248	177	-71	-28%
UNAFF DIV	127	71	-56	-44%	3	3			124	68	-56	-45%
AFF DIV	130	99	-31	-23%	6		-6	-100%	124	99	-25	-20%
NEW TREAS		12	12			2	2			10	10	
NEW D P DIV												

* First step in a three-step structure of classifications

ENTRY & ROUTINE CLERICAL GROUPING
ENTRY ROUTINE CLERICAL

Wage Classification Description: Simple operations that require the use of a few definite rules. It includes office boys, messenger service and other simple clerical jobs where only a regular and definite change is made in the work and does not include jobs where a large variety of rules must be understood and applied. Includes doing the work, checking the work, responsibility for a small unit of work, or doing the work without a subsequent check.

All of the following company job titles come under the Wage Classification "Entry Routine Clerical".

Company Job Titles

File Clerk
Messenger
Assembly Clerk
Graphotype Operator
Spec. Assign. & Coding
Control Clerk
Requisition Clerk

Comments:

Less workers were required, especially where EDP was applied. Only two new positions created by automation were staffed in this Wage Classification.

Average salary increased 32% during the six-year span. The increase, where EDP was applied, was almost identical with that occurring where EDP was not applied.

Workers hired in this classification had less education in 1962 than in 1956. Fewer workers with some college education were hired. No workers with more than high school education were hired where EDP was applied.

Average age of workers declined 1.1 years. Tenure declined slightly; however, tenure measured in completed years was not accurately measurable in this entry classification.

ENTRY ROUTINE CLERICAL STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	86	57	-29	-33%	1	1			85	56	-29	-34%
UNAFF DIV	54	44	-10	-18%		1	1		54	43	-11	-20%
AFF DIV	32	11	-21	-65%	1		-1	-100%	31	11	-20	-64%
NEW TREAS		2	2							2	2	
NEW D F DIV												

NONROUTINE CLERICAL #4*

Wage Classification Description: Operations requiring knowledge of the general principles of the business. Clerk has at command, and applies, general rules or principles to cases not previously covered, or uses information which can be acquired only outside of the company; or persons who, through long experience with the company, have acquired and are exercising such general knowledge. Handles more complicated cases than third-step Nonroutine Clerical worker.

Comment:

This position, staffed by only one person in 1956, has since been eliminated.

NONROUTINE CLERICAL #4 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	1		-1	-100%	1		-1	-100%				
UNAFF DIV												
AFF DIV	1		-1	-100%	1		-1	-100%				
NEW TREAS												
NEW D P DIV												

* Fourth step in a four-step structure of classifications. This classification has since been eliminated.

NONROUTINE & CLERICAL GROUPING
NONROUTINE CLERICAL #3 *

Wage Classification Description: Operations requiring knowledge of the general principles of the business. Clerk has at command, and applies, general rules or principles to cases not previously covered, or uses information which can be acquired only outside of the company; or persons who, through long experience with the company, have acquired and are exercising such general knowledge.

All of the following company job titles come under the Wage Classification "Nonroutine Clerical".

Company Job Titles

Underwriting
Claim Examiner (Analyst)
Unit Head
Correspondent
Assistant to Supervisor
Calculation

Comments:

More workers were used in 1962. The increase was almost entirely in the number of men, and most of the increase occurred where EDP was applied. No new hires directly into this classification occurred in either year.

Average salary increased 10%. Average salary where EDP was applied varied little from average salary where EDP was not applied. Average salary of men increased 9%, and average salary of women increased 11%.

Workers had more education in 1962. More workers had completed high school or college education. Fewer were high school or college dropouts. This occurred in areas where EDP was not applied.

Average age and tenure increased. Average age increased where EDP was not applied, and average tenure increased where EDP was applied.

NONROUTINE CLERICAL #3 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.
ALL DIV	14	25	11	78%	13	23	10	76%	1	2	1	100%
UNAFF DIV	7	10	3	42%	7	10	3	42%				
AFF DIV	7	15	8	114%	6	13	7	116%	1	2	1	100%
NEW TREAS												
NEW D P DIV												

* Third step in a four-step structure of classifications

NONROUTINE CLERICAL TRAINING

ASSISTANT TO SUPERVISOR

Wage Classification Description: Complete charge of a small unit of work in the Nonroutine Clerical classification, or a large unit of grade work, or assisting in supervision of Nonroutine Clerical work or lower.

Comments:

Less workers were needed in 1962. The decline occurred where EDP was applied. All workers in 1962 were men. No new hires directly into this classification occurred in either 1956 or 1962. No new positions were directly created by conversion to EDP.

Average salary increased 11%. Average salary where EDP was applied was slightly greater than where EDP was not applied.

Workers staffing this classification in 1962 had a higher educational level. More had a high school education or some college.

Average age and tenure increased very slightly. The increase was greater where EDP was not applied.

ASSISTANT TO SUPERVISOR STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	15	12	-3	-20%	14	12	-2	-14%	1		-1	-100%
UNAFF DIV	4	4			4	4						
AFF DIV	11	8	-3	-27%	10	8	-2	-20%	1		-1	-100%
NEW TREAS												
NEW D P DIV												

NONROUTINE CLERICAL #2 *

Wage Classification Description: Operations that involve complete and intensive knowledge of a restricted field, and the taking of action on cases not definitely covered previously; or the making of other than simple calculations.

1 - Doing the work.

2 - Checking the work, handling of papers where question has arisen or adjustment of difficulties is necessary, making of special calculations, or performing the more complex nonroutine clerical operations.

All of the following company job titles come under Wage Classification "Nonroutine Clerical".

Company Job Titles

Calculations
Lay Underwriter
Claim Examiner (Analyst)
Unit Head
Correspondent

Comments:

The number of workers used did not change materially - The number of men declined, while the number of women increased. A few less workers were used where EDP was not applied, and a few more workers were used where EDP was applied. Three new positions where directly created by conversion to EDP. No new hires directly into this classification occurred in either year.

Average salary increased 10%. Average salary where EDP was applied varied little from average salary where EDP was not applied. The average salary of women increased 2%, and the average salary of men increased 13%.

Workers had more education in 1962, as the number of workers with high school degrees increased.

Average age increased 1.0 years, and average tenure increased 0.6 years. Age and tenure of women decreased sharply, while age and tenure of men increased.

NONROUTINE CLERICAL #2 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	95	97	2	2%	93	77	-16	-17%	2	20	18	900%
UNAFF DIV	46	43	-3	-6%	45	34	-11	-24%	1	9	8	800%
AFF DIV	49	51	2	4%	48	40	-8	-16%	1	11	10	1000%
NEW TREAS		2	2			2	2					
NEW D P DIV		1	1			1	1					

* Second step in a four-step structure of classifications

NONROUTINE CLERICAL #1 *

Wage Classification Description: Operations that involve complete and intensive knowledge of a restricted field, and the taking of action on cases not definitely covered previously; or the making of other than simple calculations. Doing the work.

All of the following company job titles come under the Wage Classification "Nonroutine Clerical".

Company Job Titles

Payroll Clerk	Correspondent
Calculating Machine Operator	Loan Processor
Assistant to Supervisor	Payment Teller
Lay Underwriter	Editor
Claim Examiner (Analyst)	Medical Information Bureau (Unit Head)
Unit Head	

Comments:

In total, a few more workers were used in 1962: Fewer men and more women. Only one new hire directly into this classification occurred in 1956 and in 1962. Seven new positions were created as a direct result of conversion to EDP.

Average salary increased 9% - Male salary increased 11%, female salary increased 8%. The increase was greater where EDP was not applied.

Workers had more education in 1962 - More were high school graduates, more were college graduates, and fewer had only some high school or some college education.

Average age increased 0.2 years, while tenure declined 0.5 years, since 1956. Age and tenure increased where EDP was not applied and decreased where EDP was applied.

NONROUTINE CLERICAL #1 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	114	122	8	7%	75	53	-22	-29%	39	69	30	75%
UNAFF DIV	53	56	3	5%	32	26	-6	-18%	21	30	9	42%
AFF DIV	61	59	-2	-3%	43	27	-16	-37%	18	32	14	77%
NEW TREAS		5	5							5	5	
NEW D P DIV		2	2							2	2	

* First step in a four-step structure of classifications

Wage Classification Description: Engaged in more advanced computer programing, with activities weighted toward the more complicated higher forms of block-diagramming. Complete charge of a small unit of work in the "Nonroutine Clerical" classification, or a large unit of lower grade work, or assisting in supervision of Nonroutine Clerical work or lower.

Comments:

Four positions (all for men) were created as a direct result of conversion to EDP. No new hires directly into this classification occurred in 1962.

Average salary of workers in this classification was 37% higher than the average salary of all company clerical workers.

Two workers were college graduates, one had some college, and one was a high school graduate.

Average age was 3.4 years less than the average age for all company clerical workers. Average tenure was 3.7 years less than the average tenure for all company clerical workers.

SENIOR PROGRAMER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV		4				4						
UNAFF DIV												
AFF DIV		1				1						
NEW TREAS												
NEW D P DIV		3				3						

PROGRAMING GROUPING

PROGRAMER

Wage Classification Description: Engaged in advanced computer programing, with activities more evenly balanced between block-diagramming and coding. Operations that involve complete and intensive knowledge of a restricted field, and the taking of action on cases not definitely covered previously; or the making of other than simple calculations. Checking the work, handling of papers where question has arisen or adjustment of difficulties is necessary, making of special calculations or performing the more complex operations.

Comments:

Fourteen new positions (four staffed by women and ten staffed by men) were created in this classification as a direct result of conversion to EDP. Three new hires directly into this classification occurred in 1962.

Average salary of workers in this classification was 35% higher than average salary of workers in all company clerical classifications.

All workers, with the exception of one high school graduate, were college graduates.

Average age of workers in this classification was 28 years. Average age of all clerical workers was 31 years.

Average tenure of workers in this classification was less than 4 years. The average tenure of all clerical workers was 10 years.

PROGRAMER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV		14				10				4		
UNAFF DIV												
AFF DIV												
NEW TREAS												
NEW D P DIV		14				10				4		

PROGRAMING GROUPING

ASSISTANT TO PROGRAMER

Wage Classification Description: Engaged in computer programing, with activities predominantly at the coding level; may produce block-diagrams for simpler problems.

Comments:

Two new positions (one for a man and one for a woman) were created in this classification was a direct result of conversion to EDP. No new hires directly into this classification occurred in 1962.

In 1962, average salary of workers in this classification was 17% higher than average salary of workers in all company clerical classifications.

Both workers were high school graduates. Both were 37 years old. Average age for all clerical workers was 31 years. The man had 9 years' tenure, and the woman had 19 years' tenure. Average tenure for all clerical workers was 10 years.

ASSISTANT TO PROGRAMER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV		2				1				1		
UNAFF DIV												
AFF DIV												
NEW TREAS												
NEW D P DIV		2				1				1		

CLERICAL MACHINE OPERATOR GROUPING

MACHINE OPERATOR #4 *

Wage Classification Description: Men with experience as Tabulating #3 operators, responsible for the planning, ex editing, and/or the running and final accuracy of regular and special projects, requiring general knowledge of a broad field. Checking the work, handling of papers where question has arisen or adjustment of difficulties is necessary, making of special calculations or performing more complex operations.

The following company job title has the Wage Classification "Machine Operator #4".

Company Job Title

Tabulating Machine Operator No. 4

Comments:

Employment (all men) in this wage classification declined. One new position was created as a direct result of conversion to EDP. No new hires occurred in this classification.

Average salary in 1962 was 3% less than in 1956 because of the lower age and tenure of one employee.

All workers in this classification were high school graduates in 1962; one worker in 1956 had not completed high school.

MACHINE OPERATOR #4 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	3	2	-1	-33%	3	2	-1	-33%				
UNAFF DIV												
AFF DIV	3	1	-2	-66%	3	1	-2	-66%				
NEW TREAS												
NEW D P DIV		1				1						

* Fourth in a four-step structure of classifications

CLERICAL MACHINE OPERATOR GROUPING

MACHINE OPERATOR #3 *

Wage Classification Description: Men with a least five years' experience, responsible for the running and final accuracy of recurring projects, requiring a complete and intensive knowledge of a restricted field. Operations that involve complete and intensive knowledge of a restricted field, and the taking of action on cases not definitely covered previously; or the making of other than simple calculations.

All of the following company job titles come under Wage Classification "Machine Operator #3".

Company Job Titles

Tabulating Machine Operator No. 3
1401 Operator
Computer Operator Assistant

Comments:

Employment (all men) in this classification increased. Five new positions were directly created by conversion to EDP, accounting for the total increase in this classification. No new hires occurred in this classification.

Average salary declined 3% - a result of staffing positions with younger workers who had less tenure.

Educational attainment of workers in this classification was higher in 1962.

MACHINE OPERATOR #3 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	3	7	4	133%	3	7	4	133%				
UNAFF DIV												
AFF DIV	3	2	-1	-33%	3	2	-1	-33%				
NEW TREAS												
NEW D P DIV		5				5						

* Third step in a four-step structure of classifications

CLERICAL MACHINE OPERATOR GROUPING

MACHINE OPERATOR #2 *

Wage Classification Description: Men with at least two years' experience in the Data Processing Division, or with special skills, who can be given responsibility for completing a complicated run with minor supervision from his unit head. Working on cases where the selection of rules which apply depends upon the complete picture of a situation.

The following company job titles come under Wage Classification "Machine Operator #2".

Company Job Titles

Tabulating Machine Operator No. 2
1401 Operator Assistant

Comments:

More workers (men) were used in 1962. No new hires were made directly into this classification.

Average salary in this classification increased 14% - 11% for men and 23% for women.

Educational attainment of workers assigned this classification was higher in 1962.

Average age decreased 2.3 years. Average tenure decreased 2.9 years. The decrease in age and tenure occurred mostly in the new Data Processing operating units.

MACHINE OPERATOR #2 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	3	7	4	133%	2	6	4	200%	1	1		
UNAFF DIV												
AFF DIV	3	4	1	33%	2	3	1	50%	1	1		
NEW TREAS												
NEW D P DIV		3				3						

* Second step in a four-step structure of classifications

CLERICAL MACHINE OPERATOR GROUPING

MACHINE OPERATOR #1 *

Wage Classification Description: Inexperienced men who are learning the machines and who have less than two years' experience in the Data Processing Division. They may be able to operate all machines, but cannot be given a high degree of responsibility for independent work. Checking the work, responsibility for small unit of same, or doing above work with subsequent check.

All of the following company job titles come under Wage Classification "Machine Operator #1".

Company Job Titles

Tabulating Machine Operator No. 1
Tape Operator

Comments:

More workers (women) were used in 1962. The number of new hires directly into this classification declined. Three new positions were directly created by conversion to EDP.

Average salary increased 28%. The increase was slightly larger for men. Average salary for the new jobs created by EDP was 7% higher than for all workers in this classification. Average salary of new hires increased 26%.

Educational attainment of workers in this classification did not change.

Average age and tenure rose. Average tenure of women in this classification rose higher than the average tenure of men.

MACHINE OPERATOR #1 STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.	1956	1962	No. CH.	% CH.
ALL DIV	10	12	2	20%	5	5			5	7	2	40%
UNAFF DIV												
AFF DIV	10	9	-1	-10%	5	2	-3	-60%	5	7	2	40%
NEW TREAS												
NEW D P DIV		3				3						

* First in a four-step structure of classifications

STENOGRAPHIC & SECRETARIAL GROUPING

SECRETARY TO EXECUTIVE OFFICER*

Wage Classification Description: Operations that involve complete and intensive knowledge of a restricted field, and the taking of action on cases not definitely covered previously; or the making of other than simple calculations.

Comments:

One more worker staffed this classification in 1962 than in 1956. No new hires occurred directly into this wage classification.

Average salary increased 13% for workers in this classification.

Educational attainment did not change materially.

Average age increased 0.9 years; average tenure increased 1.2 years.

SECRETARY TO EXECUTIVE OFFICER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
TLL DIV	14	15	1	7%					14	15	1	7%
UNAFF DIV	13	13							13	13		
AFF DIV	1	2	1	100%					1	2	1	100%
NEW TREAS												
NEW D P DIV												

* Fourth step in a four-step structure of classifications

STENOGRAPHIC & SECRETARIAL GROUPING

SECRETARY TO OFFICER*

Wage Classification Description: Working on cases where the selection of rules which apply depends upon the complete picture of a situation. This may include correspondence where there is latitude in wording but not in the action.

Comments:

More workers were in this classification in 1962. Almost all of the increase occurred in areas where EDP was not applied. Two workers were hired directly into this classification in 1962 - one less than in 1956. No workers were hired directly into areas where EDP was applied.

More high school graduates and less college graduates staffed the positions in this classification in 1962.

SECRETARY TO OFFICER STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	44	57	13	29%					44	57	13	29%
UNAFF DIV	41	52	11	26%					41	52	11	26%
AFF DIV	3	3							3	3		
NEW TREAS												
NEW D P DIV		2								2		

* Third step in a four-step structure of classifications

STENOGRAPHIC & SECRETARIAL GROUPING

SECRETARY TO SUPERVISOR *

Wage Classification Description: Stenographers or ediphone operators doing minor secretarial duties. Checking the work, responsibility for small units, or doing above work without subsequent check.

The following company job titles come under Wage Classification "Secretary to Supervisor".

Company Job Titles

Stenographer
Dictating Machine Transcriber

Comments:

Many more workers were in this classification in 1962 than in 1956. The increase was greater, percentage wise, where EDP was applied. All workers in this classification were women. More workers were hired directly into this classification in 1962 than in 1956. Most were hired in areas where EDP was not applied.

Average salary was 24% higher for all workers and 28% higher for new employees in 1962 than in 1956.

Workers had more education in 1962. More were college dropouts.

Average age increased 0.3 years; average tenure decreased 0.7 years. Age was greater, while tenure was slightly less where EDP was not applied.

SECRETARY TO SUPERVISOR STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.
ALL DIV	46	66	20	43%					46	66	20	43%
UNAFF DIV	37	47	10	27%					37	47	10	27%
AFF DIV	9	18	9	100%					9	18	9	100%
NEW TREAS												
NEW D P DIV		1								1		

* Second step in a four-step structure of classifications

STENOGRAPHIC & SECRETARIAL GROUPING

STENOGRAPHERS, EDIPHONE OPERATORS *

Wage Classification Description: Operations that require the following of a large number of rules which are, however, very definite and specific. Doing the work, or leader of small groups, in addition to sharing in the routine duties.

All of the company job titles that follow come under Wage Classification "Stenographers, Ediphone Operators".

Company Job Titles

Stenographer
Dictating Machine Transcriber
Typist (Clerk)

Comments:

Many more workers were employed in 1962 than in 1956. All workers in this classification were women. The increase in employment was greatest in the area where EDP was applied. Many more workers were hired directly into this classification in 1962 than in 1956.

Average salary increased 29% for all workers, and increased 31% for new hires in the six-year period.

Educational attainment did not change significantly. All workers had at least a high school education.

Average age declined 0.8 years. Average tenure did not change; however, tenure measured in completed years is not accurately measurable in an entry classification.

STENOGRAPHERS, EDIPHONE OPERATORS STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.	1956	1962	NO. CH.	% CH.
ALL DIV	39	66	27	69%					39	66	27	69%
UNAFF DIV	25	37	12	48%					25	37	12	48%
AFF DIV	14	29	15	107%					14	29	15	107%
NEW TREAS												
NEW D P DIV												

* First step in a four-step structure of classifications

UNCLASSIFIED GROUPING

Wage Classification Description: None. Frequently college graduate trainees temporarily working in inappropriate pay classification.

The following company job titles come under Wage Classification "Unclassified".

Company Job Titles*

Assistant to Supervisor
Correspondent

Comments:

Many more workers (mostly men) were in this classification in 1962 than in 1956. This increase occurred almost entirely in areas where EDP was not applied, and an actual decline occurred in areas where EDP was applied. Twenty-four workers (Mostly men) were hired directly into this classification. Most new hires were in areas where EDP was not applied.

Average salary for all workers in this classification increased 19%, but average salary for new hires increased 39%. The increase in average salary for all women in this classification was greater than the average increase for all men. However, the increase in average salary of new hires was greater for men than for women.

Where EDP was applied, the increase in average salary was considerably less. Average age and tenure of unclassified workers was less where EDP was applied, but educational attainment was slightly higher.

Average age decreased 2.1 years, and average tenure decreased 1.8 years. The decrease in age and tenure was greater in the area where EDP was applied. Average age of new hires declined 0.7 years - a result of the decline in the average age of women hired directly into this classification.

Educational attainment of workers increased as more college graduates were used in this wage classification. Percentage-wise, more high school and college graduates and fewer high school and college dropouts were used in both years in areas where EDP was applied.

UNCLASSIFIED STAFFING 12/31/56 & 12/31/62

	MALE & FEMALE				MALE				FEMALE			
	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.	1956	1962	No. Ch.	% Ch.
ALL DIV	89	109	20	22%	63	80	17	26%	26	29	3	11%
UNAFF DIV	65	85	20	30%	44	62	18	40%	21	23	2	9%
AFF DIV	24	22	-2	-8%	19	17	-2	-10%	5	5		
NEW TREAS		1								1		
NEW D P DIV		1				1						

* Many other company job titles may exist.

Appendix II

DETAILED PERSONNEL CHARACTERISTICS TABLES

Table 2 - Total Employment (Company Clerical, Managerial and Professional Wage Classifications)

Table 3 - Total Employment (Company Clerical, Managerial and Professional Wage Classifications) -- New Hires

Table 4 - Company Managerial and Professional Wage Classifications

Table 5 - Company Managerial and Professional Wage Classifications -- New Hires

Table 6 - Company Clerical Wage Classifications

Table 7 - Company Clerical Wage Classifications -- New Hires

TABLE II

PERSONNEL CHARACTERISTICS - - - TOTAL EMPLOYMENT (CLERICAL, MANAGERIAL AND PROFESSIONAL WAGE CLASSIFICATIONS)
12/31/56 AND 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS
STAFFING	56	1407	804	603			893	496	397			514	308	206		
IN GROUP	62	1502	811	597	56	38	964	505	413	14	32	538	306	184	42	6
CHANGE	NO	95	7	-6			71	9	16			24	-2	-22		
	%	6.7	0.8	-0.9			7.9	1.8	4.0			4.6	-0.6	-10.6		
AVERAGE	56	4801	5412	3986			3132	3191	3059			7701	8989	5775		
ANNUAL	62	5849	6331	5226	6607	4240	4136	4113	3912	4894	3936	9105	9991	8175	7815	5659
SALARY																
CHANGE	$	1048	919	1240			1004	922	854			1404	1002	2400		
	%	21.8	16.9	31.1			32.0	28.8	27.9			18.2	11.1	41.5		
AVERAGE	56	33.2	34.0	32.2			27.1	27.8	26.3			43.9	44.0	43.8		
AGE IN	62	33.6	34.6	32.9	31.2	29.3	28.1	29.3	26.9	24.6	27.9	43.4	43.1	46.3	33.3	36.8
YEARS	CH	0.4	0.6	0.7			1.0	1.5	0.6			-0.5	-0.9	2.5		
AVERAGE	56	11.6	11.2	12.0			6.4	6.5	6.3			20.5	18.7	23.2		
TENURE	62	11.5	11.3	12.3	9.0	7.5	7.0	7.4	6.6	4.1	6.7	19.5	17.7	24.9	10.6	11.8
IN YEARS	CH	-0.1	0.1	0.3			0.6	0.9	0.3			1.0	-1.0	1.7		
NOT RATED	56	612	433	179			399	268	131			213	165	40		
FOR EFFICIENCY	62	590	405	149	23	13	311	221	74	5	11	279	184	75	18	2
% DIST	56	43.4	53.8	29.6			44.6	54.0	32.9			41.4	53.5	23.3		
% DIST	62	39.2	49.9	24.9	41.0	34.2	32.2	43.7	17.9	35.7	34.3	51.8	60.1	40.7	42.8	33.3
MARRIED	56	522	305	217			106	48	58			416	257	159		
	62	597	331	222	31	13	180	89	79	3	9	417	242	143	28	4
% DIST	56	37.1	37.9	35.9			11.8	9.6	14.6			80.9	83.4	77.1		
% DIST	62	39.7	40.0	37.1	55.3	34.2	18.6	17.6	19.1	21.4	20.1	77.5	79.0	77.7	66.6	66.6
CHANGE		2.6	2.9	1.2			6.8	8.0	4.5			-3.4	-4.4	0.6		
HS	56	129	68	61			34	18	16			95	50	45		
DROPOUT	62	81	42	39			24	13	11			57	29	28		
% DIST	56	9.1	8.4	10.1			3.3	3.6	4.0			18.4	16.2	21.8		
% DIST	62	5.3	5.1	6.5			2.4	2.5	2.6			10.5	9.4	15.2		
HS GRADS	56	997	517	480			756	402	354			241	115	126		
	62	1038	510	465	30	33	809	406	365	9	29	229	104	100	21	4
% DIST	56	70.8	64.3	79.6			84.6	81.0	89.1			46.8	37.3	61.1		
% DIST	62	69.1	62.8	77.8	53.5	86.8	83.9	80.3	88.3	64.2	90.6	42.5	33.9	54.3	50.0	66.6
COLLEGE	56	118	78	40			73	50	23			45	28	17		
DROPOUT	62	130	76	49	4	1	80	49	30		1	50	27	19	4	
% DIST	56	8.3	9.7	6.6			8.1	10.0	5.7			8.7	9.0	8.2		
% DIST	62	8.6	9.3	8.2	7.1	2.6	8.2	9.7	7.2		3.1	9.2	8.8	10.3	9.5	
COLLEGE	56	163	141	22			30	26	4			133	115	18		
GRADS	62	247	181	40	22	4	47	35	5	5	2	200	146	35	17	2
% DIST	56	11.5	17.5	3.6			3.3	5.2	1.0			25.8	37.3	8.7		
% DIST	62	16.4	22.3	6.7	39.2	10.5	4.8	6.9	0.9	35.7	6.2	37.1	47.7	19.0	40.4	33.3

TABLE III

PERSONNEL CHARACTERISTICS -- TOTAL EMPLOYMENT
(CLERICAL, MANAGERIAL AND PROFESSIONAL WAGE CLASSIFICATIONS) - NEW HIRES*
12/31/56 AND 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF CIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF CIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF CIV	NEW D P DIV	NEW TREAS
STAFFING IN GROUP	56	337	199	138			303	179	124			34	20	14		
	62	213	141	60	3	9	172	111	51	1	9	41	30	9	2	
CHANGE	NO	-124	-58	-78			-131	-68	-73			7	10	-5		
	%	-36.7	-29.1	-56.5			-43.2	-37.9	-58.8			20.5	50.0	-35.7		
AVERAGE ANNUAL SALARY	56	2569	2691	2392			2390	2425	2339			4167	5080	2863		
	62	3663	3775	3376	5686	3141	3199	3212	3134	5620	3141	5608	5857	4751	5720	
CHANGE	$	1094	1084	984			809	787	795			1441	777	1888		
	%	42.5	40.2	41.1			33.8	32.4	33.9			34.5	15.2	65.9		
AVERAGE AGE IN YEARS	56	20.8	21.3	20.2			20.8	21.2	21.0			23.5	25.5	20.8		
	62	21.0	24.7	19.8	26.6	19.0	19.9	20.2	19.2	22.0	19.0	25.7	26.3	23.0	29.0	
	CH	0.2	3.4	-8.4			-0.9	-1.0	-1.8			2.2	0.8	2.2		
MARRIED	56	18	15	3			6	4	2			12	11	1		
	62	33	23	8	2		18	11	7			15	12	1	2	
% DIST	56	5.3	7.5	2.1			1.9	2.2	1.5			35.2	55.0	7.1		
% DIST	62	15.4	16.3	13.3	66.6		10.4	9.9	13.7			36.5	40.0	11.2	100.0	
CHANGE		10.1	8.8	11.2			8.5	7.7	12.1			1.3	-15.0	4.1		
HS DROPOUT	56	3	2	1			3	2	1							
	62															
% DIST	56	0.8	1.0	0.7			0.9	1.1	0.8							
% DIST	62															
HS GRADS	56	266	149	117			249	142	107			17	7	10		
	62	150	100	43		7	139	91	41		7	11	9	2		
% DIST	56	78.9	74.8	84.7			82.1	79.3	86.2			50.0	35.0	71.4		
% DIST	62	70.4	70.9	71.6		77.7	80.8	81.9	80.3		77.7	26.8	30.0	22.2		
COLLEGE DROPOUT	56	41	24	17			38	23	15			3	1	2		
	62	30	16	13		1	24	13	10		1	6	3	3		
% DIST	56	12.1	12.0	12.3			12.5	12.8	12.0			8.8	5.0	14.2		
% DIST	62	14.0	11.3	21.6		11.1	13.9	11.7	19.6		11.1	14.6	10.0	33.3		
COLLEGE GRADS	56	27	24	3			13	12	1			14	12	2		
	62	32	24	4	3	1	8	6		1	1	24	18	4	2	
% DIST	56	8.0	12.0	2.1			4.2	6.7	0.8			41.1	60.0	14.2		
% DIST	62	15.0	16.1	6.6	100.0	11.1	4.6	5.4		100.0	11.1	58.5	60.0	44.4	100.0	

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

TABLE IV

PERSONNEL CHARACTERISTICS - - - MANAGERIAL AND PROFESSIONAL WAGE CLASSIFICATIONS
12/31/56 AND 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P DIV	NEW TREAS
STAFFING IN GROUP	56	189	152	37			2	1	1			187	151	36		
	62	230	157	56	15	2	8	5	2	1		222	152	54	14	2
CHANGE	NO	41	5	19			6	4	1			35	1	18		
	%	21.6	3.2	51.3			300.0	400.0	100.0			18.7	0.6	50.0		
AVERAGE ANNUAL SALARY	56	11,977	12,915	8,120			10,825	13,000	8,650			11,989	12,915	8,105		
	62	13,338	13,846	12,848	10,646	7,300	7,868	7,970	7,950	7,200		13,535	14,039	13,030	10,892	7,300
CHANGE	$	1,361	931	4,728			-2,957	-5,030	-700			1,546	1,124	4,925		
	%	11.3	7.2	58.2			- 27.3	-38.6	-8.0			12.8	8.7	60.7		
AVERAGE AGE IN YEARS	56	46.6	46.0	49.2			60.0	59.0	61.0			46.5	46.0	48.9		
	62	45.8	44.7	50.2	43.0	37.0	41.0	42.0	43.5	31.0		46.0	44.8	50.5	43.8	37.0
	CH	-0.9	-1.3	1.0			-19.0	-17.0	-17.5			-0.5	-1.2	1.6		
AVERAGE TENURE IN YEARS	56	20.0	17.8	28.9			29.0	19.0	39.0			19.9	17.8	28.6		
	62	19.8	17.1	27.8	21.2	1.5	17.6	18.0	23.0	6.0		19.9	17.1	28.0	22.2	1.5
	CH	-0.2	-0.7	-1.1			-11.4	-1.0	-16.0				-0.7	-0.6		
NOT RATED FOR EFFICIENCY	56	168	138	30			2	1	1			166	137	29		
	62	201	142	46	11	2	4	4				197	138	46	11	2
% DIST	56	88.8	90.7	81.0			100.0	100.0	100.0			88.7	90.7	80.5		
% DIST	62	87.3	90.4	82.1	73.3	100.0	50.0	80.0				88.7	90.7	85.1	78.5	100.0
MARRIED	56	173	140	33								173	140	33		
	62	207	143	48	14	2	2	2				205	141	48	14	2
% DIST	56	91.5	92.1	89.1								92.5	92.7	91.6		
% DIST	62	90.0	91.1	85.7	93.3	100.0	25.0	40.0				92.3	92.7	88.8	100.0	100.0
CHANGE		-1.5	1.0	-3.4								-0.2		-2.8		
HS DROPOUT	56	33	20	13			1		1			32	20	12		
	62	17	10	7			1		1			16	10	6		
% DIST	56	17.4	13.1	35.1			50.0		100.0			17.1	13.2	33.3		
% DIST	62	7.3	6.3	12.5			12.5		50.0			7.2	6.5	11.1		
HS GRADS	56	45	29	16								45	29	16		
	62	57	26	23	8		2	2				55	24	23	8	
% DIST	56	23.8	19.0	43.2								24.0	19.2	44.4		
% DIST	62	24.7	16.5	41.0	53.3		25.0	40.0				24.7	15.7	42.5	57.1	
COLLEGE DROPOUT	56	12	11	1								12	11	1		
	62	19	14	4	1		1	1				18	13	4	1	
% DIST	56	6.3	7.2	2.7								6.4	7.2	2.7		
% DIST	62	8.2	8.9	7.1	6.6		12.5	20.0				8.1	8.5	7.4	7.1	
COLLEGE GRADS	56	99	92	7			1	1				98	91	7		
	62	137	107	22	6	2	4	2	1	1		133	105	21	5	2
% DIST	56	52.3	60.5	18.9			50.0	100.0				52.4	60.2	19.4		
% DIST	62	59.5	68.1	39.2	40.0	100.0	50.0	40.0	50.0	50.0		59.9	69.0	38.8	35.7	100.0

TABLE V

PERSONNEL CHARACTERISTICS
MANAGEMENT AND PROFESSIONAL WAGE CLASSIFICATIONS - NEW HIRES*
12/31/56 & 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS
STAFFING IN GROUP	56	7	7									7	7			
	62	9	9									9	9			
CHANGE	NO	2	2									2	2			
	%	28.5	28.5									28.5	28.5			
AVERAGE ANNUAL SALARY	56	8371	8371									8371	8371			
	62	8522	8522									8522	8522			
CHANGE	$	151	151									151	151			
	%	1.8	1.8									1.8	1.8			
AVERAGE AGE IN YEARS	56	32.1	32.1									32.1	32.1			
	62	30.4	30.4									30.4	30.4			
	CH	-1.7	-1.7									-1.7	-1.7			
MARRIED	56	6	6									6	6			
	62	7	7									7	7			
% DIST	56	85.7	85.7									85.7	85.7			
% DIST	62	77.7	77.7									77.7	77.7			
CHANGE		-8.0	-8.0									-8.0	-8.0			
HS DROPOUT	56															
	62															
% DIST	56															
% DIST	62															
HS GRADS	56															
	62	1	1									1	1			
% DIST	56															
% DIST	62	11.1	11.1									11.1	11.1			
COLLEGE DROPOUT	56															
	62															
% DIST	56															
% DIST	62															
COLLEGE GRADS	56	7	7									7	7			
	62	8	8									8	8			
% DIST	56	100.0	100.0									100.0	100.0			
% DIST	62	88.8	88.8									88.8	88.8			

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

TABLE VI

PERSONNEL CHARACTERISTICS - - - CLERICAL WAGE CLASSIFICATIONS
12/31/56 AND 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS
STAFFING IN GROUP	56	1218	652	566			891	495	396			327	157	170		
	62	1272	654	541	41	36	956	500	411	13	32	316	154	130	28	4
	NO	54	2	-25			65	5	15			-11	-3	-40		
CHANGE	%	4.4	0.3	-4.4			7.2	1.0	3.7			-3.3	-1.9	-23.5		
AVERAGE ANNUAL SALARY	56	3687	3663	3716			3114	3191	3044			5249	5214	5282		
	62	4495	4527	4437	5130	4070	4104	4074	3894	4696	3936	5993	5996	6158	5742	5139
CHANGE	$	808	864	721			991	883	850			744	782	876		
	%	21.9	23.5	19.4			31.3	27.6	27.9			14.1	14.9	16.5		
AVERAGE AGE IN YEARS	56	31.1	31.2	31.1			27.0	27.6	26.1			42.4	42.1	42.7		
	62	31.4	32.2	31.1	26.8	28.9	28.0	29.2	26.8	24.6	27.9	41.5	41.4	44.6	28.1	36.7
	CH	0.3	1.0				1.0	1.6	0.7			-0.9	-.7	1.9		
AVERAGE TENURE IN YEARS	56	10.3	9.7	10.9			6.4	6.5	6.2			20.8	19.6	21.9		
	62	10.0	9.9	10.7	4.5	7.8	6.9	7.3	6.6	4.0	6.7	19.2	18.3	23.6	4.7	17.0
	CH	-0.3	0.2	-0.2			0.5	0.8	0.4			-1.6	-1.3	1.7		
NOT RATED FOR EFFICIENCY	56	444	295	149			397	267	130			47	28	19		
	62	389	263	103	12	11	307	217	74	5	11	82	46	29	7	
	% DIST	36.4	45.2	26.3			44.6	53.9	32.8			14.3	17.8	11.1		
	% DIST	30.5	40.2	19.0	29.2	30.5	32.1	43.4	18.0	38.4	34.3	25.9	29.8	22.3	25.0	
MARRIED	56	349	165	184			106	48	58			243	117	126		
	62	390	195	174	17	11	178	87	79	3	9	212	101	95	14	2
	% DIST	28.5	25.3	32.5			11.3	9.6	14.6			74.3	74.5	74.1		
	% DIST	30.5	28.7	32.1	41.4	30.5	18.6	17.4	19.2	23.0	28.1	67.0	65.5	73.0	50.0	50.0
	CH	2.0	3.4	-0.4			6.8	7.9	4.6			-7.3	-9.0	-1.1		
HS DROPOUT	56	96	48	48			33	18	15			63	30	33		
	62	64	32	32			23	13	10			41	19	22		
	% DIST	7.8	7.3	8.4			3.7	3.6	3.7			19.2	19.1	19.4		
	% DIST	5.0	4.0	5.9			2.4	2.6	2.4			12.9	12.3	15.9		
HS GRADS	56	952	488	464			756	402	354			195	86	110	13	4
	62	926	484	442	22	33	807	404	365	9	29	174	80	77		
	% DIST	78.1	74.8	81.9			84.8	81.2	89.3			59.9	54.7	64.7		
	% DIST	77.1	74.0	81.7	53.6	91.6	84.4	80.8	88.6	69.2	90.6	55.0	51.9	59.2	46.4	100.0
COLLEGE DROPOUT	56	106	67	39			73	50	23			33	17	16		
	62	111	62	45	3	1	79	48	30		1	32	14	15	3	
	% DIST	8.7	10.2	6.8			8.1	10.1	5.8			10.0	10.5	9.4		
	% DIST	6.7	9.4	8.3	7.3	2.7	8.2	9.6	7.2		3.1	10.1	9.0	11.5	10.7	
COLLEGE GRADS	56	64	49	15			29	25	4			35	24	11		
	62	110	74	18	16	2	43	38	4	4	2	67	41	14	12	
	% DIST	5.2	7.5	2.6			3.2	5.0	1.0			10.7	15.2	6.4		
	% DIST	8.7	11.3	3.3	39.0	5.5	4.4	5.6	0.9	30.7	6.2	21.2	26.5	10.7	42.8	

TABLE V

PERSONNEL CHARACTERISTICS - - - CLERICAL WAGE CLASSIFICATIONS - NEW HIRES*
12/31/56 & 12/31/62

		MALE & FEMALE					FEMALE					MALE				
		ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS	ALL DIV	UNAFF DIV	AFF DIV	NEW D P	NEW TREAS
STAFFING IN GROUP	56	330	192	138			303	179	124			27	13	14		
	62	204	132	60	3	9	172	111	54	1	9	32	21	9	2	
CHANGE	NO	-126	-60	-78			-131	-68	-73			5	8	-5		
	%	-38.1	-31.2	-56.5			-43.2	-37.9	-58.8			18.5	61.5	-35.7		
AVERAGE ANNUAL SALARY	56	2446	2484	2392			2390	2425	2339			3077	3308	2863		
	62	3148	3451	3376	5686	3141	3199	3212	3134	5620	3141	4788	4715	4751	5721	
CHANGE	$	1002	967	984			809	787	795			1711	1407	1888		
	%	40.9	38.0	41.1			33.8	32.4	33.9			55.6	42.5	65.9		
AVERAGE AGE IN YEARS	56	20.6	20.9	20.2			20.8	21.2	20.1			21.3	22.0	20.6		
	62	20.6	20.9	19.8	26.6	19.0	19.9	20.2	19.2	22.0	19.0	24.4	24.6	23.0	29.0	
	CH			-0.4			-0.9	-1.0	-0.9			3.1	2.6	2.2		
MARRIED	56	12	9	3			6	4	2			6	5	1		
	62	26	16	8	2		18	11	7			8	5	1	2	
% DIST	56	.6	4.6	2.1			1.9	2.2	1.6			22.2	38.4	7.1		
% DIST	62	12.7	12.1	13.3	66.6		10.4	10.0	13.7			25.0	23.8	11.1	100.0	
CHANGE		9.1	7.5	11.2			8.5	7.8	12.1			2.8	-14.6	4.0		
HS DROPOUT	56	3	2	1			3	2	1							
	62															
% DIST	56	0.9	1.0	0.7			0.9	1.1	0.8							
% DIST	62															
HS GRADS	56	266	149	117			249	142	107			17	7	10		
	62	149	99	43		7	139	91	41		7	10	8	2		
% DIST	56	80.6	77.6	84.7			82.1	79.3	86.2			62.9	53.8	71.4		
% DIST	62	73.0	75.0	71.2		77.7	80.8	81.9	80.3		77.7	31.2	38.0	22.2		
COLLEGE DROPOUT	56	41	24	17			38	23	15			3	1	2		
	62	30	16	13		1	24	13	10		1	6	3	3		
% DIST	56	12.4	12.5	12.3			12.5	12.8	12.0			11.1	7.6	14.2		
% DIST	62	14.7	12.1	21.6		11.1	13.9	11.7	19.6		11.1	18.7	14.2	33.3		
COLLEGE GRADS	56	20	17	3			13	12	1			7	5	2		
	62	24	16	4	3	1	8	6		1	1	16	10	4	2	
% DIST	56	6.0	8.8	2.1			4.2	6.7	0.8			25.9	38.4	14.2		
% DIST	62	11.7	12.1	6.6	100.0	11.1	4.6	5.4		100.0	11.1	50.0	47.6	44.4	100.0	

* HIRED DURING THE YEAR AND ON THE PAYROLL AT THE END OF THE YEAR.

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MINNESOTA

Progress on the farm management program is reported to provide a summary of records to be used by participating farmers and instructors for comparison purposes. The records of 90 farmers enrolled in farm management programs in nine schools in Southeastern Minnesota are covered. Each summary category shows data for the average of 90 farms, the 18 most profitable farms and the 18 least profitable farms. Summary categories include: (1) farm inventory, (2) farm earnings, (3) household and personal expense, (4) net worth, (5) farm earnings by operator's share, (6) work units per production unit, (7) labor earnings correlated with excelled factors, (8) range in earnings, (9) measures of organization and management efficiency, (10) a thermometer chart of efficiency, (11) distribution of acres and crop yields, (12) total feed costs and returns for livestock, swine, dairy, and dual purposes cattle, sheep, and poultry, and (13) a summary of farm earnings by year for whole farms from 1960 to 1965. (JM)

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1965 Annual Report

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VOCATIONAL AGRICULTURE

FARM MANAGEMENT PROGRAM

SOUTHEASTERN MINNESOTA

UNIVERSITY OF MINNESOTA
INSTITUTE OF AGRICULTURE

MINNESOTA DEPARTMENT OF EDUCATION
VOCATIONAL DIVISION

WINONA AREA VOCATIONAL-TECHNICAL SCHOOL
WINONA, MINNESOTA

VT000837

APRIL 1966

1965 REPORT OF THE VOCATIONAL AGRICULTURE FARM MANAGEMENT PROGRAM IN SOUTHEASTERN MINNESOTA

Gordon E. Ferguson - Area Vocational Agriculture Coordinator

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INTRODUCTION

The Winona Area Vocational Technical School, in cooperation with the Vocational Division, Minnesota Department of Education and Department of Agricultural Education, University of Minnesota, and with the assistance from the Department of Agricultural Economics and the Agricultural Extension Division of the University, operate and maintain the Vocational Agriculture Farm Management Program in Southeastern Minnesota. This program is available to farmers who are enrolled in High School Vocational Agriculture, Adult Farmer and Young Farmer Classes.

Records were analyzed electronically by Agricultural Records Cooperative, Madison, Wisconsin.

The purpose of the program as far as the area school is concerned is (1) to give assistance to the instructors in the mechanics of keeping farm records, (2) to aid in the analysis of the farm business through the use of records as a basis for vocational guidance, (3) and provide usable information for teaching modern farm management principles. The number of schools participating and the number of farmers enrolled in the program is on a voluntary basis.

The analysis of the records and preparation of the reports for the southeastern area of Minnesota are handled by Gordon Ferguson, Area Vocational Agriculture Coordinator of Winona Public Schools, Vocational Agriculture Department, under the general supervision of T. W. Raine, Director of Vocational and Adult Education; Superintendent A. L. Nelson, and the Board of Education of Winona Public Schools. The program is under the general direction of Milo Peterson and Edgar Persons of the University of Minnesota, Department of Agriculture Education. The State Department of Education is represented by Robert Van Tries, Assistant Director of Vocational Education in charge of Area Vocational Schools and G. R. Cochran, State Supervisor of Agricultural Education. Dr. T. R. Nodland, Agricultural Economics Department of the University of Minnesota gave advice in the record analysis operation. Credit is also due to the following, who greatly assisted in the preparation of this report: Davis Christenson, Winona High School Printing Shop Operator; Mrs. Ruth Pelzer and Mrs. Bernice Puck, Winona Analysis Clerks; Mrs. Romeo Cyr, Goodhue; Mrs. Florence Walkes and Mrs. Robert Holst, Plainview Clerks; and Mrs. June Koester, Forest Lake Clerk; Donald Walker, Plainview Adult Ag. Teacher; Romeo Cyr, Goodhue Vo. Ag. Teacher and Raymond Kulbeck, Forest Lake Vo. Ag. Teacher, for their assistance in supervising their local clerks; and Dennis Selberg and his High School Vocational Agriculture Class Members who helped assemble the annual reports.

This report deals with 114 farmers enrolled in 10 schools in Southeastern Minnesota. The four Wisconsin books weren't included in the averages. Twenty four books were left out of the averages due to discrepancies in records, and/or lack of adequate information, such as distribution of feeds to livestock, late arrival at the analysis center, etc.

The following tabulation shows by schools the number of 1965 farm records submitted.

SCHOOL	NUMBER OF RECORDS	INSTRUCTOR
Forest Lake	16	Lee Sandager & Ray Kulbeck *
Goodhue	22	Bernard Snaza & Romeo Cyr*
Lewiston	2	Travis Nelson *
Mazeppa	3	Robert Beniak *
Plainview	21	Vernon Yetzer & Donald Walker*
Red Wing	4	Donald Barber *
Shawano, Wisconsin	4	Merlin Blonde *
St. Charles	7	Howard Johnson * and Harvey Korb
Spring Grove	4	Boyd Anderson *
Wabasha	1	Werner Stegeman *
Winona	34	John Januschka * and Dennis Selberg
TOTAL	118	

* Shows Instructor responsible for Adult Instruction.

The records kept included farm inventories, cash receipts and expenses, crop data, feed consumed by the various classes of livestock, family living secured from the farm, household and personal expenses and receipts and the operators' liabilities and non-farm assets.

FARM INVENTORIES

The farm capital investment per farm varied from $24,502 to $306,492. The average investment for all farms included in this report and for the 23 high and 23 low farms in labor earnings, is shown in Table 1.

FARM EARNINGS

Labor earnings is a measure of the relative financial success of a farm as compared with other farms and represents the returns above all farm expenses and a charge for the use of farm capital.

There are two methods of computing labor earnings. Table 2 shows the earnings statement on a cash basis and Table 3 shows the earnings on an enterprise or accrual basis. The principal difference in the two statements is the method of handling the net increase or decrease in the value of farm capital. In the cash statement, the net increase or decrease in farm capital is entered as one item. In the enterprise statement, the net change in the inventory has been included in each enterprise, in order to compute the "total returns and net increases," or "total expenses and net decreases" by enterprises.

RETURNS TO CAPITAL AND FAMILY LABOR

The return to capital and family labor represents the amount available to the operator for living expenses, payment on indebtedness, farm business growth and savings. These figures are found on Table 6, on a tenure basis. In some cases, partners operated the farm jointly. In those cases where more than one operator was concerned, $150 or $200 per month was deducted as "unpaid family labor" for all except the one operator. Thus, Table 6 average returns are not truly representative of one average operators' earnings. Those farms whose records were analyzed had these returns explained and reworked to show more realistic, individual operator labor earnings.

TABLE 1 SUMMARY OF FARM INVENTORIES 1965

Average of 90 Farms January 1	December 31	Items
341		Size of farm (crop acres) *
589		Size of business (work units) **
$ 7295	$ 7367	Dairy and dual purpose cows
3970	4176	Other dairy & dual purpose cattle
1425	2040	Beef cattle (including feeders)
1201	1830	Hogs
109	77	Sheep (including feeders)
44	31	Poultry (inc. turkeys, ducks & geese)
14044	15521	TOTAL PRODUCTIVE LIVESTOCK
5413	7004	Crop, Seed and Feed
1054	1181	Auto and truck (farm share)
2397	2772	Tractors and Motors
4680	5342	Crop and General Machinery
2178	2341	Livestock Equipment
10309	11636	TOTAL MACHINERY AND EQUIPMENT
29239	30303	Land ***
16094	17421	Buildings, fences, etc.
75099	81885	TOTAL FARM CAPITAL

18 most profitable Jan. 1 - Dec. 31		18 least profitable Jan. 1 --- Dec. 31		Items
422		325		Size of farm (crop acres) *
717		578		Size of business (work units)**
$ 6668	6558	8647	8793	Dairy & dual purpose cows
3338	4464	4566	4488	Other dairy & dual pur. cattle
4407	5898	701	882	Beef cattle (including feeders)
3367	5588	533	322	Hogs
112	69	10		Sheep
64	17	29	20	Poultry (incl. turkeys,ducks,geese)
17956	22594	14486	14505	TOTAL PRODUCTIVE LIVESTOCK
6789	9760	5145	5790	Crop, Seed and Feed
1037	1297	1210	1475	Auto & Truck (farm share)
2655	3852	2934	3402	Tractors and Motors
5947	6554	4727	5065	Crop & General Machinery
2512	2930	2265	2259	Livestock equipment
12151	14633	11136	12201	TOTAL MACHINERY AND EQUIPMENT
34989	38600	27243	27607	Land ***
18886	24248	17751	17430	Buildings, fencing, etc.
90771	109835	75761	77533	TOTAL FARM CAPITAL

* Crop acres = Total land minus farmstead, roads, waste and timber.

** See page 8 for an explanation of "work units".

*** A change was made in 1965 analysis as compared with former years. Land bought or sold during the year was formerly handled as an opening or closing inventory adjustment, showing both beginning and ending inventories as equal. This year, transactions were handled as they occurred.

TABLE 2 SUMMARY OF FARM EARNINGS (CASH STATEMENT) 1965

Average of 90 Farms	18 most profitable	18 least profitable	Items
			FARM RECEIPTS
$ 3102	$ 3051	$ 3075	Dairy Cattle
11600	11127	12497	Dairy products
1707	4337	646	Beef cattle (including feeder cattle)
3846	11504	1347	Hogs
168	220	12	Sheep and wool
27	26	16	Poultry (including turkeys)
159	165	112	Eggs " "
735	1679	243	Corn
244	376	95	Small grain
2931	6469	978	Other crops & soil bank payment
1050	1857	239	Mach. & Equip. sold & Gas tax refund
447	620	252	Income from work off farm
284	454	241	Miscellaneous Farm Income
26300	41885	19753	1. Total Farm Sales
6786	19064	1772	2. Increase in Farm Capital
419	457	392	3. Family Living from Farm
33505	61406	21917	4. Total Farm Receipts (1),(2)&(3)
			FARM EXPENSES
970	1101	1308	Dairy cattle bought
669	1811	116	Beef cattle bought (including feeders)
352	838		Hogs bought
15	10		Sheep bought
22	22	11	Poultry (including turkeys)
762	924	847	Misc. livestock expense
3684	6954	2791	Feed bought
1040	1626	808	Fertilizer
1054	1768	828	Other crop expense
1024	1214	854	Custom work hired
1004	1321	999	Gas, oil, grease (farm share)
692	895	691	Repair for tractors, trucks & autos
314	493	210	Repair and upkeep of real estate
424	450	345	Repair & upkeep of crop & gen. mach.
187	255	218	Repair & upkeep of livestock equip.
662	1062	542	Wages of hired labor
377	477	403	Electricity expenses (farm share)
1249	1611	1096	Pers. prop. & real estate taxes
411	510	388	Telephone & gen. farm expense
14912	23342	12455	5. Total cash operating expense
1251	2313	1677	6. Mechanical power (farm share)
1696	1782	1314	7. Crop & general machinery
520	927	435	8. Livestock equipment
4097	11440	1092	9. New real estate improvements
22476	39804	16973	10. Total Farm Purchases (5) to (9)
			11. Decrease in farm capital
3925	5015	3832	12. Interest on farm capital
828	941	1052	13. Unpaid family labor
115	128	158	14. Board furnished hired labor
27344	45888	22015	15. Total farm expenses (10) to (14)
6161	15518	- 98	16. Labor earnings (4) - (15)

See page 8 for discussion of terms

TABLE 3 SUMMARY OF FARM EARNINGS (ENTERPRISE STATEMENT) 1965 *

Average of 90 Farms	18 most profitable farms	18 least profitable farms	Items
			RETURNS AND NET INCREASES
$11316	$10867	$11964	Dairy cows
3360	3636	3015	Other dairy cattle
136	513	120	Beef breeding herd
1323	3497	494	Feeder cattle
4171	12984	1169	Hogs
122	166	2	Sheep, farm flock
166	136	112	Chickens, inc. turkeys
20594	31799	16876	All productive livestock
11408	16426	10317	Value of feed fed livestock
9186	15373	6559	Return over feed
11014	17518	7659	Crop, seed, feed; Feed Grain Program
173	230	109	Income labor off farm
284	454	241	Miscellaneous
20657	33575	14568	(1) Total Returns & Net Increases
			EXPENSES AND NET DECREASES
-27	-138	-	Bare land
347	428	337	Trucks
439	548	551	Autos
1253	1497	1457	Tractors
379	475	410	Gas engine & electric expense
490	594	450	Hired power
2908	3542	3205	Total power
1457	1743	1318	Crop and general machinery
516	709	637	Livestock equipment
1292	1571	1251	Buildings, fences and tiling
762	924	847	Misc. productive livestock expense
2004	2571	2090	Labor
987	1313	834	Real estate taxes
262	298	261	Personal property taxes
224	276	208	Insurance
188	234	181	Telephone and general farm expense
3925	5015	3832	Interest on farm capital
14498	18058	14664	(2) Total expenses & Net decreases
6159	15517	- 96	(3) Labor earnings (1) - (2)

* Cash receipts and expenses are adjusted for changes in inventory for each enterprise and for each item of expense in order to show total receipts and net increases and total expenses and net decreases. The labor earnings are the same as those on page 4, except that in the process of rounding off to the nearest whole dollar, they add up slightly different, in some cases.

TABLE 4 HOUSEHOLD AND PERSONAL EXPENSES FOR THOSE FARMS WHICH KEPT COMPLETE ACCOUNTS OF THOSE EXPENSES - 1965

Average of 37 Farms	6 High	7 Low	Items
6.1	7.0	6.1	Number of persons in the family
4.1	4.9	4.1	Number of adult equivalents in family
$ 1220	1545	1264	Food and meals bought
369	399	374	Operating and supplies
330	567	110	Furnishings and equipment
392	447	341	Clothing and clothing materials
161	172	172	Personal care and personal spending
229	581	245	Education and recreation
134	127	147	Gifts and special events
505	757	418	Medical care and health insurance
162	181	82	Church and welfare
166	198	104	Personal share of auto & truck expenses
51	78	43	Operator's share of upkeep on dwelling
126	110	143	Household share of electric & tel. exp.
3845	5162	3453	TOTAL CASH LIVING EXPENSES
161	77	374	Household and personal share of new auto
21			New dwelling
267	278	224	Taxes and other deductions
216	225	117	Life insurance
80	28	181	Other savings and investments
4590	5769	4429	TOTAL HOUSEHOLD & PERSONAL CASH EXP.
405	440	373	Total family living from the farm *
4995	6209	4802	TOTAL CASH EXPENSES & PERQUISITES

* Individual cooperators will find a breakdown of these items on the opposite page.

TABLE 5 NET WORTH STATEMENT FOR THOSE FARMERS WHO KEPT A COMPLETE RECORD OF ALL ASSETS AND LIABILITIES (OPERATOR'S SHARE)

Ave of 33 owners		Ave. of 25 part owners		Ave. of 6 renters		
Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Items
$63933	68208	60389	67107	25639	31992	Total Farm Capital
441	438	450	519	103	343	Auto - pers. share
3610	3538	4436	4634			Dwelling
5128	5294	5402	5994	4846	4908	Other pers. assets
73112	77478	70677	78254	30589	37243	Total Assets
$17730	18368	17156	21873			Real est. mortgages
7205	7753	6993	7816	16040	17790	Chattel mortgages
2680	2754	2998	2890	1127	3341	Notes
1578	1067	1772	1330	307	1829	Accounts payable
29193	29942	28920	33910	17473	22960	Total Liabilities
$43849	47536	41249	44344	13116	14283	Farmer's Net Worth
	3687		3094		1168	Gain in Net Worth

TABLE 6 SUMMARY OF FARM EARNINGS BY TENURE 1965 (OPERATOR'S SHARE)

38 Owners	33 part Own.	7 Renters	Items
			FARM RECEIPTS
$ 2755	2670	1637	Dairy and dual purpose cattle
10334	12069	5533	Dairy products
1109	1301	4015	Beef cattle (including feeders)
3675	2676	2315	Hogs
267	98	-	Sheep and wool (including feeders)
26	32	13	Poultry
125	141	226	Eggs
440	682	906	Corn
181	219	264	Small grain
921	1604	1462	Other crops
940	1171	1252	Diverted Acres payment *
296	409	384	Mach. & equip. sold & gas tax refund
302	507	1311	Income from work off the farm
216	373	63	Miscellaneous
21587	23952	19381	(1) Total farm sales
4703	6268	6088	(2) Increase in farm capital
436	404	207	(3) Family living from the farm
26726	30624	25676	(4) Total farm rec. (1) + (2) + (3)
			FARM EXPENSES
544	1166	770	Dairy and dual purpose cattle bought
760	181	51	Beef cattle bought (inc. feeders)
369	195	52	Hogs bought
30	1	-	Sheep bought (inc. feeders)
27	23	-	Poultry bought
596	739	505	Mis. livestock exp. & breed. fees
2813	3329	4372	Feed bought
744	1160	795	Fertilizer
843	933	740	Other crop expense
896	1093	559	Custom work hired
838	1026	1005	Gas, oil & grease bought (farm share)
578	688	612	Rep. & op. tractor, truck & auto (FS)
273	312	92	Rep. & upkeep of real estate
357	449	471	Rep. & upkeep of crop and gen. mach.
170	159	265	Rep. & upkeep of livestock equip.
542	662	1179	Wages of hired labor
335	389	261	Electricity expense
1107	839	146	Real estate & pers. prop. taxes
	820	1092	Cash Rent
360	394	249	Gen. farm exp. & telephone exp.
1384	1344	871	Interest paid
13566	15902	14087	(5) Total cash operating expense
912	1115	2315	(6) Mech. power bought (farm share)
1628	1014	2548	(7) Crop & gen. mach. bought
445	656	184	(8) Livestock equipment bought
2341	2872	387	(9) New real estate improvements
18892	21559	19521	(10) Total farm purchases
182	188	-	(11) Decrease in farm capital
2000	1762	356	(12) Interest on farm capital
521	779	696	(13) Unpaid family labor
102	104	180	(14) Board furnished hired labor
21697	24392	20753	(15) Total farm exp.(10+11+12+13+14)
5029	6232	4923	(16) Labor earnings (4) - (15)
7550	8773	5975	(17) Ret. to cap. & fam.lab.(12+13+16)**

* Diverted acre payments are separated from "other crops" here but not on table 2 on page 4.

** See page 8 for explanation of terms.

EXPLANATION OF VARIOUS TERMS

1. All items on page 4 are figured on the total farm basis.
2. Increase or decrease in farm capital on page 4 is taken from total farm capital inventories on page 3.
3. Item 15, on page 4, "Total Farm Expenses", includes 5% interest on the average farm capital (p. 3), unpaid family labor and board furnished hired labor.
4. The operator's labor earnings (p. 7, Item 16) is what the operator received for his own labor, assuming $150 or $200/mo. "unpaid family labor" for partners.
5. The return to capital and family labor on page 7 (Item 17) is the operator's labor earnings (Item 16) plus his share of interest on farm capital (Item 12) and the unpaid family labor (Item 13). Thus this is the total amount available to all partners, (see page 2).

EXPLANATION OF "WORK UNITS"

The total "work units" for any one farm is a measure of the size of that farm business. A work unit as used in this report is the average accomplishment of a farm worker, in a ten hour day, working on crops and productive livestock at average efficiency.

TABLE 7 NUMBER OF WORK UNITS FOR EACH CLASS OF LIVESTOCK & EACH ACRE OF CROPS

Item	No. of Work Units	Item	No. of Work Units
Dairy & dual purpose cows	10.0 per cow	Small grain	.5 per acre
Other dairy & dual pur. cattle	3.5 Per an.unit*	Corn husked	.7 per "
Beef breeding herd	3.5 per an.unit*	Corn, silage	1.0 per "
Feeder cattle	.25 per 100#	Corn, fodder	1.0 per "
Sheep-farm flock	1.5 per an.unit*	Alfalfa hay	.6 per "
Hogs	.2 per 100#	O. hay crops	.4 per "
Hens	20.0 per 100 hens	Legume seed	.4 per "
Turkeys	.2 per 100 lbs.	Grass silage	1.0 per "
Soybeans	.5 per acre	Gr. Ch. forage	.4 per "
Sweet Corn	.7 " "	Canning peas	.5 per "

* Animal unit represents one dairy cow or bull, 2 other dairy cattle, $1\frac{1}{4}$ beef cows or bull, 1 feeder steer or heifer, 3 1/3 other cattle, 7 sheep, 14 lambs, $2\frac{1}{2}$ hogs, 5 pigs, 50 hens or 1100 lbs. of turkeys produced.

Fig. 1 LABOR EARNINGS CORRELATED WITH EXCELLED FACTORS

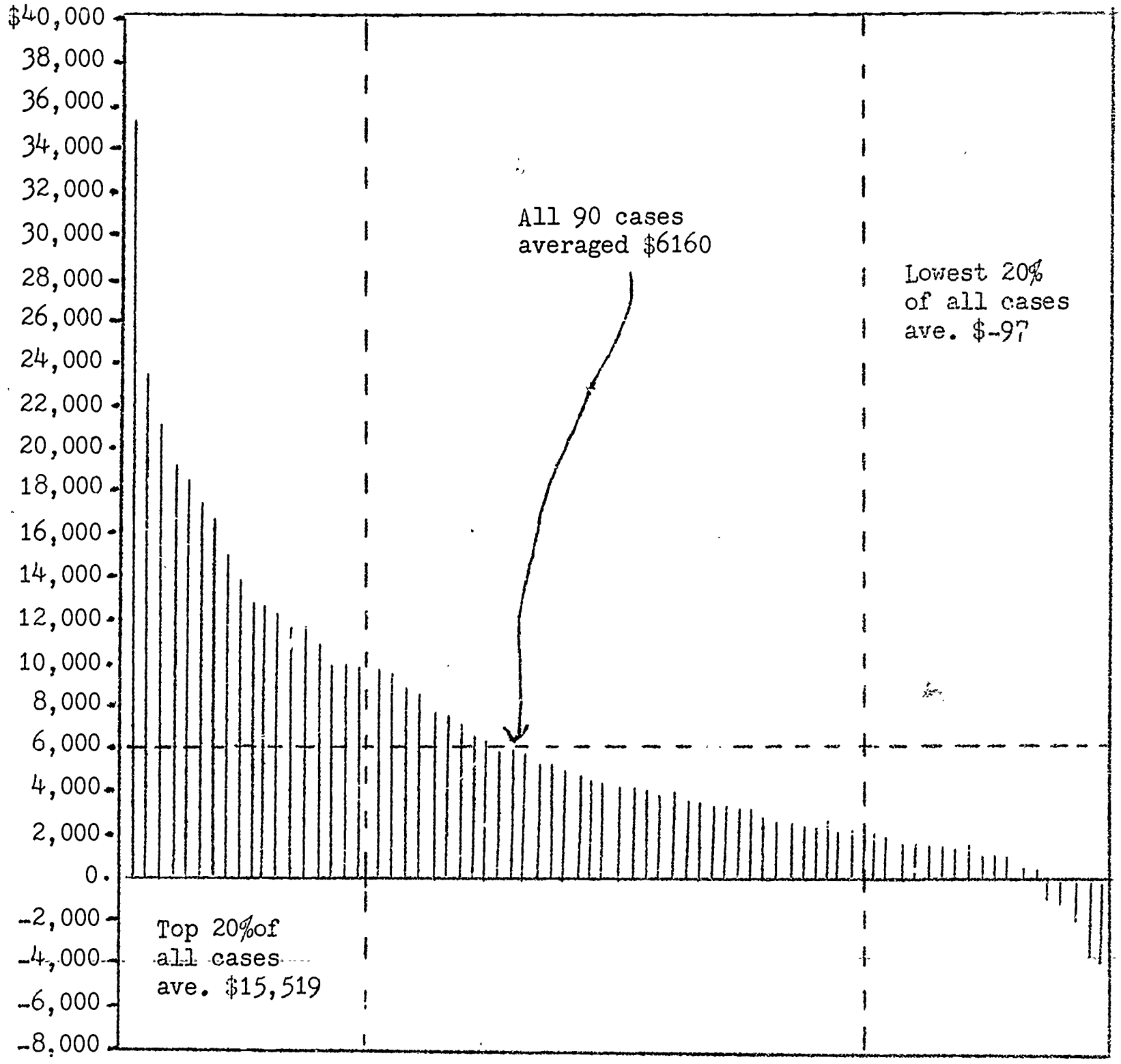
No. of factors in which farmers excelled (see p.10)	No. of Farms	WHOLE FARM AVERAGE LABOR EARNINGS (in Thousands) 1 2 3 4 5 6 7 8 9
0 or 1	5	$1303
2 or 3	36	$5555
4 or 5	44	$6915
6 or 7	5	$8768

RANGE IN EARNINGS

Fig. 2

Every study of farm earnings shows a wide variation in earnings among farmers in a given year. The average labor earnings of those farms ranking in the upper 20 per cent of the range according to earnings was $15,519, and of those in the lower 20 per cent was $-97. This is a range of $15,616 between the average earnings of these two groups. Some of the causes for these differences in earnings, such as weather, may be beyond the control of the individual farmer. Other factors are within his control.* The more important management factors affecting earnings are as follows:
These factors vary from year to year in their relative influence on earnings.

1. Crop Yields
2. Choice of Crops
3. Return from Livestock
4. Amount of Livestock
5. Size of Business
6. Work Units per Worker
7. Control over Expenses



Each line represents the earnings of 1 farm.

* See Pond, G.A. "Why Farm Earnings Vary" Minn. Agr. Expt. Sta. Bul. 386 June 1945. Nodland, T. R. & Pond, G. A. "Some Factors Affecting the Earnings of Farmers in Southwestern Minn." Univ. of Minn. Dept. of Ag. Econ., Report 219 Nov. '54.

TABLE 8 MEASURES OF FARM ORGANIZATION AND MANAGEMENT EFFICIENCY 1965

Average of 90 Farms	18 most profitable Farms	18 least profitable Farms	The factors No. 1 to 7 are the Measures used in charts on pages 8 & 11
$ 6160	$15,519	$ - 97	Labor Earnings
100	107	93	(1) Crop yields *
55.8	59.3	49.9	(2) Per cent tillable land in high return crops
$ 60.33	69.68	51.19	Gross Return per Crop Acre
100	105	94	(3) Return for $100 feed to productive livestock **
29.1	34.8	28.3	(4) Prod. livestock units per 100 A***
589	716	578	(5) Size of business - work units
326	383	342	(6) Work units per worker
$ 10.49	10.56	11.10	(7) Power, mach., equip., & bldg. exp. per work unit
			Items related to some of the above
			(3) Index of ret. for $100 feed from:
100	106	90	Dairy cattle (see pages 15 & 16)
100	113	91	Beef Breeders (see page 17)
100	93	140	Beef Cattle (Feeders) (see pg. 17)
100	103	102	Hogs (see page 14)
100	82		Sheep - farm flock (see page 18)
100	78	99	Chickens (see page 19)
1.8	1.9	1.7	Number of Workers
78.2	119.8	67.8	(4) Number of Animal Units
125	170	102	(5) Work units on crops
453	531	469	Work units on prod. livestock
11	15	7	Work units from other prod. work
$ 4.94	4.95	5.55	(7) Power expense per work unit
2.48	2.43	2.28	Crop mach. exp. per work unit
.88	.99	1.10	Livestock eq.exp.per work unit
2.19	2.19	2.17	Buildings and fencing expense per work unit
8.26	7.56	11.18	Tractor Exp. per crop acre
7.87	7.01	8.68	Crop & Gen. Mach. exp./crop acre

* Given as percentage of the average

** An index weighted by the animal units of livestock. See page 8 for details.

*** Acres in timber not pastured, roads, waste and farmstead were not included.

THERMOMETER CHART

Fig. 3 Using your figures from page 10, your standing is located in relation to the various measures of farm organization and management efficiency. The average for the farms included in this summary are located between the dotted lines across the center of this page.

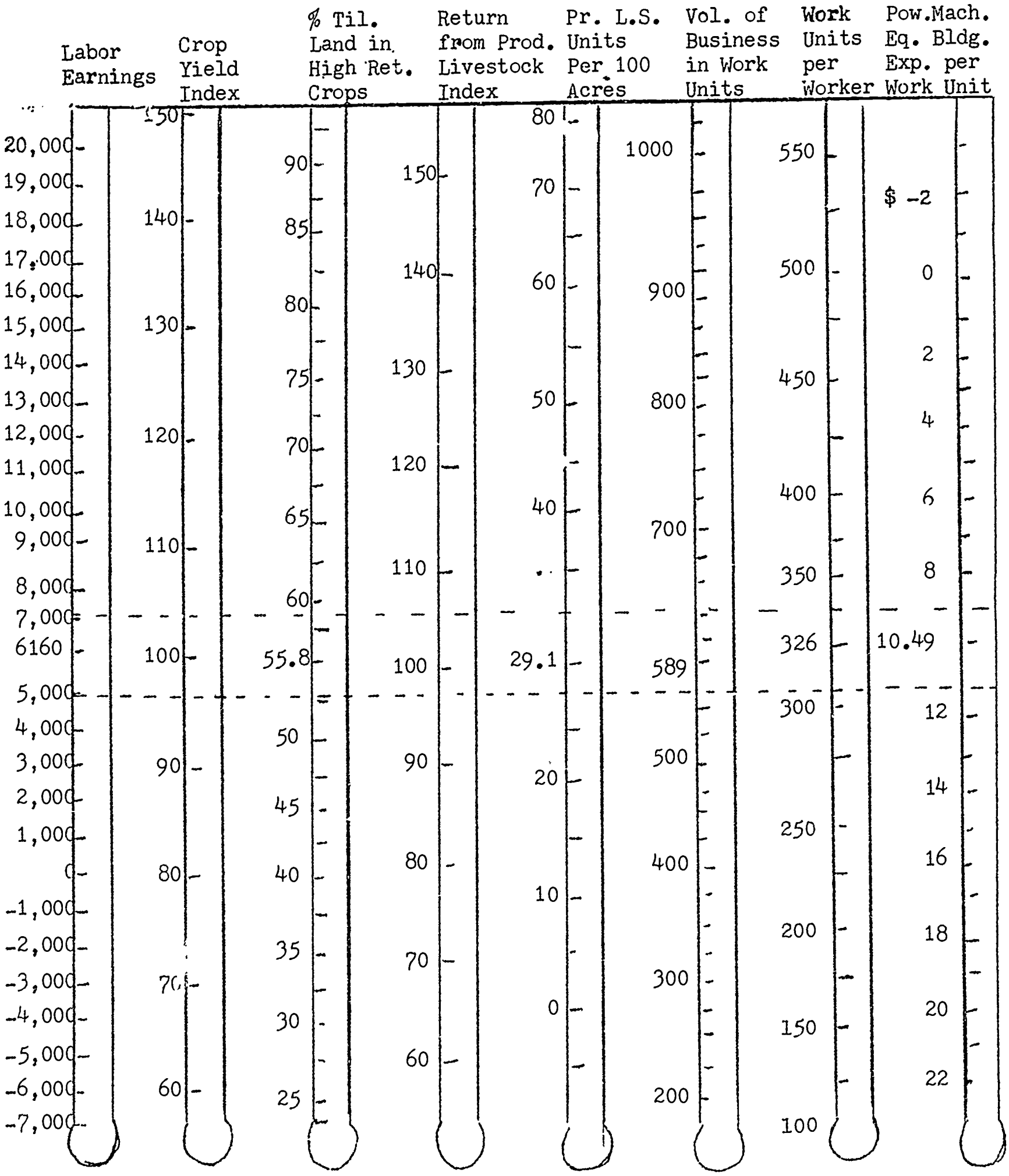


TABLE 9 DISTRIBUTION OF ACRES AND CROP YIELDS 1965

No. Cases	Ave. of 90 Farms Acres	Yield	18 High in Labor Earnings Acres	Yield	18 Low in Labor Earnings Acres	Yield	Ratings*& Crops	Unit
73	24.7	67.9	24.3	69.1	20.3	66.3	D Oats & Mix.	Bu.
2	.3	24.7					D Rye	Bu.
17	3.8	5.2	7.1	4.3	3.5	5.8	C Oats or Oat & Pea Silage	Ton
12	4.5	103.42	11.5	105.46			B Canning Peas	$
9	1.1	29.3	1.7	36.6			C Wheat	Bu.
4	.6	34.5	1.3	41.4			D Barley	Bu.
	35.0		45.9		23.8		Total Grain & Peas	
11	3.8	92.24	9.7	113.11			A Canning Corn	$
87	45.0	64.9	65.3	74.1	29.1	60.2	A Corn Grain	Bu.
32	16.7	20.0	28.4	22.9	6.8	15.6	B Soybeans - Grain	Bu.
83	25.8	11.2	37.3	9.5	25.8	9.2	B Corn Silage	Ton
2	.2	6.2					C Corn Fodder	Tom
	91.5		140.7		61.7		Total Cult. Crops	
86	50.9	2.3	50.6	2.4	55.1	2.4	B Alfalfa Hay **	Ton
6	1.1	1.4	.7	2.0	.3	2.8	C Other Leg. & Mix.**	Ton
35	6.5	2.1	10.8	2.8	10.9	1.1	D Annual Hay **	Ton
	58.5		62.1		66.3		Total Hay	
36	9.5		4.1		12.8		B Alfalfa Pasture **	
1	.4						C Other Leg. Past. **	
34	6.6		10.7		7.6		D Other Till. Past. **	
	16.5		14.8		20.4		Total Till. Past.	
44	22.7	56.26	39.0	60.16	13.9	51.70	A Diverted Acres	$
6	.6				2.3		D Till. Land Idle	
	224.8		302.5		188.4		Total Till. Land	
9	1.7	.2	1.9		.5		Wild Hay	Ton
73	41.7		40.2		50.4		Non-Till. Past.	
52	50.5	.07	54.7		66.2	.25	Timber	
76	14.8		12.8		13.9		Roads & Waste	
87	7.4		10.0		6.1		Farmstead	
	340.9		422.1		325.5		Total Acres in Farm	
	65.9		71.7		57.9		Percent Land Till.	
	55.8		59.3		49.9		Percent in High Return Crops ***	

* The crops are classified as A, B, C or D crops on the basis of their average net returns per acre.

** On farms where low moisture silage was harvested, it was converted to hay equivalent by dividing tonnages by 2. Green chopped forages were converted to hay equivalent by dividing tonnages by 4, or else it was called pasture. Corn chopped daily was called corn silage.

*** Crops are marked in T. 9, as (A), (B), (C) and (D). All of acres in (A) crops, one half of acres in (B) crops and one-fourth of acres in (C) crops are used in calculating per cent of tillable land in high return crops.

TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

The total "return over feed costs" for each class of livestock is shown in Table 10. This differs from the "return over feed" shown in the enterprise statement in that it is the total for each class of livestock instead of a return "per head", "per unit" or "per 100 pounds". These data indicate the relative importance of different classes of livestock as a source of income and as a market for feed. The total return is the same as the returns and net increases shown on page 5. The value of milk consumed by calves is included in the total returns from dairy or dual purpose cows and in the total feed cost for other dairy or other dual purpose cattle. The value of milk consumed by calves is included in the total returns and the feed cost of "all dairy" or "all dual purpose" cattle. The return over feed is not a net return but rather the amount available from the gross income, after paying the feed bill, to cover the outlay for hired labor, power, equipment, taxes, insurance, interest and veterinary bills and to provide a return for the use of family labor and capital.

TABLE 10 TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

	Dairy or dual purpose cattle			Beef	
	Cows	Other	All	Breeding Herd	Feeder Cattle
Total returns	_____	_____	_____	_____	_____
Total feed cost	_____	_____	_____	_____	_____
Total return over feed	_____	_____	_____	_____	_____

	Hogs	Chickens	Farm Flock of Sheep	Turkey Poults	Turkey Breeding Flock
Total returns	_____	_____	_____	_____	_____
Total feed cost	_____	_____	_____	_____	_____
Total return over feed	_____	_____	_____	_____	_____

Feed is the largest single item of cost for all classes of livestock. However, the proportion of the total cost represented by feed varies considerably between classes of livestock. Feed makes up approximately 45 per cent of the total costs of maintaining dairy cattle and poultry, 50 per cent in the case of a farm flock of sheep and 75 to 90 per cent for hogs, feeder cattle and feeder lambs. Consequently, it is necessary to secure a relatively higher return over feed from dairy cattle and poultry than from the other livestock enterprises in order to be able to cover all the costs other than feed.

1965 AVERAGE VALUES USED FOR HOME GROWN FEEDS
(Price per unit : No. of cases where used)

Grain (Per bu.)		Forages (Per ton)		Pasture (Per head Per month) *	
Oats	$ .66	Alf. & Mix. Hay	$22.52	Cows, bulls (perm)	$2.50
Corn	1.08	O.Leg. & Gr. "	19.50	" " (till.)	3.50
Barley	.91	Haylage (low moist.)	18.00	Young Cat. (perm)	1.25
Wheat	2.00	Pea vinery waste		" " (till.)	1.75
Whole milk		silage	2.53	Beef Feed. (perm)	2.50
(per cwt.)	3.52	Leg. or grass silage	7.60	" " (till.)	3.50
		Oat & Pea silage	7.04	Hogs	.16
		Corn or Sorg. silage	7.10	Pigs (under 6 mo.)	.08
		Corn Fodder or shreds	14.63	Ewes, feeders	.40
				Lambs	.20

* Green chopped and fed roughages had $5.00 and $2.50 per head per month rates applied, if considered as pasture or regular hay value if combined with hay, after hay equivalent tons were established.

TABLE 11 FEED COSTS AND RETURNS FROM MARKET LITTERS OF HOGS 1965

Average of 32 Farms	16 Farms high in return above feed	16 Farms low in return above feed	Item
			Feed per cwt. Hogs Produced - pounds
257	174	329	Corn
36	35	37	Small grain
115	153	83	Commercial Feeds
408	362	449	Total Concentrates
7	10	4	Forages
			Feed Cost per cwt. Hogs Produced
$ 10.64	8.95	12.13	Concentrates and Forages
	.01		Pasture
10.64	8.96	12.13	Total Feed Costs
24.36	25.18	23.64	Net Increase - Decrease in value/cwt.
13.72	16.22	11.51	Returns above Feed Cost /cwt. hogs produced
228.95	281.03	194.89	Return for $100 of Feed
20.75	20.74	20.75	Price received per cwt. Hogs sold
25	21	29	Number of Litters Farrowed
9.0	9.6	8.5	Number of Pigs born per Litter
7.0	7.6	6.5	Number of Pigs weaned per Litter
40,304	37,655	42,954	Pounds of Hogs Produced

This table includes all swine raisers having produced 5000 lbs. or more of live hogs from litters raised, with the exception of those having questionable distribution of feed between enterprises.

TABLE 11 FEED COSTS AND RETURNS FROM PURCHASED FEEDERS

Average of 5 farms	Items
	Feed per cwt. Hogs produced - pounds
295	Corn
56	Small grain
59	Commercial Feeds
410	Total Concentrates
$10.95	Total Feed Costs
22.60	Net Increase-Decrease in value/cwt.
$11.65	Returns above Feed Cost per cwt.
$206.00	Returns for $100 of Feed Fed
121	Number of pigs purchased
41.6	Pounds per pig purchased
$14.29	Price per pig purchased
21.89	Price rec. per cwt. Hogs sold
18,672	Pounds of Hogs Produced per farm

DAIRY AND DUAL PURPOSE CATTLE

The quantity of feed consumed, value of feeds and returns from dairy cattle are presented in Tables 12, 13 & 14. Some of the important factors that affect the return over feed are:

1. Economy of ration (feed cost per lb. of butterfat).
2. Rate of production (lbs. of butterfat per cow).
3. Price received for butterfat.

Tables 12, 13 & 14 indicate that a substantial increase in profits from dairying can be secured on many farms through improved feeding practices. In low producing herds, the quickest way to increase earnings is probably arrived at by culling the poorest ones and feeding those remaining, greater amounts of well balanced feed, coupled with good herd management.

TABLE 12 FACTORS OF COST AND RETURNS FROM DAIRY COWS 1965

Average of 78 Farms**	23 farms highest ret. over feed per cow	22 farms low in ret. over feed per cow	Item
385	454	295	Pounds of butterfat per cow
10599	12415	8246	Pounds of milk per cow
3.6	3.7	3.6	Per cent of butterfat in milk
3.53	3.59	3.41	Price per cwt. milk sold
.971	.982	.952	Price rec. per lb. butterfat sold
			Feed per cow - pounds
2422	2817	1578	Corn
961	995	968	Small grain
548	751	297	Commercial feed
4458	4909	4391	Legume hay *
488	502	582	Other hay and dry forage *
3931	4563	2843	Total Concentrates
4946	5411	4973	Total Dry Roughages *
11234	11992	8381	Silage & Equiv. in Haylage *
			Feed cost per cow
$89.01	$107.40	$64.04	Concentrates
95.65	104.54	85.96	Roughages *
7.77	7.12	8.41	Pasture and Green Chop *
$192.43	219.06	158.41	Total Feed Costs *
			Value of produce per cow
$364.80	435.86	272.12	Butterfat sales
3.50	4.04	3.54	Dairy produce used in home
5.21	5.98	5.38	Milk fed to livestock
-17.67	-15.68	-14.72	Net inc. in value of cows
$355.84	430.20	266.32	Total Value Produced
163.41	211.14	107.91	Return above Feed cost per cow
184.90	196.30	168.10	Returns for $100 of Feed
.499	.482	.531	Feed cost per pound Butterfat
36.7	36.9	33.2	Number of Cows

* See footnote on page 16 explaining forage figures.

** One herd had only "other dairy cattle" with no cows during 1965, thus explaining the 78 here and 79 on tables 13 and 14 averages.

TABLE 13 FEED COSTS AND RETURNS FROM OTHER DAIRY & DUEL PURPOSE CATTLE 1965

Average of 79 Farms	23 farms highest in ret. over feed cost	22 farms lowest in ret. over feed cost	Item
			Feeds per head - pounds
590	703	536	Concentrates
1625	1545	2450	Hay and fodder *
3360	3181	2527	Silage *
112	125	124	Whole milk
			Feed cost per head
$ 15.18	18.03	13.89	Concentrates
27.79	29.15	27.41	Roughages *
3.93	4.49	4.28	Milk
3.76	3.12	4.94	Pasture and Green Chop *
50.66	54.79	50.52	Total Feed Costs per Head *
80.30	79.48	70.02	Net increase in value of other cattle
29.64	24.69	19.50	Returns above feed cost per head
158.51	145.06	138.60	Returns for $100 of feed
47.7	49.2	41.6	Number of head of other cattle

TABLE 14 FEED COSTS AND RETURNS FROM ALL DAIRY AND DUAL PURPOSE CATTLE 1965

			Feed per cow & replacement
4707	5500	3516	Concentrates
7084	7470	8050	Hay and fodder *
14606	15056	11556	Silage *
$259.08	$292.10	$221.87	Total Feed Costs per cow & replacement
			Value of produce per cow & replacement
$373.52	445.88	281.04	Dairy products
87.96	90.27	73.23	Net increase in value of dairy cat.
461.48	536.15	354.27	Total Value Produced
$202.40	244.05	132.40	Returns above feed per cow & replacement
$178.12	183.55	159.67	Returns per $100 of feed
60.1	61.6	54.0	Animal units of cattle
36.7	36.9	33.2	Average number of cows
23.4	24.7	20.8	Animal units of replacements

* Forage weights for averages are meaningless but values are correct. Forages present problems in analysis since almost limitless systems of handling them makes averaging figures nearly impossible to be meaningful. Many farmers' haylage (low moisture hay silage) was converted to hay equivalent. Many others called it silage equivalent, while some left it in low moisture weights but reported it as silage fed. Some daily green chopped forage was called pasture equivalent and some hay equivalent.

TABLE 15 FEED COST AND RETURNS FROM BEEF CATTLE 1965

Average of 6 Farms	Items
	Beef Breeding Cattle
	Feeds per animal unit - pounds
254	Concentrates
888	Legume hay
4777	Silage
330	Other hay
	Feed cost per animal unit
$ 5.22	Concentrates
26.68	Roughages
23.40	Pasture
55.30	Total Feed Costs
92.40	Total Value Produced
37.10	Returns above Feed Cost per Animal Unit
167.05	Returns for $100 of Feed
22.2	Number of cows and herd bulls
22.0	Number of Animal Units
7,633	Pounds of Beef Produced

Average of 18 Farms	Feeder Cattle *
	Feeds per cwt. Beef Produced - pounds
381	Corn
54	Small grain
51	Commercial Feeds
272	Legume Hay
15	Other Hay and Fodder
486	Total Concentrates
287	Total Hay and Fodder
1293	Silage
	Feed Cost per cwt. Beef Produced
$ 10.65	Concentrates
9.47	Roughages
.77	Pasture
20.89	Total Feed Costs
26.97	Net Increase in Value of Animals
6.08	Returns above Feed Cost per cwt. Beef Produced
129.11	Returns for $100 of Feed
18.30	Price Paid per cwt. Beef Bought
20.50	Price Received for Beef Sold
52.7	Number of Animal Units
23,931	Pounds of Beef Produced

* Only feeders producing 5000 lbs. or more are included.
No sorting of dairy vs. beef breeds was made.

SHEEP

TABLE 16 FEED COSTS AND RETURNS FROM A FARM FLOCK OF SHEEP 1965

Average of 5 farms	Items
	Feeds per ewe (lbs.)
223	Concentrates
410	Legume Hay
	Other Hay
80	Silage
	Feed cost per ewe
$ 5.29	Concentrates
4.85	Roughages
4.03	Pasture
14.17	Total Feed Costs
	Value of produce per head
$ 6.30	Wool, including incentive payment
20.63	Net increase in value of Animals
26.93	Total Value Produced
12.76	Returns above Feed Cost per Head
190.17	Returns for $100 of Feed
23.77	Price per cwt. of Lambs Sold
.61	Price per lb. wool sold
9.8	Pounds of wool per Sheep sheared
72.4	Number of Ewes kept for Lambing
134.2	Per cent Lamb Crop
20.0	Per cent Death Loss
68.2	Average number of ewes

Sheep flocks are scarce in this area. Reliable records on feed for them are even more scarce. Only five farms were averaged due to the limited availability of records.

CHICKENS

TABLE 17 FEED COSTS AND RETURNS FROM CHICKENS 1965 *

Average of 15 farms	Items
	Feed per hen - pounds
80	Grain
35	Commercial Feeds
115	Total Concentrates
$ 3.40	Total Feed Cost per Hen
	Value of produce per Hen
3.93	Eggs sold and used in the home
-.26	Increase and Decrease in value of Flock
3.67	Total Value Produced
.27	Returns over feed cost per hen
107.94	Returns for $100 of Feed
24.5	Price rec'd. per dozen eggs sold (cents)
192	Eggs laid per Hen
247	Average Number of Hens in Flock
10.4	Per cent Death Loss of Hens **

* Includes feeds and returns from hens and replacements raised.

** This equals the number died x 100 ÷ average number on hand over the year.

Chickens are decreasing in frequency of cases and many records are not reliable due to the practice of raising some ducks, geese or roosters along with the pullets to replace the laying flock. As a result, average figures are nearly meaningless. Individuals know what their flocks consisted of and can interpret their former years compared with this years results for most benefit.

TURKEYS

TABLE 18 FEED COSTS AND RETURNS FROM TURKEY BREEDING FLOCKS

Items	Your Farm
Feed per Hen, lbs.	
Grain	
Commercial Feeds	
Total Concentrates	
Total Feed Costs per Hen	
Value of Produce per Hen	
Eggs Sold	
Net Increase in Value	
Total Value Produced	
Return Above Feed per Hen	
Return for $100 of Feed Fed	
Price eggs sold	
Eggs laid per hen	
Average number hens for year	
Average number toms for year	

TABLE 18 FEED COSTS AND RETURNS FROM TURKEY POULTS

Feed per cwt. turkeys produced, lbs.	
Total Concentrates	
Total Feed Costs	
Net increase in value per cwt. of turkeys produced	
Return above Feed Cost per Cwt. Produced	
Return for $100 of Feed	
Number of Poults Bought	
Total number of poults put on feed	
Per cent death loss	
Price paid per Poult Bought	
Price per lb. Sold	
Weight per Bird Sold, lbs.	
Pounds of turkey produced per farm	

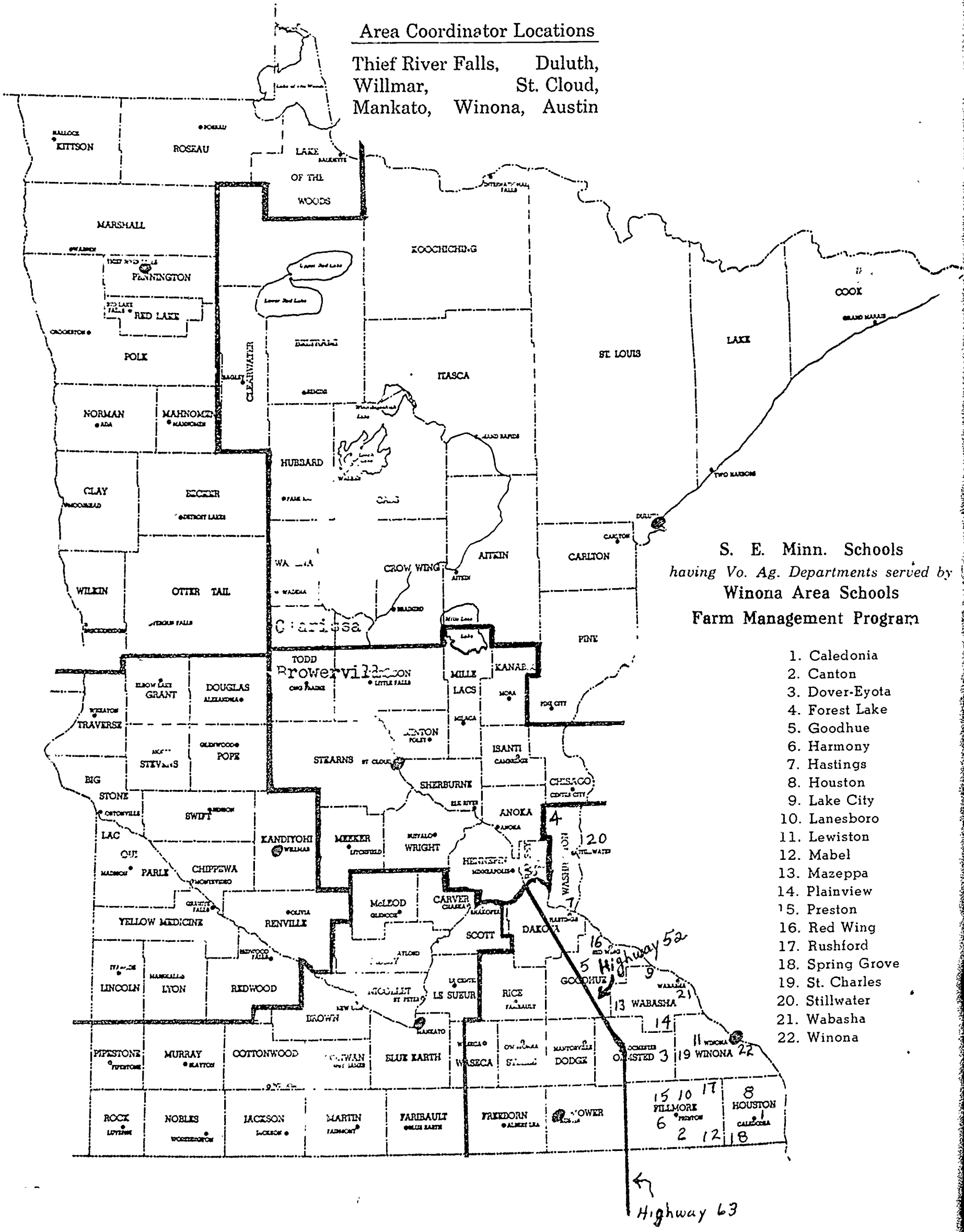
SUMMARY OF FARM EARNINGS BY YEARS FOR WHOLE FARM (CASH STATEMENT)* 1960 - 1965

Items	Yearly average of	27 1960	26 1961	39 1962	52 1963	63 1964	90 1965
FARM RECEIPTS							
Dairy cattle	$	1827	1856	2085	2101	2261	3102
Dairy products		8437	9425	10245	10494	11639	11600
Beef cattle (inc. feeders)		1570	1232	2673	1673	3434	1707
Hogs		3009	3586	4374	3246	3412	3846
Sheep and wool		296	135	155	105	63	168
Horses				5	4		
Poultry		1797	2154	1885	521	34	27
Eggs		783	1197	546	381	262	159
Corn		505	414	398	423	554	735
Small grain		118	527	382	469	107	244
Other crops & soil bank payment		785	446	1094	797	1584	2931
Mach. equip. sold & gas tax refund		203	207	257	253	302	1050
Income from work off farm		493	275	342	250	244	447
Miscellaneous		146	164	142	153	156	284
(1) Total farm sales		19969	21618	24583	20870	24052	26300
(2) Increase in farm capital		1454	1925	1771	2283	-	6786
(3) Family living from farm		442	497	465	455	432	419
(4) Total farm Receipts (1+2+3)		21865	24040	26819	23608	24484	33505
FARM EXPENSES							
Dairy cattle bought		547	409	398	339	576	970
Beef cattle (inc. feeders)		354	520	1040	470	1000	669
Hogs bought		221	283	622	154	288	352
Sheep bought		551	-	9	1	1	15
Poultry bought		455	742	490	149	33	22
Horses bought		-	9	8	5	-	
Misc. livestock expenses		637	748	762	736	693	762
Feed bought		3255	4823	4634	3368	3196	3684
Fertilizer		731	589	736	731	930	1040
Other crop expense		546	475	488	693	810	1054
Custom work hired		923	963	1084	923	1079	1024
Gas, oil, grease (farm share)		793	797	988	969	919	1004
Repair of tractor, truck & auto		536	528	585	604	535	692
Repair & upkeep of real estate		283	196	292	338	362	314
Repair & upkeep of crop mach.		305	326	416	410	394	424
Repair & upkeep of livestock equip.		127	159	142	199	160	187
Wages of hired labor		740	587	1009	799	869	662
Electricity expense		296	306	329	341	357	377
Pers. prop. & real estate taxes		843	875	1009	996	1120	1249
Telephone & gen. farm expense		408	339	338	347	366	411
(5) Total cash operating exp.		12551	13674	15380	12572	13688	14912
(6) Mech. power bought (FS)		483	481	716	1079	851	1251
(7) Crop & gen. mach. bought		615	1287	1086	1035	1115	1696
(8) Livestock equipment bought		418	378	468	343	473	520
(9) New real estate improvement		1577	1044	763	957	1102	4097
(10) Total farm purch. (5) to (9)		15644	16864	18412	15986	17229	22476
(11) Decrease in farm capital		-	-	-	-	766	-
(12) Interest on farm capital		2484	2613	3129	3297	3470	3925
(13) Unpaid family labor		282	486	392	585	724	828
(14) Board furnished hired labor		145	127	97	121	117	115
(15) Total farm exp. (10) to (14)		18555	20090	22030	19989	22306	27344
(16) Labor earnings (4) - (15)		3310	3950	4789	3619	2178	6161

* It should be noted that 2 farms had auctions, selling all of their personal property and buying back replacements. This explains, in part, the higher cost and returns in 1965, as compared with former years.

Area Coordinator Locations

Thief River Falls, Duluth,
Willmar, St. Cloud,
Mankato, Winona, Austin



S. E. Minn. Schools

having Vo. Ag. Departments served by

Winona Area Schools

Farm Management Program

1. Caledonia
2. Canton
3. Dover-Eyota
4. Forest Lake
5. Goodhue
6. Harmony
7. Hastings
8. Houston
9. Lake City
10. Lanesboro
11. Lewiston
12. Mabel
13. Mazeppa
14. Plainview
15. Preston
16. Red Wing
17. Rushford
18. Spring Grove
19. St. Charles
20. Stillwater
21. Wabasha
22. Winona

VT 000 856

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Fremont County Survey of Vocational-Technical Education Needs in Business and Industry, April-July 1967. Final Report.

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FREMONT COUNTY; WYOMING

This study was designed to examine employment projections, identify occupations in which there was a shortage or surplus of workers, determine course content desired by the employers, determine educational requirements for occupations with worker shortages, and aid in the new community college educational planning to meet the needs of potential employees in Fremont County. Data were collected by personal interview from 335 employers who represented 85 percent of the population. Findings included: (1) The number of jobs will be fairly constant with a high degree of personnel turnover in each job, (2) The least worker shortage was in the machine trades and processing occupations, (3) The most difficult-to-fill occupations were salesman, cook-baker, and meat cutter, and (4) There was a need for courses in accounting, stenography, nursing, distribution, and agriculture sales and service. A limitation of this study was that it examined only employer opinion. It was recommended that the college concentrate on developing combinations of subject areas such as agriculture sales-automotive mechanics or management-accounting, utilize occupational and business advisory groups for planning the content of the courses, concentrate on courses in which obvious needs exist, and develop an on-going system of data collection to determine changes in employer and student needs. The interviewer training material and the survey instrument are included. (EM)

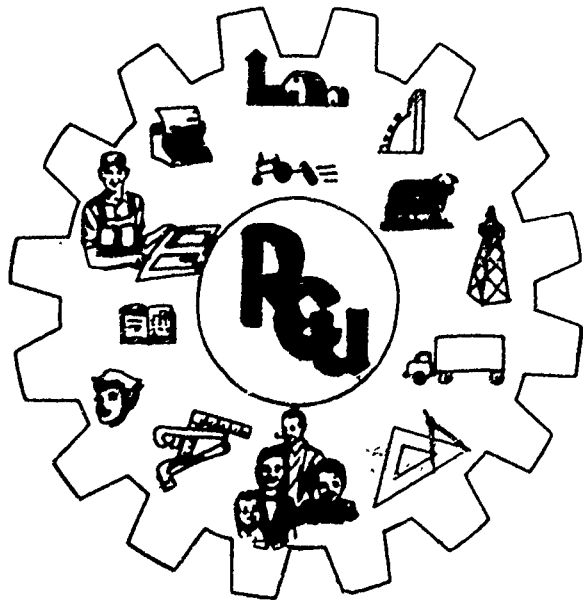
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ERIC

Fremont County Survey of VOCATIONAL-TECHNICAL EDUCATION NEEDS IN Business and Industry

CONDUCTED
BY

WYOMING RESEARCH COORDINATING UNIT
IN
VOCATIONAL-TECHNICAL EDUCATION



VT C00856

ERIC Full Text Provided by ERIC

FINAL REPORT

PREPARED

BY

WILLIAM H. NIGHTWINE

AND

BRUCE C. PERRYMAN

WYOMING RESEARCH COORDINATING UNIT

FOR

VOCATIONAL-TECHNICAL EDUCATION

STATE DEPARTMENT OF EDUCATION

CAPITOL BUILDING

CHEYENNE, WYOMING 82001

FREMONT COUNTY SURVEY

OF

VOCATIONAL-TECHNICAL EDUCATION NEEDS

IN BUSINESS AND INDUSTRY

April - July 1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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RIVERTON, WYOMING

WYOMING RESEARCH COORDINATING UNIT
FOR
VOCATIONAL-TECHNICAL EDUCATION

State Department of Education
Harry Roberts, Superintendent

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Such a great number of individuals provided either direct or moral support to this project that it is impractical to list each one. We do, however, wish to thank the businessmen of Fremont County for the time and thinking that went into their responses to the survey.

We would also like to recognize the assistance given to the project by: Mr. Joe Davis, (U. S. Department of Commerce); Mr. Phil Hamilton, (Bureau of Land Management); Mr. James Sheehan, (Department of Education Research and Statistics); Mrs. Donna Wells; Mr. John Mokler, (Employment Security Service); and Mr. J. C. Sollers, (Community Action Program, Wind River Indian Reservation).

Finally, we should like to note the very able assistance given the project by the: Progressive Women's Club, Ponderosa Club, Lander Jayceettes, Dubois Top of the World Club, Jeffrey City Community Council, Fremont County Sugar Promotettes, Shoshoni Homemakers Club, Paradise Valley Helping Hand Club, and the Kinnear Fire Department

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FOREWARD

In 1963, the Congress passed the Vocational Education Act, Section 4(c) of which made possible the creation of State Research Coordinating Units. A major objective of such units is the purveyance of assistance in local research efforts. A need for this service was manifest with the creation of the Central Wyoming College district in Fremont County on June 21, 1966.

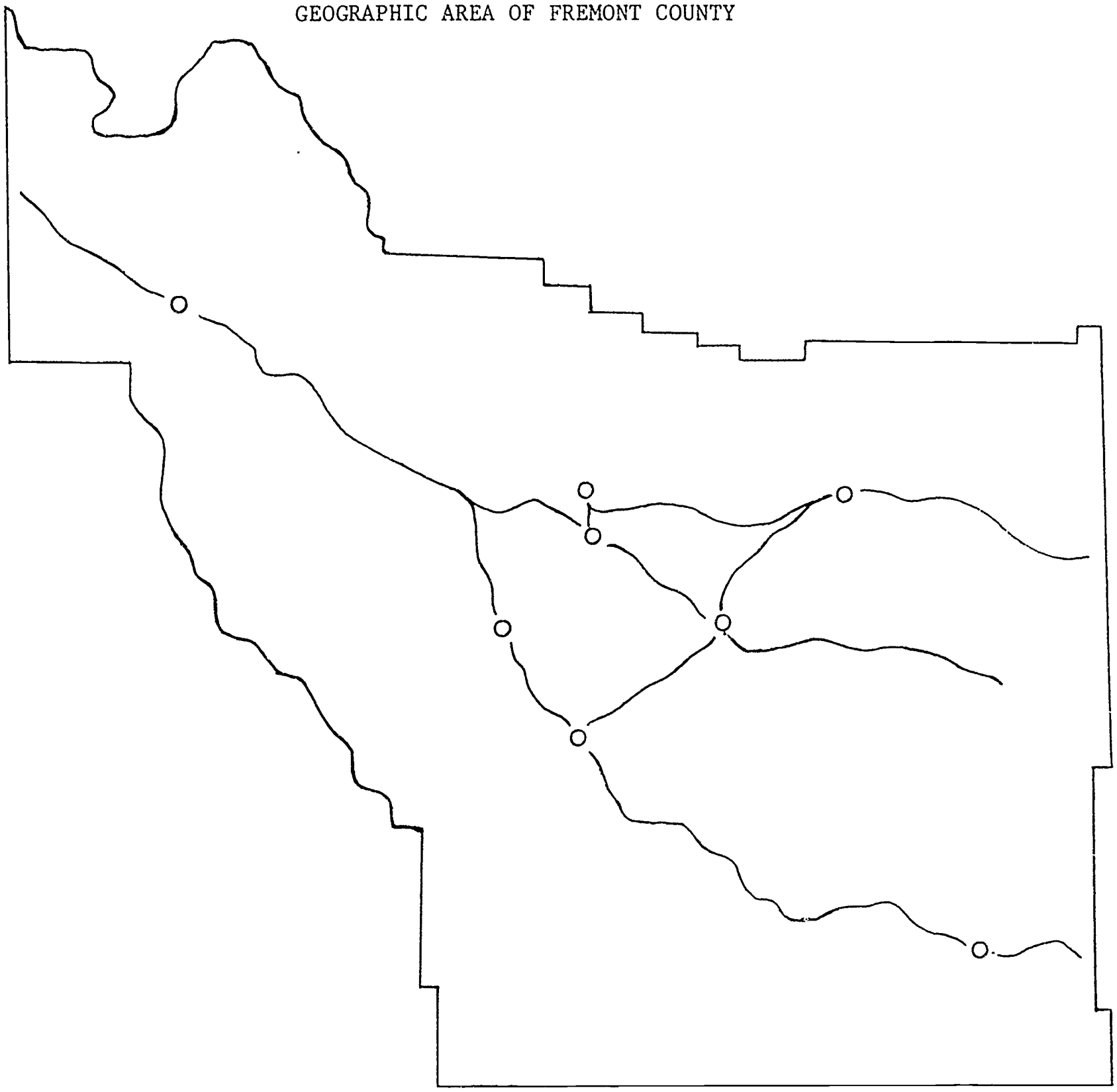
The President and Board of this new community college district have, it is hoped, set a precedent in Wyoming through their implementation of the belief that Vocational and Technical programs should be designed to fit the educational needs of the service area. This conviction evolves from acceptance of the fact that a community college, by definition, functions as an integral part of its service area. This is often in distinct contrast with other educational institutions which draw students from a wide geographic area and prepare graduates for positions throughout the nation and the world. The majority of community college students, on the other hand, commute from local homes and to some extent seek employment in local business and industry.

Acceptance of the existence of this indissoluble relationship necessitates the community college's periodical examination of its service area in order to determine if its present or potential offerings are responsive to emerging needs within the area. Such an evaluation of service area need is particularly indicated when new programs are envisioned, especially when these new programs are designed to lead directly into employment at the successful completion of a prescribed two-year course of study.

The combination of the need for service area evaluation, arising from acceptance of the philosophy of community and college tenacity, and the resources of the Wyoming Research Coordinating Unit in Vocational-Technical Education have led to the completion of this project.

FIGURE I

GEOGRAPHIC AREA OF FREMONT COUNTY



Fremont County Population
in Ten-Year Intervals

1930 - 10,490
1940 - 16,095
1950 - 19,580
1960 - 26,168
1965 - 28,860

Fremont County Population
Density Per Square Mile

1960	1965	Change
2.8	3.1	+0.3

Fremont County Land Area in Square Miles
9.196

Source: Wyoming Trade Winds, March - June 1966.

SECTION I

FREMONT COUNTY OF WYOMING

Located in the central part of Wyoming, Fremont County rests upon a portion of the Continental Divide. The Wind River Mountains are a major part of this Divide and form the western border of the county. The Owl Creek and Green Mountain ranges comprise the northern and southern boundaries respectively. The eastern boundary rests upon flatlands and small foothills. This capacious eastern border and the county's homogeneous central portion, with their elevations ranging from 4,500 to 6,000 feet, sharply contrast with the other three borders where peaks rise to over 13,000 feet.

As might be assumed from these elevation figures, the major segment of the county's 28,860 population is concentrated through the central portion of the county. This concentration greatly increases the population density in specific areas which would otherwise be 3.1 per square mile in 1965. A more complete view of the county's overall population is provided in Table I below. Fremont County has demonstrated the

TABLE I
Population Data for Fremont County
April 1, 1960 to April 1, 1965

County	Population April 1, 1960	Births April 1, 1960 to March 31, 1965	Deaths April 1, 1960 to March 31, 1965	Natural Increase	Percent Natural Increase	Net Civilian Migration
Fremont	26,168	3,657	1,108	2,549	9.7	'.7

County	Actual Increase	Percent Actual Increase	Population April 1, 1965	Percent Net Migration
Fremont	2,688	10.3	28,860	1.6

Source: Wyoming Trade Winds, March - June 1966.

greatest growth in population among all Wyoming counties with a 65 percent increase as compared to 34 percent for the other counties for the decade, 1950 to 1960. This aggrandizement is also in evidence within the county's school population which evinced a student increase of 79 between the 1964-65 and 1965-66 school years.

TABLE II
Fremont and Contiguous Counties School
Census and Percent of Change

Counties	1964-65 Boys	1964-65 Girls	1964-65 Total	1965-66 Boys	1965-66 Girls	1965-66 Total	No. Change
Fremont	4,734	4,320	9,054	4,784	4,349	9,133	+79
Hot Springs	904	829	1,733	887	795	1,682	-51
Natrona	9,452	8,652	18,104	9,782	8,823	18,605	+501
Sublette	571	566	1,137	586	548	1,134	-3
Sweetwater	2,793	2,735	5,528	2,796	2,661	5,457	+71

Source: Division of Research and Statistics, 1966.

The county's largest centers of population are situated in its central portion. Riverton, the largest town and location of Central Wyoming Community College, has a population of 6,845; the second largest town and the county seat is Lander with a population of 4,182. Other communities scattered over the county's 9,196 square miles are Atlantic City, Crowheart, Dubois, Ethete, Hudson, Jeffrey City, Kinnear, Lost Cabin, Lysite, Moneta, Pavillion, Shoshoni, and South Pass City. Adjoining Riverton and Lander on the south and stretching to within 15 miles of Dubois in the north is the Wind River Indian Reservation. This reservation, which has as its headquarters Ft. Washakie, supports the Shoshoni and Arapahoe tribes.

Acting as a foundation for the two largest cities are the mining and agricultural industries. Taconite and Jade are the major objects of mining activity while cattle, sheep, horses, beans and beets are

the major agricultural products in the area. Timber and tourism are the paramount activities in Dubois. Jeffrey City, in the southern portion of the county, has uranium mining and milling as its most salient activities. Hunting and fishing provide a countywide business base.

SECTION II

MAJOR INDUSTRIES

As mentioned previously, Fremont County owes its continued economic development to a small number of industries. These industries are agriculture, mining and tourism. The following statistics, while not directly applicable to Fremont County, provide projections for these industries within the state in general. From these, one should be able to draw some insight into the economic trends of the county under consideration.

Uranium

In December 1964, Wyoming contained 36 percent of the total national uranium reserves. Wyoming ore production increased over the year 1963 - 1964 despite a decline in procurement of U_3O_8 by the Atomic Energy Commission. After 1970, any increase in requirements for uranium will come from increased peaceful uses such as fuel in electric generating plants(1). This increase is forecast by such agencies as the Federal Power Commission and the AEC. The former predicts a 1980 nuclear generating capacity of 70 million KW(2), while the latter gives a range of 61 to 92 million KW(3). These Delphic prognostications are supported by the nuclearization of 10 percent of the new generating capacity programmed in 1965(4), and the 40 percent nuclearization of new generating capacity in the first half of 1966(5). Further support is provided by

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(1). Swartout, John A., and George V. Jordy. Uranium requirements for nuclear generating plants. Paper presented to American Mining Congress, Las Vegas, Nev., Oct. 11-14, 1965. Printed in: Hearings before the Joint Committee on Atomic Energy, Congress of the U. S., 89th Congress, 1st Session. p. 595.
(2). Federal Power Commission. National Power Survey. Part I, 1964.p.89.
(3). U. S. Atomic Energy Commission. Estimated growth of civilian nuclear power. 1965.
(4). Newsweek, April 18, 1966. p. 84.
(5). Newsweek, July 18, 1966. p. 65.

the fact that one of the state's largest producers has, at the present time, sold to private industry all its next two year's production.

These factors, plus others which are not discussed here, should allow Wyoming to anticipate uranium production through 1980 in excess of present estimated reserves. Should Wyoming continue to contribute to national demand in proportion to its share of current estimated reserves, and should imports of uranium remain low, Wyoming's share of 1980 domestic requirements should be about 6,600 to 9,400 tons of U_3O_8. This would be nearly two to three times 1964 production.

Iron Ore

In 1964, Wyoming mines produced 2.4 percent of the iron ore mined in the U. S.(6). This leaves a substantial reserve in the state since estimates of Wyoming reserves have increased over the 1955 estimate which showed Wyoming possessing under 10 percent of the 490 million tons will be consumed during the 1960-1980 period(7). This demand will deplete present domestic reserves to the point that new deposits will have to be developed. The need for the development of new deposits should cause Wyoming to contribute a greater proportion of domestic production by 1980.

Tourism

Some common activities with which visitors to Wyoming have been involved are sightseeing, hunting, fishing, rockhounding, and camping. Various estimates of the number of individuals involved in activities such

(6). See U. S. Bureau of Mines. 1964 minerals yearbook, Vol. I. p. 568.
(7). Landsberg, Hans H., et al. Op cit. p. 429, 435.

as these have been made. The National Park Service reports 4,572,000 visits to Wyoming parks in 1964. The U. S. Forest Service shows 4,727,200 visits to national forests in the same year. Estimates of hunting and fishing show 600,000 "hunter days" and 1,200,000 "fisherman days" in 1964(8).

In viewing future demands for tourist activities in Wyoming, it is possible only to assume rough approximation to national figures. The following are forecasts of nationwide increases in recreational activities, some of which will draw tourists to Wyoming, from 1960 to 1976(9).

Camping	88%
Hiking	85%
Boating	79%
Swimming	75%
Sightseeing	64%
Picnicking	50%
Fishing	35%
Hunting	26%

Agriculture

There has been a steady, if unspectacular, increase in receipts from the Wyoming agricultural market. A comparison of only two years are provided here in order to give some idea of this trend. Total receipts from farming, including government payments, in 1965 were $174,405,000 while for 1964, they were $164,826,000. This shows an increase of $9,579,000 over the two-year period. Marketing livestock and livestock products accounted for an 84 percent of total receipts

(8). Recreation Advisory Council, Study Committee Number Two. A uniform method for measuring and reporting recreation use on the public waters and lands of the United States. (mimeo) 1965.
(9). See Outdoor Recreation Resource Review Commission. Prospective demand for outdoor recreation - a report to the Outdoor Recreation Resources Review Commission. ORRC Study Report 26. 1962.

in 1965 as compared to 81 percent in 1964. Cattle and calves brought $108,384,000 and sheep and lambs $19,845,000 in 1965[10]. Employment in agriculture in 1960 totaled 16,120 persons. This made up 13.3 percent of all employment in the state in 1960[11].

The preceding summery should provide an overview of the major industries upon which Fremont County's economy is based. Rather than try to provide present status and projections of future growth for the remaining industries, it might be more enlightening to present these through the medium of employees and payrolls. This view is presented in Table III.

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(10). U. S. Department of Agriculture, Statistical Reporting Service. Meat animals, farm production, disposition, and income, by states, 1964-1965.

(11). U. S. Bureau of the Census. U. S. census of population: 1960, general social and economic characteristics, Wyoming. Table 61.

TABLE III

FREMONT COUNTY'S INDUSTRIES BY PAYROLL AND NUMBER OF EMPLOYEES

(Excludes railroad employees and self-employed persons. Size class 1 to 3 includes reporting units having payroll during 1st quarter but no employees during mid-March pay period. "D" denotes figures withheld to avoid disclosure of operations of individual reporting units.)

County and industry	Number of employees, mid-March pay period	Taxable payrolls Jan.-Mar. ($1,000)	Total reporting units	Number of Reporting Units*							
				1 to 3	4 to 7	8 to 19	20 to 49	50 to 99	100 to 249	250 to 499	500 or more
Fremont											
Total	4,559	5,601	556	310	125	79	31	5	5	-	1
Agricultural Services,Forestry,Fisheries.	19	13	7	6	-	1	-	-	-	-	-
Mining.	829	1,426	32	9	10	5	3	2	3	-	-
Metal Mining.	649	1,131	9	1	3	1	-	2	3	-	-
Miscellaneous Metal Ores.	649	1,131	9	-	3	1	-	2	3	-	-
Uranium-Radium-Vanadium Ores.	649	1,131	9	-	3	1	-	2	3	-	-
Crude Petroleum and Natural Gas	(D)	(D)	21	9	5	4	3	-	-	-	-
Oil and Gas Field Services.	96	147	13	4	4	4	1	-	-	-	-
Contract Construction	376	573	63	38	13	9	2	1	-	-	-
General Contractors, Buildings.	109	134	20	14	2	3	1	-	-	-	-
General Contractors, Except Buildings	128	288	7	3	1	1	1	1	-	-	-
Highway and Street Construction	(D)	(D)	4	2	-	-	1	1	-	-	-
Special Trade Contractors	139	151	36	21	10	5	-	-	-	-	-
Manufacturing	907	1,431	21	5	4	6	4	-	1	-	1
Lumber and Wood Products.	172	226	6	2	1	1	1	-	1	-	-
Sawmills and Planing Mills.	(D)	(D)	4	2	1	-	-	-	1	-	-
Sawmills and Planing Mills,General.	(D)	(D)	4	2	1	-	-	-	1	-	-
Primary Metal Industries.	(D)	(D)	1	-	-	-	-	-	-	-	1
Steel Rolling and Finishing	(D)	(D)	1	-	-	-	-	-	-	-	1
Blast Furnaces and Steel Mills.	(D)	(D)	1	-	-	-	-	-	-	-	1
Transportation and Other Public Utilities	267	343	39	20	7	7	5	-	-	-	-
Trucking and Warehousing.	81	85	22	15	4	2	1	-	-	-	-
Trucking,Local and Long Distance.	78	83	19	12	4	2	1	-	-	-	-
Trucking Without Storage.	(D)	(D)	17	11	3	2	1	-	-	-	-
Wholesale Trade	143	173	30	14	9	6	1	-	-	-	-
Miscellaneous Wholesalers	78	78	16	7	6	2	1	-	-	-	-
Petroleum Bulk Stations & Terminals	41	43	10	4	4	2	-	-	-	-	-
Retail Trade.	1,108	926	195	104	51	29	10	1	-	-	-
Building Materials & Farm Equipment	100	100	19	7	7	5	-	-	-	-	-
Hardware and Farm Equipment	59	55	14	7	5	2	-	-	-	-	-
General Merchandise	98	54	12	5	2	4	1	-	-	-	-
Food.	172	201	16	7	3	3	2	1	-	-	-
Grocery Stores.	172	201	16	7	3	3	2	1	-	-	-
Automotive Dealers & Service Stations	242	265	52	29	15	5	3	-	-	-	-
New and Used Car Dealers.	112	159	8	-	2	3	3	-	-	-	-
Gasoline Service Stations	101	83	35	23	11	1	-	-	-	-	-
Apparel and Accessories	80	66	18	12	4	1	1	-	-	-	-
Furniture and Home Furnishings.	34	29	11	6	5	-	-	-	-	-	-
Eating and Drinking Places.	274	121	37	19	5	10	3	-	-	-	-
Miscellaneous Retail Stores	108	90	30	19	10	1	-	-	-	-	-
Drug Stores and Proprietary Stores.	62	56	10	2	7	1	-	-	-	-	-
Finance,Insurance and Real Estate	161	199	32	22	5	3	2	-	-	-	-
Services.	736	507	130	86	25	13	4	1	1	-	-
Hotels and Other Lodging Places	147	84	24	13	8	1	2	-	-	-	-
Hotels,Tourist Courst and Motels.	141	80	20	9	8	1	2	-	-	-	-
Personal Services	59	41	20	15	4	1	-	-	-	-	-
Medical and Other Health Services	239	184	21	15	2	2	1	-	1	-	-
Hospitals	(D)	(D)	2	-	-	-	1	-	-	-	-
Legal Services.	27	16	12	10	2	-	-	-	-	-	-
Nonprofit Membership Organizations.	102	66	12	7	2	2	-	1	-	-	-
Miscellaneous Services.	27	29	11	8	2	1	-	-	-	-	-
Unclassified Establishments	13	10	7	6	1	-	-	-	-	-	-

Source: U. S. Dept. of Commerce, "1966 County Business Patterns".
* By employment-size class

SECTION III

OBJECTIVES

The Fremont County Survey of Vocational and Technical Education Needs in Business and Industry is designed to achieve the following objectives:

1. Study the projected employment trends for the county's business and industry as viewed by the owners and managers of the business and industry.
2. Reveal the occupational categories in the county in which there is now, or is likely to be in the future, either a shortage or a surplus of workers.
3. Determine employer desired course content for different occupational categories.
4. Determine the educational requirements for those occupational categories and specific job titles in which there is difficulty in hiring.
5. Aid in the design of courses and curricula which meet the educational needs of potential employees in the Fremont County area.

SECTION IV

METHODOLOGY

The first step in development of the design of this project was the construction of a Program Evaluation and Review Technique Network. This project management technique was utilized in order to improve initial planning and subsequent control of the project. The network is included in Appendix A and will be referred to in the following section in order to provide a visual explanation of the procedure used.

The methodology developed for this project might best be described as a covertly controlled do-it-yourself method. Design was based on the primes that the end, for which research is a means, is implementation of programs, and secondly, that implementation is facilitated by community support. One of the best means of gaining community support is through the direct involvement of the community in the research activities which should lead to implementation. It is toward this involvement that the methodology is oriented.

Involvement was achieved through the mobilization of community service clubs for data collection. The first step in this mobilization was the definition of the geographic area under consideration and its division into eight regions. At the same time that service clubs within each region were being contacted (PERT Act. 7-10), the sample list was being compiled (PERT Act. 11-13). The service club which was selected for each region was assigned those business units which were located in its region.

Following selection of the service clubs, the next major activity was the interview training meetings (PERT Act. 12-14), which were required to insure quality control and homogeneity of data. These meetings involved the instruction of every service club member in the techniques of interviewing as well as in the idiosyncracys of the instrument. (This instrument as well as other materials used in training meetings are provided in Appendix B.) Average time required for the eight meetings was two hours. The time spent with the club members allowed the regular project personnel to introduce into the data collection activities what was termed 'covert control'. Had the permanent project staff spent less time and effort on these meetings, it would have been required to devote more time to the data collection activities. Emphasis on these training meetings, however, developed service club chairwomen and members to the extent that they were able to handle everyday mundane problems. This allowed the permanent staff to concentrate its efforts on the major problems arising during data collection activities. This style of control, this "management by exception", was necessitated by the small project staff and the limited amount of time which they could devote to the project.

Once the service club members were adequately trained, they were given the sample list for their region and asked to select those business units which were no longer functioning so that these could be supplanted on the list. Following sample revision, up-dating and the assigning of each club member's business units, the system was set in motion (PERT Act. 14-16).

The remaining steps in the procedure were the conventional activities usually associated with surveys. Their sequence and interrelationships are shown on the network from Event 16 on. A more complete explanation and criticism of the data collection methodology is presented in Appendix C.

SECTION V

LIMITATIONS

The population or aggregate units from which the sample was selected and, therefore, with which the Fremont County Survey of Vocational and Technical Education Needs in Business and Industry was concerned, was limited both geographically and by definition.

Geographic Limitations

Only those units, defined as business or industry for purposes of this study, which were located within the boundaries of Fremont County, were included within the population under consideration.

Definitive Limitations

Only those units, defined as business or industry for the purposes of this study, which had paid benefits for one or more employees into the Social Security System during the last completed quarter year were included within the population under consideration.

SECTION VI

SELECTION OF THE SAMPLE

The sample list of 335 units represented 85 percent of all the units which fall within the definition. The first step in the selection of this list was the division of the population into two subpopulations designated S_1 and S_2. S_1 was randomly selected to make up 85 percent of the population. S_2 was made up of the remaining units which were not selected in S_1. S_2 was arranged by Standard Industrial Classification and by location within regions.

Starting with the interview training meetings and running through to the completion of data collection activities (PERT Act. 10-16), S_1 was revised and supplemented from S_2. Selection from S_2 was made by Standard Industrial Classification and by region. In other words, when a retail food store in Riverton, for example, was designated "not able to contact" or "refuse to cooperate", it was replaced on S_1 by Unit N, SIC 54, Region 01.

The little follow-up activity required was carried out by the permanent project staff. This consisted of very few contacts and was concentrated on those units which had demonstrated an initial negative attitude toward the project while at the same time were felt to be of major importance to the economy of the county. These activities were quite successful, since the original non-contact designation generally proved to be due to personality conflict on the part of the interviewer and interviewee.

SECTION VII

DATA

The data presented in this section might best be viewed in three parts. Part one is concerned with providing first, an idea of the Occupational Categories and Standard Industrial Classificational Groups with which we are concerned, and second, with providing a view of employment trends. This latter concern is depicted in Tables IV and V, while the former concern is depicted in Table VI.

Part two of this Section is concerned with subject areas and the degree of training required for said areas. Data of this nature is presented in Tables VII, VIII, IX, and X.

The final part is composed of a collection of general data on such things as employer attitude, need for increased on-the-job pre-job vocational training, and difficult-to-fill jobs. The data of this type is contained in Tables XI, XII, XIII, and XIV.

TABLE IV

Employment Trends By Occupational Category

Occ. Category	Curr. Empl.	Empl. Since '62	Est. Empl. By 1968	Est. 1970 Empl.	Est. Replacement Personnel, 1969
Prof. Tech. & Mgt.	740	433	618	627	139
Cler. & Sales	839	584	734	772	309
Farming and Related	460	1110	525	502	332
Service	778	544	586	619	404
Pro-cessing	336	190	235	342	93
Machine Trades	505	197	450	487	130
Bench Work	81	60	30	58	16
Struc. Work	221	191	118	175	65
Misc.	851	865	701	828	461

Table IV provides a total picture of employment trends in each of the occupational categories as seen by employers having employees in these categories. In examining the raw figures above, it is of interest to note that a slight employment decrease is forseen by 1970. It should be noted, however, that this decrease is small for each category, at the same time that the estimates are quite large for the miscellaneous category. The slight decrease in numbers of employees is probably due to a tendency on the part of the employer to categorize

some employees in the miscellaneous group when they might have been more specifically categorized elsewhere.

Looking at this table more effectually shows a different condition. An examination of the percentage of employee change since 1962 exhibits a better than 50 percent change in personnel in all but two categories. These categories are the "Service and Municipal Occupations", and the "Machine Trades Occupations", with changes of 41 percent and 39 percent respectively. These categories are compared with a high change in personnel of 86 and 74 percent. These percentages of change are for the period, 1962 to present.

When one views, along with employee change from 1962 to the present, the forecasted change or "replacement" for 1969, it becomes evident that the number of jobs, rather than decreasing, are remaining rather constent. For example, employees in the "Professional, Technical and Managerial" category showed a 58 percent change since 1962 and a predicted 44 percent replacement in 1969 of 1968 personnel. The large percentage of change coupled with the projected large percentage viewed in terms of the decrease in numbers of actual jobs would seem to point out a steady turnover in personnel. In other words, employers of personnel in the "Professional,Technical, and Managerial" category have either created new jobs or filled the same jobs many times since 1962 and expect to do the latter up to 1969. Since there will be the same number of jobs, if not fewer jobs, in 1970, one can conclude that the turnover of personnel in any given job is quite high. These percentages of change or turnover for each category is provided in Table V.

TABLE V

Percent of Personnel Change Since 1962 and
For 1969 By Occupational Category

Occupational Category	Percent of Personnel Change Since 1962	Estimated Personnel Change by 1969
Professional, Techn. & Management	58%	44%
Clerical & Sales	69%	42%
Farming, Fisheries & Forestry Related	41%	63%
Service	70%	69%
Processing	57%	39%
Machine Trades	39%	29%
Bench Work	74%	53%
Structural Work	86%	55%
Miscellaneous	101%	66%

Percent of personnel change since 1962 is the percentage of presently employed personnel that have been hired since 1962. Estimated personnel change by 1969 is the percentage of 1968 personnel that will be replaced by 1969.

Table VI gives a breakdown of the types of business units which were contacted. The classification used was the Standard Industrial Classification developed by the U.S. Bureau of the budget. For purposes of analysis the business units were grouped into ten groups 00 through 90. These are the classifications in the righthand column of Table VI and explained below:

Standard Industrial Classification

Group	
00	Agriculture, Forestry and Fisheries
10	Mining & Contract Construction
20	Manufacturing
30	Manufacturing (concluded)
40	Transportation, Communication, Electricity, Gas & Sanitary Services
50	Wholesale and Retail Trade
60	Finance Insurance, and Real Estate
70	
80	Services
90	Government

These two-digit classifications will be used in the following data to show responses from groups of business units.

TABLE VI

Classifications of Participating Business Units

Business Classification	Number Participating	Total Participating Per Category
Commercial Farms	122	
Non-Commercial Farms	3	
Agricultural Services, Hunting, Fishing & Trapping	1	126 (classified 00)
Metal Mining	6	
Crude Petroleum & Natural Gas	7	
Building Construction	4	
Other Construction	6	
Construction - Special Trade Contractors	7	30 (classified 10)
Food and Kindred Products	3	
Lumber and Wood Wood Products Not Furniture	3	
Printing, Publishing, etc.	3	9 (classified 20)
Stone, Clay & Glass Products	2	
Transportation Equipment	1	3 (classified 30)
Local, Suburban & Interurban Passenger	2	
Motor Freight & Warehousing	4	
By Air	2	
Communication	5	
Electricity, Gas & Sanitary Services	7	20 (classified 40)
Wholesale Trade	8	
Building Metals, Hardware & Farm Equipment	10	
Retail Trade General Merchandise	10	
Food	8	
Automotive Dealers, Garages, Service Stations	14	
Furniture, Home Furnishings & Equipment	4	
Eating & Drinking	15	
Miscellaneous Stores	10	79 (classified 50)
Banking	4	
Non-Bank Credit Agencies	2	
Insurance Carriers	1	
Insurance Agents, Brokers & Services	1	
Real Estate	1	
Combinations of Real Estate Insurance Loans & Law Office	1	10 (classified 60)
Hotels, Rooming Houses, Camps, etc.	8	
Personal Services	1	
Miscellaneous Business Services	1	
Motion Pictures	2	
Amusement & Recreation - Not Movies	1	13 (classified 70)
Medical Service, etc.	3	
Non-Profit Membership Organizations	2	5 (classified 80)
Federal	11	
State	5	
Local	24	40 (classified 90)

SPECIFIC TRAINING NEEDED

Business Units were asked to rank a large number of subject areas by the degree of understanding required in each area for employees in different occupations. The total responses for each subject area, broken out by general subject areas, i.e., Business, Engineering & Technology, etc., are contained in Table VII. The responses might be looked upon as votes, in that each represents the employer's choice as to how much knowledge employees should have in a specific subject area.

The most important columns are those headed "Great Deal of Understanding Needed" and "Thorough Understanding Needed". Numbers in these two columns ranging from 50 - 100 would denote a great deal of interest and desire for more training in these areas. Attention might also be directed toward Column 3, headed "Some Understanding Needed". Larger numbers in this column might be interpreted as a need for diversification in training. Since the employer does not require specialization in a specific area. In other words, there might be a need for types of training that do not fit the traditional concepts of needed training for a specific occupation. This diversification can be better examined through a study of subject areas by occupational categories and by industry groups.

Table VIII shows the same type of figures broken out by the occupational categories involved. In this table, however, only three degrees of understanding are included: (2) "Some Understanding Needed", (3) "Great Deal Needed", and (4) "Thorough Understanding Needed". The totals show the number of business units who stated the degree of training required for their employees in each subject area. For example, 32 employers felt that their sales and clerical personnel need "Some Understanding" in Business Mathematics.

Table XI uses the same three degrees of understanding to show the business unit response by SIC Group. This table shows the desired training required in subject areas for the different types of business.

TABLE VII

Employer Desired Understanding in Business Related Subject Areas

Subject Area	No Understanding Needed	Little Needed	Some Needed	Great Deal Needed	Thorough Need
Accounting	174	39	102	73	94
Automated Accounting	349	26	54	31	23
Federal Tax Accounting	323	46	49	29	36
Business Law	307	44	84	24	24
Mathematical Analysis for Business	302	37	64	49	28
Office Machines	200	44	103	74	62
Business Economics	303	26	82	43	29
Business English	234	25	77	80	67
Business Law	369	24	52	20	18
Business Mathematics	232	24	96	66	65
Business Organization and Management	232	21	73	77	80
Business Psychology	233	20	95	73	62
Survey of Computer Use in Business Management	389	29	28	26	11
Marketing	273	24	74	60	52
Advertising	283	33	79	48	40
Merchandising	271	21	68	52	71
Retail Selling Methods	265	25	58	65	70
Retail Display	300	30	63	36	54
Retail Buying	310	19	47	46	61
Retail Management Techniques	336	18	49	31	49
Shorthand	376	21	29	32	25
Legal Shorthand	452	10	11	6	4
Medical Shorthand	460	9	4	6	4
Typewriting	211	36	79	86	71
Duplicating Processes	327	18	66	43	29
Clerical Procedures	226	19	90	76	72
Secretarial Procedures	282	18	65	60	58

TABLE VII (continued)

Employer Desired Understanding in Engineering and Technology Related Subject Areas

Subject Area	No Understanding Needed	Little Needed	Some Needed	Great Deal Needed	Thorough Need
Automobile Mechanics	229	14	91	46	62
Automatic Transmissions	325	17	31	29	40
Automotive Engine Tune-Up	273	20	55	40	54
Blueprint Reading for Construction	316	15	35	33	43
Inspection of Structural Materials	344	7	24	26	31
Electrical Inspection	332	12	46	30	22
Building Construction	292	31	59	36	34
Industrial Drafting	382	7	25	9	19
Electronic Drafting	406	10	15	9	2
Technical Illustration	385	11	26	8	12
Electrical Communications	374	7	31	14	16
Electrical Power Generation and Distribution	377	8	26	17	14
Electricity - Inside Wiring (Apprenticeship)	356	8	41	19	18
Circuit Analysis	372	7	19	20	24
Electronic Industrial Applications	392	5	20	13	12
Surveying	337	19	38	17	31
Descriptive Geometry	403	0	15	8	6
Engineering Drawing	371	11	27	11	22
Fire Protection	262	22	73	42	38
Fire Suppression	320	8	46	38	30
Fire Fighting Tactics and Strategy	325	10	49	31	27
Hazardous Materials	287	15	63	38	39
Fire Protection Equipment and Systems	327	90	44	37	25
Related Codes and Ordinances	352	10	35	36	9
Fire Apparatus and Equipment	337	13	41	35	16
Fire Company Organization and Procedure	386	11	17	16	12

TABLE VII (continued)

Fire Investigation	391	9	24	8	10
Instrumentation Fundamentals	229	14	91	46	62
Pressure and Temperature Measurement Instrumentation	368	8	26	24	16
Flow and Analysis Measurement Instrumentation	388	8	17	17	12
Recording and Controlling Instrumentation	390	5	19	16	12
Machine Shop Practice	308	12	68	21	33
Machine Shop Blueprint Reading	358	12	39	16	17
Metalworking Fundamentals	352	16	30	19	25
Metrology	421	9	7	3	2
Metal Processes	399	11	17	7	8
Gas Welding Processes	269	14	73	38	48
Metallic Arc Welding	266	12	67	44	53
Metallurgy	402	8	19	6	7
Introduction to Law Enforcement	396	10	18	10	8
Criminal Law	399	13	17	7	6
Criminal Evidence	407	10	16	5	4
Administration of Justice	414	8	4	6	10
Traffic Control	406	11	8	8	9
Patrol Procedures	414	7	8	5	8
Juvenile Control	386	10	10	15	21
Science of Fingerprints	426	9	2	2	3
Law Enforcement Supervision	413	9	7	4	9
Graphic Reproduction Fundamentals	409	9	17	5	2
Copy Preparation	401	11	18	7	5
Letterpress	425	10	3	2	2
Pressmanship	425	9	2	5	1
Lithography	425	10	3	2	2
Photo Lithography	425	11	3	3	0
Estimating for Lithographic Printing	427	9	4	2	0
Printing-Graphics Salesmanship	424	9	6	3	0
Commercial Lettering	411	11	14	3	3
Forest Engineering	423	5	8	1	5

TABLE VII (continued)

Surveying Computations	392	7	15	12	16
Map Drafting Techniques	395	6	15	10	16
Surveying Field Work	6	6	33	20	23
Land Subdivisions	375	7	30	7	23
Technical Physics	413	6	15	3	5
Technical Calculations	402	4	18	8	10
Drafting Calculations	396	5	18	12	11
Slide Rule	371	6	26	19	20
Technical Reports	396	5	16	11	14

TABLE VII (continued)

Subject Area	No Understanding Needed	Little Needed	Some Needed	Great Deal Needed	Thorough Need
Employer Desired Understanding in Cosmetology Related Subject Areas					
Cosmetology Theory & Laboratory	251	0	0	0	0
Related Theory & Lab.	253	0	0	0	0
Employer Desired Understanding in Dental Assisting Related Subject Areas					
Related Dental Science	248	2	2	1	0
Dental Assisting Fund.	247	2	2	1	1
Dental Laboratory Tech.	249	2	0	1	1
Chairside Techniques	249	2	1	1	0
Office Procedures	249	1	1	2	0
Employer Desired Understanding in Medical Assisting Related Subject Areas					
Medical Assisting Orientation	244	1	2	5	1
Related Medical Science	241	1	2	5	4
Medical Terminology	234	3	1	6	9
Secretarial Procedures	242	1	1	3	6
Medical Office Procedures	240	1	1	5	6
Assisting Techniques	242	1	1	5	4
Employer Desired Understanding in Mathematics Related Subject Areas					
Algebra and Trigonometry for Technicians	178	6	28	20	21
College Alg. & Trig.	189	6	22	15	21
Slide Rule & Desk Calculators	164	5	34	29	21
Analytic Geom. & Calculus	204	7	19	11	12
Calculus & Eng. Mathematics	195	8	22	14	14
Coding for Digital Computers	212	7	15	9	10
Elementary Statistics	185	6	27	18	17

TABLE VII (continued)

Subject Area	No Understanding Needed	Little Needed	Some Needed	Great Deal Needed	Thorough Need
Employer Desired Understanding in Nursing Related Subject Areas					
Fundamentals of Nursing	233	1	3	5	11
Obstetric Nursing	241	2	1	4	5
Nursing Trends	236	1	1	6	9
Vocational Nursing	239	1	2	3	8
Nursing Physiology	240	1	1	4	7
Employer Desired Understanding in Physical Sciences Related Subject Areas					
General Chemistry	211	1	21	8	12
Quantitative Analysis	229	1	5	8	10
Engineering Physics	228	2	12	2	9

TABLE VIII

Degree of Understanding Required of Different Occupations in Specific Subject Areas

Subject Areas	Professional Tech. & Mgt.			Sales & Clerical			Service & Municipal			Farming, Fish. Forestry			Processing			Machine Trades			Bench Work			Structural Work			Misc.		
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
Business																											
Accounting	45	32	42	35	35	40	2	2	6	7	4	6	2			2						1			8		
Auto.Acctg.	28	13	8	19	17	14	1	1	1	1			2									2			1		
Fed.Tax Acctg.	24	15	16	17	12	14		2	3	6		2										1			1		1
Business Law	45	15	14	29	8	7	2		1	2	1	1	1									1			4		1
Math. Analysis for Business	34	28	17	20	19	5	2		3	4	1	2	4	1				1				1					30
Office Machines	57	22	20	30	47	38	6	3	2	3		2	1	1		1						1			1		37
Business Economics	45	28	17	27	12	9	1	3	1	3		2	1			2						1					30
Business English	41	35	26	23	39	35	3	2	2	2		3	1	1			1					1			2	1	36
Business Law	22	14	11	21	5	4	2	1	1	1		1	1			1						1				1	28
Bus. Mathematics	45	34	27	32	23	26	2	7	4	3	1	3	4			1		1				3			6	1	4
Bus. Organization and Mgt.	26	40	59	33	28	13		1	3	6	4	3	1	2		1	1					1	1		5		2
Bus.Psychology	38	36	33	36	29	17	6	5	4	3		2	1	1				1				1	1		10	1	5
Survey of Computer Use in Bus. Mgt.	18	14	6	8	10	4		1		1				1								1					1
Marketing	27	34	25	17	14	10	8	1	8	5	8	4	1		2	1	1								5	2	3
Advertising	34	30	24	28	14	13	7	1		1	1					2									5	2	3
Merchandising	24	23	37	26	17	23	5	7	4	1	1	1			1	2	1					2			8	3	5
Retail Selling Methods	19	26	32	25	22	24	5	7	7	1	2			1	1	1	2	1				1			6	5	5
Retail Display	29	17	24	20	14	22	7	1	1		1			1	1	2	1					1			4	1	6
Retail Buying	15	24	30	18	13	21	3	2	2	2	1	1	1	1	3		3					1	1		7	1	4
Retail Mgt. Tech.	23	15	30	17	10	13	5	1	2	1	1				1		3					1			2	1	3
Shorthand	9	4	4	18	27	20				1		1		1											1		
Legal Shorthand	4	1		7	5	3						1															
Medical Shorthand	3	2	2	1	4	2																					
Typewriting	41	21	19	19	58	48	7	1	2	6	1	2		2		1	1						1		5	1	
Duplicating Proc.	31	13	9	30	27	17	1		1	1	1	1		1	1	1							1		2		
Clerical Proc.	44	23	21	31	44	48	4	4	2	2	1		1	1		2	1					1			5	2	1
Secretarial Proc.	31	19	15	28	36	39	2	1	2	1	2	2		1			1					1			2		
Engineering & Technology																											
Auto. Mech.	20	10	8	7	4	4	10	3	8	29	12	12	2		2	5	9	12		2	4	7	1	5	11	5	7
Auto. Trans.	10	6	6	2	2	2	1	3	6	4	6	5	1		1	1	9	8		1	5	5	2	2	7		5
Auto. Engine Tune-Up	14	7	8	2	2	3	6	4	6	18	10	11	3		1	2	11	10		1	5	4	2	3	6	3	7
Blueprint Reading for Const.	7	13	26		3	2	1	2	4	5	1	1	2	2	1	9	4	2	1	1	2	5	5	4	5	2	1
Inspection of Structural Materials	10	7	17	1			1	3	2	3	3			1	1	5	4	3		1	2	1	4	3	3	3	3
Elec. Inspection	16	10	9		1		2	3	2	7	3		2	2		6	4	3	2	1	3	2	2	3	9	4	2
Bldg. Const.	12	12	15	5	1	1	7	2	4	17	9	3		1	1	5	2		1		1	4	7	6	8	2	3
Industrial Drftg.	5	7	13	3		2						1	2	1		3	1	1			1	8		1	4		
Electronic Drftg.	3	5	2	3						1			1	2			1			1		2			5		
Technical Illus.	13	4	6	2		1						1	1	1		3	1	1			1	2			5	2	2
Elec. Comm.	12	9	9	4	1	1			1				3			3	3	2		1		2		1	7		1
Elec.Pwr.Generation and Distribution	10	4	7		1		1	1	1	1		2	2	2		3	5	2		2	1	3	2		6		1
Elec.-Inside Wiring (Apprenticeship)	10	4	6				1	3	2	11	4	4	3	1		1	2	3	2	2		3	2		10	1	3
Circuit Analysis	7	6	12		1	1			2		1	2	1	1		4	6	2	1	1	1	2	2		4	2	4
Elec.Ind.Appl.	6	4	10	3	1				1	1	1		2	1		3	3	1		1		1	2		4		
Surveying	13	6	14	1		1	1		3	15	4	8		1		1	1	2	1			2	3	2	4	2	1
Descriptive Geom.	7	6	5	1										1		4				1		2			1		1
Eng. Drawing	10	6	13	5		1				1		3	1		1	4	2				1	1	2	2	5	1	1
Fire Protection	24	17	10	8	4	4	12	4	8	12	4	3	6	1	2	3	5	3		2		4	1	2	5	9	6
Fire Suppression	18	12	9	8		5	4	4	3	3	3	2	2	2	1	2	5	3		2	1	2	3	1	7	7	5

TABLE VIII (continued)

Fire Fighting Tactics & Strategy	18	7	9	6		4	4	6	4	4	4	2	3	2	1	4	4	2	2		2	1	4	2	2	6	4	3
Hazardous Materials	18	11	12	8	2	4	5	2	8	10	3	4	4	1	3	5	5	3	1	3	1	5	1		13	10	4
Fire Protection Equip. & Systems	18	14	6	5		4	5	5	6	5	2	3	1	2	1	2	6	3	2	1		1	1	1	5	6	1
Related Codes & Ordinances	16	16	4	5	2	2	3	3	2	1	1		1		1	3	6		2			2	2		2	6	
Fire Apparatus & Equipment	10	16	4	8	1	3	8	3	3	3	1	2	3		1	1	5	2	1	1		2	1	1	5	7	
Fire Co. Org. & Procedure	4	7	5	2	3	2	4	3	1		1	2		1		2		1	1						4	1	1
Fire Investigation	11	5	4	6	1	1	3		4	1				1		1						1			1	1	1
Instr. Fund.	9	5	5	3			2	2		2			4		1	6	1	2		1		1	1		3		1
Pressure & Temp. Measurement Instr.	7	12	9		1			2	3	1			5	5	1	4	2	2		2		4			5		1
Flow & Analysis Msrmnt. Instr.	8	10	6	1				2	2		1		3	1	2	3	2	2		1		1			1		
Recording & Controlling Instr.	10	8	7				1	1					2	1	3	1	4	2		1		1	1		4		
Mach.Shop Practice	17	5	5	3		1	4	1	5	20	3	7	3	1		8	5	9	4	3		4	1	2	5	2	4
Mach.Shop Blueprint Reading	15	5	5			1	1	1	1	2	1	3	4	1		8	4	5	2	3		4		1	3	1	1
Metalworking Fund.	9	4	4	1		1		2	3	5	1	6	1	1		8	5	5	1	3	1	2	1	3	3	2	2
Metrology	5	2							1	1						1	1	1									
Metal Processes	6	2	2					2	2	3					1	5	2	1	1		1	1	1		1		1
Gas Welding Proc.	12	4	10	1	1	1	9	2	8	26	14	11	2	2		9	7	9	1	3	3	7	3	2	5	2	4
Metallic Arc Wldg.	14	6	10	1	1	1	10	1	8	24	18	11	2	2		6	6	11	1	4	2	7	3	4	2	3	5
Metallurgy	7	2	3		1				1		1	1	1		1	7	2	1	1			2			1		
Intro. to Law Enforcement	11	5	3	1	1	1	1	2	3	2		1	1				1								2	1	
Criminal Law	6	1	3	6	1	1		2	2	3							1								2	2	
Criminal Evidence	7		3	3	1		1	2	1	2						1	1								2	1	
Admin. of Justice	3	3	4	1		2		1	4								1									1	
Traffic Control	5	3	4			1	1	1	3	1						1										4	1
Patrol Procedures	4	1	3		2	1		1	3	2						1									1	1	1
Juvenile Control	4	7	9	3	3	2		1	6	1	1	2				1								1	1	3	1
Sci. of Fingerprints	2	1	1					1	2																		
Law Enforcement Supervision	4	2	4	2		1		1	3	1	1													1			
Graphic Repro.Fund.	10		1	2	2		1				1			1		2		1			1			1	1		
Copy Preparation	10	2	2	5	3		1						1	1				2	1		1						1
Letterpress	3		1											1				1	1								
Pressmanship	2	3									1							1	1								
Lithography	2	1	1										1					1	1								
Photo Lithography	2	1		1										1					1								
Est. for Lithographic Prntg.	2	1														1			1						1		
Prntg. - Graphic Salesmanship	4	1		1			1												1							1	
Commercial Ltrng.	10	2	2	1						1			1		1					1					1		
Forest Engineering	1		4	2						2		1									2				1	1	
Surveying Comp.	7	7	10	2		1	1	1	1	1	2	3	1	1		1				1	1				1	1	
Map Drftg. Tech.	8	6	11	3		1	1	1		1	1	3		1			1			1					2		
Surveying Field Work	7	10	11	1	1	1	1	1	3	16	4	7	1				1			1	4	1			3	3	
Land Subdivisions	12	5	12	4		2			2	8		3	1					1		1	2				3	2	2
Technical Physics	9	1	4	1				1			1		2			2				1					1		
Tech. Calculations	10	6	8	4				1					1	1		1		1		1					2		
Drftg. Calculations	11	9	8	4		1		1				1	1	1		1	1			1					1		
Slide Rule	15	12	11	2	1	2		3	1	3		2	1		1	1	1	1		1	2			1	2	2	
Technical Reports	11	8	10	1				1					1		1		2	1	1	1					1		1

TABLE VIII (continued)

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TABLE IX

Degree of Understanding Required of Specific Subject Areas for Different SIC Groups

Subject Areas	Agri., Forestry & Fish.			Mining & Contract Const.			Manufacturing						Trans., Commun., El.Gas,& San.Ser.			Whlsale. & Retail Trade			Fin.Ins. & Real Estate			Services						Gov't.		
	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4
Business																														
Accounting	6	6	16	14	11	6	5	2	3	1	1	2	20	6	6	20	22	34	9	5	3	6	2	5	2	3	2	19	15	17
Auto. Acctg.	1		2	12	4	1	3		1	1	1		9	5	2	11	14	9	5	2		2				1	2	10	4	6
Fed.Tax Acctg.	6	4	8	7	1	5	1			2			6	2	2	9	15	12	5		1	4	2	1	1		2	8	5	5
Business Law	5	2	3	12	4	1	3		1	3			8	1	2	26	5	9	9	4	1	4		1			2	14	7	4
Math Ana. forBus.	4	1	7	11	8	1	3	2			3		8	2	2	19	20	8	8	2	3	4	2	1	1		3	9	9	3
Office Mach.	7	3	4	11	7	12	2	3	1		3		14	9	6	30	26	14	10	1	6	11	1		2	2	3	16	19	16
Bus. Economics	8	5	3	9	5	4	3	2	1	3			10	5	2	24	12	11	7	4	4	6	1	1	1	1	2	11	8	1
Bus. English	6	1	4	6	9	13	4	1	2	3			14	11	7	24	25	12	5	8	5	3	4	1		1	4	12	20	19
Business Law	6	1	2	6	4	1	4		1	3			5	1	2	13	8	6	4	3	2	3					1	8	3	3
Bus.Mathematics	7	2	10	10	13	6	2	3	1	1	1	2	20	4	3	22	25	25	9	6	4	6	2	1		2	3	19	8	10
Bus. Org. & Mgt.	6	6	9	9	8	11	1	2	2	1		3	9	9	5	18	28	26	4	3	5	4	2	5	4	2	2	17	17	12
Bus. Psych.	2	4	4	19	10	3	1	3	2	2	1		12	5	6	27	30	23	6	5	8	9	2	3	3		4	14	13	9
Survey of Computer Use in Bus. Mgt.		1		9	7	1	1			1			3	3	2	6	7	5	3				1		1	1	2	4	6	1
Marketing	13	11	10	10	5		3	2	3		3		6	1	3	24	27	25	5	3	5	3	2	2	2	1	1	8	5	3
Advertising	8	3		11	2	1	1	2	3		3		8	3	5	30	27	23	6	4	5	7	3	2	2		1	6	1	
Merchandising	2	3	6	10	1	3	3	2	3		2		8	2	5	26	38	45	6	1	5	5	2	1	2		1	6	1	2
Retail Selling Methods	3	5	3	7	5	2	5		3		3		4	3	2	24	41	53	4	3	3	4	3	3	3		1	4	2	
Retail Display	3	2		4	1	3	3	1	1				6	1	2	35	28	42	3		3	5	3	2			1	4		
Retail Buying	5	2	5	7	5	2		1	1				3	2	4	20	24	41	2	2	3	3	3	2	2	1	1	5	6	2
Ret.Mgt.Tech.	4	3	2	5	2	2	1		1	1	2		6	1	1	20	17	36	3	2	2	3	2	2	2		1	4	2	2
Shorthand		1	1	6	3	6		1	1	1			4	4	1	3	7		4	2	1	2	4		1	2	2	8	8	13
Legal Shorthand			1			1				1			2	2		3	2		3									2	2	2
Medical Shorthand								1					1	2				1							2	1	3	1	2	
Typewriting	9	4	4	9	10	11	3	1	2	1	3		9	7	11	19	37	4	7	2	7	5	3	3	2		5	15	19	24
Dupl. Proc.	2	1		10	7	7		2	1	1			11	5	5	15	7	1	7	1	3	4	1		2	2	2	14	17	10
Clerical Proc.	3	4	3	13	11	8	2	3	2	1	3		12	11	8	28	22	16	5	1	7	8	4	1		1	4	16	16	23
Sec. Proc.	5	4	4	11	7	9		3			4		8	8	8	8	21	12	1	4	6	6	3		1	1	4	12	14	20
Engineering & Technology																														
Auto. Mech.	37	11	20	16	9	7	2	1	2	1			1	12	4	1	14	13	25	2		1						6	8	6
Auto. Trans.	4	9	8	13	8	5		1	1				1	4		2	6	8	18									4	3	5
Auto. Engine Tune-Up	22	12	15	11	10	6	1	1	2	2			1	7	3	2	8	9	21									4	5	7
Blueprint Rdng. for Const.	7	3	4	12	10	21	2		1		2		1	4	2	4	5	6	7		1		1					5	8	5
Insp. of Structural Mtrls.	3	6	2	8	6	13	2						1	1	1	7	2	4	4		1		1		1			7	7	4
Elec. Insp.	7	6	2	8	8	7	2							6	3	6	7	3	6	2		1	2		1			12	8	1
Bldg. Const.	21	12	9	8	6	11	2				2			6	2	3	6	7	6	3	1	1					1	12	6	4
Indust. Drftg.	1		2	12	4	9	3				1		2	3	1		3	2	1	1							1	2	1	4
Elec. Drftg.	1			6	4	2	1				1			3	2		1	1		1								2	1	
Tech. Illus.			2	10	4	3				1				3	2	2	5	1	2	1								6	1	3
Elec. Comm.	1		2	10	5	3								9	1	8	3	2	1	1		1	3		1			6	2	2
Elec.Pwr.Gen. & Distribution	2		2	9	8	5								6	2	6	2	3	1			1	1		1			6	2	
Elec.-Inside Wiring(Apprenticeship)	10	6	5	5	5	5	2				2			5	3	4	3	2	1	2		2						12	1	3
Circuit Analysis	1	2	2	11	4	6	1								4	8	1	4	7	2			2					3	4	1
Elec.Ind.Appl.	1	1		11	7	5	2							2	4	6	1	1		1								2		1
Surveying	16	4	14	7	7	11	2							3	2	2	2			2								6	4	4
Desc. Geom.	1			7	4	4					1			2	1	1	1	1										4	1	1
Eng. Drawing		1	2	12	4	10	2		1		1			3	2	1	3	2	3	3								4	1	5

TABLE IX (continued)

| | | |

TABLE IX (continued)

| | | |

EMPLOYER DESIGNATED SUBJECT AREAS

In an effort to allow employers as free rein as possible in stating specific subject areas in which more training is needed, an "open-ended" section was added to the instrument. Employers were asked to state specific knowledge areas in which they believed more training is needed for employees. Responses to this question are presented in Table X. Not all of the knowledge areas have been included in the form used by the employers. In some cases, several areas were included under a common heading. In other cases, the subject area stated was too nebulous to be of much value. However, all areas stated were included separately when a doubt existed as to whether or not the area might fit under a common title.

The center column in the table shows the number of employers who stated that the employees should receive training in the specific area. This table makes no attempt to show employer scaling of the knowledge area, as did preceding tables. The last column shows the different business types represented by the number in the center column.

Diversification of business types represented by different SIC Group numbers, would seem to point to the need for wide representation on advisory committees. Students attending classes, for example, in public relations, should not be expected to find work in the field of retail sales only. If an advisory group for the development of a set of classes in public relations was composed only of retail representatives, the resulting class content would, in all probability, be far too narrow to satisfy the requirements of other types of businesses.

TABLE X

SPECIFIC SUBJECT AREAS WRITTEN IN BY RESPONDENTS
IN WHICH FURTHER EMPLOYEE TRAINING IS REQUIRED

Subject Area	Number Stating Further Training Required	SIC Groups Represented By Totals
English	6	01,40
Welding	2	01,10
Cooking	5	50,90
First Aid	10	01
Math	15	01,40,90
Mechanics	5	01,50,90
Diesel Mech.	2	01
General Farm Knowledge	15	01
Irrigation	2	01
Equipment Operators	5	20,40
Farm Equipment Operators	5	01
Equipment Maintenance	2	01
Building Maintenance & Janitorial	6	50,70,90
Personal Hygiene	4	20,50
Farm Management	3	01
Public Relations	5	10,40,50,60,70, 80,90
Geology	3	10,90
Budget Preparations	4	90
Public Speaking	3	40,50
Radio Operator	2	90
General Liberal Arts	5	50,90
Filing	1	90
Bookkeeper	2	20,90
Meteorology	3	40,90
Refrigeration	1	50
Printing	1	10
Dental Hygiene	1	90
Homemaking Skills	1	90
Cable Tool Drilling	1	10
Book Selection	1	90
Library Techniques	1	90
Wildlife Management	1	90
Pilot Training	1	90
Recreation	1	90
Land Appraisal	1	90
Desk Calculator	1	90
Wholesale Business	1	70
Documentation	1	90
Creative Writing	1	40
Pharmacy	2	50
Retail Cosmetics	3	50
Concrete Procedures	1	10
Basic Hydraulics	2	10,50
Basic Pneumatics	1	50
Electronics	1	10
Driver Training	1	20
Spanish Language	1	70
General Hydraulics	2	01
Foreign Language	2	01
Personnel Management	1	20
Basic Commercial Driving	1	40
Open-Pit Mining Techniques	1	10
Public Land Management	1	90
Construction Contract Administration	1	90
Statistical Analysis	1	90
Experimental Design	1	90
Qualitative Analysis	1	90
Organic Chemistry	1	90
Traffic Law	1	90

Employer Attitude

One section of the instrument included several general questions aimed at determining the attitude of employers toward vocationally trained individuals and toward vocational classes. Employer responses to these questions are provided in Table XI. The numbers appearing under the "conditionally positive" heading were added to provide a broader picture of the response. In the case of question 4, the center column shows that 48 employers would pay partial tuition. In questions 6 and 7, the column shows the number of employers that believed the agencies under consideration had partially prepared graduates.

TABLE XI

General Employer Attitude

Question	Response		
	Positive	Conditionally Positive	Negative
1. Willing to accept qualified graduates from vocational-technical schools or classes who lack work experience.	219		104
2. Willing to participate in Cooperative Education Program	236		77
3. Inform employees of educational opportunities which will improve job skills	200		129
4. Pay employee tuition for up-grading classes	40	48	242
5. Conducted or had conducted employee training courses since 1961	98		228
6. Believe high schools have adequately prepared graduates for job entry	79	117	126
7. Believe community colleges have adequately prepared graduates for job entry	81	78	75

INCREASED TRAINING NEEDS

Tables XII and XIII show the responses given by employers to the question: Which occupational categories require increased on-the-job training and which require increased formal vocational training? It is of interest to compare the occupational categories in these tables with the subject areas in which specific training is required for these categories by the same business type in Tables VIII and IX. A combination of different types of training might enable one person to fill two jobs.

TABLE XII
Occupational Categories Requiring the Most
On-The-Job Training

SIC Group	Prof., Tech.& Mgt.	Sales & Cler.	Serv. & Muni.	Farm., For., Etc.	Proc.	Mech. Trades	Bench Work	Struc. Work	Misc.
Agri.,For. & Fisheries	2	4	1	41		4			1
Mining & Contract Const.	6		1		1	4		8	2
Mfg.	1	1							2
Mfg. (cont.)	1	1				1			
Trans.,Comm., Elec.Gas, & San.Serv.	4	4	1		1			1	4
Whlsle. & Ret. Trade	6	28	10	3	1	7	1	2	4
Fin. Ins., & Real Estate	2	4							
Services		2	1						1
Serv.(cont.)	1	2							
Gov't.	8	12	7				1	2	3

TABLE XIII

Occupational Category Requiring the Most Formal Vocational School Training

SIC Group	Prof., Tech.& Mgt.	Sales & Cler.	Serv. & Muni.	Farm., For., Etc.	Proc.	Mech. Trades	Bench Work	Struc. Work	Misc.
Agri.,For.& Fisheries	2	2	1	25		17			
Mining & Contract Const.	3	1	1		1	5		5	2
Mfg.		3				2			1
Mfg.(cont.)						2		1	
Trans.,Comm., Elec.Gas, & San.Serv.	6	4	1						2
Whlsle. & Ret. Trade	2	21	1	3		5	1	2	1
Fin. Ins., & Real Estate	2	3							
Services	1	1	1						
Serv.(cont.)		1							
Gov't.	10	3	4	1		2		1	1

Total number of employers who marked specific category as that requiring most formal vocational school training.

Difficult to Fill Occupations

Employers were asked to state the specific job titles for which they had the most difficulty in hiring. Their responses follow in Table XIV. The specific job title is provided for each Industrial Classification Group along with the number of business units which found this job title the most difficult to fill. The total number of business units reporting a job title as the most difficult to fill is given in the righthand column. As might be expected, the "laborer" and "salesman" titles account for the greatest number of responses. This is, no doubt, due to the itinerant aspects of the former title and the general expansion of the latter.

Rather than concentrating on these totals, it is of greater interest to examine the numbers under each SIC Group number. This examination would tend to point out the fact that the broad range of job titles for each group might be due to a tendency on the part of employers to overly categorize employee duties. In other words, diversified activities represented by specific job titles, under the wholesale and retail trade group (50) might be combined in one job. For example, it might be possible for one employee to carry out sales duties at the same time that he is handling some administrative duties. This same sort of combination of duties or activities might be possible in many other areas if such composition-jobs could be isolated, examined, and curricula designed to train for them.

TABLE XIV

Number of Business Units, By SIC Groups, Who
Had Difficulty Filling Specific Job Titles

Job Title	Standard Industrial Classification Group 00	10	20	30	40	50	60	70	80	90	Total
Equip. Oper.	11	1								2	14
Clerical			1		4					4	9
Salesman			1		1	15	4	4	1	1	28
Laborer	57	3				5					65
Manager	2		1		1	2	3			1	10
Foreman		1		1							2
Plumber		3		2						1	6
Forestry Technician		2								1	3
Machinist		2				5					7
Electrician		3		2							5
Irrigator	3										3
Sheep Shearer	4										4
Driller's Helper		2									2
Painter		2									2
Sheet Metal Worker		2									2
Carpenter		2									2
Truck Driver			3								3
Printer			3								3
Electric Linemen					1						1
Radio Technician					1						1
Gas Station Attendant					1						1
Accountant						3					3
Farm Produce Processor						3					3
Cook-Baker						7					7
Meat Cutter						5					5
Appliance Serviceman						3					3
Pharmacist						3					3
Diesel Mech.						2					2
Waitress						4					4
Real Estate Salesman							1				1
Bartender								1			1
Nurses Aid									7		7
Recreation Technician										2	2
Teacher's Aid										2	2
Policeman										4	4
Surveyor										1	1

TABLE XIV (continued)

Job Title	Standard Industrial Classification Group 00	10	20	30	40	50	60	70	80	90	Total
Mechanic	3		1							1	5
Meterologist										1	1
Engineer's Assistant										2	2
Laboratory Assistant										1	1
Game Warden										2	2

SECTION VIII

CONCLUSIONS AND RECOMMENDATIONS

Specific conclusions to be drawn from the data might best be presented in the order in which they apply to the project's stated objectives. These objectives were stated as follows:

1. Study the projected employment trends for the county's business and industry as viewed by the owners and managers of the business and industry.
2. Reveal the occupational categories in the county in which there is now, or is likely to be in the future, either a shortage or a surplus of workers.
3. Determine employer desired course content for different occupational categories.
4. Determine the educational requirements for those occupational categories and specific job titles in which there is difficulty in hiring.
5. Aid in the design of courses and curricula which meet the educational needs of potential employees in the Fremont County area.

In relation to the first objective it can be concluded that the number of jobs in the county will be fairly constant with a high degree of turnover in personnel for each job. This personnel turnover seems to be particularly high in the "Clerical and Sales", "Service and Municipal", and "Bench Work" occupations. This conclusion is supported if one examines Table XIV on Page 44 which shows 27 "Wholesale and Retail Trade" units stating that the jobs of "salesmen", "cook-baker" and

"meat cutter" are the most difficult to fill. Each of these job titles might fit into the "Clerical and Sales" occupation. The same table shows 7 "Service" type units stating that the job of "Nurse's Aid", which would fit into the "Service and Municipal" category, is the most difficult to fill.

The data presented in Tables V and XIV would seem to support the conclusion that due to personnel turnover there will be a steady shortage of employable persons in all the occupational categories except "Machine Trades" and "Processing" that are presented on Page 21. Shortages in certain categories such as "Clerical and Sales", "Service and Municipal" and "Structural" occupations, are emphasized by an examination of employer specified "Hard to Fill Jobs" on Page 44.

General as well as specific conclusions can be drawn from the data concerned with the third objective. In general, it can be concluded that classes designed to provide understanding in a specific subject area should not be presented from a subject-centered orientation. This conclusion is supported by an examination of Tables VII, VIII, and IX, Pages 26, 32, and 35 respectively. Table VII shows, for example, that 94 business units believe that a thorough understanding is needed in Accounting. Table VIII shows that 4 of these units believe that "Professional, Technical, and Management" personnel should have a thorough knowledge in the field, 40 believe that "Clerical and Sales" personnel should have a thorough knowledge in this subject, and 6 each believe that personnel in the "Farming, Fishery, Forestry, and Related", and the "Processing" occupations should have a thorough understanding in the subject. Finally, Table XI shows that every type of business considered believed that their personnel should have a thorough understanding

of Accounting, e.g., 16 "Agriculture, Forestry and Fishing", 6 "Mining and Contract Construction", etc.

After tracing only one subject area through, one can see that Accounting is required for many different occupations (Table VIII) and in many different types of business (Table IX). The application of accounting principles is probably just as diversified as the need. Therefore, one can conclude that Accounting, per se, would not meet the needs of all employees.

More specifically, it can be concluded that there is a specific need for five curricula. These are determined through the examination of Tables IV, V, XIV, XII and XIII to ascertain the degree of employee turnover, the jobs which seem hardest to fill, and the jobs which employers feel require the most training. Once specific occupations show up in all tables, it is possible to examine Tables VI, VII, VIII, and X to determine course content for training programs in the previously determined occupations. Following this process, one can conclude that a definite need exists for the following courses: (1) Accounting, (2) Stenography, (3) Nursing, (4) Distribution, and (5) Agriculture Sales and Service.

Conclusions concerning the fourth objective would be simply a reiteration of the conclusions above. Data collected for the achievement of the objective is contained in Table XIV, where it might be noted in support of a previously drawn conclusion that 4 "Government" units and 4 "Transportation, Communication, Electricity, Gas and Sanitary Service" units had difficulty keeping clerical help. Table IX shows that 3 "Transportation, Communication, Electricity, Gas and Sanitary Service" units believed that clerical personnel should have a thorough knowledge of business mathematics

while 10 government units believed that mathematics should be emphasized. While this is an extreme example, it serves to support the conclusion that training must be job-oriented if it is to be useful.

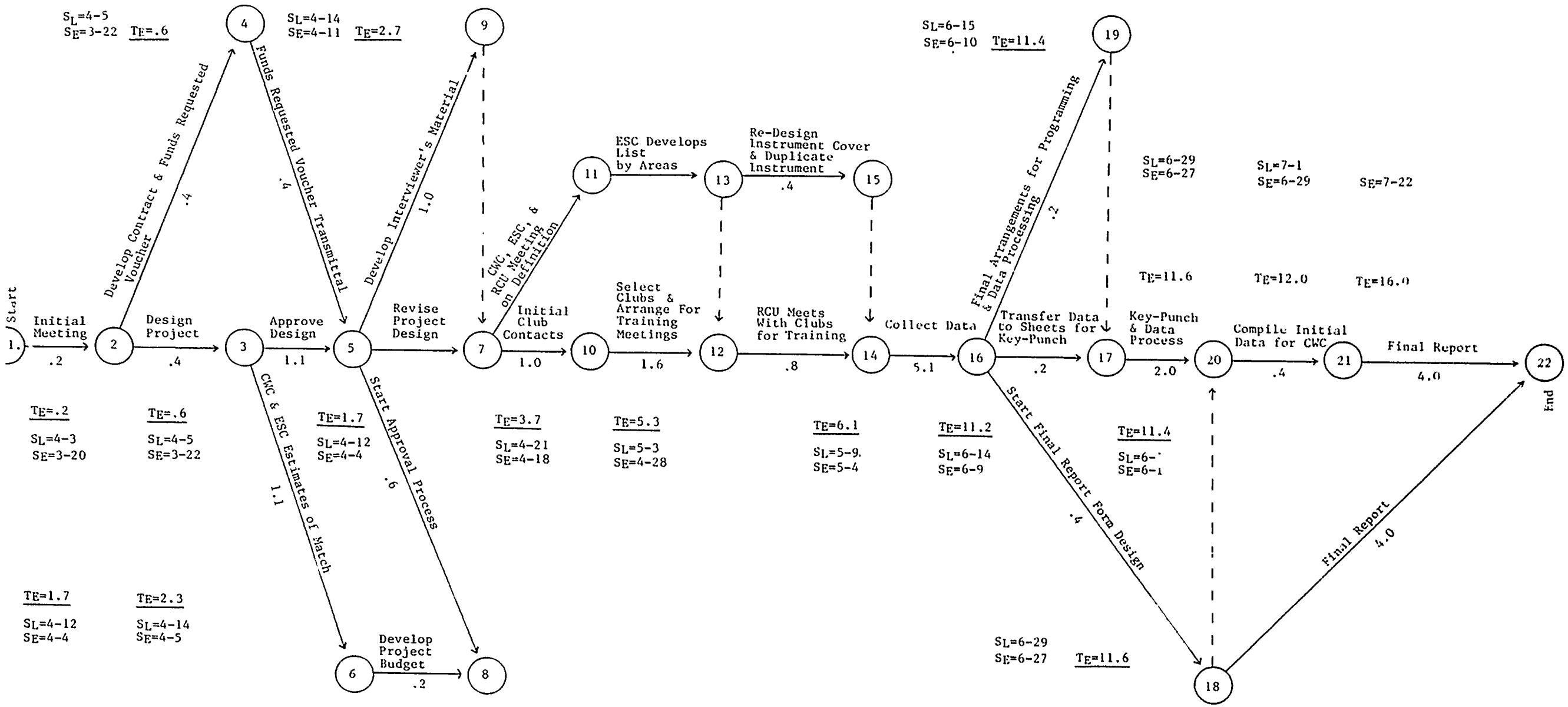
The final objective of the study is, we believe, met by the completion of the study itself. It should be perusal of the data contained in this final report by members of advisory committees, composed of community representatives that curricula are designed.

In reading the following recommendations, one should keep in mind that this project examined only the opinions of the county's businessmen and did not examine such factors as student needs and interests. With this in mind, we can make the following recommendations:

1. The college should concentrate on developing combinations of subject areas that might traditionally have been separate. These combinations should be in such areas as Agriculture Sales and Automotive Mechanics or Management and Accounting.
2. The college should utilize intra-occupational and intra-business advisory groups for the development of the content for courses designed to train for "composite jobs".
3. The college should, since it is in its initial stages, concentrate on courses in which obvious need exists. These areas might be Accounting, Stenography, Nursing, and Distributive Occupations (Merchandising of Goods and Service).
4. The college should develop an on-going system of data collection which will serve to keep it informed of changes in the configurations of employer needs in the service area. It should also develop a system of follow-up of graduating students in order to keep informed of needs that are evident in the areas to which students migrate.

APPENDIX A

PERT Network Developed for
Project Design and Control


Start
1.
Initial Meeting
.2
2
Design Project
.4
3
Approve Design
1.1
5
Revise Project Design
7
Initial Club Contacts
1.0
10
Select Clubs & Arrange For Training Meetings
1.6
12
RCU Meets With Clubs for Training
.8
14
Collect Data
5.1
16
Transfer Data to Sheets for Key-Punch
.2
17
Key-Punch & Data Process
2.0
20
Compile Initial Data for CWC
.4
21
Final Report
4.0
22
End
Develop Contract & Funds Requested Voucher
.4
4
Funds Requested Voucher Transmittal
.4
Develop Interviewer's Material
1.0
9
CWC, ESC, & RCU Meeting on Definition
11
ESC Develops List by Areas
13
Re-Design Instrument Cover & Duplicate Instrument
.4
15
Final Arrangements for Programming & Data Processing
.2
19
CWC & ESC Estimates of Match
1.1
Start Approval Process
.6
Develop Project Budget
.2
6
8
Start Final Report Form Design
.4
Final Report
4.0
18
SL=4-5
SE=3-22
TE=.6
SL=4-14
SE=4-11
TE=2.7
SL=6-15
SE=6-10
TE=11.4
SL=6-29
SE=6-27
TE=11.6
SL=7-1
SE=6-29
SE=7-22
TE=16.0
TE=.2
SL=4-3
SE=3-20
TE=.6
SL=4-5
SE=3-22
TE=1.7
SL=4-12
SE=4-4
TE=3.7
SL=4-21
SE=4-18
TE=5.3
SL=5-3
SE=4-28
TE=6.1
SL=5-9
SE=5-4
TE=11.2
SL=6-14
SE=6-9
TE=11.4
SL=6-
SE=6-1
TE=1.7
SL=4-12
SE=4-4
TE=2.3
SL=4-14
SE=4-5
SL=6-29
SE=6-27
TE=11.6

APPENDIX B

Page B-1 . . . . . Material Used in Interviewer Training Activities

Page B-9 . . . . . Definition of Occupational Categories

Page B-11. . . . . Survey Instrument

RESEARCH COORDINATING UNIT

Vocational-Technical Division

State Department of Education

FREMONT COUNTY SURVEY OF VOCATIONAL-TECHNICAL EDUCATION NEEDS IN BUSINESS AND INDUSTRY

INTERVIEWER'S INFORMATION

Interviewer: _____

Business	Mon.	Tues.	Wed.	Thurs.	Fri.
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

GENERAL INFORMATION

The following information might be of help to you in answering any questions raised by interviewees.

Project Objectives:

1. Study the projected employment trends in Fremont County.
2. Determine employer desired course content for employee preparation.
3. Aid in the design of course and curricula content for vocational-technical programs at Central Wyoming College.

Participating Agencies:

Central Wyoming College
Employment Security Commission of Wyoming
Wyoming Research Coordinating Unit
in Vocational-Technical Education

Project Costs:

State Funds	$1,500	(Research Coordinating Unit)
Local Funds	800	(Central Wyoming College)
Total	$2,300	

Limitations of the Population:

1. All businesses employing three individuals whose duties are of such a nature as to require a minimum of either six months experience or formal training. Positions can also be counted if they are defined as preparatory positions if the individual is required to hold this position for a minimum of six months.
2. All businesses located within the geographic boundaries of Fremont County which meet 1. above.

PART I

Part I of the instrument is designed to generate data in three areas: (1) the types of occupations the businessman has at present in his establishment, the types of occupations he estimates he will have in his establishment up to 1970, and estimates of the occupations for which he will have to find replacement personnel by 1969, (2) the specific kinds of training desired by the employer, (3) attitudinal information.

Conditions a-e:

These five conditions have been placed on the businessman in an effort to reduce error and hold results constant. In other words, we want to prevent the individual businessman from introducing his personal bias and interpretation of the present economic situation into the results.

Question #1:

This question is designed to provide information on the employer's estimates of present and future employees within the nine occupational categories.

a. Give the interviewee the occupation category cards. Explain definitions if he finds them unclear.
b. Ask him to fill in the number of his employees whose duties would place them in one of the nine occupational categories. If an employee has duties which might tend to categorize him in two or more occupations as the employer to put him in the category in which he does the majority of his work.
c. "Currently Employed" means those he employs in each category now. "Employed as of 1962" means those in each category he has employed since 1962. "Estimate as of 1968" means the number in each category he will have to add to his present during 1967. "Estimate as of 1970" means the number in each category he will add by 1970. "Estimated Replacement as of 1969" means the number of employees in each category he will have to replace by 1969. This is his estimate of those he will have to replace after he adds them. If he estimates that he will add five men in the clerical and sales category by 1968, this last question asks him how many of these he will have to replace.

Question #2:

This question is designed to generate data on how the employer would like to have employees trained for specific occupational categories. For example, this employer has 2 men that would fall in the "Clerical and Sales" category, the question then is in which of the following subject areas does the employer believe these two employees should have some degree of knowledge.

a. Explain the general idea of the question to his satisfaction.
b. Explain the "Blank"-4 scaling system to his satisfaction. He leaves the square blank if the employee in the occupational category under consideration needs no understanding in the subject area or marks 4 in the square if the employee needs thorough understanding in the subject area. One to three are the degree of understanding required in between.

c. Consult his responses to question #1, have him fill out blue pages for each category in which he has marked employees, whether he has marked them as presently employed or to be employed.
   NOTE: Be sure that you have marked each blue packet with: (1) D.O.T. Division No., (2) Community No., (3) Business No., and the Occupational Category No., which is marked on the cards.
d. Be sure and inform him that he is free to write in any subject areas not covered in the list, space is provided on the last page in the blue packets.

The remaining questions are reasonably self-explanatory, but the following might aid you in answering any questions which arise.

Question #3:

"The term vocational education means vocational or technical training or retraining which is given in schools or classes (including field or laboratory incidental thereto) under public supervision and control or under contract with a state board or local educational agency, and is conducted as part of a program designed to fit individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations."

Question #9:

"Cooperative Education Program" in this question means an educational program in which an agreement between a school and a business allows the student to attend classes half-day and work in the business, at a job for which he is preparing in class, at the minimum hourly wage.

PART II

This part is concerned mainly with determining the educational requirements for jobs which the employer feels will change in the future.

Question #1:

This question is concerned with only three of the Occupational Categories. We want to find out how, if the employer foresees changes in his business process, these changes will effect the number of employees in Categories 1, 2, and 3.

For example, the employer might believe that he will be hiring more "professional and technical workers", the question then would be why? He might answer because of increased automation.

Question #2:

Here we are concerned with the employer's opinion as to which jobs require the most training: first by himself in an on-the-job type situation and second by some training institution before the individual is employed by him.

Question #4:

This question should be answered in terms of years of school.

INTERVIEWER'S CHECKLIST

Be sure to:

1. Study all questions until you know what they mean and are familiar enough with them so you can really ask the questions instead of blindly reading them.

2. Re-read your instructions between interviews - you may pick up points you missed before or correct errors you have begun to make.

Your attitude should be:

1. NEUTRAL

As an interviewer, you merely soak up information like a sponge without giving any of it back. Your job is to record that information, regardless whether you think it good, bad, indifferent, boring, or exciting.

Don't - by word, action, or gesture - indicate surprise, pleasure, or disapproval at any answer. Even a slight grimace or gasp will cue a respondent that you have reacted to his answer.

Don't attempt to influence responses in any way. The truth is all that really counts - what the person really thinks or feels about the subject.
Thus:

a. Never suggest an answer. And don't give your own opinions. This is a survey of respondents' feelings, not yours.
b. For the same reason - so the response will not be influenced in any way - you must ask the questions exactly as they are worded and in the same order every time. Each interview must be done the same way, to assure uniform and reliable results.

2. IMPARTIAL

Whatever you may think of an individual or his opinion, keep it to yourself. Each interview you are asked to get, and therefore each person you speak to, is equally important.

You should be adaptable to anyone and gracious to all. Each person you approach poses different problems requiring different techniques. The important thing is to inspire the confidence of every respondent regardless of sex, age, residence, income, political affiliation or whatever.

3. CASUAL

You are not a spy out on a secret mission. If you pursue your assignment too earnestly, too grimly, the respondent is forced to the defensive. He won't tell you what he honestly thinks.

You are not subjecting the individual to the third degree. This is not in any sense a quiz or intelligence test. He'll tell nothing if he thinks you're watching for errors or conducting an examination. Don't make him think it's a matter of life and death. Take it easy. Approach the interview pleasurably and let the respondent enjoy it, too. Assume that he wants to express his opinion and wants to be interviewed. You merely are giving him the chance to express himself on matters that may be important to him.

4. CONVERSATIONAL

Use an informal manner of speaking, natural to you, and aimed at putting the individual at ease. Know the questions so well that you never sound as though you're reading them formally.

Although you are conversational, never lose control of the interview. From the moment the correct respondent appears at the door, talk him through the introduction and right into the body of the questionnaire before he reacts negatively.

Be ready with stock answers (see Stock Answers) to handle interruptions or objections. Give these answers in an offhand tone of voice as though you've heard the objection a hundred times, and proceed with the questions.

5. FRIENDLY

A major objective is to put the respondent at ease. If he isn't relaxed, you can't make him talk. The burden of ignorance has to be lifted from the respondent's shoulders - that is, he must not be made to feel ashamed of his lack of information. Your attitude, therefore, must be sympathetic and understanding. Emphasize that there are no correct answers. Rather, he must be made to realize that what he thinks really is what counts.

If the respondent is forced to answer, "I don't know," to a series of information questions, he may become embarrassed and start grasping for any other answers. Good question wording will provide alternatives like "...or haven't you had a chance to read about that?" A sympathetic interviewer will make these alternatives seem like natural parts of the question instead of making them sound like, "You don't know that either?" or something equally demoralizing.

If the respondent objects to a question, you are allowed to side with him only to the extent that you say with a smile, "I don't know why, but that's the way my office has the question worded."

Remember: the object of the survey is to get the honest, uninfluenced opinion of each individual interviewed. You are merely the medium through which the opinion is conveyed. Nothing of you should be in the interview results.

STOCK ANSWERS TO RESPONDENTS

WHAT YOU SHOULD SAY . . .

1. IF RESPONDENT ASKS: "Who is doing this survey?"
"This survey is being conducted by Central Wyoming College, Employment Security Commission, and Research Coordinating Unit. We are trying to get some idea about what people think about current issues in Fremont County."

2. IF RESPONDENT PRESSES FOR A BETTER ANSWER ON AUSPICES:
"Well . . . I'm a professional interviewer. The people in charge of this survey are at the Research Division at Central Wyoming College. They'd be glad to explain the survey to you. Would you like their phone number so you could call them?" (If "Yes", give trouble number.)

3. IF RESPONDENT WONDERS WHY HE IS BEING INTERVIEWED, OR SUGGESTS INTERVIEWING SOMEONE ELSE:
"You were selected completely by chance according to procedures worked out by my office. So your opinions are important and interviewing someone else wouldn't be as good."

4. IF RESPONDENT SAYS HE DOESN'T HAVE TIME TO BE INTERVIEWED:
"The questions won't take long. You can go right on with your work and I'll just run through these items." (Begin questioning immediately.)

5. IF RESPONDENT INSISTS HE IS TOO BUSY:
"What would be a better time soon for me to come back? I'll note down an appointment that would be more convenient for you."

6. IF RESPONDENT SAYS HE DOESN'T KNOW ENOUGH TO GIVE GOOD ANSWERS:
"In this survey, it's not what you know that counts. Rather, it's what you happen to think about various topics that is important."

7. IF RESPONDENT IS AFRAID TO ANSWER SOME QUESTION OR ASKS: "What are you going to do with these answers?" or "Why do you want to know that?"
"Well . . . many people are being asked these same questions, of course, and what you say is confidential. We are interested in these questions only to see what a lot of people in Fremont County generally are thinking about."

8. IF RESPONDENT RESENTS QUESTIONS THAT TALK DOWN TO HIM:
"The people in my office made up these questions, and we are instructed to read each one just as it is written."

9. IF RESPONDENT IS ANNOYED AND JUST PLAIN REFUSES TO ANSWER A QUESTION:
"Of course, you don't have to answer any question you'd prefer not to. I'm only trying to get your opinion because our study is more accurate that way." Then if respondent still refuses, don't comment, just go on quickly to the next question. Mark the item "Refused".

OCCUPATIONAL CATEGORIES

Occupational Category (#1)

Professional, Technical, and Managerial Occupations

This category includes occupations concerned with the theoretical or practical aspects of such fields of human endeavor as art, science, engineering, education, medicine, law, business relations, and administrative, managerial, and technical work. Most of these occupations require substantial educational preparation (usually at the university, junior college, or technical institute level.).

Occupational Category (#2)

Clerical and Sales Occupations

This category includes occupations concerned with preparing, transcribing, transferring, systematizing, and preserving written communications and records; collecting accounts; distributing information, and influencing customers in favor of a commodity or service. Includes occupations closely identified with sales transactions even though they do not involve actual participation.

Occupational Category (#3)

Service and Municipal Occupations

This category includes occupations concerned with performing tasks in and around private households; serving individuals in institutions and in commercial and other establishments; and protecting the public against crime, fire, accidents, and acts of war.

Occupational Category (#4)

Farming, Fishery, Forestry, and Related Occupations

This category includes occupations concerned with growing, harvesting, catching, and gathering land and aquatic plant and animal life and the products thereof; and occupations concerned with providing services in support of these activities.

Occupational Category (#5)

Processing Occupations

This category includes occupations concerned with refining, mixing, compounding, chemically treating, heat treating, or similarly working materials and products. Knowledge of a process and adherence to formulas or other specifications are required in some degree. Vats, stills, ovens, furnaces, mixing machines, crushers, grinders, and related equipment or machines are usually involved.

Occupational Category (#6)

Machine Trades Occupations

This category includes occupations concerned with feeding, tending, operating, controlling, and setting up machines to cut, bore, mill, abrade, print, and similarly work such materials as metal, paper, wood, and stone, Throughout this category, the overall relationship of the worker to the machine is of prime importance. At the more complex levels, the important aspects of the work include understanding machine functions, reading blueprints, making mathematical computations, and exercising judgment to attain conformance to specifications. Coordination of the eyes and hands is the most significant factor at the lower levels. Disassembly, repair, reassembly, installation, and maintenance of machines and mechanical equipment, and weaving, knitting, spinning, and similarly working textiles are included in this category.

Occupational Category (#7)

Bench Work Occupations

This category includes occupations concerned with the use of body members, handtools, and bench machines to fit, grind, carve, mold, paint, sew, assemble, inspect, repair, and similarly work relatively small objects and materials, such as jewelry, phonographs, light bulbs, musical instruments, tires, footwear, pottery, and garments. The work is usually performed at a set position in a mill, plant, or shop, at a bench, work table, or conveyor. At the more complex levels, workers frequently read blueprints, follow patterns, use a variety of handtools, and assume responsibility for meeting standards. Workers at the less complex levels are required to follow standardized procedures.

Occupational Category (#8)

Structural Work Occupations

This category includes occupations concerned with fabricating, erecting, installing, paving, painting, repairing, and similarly working structures or structural parts, such as bridges, buildings, roads, motor vehicles, cables, airplane engines, girders, plates, and frames. The work generally occurs outside a factory or shop environment, except for factory production line occupations. Tools used are hand or portable power tools, and such materials as wood, metal, concrete, glass, and clay are involved. Workers are frequently required to have a knowledge of materials with which they work, e.g., stresses, strains, durability, and resistance to weather.

Occupational Category (#9)

Miscellaneous Occupations

This category includes occupations concerned with transportation services; packaging and warehousing; utilities; amusement, recreation, and motion picture services; mining and logging; graphic arts; and various miscellaneous activities.

RESEARCH COORDINATING UNIT

Vocational-Technical Division

State Department of Education

FREMONT COUNTY SURVEY

OF

VOCATIONAL-TECHNICAL EDUCATION NEEDS

IN BUSINESS AND INDUSTRY

Identification	
Industrial Classification No.	☐☐☐
Community No.	☐☐
Business No.	☐☐☐☐

Wyoming Employment Security Service
422 E. Fremont Street
Riverton, Wyoming 82501

Central Wyoming College
P. O. Box 508
Riverton, Wyoming 82501

Wyoming Research Coordinating Unit
Vocational-Technical Division
State Department of Education
Capitol Building
Cheyenne, Wyoming 82001

To The Employer:

The Research Coordinating Unit of the State Department of Education, in cooperation with Central Wyoming College and Employment Security Commission, ask you to fill out the following survey interview schedule. Data from this survey will be used by Central Wyoming College to better serve the residents of Fremont County in the field of Vocational-Technical Education. It will be used by the Employment Security Commission in its work in Fremont County. All data is confidential and will be used for statistical analysis, your organization will not be identified in the subsequently published report.

PART I

Instructions for Preparing Part I of the Schedule

For the purpose of this survey, please assume the following conditions when furnishing the requested information.

a. Qualified workers will be available to meet any anticipated employment needs.

b. The present long-term trend of economic growth of the United States will continue with no major setbacks for the next few years.

c. Scientific and technological advances will continue, affecting production and service methods, manpower requirements, and consumption patterns.

d. The present day, normal workweek will continue through the forecast period.

e. Your current plans for expansion or modernization will materialize according to schedule.

1. Types of Employee Occupations in Ycur Establishment:

How many employees do you have currently employed; do you estimate will be employed; and will you have to replace in the general occupation divisions listed on the following pages?

OCCUPATIONS

Number of Employees:	Professional Technical, & Managerial	Clerical & Sales	Farming, Fishery, Forestry, & Related	Service	Processing	Machine Trades	Bench Work	Structural Work	Miscellaneous
Currently Employed									
Employed as of 1962									
Estimate as of 1968									
Estimate as of 1970									
Estimated Replacement as of 1968									

2. Types of Employee Training Required:

To what extent are understandings in the following areas used by employees in the occupational categories (page 3) within your operation?

NOTE: If you have "Professional, Technical and Managerial" personnel "currently employed" (page 3) go through the following list and tell the interviewer the degree to mark for each area. Do the same for the other eight occupational categories if you have employees within any of them.

The interviewer will mark:

Blank - No understanding needed by employees in this category.
1 - Little understanding needed by employees in this category.
2 - Some understanding needed by employees in this category.
3 - A great deal of understanding is needed.
4 - Thorough understanding is needed.

SUBJECT AREAS

Business

Accounting	☐	Business Psychology	☐
Automated Accounting	☐	Survey of Computer Use in Business Management	☐
Federal Tax Accounting	☐	Marketing	☐
Business Law	☐	Advertising	☐
Mathematical Analysis For Business	☐	Merchandising	☐
Office Machines	☐	Retail Selling Methods	☐
Business Economics	☐	Retail Display	☐
Business English	☐	Retail Buying	☐
Business Law	☐	Retail Management Techniques	☐
Business Mathematics	☐	Shorthand	☐
Business Organization And Management	☐	Legal Shorthand	☐

Business (cont.)

- [ ] Medical Shorthand
- [ ] Typewriting
- [ ] Duplicating Processes
- [ ] Clerical Procedures
- [ ] Secretarial Procedures
- [ ] Other
- [ ] Other
- [ ] Other

Engineering & Technology

- [ ] Automobile Mechanics
- [ ] Automatic Transmissions
- [ ] Automotive Engine Tune-Up
- [ ] Blueprint Reading For Construction
- [ ] Inspection of Structural Materials
- [ ] Electrical Inspection
- [ ] Building Construction
- [ ] Industrial Drafting
- [ ] Electronic Drafting
- [ ] Technical Illustration
- [ ] Electrical Communications
- [ ] Electrical Power Generation And Distribution
- [ ] Electricity - Inside Wiring (Apprenticeship)
- [ ] Circuit Analysis
- [ ] Electronic Industrial Applications
- [ ] Surveying
- [ ] Descriptive Geometry
- [ ] Engineering Drawing
- [ ] Fire Protection
- [ ] Fire Suppression
- [ ] Fire Fighting Tactics And Strategy
- [ ] Hazardous Materials
- [ ] Fire Protection Equipment And Systems
- [ ] Related Codes and Ordinances
- [ ] Fire Apparatus and Equipment
- [ ] Fire Company Organization And Procedure
- [ ] Fire Investigation
- [ ] Instrumentation Fundamentals
- [ ] Pressure and Temperature Measurement Instrumentation

Engineering & Technology (cont.)

- [ ] Flow and Analysis Measurement Instr.
- [ ] Recording and Controlling Instr.
- [ ] Machine Shop Practice
- [ ] Machine Shop Blueprint Reading
- [ ] Metalworking Fundamentals
- [ ] Metrology
- [ ] Metal Processes
- [ ] Gas Welding Processes
- [ ] Metallic Arc Welding
- [ ] Metallurgy
- [ ] Introduction to Law Enforcement
- [ ] Criminal Law
- [ ] Criminal Evidence
- [ ] Administration of Justice
- [ ] Traffic Control
- [ ] Patrol Procedures
- [ ] Juvenile Control
- [ ] Science of Fingerprints
- [ ] Law Enforcement Supervision
- [ ] Graphic Reproduction Fundamentals
- [ ] Copy Preparation
- [ ] Letterpress
- [ ] Pressmanship
- [ ] Lithography
- [ ] Photo Lithography
- [ ] Estimating for Lithographic Printing
- [ ] Printing - Graphics Salesmanship
- [ ] Commercial Lettering
- [ ] Forest Engineering
- [ ] Surveying Computations
- [ ] Map Drafting Techniques
- [ ] Surveying Field Work
- [ ] Land Subdivisions
- [ ] Technical Physics
- [ ] Technical Calculations
- [ ] Drafting Calculations
- [ ] Slide Rule
- [ ] Technical Reports

Engineering & Technology (cont.)

- Other ☐
- Other ☐
- Other ☐

Cosmetology

- Cosmetology Theory And Laboratory ☐
- Related Theory and Laboratory ☐
- Other ☐
- Other ☐
- Other ☐

Dental Assisting

- Related Dental Science ☐
- Dental Assisting Fundamentals ☐
- Dental Laboratory Techniques ☐
- Chairside Techniques ☐
- Office Procedures ☐
- Other ☐
- Other ☐
- Other ☐

Medical Assisting

- Medical Assisting Orientation ☐
- Related Medical Science ☐
- Medical Terminology ☐
- Secretarial Procedures ☐
- Medical Office Procedures ☐
- Assisting Techniques ☐
- Other ☐
- Other ☐
- Other ☐

Mathematics

- Algebra and Trigonometry For Technicians ☐
- College Algebra and Trigonometry ☐
- Slide Rule and Desk Calculators ☐
- Analytic Geometry and Calculus ☐
- Calculus and Engineering Mathematics ☐
- Coding for Digital Computers ☐
- Elementary Statistics ☐
- Other ☐
- Other ☐

Nursing

Fundamentals of Nursing ☐

Obstetric Nursing ☐

Nursing Trends ☐

Vocational Nursing ☐

Nursing Physiology ☐

Other ☐

Other ☐

Other ☐

Physical Sciences

General Chemistry ☐

Quantitative Analysis ☐

Engineering Physics ☐

Other ☐

Other ☐

Other ☐

General

_____ ☐

_____ ☐

_____ ☐

_____ ☐

_____ ☐

3. Would you accept qualified graduates from Vocational-Technical Schools or Classes without actual work experience to fill vacancies in skilled positions? . . . . . ☐

Write: 1 for yes
2 for no

4. Do you now pay the tuition of employees who take training to upgrade their job skills? . . . . . ☐

Write: 1 for yes, in full
2 for yes, in part
3 for no

5. Do you inform your employees of educational opportunities they might take to improve their job skills? . . . . . ☐

Write: 1 for yes
2 for no

6. Have the high schools adequately prepared their graduates for entry employment with your firm? . . . . . ☐

Write: 1 for yes, adequately
2 for yes, but only partially
3 for no

7. Have the junior (community) colleges adequately prepared their graduates for entry employment with your firm? . . . . . ☐

Write: 1 for yes, adequately
2 for yes, but only partially
3 for no

8. If you think occupational education and training in the Fremont County area needs improvement, which of the following would you support? (Check all that apply.) . . . . . ☐

Write: 1 for substantial expansion of vocational education programs in the existing high schools.
2 for creation of an area vocational school for secondary (high school) occupational training.
3 for expansion of community college offerings in occupational education.

9. Would you participate in a cooperative education program for skilled occupations within your business? . . . . . ☐

Write: 1 for yes
2 for no

10. Have you conducted (or had conducted by an outside agency) any employee training courses since 1961? . . . . . ☐

Write: 1 for yes
2 for no

If yes, list: _____

_____

_____

_____

PART II

In addition to the information you have provided on Part I of this interview schedule, you are requested to supply the following information which will be helpful in analyzing the future occupational needs of the Fremont County area.

1. If you foresee changes in types of occupations, and the proportions these occupations are of total employment, please discuss below how changes in your business processes will influence the proportion of: (a) professional and technical workers, (b) clerical and sales workers, and (c) service workers.

_____

_____

_____

_____

_____

2. Please list below the occupations for which your experience indicates training is most needed to provide better qualified workers.

In your establishment (on-the-job training)

_____

_____

Outside your establishment (vocational and other schools)

_____

_____

3. For what occupations have you experienced difficulty in hiring qualified workers, what are the reasons for such difficulties?

_____

_____

_____

4. What are the minimum educational requirements for the hard-to-fill occupations shown in (3)?

_____

_____

_____

_____

APPENDIX C

Data Collection Methodology

The Fremont County Survey of Vocational-Technical Education Needs in Business and Industry differed significantly from other projects of the same type only in the method of data collection. Within this method, there were two activities of major consequence. These were first, the initial contact with training of the service clubs, and second, training these clubs. This Appendix will be concerned with an explanation and criticism of the overall design in terms of these two features.

In the design, and subsequent control, of any system, the time factor has to be of major consideration. It is in relation to this factor, as it pertains to initial contact with the service clubs, that the first problem with the design arose. Initial contact was established with several clubs in each of the eight regions into which the county had been divided. A project staff member provided each club chairwoman with: (1) the general objectives of the project, (2) an explanation of activities with which club members would be involved, (3) an estimate of the time involved for members, and (4) an explanation of the procedure of contribution to the club treasury and the travel allowance.[1] It was assumed that chairwomen would be in a position to either commit their clubs to the project personally or to gather an informal consensus and commit or not commit on the basis of that consensus. This assumption proved invalid, in that the majority of the chairwomen wanted to wait and present the offer

---

[1] This contribution ranged from $50 to $150 per club depending on the number of club members involved and upon the number of business contacts in the club's region. A travel allowance of 10¢ per mile was provided for clubs having predominantly rural contacts.

in a formal manner on the club's regular meeting date. Since the different clubs selected had widely diversified monthly meeting dates and since only 1.6 weeks (PERT Act. 10-12) were provided, the schedule was, to say the least, disrupted.

We would suggest that any future projects using this design for data collection should incorporate time for accurate determination of regular service club meeting dates. This would allow, on the planning level, for the development of activity time estimates immune to the disrupting influences of the feminine mystic, and on the control level, for possible selection of clubs on the basis of their meeting dates.

The next major shortcoming in the design was concerned with the training in data collection which was provided the service club members. This shortcoming was due to failure to assess the lucidity of the instrument. RCU staff, after developing the wording, the format, and the general design of the instrument, failed to take into consideration the fact that its crystal clarity might be muddied in translation to service club members. This short-sightedness was transmitted to the club chairwomen in the form of failure to impress upon them the necessity of having all members present at the training session. This resulted in some club members failing to attend the meeting because they were unaware of the complexity of the instrument and its use. Low attendance necessitated the scheduling of a second meeting for some clubs which in turn increased the credibility gap between the project's time schedule and reality.

Should this syste be utilized in a future project, we would suggest that a great deal of emphasis be placed upon the importance of the training meetings. This importance, when impressed upon the

clubs involved, should improve member participation which would reduce the length of time which must be allocated for the training sessions.

Before turning to a consideration of the advantages of this system of data collection, we might interject another thought in relation to club member training activities. Project staff members found that a role-playing approach seemed to be the best method for instructing club members in the use of the instrument and related material. In other words, the staff member selected a club woman to act the part of the employer. The staff member then went through the interview procedure with other club members looking on and asking questions.

As mentioned earlier in this report, the major advantage of this system is its enhancement of the possibilities of implementation through increased community involvement. Another basic advantage is the low cost for data collection. Combined with these basic qualities are the following advantages which became obvious in the course of the project.

It was noted, first, that the club members in each community were able to make many substitutions in the sample list due to their firsthand knowledge of their communities. These substitutions were often in the form of pointing out business units which had quit business within the last quarter so that they could be replaced by functioning units. Business units picked out in this screening process had, in many cases, changed status too recently to be on the Employment Security Service "202 run" from which the sample was selected. This feature of the system served to substantially reduce the number of follow-ups required.

Secondly, it was noted that the club members in many of the regions tended to know the individual businessmen on a personal basis. We believe that this feature of the system had the affect of reducing the number of "refusal to cooperate" or "unable to contact" returns which might normally be expected in a project such as this.

VT 000 886

VT 000 886
Duncan, J.W.
The Michigan Power Study, Phase I, An Analysis of the Characteristics of Michigan's Labor Force In the Next 15 Years.

Battelle Memorial Inst., Columbus. Socio-Economics Research Section
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 18May66 91p.

*EMPLOYMENT PROJECTIONS; *EMPLOYMENT TRENDS; OCCUPATIONS; *LABOR FORCE; AGE; ACADEMIC ACHIEVEMENT; STUDENT ENROLLMENT; INDUSTRY; LABOR MARKET; EMPLOYMENT STATISTICS; POPULATION GROWTH; ECONOMICS; EMPLOYMENT OPPORTUNITIES; *DATA ANALYSIS; *MODELS
*BATTELLE'S SOCIO-ECONOMIC MODEL; MICHIGAN

Thirty-two occupations in Michigan were studied (1) to develop an improved methodology for analyzing the projected characteristics of the labor force such as educational attainment, industry of employment, and occupation of employment, (2) to provide estimates of the characteristics of Michigan's labor force during the next 15 years, and (3) to serve as an input for Michigan's educational planning. Phase 2 will analyze 19 additional occupations. The methodology emphasizes analysis of the structure of employment in occupations from each of the major industrial classifications. The model used was designed to evaluate the interaction between the supply of labor and the demands for labor. Although Michigan will retain or slightly expand its current share of the national employment in the motor vehicle industry, by 1980, its employment structure will be considerably more diversified. Professional and related services will account for 22 percent of the total employment compared to 12 percent in 1960. Manufacturing employment will decline from 38 to 29 percent. Total employment will increase from 2,726,900 in 1960 to 3,936,000 in 1980. As the 1970's progress, the orientation of employment to persons with "conceptual skills" will underline the importance of the development of human resources, so that a shortage of skilled persons will not serve as a constraint on economic growth. (EM)

ED 027441

MICHIGAN MANPOWER STUDY

PHASE I



STATE of MICHIGAN

George Romney, Governor

Michigan Department
of Labor
Michigan Employment
Security Commission
Detroit, Michigan

Michigan Department
of Education
Division of Vocational
Education
Lansing, Michigan

Michigan Department
of Commerce
State Resource Planning
Division
Lansing, Michigan

Research Conducted by
Battelle Memorial Institute
Columbus, Ohio

May, 1966

PHASE REPORT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE MICHIGAN MANPOWER STUDY – PHASE I

An Analysis of the Characteristics of Michigan's Labor Force in the Next 15 Years

May 18, 1966

by

The Socio-Economics Research Section
Battelle Memorial Institute

G. W. James, Associate Manager
J. W. Duncan, Project Director
R. L. Craig, W. H. Fisher, Elizabeth Horne,
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Assisted and Sponsored by:

State of Michigan, George Romney, Governor

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Michigan Employment
Security Commission
7310 Woodward Avenue
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Michigan Department of Education
Div. of Vocational Education
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Michigan Department of Commerce
Michigan Office of Economic Expansion
State Resource
Planning Division
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THE MICHIGAN MANPOWER STUDY

SUMMARY

The Michigan Manpower Study conducted by the Socio-Economics Research Section of Battelle Memorial Institute, under the general direction of the Michigan Employment Security Commission and co-sponsored by the Michigan Office of Economic Expansion and the Michigan Division of Vocational Education, is designed to achieve three objectives:

(1) To develop an improved methodology for analysis of projected characteristics of the labor force (including educational attainment, industry of employment, and occupation of employment)

(2) To provide estimates of the characteristics of Michigan's labor force during the next 15 years

(3) To serve as an input for educational planning in the state of Michigan.

This report presents the results of Phase I of the Michigan Manpower Study. Phase I included analysis of 32 of the 51 specific occupations to be included in the entire study and focused on the projected characteristics of the labor force for the entire state of Michigan. Phase II is designed to complete the analysis of the 51 detailed occupations selected for study and to develop detailed projections of the characteristics of the labor force in the Detroit Standard Metropolitan Area (Wayne, Oakland, and Macomb Counties).

Methodology

The methodology developed in this study emphasizes analysis of the structure of employment in occupations within each of the major industrial classifications. In order to develop this methodology, a special tabulation of the 1960 U.S. Census of Population was obtained and analyzed. The model used in this study is designed to evaluate the interaction between the supply of labor (which is measured in terms of educational attainment) and the demands for labor with specified occupations and with appropriate levels of educational attainment.

During Phase I seminars and meetings were held with the Labor Market Analysis Section of the Michigan Employment Security Commission for the purpose of training MESC staff in the use of the model. It is expected that the analysis of projected labor-force characteristics, using Battelle's Socio-Economic Labor Force model, will be a continuing function of MESC.

Estimate of Labor-Force Characteristics

The study of the economic outlook for Michigan's industries indicates that total employment will increase 1.9 percent per year between 1960 and 1980. The major indicators of economic growth are summarized in the following tabulation.

	1960	1970	1975	1980
Total Population, thousands	7,824	8,607	9,360	10,229
Population 14 and Over, thousands	5,349	6,090	6,725	7,371
Labor-Force Participation Rate, percent	55.0	55.5	55.3	55.8
Civilian Labor Force, thousands	2,944	3,378	3,720	4,111
Employed, thousands	2,727	3,228	3,550	3,936
Unemployed, thousands	217	150	170	170
Unemployment Rate, percent	7.4	4.4	4.6	4.3

Note: The projected unemployment rate is a residual computed as a result of relating projected employment to projected population of labor force age.

Sources: 1960: 1960 Census of Population, Vol. 1, Characteristics of the Population, Part 24, Michigan, Tables 17 and 197.
1970-1980: Battelle estimates.

The detailed employment projections indicate that total employment in manufacturing industries will not grow between 1975 and 1980 and that throughout the study period the proportion of total employment in manufacturing industries will decline from approximately 38 percent in 1960 to approximately 29 percent in 1980. The most rapidly growing industries will be in the services sector.

In addition to changes in the structure of employment by industry, significant changes are anticipated in the mix of skills required in the labor force. This report describes the factors affecting total employment for each of the following detailed occupations:

1. Engineers, technical
2. Nurses
3. Teachers
4. Managers, salaried
5. Managers, self-employed
6. Bookkeepers
7. Cashiers
8. Secretaries
9. Stenographers
10. Typists
11. Salesmen and sales clerks
12. Carpenters
13. Electricians
14. Foremen
15. Machinists
16. Mechanics and repairmen
17. Plumbers and pipe fitters
18. Toolmakers and die makers
19. Assemblers
20. Checkers, examiners and inspectors - manufacturing
21. Delivery and routemen
22. Filers, grinders and polishers - metal
23. Truck and tractor drivers
24. Attendant, hospital and other
25. Cooks - except private household
26. Janitors and sextons
27. Protective service workers
28. Waiters and waitresses

Additionally, the total labor force for Michigan in the 1970's is estimated in terms of the major categories of employment. These categories are professional, managers, clerical, sales, craftsmen, operatives, private household, service, farm managers, and farm labor, and laborers. In general terms, white-collar or technical occupational classifications are expected to grow most rapidly between now and 1980. The growth in professional employment is expected to be double the rate of growth projected for total employment. Of the occupations selected for study, the following will experience exceptional growth: engineers (3.5 percent per year between 1960 and 1980), nurses (3.8 percent), teachers (3.4 percent), salaried managers (3.2 percent), secretaries (3.8 percent), and typists (3.4 percent).

The interaction of expected changes in the structure of industry and the mix of skills required by industries will produce uneven growth patterns throughout the 1970's. For example, the number of carpenters employed in Michigan is projected to grow from 25,700 persons in 1960 to 28,800 persons in 1970, followed by a decline to 26,400 persons in 1980. The number of assemblers is expected to decline modestly between 1960 and 1970, followed by an increased rate of decline between 1970 and 1980.

A number of major craft and operative occupational categories will continue to account for significant proportions of total employment. In 1980 over 1.1 million workers will be employed in these two major categories. (Projected employment for each of the occupations studied is presented in Table 19 of this report.)

Educational Planning

In addition to the development of methodology and specific labor force projections, the Michigan Manpower Study has a goal of assisting in educational planning. This report, combined with the insights gained by the research team, is expected to provide a framework for understanding the impact of technological changes on the types of skills which will be demanded by the technology of the 1970's.

When the growth in employment described in this report is combined with estimates of the demands associated with replacing workers who have died, retired or transferred to other occupations, the educational planner will have a measure of the total requirements which will be placed on the educational system and on the growing programs of training and retraining. While labor-force preparation is only one objective of education, it is clear that the labor force of the 1970's will place increasing demands upon conceptual skills, hence creating a stronger linkage between formal education and job preparation. This growing importance of brainpower has led social scientists at Battelle to characterize the 1970's as the "human resources era".

THE MICHIGAN MANPOWER STUDY

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THE MICHIGAN MANPOWER STUDY - PHASE I

AN ANALYSIS OF THE CHARACTERISTICS OF MICHIGAN'S LABOR FORCE IN THE NEXT 15 YEARS

by

THE SOCIO-ECONOMICS RESEARCH SECTION
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INTRODUCTION

The recently released Manpower Report of the President for 1966 focuses on the problems associated with a rapidly growing national economy and a "tight" labor market situation. The report states:

> As the economy moves toward full employment, the skill shortages now emerging can be expected to intensify. The Department of Labor has accordingly taken steps to anticipate the problems which will be created and to meet them as fully as possible.*

Just two short years ago, the Manpower Report of the President focused on the problems of persistent unemployment. The report pointed out that:

> Unemployment persisted grimly despite 1963's strong economic advance. Overcoming that unemployment is the greatest immediate manpower challenge before us - and the new tax cut is a long step toward meeting that challenge.
>
> Other major challenges on the path to full and creative use of our human resources are posed by our labor force growth and by the problems which technological adjustment raises for many individuals.**

The report recommended the development of an "active" manpower policy with three fundamental goals:

> The first is to develop the abilities of our people.
>
> Another is to create jobs to make the most of those abilities.
>
> The third is to link the first two, to match people and jobs.***

The Michigan Manpower Study was initiated as a direct result of the problems of persistent unemployment, and especially the problems associated with developing an educational system designed to meet the three goals identified above. As a result of the

*U. S. Department of Labor, Bureau of Labor Statistics, The Manpower Report of the President, U. S. Government Printing Office, Washington, D. C., 1966, p. 4.

**U. S. Department of Labor, Bureau of Labor Statistics, The Manpower Report of the President, U. S. Government Printing Office, Washington, D. C., 1964, p. 7.

***Ibid., p. 8.

leadership of the Michigan Employment Security Commission, it was generally recognized that the meaningful development of skills must begin with a comprehensive understanding of the types of skills which will be in demand during the coming 10 to 15 years.

The Michigan Office of Economic Expansion, in the early design of its research program, recognized that human resources were of great importance in terms of the state's overall resources for economic growth. The State Department of Education through the Division of Vocational Education recognized that the development of a technical education system required a depth understanding of the characteristics of the labor force which would be required by 1980. In order to serve these needs, the Michigan Manpower Study was initiated in June of 1965 as a primary responsibility of the Michigan Employment Security Commission and with a co-sponsorship by the Michigan Office of Economic Expansion and the Michigan State Department of Education.

The purpose of the Michigan Manpower Study is to develop estimates of the characteristics of Michigan's labor force in 1970, 1975, and 1980 in terms of the industries in which employment will be found, the occupations the workers will have, and the general levels of educational attainment which will be required by the labor force. The study was divided into two phases. Phase I, the subject of this report, has been concerned with estimates of the total labor force for the state of Michigan with a focus on the list of occupations described in Table 1. The scope of Phase II of the Michigan Manpower Study includes an expanded listing of occupations as shown in Table 2 and a detailed analysis of the Detroit Standard Metropolitan Statistical Area (Wayne, Oakland, and Macomb Counties).

From a perspective of the entire Michigan Manpower Study, it is appropriate to identify Phase I as the development of a statistical framework for the detailed analysis associated with Phase II. It is recognized by the authors and participants in Phase I that the complete analysis may lead to modifications of the statistical framework developed in Phase I. However, efforts have been made during Phase I to examine the broad outline of the areas to be emphasized in Phase II so that the results contained in this report may serve as useful guidelines to users of the report. Phase II will be directly concerned with many specialized problems and with adding more depth to the overall analysis. It is anticipated that the estimated general levels and structures of employment for the state of Michigan, as described in this report, will not be substantially altered.

In addition to the development of statistics describing the characteristics of Michigan's labor force in the 1970's, the Michigan Manpower Study was designed to contribute to the improvement of the methodology of labor force analysis and to provide a means for training the Labor Market Analysis Section of the Michigan Employment Security Commission in the techniques and disciplines of estimating future trends. A later portion of this report will describe the activities related to this second purpose.

This report is designed to provide the rationale and the methodology supporting the statistical profile which describes the characteristics of Michigan's labor force in the 1970's. This report is not written for the layman,* but rather for the manpower economist and the general economist concerned with the future structure of Michigan's labor force. Of equal significance is the fact that this report is written for educational

*A separate report containing the highlights of Phase I of the Michigan Manpower Study will be released by the Michigan Employment Security Commission. This report will be written in cooperation with the Manpower, Education, and Training Division of Battelle Memorial Institute.

TABLE 1. OCCUPATIONS STUDIED DURING PHASE I OF THE MICHIGAN MANPOWER STUDY

Professional

- Engineers, technical
- Nurses
- Teachers
- All other professional and kindred

Farm Managers

Managers

- Managers, NEC, salaried
- Managers, NEC, self-employed
- All other managers

Clerical

- Bookkeepers
- Cashiers
- Secretaries
- Stenographers
- Typists
- All other clerical and kindred workers

Sales

- Salesmen and sales clerks
- All other sales workers

Craftsmen

- Carpenters
- Electricians
- Foremen, NEC
- Machinists
- Mechanics and repairmen
- Plumbers and pipe fitters
- Toolmakers and die makers
- All other craftsmen, foremen and kindred workers

Operatives

- Assemblers
- Checkers, examiners and inspectors – manufacturing
- Delivery and routemen
- Filers, grinders and polishers – metal
- Truck and tractor drivers
- All other operatives and kindred workers

Private household

Service

- Attendant, hospital and other
- Cooks – except private household
- Janitors and sextons
- Protective service workers
- Waiters and waitresses
- All other service workers

Farm labor

Laborers

TABLE 2. OCCUPATIONS TO BE STUDIED DURING PHASE II OF THE MICHIGAN MANPOWER STUDY

Professional, technical and kindred workers
Draftsmen
Engineers, technical
Aeronautical
Civil
Electrical
Industrial
Mechanical
Personnel and labor relations workers
Physicians and surgeons
Professors and instructors (college)
Technicians, medical and dental
Technicians, electrical and electronic
Electronic technicians, D.O.T. 0-67.110
Technicians, other engineers and physical scientists
Managers, officials and proprietors (except farm)
Purchasing agents and buyers
Clerical and kindred workers
Stock clerks and storekeepers
Sales workers
Insurance agents, brokers and underwriters
Craftsmen, foremen and kindred workers
Numerical control machine tool operators
Engine lathe operators I – D.O.T. 4-78.011
Operatives and kindred workers
Operatives – fabricated metal industries
Service, except private household
Hairdressers and cosmetologists

planners concerned with planning for the requirements which will be placed upon the educational system as a result of changes in the types of labor demanded by the industries of the state of Michigan.

In order to serve these audiences, the report is organized as follows: First, a discussion of the general framework of analysis is presented, which includes an outline of the methodology and the basic assumptions of the study. In the second section, the report considers the long-term economic outlook for the nation and for the state of Michigan. The third section is concerned with the demand for labor represented by the occupations selected for analysis. The final two sections describe the relationships between supply and demand and the record of the economic and labor force developments since 1960 as they are described by the data currently available. The shorter term outlook for 1967 is discussed within the context of recent trends and the longer term perspective.

METHODOLOGICAL FRAMEWORK

The methodology used in developing projections of the characteristics of Michigan's labor force for the Michigan Manpower Study focuses on use of a detailed matrix of the occupational profiles of individual industrial sectors of the economy. The purpose of this analysis of labor force characteristics is to identify the types of manpower requirements which will be associated with the economic growth of Michigan. In particular, the occupation-by-industry matrix provides a summary of the expected influence of technological changes in the processes used to produce the output of individual economic sectors.

Emphasis on occupations is of great significance, since the policy makers in the educational systems must determine where emphasis will be placed in curricula and in the varied types of educational institutions (technical institutes, community colleges, universities, post-graduate programs, etc.). Additionally, the specific projections of labor force requirements associated with major occupational categories provide a useful general framework for guidance and counselling of young adults planning their individual contribution to the economy.

The Socio-Economic Labor Force Model

The labor force analysis which is used in Battelle's Socio-Economic Model essentially involves a reconciliation of the supply of and demand for labor, using formal educational attainment as the equating variable.* Battelle's overall Socio-Economic Model involves the following steps:

*It is recognized, of course, that the skill-acquisition process involves many dimensions in addition to formal educational attainment. However, a study of skill acquisition conducted in April 1963 revealed that "educational attainment is the key to the extent of vocational training: the more education, the more formal training." – Source: U. S. Department of Labor, Bureau of Labor Statistics, The Manpower Report of the President, U. S. Government Printing Office, Washington, D. C., 1964, p. 66.

(1) A detailed projection of future demand* for employees by occupation and by industry yielding, for example, estimates of the future demand for professional and technical employees, for clerical employees, etc.; future demand for employees with a college education, with a high school education, etc.; and future demand for employees of all types in manufacturing, communications, transportation, etc.

(2) A detailed projection of the future level of educational attainment of the population, by age and sex, and derivations from this projection of the future levels of educational attainment of the labor force.

(3) A reconciliation of the projected demand for and the supply of labor, in terms of educational attainment, yielding a profile of future employment by occupation and educational attainment.

(4) A projection of future average incomes of people employed in various occupations, and people having various levels of educational attainment.

(5) Determination of the future composition and level of consumer purchases of goods and services through application of information on the relationship between consumer spending patterns and income, occupation and level of educational attainment.

(6) Conversion of the projected future composition of consumer purchases to the demand for goods and services by industry.

The labor force analysis for Michigan (which is the subject of this report) primarily involves Steps 1 through 3.

Inputs to Battelle's Socio-Economic Model

The Socio-Economic Model is designed to independently consider the demand for and supply of labor in a specified time period and region. For purposes of the following discussion the matrices will be related to the state of Michigan for the year 1980. As a part of the Michigan Manpower Study this analysis will also be conducted for the Detroit Standard Metropolitan Statistical Area (Wayne, Oakland, and Macomb Counties) and for the years 1967, 1970, and 1975. The supply and demand analysis will be considered below.

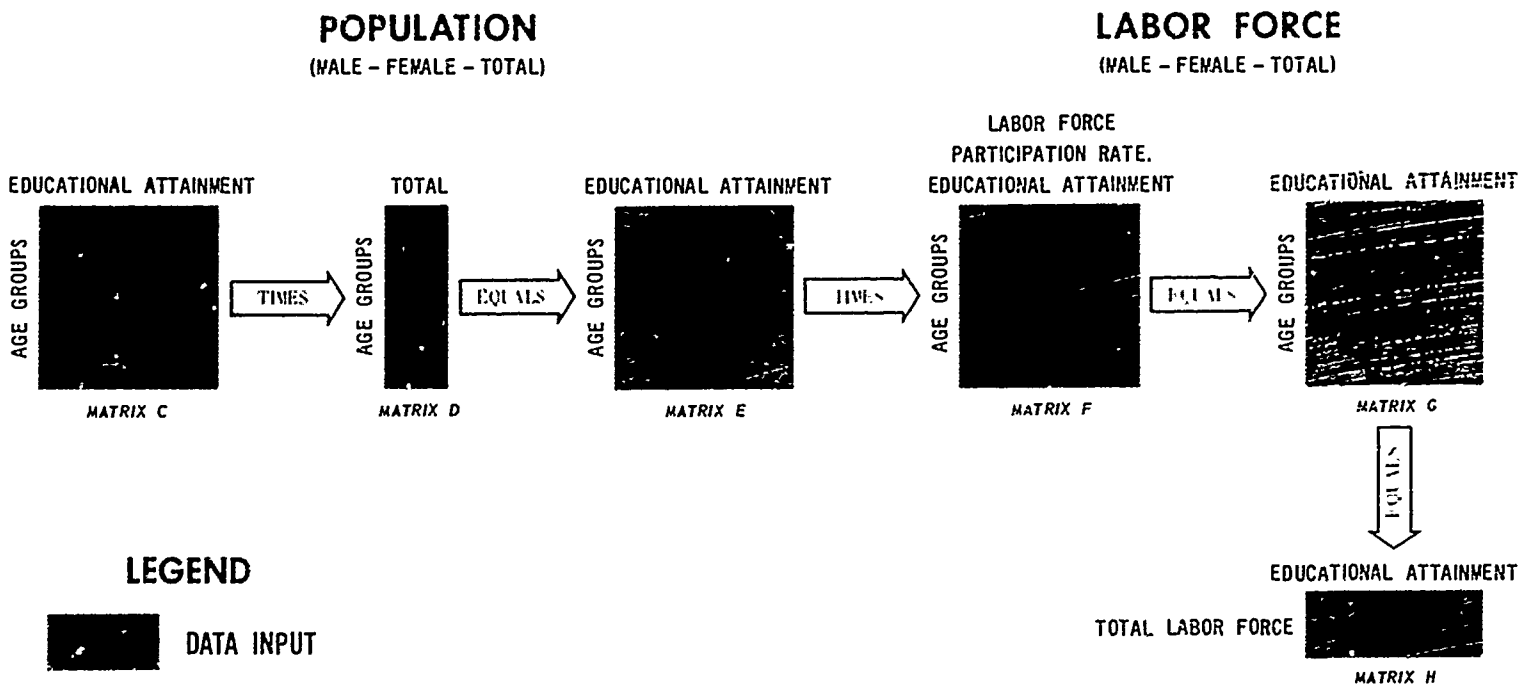
Supply Analysis. The supply analysis has three inputs (see Figure 1):

(1) A projected population distribution by age and sex.

(2) Projected educational attainment for the population of labor force age

(3) Labor force participation rates for each age group by level of educational attainment.

*The term "future demand" as used in this report can be defined as the total number of workers expected to be employed in a specific occupation and industrial activity in the projected time period. The growth patterns should be viewed on a "net" basis, and, as such, do not include those demand elements stemming from replacement requirements occasioned by death, retirement, withdrawal from the labor force, interstate mobility, or worker movements between occupations and industries.



NOTE: THIS IS A SCHEMATIC REPRESENTION OF THE STEPS INVOLVED IN BATTELLE'S SOCIO-ECONOMIC MODEL. CALCULATIONS ARE ACCOMPLISHED ON A CELL-BY-CELL BASIS.

FIGURE 1. BATTELLE'S SOCIO-ECONOMIC MODEL

An Outline of the Analysis of the Supply of Labor

Sources: Matrix C - see pages 12 and 14
Matrix D - see page 12
Matrix F - see page 19

Population projection generally considers birth rates, death rates, and patterns of inter-regional migration. Battelle's Socio-Economic group has developed a model for relating natural increase, relative unemployment rate, and migration patterns. This model essentially provides a feedback between projected population levels and projected employment levels. In the Michigan Manpower Study population levels were initially derived by an independent demographic analysis conducted by Professor David Goldberg of Michigan University. Goldberg provided estimates of Michigan's population by five-year age groups.* His data were broken into male and female components on the basis of relationships measured in the 1960 U. S. Census of Population.**

The industrial employment outlook for the 1970's, which is a part of the demand analysis, resulted in a requirement for labor which exceeded the demographic projections of Goldberg. As a result, the population was increased by 325,000 in 1980, yielding the population projections reported in Table 3. These projections assume a modest immigration during the study period. Goldberg assumed zero net migration by 1980. The population in each age-sex group is proportional to the results obtained by Goldberg and the male-female analysis described earlier.

Projections of educational attainment were developed on the basis of data presented in the U. S. Census of Population for Michigan in 1950 and 1960. The educational-attainment matrix is projected by analyzing past trends in the levels of educational attainment achieved by specific age-sex groups of the population. The projections are concerned with the expected educational attainment to be achieved by those persons who are still in or will be in the educational stream throughout the projection period.

Projections are the result of incorporating three sets of data. The first set concerns the increased educational attainment achieved by a specific age-cohort.*** For example, analysis of the 1950 and 1960 census permits one to follow those persons age 25-29 in 1950, since this group is 35-39 in 1960. Despite the fact that the persons aged 25-29 in 1950 have largely completed their formal education, the data do reveal a modest improvement in these older age-cohorts.

The second set of data relates to comparison of persons aged 25-29 (and other age groups) in 1950 and 1960.**** The higher educational attainment demonstrated by the 25 to 29-year-olds in 1960 reflects the changing conditions in the educational system. These changing conditions are generally expressed in terms of improved school retention rates (or decreasing dropout rates). Improvements achieved during the 1950-60 decade are assumed to represent the order of magnitude of improvement which can be achieved during the projection period.

One constraint on this improvement, of course, is the increasing difficulty associated with reduction of the dropout rate as a higher proportion of the population stays in school. Thus, the third set of data required relates to the proportion of each age-group remaining in school. These data are also found in the Census.***** It should be emphasized that the projection of increased holding power on behalf of the education

*Goldberg, David, "Population Projections, Michigan: 1960-1980", M.E.S.C. Conference, Kalamazoo, July 30, 1965; Department of Economic Expansion, Stevens T. Mason Building, Lansing, Michigan.

**1960 Census of Population, Vol. 1, Characteristics of the Population, Part 24, Michigan, Table 94, p. 363.

***(1950) 1950 Census of Population, Vol. II, Characteristics of the Population, Part 22, Michigan, Tables 64 and 65, pp. 195-201.

(1960) 1960 Census of Population, Vol. I, Characteristics of the Population, Part 24, Michigan, Table 103, p. 394.

****Ibid., Vol. I, p. 391.

*****Ibid., Vol. I, p. 382.

TABLE 3. POPULATION IN MICHIGAN BY AGE GROUPS: 1960, 1970, 1975, AND 1980

(In thousands)

Age Group	1960			1970			1975			1980		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-4	969	493	476	896	456	440	1,017	520	497	1,173	597	576
5-9	879	448	431	868	443	425	909	464	445	1,029	524	505
10-14	744	378	365	941	478	463	886	452	434	924	469	455
15-19	564	277	287	851	419	432	951	468	483	894	439	455
20-24	447	209	238	689	322	367	842	395	447	942	440	502
25-29	474	230	244	523	254	269	710	346	364	867	421	446
30-34	539	266	273	439	217	222	529	262	267	718	354	364
35-39	556	272	283	458	225	233	443	218	225	532	261	271
40-44	509	250	259	511	251	260	460	227	233	441	217	224
45-49	461	231	230	513	258	255	508	255	253	454	227	227
50-54	398	201	197	455	230	225	501	254	247	496	250	246
55-59	353	180	173	397	203	194	433	222	211	477	243	234
60-64	293	147	146	326	164	162	365	184	181	399	200	199
65-69	251	124	127	270	133	137	290	144	146	324	160	164
70-74	184	88	96	204	98	106	224	107	117	241	115	126
75-79	113	51	62	146	66	80	151	69	82	167	75	92
80-84	57	25	32	80	34	46	91	38	53	94	40	54
85 Plus	33	13	20	40	16	24	50	20	30	57	22	35
TOTAL*	7,824	3,883	3,939	8,607	4,267	4,340	9,360	4,645	4,715	10,229	5,054	5,175

*Categories may not sum due to rounding.

Note: The age structure is proportional to the population projections developed by Goldberg (see below).

Sources: 1960 Census of Population, Volume 1, Characteristics of the Population, Part 24, Michigan, Table 17.

1970-1980: Battelle estimates.

David Goldberg, Allan Schnaiberg, and Bernard M. Conboy, Michigan Population 1960 to 1980, Working Paper No. 1, Michigan Department of Commerce, January 1966.

system is closely related to one's judgment concerning educational policy, especially as the various types of programs offered relate to the aptitudes of the population and the levels of motivation associated with future generations. In general, the projections developed for the Michigan Manpower Study were based on an extension of past trends combined with the assumption that educational policy and social attitudes would encourage increased participation by young adults in post-high school, subbaccalaureate educational programs. The educational-attainment profiles of males and females in 1960 is reported in Tables 4 and 5. Battelle's projected profiles for males and females in 1980 are presented in Tables 6 and 7.

In order to project the labor force which will be available, it is necessary to consider the proportion of each age-sex-educational attainment cell (see Matrix F) which will be in the labor force. Labor force participation rate data are limited. Therefore, two approaches were used and cross-checked.

Labor force participation rates for Michigan were related to labor-force participation rates for the United States. Bureau of Labor Statistics projections for labor force participation rates by age and sex were paralleled in order to project labor force participation rates for Michigan by age and sex.* These aggregate participation rates were applied to Goldberg's projected population. The result of these calculations served as control totals for projecting labor force. A special Bureau of Labor Statistics survey which measured labor force participation rates by age, sex, and educational attainment served as the beginning framework for projecting the labor force in the Socio-Economic Model.** These rates were adjusted to reflect the expected increased participation in school as well as in the labor force. Since the general pattern of the relationship between educational attainment and labor force participation rates is identified with a rising level of participation at higher levels of educational attainment, the total labor force projected is larger than that which might be expected purely on the basis of a specific projection. The cell-by-cell rates were adjusted proportionately so that the result of labor force participation by age equalled the control total mentioned previously. The estimates of labor force participation by age which result are presented in Table 8.

The combination of projected age structure, projected educational attainment, and projected labor force participation rate by educational attainment is sufficient to generate the first one-half of the model (Section A). Reference to Figure 1 will clearly show the mathematical operation involved in applying the input matrices to yield a projected labor force by educational attainment. The projected educational attainment by age group is shown as Matrix C. Matrix C contains a distribution for each age group which describes the projected educational attainment that age group is expected to receive in 1980. When these percentages are multiplied with the projected population in each age group (Matrix D), the result is Matrix E, which contains the projected number of persons in each age group having attained the specified level of education. The schematic presentation of Figure 1 is a simplified statement, since it does not show that calculations are actually made for the male population, the female population, and then the total population.

Since labor force participation rates by level of educational attainment and age are uniquely specified for each cell, a separate rate is shown for each age group at each

*Working Paper Number Two.

**U. S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 30, "Educational Attainment of Workers March, 1962", Table E, p. A-9.

TABLE 4. PERCENTAGE DISTRIBUTION OF YEARS OF SCHOOL COMPLETED BY MALES 14 YEARS OLD AND OVER, BY AGE, MICHIGAN, 1960

	Elementary School		High School		College	
Age	0-7	8	1-3	4	1-3	4+
14-19	14.80	19.36	51.51	11.47	2.86	0.00
20-24	5.40	6.87	24.14	37.19	20.46	5.94
25-29	7.15	9.40	23.82	34.69	11.95	12.99
30-34	9.26	12.52	26.34	28.94	9.95	12.99
35-39	10.00	14.17	24.79	30.15	9.44	11.45
40-44	11.82	17.38	25.34	29.05	8.29	8.12
45-49	16.01	20.79	24.99	23.39	7.76	7.06
50-54	19.84	25.19	23.85	16.37	7.52	7.23
55-59	26.72	29.71	18.83	12.47	6.17	6.10
60-64	32.25	31.07	16.11	10.36	5.42	4.79
65 and over	45.87	28.57	10.95	7.26	4.01	3.34

Source: 1960 Census of Population, Vol. 1 Char. of the Pop., Part 24, Michigan, Tables 101, 102, and 103.

TABLE 5. PERCENTAGE DISTRIBUTION OF YEARS OF SCHOOL COMPLETED BY FEMALES 14 YEARS OLD AND OVER, BY AGE, MICHIGAN, 1960

	Elementary School		High School		College	
Age	0-7	8	1-3	4	1-3	4+
14-19	9.95	17.44	52.99	16.56	3.05	0.01
20-24	3.25	4.49	23.84	48.15	15.83	4.44
25-29	4.39	6.61	24.57	47.38	10.26	6.79
30-34	5.82	9.32	25.65	43.89	9.17	6.15
35-39	6.71	12.13	24.75	42.36	8.90	5.15
40-44	8.63	15.61	26.63	36.18	7.86	5.09
45-49	12.16	19.36	26.99	27.69	8.28	5.52
50-54	16.15	23.24	24.85	20.53	9.05	6.18
55-59	22.32	27.20	20.14	16.32	8.50	5.52
60-64	28.38	30.11	16.72	13.67	7.16	3.96
65 and over	37.48	29.94	13.63	10.79	5.40	2.76

Source: 1960 Census of Population, Vol. 1 Char. of the Pop., Part 24, Michigan, Tables 101, 102, and 103.

TABLE 6. PERCENTAGE DISTRIBUTION OF YEARS OF SCHOOL COMPLETED BY MALES 14 YEARS OLD AND OVER, BY AGE, MICHIGAN, 1980

	Elementary School		High School		College	
Age	0-7	8	1-3	4	1-3	4+
14-19	12.80	18.40	49.39	13.60	5.80	0.01
20-24	4.20	4.10	20.30	37.20	25.60	8.60
25-29	4.32	4.55	20.22	36.00	16.91	18.00
30-34	4.35	4.90	21.40	35.50	15.20	18.65
35-39	4.67	5.74	22.16	35.40	14.03	18.00
40-44	5.20	6.70	23.00	35.32	13.20	16.58
45-49	7.12	9.40	23.32	34.70	11.80	13.66
50-54	9.26	12.52	26.34	28.94	9.95	12.99
55-59	10.00	14.17	24.79	30.15	9.44	11.45
60-64	11.82	17.38	25.34	29.05	8.29	8.12
65 and over	26.72	29.71	18.83	12.47	6.17	6.10

Source: Battelle estimates.

TABLE 7. PERCENTAGE DISTRIBUTION OF YEARS OF SCHOOL COMPLETED BY FEMALES 14 YEARS OLD AND OVER, BY AGE, MICHIGAN, 1980

	Elementary School		High School		College	
Age	0-7	8	1-3	4	1-3	4+
14-19	9.90	16.80	48.79	18.60	5.90	0.01
20-24	2.20	2.60	21.80	44.30	21.70	7.40
25-29	2.29	3.20	22.50	48.51	14.60	8.90
30-34	2.40	3.40	22.60	49.10	14.20	8.30
35-39	2.53	3.61	23.15	50.40	13.09	7.22
40-44	3.24	4.48	23.84	48.17	13.08	7.19
45-49	4.39	6.61	24.57	47.38	10.26	6.79
50-54	5.82	9.32	25.65	43.89	9.17	6.15
55-59	6.71	12.13	24.75	42.36	8.90	5.15
60-64	8.63	15.61	26.63	36.18	7.86	5.09
65 and over	22.32	27.20	20.14	16.32	8.50	5.52

Source: Battelle estimates.

TABLE 8. LABOR FORCE PARTICIPATION RATES BY AGE GROUPS, MICHIGAN: 1960, 1970, 1975, AND 1980

Age Group	1960	1970	1975	1980
14-19	32.0	31.8	30.7	29.2
20-24	63.8	66.2	65.6	65.0
25-29	62.4	65.4	66.7	68.0
30-34	63.6	65.6	66.2	67.4
35-39	66.0	70.7	70.8	70.9
40-44	68.4	70.7	71.3	71.9
45-49	69.4	73.7	74.1	74.5
50-54	69.6	73.9	74.0	74.2
55-59	64.8	70.8	70.2	69.6
60-64	52.9	54.4	55.0	55.6
65-75	21.1	17.2	15.9	14.6
75 and over	7.4	8.6	8.5	8.4
TOTAL 14 and over	55.0	55.5	55.3	55.8

Sources: (1960) 1960 Census of Population, Vol. I, Characteristics of the Population, Part 24, Michigan, Table 17, pp. 24-46.

(1970-1980) Battelle estimates.

level of educational attainment in Matrix F. Multiplication of these participation rates times the total number of people in the specified cell yields the number of people in the labor force by age and educational attainment (Matrix G). For simplified analysis of the relationship between total supply and total demand, it is useful to summarize the total labor force in terms of educational attainment. This operation yields Matrix H which is simply the summation of all age groups for each level of educational attainment.

The Demand Side. The demand analysis (see Figure 2) has three inputs:

(1) Projected total employment for each industry sector

(2) Projected distribution of occupations within each sector and

(3) Projected educational attainment which will be required by each occupation.

Projections of industry employment level may be developed through a variety of techniques. These include econometric analysis of historical trends, projections of employment levels in key industries based upon surveys, analysis and projection of relationships between a region and the national economy (assuming projections for the national economy are readily available), extrapolation of historical employment trends and other similar techniques. Generally, projections of employment by industry sector must be based upon assumptions concerning the world political situation, and government policies relative to social problems such as unemployment, poverty, and education; technological changes as these are reflected in new products which shift demand from one economic sector to another and in new processes which affect the level of productivity associated with the production of a given output level. Short-term projections of industry structure must additionally take into account the fluctuations normally associated with the business cycle.

Industry-employment projections developed for the Michigan Manpower Study resulted from a combination of the above techniques. The major emphasis, however, was placed upon a detailed analysis of key manufacturing industries and a careful examination of the relationship between Michigan and the U. S. economy, especially as the U. S. economy was projected to develop in 1975. Battelle's projections of the U. S. economy in 1975 have been developed as a result of five years of study. Of special influence was the general economic outlook developed in Battelle's Aids to Corporate Thinking program. This study included a detailed projection of 252 socio-economic classes (a socio-economic class is made up of households sharing common characteristics in terms of the occupation of the household head, the income level received by the household, and educational attainment of the household head).

The details of Battelle's industry-employment projections for Michigan will be presented later in this report; therefore, additional discussion of this point will not be included in this discussion of the methodological framework. Table 9 provides a summary of the industrial employment growth patterns.

The central matrix in the labor force characteristics portion of Battelle's Socio-Economic Model is the occupation-by-industry matrix (Matrix K). A matrix describing

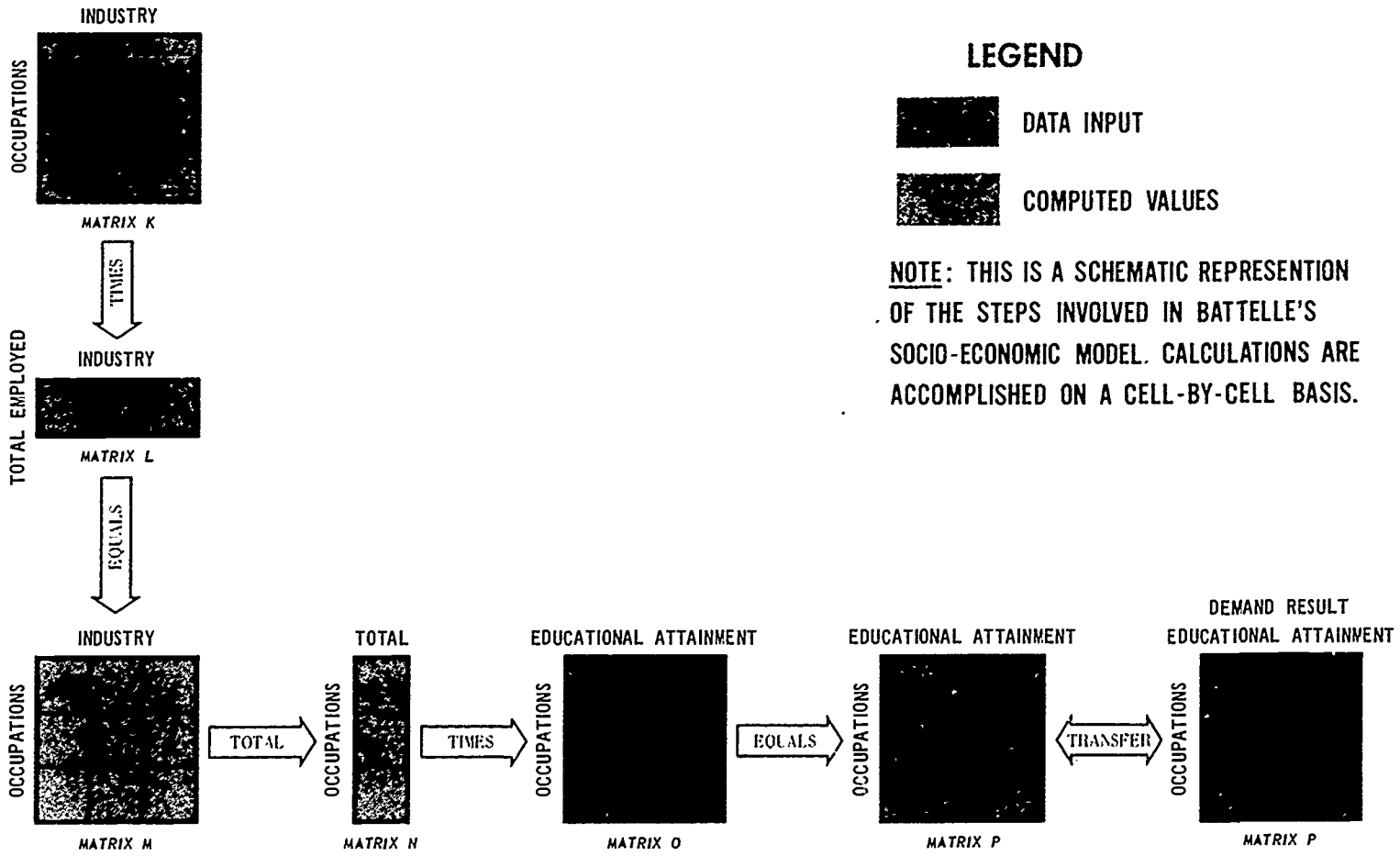


FIGURE 2. BATTELLE'S SOCIO-ECONOMIC MODEL

An Outline of the Analysis of the Demand for Labor

Sources: Matrix K - see page 29
Matrix L - see pages 27 and 62 through 96
Matrix O - see page 30

TABLE 9. PROJECTED EMPLOYMENT BY INDUSTRY, COMPUTED ANNUAL RATE OF CHANGE, MICHIGAN, 1960-80

Category	Thousands Employed 1960	Thousands Employed 1980	Annual Rate of Change 1960-80
Agriculture, forestry, & fisheries	93.7	55.0	-2.6
Mining	15.3	11.0	-1.6
Construction	125.6	181.0	1.8
Manufacturing	1035.9	1150.0	0.5
Durable goods	818.4	968.2	0.8
Primary metal industries	71.7	101.3	1.7
Fab. mtl. Ind. (including not specified metals)	91.8	108.0	0.8
Machinery, exc. electrical	147.1	156.0	0.3
Electrical machinery equipment & supplies	31.7	36.9	0.7
Motor vehicles and motor-vehicle equipment	377.2	473.5	1.1
Other durables	98.9	92.5	-0.4
Nondurable goods*	217.5	181.8	-0.9
Food & kindred products	62.4	53.5	-0.8
Chemicals & allied products	40.9	33.5	-1.0
Petroleum & coal products	3.5	2.4	-1.9
Other nondurables*	110.7	92.4	-0.9
Transportation, communications, and utilities & sanitation services	155.6	188.0	0.9
Wholesale trade	80.7	124.0	2.2
Retail trade	403.3	586.0	1.9
Food & dairy product stores	74.1	78.5	0.2
Gen. merchandise retailing	54.0	90.0	2.6
Motor vehicle & accsory retailing	35.2	65.0	3.1
Gasoline service stations	28.3	44.0	2.2
Eating & drinking places	74.4	105.0	1.7
Other retail trade	137.3	203.5	2.0
Finance, insurance, & real estate	89.6	168.0	3.2
Banking & credit agencies	34.8	77.0	4.1
Insurance	34.2	65.0	3.2
Other finance, insurance, & real estate	20.6	26.0	1.2
Business and repair services	61.3	89.0	1.9
Personal services	134.0	187.0	1.7
Entertainment & recreation service	17.7	32.0	3.0
Professional & related services	329.9	872.0	5.0
Medical & other health service (including hospitilization)	117.7	287.3	4.5
Educational services	152.0	406.4	5.0
Private	29.1	63.1	3.9
Government	122.9	343.3	5.3
Other professional and related services	60.2	178.3	5.6
Public administration	94.8	178.0	3.2
Industry not reported	89.6	115.0	1.3
Total employment	2726.9	3936.0	1.9

*Includes Not Specified Manufacturing.

Note: Detail may not add to total due to rounding.

a limited number of occupations and industries is available in published U. S. census materials.* A comprehensive matrix is available for the U. S. in the U. S. Census Occupation by Industry Subject Report.**

In order to provide a detailed data framework for the Michigan Manpower Study, a special tabulation of the 1960 Census of Population in Michigan was developed using the 25 percent sample data base. This special tabulation was designed to provide greater cross-sectional detail than is reported in the published Census reports. The number of occupations considered was increased from 42 to 97. For selected cells in the occupation-by-industry matrix, tabulations of educational attainment and age, simultaneously considered, were obtained. These data were utilized in evaluating expected retirement patterns and recent trends in upgrading educational attainment associated with specified occupational classifications. Slightly more than 21,000 cells of data were developed.

The framework provided by the detailed special tabulation is limited, since it represents a single point in time. Trends in the occupational composition of specific industries were identified on the basis of U. S. data and the trends represented by the 11 major occupational classifications.*** The actual projections of the composition of employment within each industry sector for Michigan in 1980 which were developed by examining these historic trends at the national level and within the major classifications in Michigan were modified on the basis of anticipated technological changes in the processes and/or in the anticipated changes in the organization of the individual industries. These assumptions and judgments are discussed later in this report. The result of the projections is expressed in terms of a percentage share of industrial employment associated with each of the detailed occupational classifications and subtotals thereof. For illustrative purposes Construction and Business and Repair Services are compared in Table 10.

The educational attainment associated with individual occupations is projected on the basis of trends evident in comparison of younger workers with older workers in 1960 (employed in the same occupation). Additionally, adjustments were made in selected cases where the historic relationship of educational attainment appeared to represent imbalances in the supply condition. In other words, the educational attainment profile in 1960 for selected occupations may simply represent the fact that an ample supply of persons with 12 years of schooling was available rather than a requirement of the job function that persons in the occupation must have 12 years of formal education.

The occupation-by-industry matrix (Matrix K) describes the percentage of employment in each industry which will be associated with each occupational classification. For example, this matrix shows that in 1960 for Michigan professional and technical workers are 4.7 percent of employment in primary metals, craftsmen are 29.6 percent, engineers are 1.7 percent, and mechanics and repairmen are 3.8 percent.

*1960 Census of Population, Vol. I, Characteristics of the Population, Part 24, Michigan, Table 125, p. 555.

**1960 Census of Population, Subject Reports PC (2) - 7C, Occupation by Industry, Table 2, p. 7.

***These major classifications are: professional and technical; managers, officials, and proprietors; clerical; sales; craftsmen; operatives; provate household workers; service; laborers; farm laborers; farm managers.

TABLE 10. ILLUSTRATIVE OCCUPATION BY INDUSTRY PROFILES – CONSTRUCTION AND BUSINESS AND REPAIR SERVICES, MICHIGAN, 1960 AND 1980

Occupation	Construction		Business and Repair Services	
	1960	1980	1960	1980
Professional, technical, and kindred workers	5.08 %	9.12 %	7.19 %	8.80 %
Farmers and farm managers	--	--	--	--
Managers, officials, and proprietors, except farm	10.67	14.14	11.54	13.70
Clerical and kindred workers	5.20	6.31	17.71	28.40
Sales workers	0.51	0.64	3.68	3.70
Craftsmen, foremen, and kindred workers	54.03	40.29	33.60	22.20
Operatives and kindred workers	9.24	10.18	12.71	11.00
Private household workers	--	--	--	--
Service workers, except private household	0.54	0.59	6.71	7.90
Farm laborers and farm foremen	--	--	--	--
Laborers, except farm and mine	14.03	17.81	5.86	4.30
Occupation not reported	0.70	0.92	1.00	--
Total	100.00 %	100.00 %	100.00 %	100.00 %

Sources: 1960 Census of Population, Volume 1, Characteristics of the Population, Part 24, Michigan, Table 25.

1980: Battelle projections.

The projected employment levels for each industry are shown as Matrix L (which is the same as Table 9). The distribution of the total employment in an individual industry which is described, on a percentage basis, by Matrix K, is multiplied against Matrix L. The result is Matrix M which describes the number of persons in each industry employed in each occupation. A summation of employment in each occupation across all industries yields Matrix N, total employment by occupation.

The educational attainment data for Matrix O are described on the same basis as educational attainment is represented in Matrix C. In other words, this matrix describes the proportion of each occupation having attained the various levels of educational attainment, such as 12 years, 13 to 15 years, 16 years, etc. A multiplication of Matrix O times the total number of persons in each occupation yields a description of the labor force in terms of the number of workers in each occupation having attained specified levels of educational attainment.

When the above analysis is accomplished solely in terms of the expected occupational profile of the specified industries and in terms of the formal educational attainment required, the result obtained is a demand for workers by level of educational attainment.

Reconciliation of Supply and Demand. A mechanical interaction of supply and demand is achieved in Matrices Q, J, and R (see Figure 3). The basic assumption of this mechanical interaction is that shortages of supply will be allocated to individual occupations on the basis of their relative demand, at each level of educational attainment. As a practical matter, this purely mechanical result is unrealistic, since the labor market operates to provide substitutions in the labor force when the ideal demand situation cannot be achieved. For example, a shortage of engineers may be set by substituting a higher proportion of technicians than previous experience would have indicated. To cite another case, the higher salaries offered to professional and technical workers in short supply may attract college graduates from clerical and sales occupations with the result that these latter occupations do not realize a proportionate share of workers having attained a college degree.

For purposes of the final projections associated with the Michigan Manpower Study, selected adjustments were made in both the supply sector of the model (Sector A) and the demand sector (Sector B) so that the mechanical interaction of supply and demand actually describe the result of substitutions such as those described above. The next section presents, in succinct form, description of the mathematical program involved in the labor force analysis of Battelle's Socio-Economic Model.

Program Description

The computer program for Battelle's Socio-Economic Model consists of three subroutines and one control program. The subroutines are:

(1) Supply Analysis – Subroutine and Section A (see Figure 3)

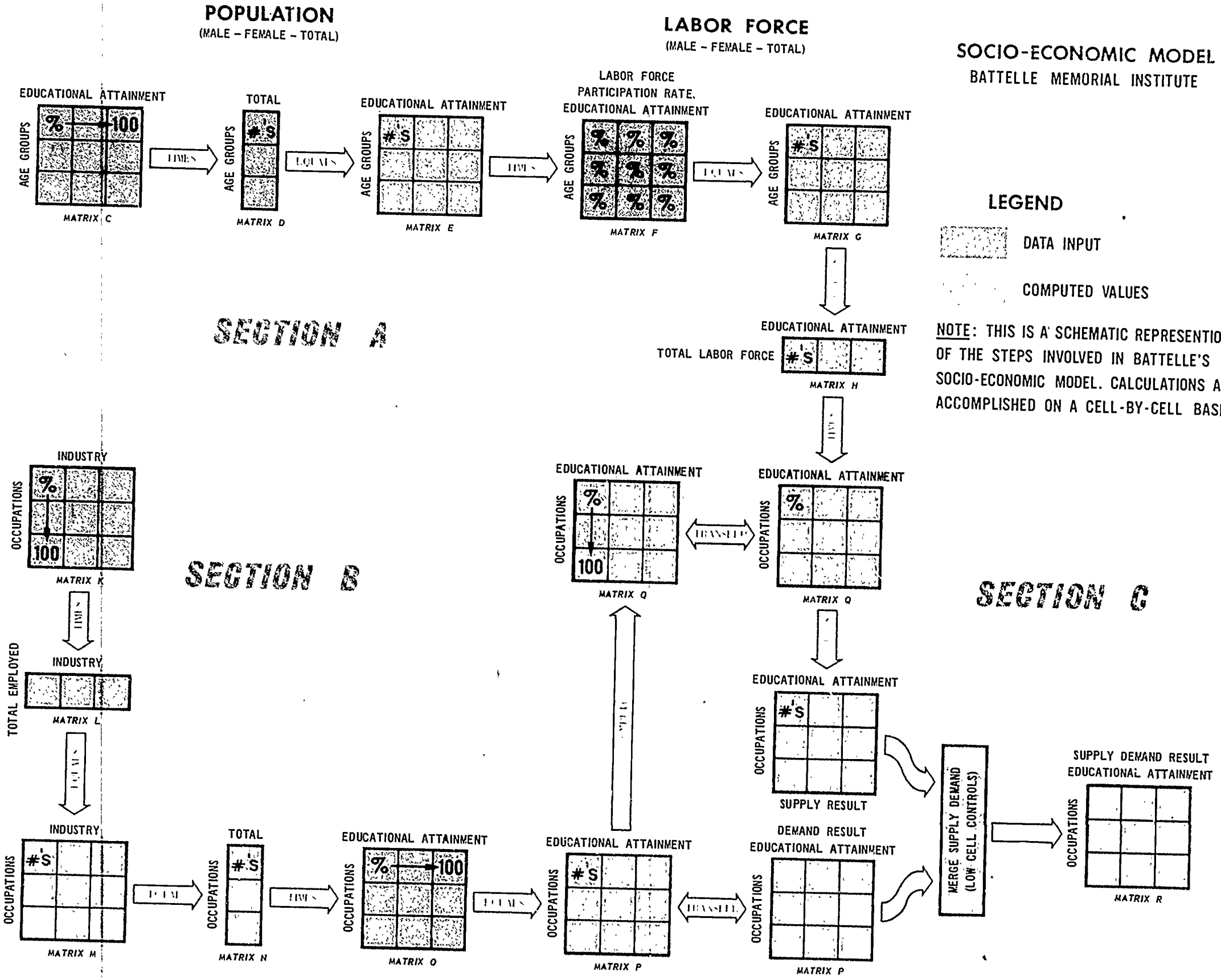


FIGURE 3. BATTELLE'S SOCIO-ECONOMIC MODEL

(2) Demand Analysis – Subroutine and Section B (see Figure 3) and

(3) Supply-Demand Reconciliation – Subroutine and Section C (see Figure 3).

The control program simply calls in the appropriate subroutines as specified on a control card, with the following options:

(1) Subroutines A, B, and C in sequence

(2) Subroutines A, B in sequence

(3) Subroutine A only

(4) Subroutine B alone or with Subroutine C, with data that otherwise would have been calculated by Subroutine A provided by card input

The subroutines are completely independent of the control program in that each handles its own input/output operations.

Colored blocks in Figure 3 indicate input values. Subroutine A reads as input an "age group vs. educational attainment" Matrix C(i, j), with specified percentages, together with an "age group" column Matrix D(i); performs an element by element multiplication C(i, j)*D(i) to obtain the "age groups vs. educational attainment" Matrix E(i, j), reads in the "age groups vs. labor force educational attainment" Matrix F(i, j), obtains Matrix G by element by element multiplication E(i, j)*F(i, j), then forms Matrix H, "educational attainment total", such that each element $H(j) = \sum_{i=1}^{n} G(i, j)$.

Subroutine B similarly reads in Matrix K(i, j), "occupations vs. industry", and Matrix L(j), "totals vs. industry", computes Matrix M(i, j) = K(i, j)*L(j), "occupations vs. industry", forms Matrix N, "occupations total", such that each element $N(i) = \sum_{j=1}^{n} M(i, j)$, reads in Matrix O(i, j) "occupations vs. educational attainment", and forms Matrix P(i, j), "occupations vs. educational attainment (demand result)", where P(i, j) = N(i)*O(i, j).

Subroutine C accepts Matrix P(i, j) from Subroutine B, and Matrix H(j) either from cards or from Subroutine A, converts Matrix P into Matrix Q(i, j), "occupations vs. educational attainment", and forms Matrix J, "occupations vs. educational attainment (supply result)", so that J(i, j) = Q(i, j)*H(j), and finally forms Matrix R, "supply-demand result", such that each element of R(i, j) is the result of an element by element comparison of Matrices P and J, with the smaller being placed into Matrix R. All matrices are output.

GENERAL ASSUMPTIONS

The major portion of this report is concerned with the secular trend in economic growth which is anticipated for the state of Michigan during the period 1960 through 1980*. In order to develop these employment estimates it has been necessary to make several assumptions concerning the general economic environment of this 20-year period.

The basic assumptions which have been made are the following. During this 20-year period it is assumed that there will be no major economic recession which will seriously affect the long-term growth pattern in the state and in the nation. This is an assumption that fiscal and monetary policy will be implemented to generally achieve a relatively full employment economy ("relatively full employment" is defined as reported unemployment rate of 6 percent of the total labor force or less).

With respect to the international political situation it is assumed that international political tensions will persist, but that no major military efforts will be undertaken. In this respect, the 1965-1966 period, with the military buildups of the Viet Nam crisis, represents a deviation from the normal level of military commitment which is assumed for the study period. It should be pointed out in this context that even the buildups for Viet Nam during 1965 resulted in a rather modest demand upon gross national product for defense-related activities. Expressed in other terms, it is assumed in the national

TABLE 11. AVERAGE RATE OF DEVELOPMENT OF SELECTED TECHNOLOGICAL INNOVATIONS(a)

Factors Influencing the Rate of Technological Development	Incubation Period(b) (years)	Commercial Development(c) (years)	Total Development (years)
TIME PERIOD			
Early 20th century (1885-1919) .	30	7	37
Post-World War I (1920-44) . .	16	8	24
Post-World War II (1945-64) . .	9	5	14
TYPE OF MARKET APPLICATION			
Consumer	13	7	20
Industrial	28	6	34
SOURCE OF DEVELOPMENT FUNDS			
Private industry	24	7	31
Federal Government	12	7	19

(a) Based on study of 20 major innovations whose commercial development started in the period 1885-1950.
(b) Begins with basic discovery and establishment of technical feasibility and ends when commercial development begins.
(c) Begins with recognition of commercial potential and the commitment of development funds to reach a reasonably well-defined commercial objective, and ends when the innovation is introduced as a commercial product or process.

Source: Frank Lynn, An Investigation of the Rate of Development and Diffusion of Technology in Our Modern Industrial Society: as reported in Technology and the American Economy Report of the National Commission on Technology Automation, and Economic Progress, Volume 1, February, 1966 (U.S.G.P.O., 0-788-561, Washington, D.C. 20402).

*The analysis of 1967, which is included near the end of this report, is an exception to this general statement.

and state projections which comprise the bulk of this report that military requirements will account for a generally decreasing proportion of the gross national product during the coming one- and one-half decades.

The current economic environment is identified with considerable concern about price inflation. For purposes of this study, projections of the national economy have been developed in terms of constant prices. This should not be interpreted as an assumption that there will not be inflation. Rather, the analysis of this report has been developed in real terms in order to provide a consistent framework for evaluating future economic trends within the context of educational planning and labor force projections.

Finally, while a portion of this report is directly concerned with technological changes in specific industrial areas, it is important to specify certain assumptions concerning the nature of technological change in the future. First, it is assumed that there will be no legislative programs designed to restrict technological progress. The growth in the real standard of living, which is represented by the national economic growth pattern outlined in a later section of this report, can only be accomplished if productivity increases are encouraged in all sectors of our economy. Second, it is expected that the rate of technological progress will not dramatically increase (see Table 11). We concur with the general findings of the President's Commission on Automation relative to the rate of technological progress.*

> Our study of the evidence has impressed us with the inadequacy of the basis for any sweeping pronouncements about the speed of scientific and technological progress. There are, however, a few measurable aspects of the process about which reasonable statements can be made. Our broad conclusion is that the pace of technological change has increased in recent decades and may increase in the future, but a sharp break in the continuity of technical progress has not occurred, nor is it likely to occur in the next decade.
>
> There appears to be no direct method of measuring the rate of technological change through the number of significant innovations or their economic effects. Therefore, indirect measures must do. The most useful appear to be indexes of productivity and productivity growth, particularly output per man-hour (the volume of final output of goods and services produced in a year divided by the number of man-hours worked in the year). Output per man-hour is not, of course, a measure of technical progress alone. It depends also upon the education, skill, and health of workers and managers and upon the plant and equipment with which they work....
>
> The most inclusive useful index of productivity is output per man-hour in the whole private economy. In the 35 years before the end of the Second World War, output per man-hour in the private economy rose at a trend rate of 2 percent a year. But this period includes the depression decade of the 1930's. Between 1947 and 1965 productivity in the private economy rose at a trend rate of about 3.2 percent a year. If agriculture is excluded, the contrast is less sharp, with the rate of increase 2 percent a year before the war, and 2.5 percent after....

*Technology and the American Economy, Report of the National Commission on Technology, Automation, and Economic Progress, Vol. 1, February 1966.

...Growth at 2 percent a year doubles in 36 years; growth at 2.5 percent a year doubles in 28 years; growth at 3 percent a year doubles in about 24 years. The notion that the product of an hour of work can double in 24 years – not much more than half a working lifetime – is quite enough to justify the feeling of continuous change that is so much a part of the contemporary environment. The time scale has indeed shrunk visibly.

...Studies made for the Commission confirm the common belief that things happen faster nowadays: the lag between discovery and commercial application has shortened. It is nevertheless still substantial.

Lynn concluded from an examination of a limited sample of 20 major technological innovations during the last 60 to 70 years that every step in the process of technological development had accelerated. The typical time between a technical discovery and recognition of its commercial potential had fallen from about 30 years before the First World War to 16 years between the wars, and 9 years after the Second World War. The additional time required to convert these basic technical discoveries to initial commercial application had decreased from about 7 years to about 5 years.... The rate at which new technologies diffused throughout the economy after their introduction had speeded up considerably between the early part of the century and the interwar period, with only slight further acceleration after 1945. Technological innovations with consumer applications were developed and diffused nearly twice as fast as those with industrial applications. The implied shrinking of the time scale is quite consistent with the productivity figures already given.

Technological changes must encompass a general diffusion of the most advanced technology into the many firms and regions of the national economy. Given the existing political and private institutions of U. S. society, it is not anticipated that the basic pattern of technological progress will be altered during the coming 15 years.

THE NATURE AND LIMITATIONS OF EMPLOYMENT ESTIMATES

The assumptions and judgments which have been necessary in order to develop estimates of the characteristics of Michigan's labor force in the 1970's are specified throughout each section. In addition, however, the next few pages summarize the limitations and usefulness of the analysis which comprises the Michigan Manpower Study. This discussion of limitations is presented in order that the users of these estimates will better understand the character of the specific estimates.

Decisions must be made today about the character of the educational system of the future. Human-resource development is a significant consideration as the U. S. economy emerges to become an economy where large sectors of employment are based upon the "conceptual skills" developed in the classroom. In earlier periods of economic history limitations on economic growth were frequently associated with the lack of specific skills which might be developed through apprenticeship programs or other types

of training activities. These areas of skill development were less related to the formal educational system than are the technical and specialized skills of today's high-level manpower (engineers, scientists, scientific managers, technicians, and support personnel associated with computer technology, etc.).

The concept that the labor force of the future will be closely associated with the educational system of today, especially if human resources are to be fully utilized (or conversely, if human resources are not to serve as a major constraint) to economic growth in the U. S. or region such as Michigan leads to the need to better understand labor force characteristics. The occupation by industry analysis provides many insights into these characteristics. The steps involved in the analysis associated with the Michigan Manpower Study have been outlined. However, since this is a pioneering effort, several problem areas should be clearly recognized, so that the results may be properly interpreted and so that improvements can be sought. Problem areas in any study such as the Michigan Manpower include:*

(1) Productivity Estimates. Trends in productivity by economic sector show erratic patterns.** These erratic patterns are partly a result of the difficulties associated with measuring, through time, the actual inputs and the actual outputs of an industry sector. The Standard Industrial Classification System, for example, brings with it assumptions concerning the composition of output in any given industry sector. As individual firms grow and evolve, the composition of output associated with an industry sector may change through time. Likewise, the composition of labor input may vary as technology changes the occupational structure and as the level of educational attainment, on-the-job training and experience, and labor-machine relationships change through time. Nevertheless, one must ascertain general tendencies in the direction of productivity change if relationships are to be obtained between future levels of economic activity and employment levels.

(2) Aggregate Economic Activity. Projections of the future level of aggregate economic activity are clearly subject to uncertainties associated with developments such as the current military buildup for Viet Nam. Further, consumer behavior patterns evidently change through time. The identification of patterns and, perhaps more ideally, of causal factors is made difficult by the limited data available today concerning consumer behavior patterns.*** Another special problem associated with projections of aggregate economic activity relates to the uncertainties associated with the substitutions which are possible among industries, as individual industrial sectors compete for the consumer's dollar. As new products are introduced by industry, the allocation of the consumer's dollar may be altered substantially relative to an established historic pattern. Finally, fadism, social emulation, and other highly variable sociological patterns contribute to uncertainties relative to the structure of industry output at a future point in time.

*The Organization for Economic Cooperation and Development is currently completing a technical evaluation of the Mediterranean Regional Project which also focuses upon relating labor force characteristics to educational planning. (See: H. S. Parnes, Forecasting Educational Needs for Economic and Social Development, Organization for Economic Cooperation and Development for a statement of methodology used in the Mediterranean Regional Project.) This section has benefited from a working draft evaluation paper prepared by O.E.C.D. since many of the conceptual problems are similar.

**Source: See John Kentrick, Productivity Trends in the United States, National Bureau of Economic Research, Princeton University Press, 1961.

***Battelle's studies have used occupation type, income level, and educational attainment as descriptions of socio-economic groups with similar consumption patterns.

(3) Occupational Classifications. Manpower-requirements analysis is currently limited by the character of occupation by industry data. First, one can argue that the classification system of occupations is not truly descriptive of "requirements". It may be argued that job categories are, in part, a product of sociological values. For example, individuals may classify themselves in a classification which is not truly descriptive of the job function (for example, typists classifying themselves as secretaries, or technicians classifying themselves as engineers).

Additionally, it may be argued that the occupation profile at a given point in time represents a specific interaction of supply and demand and should not be considered as representative of "technological requirements". For example, if a large supply of engineers is available, a portion of the engineers may be employed in technician-level activities. Hence, a growing proportion of the engineers in the total employment of a specific industry may simply represent a growing availability of engineers rather than a growing technological demand for engineers. Likewise, one could argue that the occupational profile of a given point in time represents an inefficient allocation of resources resulting from a shortage of skills. In other words, a shortage of highly skilled manpower may be compensated for by a more intense utilization of clerical and service personnel, resulting in a lower aggregate productivity than would be defined on a purely technological basis.

On balance, users of historical profiles of occupation by industry must carefully evaluate the supply and demand conditions which lead to the reported profiles, before these profiles can be meaningful for projection purposes.

(4) Educational Requirements. The relationship between specific occupations and educational requirements presents additional difficulties. It may be observed in terms of 1960 census data that the formal educational attainment reported by individuals in specific occupational classifications varied considerably. In other words, one may question the extent to which a demand for employment in an occupation necessarily brings with it specific educational requirements. Further, assuming that a relationship is established in terms of past situations, one may argue that the technological changes will act to change job functions so that similar occupational classifications may require a different educational pattern than was reported in the past. For example, the utilization of data processing equipment may influence the formal education demanded for persons in clerical occupations.

In summary, the level of employment in a sector and hence in occupations is the result of the share of gross national product earned by that sector, the level of gross national product itself, the productivity of labor in the production, of the output of a sector, and finally the distribution of total employment among various occupations. A sensitivity analysis will show that variations in productivity, for example, may offset the result of careful estimates of occupational distribution. Hence, one must be careful to devote proper attention to each of the four elements, not simply to the occupational distribution itself.

THE VALUE OF THE MANPOWER-REQUIREMENTS APPROACH

The significance of the manpower-requirements approach can be evaluated by first estimating the educational requirements of labor force growth, then adding in the

educational requirements associated with a shift in educational requirements of each occupation. The sensitivity of the total labor force to this type of projection may be used to evaluate the merit (or lack of merit) of detailed evaluation of occupational changes within industries. In particular, one may examine the occupation-by-industry matrix to identify those large cells of employment which bring with them special demands of the educational system. Detailed and careful evaluation of these highly important cells (which may be only evaluated through use of the occupation by industry matrix) may lead to important decisions relative to the development of plans for the educational system.

The technical evaluation of the Mediterranean Regional Project* concludes that the manpower requirements approach does meaningfully present important and significant implications for educational planning. Of course, analysis of productivity change, of the relationship between occupation mix and productivity, and the proper education for specific occupations merit much additional research.

Nevertheless, despite the limitations associated with the current level of economic understanding in these important areas, the insights provided by the manpower requirements approach to educational planning permit decision makers to make better judgments regarding alternatives than it is possible to make in the absence of such analysis.

Social scientists at Battelle Memorial Institute have accumulated over five years of experience with the model described in the early portions of this report. During this time many refinements have been incorporated and it is especially noteworthy that the labor force section of the general Socio-Economic Model has provided data and framework for a number of related studies.

In closing, it should be emphasized that the analysis associated with the manpower-requirements approach to educational planning is not the only set of considerations which should enter into educational planning. Obviously the cultural objectives of education should be given a high level of importance. The role of the manpower requirements approach is well stated by Parnes:**

> ...the economic and cultural implications of education, ... are inextricably interrelated, and both must be taken into consideration in formulating educational policy. ...Sound educational planning must rely on both these approaches for neither can logically be employed alone. The "cultural approach" is necessary because economic growth is not the only objective of societies, and no one would maintain that the sole function of education is to contribute to that end. Moreover, even if one were disposed singlemindedly to pursue the goal of rapid economic development, the subtle interrelationships between the "economic" and the "cultural" implications of education noted above would dictate against an exclusive reliance on the "manpower requirements" approach. On the other hand, to ignore manpower requirements would be equally unsatisfactory, because irrespective of one's interpretation of the social role of education, it clearly has vocational implications. Even if one holds that educational policy should be designed solely to encourage individual self-fulfillment, it would

*See elsewhere in this report.

**H. S. Parnes, "The Mediterrannean Regional Project, Forecasting Educational Needs for Economic and Social Development" (1962).

be difficult to argue that no attention needs to be paid to the prospective opportunities of the educated to earn a living. To be sure, the 'manpower requirements approach" alone cannot answer the question "how much education is needed", but it provides useful guides to the desirable structure of whatever educational expenditure is decided upon.

Thus, on balance, it appears clear that the methodology of Battelle's Socio-Economic Model offers a useful framework for analysis and it has the merits of forcing consideration of the crucial issues involved in economic growth. Further it provides a sophisticated approach to the careful evaluation of data which is readily available in the U. S., especially in the cross-sectional data provided by the decennial census.

ECONOMIC OUTLOOK AND EMPLOYMENT GROWTH IN THE 1970'S

The emphasis in this section will be on the growth of employment in the individual industries which comprise the economy of the state of Michigan. To serve as a background for these employment estimates for the 1970's, a brief discussion of the long-term economic outlook for the national economy follows.

The U. S. Economy in the 1970's

A number of projections of the U. S. economy in the 1970's have been published. Generally, these projections foresee a pattern of strong economic growth, exceeding the long-term pattern of growth in national output. Gross national product in 1929 equaled 203.6 billion dollars (in 1958 prices).* By 1950 the level of gross national product had increased to 355.3 billion dollars, an increase of 2.8 percent per year. During the 1950's the growth in gross national product increased to 3.2 percent per year, as GNP increased from 355.3 billion dollars in 1950 to 487.8 billion dollars in 1960. During the expansion of the early 1960's the annual growth rate has increased sharply. Preliminary estimates for gross national product in 1965 are 609 billion dollars, an increase of 4.5 percent per year since 1960.** A number of projections of gross national product between 1960 and 1975 are presented in Table 12. This table reveals a range from 3.5 percent per year to 5.3 percent per year.

The variability in projections of the long-term outlook for the U. S. economy relates primarily to estimates of productivity increase. The national population and labor force projections presented in Table 13 are widely used as the basis for many long-term projections.

*All estimates of gross national product in this section are in terms of 1958 prices, except for Table 12 which is in 1960 prices.

**Economic Report of the President, January, 1966, Table C-2, p. 210.

TABLE 12. PROJECTIONS OF GROSS NATIONAL PRODUCT

Agency	1975 GNP (billions of 1960 dollars)	Annual Growth Rate	Date Published
Joint Economic Committee	low 939.0	4.3%	1964
	md. 1,014.0	4.8%	
	high 1,094.0	5.3%	
Twentieth-Century Fund	955.0	4.4%	1964
Resources for the Future (Interpolated)	low 850.0	3.6%	1963
	md. 921.0	4.1%	
	high 1,064.0	5.1%	
Stanford Research Institute	851.0	3.6%	1964
National Planning Association	low 848.0	3.5%	1965
	md. 917.0	4.1%	
	high 970.0	4.5%	
A. D. Little (Interpolated)	859.0	3.6%	1964
Battelle Memorial Institute	950.0	4.4%	1965

Sources: Landsberg, Hans H., Fischman, Leonard L., and Fisher, Joseph L., Resources in America's Future Patterns of Requirements and Availabilities 1960-2000, Washington 6, D. C. (The John Hopkins Press).

Haber, William, Spivey, W. Allen, Warshaw, Martin R., Editors, Michigan in the 1970's, An Economic Forecast, Bureau of Business Research, Ann Arbor, Michigan, Michigan Business Studies, Vol. 16, No. 4, 1965.

The World of 1975, Long Range Planning Service, Industrial Economics Division, Stanford Research Institute, Menlo Park, California. (Copyrighted.)

National Economic Projections to 1975/76, National Economic Projection Series, Report No. 65-2, August, 1965, Center for Economic Projections, National Planning Association, 1606 New Hampshire Avenue, N. W., Washington, D. C.

Little, Arthur D., Ohio River Basin Comprehensive Survey, United States Government Printing Office, Washington: 1964.

Knowles, James W., The Potential Economic Growth in the United States. Study Paper No. 20, Joint Economics Committee, Congress of the United States. United States Government Printing Office. Washington: 1960.

TABLE 13. PROJECTIONS OF THE POPULATION AND LABOR FORCE IN THE UNITED STATES, 1970, 1975, 1980 (THOUSANDS)

Age	1970		1975		1980	
	Population	Labor Force	Population	Labor Force	Population	Labor Force
14-19	22,941	8,570	24,801	9,328	25,164	9,576
20-24	17,104	11,733	19,057	13,196	20,624	14,444
25-34	25,220	16,957	31,139	21,090	36,517	24,937
35-44	22,996	16,485	22,458	16,285	25,267	18,470
45-54	23,360	17,400	23,574	17,834	22,194	17,024
55-64	18,500	11,655	19,845	12,621	21,056	13,521
65 and over	19,570	3,199	21,172	3,292	23,086	3,436

Source: U. S. Department of Labor, Bureau of Labor Statistics, The Manpower Report of the President, March 1965, Tables E-1 and E-2.

While a large number of projections of gross national product are available, there are only a limited number of published estimates of employment by industry. Of the published industry employment projections, the recent report by the President's Commission on Automation merits special consideration, since they will continue to receive widespread attention. Table 14 reproduces the 1970 estimates published in the President's report on "Technology and the American Economy". Annual rates of growth have been computed for each of the industry sectors to provide a general index of employment growth expected nationally in the individual industry sectors. However, it should be emphasized that throughout the major portion of this report, the estimates of labor force characteristics have been determined within a framework of household data, essentially as provided by the Bureau of Census. Hence, establishment data similar to the projections presented in Table 14 were used only indirectly during Phase I of the Michigan Manpower Study.

The Socio-Economics Research Section of Battelle Memorial Institute has developed national employment projections using the Socio-Economic Model described earlier. The essential characteristic of these projections is that they were developed by an analysis of the individual sectors of the national economy in terms of the relative share of total national output historically contributed by each of the individual sectors. National-output levels were determined on the basis of estimates of productivity and an analysis of consumer expenditures by individual socio-economic classes. (A socio-economic class is made up of households sharing common characteristics in terms of the level of income received by the household, the educational attainment of the household head, and the occupation of the household head.) Consumer expenditures were analyzed in order to determine the aggregate demands to be placed upon individual industry sectors. Employment level in industry sectors, hence, is a function of aggregate demand plus projected productivity.

TABLE 14. EMPLOYMENT OF NONAGRICULTURAL WAGE AND SALARY WORKERS BY INDUSTRY, 1964, AND PROJECTED REQUIREMENTS 1975[a]

Industry	1964	1975	Annual Rate of Growth 1964-75
	Thousands		
Total	58,156	75,875	2.4
Mining	633	620	0.2
Contract construction	3,056	4,190	2.9
Manufacturing	17,259	19,740	1.2
Durable goods	9,813	11,500	1.5
Ordnance and accessories	247	250	0.1
Lumber and wood products except furniture	603	550	-0.8
Furniture and fixtures	406	510	2.1
Stone, clay, and glass products	612	675	0.9
Primary metal industries	1,231	1,290	0.4
Fabricated metal products	1,187	1,460	1.8
Machinery	1,606	2,050	2.2
Electrical equipment and supplies	1,548	2,000	2.4
Transportation equipment	1,605	1,730	0.7
Motor vehicles and equipment	755	800	0.5
Aircraft and parts	604	575	-0.4
Instruments and related products	269	510	3.0
Miscellaneous manufacturing industries	399	475	1.6
Nondurable goods	7,446	8,240	0.9
Food and kindred products	1,746	1,665	-0.4
Tobacco manufactures	89	80	-1.0
Textile mill products	891	880	-0.1
Apparel and related products	1,302	1,525	1.5
Paper and allied products	625	775	2.0
Printing, publishing, and allied products	951	1,100	1.3
Chemical and allied products	877	1,125	2.3
Petroleum refining and related industries	183	160	-1.2
Rubber and miscellaneous plastics products	434	580	2.6
Leather and leather products	348	350	0.1
Transportation and public utilities	3,947	4,425	1.1
Trade, wholesale and retail	12,132	16,150	2.6
Finance, insurance, and real estate	2,964	3,725	2.1
Service and miscellaneous	8,569	12,275	3.3
Government	9,595	14,750	4.0
Federal Government	2,348	2,525	0.7
State and local government	7,248	12,225	4.8

(a) Projections assume a national unemployment rate of 3 percent in 1975. The choice of 3 percent unemployment as a basis for these projections does not indicate an endorsement or even a willingness to accept that level of unemployment.

Source: U. S. Department of Labor, Bureau of Labor Statistics, America's Industrial and Occupational Man-Power Requirements, 1964-75: as reported in Technology and the American Economy, Report of the National Commission on Technology, Automation, and Economic Progress, Volume 1, February 1966 (U.S.G.P.O., 0-788-561, Washington, D.C. 20402).

Notes: These projections are based upon establishment data. Therefore, they are not directly comparable to projections of Michigan's labor force which are presented later in this report.

Because of rounding, sums of individual items may not equal totals.

Battelle's study of the national economy has been designed as a three-year study. The first year of this study has been completed and was focused on consumer-expenditure projections. The current year of the study is concerned with projections of input-output relationships for 1975, using the demand vectors derived from the consumer expenditure pattern analysis. The third year of Battelle's analysis of national economic activity will focus on governmental receipts and expenditures, at all levels of government. While the entire analysis of the structure of the U. S. economy in 1975 has not been completed, it is possible to infer gross national product levels from the productivity levels, labor force size, and consumer expenditure patterns derived during the first year of this analysis. Battelle's Socio-Economic Research Section estimates that gross national product in 1975 will be 950 billion dollars (in 1960 dollars). This represents a growth of 4.4 percent per annum from the gross national product level achieved in 1960.

In terms of employment level by industry, Table 15 summarizes the growth in employment estimated for the U. S. on an industry-by-industry basis in Battelle's Socio-Economic Model. Overall employment is expected to increase 31 percent between 1960 and 1975. Significantly, agriculture (meaning farming or the production phase of agriculture), forestry and fisheries will continue its historic decline, experiencing a reduction of 37 percent in total employment between 1960 and 1975. Also, mining will decline from 654,000 persons in 1960 to 270,000 persons in 1975, largely as a result of continued mechanization of the mining industry and a shift to resources produced outside of national boundaries.

Of particular significance is the relatively slow increase in total manufacturing employment. From 1960 to 1975 it is expected that manufacturing employment will decline from 27.1 percent of total employment to 23 percent of total employment. This reduction in the share of total employment obtained by manufacturing represents a reversal of a long-term increase in the share of total employment which has been identified with manufacturing. In 1900 approximately 15 percent of total employment was found in manufacturing. This increased to nearly 24 percent in 1930, 23.2 percent in 1940, and 26.0 percent in 1950. The projected reduction in the relative importance of manufacturing as a source of employment is caused by changes in consumer expenditures (with an increasing portion of consumer expenditures being devoted to service or nonproduct related consumer categories) and the higher productivity which will be evident in manufacturing establishments. This reduction in the relative importance of manufacturing represents, in the judgment of Battelle's social scientists, a fundamental transition in the structure of the U. S. economy. The emergence of employment in service industries as a dominant source of employment combined with the shift in occupations from blue-collar to white-collar occupations is identified as the human-resources era in the development of the U. S. economy, where employment will be characterized by reliance upon human aptitudes for adaptability, control, and creativity.

The growth of professional services from 11.7 percent of total employment to 20.7 percent of total employment in 1975 is one manifestation of the human-resources era. Essentially, it is becoming evident that an increasing proportion of the labor force must be characterized by a high level of skill development in order to meet the demands of the work place. In the post-World War II period, the white-collar occupations (i.e., professional, technical, managerial, clerical, sales, and kindred workers) have become the most important in the labor force. At the end of World War II, there were 1.2 "blue-collar" workers (i.e., craftsmen, foremen, operatives, laborers, and kindred workers) for each white-collar worker. By 1955 the ratio approximated one

TABLE 15. U.S. EMPLOYMENT BY INDUSTRY

	1960	1975	Percent Change 1960-75	Percentage Distribution 1960	Percentage Distribution 1975
	Thousands				
Agriculture, forestry, and fisheries	4,350	2,730	-37	6.7	3.2
Mining	654	270	-59	1.0	0.3
Contract construction	3,816	4,790	26	5.9	5.6
Manufacturing	17,513	19,500	11	27.1	23.0
Transportation	2,740	2,550	- 7	4.2	3.0
Telecommunications	819	1,190	45	1.3	1.4
Utilities	898	1,240	38	1.4	1.5
Trade					
Wholesale	2,213	2,940	33	3.4	3.5
Retail	9,580	13,300	39	14.8	15.6
Finance, insurance, and real estate	2,695	4,640	72	4.2	5.5
Business and repair services	1,611	2,720	69	2.5	3.2
Personal services	3,858	5,550	44	6.0	6.5
Entertainment and recreation services	503	640	27	0.8	0.8
Professional and related services	7,578	17,600	132	11.7	20.7
Public administration	3,203	5,260	64	5.0	6.2
TOTAL EMPLOYMENT	64,639(a)	84,920	31	100.0(a)	100.0

(a) Includes industry Not Reported of 2,608,085 in 1960 and 4.0 percent in 1960.

Source: 1960 Census of Population, Vol. 1, Characteristics of the Population, Part 1, U.S. Summary, Table 92, p 223.
1975 Estimates by Battelle Memorial Institute, Socio-Economics Research.

blue-collar worker for each white-collar worker. In 1964 it is estimated that there were slightly more than 1.2 white-collar workers for each blue-collar worker. Thus, in the recent past, white-collar workers have emerged to a dominant position in the occupational categories found in the labor force. Nationally, Battelle estimates that by 1975 there will be more than two white-collar workers for each blue-collar worker. The specific occupation profiles for Michigan's labor force will be presented later in this report.

Over all, the growth in gross national product to 950 billion dollars in 1975 and the growth in population described in Table 13 may be described in terms of a significant increase in the average family income. In 1960 average family income was approximately $6,800. By 1975 Battelle estimates that average family income will approximate $9,450. This estimate reflects a fundamental judgment about the allocation of productivity increases. Fundamentally, productivity increases may be associated with

(a) Increases in leisure (or nonwork) time,

(b) Increases in income, or

(c) A combination of the two.

Traditionally, in the postwar period, the productivity increases of American industry have been primarily translated into higher income levels and, hence, a higher standard of living for the average U. S. family. It is expected that this basic trend will continue through the 1970's. In other words, the growth in average family income from $6,800 to $9,450 will consume the major portion of expected productivity increases. The result will be that declines in the average work week will be relatively modest. For wage and salary workers, it is assumed that the reduction in average hours worked per week will average less than 2 hours over 1960 levels.

In summary, the general outlook for development of the U. S. economy in the 1970's is optimistic. Specifically, the estimates of economic activity in 1975 developed by Battelle's Socio-Economics Research Section relates to an overall growth of 4.2 percent per year from the level achieved in 1965. Additionally, Battelle's social scientists foresee that the structure of the national economy of the 1970's will represent basically different characteristics than have previously been experienced. This economy is characterized as a human resources economy with emphasis on employment in semiprofessional and professional occupations and with a high level of consumer expenditures being devoted to nonproduct activities.

The Michigan Economy in the 1970's

The estimates of employment on an industry-by-industry basis which have been developed by Battelle's Socio-Economics Research Section for the Michigan Manpower Study have been derived on the basis of two types of analysis: first, through an analysis of the role of Michigan's economy in the national economy, described briefly above; and, second, through a more detailed analysis of the major industries which comprise Michigan's economic structure. In general terms, the population projections presented in Table 3 are associated with an economic outlook which foresees total

employment in Michigan growing from 2,727,000 in 1960 to 3,228,000 in 1970 and 3,936,000 in 1980. The specific employment levels estimated for individual industries for 1970, 1975, and 1980 are reported in Table 16, since a significant portion of total employment in Michigan will continue to be in manufacturing (29.22 percent in 1980) and, since a major portion of manufacturing employment is related to the automotive industry, the discussion of employment by industry in Michigan should appropriately begin with a discussion of the employment outlook in the automotive industry.

EMPLOYMENT IN THE MOTOR-VEHICLE INDUSTRY IN MICHIGAN IN 1980

The manufacturing, servicing, and operation of motor vehicles is a major source of income to a large portion of the working population of the United States. The motor-vehicle industry is especially important to the metropolitan area of Detroit, "the automotive center of the world", and to the economy of the state of Michigan.

Battelle's estimates of the demand for automobiles are based upon several important assumptions concerning the role of the motor vehicle in private and business travel and in the movement of freight. The organization of the United States economy is closely related to the role of the automobile in the overall transportation system. On the basis of the old census definition of rural and urban, the percent of the U. S. population found in urban areas increased from 39.7 percent in 1900 to 63.1 percent in 1960. According to the current urban definition (which was introduced in 1950) the urban population expanded from 64.0 percent of the population in 1950 to 69.9 percent in 1960.* Analysis of Standard Metropolitan Statistical Areas (S.M.S.A.'s) reveals that the growth within urban areas has not been uniform. Rather, it has been characterized by an increasing proportion of the urban population residing outside of the central city. In 1940 approximately 37 percent of the population in S.M.S.A.'s resided outside of the central city. By 1960 this ratio increased to 48.6 percent. Further, the rate of growth of the areas outside of central cities (suburban areas) increased between the 1940's and the 1950's. Between 1940 and 1950 the population residing outside central cities but inside S.M.S.A.'s increased 35.9 percent. Between 1950 and 1960 this same group increased 48.6 percent.** The rapid increase of population outside central cities continued in the period 1960-1963, increasing 8.8 percent compared with 2.8 percent for the central city and 4.6 percent for total population.***

These trends are particularly important if one is to evaluate the role of the automobile in society's satisfaction of overall transportation needs. One study pointed out that "more than three-fourths of all urban travel is by car, except in a few of the nation's oldest and largest cities".**** The proportion of urban travel devoted to automotive means may be expected to remain at this high level or increase as long as the population within metropolitan areas continues to locate in the suburban areas.

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*U. S. Bureau of the Census, U. S. Census of the Population: 1960, Vol. 1, Characteristics of the Population, Part A, Number of Inhabitants, Table 3, p. 1-4.

**Ibid., Table 33, p. 1-106.

***U. S. Bureau of the Census, Current Population Reports, Population Characteristics, Series P-20, No. 131, September 4, 1964, Table 4, p. 1.

****Wilbur Smith & Associates, Future Highways and Urban Growth, Automobile Manufacturers Association, February, 1961, p. 61.

TABLE 16. EMPLOYMENT BY INDUSTRY, MICHIGAN 1960, AND PROJECTIONS FOR 1970, 1975, 1980

Category	Thousands Employed			
	1960	1970	1975	1980
Agriculture, forestry & fisheries	93.7	67.0	61.0	55.0
Mining	15.3	13.0	12.0	11.0
Construction	125.6	151.0	165.0	181.0
Manufacturing	1035.9	1132.0	1148.0	1150.0
Durable goods	818.4	926.0	953.0	968.2
Primary metal industries	71.7	88.0	96.0	101.3
Fabricated metal industries*	91.8	104.0	107.0	108.0
Machinery, excluding electrical	147.1	155.0	156.0	156.0
Electrical machinery equipment	31.7	35.0	37.0	36.9
Motor vehicles & equipment	377.2	440.0	458.0	473.5
Other durables	98.9	104.0	99.0	92.5
Nondurable goods**	217.5	206.0	195.0	181.8
Food & kindred products	62.4	60.0	57.0	53.5
Chemicals & allied products	40.9	38.0	35.0	33.5
Petroleum & coal products	3.5	3.0	3.0	2.4
Other nondurables**	110.7	105.0	100.0	92.4
Transportation, communications, & utilities & sanitation services	155.6	171.0	179.0	188.0
Wholesale trade	80.7	100.0	111.0	124.0
Retail trade	403.3	484.0	532.0	586.0
Food & dairy product stores	74.1	78.0	80.0	78.5
General merchandise retailing	54.0	70.0	79.0	90.0
Motor vehicle & accessory retailing	35.2	48.0	56.0	65.0
Gasoline service stations	28.3	35.0	39.0	44.0

TABLE 16. (Continued)

Category	Thousands Employed			
	1960	1970	1975	1980
Eating & drinking places	74.4	88.0	96.0	105.0
Other retail trade	137.3	165.0	182.0	203.5
Finance, insurance, & real estate	89.6	122.0	143.0	168.0
Banking & credit agencies	34.8	52.0	63.0	77.0
Insurance	34.2	47.0	55.0	65.0
Other finance, insurance, & real estate	20.6	23.0	25.0	26.0
Business & repair services	61.3	74.0	81.0	89.0
Personal services	134.0	158.0	172.0	187.0
Entertainment & recreation service	17.7	24.0	28.0	32.0
Professional & related services	329.9	500.0	658.0	872.0
Medical & other health service (including hospitalization)	117.7	172.0	220.0	287.3
Educational services	152.0	220.0	291.0	406.4
Private	29.1	39.0	47.0	63.1
Government	122.9	181.0	244.0	343.3
Other professional & related services	60.2	108.0	147.0	178.3
Public administration	94.8	130.0	152.0	178.0
Industry not reported	89.6	102.0	108.0	115.0
TOTAL EMPLOYMENT	2726.9	3228.0	3550.0	3936.0

*Includes Not Specified Metal.

**Includes Not Specified Manufacturing.

Note: Detail may not add to total due to rounding.

Furthermore, rising real income levels and the close relationship between car ownership and high income per family support the assumption that the automobile will remain a major means of transportation, continuing to absorb a large portion of total family expenditures on transportation.

Historically, the dispersion of the population and increased ownership of the automobile resulted in a decline in the role of public transporation. The millions of passengers carried by surface and subway electric railways, trolley coaches, and motor buses have declined from a level of 23,254 in 1945* to 8,400 in 1963.** It has been argued that increased population and eventual changes in population density within urban areas will bring requirements for a larger role for urban transit. However, in the period 1965 through 1980 no dramatic changes in the role of transit will affect aggregate automotive demand. In order for transit to reverse its declining position, fundamental decisions must be made at the local level. For example, the San Francisco Bay Area Transit required a sizable bond issue*** and will not be in full operation until the early 1970's. In order for transit to gain a significant share of urban transportation, similar decisions must be made in a large number of metropolitan areas, and current indications suggest that it is unlikely that a major change of direction will be effective prior to 1980. At the same time, it should be recognized that increasing urban congestion will eventually bring additional pressures for expanded and improved transit facilities. Therefore, the longer term (two decades or more) outlook for transit may include prospects for greater reliance on mass transit systems.

As a result of the development of a National System of Interstate and Defense Highways, which will equal 41,000 miles on completion, and the improvement of freeway and state highway systems, motor vehicles have been earning an increasing share of domestic intercity freight traffic. In 1940 motor vehicles accounted for 9.5 percent of total domestic interstate freight traffic. By 1950 motor vehicles' share had increased to 15.8 percent and by 1963 had grown to 23.6 percent.**** This growth has been accomplished largely at the expense of railroad freight traffic. The volume of freight carried by motor vehicles may be expected to increase; however, increased competition from railroads, inland waterways, oil pipelines, and airways will significantly reduce the rate of growth in the share of intercity freight traffic carried by motor vehicles.

The role of private automobiles in domestic intercity passenger traffic will continue to remain at a high level. Throughout the period 1950 through 1963, private automobiles have accounted for approximately 90 percent of domestic intercity passenger traffic. During the same time period, airways have increased from 2 percent to 5 percent, largely at the expense of commercial motor carriers and railroads.***** Airways are expected to increase their share of millions of passenger miles with the result that the share of the total earned by private automobiles will decrease slightly by 1980. However, this is not expected to be a major factor in the aggregate demand for automobiles.

Finally, a basic assumption of this analysis is that the basic engineering design of the automobile will be similar to that evident in contemporary configurations. The

*In 1950, surface and subway electric railways carried 17,246,000,000 passengers.

**1965 Statistical Abstract, Table 810, p. 578.

***The bond issue will total $1 billion, with operation of the system scheduled for 1971. New York Times, July 15, 1964, p. 37.

****Ibid., Table 779, p. 559.

*****Ibid., Table 780, p. 559.

internal combustion engine will remain the prime source of motive power, although the gas turbine and electric energy will undoubtedly be introduced in limited numbers by 1980. The structural design of the automobile will continue to emphasize steel and limited amounts of other metals, and crafted upholstery will not be replaced by molded plastics in a large portion of automobiles. Further, the size and weight is expected to remain similar to that evident in 1965, with a limited proportion of total vehicles being classified as small or compact vehicles. Modification of these assumptions is important in terms of the impact on supplying industries and value of production; however, the basic demand characteristics identified in this analysis in terms of numbers of vehicles is less affected by these assumptions.

In summary, this analysis is based upon the basic assumptions that the automobile will continue to play a dominant role in urban and intercity travel and in intercity freight movements, and that the basic configuration of the automobile will not be influenced by dramatic engineering design changes.

As indicated earlier, economists at Battelle Memorial Institute have recently completed a comprehensive analysis of consumer expenditures in 1975. Based upon projections of consumer-expenditure patterns of households by level of education, income, and occupation, Battelle economists estimate that family income will equal 678 billion dollars (in 1960 prices), and total family consumption expenditures will be 583 billion dollars. Total personal consumption expenditures in 1960 equaled 308.9 billion dollars.* Of total consumer spending in 1960, 42.4 billion dollars (13.7 percent) was devoted to automotive transportation, with 17.6 billion dollars being devoted to new cars and net purchases of used cars. The growth of U. S. consumer expenditures from 308.9 billion dollars in 1960 to 583.4 billion dollars in 1975, a growth of 89 percent, includes a growth of 93 percent in expenditures on automobile transportation and a growth of 83.2 percent on new cars and net purchases of used cars. Thus, in 1975 Battelle economists estimate that 81.8 billion dollars (14.0 percent) will be expended on automobile transportation and 32.2 billion dollars will be devoted to purchases of new cars and used cars by consumers.

In 1975 it is estimated that 19.8 billion dollars of the 32.2 billion dollars expended on new cars and net purchases of used cars will be devoted to new car purchases. Between 1954 and 1963 the average net outlay per car** increased from $1,730 to $2,310, an increase of 3.3 percent per year. Between 1960 and 1963 the average net outlay per car increased from $2,020 to $2,310, an increase of 4.5 percent per year.*** The increase in the average net outlay per car between 1954 and 1955 increased sharply. The exclusion of this very sharp increase shows a pattern of growth of approximately 2 percent per year. For purposes of this analysis, it is assumed that the annual rate of increase in the average net outlet per car will equal 1.9 percent over the period 1960 through 1975. On the basis of this assumption, the average net outlay per car in 1975 will be $2,680. This relatively low rate of growth in average net outlay per car is reasonable in view of the anticipated growth of two-car families and the resulting downward pressure on average net outlay per car. The second car purchased by two-car

*These figures differ slightly from those published by the U. S. Department of Commerce, as Department of Labor surveys of family expenditures exclude certain imputations, such as the value of owner-occupied dwellings.

**Net outlay per car represents purchase price less trade-in allowance for used car.

***Automobile Facts and Figures, 1965. Family Automobile Purchases, data based on the survey of consumer finances conducted by the Survey and Research Center of the University of Michigan, p. 43.

families tends to have a lower retail value. The implication of a more rapid increase in average net outlay per car would be a decrease in the number of units sold for family automobile purchases.

In addition to family purchases of passenger cars, the total demand is influenced by purchases by government and business. As a result of passenger car sales to business and government fleets, the total production of passenger cars in 1975 is estimated to equal 10.6 million units. Estimates for 1970, 1975, and 1980 are shown in Table 17. It is important to recognize that during the past two years the automobile industry has been breaking all existing records. Production for 1965 is estimated at 9,330,000 passenger cars, an increase of 20 percent over the 1964 level (which was affected by work stoppages). The 1970 estimate of 9.4 million cars will appear low to those who believe that 1965 represented normal production levels. In the judgment of the authors of this report, 1965 was in excess of the long-term secular trend of automotive production – the focus of the Michigan Manpower Study.

TABLE 17. MOTOR VEHICLE PRODUCTION – 1970, 1975, 1980

In thousands

Year	Passenger Cars	Trucks	Buses	Total
1970	9,400	1,510	35	10,945
1975	10,600	1,960	40	12,600
1980	12,200	2,340	45	14,585

For purposes of Battelle's study of Michigan's labor force, the production outlook for the motor-vehicle industry must be translated into employment. The relationship between output and employment is expressed in terms of productivity. However, measurement of productivity is highly complex. For example, if the output of the motor-vehicle industry is considered in terms of units of vehicles produced, it is evident that the structure of output at any point in time is likely to be substantially different from that produced at another point in time. The differences in the product mix among trucks, buses, high-priced passenger cars, compact passenger cars, and "standard" Ford, Chevrolet, and Plymouth product lines at different points in time will be substantial. Hence, definition of output is highly variable in a product sense. Further complicating the measure of output is the relationship between parts and accessories included in the final vehicle but produced in external industries. The final product of the motor-vehicle industry includes a highly variable mix of value added by production and value added by assembly.

The characteristics of the labor input are also subject to variation as the skill level of the work force changes, as the hours of work fluctuate, and as the nature of capital equipment used in the production process varies. Hence, any analysis of productivity is, at best, a crude approximation. Nevertheless, employment estimates are the prime objective of this labor force study; hence, productivity estimates must be made.

The motor-vehicle industry has traditionally been a leader in adaptation of technological changes. The mass production concepts introduced by Henry Ford were merely the first of a series of sophisticated changes in the production of motor vehicles. The 1950's were characterized by the introduction of the multiple-station transfer equipment to such a degree that such equipment is frequently referred to as "Detroit-type automation". Currently the motor-vehicle industry is experimenting with the applications of computers to styling design, using such concepts as 'Design Augmented by Computer at the General Motors Warren Research Facility. Numerical-control machine tools are being introduced in a number of places in the production process. Computers are being applied to production control to permit assembly of vehicles to precise specifications established by the customer and satisfied by the industry in remarkably short periods.

With the availability of numerical-control machines which permit extraordinary flexibility in styling, the traditional assembly process may be expected to undergo considerable change. Stylists will increasingly use metal to perform the decorative effects currently available only through attached chrome pieces. Also, the actual units to be asembled may be reduced through the design of complex "preassembled" components. The precise nature of technological change in the industry is, of course, a closely guarded secret. Further, public acceptance of styling changes will be an important consideration in the extent to which such things as eliminating hand-fitted chrome is realized by the industry.

Careful examination of the data relating to past productivity changes, and consideration of the rate of adaptation of anticipated technological changes lead us to estimate that average annual productivity change (expressed in terms of vehicles produced per man-year) in the industry will equal at least 2 percent per year during the coming 15 years. On the basis of well established trends, Battelle projects that the value of the standard car will increase nearly 2 percent per year. Hence, the real productivity change in value added per man-year is expected to equal approximately 4 percent per year. The level of employment associated with such change requires an additional assumption concerning the average work week. Recent data relating to the average work week in the industry reveal that average weekly hours have risen sharply as a result of the shortage of skilled workers and the demands of the upswing in the business cycle. Between 1960 and 1964, average weekly hours increased from 40.1 to 43.0 hours. This abnormal increase is expected to be reversed by longer term pressures for a shorter work week. Our assumption concerning the work week is that by 1980 the average work week in the motor vehicle industry will equal 38 hours.

In 1960 total employment in Motor Vehicles and Motor Vehicle Equipment was reported to equal 841,900 workers in the U. S. Output estimates combined with assumptions concerning average work week and average productivity growth predict that employment in the motor-vehicle industries will reach 1,000,000 by 1970 and 1,090,000 by 1980, a change in total employment of 19.1 percent between 1960 and 1970 and an additional 9.3 percent between 1970 and 1980.

For the past half-century, the manufacture of automobiles and trucks has played a pivotal role in the Michigan economy. Over the past 15 years, the expansion of industries outside of the automotive circle and the growth in retail trade, service industries, and government have had little effect upon the dominant role of the motor car upon Michigan's economic well-being. Sharp, and sometimes very abrupt, fluctuations in the consumer market for automobiles have continued to bring quick and very marked changes in Michigan's employment and unemployment.

Analysis of a considerable number of bellwether elements supports the belief that Michigan will retain or possibly slightly expand its current share of the national employment in the motor-vehicle industry. The great wave of decentralization characteristic of the period from the end of World War II through the late 1950's seems to have about run its course (although some additional decentralization is possible). Viewed on a monthly basis, Michigan's share of national employment in the motor vehicle and equipment industry (S.I.C. 371) has ranged from 53.0 in January, 1956 to a low of 37.4 percent in March, 1961. After reaching the low point, Michigan's share rebounded to 45.3 percent in 1962 and 45.1 percent in 1964. During the first half of 1965, the Michigan share varied from 43.8 percent in June to 44.9 percent in January.

A good share of this decentralization involved the construction of assembly plants, enabling car producers to be closer to regional markets. Except in cases of the replacement of badly outmoded facilities or in the event of an unusual shift in market demand within a specific region, expansion of assembly facilities is likely to occur in the form of additions to existing plants rather than the construction of new facilities in new areas. New assembly plants constructed outside of Michigan in recent years have been the Chrysler assembly plant at Belvidere, Illinois, the Chrysler truck assembly plant now under construction at St. Louis, Missouri, and the Chrysler power train plant scheduled for construction at Toledo, Ohio. Chrysler plans or has under construction two new plants and two additions in Michigan and four new plants and two additions outside of Michigan. At Ford, the greatest share of expansion is being conducted in Michigan. Recent statistics show three new plants and ten additions in Michigan, compared with only one new plant and five additions outside of Michigan.

General Motors has planned a substantial number of additions and new facilities distributed fairly well in accordance with the location of its existing operations. Two entirely new plants are being put into operation in Michigan: a metal fabricating plant at Kalamazoo and an upholstery trim plant at Tecumseh. In addition, a new manufacturing building is planned for Saginaw Steering Gear Division, and the Ternstedt Division at Detroit.

During recent months, the Ford Motor Company announced expansion of a general parts division plant in Saline, Michigan, which is expected to employ approximately 1200 workers initially with an increase to 2000 when full production levels are reached. Other expansions reported by Ford include a 25 percent increase in floor space at its Monroe, Michigan plant, an expansion of its Livonia and Sterling, Michigan, transmission and chassis plants, and substantial increases in manufacturing floor space at the Dearborn glass plant and the Mt. Clemens vinyl plant. The expansion of the Livonia and Sterling chassis plants is expected to raise employment by 2800, and the enlargement of the Monroe plant should add about 200 new workers.

Chrysler announced a 20 percent expansion of the manufacturing area at the Mound Road engine plant in Detroit along with the purchase of the assets of the Deluxe Die Works, Incorporated, of Warren, Michigan.

General Motors announced $1.5 billion capital expenditures for plant and employment in 1964 and 1965 with approximately 50 to 55 percent of the national expenditures being made in Michigan.

If we look at auto manufacturing activities as a whole and include those operations not specifically coded in industry 371 as well, we find that the Michigan share of U. S.

employment among the "big three" auto makers has been quite stable. During 1958 and 1959 Michigan employed 50.5 percent of all the workers utilized by the "big three" auto makers. Since 1959, year-to-year shifts in the Michigan share of "big three" employment have been minimal. In 1964, 49.6 percent of the "big three" national employment total was in Michigan, compared with 50.5 percent in 1958.

The role of Michigan, more particularly of the Detroit metropolitan area as the hub of the auto industry's research, engineering and administrative services, is expected to prove increasingly important in the years to come. The concentration of these expanding services in Michigan will be a very valuable asset in reducing the sensitivity of employment in the State to fluctuations in the consumer market. The expanding substantial underlay of engineering, research and administrative employment will provide an important stabilizer to the economy.

In summary, the outlook for the automobile industry in the nation and in Michigan appears very favorable over the entire period of study. Recent experience indicates Michigan will fare at least proportionately as well as other areas of the nation in the growth pattern of the industry and that the decentralization trend has just about run its course. Based upon the projected U. S. employment levels discussed earlier, it is expected that automotive employment in Michigan will equal 440,000 workers in 1970, 458,000 workers in 1975, and 473,000 workers in 1980, in terms of U. S. Census of Population definitions.

THE STRUCTURE OF EMPLOYMENT BY INDUSTRY IN MICHIGAN

The preceding discussion of the outlook for employment in the automotive industry serves as background for analysis of the general economic outlook for Michigan. Employment in the automotive industry has long been and will continue to be a crucial factor in the overall economy of Michigan.

The following sections describe the factors generally considered in the development of individual employment estimates for each of the industry sectors analyzed during Phase I of the Michigan Manpower Study. The employment levels discussed below are significant in terms of the analysis of growth in individual occupations since, in many cases, occupational demand is directly related to employment growth in particular industries.

Agriculture, Forestry and Fisheries, Mining, and Construction Employment Levels

Employment in agriculture, forestry, and fisheries has been subject to a generally declining level for a long period of time. The Michigan Employment Security Commission estimates that employment in agriculture declined from 121,300 persons in 1956 to 93,700 persons in 1960, a decline of 6.2 percent per year.* From 1960 to 1965, employment in agriculture, forestry, and fisheries declined 4.4 percent per year, reaching an estimated level of 75,000 in 1965.

*Michigan Employment Security Commission, Michigan Manpower Review, Volume XX, No. 5, May 1965, p. 13.

The decline in the number of persons employed on the farm is expected to continue through 1980. This decline in farm employment is associated with a tendency for the size of farms to increase since the economic farms are increasingly associated with requirements for large capital investments. The average size of each farm is expected to be 40 percent greater in 1980 than it was in 1960. In 1960, 20 percent of all farms in the U. S. had sales of over $10,000; by 1980 it is expected that 60 percent of all farms will have sales of over $10,000. The level of employment projected by Battelle for agriculture, forestry and fisheries is 55,000 persons, representing a decline of 2.6 percent per year, a substantial reduction in the rate of decline experienced between 1960 and 1965. It is appropriate to note that the projections of farm employment are subject to wide errors as a result of the lack of comparable time series data on an establishment or household basis. Furthermore, the classifications of farm labor presents difficulties, especially when the expansionary phase of the business cycle makes it possible for the farm worker to find 100 days or more of employment in an industry other than agriculture. Since agricultural occupations have not been a major focus of this study and since agriculture is directly expected to account for less than 1-1/2 percent of total employment in 1980, these projections have not been the subject of intensive analysis.

The level of employment in agriculture, forestry, and fisheries should not be interpreted as an index of the demand for agricultural occupations. The complex of supply and distributive industries built around the farm today accounts for the major portion of agriculturally related occupations. The activities of "agri-business" are diffused throughout the economy and have not been explicitly identified in the Michigan Manpower Study. For the reader who is directly concerned with agricultural occupations, a number of publications relative to this topic have been prepared by the U. S. Department of Agriculture and the Division of Vocational Education in the Michigan Department of Education.*

Employment in the mining industry in Michigan has also experienced a decline in recent years. Between 1956 and 1960 establishment data reveal that employment decreased 1.55 percent per year.** From 1960 to 1965 mining employment decreased 2 percent per year. The Upper Peninsula accounts for a large portion of Michigan's mining employment.*** For example, in June 1965 the Upper Peninsula accounted for 8,400 of the 14,700 persons employed in mining in Michigan. The employment level of the Upper Peninsula has been experiencing a steady decline, contributing to the overall decline in mining employment. Battelle projects (using household data) that mining employment in 1980 will decline to a level of 11,000 persons, representing a 1.6 percent annual decline during the 20-year period between 1960 and 1980.

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*(For example, see the following: "A Guide for Preparing Courses of Instruction in Vocational Agriculture in Michigan", Bulletin No. 2151, published by the Michigan Department of Education, July 1965. Nevel, Paul F., and Malcomson, John L., A Survey of Nonfarm Agricultural Occupations in Monroe County, Michigan, February 1965 [Cooperative Extension Service, Michigan State University, East Lansing]. Meaders, Donald O., "A Survey of Occupations in Agricultural Businesses and Services of Six Northern Michigan Counties", published by the College of Education, Michigan State University. September 1965. Michigan Department of Education, "Opportunities for Youth in Agricultural Occupations", Bulletin No. 550, published by the Division of Vocational Education, Lansing, Michigan, 1965.)

**Ibid. Employment in mining declined from 16,500 in 1956 to 15,500 in 1960. However, in both 1959 and 1961 employment in mining reached even lower levels. (13,800 in 1959 and 13,400 in 1961).

***For a discussion of the mining industry of the Upper Peninsula see: Parkhurst, Dr. Kenneth, Manpower Problems and Economic Opportunities, in an Adjusting Regional Economy: The Upper Peninsula of Michigan, Northern Michigan University, September 1965, pp. 67-76.

The construction industry is expected to grow at approximately the same rate as total employment in the state of Michigan. By 1980 construction employment is expected to equal 181,000 persons. This growth is expected to be relatively steady throughout the study period, with employment increasing from 125,600 in 1960 to 151,000 persons in 1970 and 165,000 persons in 1975. The projection of construction employment in Michigan parallels the national projection for residential and nonresidential construction. National projections were based, in part, on the housing demand estimated in Battelle's analysis of consumer expenditures. Total employment growth in construction will additionally be influenced by trends in nonresidential building programs.

Durable Goods Manufacturing

The earlier discussion of the employment in motor vehicles provides the basis for projected employment in durable goods manufacturing in Michigan. In 1960 durable goods accounted for 79 percent of total manufacturing employment in Michigan. Motor vehicle employment alone (377,200 persons) accounted for 36.4 percent of total manufacturing employment. The outlook for the production of motor vehicles is also significant for employment levels in manufacturing industries which are related to the motor vehicle industry. For example, the textile and apparel industry supplies materials for seating and interiors of automobiles; the industries of primary metals, fabricated metals and machinery, both electrical and nonelectrical, supply components parts.

The employment in each of these industries and in the transportation equipment industry was analyzed using 1965 data to identify the portion of product output directly identifiable as auto related. On the assumption that a direct relationship exists between the proportion of sales which are auto related and the proportion of employment which is auto related, it appeared in 1965 that 506,000 workers in manufacturing were employed in auto related jobs, which was approximately 50 percent of total manufacturing employment of 1,016,200 employees.

It is significant that during the recent expansion of auto production the auto-related industries have not grown as rapidly as motor vehicles. For example, establishment data for the period 1960 through 1965 reveal that employment in motor vehicles increased 24 percent, whereas employment in primary metals increased only 6.2 percent, employment in fabricated metals increased 7.7 percent, employment in machinery except electrical increased 11.0 percent, and employment in electrical machinery increased 16 percent.* It is anticipated that this slower growth pattern will continue throughout the study period. Slower employment growth is expected since an increasing proportion of consumer expenditures will be devoted to nonproduct and service items which do not result in demands on these heavier industries. In addition to the moderate demand growth, the higher productivity growth of these industries will retard employment growth.**

*The rates are based upon monthly averages for 1960 and 1965 using Michigan Employment Security Commission data as reported in the monthly publication, Michigan Manpower Review.

**Selected primary metals industries are reported in "Indexes of Output Per Manhour, Selected Industries 1939 and 1947-63", Bureau of Labor Statistics, (BLS Report No. 301) December 1965.

The result of the estimated employment levels in the durable-goods industries identified in Table 16 is that the motor-vehicles industry will account for an increasing proportion of total manufacturing employment, increasing from 36.4 percent in 1960 to 43.4 percent in 1980. Overall manufacturing will decline in importance to Michigan's economy. Total manufacturing employment accounted for 38 percent of total employment in Michigan in 1960 and is expected to drop to approximately 28 percent by 1980. Employment in motor vehicles will decline from 13.8 percent of total employment in 1960 to 12 percent of total employment in 1980. Expressed in other terms, manufacturing employment in Michigan will grow from 1,035,900 employees in 1960 to 1,150,000 employees in 1980, a rate of increase of approximately 0.5 percent per year during the two decades of the study period. In contrast, total employment in Michigan will expand by 1.9 percent per annum.

Nondurable Goods

The nondurable goods specifically studied in the analysis of the employment level in individual industries included food and kindred products, paper and allied products, printing and publishing, chemicals, petroleum, and rubber industries. While nondurable goods employment increased from 146,600 employees in 1940 to 217,500 employees in 1960, it is anticipated that nondurable goods employment will actually decline during the period 1960 to 1980. This decline will be realized in each of the nondurable goods industries studied, with the declines ranging from 0.8 percent per year in food and kindred products to 1.9 percent per year in petroleum and coal products. Both food

TABLE 18. MANUFACTURING EMPLOYMENT LEVELS IN MICHIGAN BY INDUSTRY 1940-1960, PROJECTIONS FOR 1970 AND 1980

Category	Thousands Employed				
	1940	1950	1960	1970	1980
Durable Goods	553.4	801.1	818.4	926.0	968.2
Primary Metal Industries	77.2	120.2	71.7	88.0	101.3
Fabricated Metal Industries[a]	(b)	(b)	91.8	104.0	108.0
Machinery, excluding Electrical	50.8	107.3	147.1	155.0	156.0
Electrical Machinery Equipment	10.0	19.2	31.7	35.0	36.9
Motor Vehicles & Equipment	355.7	475.0	377.2	440.0	473.5
Other Durables	59.7	79.4	98.9	104.0	92.5
Nondurable Goods[c]	146.6	177.3	217.5	206.0	181.8
Food & Kindred Products	38.8	47.4	62.4	60.0	53.5
Chemicals & Allied Products	19.1	30.5	40.9	38.0	33.5
Petroleum & Coal Products	3.2	4.0	3.5	3.0	2.4
Other Nondurables[c]	85.5	95.4	110.7	105.0	92.4

(a) Includes Not Specified Metal.
(b) Included in Primary Metal Industries.
(c) Includes Not Specified Manufacturing.

and kindred products and petroleum and coal products are expected to decline in employment levels as the result of continued introduction of productivity improving equipment. Additionally, industries such as chemicals are generally establishing heavy production facilities in areas outside of the Midwest. This is influenced in part by the distribution-cost patterns and partly by the fact that the Midwestern population centers are currently well serviced by existing heavy industries. As a result of these tendencies, nondurable goods employment will decrease from approximately 8 percent of total employment in Michigan in 1960 to 4. 6 percent of total employment in 1980. Employment levels in the industries study are reported in Table 18 which includes data for 1940, 1950, and 1960, as well as projected employment levels for 1970 and 1980.

Wholesale and Retail Trade

The trade industries have not been broadly affected by technological changes. During the next fifteen years developments in computerization of trade transactions, a modest increase in self-service, and the gradual introduction of technologically sophisticated retailing (using concepts such as visual display merchandising, coin vending, and instant credit facilities) will affect the employment growth of trade activities. Nevertheless, offsetting the influence of these advances on manpower requirements will be the increasing volume of dollars available for consumption. Therefore, wholesale and retail trade are expected to grow at approximately the same rate as total employment. Within retail trade there will be diverse growth patterns. Food and dairy products, represented by small operations, will undergo some reorganization as larger retail units account for a higher proportion of food and dairy purchases. Hence, only a modest growth from 74, 000 employees in 1960 to 82, 000 in 1980 is anticipated. However, the more diverse industry of general merchandise retailing is expected to grow from 54, 000 employees to 90, 000 employees. A major factor contributing to this growth will be the development of specialty merchandise outlets which are characterized by a high level of service (hence, relatively more employees per outlet). Specialty merchandise outlets are expected to develop in response to rising levels of consumer income and expenditures. Motor vehicle and accessory retailing is expected to grow largely as a result of growth in accessories and specialized shops. Gasoline service stations and eating and drinking places will continue to expand parallel to the general population growth.

Transportation, Communications and Utilities

These service industries have individually unique characteristics. The transportation industry actually declined in employment between 1950 and 1960 as a result of decreased employment in rail transportation. The decline in railroad employment was offset to some degree by growth of employment in trucking and warehousing. The improved interstate highway system, the possibility of increased size and weight limitations for tractor trailers, and improved loading and warehousing methods are a few of the factors expected to lead to a higher level volume of employment in the trucking industry.

The employment pattern of railroads still remains relatively uncertain in view of the unknown influence of announced and anticipated railroad mergers, changes in crew size, yard automation, increased "piggyback" activity, etc. It is clear, for example, that increased use of trilevel railroad cars for auto transport has stimulated the railroad industry in recent years. However, the influence of this development in the future would not appear to be dramatic. Finally, of course, developments in interurban speed rail transportation could influence the employment level in transportation. However, as explained earlier, one of the basic assumptions of this study is that during the time period under consideration, the use of mass transportation will not be significant.

The communications industry is primarily composed of telephone, telegraph, and radio and television broadcast workers. The communications industry in Michigan experienced a dramatic growth between 1940 and 1950 as employment increased from 12,900 employees to 28,281 employees. Growth during the 1950's was more modest, with employment rising to 32,000 persons by 1960.

In the past, the United States has required more communications workers per 1,000 population than has the state of Michigan. This reflects the fact that the technological sophistication of capital in the communications industry varies regionally throughout the United States with the more industrially developed states having newer equipment. This technological differential between Michigan and the United States is expected to narrow as the telephone industry completes its conversion to electronic solid-state equipment.

Finally, the utilities section of this aggregate grouping includes electric light and power, electric and gas utilities, gas and steam supply systems, water supply systems, and sanitary services. During the 1950's, employment in utilities in Michigan increased slowly from 35,300 to 36,900. Utilities companies are becoming increasingly efficient through the application of advanced technology. Nevertheless, the demands for utilities will continue to grow as the process of population growth and urbanization generate demands for the services provided by utilities. Also, as the industrial base of Michigan's economy expands, additional industrial demands will be placed upon utilities. On balance, transportation, communications, and utilities is expected to grow from 156,000 persons in 1960 to 171,000 persons in 1970 and 188,000 persons in 1980. The share of total employment in transportation, communications and utilities will decline from 5.7 percent of total employment in 1960 to 4.8 percent of total employment in 1980.

Finance, Insurance, and Real Estate

The finance, insurance, and real estate category includes banking and credit agencies, security and investment companies, insurance, and real estate. Over all, finance, insurance and real estate increased substantially between 1940 and 1960, growing from 48,000 employees in 1940 to nearly 90,000 employees in 1960. The largest contributor to this growth was banking, which increased over 14,000 persons between 1950 and 1960. Insurance increased approximately 10,000 workers between 1950 and 1960.

In banking, greater use of computers and magnetic-ink character recognition, electronic bookkeeping machines, and closed-circuit TV will lead to faster customer service and improved efficiency. This will be offset somewhat by the tendency for banking facilities to retain tellers in order to provide a personal link between the bank and its customers. Factors affecting the productivity level in insurance will include extension of electronic data processing, data-transmission systems, and marketing innovations such as sales of packaged policies by insurance companies. The increased productivity of the insurance industry will be considerably offset by the growth of demand for insurance which will be associated with rapidly expanding incomes and the substantial growth anticipated in the number of professional and technical workers who have a high propensity to invest in insurance. The net effect of these influences will be a growth in finance, insurance, and real estate employment from 90,000 persons in 1960 to approximately 170,000 persons in 1980, a growth rate of 3.2 percent per year.*

Business and Repair Services, Personal Services and Entertainment Services

Business and repair services cover a variety of activities, including advertising, duplicating, blueprinting, photocopying, window cleaning, news syndication, private employment agencies, testing laboratories, management services, and miscellaneous repair services. This conglomerate industry provided employment for over 60,000 persons in 1960. Advertising accounted for 7,200 persons, miscellaneous business services accounted for approximately 21,000 persons, and auto repair service and garages accounted for over 20,000 employees.

Growth of this industry is enhanced by the growth of manufacturing and other nonlocal industries, who contract out their specialized service needs. On the other hand, some repair services are likely to constitute a decreasing source of jobs in the future as more components are replaced rather than repaired. Over all, it is anticipated that business and repair services will grow at approximately the same rate as total employment, increasing from 61,000 persons in 1960 to 74,000 persons in 1970 and 89,000 persons in 1980.

Personal services include such activities as private household workers, hotels, laundering, cleaning and dyeing services, dressmaking shops, shoe repair shops, barbershops, and beauty shops. It is not anticipated that major technological changes will affect the demand for labor in this industry, rather, the employment in the industry is expected to increase in proportion to total employment as increases in per capita income and growth of younger age groups lead to a relative expansion in the demand for those providing personal services. Over all, personal services is expected to grow from 134,000 persons in 1960 to 158,000 persons in 1970 and 187,000 persons in 1980.

Entertainment and recreation is also composed of a multitude of service activities, such as the motion-picture industry, bowling halls, pool parlors, yacht clubs, golf courses, and city playgrounds. The trend toward increasing amounts of leisure time, income, and education has led to a growing demand for all types of recreation services.

*Establishment data reveal that employment in finance, insurance and real estate increased 2.5 percent per year from 1956 to 1964, a period during which total nonfarm employment declined by 100,000 in Michigan.

In Michigan, it is anticipated that employment in recreation services will grow from 18,000 employees to 32,000 employees. This modest growth is representative of the fact that much of the increase in leisure-time activities does not lead to direct employment in the entertainment industry. Rather, leisure expenditures are associated with growth in employment in durable-goods manufacturing industries which produce recreational hardware such as boats, motors, sporting equipment, and hobby items.

Professional and Related Services

This category includes such activities as medical and other health services, legal services, education, welfare and religious services; and engineering, architectural, accounting, and bookkeeping services. These activities will grow rapidly in employment for three fundamental reasons:

(1) Historically, when discretionary income has risen, outlays on these professional services have gone up proportionately. By 1975, for example, gross national product per capita will have increased to a level of $4,200, an increase of nearly 50 percent over 1960. This implies that the demand for professional and related services will rise even more rapidly.

(2) The emergence of the human resources era and, hence, a brainpower-oriented economy will stimulate expansion of educational services of many types. Adults as well as the younger age groups will be seeking education to develop new skills. While it is anticipated that teaching innovations can be made which will increase the number of students served by a single teacher, in many instances the expansion of specialization and the growth of advanced-degree work will have an offsetting influence, leading necessarily to lower student/teacher ratios.

(3) Employment in professional and related services is in large measure a personal service offered by a professionally trained individual, for example, in the medical area. As a result, it is unlikely that productivity in this sector will rise significantly. In other words, growing demand will be translated into relatively more employment in these activities.

In addition to these general considerations, the individual industries of medical services and educational services in Michigan will be influenced by the following factors:

Medical services are expected to grow rapidly as the result of recent expansions of Social Security programs. The Medicare program initiated in 1966 is assumed to be the first of a series of expansions of programs to provide for improved medical services for the population. Therefore, in addition to serving a growing population with expanding incomes, the medical-service industry will offer improved and more expensive services. In 1960 11.9 percent of the population of Michigan was age 60 and over. In 1980 12.5 percent will be over 60 years of age and the actual number of persons in this age classification will be increased to 351,000.

The growth of educational services will be exceptional. The analysis of labor supply in Michigan indicates that there will be a shortage of college graduates through

1980, but that the supply of persons with some post-high-school training will be adequate to serve in substitute functions, such as medical technicians assisting medical doctors, and engineering technicians working with graduate engineers. However, in order to achieve the supply situation assumed in the supply analysis, a significant growth in education will be necessary.

The population aged 6 to 19 years of age, which is the population base for the elementary and secondary school systems, will expand 31.3 percent between 1960 and 1980. The number of persons aged 18-24 enrolled in post-high-school programs will exceed 300,000, an increase of 200,000 over 1960 levels.*

Additionally, the educational industry employment projections of Table 16 assume that a broad spectrum of formal programs will be developed to provide the types of skills required in the labor force. While these training and retraining programs will not be certified educational programs in the sense we are familiar with today, they will require teachers and instructors as well as supporting staff. Hence, they are expected to serve as a major source of employment, accounting for much of the growth indicated in the public sector of education.

The development of educational programs will accelerate during the study period. As a result of the projections, the annual rates of growth are: 1960 to 1970, 3.7 percent; 1970 to 1975, 5.8 percent, and 1975 to 1980, 6.9 percent.

Public Administration

Closely related to the provision of professional and technical services is the public administration sector, which includes federal, state, and local governments. This kind of employment is defined as largely administrative, since the operating segments are included in other employment categories. For example, the state administrative offices for education are included in public administration, but the major portion of employment provided by the public schools (i.e., teachers) will be included with the professional and related services.

In the mid-1960's, economists and social observers generally agree that the wave of young people currently seeking entry into the labor force and our institutions of higher education has an impact which is bringing into focus a number of major problems that call for expanded public programs. When these problems are added to the difficulties associated with retraining the displaced workers over 40 years old and with the expanding retired population, it is evident that employment in public administration must expand. This statement can be made with confidence, since major new programs have already been legislated and others are currently in the legislative hearing rooms. In Michigan the employment in public administration is expected to grow from 94,800 in 1960 to 178,000 in 1980, an increase of 87 percent.

*The Citizens Committee on Higher Education has also developed projections of post-high-school enrollment. The annual rate of growth implied by their projections is 2.9 percent between 1965 and 1975. Their report states: "The Committee's staff has attempted to project undergraduate enrollments on the basis of not only the sizes of the age groups but also upon the estimated portions of the groups that are educable and capable of doing some kind of postsecondary work (A staff report, The Higher Education Student Load in the Years Immediately Ahead, by Harold T. Smith, November 1964). Starting with the 219,500 on-campus students enrolled in all of the Michigan institutions of higher education in the fall of 1964, the staff arrived at projections of total on-campus enrollements as follows: 245,200 in the fall of 1965, 292,900 in the fall of 1970, and 327,000 in the fall of 1975, ..."

These projections reflect both our recognition of a continuing demand for public services and our evaluation of the degree to which technological change will affect public administration. While productivity is difficult to measure in activities which do not provide a tangible output* (and where quality is especially important), it would appear that many of the services found within public administration will not be subject to radical innovations affecting productivity. A variety of administrative labor-saving devices have emerged, including computers, microfilm, copy equipment, and data transmission and communications and materials-handling devices. These advances increase efficiency and reduce employment in certain clerical tasks, in routine jobs, and in other similar activities.

The impact of these technological developments on local and state governments depends on the size and absorptive capacity of these agencies and the nature of the functions performed. These projections are based on a modest use of such innovations in virtually all areas of public administration.

SUMMARY

The result of this industry-by-industry review is a relatively optimistic outlook for employment growth in Michigan. Michigan's economy will continue to be characterized by its strong relationship to the automotive industry. Nevertheless, by 1980 the overall structure of employment will be considerably diversified relative to 1960. For example, professional and related services will account for 22 percent of total employment compared with only 12 percent in 1960, and total manufacturing will have declined in importance from 38 percent in 1960 to 29 percent in 1980. The total employment level of 3,936,000 persons will influence a modest amount of in-migration, which can be interpreted as a positive index of relative economic performance.

The changing employment structure of the United States economy (which is represented by a shift from a manufacturing orientation to a services orientation) will be reflected in Michigan's economy. As the 1970's progress, the orientation of the work place to employment of persons with "conceptual skills" underlines the importance of the development of human resources, so that a shortage of skilled persons will not serve as a constraint on economic growth. The importance of these developments will be outlined in the following section of this report which discusses on an occupation-by-occupation basis the importance of white collar and technical skills in the employment profiles of Michigan's industries.

*See Bureau of the Budget, Measuring Productivity of Federal Government Organizations, U. S. Government Printing Office, Washington, D. C. (1964), p. 6.

EMPLOYMENT GROWTH IN MAJOR OCCUPATIONAL CLASSIFICATIONS IN 28 SELECTED OCCUPATIONS

The General Pattern of Occupational Changes, 1960-1980

In several portions of this report references have been made to changes in the structure of the economy of both the United States and of the state of Michigan. These changes in structure are especially evident when the analysis focuses on the types of occupations which employees will hold in the 1970's.

Early studies by economists at Battelle Memorial Institute revealed that the character of employment could be best described in terms of the types of occupations held by the employed labor force. During the agricultural era, which generally preceded the beginning of the twentieth century, the plurality of employment was identified with occupations directly associated with the development of primary resources in agriculture. With the emergence of manufacturing as a major source of employment near the turn of the century, the occupations which focused on the development of products from natural resources dominated the employment structure. The skilled and semiskilled jobs of the machine operative and the craftsmen characterized employment throughout the development of the manufacturing era. Today most of these occupations are referred to as "blue collar" occupations.

During recent years the role of the blue-collar occupations has diminished. The earlier discussion of the U. S. economy in the 1970's pointed out, for example, that blue-collar workers have been surpassed in importance by white-collar workers and that during the 1970's the increase in white-collar employment nationally will be accelerated.

The evolving structure of employment in Michigan may be related to the same pattern. While Michigan has a larger portion of employment in manufacturing than the United States (38 percent of employment in Michigan vs. 27 percent in the United States in 1960), this should not be interpreted to mean that Michigan will not participate significantly in the human resources era, which has earlier been characterized as a period of emphasis on occupations which require conceptual skills.

The broad changes in employment growth by occupation which are expected in Michigan during the study period are summarized in Table 19. The participation of Michigan in the human resources era is partly described by the growth in professional employment. Average employment growth during the study period will equal 1.9 percent per year. In contrast, the growth of professional employment during the study period will approximate 4.0 percent per year, the highest growth rate of a major employment category. Engineers are expected to grow from 43,800 in 1960 to 86,880 in 1980; nurses will grow from 23,500 in 1960 to 49,040 in 1980; and teachers will expand from 68,700 in 1960 to 134,810 in 1980. The growth of all other professional, technical and kindred workers from 176,600 in 1960 to 414,380 in 1980 reflects the growth of several occupations which will be analyzed in more detail during Phase II of the Michigan Manpower Study. These include draftsmen, physicians and surgeons, professors and instructors, and a variety of technicians.

TABLE 19. PROJECTED EMPLOYMENT BY OCCUPATION, COMPUTED ANNUAL RATE OF CHANGE, MICHIGAN, 1960-1980

Occupation	Persons Employed			Annual Rate of Change 1960-80
	1960	1970	1980	
Professional	312,590	454,180	685,110	4.0
Engineers, Technical	43,806	65,420	86,880	3.5
Nurses	23,483	31,920	49,040	3.8
Teachers	68,698	90,420	134,810	3.4
All Other Professional and Kindred	176,603	266,420	414,380	4.3
Farm Managers	60,074	38,900	28,600	-3.7
Managers	200,022	253,680	323,170	2.4
Managers, Officials & Proprietors, NEC, Salaried	96,567	133,680	182,260	3.2
Managers, Officials & Proprietors, NEC, Self-Employed	71,441	80,450	93,070	1.3
All Other Managers, Officials & Proprietors	32,014	39,550	47,840	2.0
Clerical	379,592	499,970	675,040	2.9
Bookkeepers	33,980	42,260	51,500	2.1
Cashiers	19,509	24,730	32,460	2.6
Secretaries	54,769	77,280	114,380	3.8
Stenographers	10,979	14,080	18,330	2.6
Typists	21,182	32,105	41,140	3.4
All Other Clerical and Kindred Workers	239,173	309,515	417,230	2.8
Sales	202,416	237,530	285,660	1.7
Salesmen & Sales Clerks	160,097	192,220	232,270	1.9
All Other Sales Workers	42,319	45,310	53,390	1.2
Craftsmen	420,094	464,470	498,540	0.8
Carpenters	25,713	28,870	26,430	0.1
Electricians	15,967	19,230	20,500	1.3
Foremen, NEC	60,179	66,750	70,600	0.8
Machinists	20,015	20,750	20,480	0.1
Mechanics & Repairmen	108,670	128,880	151,720	1.7
Plumbers & Pipe Fitters	13,051	14,920	16,800	1.3
Toolmakers & Die Makers	35,628	39,710	41,230	0.7
All Other Craftsmen, Foremen, & Kindred Workers	140,871	145,360	150,780	0.3

TABLE 19. (Continued)

Occupation	Persons Employed 1960	1970	1980	Annual Rate of Change 1960-80
Operatives	606,417	631,340	631,170	0.2
Assemblers	63,350	62,450	56,830	-0.6
Checkers, Examiners, & Inspectors - Manufacturing	39,250	40,900	39,280	--
Delivery & Routemen	18,642	20,150	20,820	0.6
Filers, Grinders, & Polishers - Metal	26,162	28,340	28,350	0.4
Truck & Tractor Drivers	65,347	77,870	93,940	1.8
All Other Operative & Kindred Workers	393,666	401,630	391,950	-0.1
Private Household	58,651	60,700	61,800	0.3
Service	236,427	310,890	437,290	3.1
Attendant, Hospital & Others	18,395	23,160	32,000	2.8
Cooks - Excluding Private Household	20,301	26,970	39,450	3.4
Janitors & Sextons	30,965	38,560	52,870	2.7
Protective Service Workers	30,700	40,170	53,570	2.8
Waiters & Waitresses	37,296	46,570	59,910	2.4
All Other Service Workers	98,770	135,460	199,490	3.6
Farm Labor	25,283	21,100	19,800	-1.2
Labor	109,273	121,500	134,010	1.0
Occupation Not Reported	116,025	133,740	155,810	1.5
Occupation Total	2,726,864	3,228,000	3,936,000	1.9

The proportion of total employment in Michigan devoted to these occupational categories will increase as a result of this rapid growth. In 1960, professional workers accounted for slightly over 11 percent of total employment. By 1980, professional workers will account for approximately 17 percent of total employment.

Other major white-collar classifications will also experience above average growth during the study period. Managers will increase from 200,000 to 323,170 persons, an increase of 2.4 percent per year. Clerical employment will also increase 2.9 percent per year, increasing from 14 percent of all persons employed in 1960 to nearly 17 percent of total employment in 1980.

It is especially significant that employment of craftsmen and operatives in Michigan will increase in absolute levels during the study period. Broadly considered, the technological changes which are anticipated in Michigan's industries will largely have the effect of arresting major growth in craft and machine operative occupations; nevertheless, there will continue to be a large number of employment opportunities in both of these major categories. In 1980, 1.1 million workers (over 28 percent of total employment) will be found in these two major classifications. The most rapidly growing craft occupation will be the category of mechanics and repairmen, which will grow in approximately the same way as total employment. In the operative category, truck and tractor drivers will grow parallel to total employment growth.

Among the relatively unskilled categories, the service occupations are expected to increase significantly. Overall service employment will increase 3.1 percent per year. Rapidly growing occupations will include clerks, waiters and waitresses, janitors and sextons, and protective service workers.

The broad occupational patterns described in Table 18 and discussed briefly above have been developed on the basis of the detailed occupation by industry analysis outlined in the methodology section of this report. These estimates of employment patterns in the 1970's have been developed as a result of considerations which will be described in the following sections of this report. Efforts have been made to develop the total analysis of occupational profiles in such a manner that the overall results will not be significantly altered in the second phase of the Michigan Manpower Study. In particular instances this has necessitated consideration of the occupations which will be specifically analyzed in more detail during Phase II.

Factors Affecting Employment Levels for 28 Selected Occupations

The employment estimates described in the following sections have been developed on the basis of projections of historic trends in the occupation structure within the individual industries considered. These historic trends have been modified as a result of analysis of the interrelationship among occupations, especially as absolute levels of employment are affected. Special attention has been devoted to the effects of technological changes which are anticipated in individual industries during the coming 15 years.

It should be recognized that the evaluation of interrelationships and of technological change represents judgments and not precise mathematical coefficients. The assumptions specified in the following sections may be replaced by alternative assumptions

within the framework of the Socio-Economic Model to yield alternative results. The purpose of this report is to describe the assumptions which have been made by the members of this study team so that the individual reader may evaluate the results relative to his own assumptions. The factors considered are presented on an occupation-by-occupation basis, since one major objective of the study is to provide assistance to persons concerned with the types of occupations which should receive emphasis and attention in the guidance and education of young persons and of workers who seek retraining.

Engineers, Technical

Estimates of the employment of engineers illustrates the significance of the "supply effect" which was discussed in the methodological chapter of this report.* The number of engineers and scientists employed by a firm is not directly related to the process or processes a firm uses to produce the products it sells. Rather, the size of the engineering staff is related to the technical capabilities required to maintain and improve the existing operations, and, more importantly, engineers are employed in order to develop new products and new processes for the firm. The proportion of sales revenue which is devoted to research and development within an individual industry differs widely from firm to firm, and it also varies from industry to industry.**

The "supply effect" is significant if, for example, a shortage of engineers and scientists relative to the demands of industry and government results in an inflation of salaries so that the use of engineers by an individual firm is discouraged. Alternatively, if the national defense effort should release a large number of engineers and scientists from their current activities, the supply of engineers could be such that it would be relatively inexpensive and easy for firms to obtain engineers and scientists.

Since the usage of engineers and scientists is not directly tied to a production process nor to a specific set of requirements within an industry and since the supply situation at any point in time has been subject to wide interpretation,*** projections of employment for this group are especially difficult. Projections of the employment of engineers in Michigan are also complicated by the fact that technical engineers are used in a wide variety of industries. Industries which employed 5 percent or more of the total engineers employed in Michigan in 1960 included construction (7.3 percent), fabricated metals (6.7 percent), electrical machinery (13.7 percent), and motor vehicles (30.6 percent). The following factors entered into the projections of the number of engineers to be employed in these major industries.

The construction industry is expected to continue placing a growing emphasis upon engineering design. Furthermore, with the mechanization of portions of construction activity, the relative significance of the engineers will increase. The combination of the growing importance of engineers in construction and of expanding employment in construction results in approximately 7.9 thousand engineers in construction in 1980.

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*See page 5 of this report.

**National Science Foundation, Industrial R & D Funds in Relation to Other Economic Variables, NSF 64-25, October 1964, p. 10.

***For example, see Blank, David M., and .gler, G., "The Demand and Supply of Scientific Personnel", National Bureau of Economic Research, 1957, and Committee on Science and Astronautics, U. S. House of Representatives, Scientific and Technical Manpower; Supply, Demand and Utilization, Sept. 13, 1962.

Increasing emphasis upon design and development in fabricated metals, electrical machinery, and in the miscellaneous-durables industries is expected to account for an increase to a level of 30,000 in engineering employment in these industries. The greatest demand will be in electrical machinery, which accounted for employment of nearly 6,000 engineers in 1960. Engineering employment in the electrical-machinery industry will account for 7 percent of total employment in that industry in 1980 compared with 4 percent in 1960, an increase stimulated by the growing technical complexity of the industry. Only modest increases in engineering employment are expected in chemicals and allied products (where total employment will decline significantly between 1960 and 1980, and the remaining employment will be a continuation of many of the nonproduction activities) and in utilities which employed nearly 1,600 engineers in 1960.

An expansion of emphasis on design and development in the motor-vehicle industry in Michigan is expected to account for a substantial increase in that industry's engineering employment. In 1960, technical engineers accounted for 3.6 percent of total motor vehicles employment in Michigan. By 1980, largely as a result of increasing emphasis on research, technical engineers are expected to account for over 5 percent of total employment in the motor-vehicle industry in Michigan. The total number of engineers employed by the industry in 1980 is expected to exceed 25,000.

One of the basic assumptions of the human resources era is that the talents of the professional worker, such as the engineer, will be increasingly utilized in all sectors of the economy. The detailed occupation-by-industry matrices, therefore, include growing numbers of engineers in other areas such as public administration, business and repair services, and mining.

Nurses

The growth of nurses is directly associated with the growth of total employment in the medical sector of professional and related services. Professional and related services overall accounted for 94.5 percent of the total employment of nurses in 1960.

Growth of expenditures on health care combined with increases in proportion with the population aged 65 and over and the extension of hospitalization and other medical insurance plans such as Medicare are the major factors influencing the increased demand for nurses. In 1960 nurses accounted for 18.3 percent of employment in medical and other health services. By 1980 this will be 13.3 percent, as these services will grow more rapidly than the supply of nurses.

It should also be pointed out that professional nurses are also employed in the manufacturing industries where they provide medical assistance. For example, in 1960 the motor-vehicles industry employed 430 nurses.

The supply and demand analysis of the Michigan Manpower Study has not been conducted in terms of specific programs of education in specific occupations. Rather, it has focused on the aggregate levels of educational attainment which will be demanded. Nursing occupations represent one of the major occupational categories where the supply may become a restraint upon the projected employment levels. This is especially important since nursing is the second largest professional employment category for

women.* Since graduates of the educational programs requiring similar preparation to nursing are expected to increase sharply during the next 15 years, the overall salary levels for nurses must increase if the projected employment level is to be attained. Training for nurses includes the diploma programs of hospital schools, associate-degree programs of junior and community colleges, and, to a limited extent, baccalaureate programs. On the basis of the anticipated demand for nurses, it is reasonable to expect that the associate-degree programs in particular will grow rapidly.

Teachers

Exceptional growth is anticipated in the education industry. The development of the human resources era is focused upon the improvement of the average level of educational attainment of the population. From 1950 to 1960, the number of elementary and secondary school teachers in Michigan increased by 67 percent from 41,005 to 68,519.** Recent data on the growth of teachers in public education are shown in Table 20.*** In 1960, teachers accounted for 42 percent of total employment in private

TABLE 20. NUMBER OF ELEMENTARY AND SECONDARY TEACHERS IN MICHIGAN

Year	Elementary Teachers	Secondary Teachers	Totals
1959-60	35,751	24,644	60,395
1960-61	36,918	24,353	61,271
1961-62	37,806	28,218	66,024
1962-63	38,554	29,464	68,018
1963-64	37,867	29,351	67,218
1964-65	38,448	31,510	69,958
1965-66	38,841	32,736	71,577

Source: State of Michigan Department of Education estimates as reported to U. S. Office of Education; the 1964-65 and 1965-66 totals are preliminary.

education and 48 percent of employment in government education. As a result of the rapidly growing demands already placed upon the government sector of education, Battelle social scientists assume that the educational services provided by government will grow more rapidly than the supply of teachers. Hence, a number of substitutes for the formally trained teacher will be necessary. Total employment in government

*It is second to teachers. Source: U. S. Bureau of Labor Statistics, Occupational Outlook Handbook, 1963-64 Edition, Bulletin No. 1375, p. 52.

**1960 Census of Population, Vol. I, Characteristics of the Population, Part 24, Michigan, Table 59, pp. 24-201.

***This table reveals that households reported more teachers in 1960 than official Office of Education statistics show.

education is expected to increase from 122,900 in 1960 to over 340,000 in 1980 as the government assumes additional responsibilities for education and for the retraining of the labor force. A significant portion of this growth will be outside of the traditional public education system of the 1960's. Adult education programs utilizing programmed instruction techniques and therefore requiring larger proportions of clerical workers will characterize a significant part of government education.

Overall, the professionals accounted for two-thirds of employment in government education in 1960. By 1980, professional workers will account for only about 50 percent of employment in government education. Clerical workers will increase from 11 percent in 1960 to approximately 20 percent in 1980 as the tasks of grading, reviewing, and monitoring program instruction, especially in adult education, are increasingly handled by nonprofessional workers. Further, training and retraining programs in public education will require a large number of craft workers, especially in areas such as maintenance-craft and repair-training programs. As a consequence, teachers in public education will account for approximately 32 percent of total government-education employment. On balance, the number of teachers in government education will expand from 60,000 in 1960 to over 100,000 in 1980.

The pattern in private education will be somewhat different. Private education will continue to serve the function of meeting highly specialized requirements and the demand for a high quality educational experience designed to meet special problems or special abilities of the students in addition to normal educational programs. In 1960 professional employment in private education also accounted for approximately two-thirds of total employment; by 1980, it is expected that approximately 62 percent of private education will still be represented by professional employees, with approximately one-third of total employment being accounted for by teachers. Overall the growth of teachers in private education is expected to increase from 12,300 in 1960 to over 20,000 in 1980.

The trends affecting the demand for teachers are not straightforward. As a result of recent legislation such as the Vocational Act of 1963, the Elementary and Secondary Education Act of 1965, and increased attention to the education industry by private industry it is apparent that a large number of innovations will be found in the classrooms of the 1970's. Currently, it does not appear that the teacher will be replaced by machines. However, the role of the teacher is likely to be changed significantly. The use of audiovisual aids, inexpensive published materials, specialized reproduction processes, and even computers in the classroom, will permit the teacher to provide more individualized attention to special problems of students, such as motivation, guidance, and counseling in difficult areas.*

The basic feature of the human resources era with its emphasis on conceptual skills and the continued need for the individual to upgrade and improve his skills will result in such dramatic demands for education that it is unlikely that the supply of properly qualified teachers will be adequate. A subsequent chapter of this report will explicitly describe the demands for increased educational attainment which will be evident in the 1970's. Teachers will play a vital role in contributing to the satisfaction of these demands.

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*Additional discussion of the teaching profession may be found in Occupational Guide No. 57, Teachers, Michigan Employment Security Commission, Employment Service Division, revised February 1962.

Managers, Salaried and Self-Employed

Managers are found in each of the industry classifications. In 1960 construction accounted for 6.7 percent of all managers, wholesale trade accounted for 7 percent, food and dairy establishments accounted for approximately 7 percent, gas and service stations accounted for 4 percent, eating places accounted for over 5 percent, and public administration accounted for approximately 5 percent. Most of the other industry classifications accounted for between 1 and 3 percent of the managers. Overall, the following patterns are expected for managers within individual industries. The industries where the growth in managers will be approximately parallel to total employment growth include primary metals, fabricated metals, motor vehicles, food and kindred products, chemical and allied products, wholesale trade, retail trade, finance, insurance, and real estate, business and repair services, entertainment and recreation, education, and public administration. Industries in which managers will diminish in importance will be transportation, general merchandise retailing, auto accessories retailing, gas and service stations, and miscellaneous professional services. In each of the industries in which the role of managers is expected to decline, the primary cause is a decrease in the number of small establishments, which is reflected in a decline in the number of self-employed managers. The exception is other professional services where the occupational category of key personnel will be more readily identified in terms of the professional skills they have rather than the managerial skills.

The other industries examined in the Michigan Manpower Study are generally expected to show an increase in the role of managers, especially salaried managers. This growth in the relative importance of managers reflects two significant factors. First, a decline in blue-collar activities resulting in a relative shift to managerial and professional activities and, second, growth in more sophisticated management capabilities reflected in increasing reliance upon salaried managers even in industries with establishments employing a few persons. Overall, employment of salaried managers will increase at more than double the rate of increase projected for self-employed managers.

Bookkeepers

The 34,000 bookkeepers employed in Michigan in 1960 were found in a large number of industries. Industries which employed more than 3,000 bookkeepers included wholesale trade (3,164), other retail trade (4,700), and bank and credit agencies (3,878). The employment outlook for bookkeepers is a result of two factors which operate in opposite directions. First, bookkeeping functions will increasingly be handled by modern equipment such as bookkeeping machines and electronic computers. Offsetting this mechanization of the bookkeeping function will be the growing complexity of business operations, the need for detailed records, the potentials for bookkeeping-type analysis made possible by the use of electronic computers, and general economic growth.

Therefore, the overall number of bookkeepers is expected to increase moderately, at a rate essentially parallel to the growth of total employment. The educational attainment of bookkeepers will undoubtedly increase in terms of the ability of bookkeepers to efficiently handle the large quantities of business data which will be available. No single industry is expected to account for a significant contribution to the increase

in the number of bookkeepers, although the business and repair services and personal-services industries will more than double their employment of bookkeepers. Even so, the total number of bookkeepers employed by these two industries in 1980 will be under 4,000.

Cashiers

In 1960 over 5 percent of cashiers were employed in finance, insurance and real estate. Another 5.4 percent were employed in general merchandise retailing, and 5.5 percent were employed in eating and drinking places. The largest employer of cashiers was food and dairy retailing, which accounted for over 55 percent of all cashiers.

Between 1960 and 1980 the growth in food and dairy retailing will be relatively modest, and the role of the cashier should decline as a result of the reduction in the number of small food and dairy outlets. In 1980 food and dairy retailing will account for approximately two-fifths of the total cashiers employed. The number of cashiers in other retail industries is expected to increase as self-service outlets shift employment from sales to check-out operators or cashiers. By 1980 the retail industries will account for approximately nine-tenths of the total employment of cashiers.

The introduction of merchandising techniques which rely upon computerized credit records and optical character recognition could influence the longer term outlook for cashiers. Additionally, change-making machines and vending machines will undoubtedly replace cashiers in some business establishments during the next 15 years. However, these developments are not expected to significantly offset the general demand for cashiers which is expected to be associated with the expansion of retail industries.

Secretaries, Stenographers and Typists

The distinction between secretaries and stenographers is not sharply defined. Stenographers are typically defined as persons who can take dictation and transcribe their notes on a typewriter. Secretaries typically have responsibilities in addition to taking and transcribing dictation. For example, they may supervise other clerical personnel or they may handle a variety of business transactions such as specialized correspondence, business records, and routine office duties. Typists, more typically, concentrate on the production of typewritten records without the necessity for transcribing dictation. Since these dividing lines are not precisely sharp, the clerical skills represented by the typists, the stenographer, and the secretary may generally be considered together.*

All three occupations are expected to grow rapidly in employment demand during the study period. The broader skills of the secretary are likely to be in greatest demand, whereas demand for the more limited skills of the stenographer are expected to grow less rapidly than for typists or secretaries.

*Occupational Guide No. 29, Typing Occupations, and Occupational Guide No. 27, Stenographic Occupations, Michigan Employment Security Commission, Employment Service Division.

These occupations are also found in nearly all industries. Therefore, one index of their demand on an industry-by-industry basis relates to the total employment of the individual industry. For example, motor vehicles, with a large total employment employed over 42,000 clerical workers in 1960; and, of these clerical workers over 5,000 were identified as secretaries and nearly 3,000 were identified as typists. The motor-vehicles industry accounted for nearly 10 percent of all secretaries in Michigan in 1960, nearly 14 percent of all typists, and over 17 percent of all persons classified as stenographers. By 1980 it is expected that there will be a slight increase in the proportion of motor-vehicles employment which is devoted to clerical skills. This increase in proportion will be the result of a relative reduction in the importance of more routine activities such as operatives. Total clerical employment projected for the motor vehicle industry in 1980 is 57,000. Nearly 9,000 of these will be secretaries, another 4,500 will be typists, and over 2,000 will be stenographers.

In 1960, banks and credit agencies employed nearly 5 percent of all typists in Michigan. By 1980 the proportion of employment in this industry accounted for by typists will be approximately the same as in 1960. The growth of the industry, however, will result in more than doubling the number of typists required. Likewise, the demands for stenographers and secretaries in this industry will more than double. It is expected that banks and credit agencies will rely more on broader capabilities of secretaries as a source of clerical support than was true in 1960.

The insurance industry also accounts for a large demand for secretarial, stenographic, and typing skills. In 1960 the insurance industry accounted for nearly 9 percent of all typists in Michigan, nearly 6 percent of all stenographers, and over 6 percent of all secretaries. Here again the rapid growth of the industry will account for a more than doubling in the employment of persons with these clerical skills.

The education industry will employ a large number of clerical workers as a result of the trends described earlier in the section dealing with teachers. In 1960 government education accounted for nearly 10 percent of all secretaries employed in Michigan. By 1980 government education will account for over 20 percent of all secretaries employed in the state.

The final major industry sector which employs secretarial, stenographic, and typing skills is public administration. In 1960 approximately 15 percent of all typists in Michigan were employed in public administration. The role of typists in public administration is not expected to change significantly between 1960 and 1980. Therefore, the growth of typists, secretaries, and stenographers will be proportional to total employment growth in public administration.

The above discussion did not concentrate on clerical skills in the many industries where they are a vital component of total employment, but where the individual industry does not demand a large portion of clerical employment. Generally, the projections for these industries have been developed on the assumption that the flow of communications within and among businesses will increase during the next 15 years with a resulting demand for secretarial skills. Overall, it is not expected that clerical skills will keep pace with the demand for professional skills, but it is evident that the growth in professional employment will be a major factor contributing to growth in clerical employment, especially in employment situations where the clerical personnel directly serve the professional staff.

Overall, many industries are expected to have the characteristic that, while total employment is not increasing, the structure of employment is shifting to emphasize professional and clerical occupations. Therefore, even in manufacturing industries which are not expected to grow significantly during the study period, there will be increased demands for secretarial personnel.

Salesmen and Sales Clerks

Salesmen are concentrated in the trade industries. Wholesale trade accounted for nearly 10 percent of all salesmen in 1960 and is expected to account for over 10.5 percent of all salesmen in 1980, largely as a result of the fact that employment growth in wholesale trade will be slightly in excess of the employment growth in retail trade. The insurance industry also employs a large number of salesmen, and in this industry the growth of salesmen is expected to be significant, with salesmen accounting for an increasing proportion of total employment. In 1960 insurance accounted for 6.5 percent of all sales workers in Michigan; by 1980 it is expected to account for over 10 percent as the rising level of consumer income generates increased demands for insurance and increased competition among insurance companies. By 1980 over 25,000 salesmen will be found in the insurance industry.

Like many of the occupational categories selected for analysis in this study, the sales category incorporates a heterogeneous grouping of specific jobs. Sales workers include those who are selling a highly technical product requiring an individual with an engineering background. Sales workers also include personnel in department stores who are selling relatively simple and undifferentiated products. Overall, the increasing complexity of products will be associated with requirements for more specialized training of sales personnel. Hence, for a portion of sales workers, a significant upgrading of skill level will be associated with the employment growth in the overall category. Furthermore, the growth rate of 1.2 percent per annum represents an understatement of the growth in sales occupations, since a number of the more technical sales occupations will undoubtedly be classified under professional classifications as the professional requirements are more directly recognized.

Carpenters, Electricians and Plumbers

These three occupations have been grouped together, since they represent occupations significantly concentrated in the construction industry. In 1960 over 76 percent of all carpenters were in construction, as were 30 percent of all electricians and nearly 50 percent of all plumbers.

During the post-war period the construction industry has not been outstanding in terms of the introduction of technological changes in the construction process. A wide variety of new materials is available today, yet these materials are actually utilized in only limited applications. Factors affecting the slow evolution of the construction industry include the limited amount of innovation which occurs at the design stage, the restrictions imposed by building codes, and the reluctance of both builders and consumers to modify patterns which have proven successful in the past. It is anticipated that many of these factors will continue to be significant during the next decade and one-half. However, other forces will be at work to change the employment structure of the construction industry.

From the point of view of the labor market, one important factor will be the continued shortage of highly skilled craftsmen. This shortage will lead to the use of component and preassembled construction items. One result, for example, will be in the role of the carpenter. In 1960 the carpenter accounted for nearly 16 percent of total construction employment. Within 20 years it is anticipated that the carpenter will account for less than 12 percent of total construction employment. Likewise, the well known importance of the electrician and the plumber will diminish, although not as dramatically.

Overall, craft occupations accounted for 54 percent of total construction employment in 1960. As a result of using new materials and new construction techniques, it is expected that craft activities will decline to approximately 40 percent of total construction employment by 1980. A portion of this decline will be offset by modest increases in the proportion of total employment accounted for by operatives and clerical workers. As mentioned earlier, managers and professional workers in construction are expected to increase more rapidly than total employment as the on-site control of relating complex components becomes more important.

The motor-vehicles industry also employs large numbers of electricians and plumbers. No significant technological changes are foreseen in the role of these employees in the motor-vehicle industry; therefore, their share of total employment in motor vehicles is expected to remain at approximately the same levels in 1980 which they obtained in 1960. Simply as a result, therefore, of employment growth in motor vehicles, the number of electricians employed by the industry is expected to increase from 4,300 to 5,700 in 1980.

Foremen

Foremen are employed primarily in durable goods manufacturing. In 1960 primary metals accounted for 6.6 percent of all foremen, fabricated metals accounted for 7.4 percent, electrical machinery accounted for 10.2 percent, and motor vehicles accounted for 30 percent. The role of the foremen is closely related to the number of other production line and craft occupations employed in the firm. Generally, therefore, no major changes are anticipated in the role of the foremen and the growth of 10,000 is largely caused by the growth in craft and operative employment which comes under the supervision of the foremen.

Machinists

The number of machinists employed may be directly related to the metalworking activities of the major durable-goods industry in Michigan. Overall, the projections of employment in the motor vehicle industry, for example, are based upon a general continuation of the recent trends in the materials utilized in the production of motor vehicles. The employment demand for machinists will be largely influenced by two significant factors. First, qualified machinists are the result of extensive apprenticeship training. Total employment of machinists will undoubtedly be constrained by the lack of entrants into these programs. Second, the metalworking machinery utilized is undergoing continued technological improvement. Therefore, the productivity of individual machinists may be expected to continue to increase.

The number of machinists employed in primary-metals- and fabricated-metals industries is expected to parallel the employment increase in those industries. In electrical machinery some decline is foreseen in the number of machinists employed as the electrical machinery industry produces output with a heavier emphasis on electronic products. In motor vehicles the role of machinists in total employment is not expected to be significantly affected by any overall technological changes. Therefore, total employment growth in motor vehicles is expected to result in the demand for an additional 1,000 machinists over 1960 levels (4,660 machinists) in that industry.

Mechanics and Repairmen

The mechanics and repairmen category includes automobile mechanics, radio and television repairmen, and miscellaneous repairmen. In 1960 the auto-accessory industry accounted for over 8 percent of all mechanics and repairmen in Michigan, businesses and repair services accounted for over 15 percent, and the motor-vehicles industry accounted for over 20 percent. The role of mechanics and repairmen in motor vehicles and in auto accessories is not expected to change significantly during the next 15 years.

Total employment of mechanics and repairmen in the motor-vehicles-production industry is expected to reach 28,000 in 1980 and in auto accessories, mechanics and repairmen will account for 15,000 jobs. In business and repair services, the growth of business services will result in a decline in the significance of mechanics and repairmen within that industry classification. The employment of mechanics and repairmen will represent the most rapidly growing craft activity as maintenance-craft employment is expected to increase in nearly every industry.

Toolmakers and Diemakers

The importance of the motor-vehicles industry is repeated in each one of the major craft activities. In the case of toolmakers and diemakers, motor vehicles accounted for nearly 43 percent of total tool and diemakers in Michigan in 1960. Even with the introduction of numerical control and chemical machining, it is anticipated that tool and diemakers will continue to play an important role in auto fabrication. The crucial problem will be the availability of these skilled craftsmen. Overall, a demand for an additional 3,000 to 4,000 diemakers by the automotive industry would appear justified on the basis of projected employment growth in the industry.

Assemblers

Assembly operations are concentrated in durable-goods manufacturing, especially in the motor-vehicles industry which employed nearly 60 percent of all assemblers working in Michigan in 1960. Other industries which employed a large share of assemblers in 1960 include fabricated metals (7.2 percent), electrical machinery (13.9 percent), and nonelectrical machinery (7.8 percent). During the past decade a large number of technological advances have reduced the routine and repetitive assembly operations. For example, the development of heavy fabrication machines and metals with improved ductility has permitted fabrication of more complex shapes. The use of numerical control in the next 15 years is expected to permit design of complex parts which will

replace components which must be assembled today. Further, the use of molded plastics and component packages built around micro-electronics will further reduce assembly operations.

Nevertheless, a large number of manufacturing operations will continue to provide employment for assemblers. Specifically, the number of assemblers employed in fabricated metals, electrical machinery, and nonelectrical machinery is expected to remain near the levels of 1960. The major reduction in the number of assemblers will be identified with the motor-vehicles industry where the number of assembly jobs is expected to decline from 36,000 in 1960 to approximately 32,000 in 1980. This reduction of assembly operations is based on the assumption that the major production improvements in automotive manufacturing will occur in the increased use of component parts which can be readily integrated into the final production unit.

Checkers, Examiners and Inspectors

The lack of growth in the employment totals for checkers, examiners, and inspectors projected for the period 1960 to 1980 masks the changes which are expected to occur in this important function. Nearly all manufacturing industries will experience continued pressures to improve quality control. As a result, the number of inspections which will be employed in the individual production process is likely to increase. The lack of growth of total employment for checkers is a reflection of the fact that an increasing proportion of inspection will be accomplished mechanically and electronically, using such methods as ultrasonic testing, electronic testing, and other significant developments in this area.

While employment in absolute terms will not increase significantly, the changes will occur within the occupation will be significant. The result will be increasing requirements for training programs designed to familiarize the worker with more advanced inspection techniques. A large part of this retraining of checkers is expected to be accomplished within the firm and not as a part of formal educational programs.

Filers, Grinders and Polishers

A second feature of the requirements for increased quality control will be associated with a modest employment growth in occupations which have the specific function of improving the product quality. Filers, grinders, and polishers represent one of these occupational groups. In many areas, such as motor vehicles (which employed 45 percent of all filers and grinders in Michigan in 1960), the production process will also be upgraded through the use of improved equipment. The major growth of filers and grinders will probably be found in the primary-metals industry and the fabricated-metals industry, as this function becomes relatively more significant within the supplier industries.

Deliverymen, Routemen, Truck and Tractor Drivers

The major category of employment in the general occupational classification of operatives which will experience growth during the study period is the group of occupations which relates to the commercial operation of motor vehicles. The growth of

routemen and deliverymen will be a result of growth in the portion of the retail trade industry which currently employs motor vehicle operators to distribute their merchandise.

Truck and tractor drivers will grow as a result of increased employment in construction (where the number of truck and tractor drivers is expected to increase from 5,700 in 1960 to nearly 10,000 in 1980 as a result of the use of heavy equipment) and in the transportation industry where the physical distribution of goods will continue to be accomplished through truck transport. In 1960 the transportation industry accounted for approximately 36 percent of all truck and tractor drivers, with an employment of 23,300 persons. By 1980 the transportation industry will contain 38.5 percent, a small increase in the concentration of truck and tractor drivers. Significantly, truck and tractor drivers as an occupation within the transportation industry is expected to increase from approximately 27 percent of total employment in transportation in 1960 to over 37 percent in 1980, reflecting the rapid development of truck transportation relative to rail transportation as a major source of employment.

Private Household Employees

While private household workers are being classified as a major category, in reality the private household employment is 100 percent in the personal services industry. The projection of private household employees represents several difficulties. First, the analysis of consumer income levels and expenditure patterns indicates that a growing demand for private household workers would be reasonable. However, the traditional wage level for private household workers and the general status which has been attached to this type of employment discourages entrants into these occupations.

Based upon the anticipated rise in family income levels, employment of private household workers could increase by between 50 and 75 percent during the 1970's. However, the employment estimates adopted in this report describe a generally stable level of employment of private household workers, reflecting the increasing difficulty of attracting workers to these types of occupations. Specifically, the estimated employment of private household workers in 1980 assumes further that the wages paid to these workers will increase substantially over currently prevailing levels. Thus, the employment of private household workers in 1980 will be concentrated in the higher income classifications which can afford to pay higher wage levels.

It should also be recognized that employment of private household workers is susceptible to fluctuations relating to the general level of economic activities. A number of persons who are typically not seeking employment when the head of the household is employed in the labor force seek work as private household workers when economic conditions are difficult. The secular-trend analysis which is associated with these estimates of employment in Michigan during the 1970's eliminates these difficult problems of business cycle analysis.

Service Workers

The analysis of the service-workers category included specific consideration of employment of hospital attendants, cooks, janitors, protective service workers, and waiters. In all of these occupations the considerations involved in estimates of future employment levels are similar. The following considerations are especially important:

(1) The growth of professional services, especially the growth of medical services and education, will result in a demand for the basic service occupations which are related to the care and upkeep of the physical plant and which are associated with the servicing of the major segment of employment. In other terms, occupations such as cooks, janitors, and protective service workers are related to the general employment level in these individual industries.

(2) The number of attendants in hospitals, as projected, also reflects the general shortage of professional skills which will be evident in the medical-services industry. The use of electronic monitoring devices and disposable products in the hospital will accelerate. Nevertheless, these alternatives are expensive, and it is anticipated that hospital attendants will continue to be employed in increasing numbers to assist the professional staff of the facilities.

(3) The growing level of consumer income will result in an increased proportion of food expenditures being devoted to food consumed outside of the home. Thus, the number of eating and drinking places will increase substantially, resulting in an increased number of cooks, waiters, and waitresses to support the growth in establishments. Additionally, the number of cooks required by facilities such as dormitories, university and school cafeterias, and other establishments will result in an increasing demand for these employees.

It is important to note that the employment of service workers is a function of the types of demands which are evident in the general population. Service workers are not typically the product of technological process requirements, although technological improvements such as mechanical floor sweeping and floor polishing will affect the nature of employment for janitors and sextons. It is generally assumed in Battelle studies of the labor force of the 1970's that the increasing level of educational attainment and rising consumer disposable income will combine to result in growing demands for services which are inadequately provided today. This function of the human resources economy will result in exceptional growth for a relatively unskilled portion of the labor force. It is important to note that the growth of service occupations is nevertheless related directly to the human resources era, since the demands for these workers would not be possible without the other characteristics of the human resources era being evident.

THE RELATIVE SUPPLY AND DEMAND FOR LABOR

An important feature of the Battelle Socio-Economic Model is the relationship between supply of and demand for labor as expressed in terms of formal educational attainment. The precise educational requirements of individual occupational classifications are not specifically determined. However, it is evident in data derived from the 1960 Census of Population that the educational attainment of older workers is lower than the educational attainment of younger workers employed in the same occupational classifications. In part, this simply reflects the "supply effect", since the educational attainment of the younger population is, on an overall basis, higher than that of older workers.

It is reasonable to expect that the educational qualifications for many occupations in the labor force will be more stringent in the future than they have been in the past simply as a result of the increased use of more sophisticated techniques requiring higher levels of intellectual comprehension. The preceeding discussion of trends in individual occupations mentioned a few cases where this is especially likely to occur.

Educational Attainment by Major Occupations

Given that the precise educational attainment of individual occupations is not a simple characteristic to determine, the occupational profile of the Michigan labor force has been translated into a demand for education in terms of the profiles of educational attainment which have been demanded in the past. Table 21 describes the educational attainment associated with the major occupational classifications in 1960. Table 22 describes the educational attainment of workers aged 35-44 in 1960. In order to develop the demand estimates for the Michigan manpower study, it has been assumed that the profile of the 35-44 age group will be representative of the educational requirements of the overall employment in these classifications by 1980 (when persons ages 35-44 will be ages 55-64).

The demand profile resulting from this assumed educational requirement has been compared with the expected educational attainment which will be achieved by the population in 1980. The methodology for projecting the educational attainment has been described. However, a few comments are in order.

The educational attainment of the total labor force can only be influenced in terms of the basic flows represented by new entrants adding and retirees subtracting formal educational achievement. Fundamental changes are not expected to occur in the formal educational attainment of the middle-aged population. Table 23 describes the proportion of young persons aged 14-24 who are still in school in terms of educational attainment they have achieved. For example, the table shows the proportion of males who have completed 12 years of school who are still enrolled (they will be enrolled in grade 13).

Essentially, an upgrading in educational attainment must be based upon the potential for upgrading represented in this profile. The supply projections developed by Battelle social scientists have been accomplished in terms of these profiles. Generally, it has been assumed that the proportion of 19-year-olds in the post-high-school educational level will double between 1960 and 1975. Further, it has been assumed that the proportion of 20-24-year-olds having achieved post-high-school educational attainment will increase from one-fifth to one-quarter. These growth patterns are necessary if the general demands of the labor force are to be met. This growth in education will be a significant contributing factor to the overall growth in professional and related services which was described earlier.

The Effects of Alternative Assumptions

The significance of the changing occupational structure and the resulting demands for educational attainment can be described in terms of a series of alternative assumptions. The results of these assumptions are summarized in Table 24. In Step I, the

TABLE 21. EDUCATIONAL ATTAINMENT PROFILE OF MAJOR OCCUPATIONAL CLASSIFICATIONS, UNITED STATES, 1960

Occupation	Percentage Distribution of Occupations by Level of Educational Attainment					
	Elementary School		High School		College	
	0-7	8	1-3	4	1-3	4 or More
Professional, Technical, and Kindred Workers	1.10	1.92	5.87	16.94	21.52	52.65
Farmers and Farm Managers	29.12	27.76	15.01	20.91	5.04	2.16
Managers, Officials, and Proprietors, Except Farm	7.70	10.66	17.87	30.80	17.49	15.48
Clerical and Kindred Workers	3.02	6.30	19.22	50.47	16.19	4.80
Sales Workers	7.05	11.85	25.93	32.07	14.59	8.51
Craftsmen, Foremen, and Kindred Workers	17.40	19.20	26.49	28.51	6.41	1.99
Operatives and Kindred Workers	23.70	21.03	28.57	22.56	3.56	0.58
Private Household Workers	37.47	21.04	25.55	12.79	2.66	0.49
Service Workers, Except Private Household	21.08	19.30	28.80	23.44	6.22	1.16
Farm Laborers and Farm Foremen	45.90	18.32	20.91	11.72	2.53	0.62
Laborers, Except Farm and Mine	36.23	19.25	25.60	15.34	3.02	0.56
Occupation Not Reported	20.51	15.26	23.28	25.52	9.17	6.26
Total Civilian Labor Force	16.35	14.81	22.31	27.33	10.06	9.14

Source: 1960 Census of Population, Volume 2, Subject Reports, Occupational Characteristics, Final Report, PC(2)-7A, Table 11.

TABLE 22. EDUCATIONAL ATTAINMENT PROFILE OF WORKERS AGED 35-44 IN MAJOR OCCUPATIONAL CLASSIFICATIONS, UNITED STATES, 1960

Occupation	Percentage Distribution of Occupations by Level of Educational Attainment					
	Elementary School		High School		College	
	0-7	8	1-3	4	1-3	4 or More
Professional, Technical, and Kindred Workers	0.77	1.19	4.69	18.48	17.82	57.05
Farmers and Farm Managers	20.01	25.28	15.47	31.08	5.73	2.43
Managers, Officials, and Proprietors, Except Farm	4.01	6.04	16.30	37.04	18.80	17.81
Clerical and Kindred Workers	2.26	4.40	16.63	55.20	16.02	5.49
Sales Workers	4.22	7.32	21.03	41.47	15.89	10.07
Craftsmen, Foremen, and Kindred Workers	13.43	15.23	28.42	34.16	6.55	2.21
Operatives and Kindred Workers	21.74	20.41	30.05	24.16	3.04	0.60
Private Household Workers	40.85	18.46	23.94	14.41	1.95	0.39
Service Workers, Except Private Household	16.33	16.47	29.80	30.83	5.30	1.27
Farm Laborers and Farm Foremen	52.98	17.86	12.79	13.13	2.37	0.87
Laborers, Except Farm and Mine	38.51	20.15	23.01	15.54	2.18	0.61
Occupation Not Reported	17.76	13.92	22.47	30.03	8.71	7.11
Total Civilian Labor Force	13.53	12.53	21.72	31.91	9.79	10.52

Source: 1960 Census of Population, Volume 2, Subject Reports, Occupational Characteristics, Final Report, PC(2)-7A, Table 11.

TABLE 23. PER CENT ENROLLED IN SCHOOL (BY AGE, SEX, AND LEVEL OF COMPLETED EDUCATION), 1960

	Total	Educational Attainment					
		0-7	8	9-11	12	13-15	16+
Male							
14	96.20	96.24	97.41	84.29	--	--	--
15	95.32	89.85	97.48	95.82	18.25	--	--
16	89.15	62.75	79.90	93.21	22.43	100.00	--
17	81.88	43.62	43.58	98.43	24.93	73.79	--
18	60.93	29.68	14.82	74.73	49.63	79.60	--
19	40.94	24.43	8.78	39.81	28.23	82.95	25.00
20	30.68	12.05	4.56	16.15	9.99	78.94	56.59
21	26.03	9.52	2.63	12.48	5.88	73.56	64.45
22	20.33	9.31	1.47	10.89	4.78	57.98	59.18
23	16.68	11.88	2.72	8.32	4.02	49.73	48.13
24	13.75	5.85	3.49	7.45	3.32	41.85	38.57
Female							
14	96.53	96.68	98.10	82.82	0.00	--	--
15	95.10	87.76	96.41	95.80	25.17	0.00	--
16	89.27	64.54	76.15	91.90	17.27	60.53	--
17	78.71	45.95	36.91	86.28	19.26	59.35	--
18	46.43	32.27	10.99	63.27	33.95	63.76	--
19	27.08	27.35	8.30	22.97	13.50	73.63	25.00
20	18.46	14.53	2.71	10.57	3.00	64.50	18.40
21	13.91	9.83	2.16	7.26	1.50	53.75	28.88
22	7.33	9.19	2.09	4.74	0.57	30.72	20.05
23	4.98	8.36	2.52	4.44	0.64	17.39	16.03
24	4.09	6.14	3.97	4.35	0.47	12.69	11.80

Source: 1960 Census of Population, Vol. I, Characteristics of the Population, Part 24, Michigan, Tables 101 and 102, pp. 24-382 and 24-391.

educational attainment required is a direct result of an assumed static growth in the labor force. In other words, the industry structure, and occupation-by-industry matrix, and the education-by-occupation matrix are precisely the same as they were in 1960. For Step II the 1980 industry structure described in this report has been combined with the 1960 occupation-by-industry structure and the 1960 levels of educational attainment required by occupation. Step III is the demand resulting from the projected occupation-by-industry matrix, the projected industry structure, and the 1960 educational attainment required by individual occupations. Step IV involves the projected occupation-by-industry matrix, projected industry structure, and the 35-44 educational attainment described in 1960.

TABLE 24. DEMAND RESULTS UNDER VARIED ASSUMPTIONS

Years of School Completed	Thousands of Persons 14 Years Old and Over			
	Step 1	Step 2	Step 3	Step 4
Less than 12	2,082	1,934	1,869	1,674
12	1,087	1,092	1,111	1,283
13 - 15	398	439	458	431
16+	369	471	498	548

Source: The demand for education has been calculated using the following assumptions:

Step 1. Industry structure in 1980 equals 1960 industry structure.
Occupation structure in 1980 equals 1960 occupational structure.
Educational attainment in 1980 equals 1960 educational attainment by occupation.

Step 2. Industry structure as projected in this report for 1980.
Occupation structure - same as Step 1.
Educational attainment - same as Step 1.

Step 3. Industry structure - same as Step 2.
Occupation structure as projected in this report for 1980.
Educational attainment - same as Steps 1 and 2.

Step 4. Industry structure - same as Steps 2 and 3.
Occupation structure - same as Step 3
Educational attainment projected on the basis of educational attainment of workers aged 35-44 in 1960.

Since Step IV represents the results which have been used in Phase I of the Michigan Manpower Study, it is clear that the combined effects of changing industry structure, changing occupational structure, and changing educational attainment by occupations will place significant demands on the development of the educational attainment of the labor force in Michigan.

EMPLOYMENT GROWTH DURING THE PAST FIVE YEARS - MICHIGAN

The focus of the Michigan Manpower Study is the long-term secular trend in employment. Employment levels described by the estimates contained in Tables 9 and 16 represent the average experience and do not represent specific points on the business cycle. Therefore, care must be exercised in evaluating this secular trend, especially in view of recent experience.

The long-term employment growth is 1.9 percent per year. This growth can be compared with the actual experience of the period 1960 to 1965 if caution is exercised in relating the census employment levels contained in the Michigan Manpower Study with the establishment data developed monthly by the Michigan Employment Security Commission. These sets of data are not comparable; however, the establishment data do describe recent employment patterns, and allowances can be made to some degree for definitional differences.

During the period 1960-65, overall employment on an establishment basis increased 2.0 percent per year, compared with the 1.9 percent estimated in the Michigan Manpower Study. However, the growth from 1964 to 1965 represented an increase of 5 percent, an extremely high level of growth relative to recent experience and relative to the expected levels contained in the Michigan Manpower Study Phase I report. Table 25 describes the employment by industry in 1956, 1960, and 1965 with annual growth rates from 1956 to 1960, and from 1960 to 1965*.

The experience of 1965 clearly represents a significant departure from trend. This is reflected in the automobile industry where production for 1965 nearly equalled the projected output for 1970.

PROSPECTS FOR 1967

Estimates of employment in the short term are subject to many special considerations which, to some extent, make them more difficult to accomplish than the longer term patterns which are the focus of this report. Several basic problems are evident in the national economy today. These include the following:

(1) The Viet Nam Crisis. The outlook for military expenditures for the Viet Nam conflict varies on a monthly basis. Gross National Product for the United States in the first quarter of 1966 exceeded all expectations, in large part because of the rapid increase of expenditures for military hardware and personnel. Any outlook for 1967 must be predicated on a basic set of assumptions concerning the Viet Nam crisis.

(2) Business Cycle Effects. The current expansionary phase of the business cycle represents one of the longest expansions on record. There have been a number of questions raised about the basic strength of this expansion for the next 18 months. The business cycle is characterized by the building up of internal imbalances, the adjustment of which creates

*1965 data are used since a consistent time series is available for the time period 1956 through 1965.

TABLE 25. MICHIGAN EMPLOYMENT BY INDUSTRY (ESTABLISHMENT SERIES): 1956, 1960, 1965

	Thousands Employed			Rate of Change	
	1956	1960	1965	56-60	60-65
Agriculture, Forestry & Fisheries	121.3	93.7	75.0	-6.2	-4.4
Mining	16.5	15.5	14.0	-1.5	-2.0
Construction	113.9	97.2	115.7	-3.9	3.6
Manufacturing	1,099.0	967.6	1,076.1	-3.1	2.1
Durable Goods	895.8	770.6	868.7	-3.7	2.4
Primary Metal Industries	89.9	85.3	90.6	-1.3	0.6
Fabricated Metal Industries(a)	109.7	109.0	117.4	-0.1	1.5
Machinery, exc. Electrical	151.4	136.6	151.7	-2.5	2.2
Electrical Machinery Equipment & Supplies	37.4	33.8	39.2	-2.5	3.0
Motor Vehicles & Equipment	411.7	311.2	386.8	-6.8	4.4
Other Durables	95.7	94.7	83.0	-0.3	-2.6
Nondurable Goods	203.3	197.0	207.4	-0.8	1.0
Food & Kindred Products	63.5	58.7	54.5	-1.9	-1.5
Chemical & Petroleum Products	45.7	44.9	45.2	-0.4	0.1
Other Nondurables	94.1	93.4	107.7	-0.2	2.9
Transportation, Communications & Utilities & Sanitation Services	146.3	140.4	136.5	-1.0	-0.6
Wholesale Trade	103.9	102.9	113.7	-0.2	2.0
Retail Trade	367.4	348.0	371.7	-1.4	1.3
Finance, Insurance & Real Estate	75.9	82.8	94.7	2.2	2.7
Services	241.1	263.7	320.7	2.3	4.0
Public Administration	313.0	332.7	368.6	1.5	2.1
TOTAL EMPLOYMENT	2,593.3	2,444.4	2,686.7	-1.5	2.0

(a) Includes Not Specified Metal.

Note: Detail may not add to total, due to rounding.

Source: Michigan Employment Security Commission, Michigan Manpower Review.

fluctuations in the rate of growth and in the internal balance of the economy. Few business-cycle analysts would suggest that the current rate of plant and equipment expenditure, for example, could be maintained for a long period of time. Capital equipment expenditures are expected to increase 19 percent in 1966*, giving a combined rise of 37 percent for 1965 and 1966 (compared with the record gain of 22.2 percent in 1956).

(3) The Problem of Inflation. The inflationary pressures in the economy currently are leading to discussions of a tax increase to accomplish the end of paying for the Great Society program on the domestic front and the military expenditures on the national front. Monetary policy has already been applied and yet the current indicators all reveal continued pressure on prices and continued demands for wage increases.** The manner in which these inflationary pressures affect fiscal and monetary policy will affect the overall economic outlook.

(4) The Labor Force. The improvement in the unemployment rate nationally and in Michigan have exceeded the expectations of most analysts of the labor force. Nevertheless, imbalances remain. First, the problem of absorbing an unprecendented inflow of young, inexperienced and generally untrained adults into the labor force throughout both 1966 and 1967 remains. Failure to absorb these young persons into employment situations will contribute to an increase in the unemployment rate. Second, in recent months growth in the labor force has been largely in terms of the unskilled and semi-skilled categories as a result of the shortages which exist for craft occupations and professional workers. These structural imbalances in labor supply present additional difficulties to the successful stimulation of continued economic growth. The many programs of training and retraining are making a contribution to a solution to this problem; however, the overall imbalances will require more extensive efforts than have been applied to this date.

Projections of employment in Michigan for 1967 therefore represent a difficult piece of analysis. The employment level projected in Table 26 are based on the following assumptions:

(1) The Viet Nam conflict will continue; however, the acceleration of growth in manpower and supplies which characterized 1965 will not be experienced between mid-1966 and 1967. This assumption is based upon the assumed policy of a "holding action" in Viet Nam necessitated by the coming Vietnamese elections,

(2) Federal action to control inflation will result in a tax increase and a continued tightening of credit which in turn will result in a slowdown in consumer expenditures, represented, for example, by reduced expenditure for motor vehicles in 1967.

In summary, the short-range outlook for economic growth in Michigan is not characterized by the optimism which is associated with the longer term growth pattern.

*This estimate is based upon the McGraw-Hill annual capital spending survey reported in Business Week, April 16, 1966, p. 37.

**During the first quarter of 1966, the implicit price deflator used in GNP estimates increased by 1 percent, the highest quarterly increase since the early 1950's.

TABLE 26. EMPLOYMENT BY INDUSTRY IN MICHIGAN, 1960, AND PROJECTION FOR 1967

Category	Thousands Employed 1960	1967
Agriculture, forestry & fisheries	93.7	72.0
Mining	15.3	13.7
Construction	125.6	143.5
Manufacturing	1,035.9	1,100.0
Transportation, communication, utilities, and sanitary service	155.6	166.5
Wholesale trade	80.7	94.0
Retail trade	403.3	440.0
Finance, insurance, and real estate	89.6	112.0
Business and repair service	61.3	70.0
Personal service	134.0	152.0
Entertainment and recreation service	17.7	22.0
Professional and related service	329.9	441.0
Public administration	94.8	118.0
Industry not reported	89.6	97.5
Total employment	2,726.9	3,042.2

Note: Detail may not add to total due to rounding.

It should be emphasized that this short-term weakness represented in 1967 will be basically a manifestation of excesses which have developed during the past 18 months rather than a basic weakness in the economic structure of the state.

One result of this growth pattern which is expected is that increasing pressures for adaptation of the labor-force skills to demands of industry will be evident once again. The tight labor-market situation of mid-1966 has weakened some of the demand for training and retraining activities. It is anticipated that these structural problems will become much more evident in mid-1967.

The overall pattern of employment growth described during Phase I of the Michigan Manpower Study should be useful in terms of providing a perspective in terms of the types of skills which should be developed in the labor force.

SUMMARY OF PHASE I ACCOMPLISHMENTS, AND A LOOK AHEAD

The purpose of the Michigan Manpower Study is threefold. First, the study is designed to develop a methodology for the projection of labor-force characteristics. Second, the research is designed to develop estimates of Michigan's labor force characteristics in the 1970's given the best data and judgments currently available. Third, the research program is organized to provide a training program for the labor-market analysis of the Michigan Employment Security Commission in order to develop their capabilities for labor force projections. In accomplishing these three objectives another major objective will be achieved. The estimates provided in response to the second objective above will provide a useful input into the process of educational planning for the State of Michigan.

The results of Phase I have been developed in detail in this report. It should be remembered, of course, that the results of Phase I are subject to modification as the research progresses during Phase II. Essentially, the Phase I results provide a framework describing the characteristics of Michigan's labor force. It is anticipated that some of the detail within this framework may be modified during Phase II; however, it is most likely that the modifications of details will generally be offsetting insofar as the overall patterns of employment and occupation development are described. Every effort has been made during the course of Phase I to develop estimates which will be useful now.

The overall study has been guided by an advisory committee composed of James W. Jones, Jr., Assistant Deputy Director, Michigan Employment Security Commission; Leon Alger, Administrative Assistant, Division of Vocational Education; Norman Barcus, Director, Research, and Statistics Division, Michigan Employment Security Commission; Leonard Bronder, Chief, Population - Economic Share Element, Office of Economic Expansion; John Koval, Principal Economist, Office of Economic Expansion; Charles Langdon, Research Coordinator, Division of Vocational Education; Al Montgomery, Transportation and Land Use Study; Lon Polk, Assistant Professor, University of Michigan; and Sam Stearn, Chief, Labor Market Analysis Section, Michigan Employment Security Commission. Three members of the advisory committee represent a linkage between the Detroit Regional Transportation and Land Use Study

(TALUS) and the Michigan Manpower Study. The TALUS program will utilize the labor force and employment projections of the Michigan Manpower Study as control totals for the specific area-by-area projections within the seven counties covered by the scope of the Transportation and Land Use Study. In addition to the members of the advisory committee, a number of representatives of sponsoring agencies have contributed to the overall study.

Throughout the study, close cooperation has been achieved between the participating agencies and Battelle. The following meetings were held to coordinate the study:

May 25, 1965	– Detroit, Michigan – Advisory Meeting
July 1, 1965	– Detroit, Michigan – Research Meeting – Discussion of Industry Trends
July 25-30, 1965	– Kalamazoo, Michigan – Conference on Manpower Economics – Discussion of Battelle's Methodology
August 9, 1965	– Detroit, Michigan – Advisory Meeting – Discussion of Occupations to be Emphasized
August 23-27, 1965	– Detroit, Michigan – Visits to Representatives of the Automotive Industry to Obtain Research Data
September 14, 1965	– Detroit, Michigan – Meetings with MESC Staff to Obtain Results of Special Studies Conducted by MESC Staff Members.
November 30, 1965	– Marquette, Michigan – Conference on the Value and Use of Occupational Projections
December 1, 1965	– Grayling, Michigan – Conference on the Value and Use of Occupational Projections
December 6, 1965	– Kalamazoo, Michigan – Conference on the Value and Use of Occupational Projections
December 9, 1965	– Saginaw, Michigan – Conference on the Value and Use of Occupational Projections
December 10, 1965	– Detroit, Michigan – Conference on the Value and Use of Occupational Projections
January 18, 1966	– Battelle Institute, Columbus, Ohio – Discussion of Technological Trends, Industry by Industry
March 9, 1966	– Battelle Institute, Columbus, Ohio – Discussion of Preliminary Results of the Construction Industry
March 31, 1966	– Detroit, Michigan – Training Session – Detailed Discussion of the Methodology in the Michigan Manpower Study

April 21, 1966 – Detroit, Michigan – Advisory Committee Meeting – Discussion of Final Projections and Outline of Final Report.

In addition to these formal meetings, a series of meetings was held to discuss the specific projections such as employment in the automotive industry, the specific details of the occupation by industry matrices, and the scheduling of activities. These meetings have provided a useful exchange of data so that the best available judgments and data have been utilized in the development of this report.

Phase II is designed to add considerable detail to the framework developed in Phase I. In particular, Phase II will focus on the expanded list of occupations shown in Table 2 and expand the analysis to specifically define the Detroit Standard Metropolitan Statistical Area (Macomb, Wayne, and Oakland Counties). Additionally, Phase II of the Michigan Manpower Study will include a continuation of the training process and the refinement of detailed projections. It is anticipated that many of the data inputs comprising the state economic plan will be available for incorporation into the final analysis.

In summary, the results described in this report represent the basic framework for description of Michigan's labor force in the 1970's. Considerable detail will be added during Phase II. Nevertheless, the results contained in this report are expected to be helpful in describing the overall economic growth and human resource development needs for the State of Michigan.

VT 000 919

VT 000 919
Woodin, Ralph J.
Guidelines for the Development of Instruments for Evaluation in Vocational Agriculture.

Ohio State Univ., Columbus. Center for Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 6p.

*VOCATIONAL AGRICULTURE; *PROGRAM EVALUATION; *EVALUATION TECHNIQUES; GUIDELINES; SPEECHES

Previous difficulties in evaluating programs have included uneven emphasis on certain aspects, criteria imposed from outside, voluminous and complicated instruments, and sporadic efforts utilizing obsolete objectives as a basis. Basic assumptions indicate the type of evaluation instrument needed: (1) Social units are the basic units to be evaluated, (2) Combinations of self and outside evaluation are most effective, (3) Evaluation should be on a continuing basis, (4) Clientele should be involved, (5) Instruments should be comprehensive without being voluminous, (6) Initiative for requesting evaluation should be left to the local unit, and (7) Teacher education and supervisory staffs should assist in carrying out the evaluation. Instruments should: (1) be based on accepted educational objectives, (2) include important aspects of the program, (3) be applicable to separate areas of the program, (4) be adaptable to both self and group evaluation, (5) be understandable to lay and professional people, (6) require a minimum of paperwork, (7) include guidance to the user, (8) include an opportunity for subjective judgment, (9) provide comparison to norms, (10) include opportunity for longitudinal evaluation, (11) provide a brief summary, and (12) conclude with implications for the future. Involvement in instrument development of those to be evaluated is essential. This paper is published in "Report of a National Seminar, Evaluation and Program Planning in Agricultural Education" (VT 001 099). (JM)

ED027441

REPORT

OF

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING

IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

July 27 - 30, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Ohio State University

Columbus, Ohio

VT 00919

GUIDELINES FOR THE DEVELOPMENT OF INSTRUMENTS FOR EVALUATION IN VOCATIONAL AGRICULTURE

by
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Many necessary and important points of view regarding the evaluation of vocational agriculture have already been made during this conference. We have a new set of objectives to guide us. We have discussed the kind of evaluation which needs to be made because of the imminence of the national evaluation and what this evaluation should accomplish.

Before we can go further, however, we must develop the means for conducting evaluations which in most cases will require an instrument or instruments to accomplish the task.

Immediately following this presentation each of you will assemble in committees to help develop instruments which can be used in the evaluation of programs of vocational agriculture in your own states. I hope that these suggestions which I am about to make on the development of evaluation instruments will help you in this effort to the end that you may leave this conference with a clear understanding of how to carry on the same process with your own personnel in your home state.

First of all, let us think of an evaluation instrument as a means of taking us some place where we wish to go. We are somewhat in the position of the makers of the old Conestoga wagons, which carried our pioneer forefathers across this state to the new land of the west. People came to these wagon makers with plans for taking their families great distances. They knew that they would be crossing deserts, fording rivers. They knew that their trip might take many months; they knew something of the total weight of the belongings and food which their wagons would carry. In order to get from where they were to where they wanted to go, they needed a particular kind of wagon which would do this job.

This is the purpose of the instruments which we need for evaluation. We have a pretty good idea of where we want to go, what we want to accomplish through evaluation. So, now let us turn our attention to the kind of evaluation instrument which we need to do the job.

Leaders in vocational agriculture have given considerable attention to evaluation during the past forty years. The fact that we are discussing the subject this week is evidence that we have not solved all the problems. In fact, had evaluation been carried in an ideal manner, there would have been no need for Congress to specify that an evaluation should be made at this time. The fact would have been in, and we would have had the results of our evaluation effort complete, accurate and continuous.

As we have tried to evaluate programs of vocational agriculture during these past forty years, we have had difficulties which we must avail in the future.

We have sometimes placed an uneven emphasis on certain aspects of the program. We have probably over-evaluated the FFA and the Young Farmer Program for example, while giving little attention to such important aspects of the program as classroom teaching and placement of our students in jobs.

Evaluation has come from the top down in too many cases. In this type of evaluation, criteria have been imposed upon local programs by outsiders which were considered by the recipients un-appropriate and unfair.

Voluminous and complicated instruments have been used all too often in evaluating programs in the past. This has led to time-consuming procedures in evaluation. Evaluations which require weeks of preparation on the part of the teacher may be ideal, but they certainly are not practical in today's schools. As a result of this kind of evaluation, all too often the participants have been worn out by the evaluation process to the extent that they have made limited use of the results in improving programs.

Another difficulty has been that we have made sporadic attempts at evaluation rather than continuing evaluation extending over a period of years.

One of our difficulties in the past is that we have tried to evaluate on the basis of out-worn and out-of-date objectives to guide our efforts at this time.

Dr. Michaels raises a challenging question when he challenges us in our national evaluation to arrive at measures of the cost of our educational programs and of the returns which we secure from them. This presents a difficult problem. Let me illustrate:

> A community which has had a vocational agriculture program for the past thirty years would have spent funds for teacher's salaries, for facilities, for light, heat and upkeep of equipment to the extent that they might well have an investment of a third of a million dollars in a single community.
>
> A third of a million dollars will build a fine church or a library or might even provide a small park. School administrators from the board of education have to be able to tell to their constituents that this one third of a million dollars which was spent on vocational agriculture was better spent here than on some of these other alternatives.

These board members and school administrators in most communities across the nation would say their vocational agriculture program has been a good investment and they could justify it in terms like these. "Farming is more efficient and profitable in our community as a result of a program." "Some of our best farmers took vocational agriculture in high school." "Many of our farm boys find a real interest in school through vocational agriculture programs." "These boys have become leaders in our community." "This program started a number of our boys in the College of Agriculture." When these statements can be made--even if they happen to only two or three boys a year--it is easy to justify spending a third of a million dollars over a thirty-year period. If they don't happen, the funds may well be spent for other educational programs.

These are some answers which we need as we evaluate programs of vocational agriculture, but they are difficult ones to obtain. It takes a carefully constructed instrument to provide for the evaluation of outcomes such as the ones we have discussed above, as compared to one which assesses only ways and means.

As we consider the development of instruments for evaluation, certain basic assumptions must be made as to how the evaluation is to be made. The following are seven assumptions which give direction to the types of instrument needed.

These assumptions are as follows:

(1) Local programs are the basic units to be evaluated. State and national evaluation can then be based upon cumulative information obtained from many local evaluations.

(2) A combination of "self" and "outside" evaluation is most effective. When we evaluate ourselves we accept our own judgments, but we often need the judgment of others to reinforce our own convictions.

(3) Evaluation will be made on a continuing basis. We are assuming that certain evaluations will be made of selected aspects of the program each year, but that at least every three to five years a thorough and complete evaluation will be made.

(4) Those affected by the program will share in its evaluation. This means that we will call upon farmers and businessmen, school administrators and parents to assist us.

(5) The evaluation instruments will be comprehensive without being voluminous.

(6) The initiative for requesting the evaluation will rest with those responsible for local programs.

(7) The supervisory and teacher education staffs will assist in carrying out the evaluation.

GUIDELINES FOR EVALUATION INSTRUMENTS

The following represents some guidelines for developing evaluation instruments in the kind of situation which we have described above and are based upon some of the assumptions which we have established.

SOME ESSENTIAL CHARACTERISTICS OF INSTRUMENTS FOR THE EVALUATION OF LOCAL PROGRAMS OF AGRICULTURAL EDUCATION

(1) Based upon educational objectives, which are generally accepted by those involved in the program.

(2) Inclusive enough to cover all important aspects of the program.

(3) Capable of being used on separate areas of the program at various times.

(4) Adaptable to both self evaluation and group evaluation.

(5) Understandable to both professional and lay persons.

(6) Requires a minimum of records, reports, and preparatory paperwork.

(7) Includes selected guidance in the form of objective data.

(8) Includes opportunity for subjective judgment of educational outcomes.

(9) Provides for comparison with established standards, norms and summaries.

(10) Provides opportunity for longitudinal evaluation extending into the future.

(11) Provides for a brief meaningful summary at the close of the evaluation.

(12) Concludes with implications for further development and improvement of the program.

A first step is certainly that of reviewing general objectives for the program.

The publication, "Objectives for Vocational and Technical Education in Agriculture," certainly provides us with a valuable starting point. These objectives, however, need to be restated and revised in terms of the unique needs and problems of each local community.

The next step to which we need to address ourselves is that of making an analysis of the local program in terms of its major components, or if you like, teacher tasks. An example of program components or teacher tasks necessary to a successful program of agriculture for youth of special needs might be as follows:

1.1 Relationship with the school
1.2 Curriculum
1.3 Teaching methods
1.4 Occupational experience
1.5 Guidance and counseling
1.6 Facilities
1.7 Community relations
1.8 Placement

The second step becomes one of developing appropriate guidelines which are in a sense objectives for each of the program areas which have been identified. These statements serve as a starting point for the evaluation as well as a guide for the final evaluation of this area. Here is an example of a guideline for the areas of occupational experience. "Appropriate programs of supervised practice should be planned for each student. The nature and extent of this experience should be adjusted to the abilities of the individual student and should provide for realistic occupational experience and expiration. Such programs will be closely related to the agricultural curriculum pursued by these students." The development of such guidelines is important not only as a basis for evaluating areas of the program, but also as a means of helping those assisting in the evaluation to think together about various aspects of the program.

At the risk of being too specific, I am going to suggest that each section of the evaluation instrument for each aspect of the program should contain the following items:

(1) Guidelines as described above.

(2) Facts and figures regarding this aspect of the program for the current year. These facts and figures must be objective and should consist of only a few key indicators rather than all the information which might be compiled.

(3) Selected trends for the past three to five years should be recorded. Trends provide a further look at what has been happening in the program and may be used in the forecast of what may happen in the future.

(4) Judgments of results or outcomes of this aspect of the program should be secured. If we limit the evaluation to ways and means as we do when we examine figures and trends, we fail to include the outcomes that people are willing to pay for in an educational program.

(5) We need a simple and understandable rating scale for evaluating the area.

(6) We need to provide for recommendations for further improvement.

Now let us try out a single section of our new instrument. Here is an example of a single section of an evaluation instrument. This section is designed to be used in evaluating the Young Farmer Program. This page is one of ten pages which we use in an instrument for evaluating vocational agriculture programs in Ohio. It is a self-contained page and it includes the features which we have discussed. This instrument has been completed during an evaluation meeting held in an Ohio community. The facts have been recorded. Trends have been plotted and local people have given their judgment as to the outcomes of the program. All that remains is for us to arrive at a final evaluation for this area of the program. Let's see what use we might make of it. First of all, looking at some facts and figures, we see some desirable features of this Young Farmer program as well as some undesirable features. Section 2, "Selective Trends," indicates that this program is encountering difficulties. Enrollment is dropping. Attendance at meetings is decreasing. The number of teacher visits per student has been lowering each year. In Section 3, "Outcomes and Results," it is assumed that a local advisory committee has made these judgments, and they say in summary that the instructional meetings are not as interesting as they should be, and that the members really are not making many changes in their farming operations as a result of the course.

Now coming to the final evaluation, most of you have agreed that this program would receive a rating of only fair or "two." Here is a simple demonstration that gives the key facts and judgments for a conservative evaluation. If you can come up with an instrument of a similar nature which has the characteristics which we have described during your committee sessions, such an instrument should aid greatly in evaluating programs of agriculture in your state. One final word. The process of developing your evaluation instrument may be as important as the product. Instruments of evaluation have maximum meaning for those who hammer them out and put them together. In developing instruments for our individual states, each of us have the responsibility of involving in their development those who will use them.

YOUNG FARMER PROGRAM [1]

Guiding Statement: Every vocational agriculture department should provide programs of education in agriculture for young farmers which will encourage them to further their education by participating in existing agricultural education programs at the local, county, or state level. The instruction should be based upon the needs of the enrollees, and should contribute to their efficiency in agriculture and provide a better understanding and appreciation of rural life.

1. Some Facts and Figures

	This Year
List significant farming changes made by students resulting from organized instruction _____	____
_____	____
_____	____
Number of former high school vocational agriculture students now enrolled in the Young Farmer Program	____
Number of field trips	____
Number of meetings of Young Farmer planning committee	____
Number of sessions devoted to farm business planning and analysis	____
Number of sessions in which resource persons were used	____
Number of years of affiliation with Ohio Young Farmer Association	____

2. Selected Trends

	2 Years Ago	Last Year	This Year
Number of instructional meetings held	_____	____	____
Average attendance at instructional meetings	_____	____	____
Total enrollment	_____	____	____
Number of teacher visits per student per year	_____	____	____
Number of teacher visits made to prospective members per year	_____	____	____

3. Outcomes or Results

Use local interviews, observations, and discussions as a basis for your appraisal of results. Evaluation Scale: 5-Excellent; 4-Good; 3-Average; 2-Fair; 1-Poor.

5 4 3 2 1

. . . . . 1. The instructional meetings are interesting and useful to those enrolled.
. . . . . 2. The members are making desirable changes in their farming operations as a result of the course.
. . . . . 3. The members are developing further competency in social, recreational, civic, and leadership responsibilities.
. . . . . 4. The members are becoming successfully established in farming.

4. Evaluation of Area

To what extent does the vocational agriculture department provide programs of education in agriculture for young farmers which are based upon their needs and which contribute to their efficiency in agriculture and to a better understanding and appreciation of rural life?

--Use back of page for other major accomplishments in this area and suggested improvements--

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[1] A sample page from "Appraising the Vocational Agriculture Program." Issued by The Department of Agricultural Education, The Ohio State University, and The Vocational Agriculture Service, The Ohio Department of Education.

VT 001 019

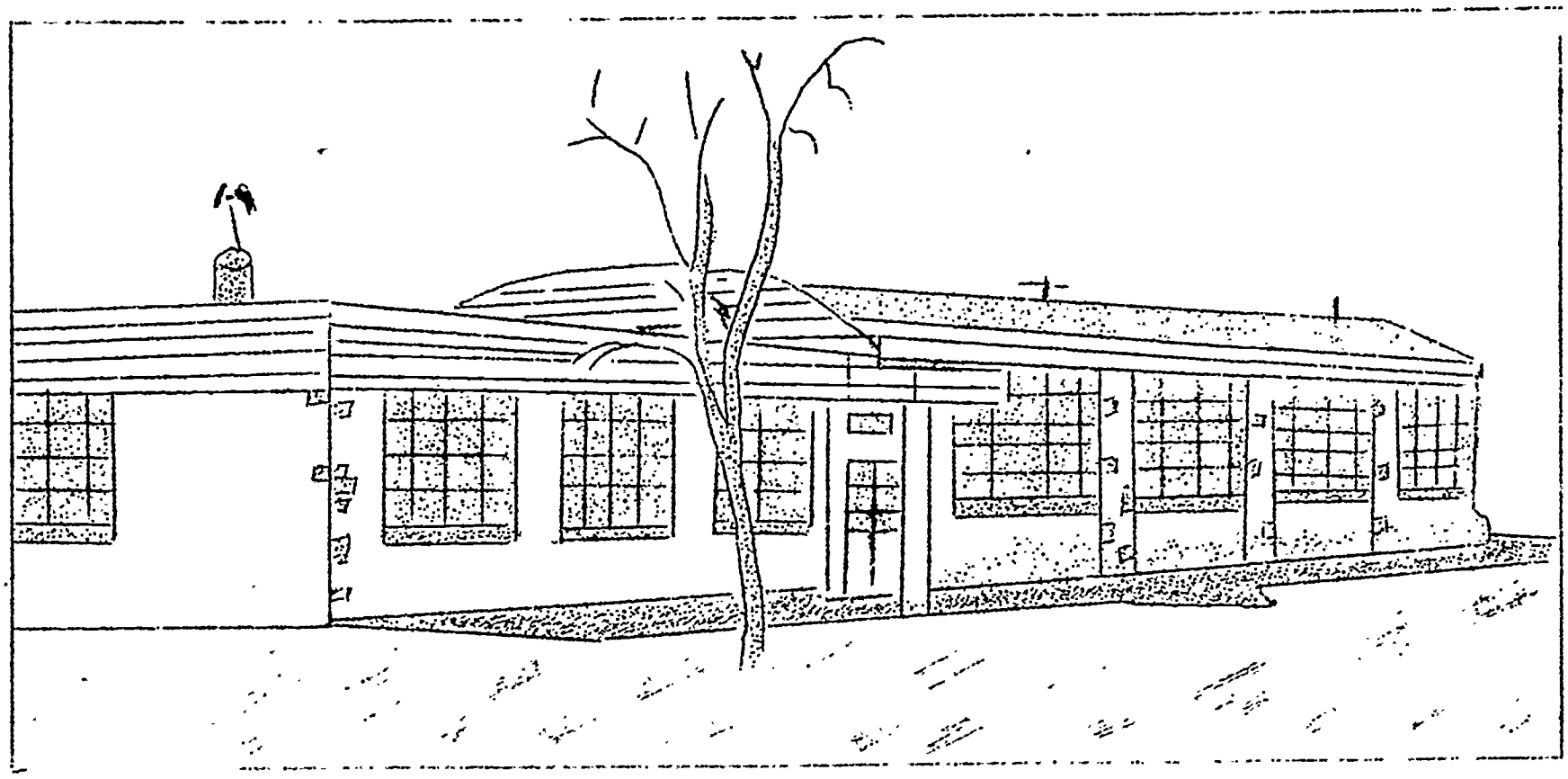
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Recommendations for a Vocational Agriculture Classroom and Farm Mechanics Shop.

Colorado State Board for Vocational Education, Denver
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*VOCATIONAL AGRICULTURE; *EDUCATIONAL FACILITIES; *SCHOOL PLANNING; CLASSROOMS; SCHOOL SHOPS

Supervisors and teacher educators developed this brief guide. Recommendations for planning vocational agriculture facilities cover size, lighting, special equipment, construction materials, heating, equipment storage, and electrical service for offices, classrooms, and shops. (JM)

ED027441



RECOMMENDATIONS FOR A VOCATIONAL AGRICULTURE

CLASSROOM

AND

FARM MECHANICS SHOP

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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1019

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STATE BOARD FOR VOCATIONAL EDUCATION
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RECOMMENDATIONS FOR A VCCATIONAL AGRICULTURE CLASSROOM AND FARM MECHANICS SHOP

It is recommended that:

1. The classroom, shop, office and storage room should be in one unit either as a separate building or attached to the main building.

2. Future needs should be anticipated in planning since construction generally is of a permanent nature.

3. The services of a reliable architect, working under the close supervision of the school authorities and in cooperation with the State Board for Vocational Education, should be employed to draw up specifications of the building and to supervise its construction.

4. Should it be necessary to hold classes in the shop and classroom at the same time, some thought should be given to sound proofing the walls between those two rooms.

5. A washroom with toilet and lockers should be provided. Access to the toilet area should be from both classroom and shop. Where the building is used for joint classes of men and women and as a community building, a separate rest room for women is desirable.

- - - CLASSROOM - - -

1. Minimum size - 900 square feet

   The minimum width should be 28 feet to provide for conference desk arrangements. This room will be used for: day classes, adult classes, young farmer and FFA meetings. A total of 35 - 40 square feet per student in the largest class should be provided with additional space for cabinets and shelves.

2. Windows should be as near the ceiling as practical. Provisions should be made to blackout for projection purposes.

3. The floor should be resilient, light colored, durable, skid resistant, easily cleaned, and insulate the noise of footsteps.

4. Chalkboard, bulletin boards, bookcases, magazine racks, study tables, filing cabinets, projection screen, etc., should be provided. At least 16 running feet of chalkboard space should be supplied. It is desirable to have the center panel a combination chalkboard -magnetic board. An accoustically treated ceiling is desirable.

CLASSROOM (continued)

5. A heating unit that is quiet in operation is preferred to one with a fan. Keep all motor driven heating units with fan outside the classroom and bring heat into the room through suitable ducts.

6. A storage room off the classroom is necessary for storage and preservation of teaching materials. A 6' x 12' room should be adequate.

7. Water and gas service should be available for demonstration purposes. An acid resistant demonstration table top and sink are essential for effective teaching.

8. Electrical convenience outlets should be installed for demonstrations and projection work at convenient points about the room. Outlets every 10' of wall perimeter is usually adequate, or the use of plug mold around the room is suggested. At least one 220 volt outlet should be located in the classroom for demonstration purposes.

9. Lighting should be checked with a light meter and adjusted to eliminate all eye strain.At least 35-foot candles or semi-direct diffused light is recommended.

10. Classroom tables, arranged to permit conference procedures is desirable. These tables should be 22" wide, 5' long and 30" high with a hard finish of glare free material.

- - - OFFICE - - -

1. The office should be located and constructed so as to give the instructor vision through windows into both the classroom and shop areas.

2. The room should be 80 to 120 square feet, with an additional 60 square feet more for each additional teacher. It should be provided with a desk, conference table and filing cabinets. A small independent heating unit may be desirable so work can be done in the office even though the heat is low in the remaining parts of the building.

- - - FARM MECHANICS SHOP - - -

1. The shop should be used ONLY for instructional purposes and should not serve as a bus barn or for bus serving.

2. At least 2400 square feet of floor space, exclusive of storage space, should be provided for the farm mechanics shop, and should be not less than 40' in width. In all schools the shop should not be smaller than 40' x 60'. Larger schools should provide a shop no smaller than 40' x 80'. Walls and ceiling should be high enough to accommodate a 12' door.

3. A large entrance door should be provided. The size should be at least 14' wide and 12' high. The overhead roller type is recommended. A 30' walk-in door should be provided as a part of the large door or adjacent to it. A second walk-in door might be desirable for convenience to the high school building

FARM MECHANICS SHOP (continued)

4. The floor may be of 6" reinforced concrete with a slope of 1" to 6' near the drain and 1" to 16' for the remainder of the shop. At the large door, the floor should slope out to prevent water running in during rains. This slope may extend from the door back 2' and have a 1" drop per foot. The floor drain should be without posts or other supports.

5. All work benches and equipment should be located around the perimeter of the shop in order to leave the central area for project construction, machinery and equipment repair, etc.

6. The work benches should fit along the wall. The width should be 22" and they should be 30" in height. Tables that are secured to the walls are not desirable as all shop space needs to remain flexible as additional equipment is added.

7. Wall cabinets should be provided for tool storage at convenient station areas.

8. Window areas should be at least 6 feet from the floor. The inside sill should slope to prevent their use as shelves. Metal sash windows are recommended and should be hinged to permit opening.

9. Adequate shop storage space should be provided for storage of lumber, paint, miscellaneous hardware, specialized equipment, etc. A room 8' x 20' should be sufficiently large for this purpose. The area over the classroom and restrooms may be adequate for lumber and other supplies.

10. Electric service should be provided as follows:

    110-115 volt single phase, 3 wire grounding type duplex convenience outlets every 12' to 15' or plug mold around the shop, for use for portable electric drills, trouble lights and other light power equipment. Outlets should be conveniently located above bench top level. Retractable type overhead outlets should provide power for saws and other equipment not normally located against the wall.

    220-230 volt single phase service for use with the arc welder and stationary equipment using a $\frac{1}{2}$ h.p. motor or larger.

    One 220-230 volt single phase receptacle should be placed near the large door for occasional outside use of the arc welder.

    If available 220 volt, 3 phase current may be used on the heavier equipment with $\frac{1}{2}$ h.p. or above.

ALL ELECTRICAL SERVICE SHOULD MEET LOCAL CODE AND STATE INDUSTRIAL COMMISSION'S STANDARDS.**

11. An engineered exhaust system for the arc and acetylene welding and forge areas is most important for health and safety. These areas can be hooded

FARM MECHANICS SHOP (continued)

and ventilated by the use of a ventilation fan installed near the top of the hood. An automotive exhaust removal system should be installed to eliminate hazardous gases and funes from tractors and other motors.

12. A one to three ton capacity hoist supported on a track is desirable for handling heavy equipment. The track should extend nearly across the shop in the farm machinery area and operate over the floor drain. An (A) Frame and chain hoist may be substituted if the roof structure will not support the above traveler equipment.

13. Hot and cold water, including a drinking fountain, should be included in the shop.

14. A machinery and tractor painting room at least 14' by 24' properly ventilated and equipped with explosion proof electrical service should be provided. Check with the State Industrial Commission regarding specifications.

15. Space should be provided for at least one section of chalkboard, a bulletin board and/or magnetic board, than can be used effectively in the shop area.

16. A surfaced driveway should lead to the large door. A concrete slab or black topped area 20' x 40' adjacent to the shop door is highly desirable for use of outside storage and work area. It is recommended that this area be enclosed with a screening type fence. This area should be lighted.

17. The use of fluorescent type lights is recommended; 30 foot candles for the general shop area, and at least 50 foot candles over benches, power tools and other equipment.**

18. A gas forge is recommended. Where a coal forge is to be installed, a flue at least 16 inches (inside diameter) should be provided for the forge and should be used for the forge only. This flue should extend beyond the roof to create sufficient draft. It is sometimes necessary to install forced draft. A downdraft type of forge, if properly installed, is very satisfactory

19. A loading ramp should be provided for machinery and livestock.

**.Enlist the use of the "Power Use Advisor" whose services are available from the local power supplier. Also refer to "General Suggestions and Recommendations for Wiring the Vocational Agricultural Farm Mechanics Shop", by Dr. R. W. Canada, Colorado State University, Memo 1955.

VT 001 129

VT 001 129
Training Needs Survey--Legal Stenographer.

Wisconsin State Employment Service, Madison
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 3p.

*STENOGRAPHERS; *EMPLOYER ATTITUDES; EMPLOYMENT OPPORTUNITIES; EMPLOYMENT STATISTICS; OCCUPATIONAL SURVEYS; INDIVIDUAL CHARACTERISTICS
WISCONSIN

A sample of the 5,176 active state bar members, including judges, was surveyed to determine job opportunities for legal stenographers. Usable questionnaires were returned from 1,532 members. A total of 1,236 or 80.7 percent of those responding stated that they would be interested in graduates of a training program for legal stenographers regardless of their current needs. After making adjustments for those members who were not part of the sample or who did not respond, the current statewide need for legal stenographers was estimated at 210. The anticipated need for 1965 was 550. Tables prepared from the survey data include: (1) a summary of responses by counties with number of active bar members, number of bar members responding, presently employed stenos, full-time stenos, job vacancies, employment requirements one year from now, and number of bar members interested in graduates, (2) marital status of stenos by length of employment, (3) length of employment by age, and (4) marital status by age. (PS)

ED027441

TRAINING NEEDS SURVEY - LEGAL STENOGRAPHER

Following discussions with individual attorneys and with representatives of the State Board of Vocational and Adult Education, the WSES conducted a training needs survey for legal stenographers.

Due to the large number (5,176) of active state bar members, including Judges, it was felt that a sampling would be sufficient. Questionnaires were devised and mailed by the WSES in December 1963. By the January cutoff date, 54.1% of the questionnaires had been returned. The number of usable responses covered 1,532 or 29.6% of the total active bar membership of Wisconsin.

Summary of Findings
(Narrative based on figures in Tables I and II)

A total of 1,236 or 80.7% of those responding state that they would be interested in graduates of a training program for legal stenographers, regardless of their current needs. Based solely on the responses, there is a current need for 64 full-time legal stenographers. If we adjust this figure to include those members who did not respond or were not part of the sample, the current statewide need is 210. However, of greater significance in relation to training, is the need anticipated for 1965. The respondents anticipate a need for 180. After making the adjustment, the anticipated need for January 1965 is about 550. This figure is large enough to justify the establishment of training for legal stenography.

Since a primary purpose of training programs is to train people for permanent jobs, we wish to point out that 976 or 79% of presently employed stenographers have been employed one year or more. Furthermore, 567 or 45% have been employed over three years (Table II). Thus, it is apparent that there is longer job tenure in this occupation than in clerical occupations as a whole.

Table I of the attachments contains a breakdown of responses by counties. WSES district offices are asked to examine the needs of those counties within their district, keeping in mind that the need figures are based on the responses of less than 30% of state bar members, and that the actual need is considerably larger.

While no comment has been made on Tables III and IV, we have attached them for your information.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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VT001129

TABLE I — SUMMARY OF RESPONSES BY COUNTIES

COUNTY	NO. OF ACTIVE BAR MEMBERS	NO. BAR MEMBERS RESPONDING	PRESENTLY EMPLOYED STENOS	FULL-TIME STENOS	JOB VACANCIES	EMPLOYMENT REQUIREMENTS ONE YEAR FROM NOW	NO. BAR MEMBERS INTERESTED IN GRADUATES
TOTAL	5,176	1,532	1,234	1,038	64	180	1,236
ADAMS	5	—	—	—	—	—	—
ASHLAND	14	6	4	4	—	—	6
BARRON	23	6	5	5	—	—	1
BAYFIELD	6	1	1	1	—	—	—
BROWN	108	53	40	37	1	7	50
BUFFALO	11	1	2	2	—	—	1
BURNETT	2	1	1	1	—	—	1
CALUMET	13	1	1	1	—	—	—
CHIPPEWA	26	5	3	2	—	—	4
CLARK	19	2	3	2	—	—	1
COLUMBIA	39	11	14	11	—	2	7
CRAWFORD	11	5	6	5	—	—	5
DANE	628	244	147	132	6	21	228
DODGE	45	18	18	14	—	1	17
DOOR	12	3	3	2	—	—	2
DOUGLAS	43	15	11	10	1	2	14
DUNN	17	6	5	4	—	—	2
EAU CLAIRE	57	16	14	11	—	2	12
FLORENCE	2	—	—	—	—	—	—
FOREST	3	—	—	—	—	—	—
FOND DU LAC	63	18	17	14	1	3	14
GRANT	39	18	20	17	2	2	17
GREEN	21	9	7	5	—	1	9
GREEN LAKE	17	7	9	5	—	1	3
IOWA	15	4	2	2	—	—	2
IRON	7	1	1	1	—	—	1
JACKSON	7	2	2	2	—	—	2
JEFFERSON	45	19	16	13	—	3	14
JUNEAU	10	2	3	3	—	1	2
KENOSHA	86	33	26	21	4	6	28
KEWAUNEE	10	4	3	3	—	—	2
LA CROSSE	80	35	35	29	2	2	26
LAFAYETTE	15	3	1	1	—	—	3
LANGLADE	11	5	3	2	—	—	5
LINCOLN	18	12	13	11	—	2	12
MANITOWOC	47	23	28	21	1	10	23
MARATHON	73	20	14	13	—	1	19
MARINETTE	24	6	5	5	—	—	3
MARQUETTE	5	—	—	—	—	—	—
MENOMINEE	—	—	—	—	—	—	—
MILWAUKEE	2,214	522	389	321	20	58	370
MONROE	20	10	8	8	2	3	10
OCONTO	14	4	4	3	—	1	4
ONEIDA	23	8	6	5	—	1	7
OUTAGAMIE	108	37	29	27	1	2	30
OZAUKEE	43	8	9	7	1	2	3
PEPIN	6	1	1	1	—	1	1
PIERCE	18	4	3	3	—	1	4
POLK	14	2	1	1	—	—	—
PORTAGE	38	11	7	6	—	2	10
PRICE	8	—	—	—	—	—	—
RACINE	171	40	37	30	1	9	38
RICHLAND	15	8	7	4	—	1	8
ROCK	127	51	41	39	3	5	44
RUSK	9	2	2	2	—	—	2
ST. CROIX	24	13	13	12	—	1	9
SAUK	32	14	12	10	—	—	5
SAWYER	8	1	2	2	—	—	1
SHAWANO	20	7	5	5	—	—	6
SHEBOYGAN	84	21	20	15	1	4	17
TAYLOR	10	2	1	1	—	—	2
TREMPEALEAU	16	9	8	7	—	1	9
VERNON	12	5	4	4	—	—	4
VILAS	9	1	1	1	—	—	1
WALWORTH	58	18	20	20	1	2	12
WASHBURN	7	3	4	2	1	1	3
WASHINGTON	43	16	22	18	3	3	13
WAUKESHA	170	43	39	28	2	11	36
WAUPACA	26	5	6	4	—	1	3
WAUSHARA	10	1	1	1	—	—	1
WINNEBAGO	99	36	35	27	5	8	34
WOOD	43	14	14	12	—	4	14

Table II

Length of Employment	Marital Status: Single	Married	Other	Unknown	Total
Less than one year	89	88	10	-	187
One year	78	98	6	-	182
2-3 years	92	127	8	-	227
Over 3 years	179	341	47	-	567
Unknown	-	-	-	71	71
Total	438	654	71	71	1,234

Table III

Age	Length of Employment: Less Than One Year	One Year	2-3 Years	Over 3 Years	Unknown	Total
Under 19	30	3	-	-	-	33
19-21	56	61	72	6	-	195
22-25	35	37	50	54	-	176
26-34	25	31	37	103	-	196
35-44	28	32	35	125	-	220
45 & over	19	12	40	251	-	322
Unknown	-	-	-	-	92	92
Total	193	176	234	539	92	1,234

Table IV

Age	Marital Status: Single	Married	Other	Unknown	Total
Under 19	35	-	-	-	35
19-21	157	36	1	-	194
22-25	73	100	4	-	177
26-34	38	148	6	-	192
35-44	45	164	12	-	221
45 and Over	82	184	43	-	309
Unknown	-	-	-	106	106
Total	430	632	66	106	1,234

VT 001 138

VT 001 138
A Study of Cosmetology in Wisconsin.

Wisconsin State Employment Service, Madison
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 15p.

*OCCUPATIONAL SURVEYS; *EMPLOYMENT OPPORTUNITIES; *EMPLOYMENT TRENDS; *COSMETOLOGISTS; INDIVIDUAL CHARACTERISTICS
WISCONSIN

Purposes of the survey were to determine the need for trained beauty operators in Wisconsin and some characteristics of those working in this field of cosmetology. The first questionnaire was sent to 2,300 establishments and dealt with current employment, 2- and 5-year estimated employment, replacement needs, recruitment of beauty operators, training and experience desired, nature and trends of employment, and wages paid. From this mailing, 824 questionnaires were returned. The second questionnaire was sent to 5,624 licensed managers and 9,534 licensed operators and attempted to determine source of training, experience in securing employment after training, relation of present employment to training career satisfaction, personal characteristics, and related data. There were 6,994 questionnaires returned. Findings indicated that the present work force, supplemented by recent and anticipated cosmetology school graduates, is adequate to meet the present and future demands of the industry. There is a need for advanced training to keep the work force properly skilled to meet the demands of the everchanging field of fashion and beauty culture. Many eligible managers and operators are not working in cosmetology because of low wages, long hours, and family considerations. (PA)

ED027441

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VT001138
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VT001139

For the Student

For young people searching for a career, the field of cosmetology should not be overlooked as an employment possibility. There are many desirable aspects to beauty culture work.

Sufficient training facilities exist to provide basic skills. This survey has shown that employment was obtained immediately after training by as many as eighty percent of those responding. Evidently cosmetology offers opportunity for youth to acquire skills and immediately put them to work.

Seventy percent of the survey respondents said that, given another career choice, they would again choose cosmetology. Working with people and the artistic challenge of beauty culture were considered the most enjoyable aspects of the work.

Over half of those not presently employed, said they expected to return to work in the future, and felt they could readily find a beauty operator job. Licensed beauty operators and managers apparently have marketable skills not only immediately after training, but later on when the trained operator decides to re-enter the job market.

Both advantages and disadvantages must be weighed in making an occupational choice. For many, cosmetology will be the answer.

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INTRODUCTION

In late March and early April of 1965, survey forms were mailed to firms and individuals licensed in the field of cosmetology. The purpose of the survey was primarily to determine the need for trained beauty operators in Wisconsin and also to determine some characteristics of those working in the field of cosmetology.

Through the cooperation of the Cosmetology Division of the State Board of Health, two separate questionnaires were used in the survey.

Initially, a mailing of approximately 2300 questionnaires was made to beauty salons and establishments. Questions on this portion of the survey dealt with current employment, two and five-year estimated employment, replacement needs, recruitment of beauty operators, training and experience desired, nature and trends of employment and wages paid. From this mailing, a return of 824 questionnaires was received for a response rate of approximately 35 percent.

Following the survey of establishments, questionnaires were mailed to 5624 licensed managers and 9534 licensed operators for a total mailing of 15,158 questionnaires. Responses were received from 2644 managers (47%) and 4350 operators (45.6%) for a total return of 6994 or 46 percent. This questionnaire attempted to determine source of training, experience in securing employment after training, relation of present employment to training, career satisfaction, various personal characteristics, and other related data.

For the purpose of the survey, the following occupational definition from the second edition of the Dictionary of Occupational Titles was used:

> "BEAUTY OPERATOR (per ser.) 2-32.15. beautician; beauty culturist; beauty operator, all round; beauty parlor operator; cosmetician; cosmetologist. Renders any one or all of services usually available to patrons of a beauty parlor: Cuts hair according to patron's instructions or according to original style (BARBER). Combs and waves patron's hair (HAIRDRESSER), occasionally suggesting or creating new and varied coiffures to meet individual needs (HAIR STYLIST). Tints or dyes hair (HAIR DYER). Gives hair and scalp treatments in accordance with standardized methods (SCALP-TREATMENT OPERATOR). Applies various lotions, creams, and pack to patron's face to clean or treat skin, remove wrinkles, and to apply cosmetics (FACIAL OPERATOR). Cleans, shapes, and polishes patron's nails (MANICURIST). In large establishments, may specialize in one phase of the work, such as shampooing or hair dyeing."

In reviewing the survey results, it should be noted that not every questionnaire returned contained an answer to every question. For example, of the 4350 returns received from operators, only 3307 contained data on the number of hours worked per week. Therefore, unless otherwise stated in the narrative summary, all percentages pertain to the responses received for that particular item.

PART I - SURVEY OF SALONS AND ESTABLISHMENTS

The primary purpose of this survey was to ascertain current employment levels and if possible to determine trends and forecasts in the field of cosmetology.

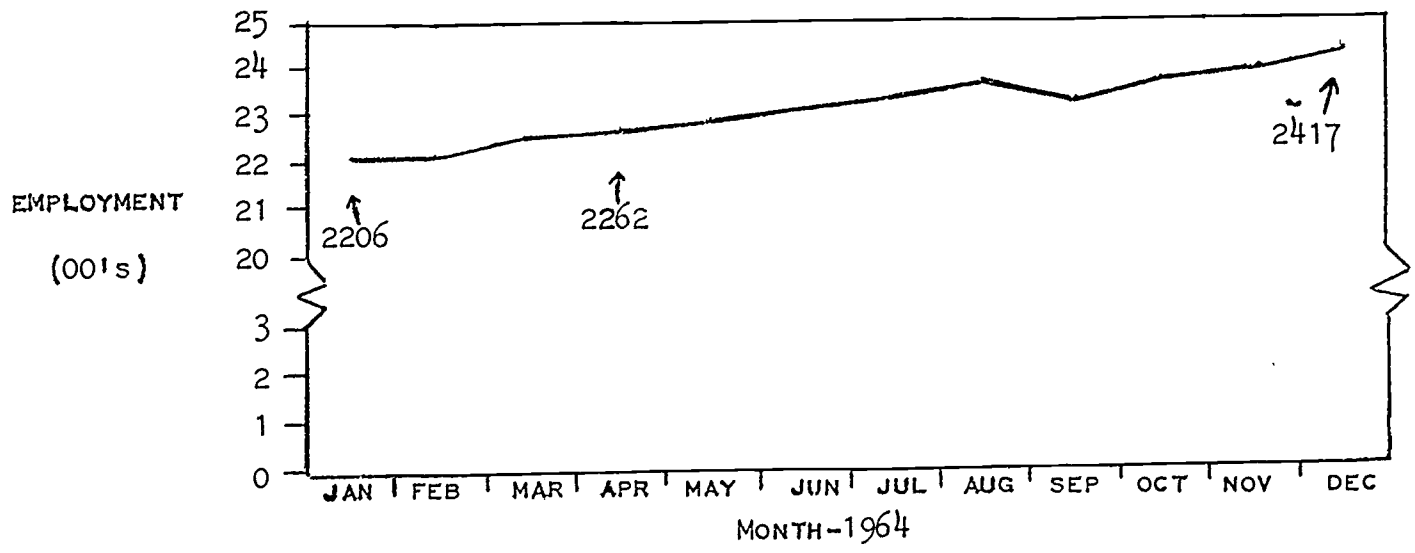
The employers responding to this survey reported a total of 2717 employed beauty operators in April of 1965, the time of the survey. This reported employment accounted for twenty-eight percent of Wisconsin's licensed beauty operators at that time. However, as will be seen later in this report, many licensed managers are also employed or working as operators. Therefore, in considering the total number of individuals licensed to practice cosmetology in Wisconsin, as managers or operators, the employer survey accounted for approximately eighteen percent of the licensed work force. In view of the fact that many licensed managers and operators are not currently employed or interested in the field of beauty culture, the coverage of the actual work force is even broader. These facts are mentioned in order to lay groundwork for, and emphasis to, some of the facts brought out by the total survey.

The Current Situation

In order to evaluate survey employment in terms of trends and forecasts, employers were asked to report their month by month employment levels for calendar year 1964. Chart I below graphically presents the data received.

Chart I

1964 Monthly Employment of Beauty Operators
(675 Employers)



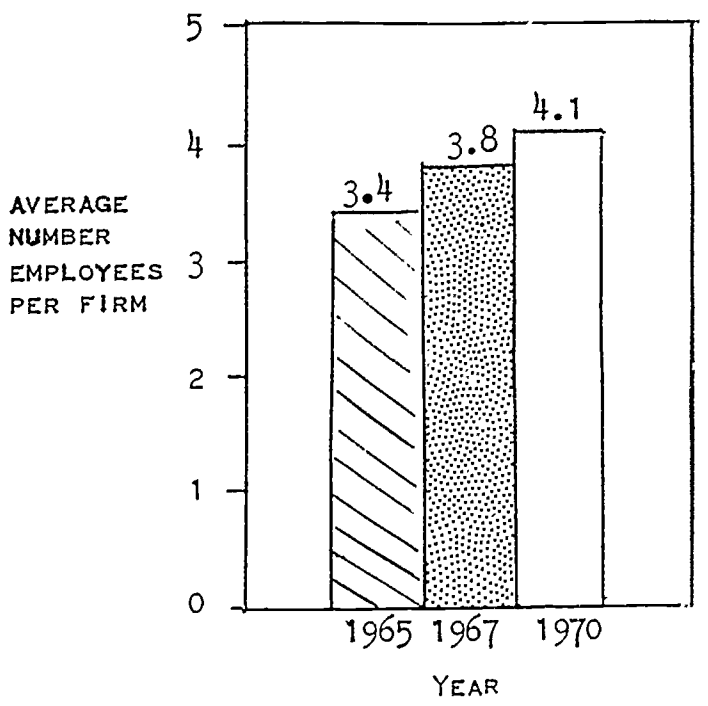
While Chart I indicates a net increase in beauty operator employment from January to December 1964, the data represented by the chart is not sufficient to warrant conclusive statements concerning employment growth or trends. While the chart indicates a one year growth rate of 9.6 percent for 1964, comparative data for 1963 and 1965 is not available. From facts which are available, however, employment in the cosmetology field might well have been relatively stable from 1964 to 1965. To explain, Chart I shows that April 1964 employment was at 2262. This figure is based upon returns from 675 employers which results in a ratio of 3.4 beauty operators, per respondent, in 1964. In April of 1965, a total of 810 responding employers showed employment of 2717 beauty operators. For this latter period, the ratio of beauty operators per respondent remains at 3.4. Thus, the data for 1964 as shown by Chart I apparently indicates a seasonal picture, meaning that beauty operator employment levels drop from December peaks to January lows after the holiday season.

Future Needs

In contrast to the foregoing data which might lead one to think there is little or no expansion of employment in the field of cosmetology, the survey provided additional information which does indicate some employment growth. Employers were asked to forecast their employment levels two years (1967) and five years (1970) beyond the survey period. A total of 645 employers provided the WSES with two-year employment forecasts and 576 employers provided five-year forecasts. Chart II, below, presents in graphic form current and forecast employment data as reported by responding firms.

Chart II

Current and Estimated Future
Beauty Operator Employment



Because of the varying number of responses for each item of data, the most accurate picture of future beauty operator employment is obtained by determining the average number of employees per respondent for each item. The graphs forecast a small growth in future employment levels. Using 1965 employment as a base, a growth rate of twelve percent is forecast by 1967 and a twenty percent growth is forecast by 1970.

When forecasting future needs for beauty operators, factors other than growth must also be considered. With this in mind the survey questionnaire also asked employers to estimate their replacement needs for two and five year periods. A total of 539 establishments estimated their replacement needs to be 1146, or an average of 2.1, by 1967. A smaller sample of 486 employers reported replacement needs of 1677, or an average of 3.5, by 1970.

Using statistical methods to expand the growth and replacement needs of responding employers to a universe of 810 employers participating in the survey, we can estimate total growth and replacement needs for beauty operators to be 1956 and 2448 by 1967 and 1970 respectively.

Supply and Demand

Some of the growth and replacement needs discussed above existed at the time of the survey. Thirteen percent of the responding employers indicated current needs for beauty operators and seventeen percent expected to be looking for a new employee within sixty days from the time of the survey. The majority, sixty-two percent, expected to have difficulty in finding satisfactory employees. Only eighteen percent of the employers expected no difficulty in recruiting operators satisfactory to their needs.

What are employers looking for when recruiting new employees? The survey attempted, in terms of training and experience, to determine employer hiring requirements. The largest number of respondents, forty percent, indicated their preferences in hiring new employees varied from the fully experienced to the untrained apprentice. Better than one-third, thirty-six percent, indicated they normally hired experienced operators. Another twenty-one percent indicated a preference for recently licensed operators and approximately two percent of the respondents used apprenticeship programs as a source of new employees. In view of these employer preferences, it is interesting to compare the experience classifications of present employees as reported by responding employers. Nearly sixty-three percent of the employees covered by the responding employers were considered not to be fully experienced. In terms of the foregoing employer hiring preferences, this group would be considered to be the recently licensed. Twenty-three percent of the present employees were considered fully experienced and fourteen percent were indentured apprentices. Obviously, employer preferences do not reflect past hiring experiences. An important reason for this could be the duration of careers for beauty operators. This is discussed in more detail further on in the report.

Training

In further ascertaining employer opinions regarding the supply of beauty operators, the survey asked questions about the amount and quality of training programs. When queried about the number of beauty operators being trained, the largest number of respondents, forty-three percent, felt too many beauty operators are now being trained. Twenty-seven percent felt the number being trained was about right and nine percent felt there were too few. The remaining one-fifth of the respondents had no opinion. From the employer's standpoint, then, additional training facilities do not appear in demand. As to the quality of training, responding employers were almost evenly divided in their opinions. Forty-six percent felt newly licensed operators were adequately well grounded in basic fundamentals and forty-one percent felt they were not. The remaining thirteen percent stated they had no opinion. When asked about refresher training for themselves and their employees, responding employers were varied in their opinion of the need for such training. About one-third felt that they and all their employees needed additional training. Twenty-seven percent felt that some needed training and twenty-three percent felt that most of them needed training. The remaining sixteen percent felt that only a few needed additional training. In view of these responses, it can safely be said that additional or refresher training is felt to be needed for most beauty operators. Further, from additional survey information, it can be said that most employers and operators do take advantage of such training. Forty-one percent of the responding employers stated they and their employees often took advantage of training available and forty-nine percent occasionally utilized such opportunities. Only three percent reported they and their employees never utilized additional training opportunities. The remaining respondents stated training was not available.

Hours and Income

Based on survey data, a significant amount of employment for beauty operators is not on a full-time permanent basis. Responding employers reported that only fifty-three percent of their employees were full-time workers while forty-three percent were part-time and four percent were temporary. While such arrangements cannot, on the basis of the survey, be said to be the desires of the employers or the employees, it would at least appear that the skills of presently trained operators are not fully utilized.

Responses to a request for average hourly earnings for themselves and their employees were received from 519 employers. The distribution of these responses according to specified earning levels is shown in Table I below. It should be noted that over fifty percent of the respondents reported average hourly earnings to be $1.50 or less. Only ten percent of the employees are reported to be averaging better than $2.00 per hour.

Table I

Average Hourly Earnings

Employment in Cosmetology

Average Hourly Earnings	Percent Dist. of Employees
Total	100.0
$ .95-$1.25	23.9
1.26- 1.50	30.8
1.51- 2.00	34.9
2.01- 2.50	4.6
2.51- 3.00	2.5
Over $3.00	3.3

PART II - SURVEY OF LICENSED MANAGERS AND OPERATORS

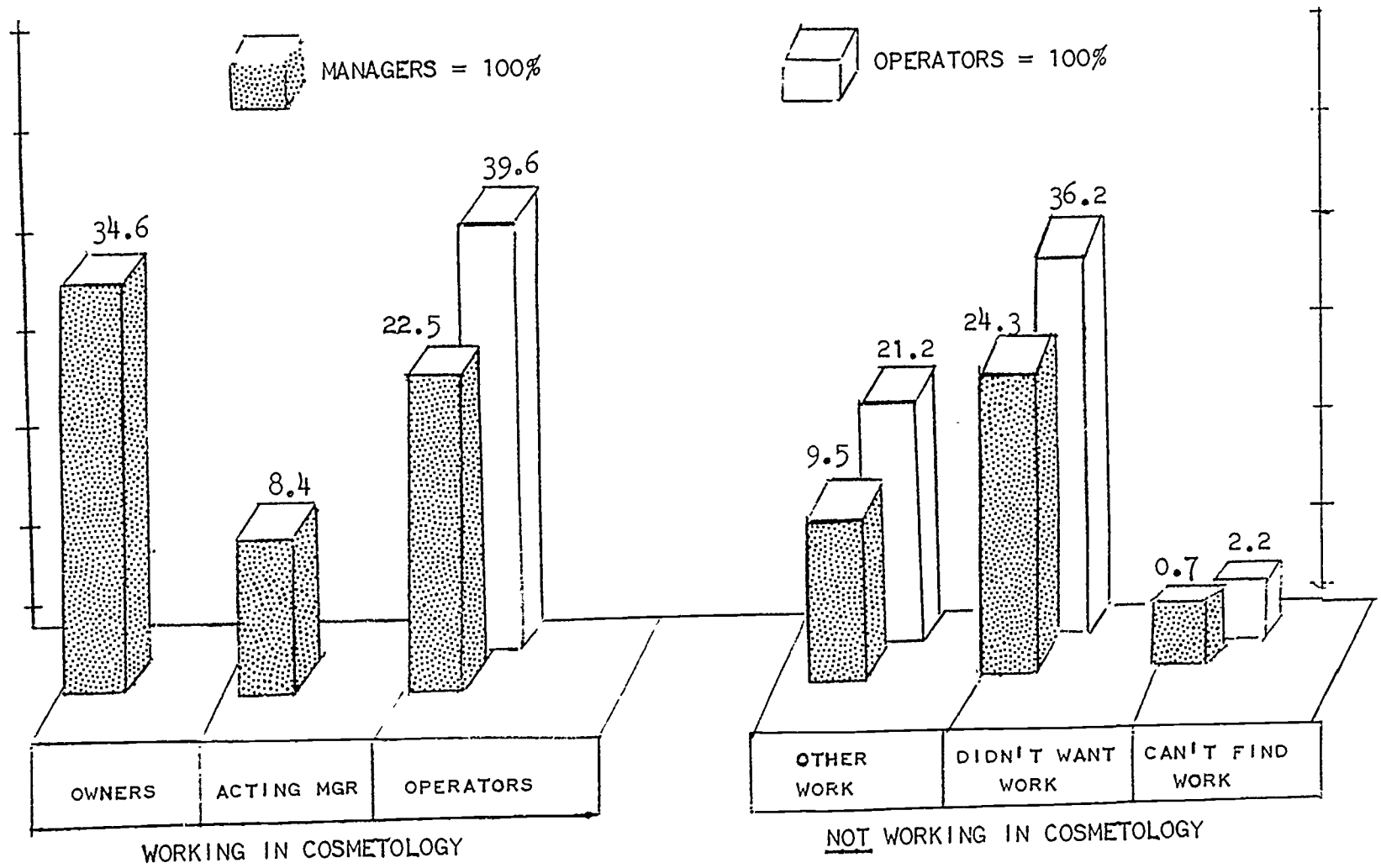
Employment Status

Sixty-six percent of the licensed managers and forty percent of the operators responding to the survey presently are employed in the beauty culture business. The Chart below shows the distribution of managers and operators - as owners, as manager-in-charge, and as operator with and without a manager's license. It might be noted that twenty-two percent of those with a manager's license are working as operators, and thirty-four percent are working as owners of their own shop. Of additional significance, is the high percentage of licensed operators not working in the field of cosmetology. In fact almost the same percentage of operators did not want work as were working as operators. Altogether one-third of both managers and operators responding did not want work.

Chart III

Employment Status

Licensed Manager's and Operators*



* Returns in conflict with state licensing regulations not included.

The most frequently mentioned reason for not working in cosmetology, given by over sixty percent of both managers and operators, was family. Apparently, as in other occupations employing young women, turnover is great for reasons of marriage and family care. Reasons for being occupied "in other work" taken from comments by respondents were: long hours, split shifts, evening and weekend work usually required of beauty operators and; wages received as beauticians were considered low in comparison to those being paid in some other occupations.

Both a majority of those presently working in cosmetology and those not working felt they could get a job in beauty culture when they wanted it. In fact ninety percent of both managers and operators not working in cosmetology at the time of the survey felt they would find work when they wanted it.

Responding managers and operators varied slightly from the employer responses in their answers regarding the number of hours worked per week. Over eighty percent of the managers and seventy-six percent of the operators worked full-time (over 35 hours). Only twenty-three percent of the operators and nineteen percent of the managers worked less than thirty-five hours a week. Few were employed on a temporary basis. The percentages for part-time and temporary workers were significantly different than the data received from employers.

Training

Over eighty percent of both managers and operators reported private schools as the source of their training. Questionnaire returns show a wide variation in age, years since training and job experience of respondents so it is safe to say that private schools have been and are the primary source of cosmetology training in Wisconsin.

Table II

Source of Training by Percent of Respondents

	Private Schools	Apprenticeships	Voc. Schools
Managers	83.2	12.6	4.2
Operators	85.8	7.8	6.5

The training that managers and operators received must have been adequate, at least to find their first job, for nearly ninety percent of the managers, and seventy-five percent of the operators said they obtained employment in beauty culture immediately after training. However, when asked their opinion on the number of people being trained today, thirty-six percent of the managers and forty-five percent of the operators said that too many beauty operators are being trained. Only a small percent of either group thought there were not enough operators being trained.

As might be expected, Managers were out of training much longer than operators and also had much more work experience. In fact, sixty percent of the managers were out of school ten years or more and fifty-seven percent had ten or more years experience in beauty shops. In comparison, seventy-four percent of the operators had been out of school less than ten years and eighty-five percent had less than ten years work experience in cosmetology. Significantly, over one-half of the operators had worked less than two years as beauticians.

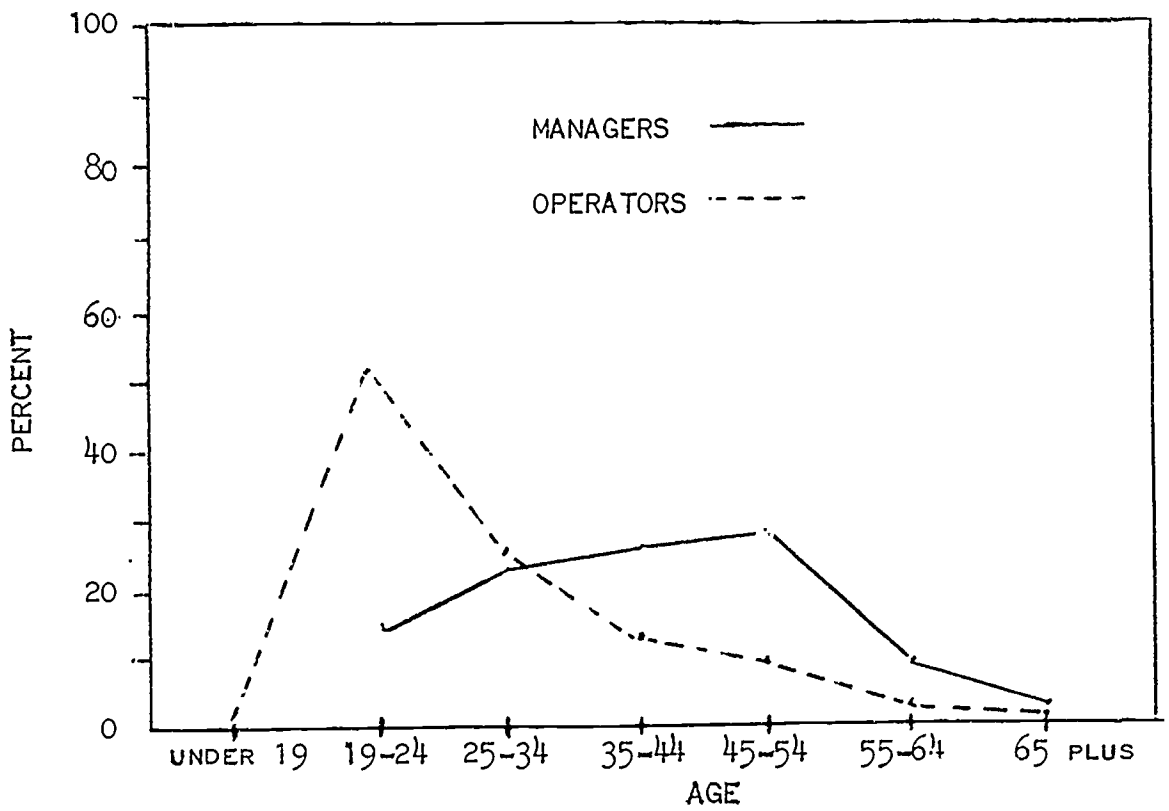
The comparison below of Licensed Managers and Operators by age (Chart IV), time since training (Chart V) and length of work experience (Chart VI) shows striking similarities. Managers (solid lines) are understandably older, with more years since training and work experience. The percent of Operators

(dotted line) rapidly drops after the 19-24 interval. All three charts below reflect the youth of beauty operators and the considerable experience of many managers.

Chart IV

Age

by Percent of Licensed Managers and Operators *



* RETURNS IN CONFLICT WITH STATE LICENSING REGULATIONS NOT INCLUDED.

Percent of Licensed Managers and Operators *

Chart V

Years Since Training

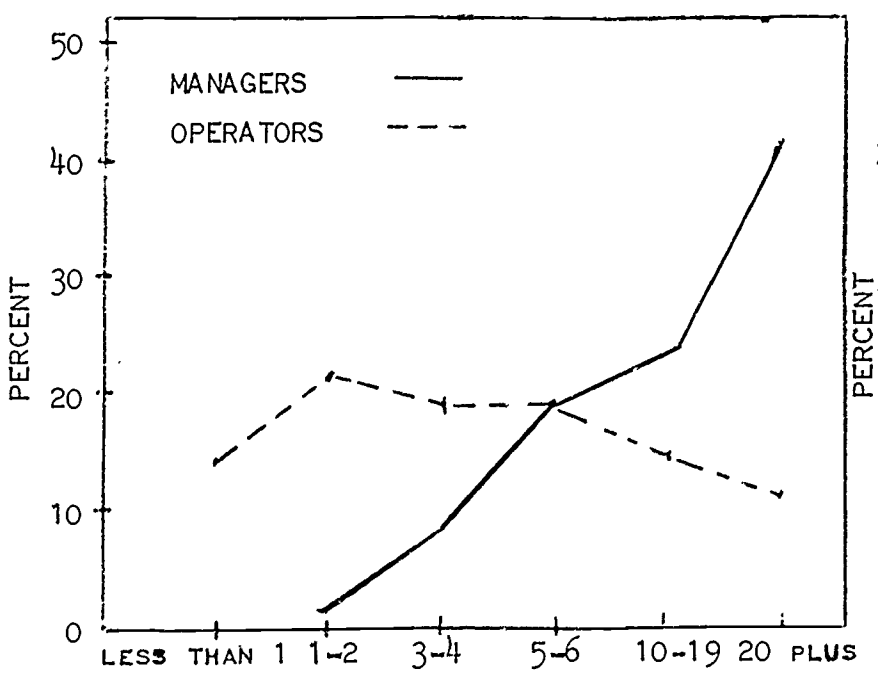
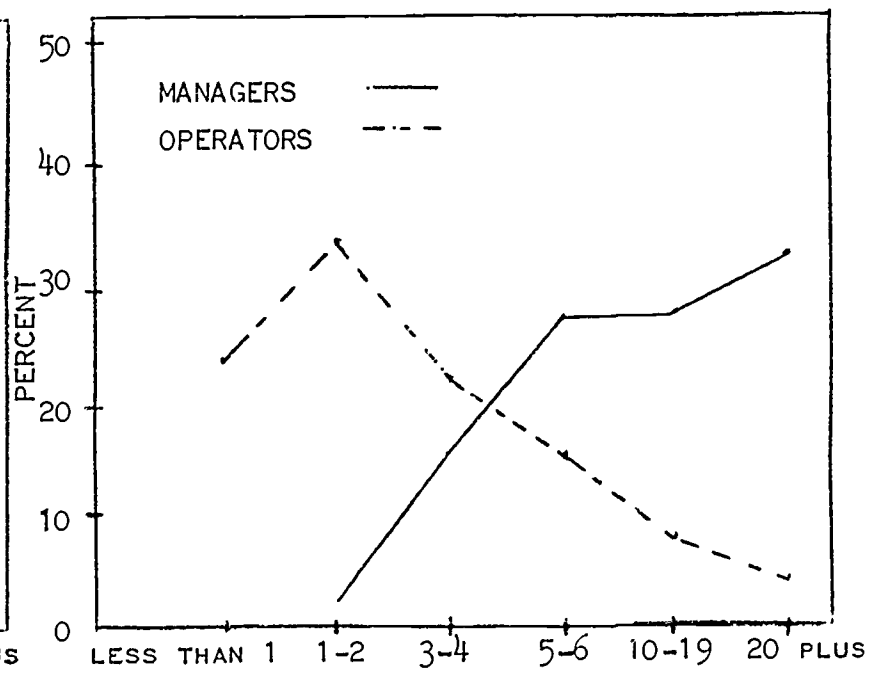


Chart VI

Years of Work Experience



* RETURNS IN CONFLICT WITH STATE LICENSING RLGULATIONS NOT INCLUDED.

The two following questions also seem appropriate, for success in business such as beauty culture depends in part on keeping up with the latest methods and styles. Managers and operators were asked, "Do you feel that you now need additional training to improve your skills and knowledge of beauty culture and do you take advantage of training now available?"

Table III

Percent of Respondents Who Felt They Needed Additional Training

	Yes	No	Maybe
Managers	58.0	13.9	28.2
Operators	55.1	12.9	32.0

The percent of both Managers and Operators in the YES column shows that many see the need for upgrading their skills.

Evidently employers, managers, and operators all feel the need for additional training. Since some are out of training for years and others may have dropped out of the labor market for a lengthly period the need for refresher courses is apparent.

Table IV

Percent of Respondents Taking Advantage of Training Now Available

	Never	Occasionally	Often	Not Available
Managers	13.9	47.0	28.9	10.2
Operators	30.2	36.7	11.0	22.1

Over seventy-five percent of the managers and forty-seven percent of the operators occasionally or often take advantage of training available today.

The typical Manager is female, married, a high school graduate and about 40 years of age. She lives and works in an urban area and could not or would not move or re-locate to obtain work. If not working in cosmetology it is because of a growing family. In general, she likes what she is doing.

The typical Operator is like the manager, but her average age is only thirty. She also has been out of training a short time and has only a few years work experience.

Conclusion

On the basis of this study, it is evident that the present work force, supplemented by recent and anticipated cosmetology school graduates is adequate to meet present and future demands of the industry. Though some growth is indicated by the increase in the number of employees per establishments, existing private, vocational, and apprenticeship facilities seem able to supply sufficient beauty operators.

However, this study did show a need for advanced training. Employers, Licensed Managers and Operators - all felt the need for further training. In fact, forty-one percent of the employers said that they and their employees often took advantage of training already available. Apparently then, a need exists not so much for quantity, but for a constantly available program of advance training to keep the work force properly skilled to meet the demands of the ever changing field of fashion and beauty culture. As in many other occupations then, the cosmetologist must upgrade herself to provide adequate service.

In addition, this study shows that a considerable percent of still licensed and eligible managers and operators are not working in cosmetology. In fact, twenty-one percent of the operators were in other work and thirty-six percent didn't want work. This compares with only thirty-nine percent that are currently employed in cosmetology. One might wonder then why are these people not working and want effect it might have on the labor market.

The most mentioned reason for not working was that of family considerations. Young beauty operators marry and leave the labor force to care for their young families. However, many plan to return to work and the vast majority of both operators and managers expressed confidence that they could find work in cosmetology when they desired it.

Reasons for being in other work were wages and hours among other things. Only ten percent of the employees are reported to be averaging better than $2.00 per hour. As for hours, responding employers reported that forty-three percent of their employees were part-time workers. Suprisingly only twenty-three percent of the operators and nineteen percent of the managers said they worked less than thirty-five hours per week. We are unable to explain this difference.

The major reason for not working then is neither oversupply nor poor working conditions but the natural turnover of young women staying home to care for their children. Nevertheless when asked to comment on the number being trained today the majority said too many were being trained.

Table V

Opinion on the Number of People Being Trained
by Percent of Respondents

	Not Enough	About Right	Too Many	Unknown
Employers	9.4	27.2	42.9	20.5
Managers	5.8	26.4	36.1	31.8
Operators	2.3	22.3	45.4	30.0

This report must conclude that a large increase in new workers is not necessary considering demand for beauticians in the next five years, the expressed need for additional training, and constant turnover. Such an increase might, in fact, further affect the wages, hours, split-shifts and weekend schedules currently influencing the industry. It appears an excellent balance exists in the supply and demand of the work force in the field of cosmetology under present circumstances and with present training facilities.

VT 001 197

VT 001 197
Evaluation and Projection of Programs of Vocational Agriculture in South Carolina.

South Carolina State Dept. of Education, Columbia
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Feb64 45p.

*VOCATIONAL AGRICULTURE; *EVALUATION CRITERIA; *PROGRAM EVALUATION; *SELF EVALUATION; *EVALUATION TECHNIQUES; CHECK LISTS

Local evaluation committees can use this three-part instrument to evaluate and project adjustments in vocational agriculture programs. Instructions for assembling supplemental materials, completing checklists, and preparing a summary of the evaluation are given. Steps in conducting the study are: (1) Appoint committee, (2) Secure, record, and make available supplemental information, (3) Use supplemental information, interviews, records, and observations to rate items in the checklist, (4) Evaluate each checklist phase, (5) Record strengths, weaknesses, and recommendations, and (6) Distribute copies of the completed evaluation to teacher, administrator, and supervisor. The instrument includes sections for: (1) assessment of community situation, (2) evaluation of program planning and development, in-school programs, out-of-school programs, physical facilities, professional improvement, and local school and community relationships, and (3) summation of strengths, weaknesses, and recommendations. (JM)

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EVALUATION AND PROJECTION OF PROGRAMS OF VOCATIONAL AGRICULTURE IN SOUTH CAROLINA

Published by
STATE DEPARTMENT OF EDUCATION
Columbia, South Carolina
JESSE T. ANDERSON
State Superintendent of Education
February, 1964

VT 01197

EVALUATION AND PROJECTION OF PROGRAMS OF VOCATIONAL AGRICULTURE IN SOUTH CAROLINA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Published by
STATE DEPARTMENT OF EDUCATION
Columbia, South Carolina
JESSE T. ANDERSON
State Superintendent of Education
February, 1964

FOREWORD

In keeping with the findings and recommendations of the Survey of Vocational Education in the Public Schools of South Carolina, completed in 1963, and with a desire to broaden and improve the program of vocational agricultural education in South Carolina, a committee representing teachers, supervisors and teacher educators in agricultural education was appointed to develop criteria to be used in evaluating and projecting programs of vocational agricultural education in the high schools throughout the State. This publication prepared by the committee represents much time and effort on the part of each member.

The Evaluative Criteria herein outlined are to be used in determining the effectiveness of programs now in operation and to project needed adjustments and improvements of the program to serve better the persons who are engaged in or expecting to engage in agricultural occupations in today's rapidly changing agricultural situation. Schools will benefit from the use of these criteria to the extent of the thoroughness of their application and the study that is given to organizing and adjusting the program to meet current and future needs. It will require much time and study on the part of teachers of agriculture, school administrators and other evaluation committee members to do a thorough job.

It is hoped that the high schools in South Carolina which have departments of vocational agriculture will make the best possible use of these criteria and that as a result, local programs of vocational agriculture will be strengthened and expanded.

W. E. Gore
State Supervisor
Agricultural Education

ACKNOWLEDGMENTS

We express appreciation to many individuals for their assistance in the preparation of this publication. We are indebted to individuals and organizations for their permission to use ideas and information in the preparation of this publication: "Evaluative Criteria, 1960 Edition," National Study of Secondary School Evaluation, Washington, D.C.; "Criteria for Use in Evaluating Departments of Vocational Agriculture", State Department of Education, Columbia, S. C.; "Evaluative Criteria for Vocational Education in Agriculture", National Committee on Standards for Teachers of Vocational Agriculture, U.S. Office of Education, published by the University of Georgia Press; "A Guide for Determining the Need for a Department of Vocational Agriculture in A Local Community", and "Vocational Agriculture in the Next Five Years," issued by The Department of Agricultural Education, The Ohio State University, Columbus, Ohio

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Name of School _____

Address _____

Evaluation Committee:

	Name	Representing
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

INSTRUCTIONS

This instrument was designed to serve two purposes, namely, evaluation and projection of programs of vocational agriculture. The instrument is composed of three parts. Part I consists of supplemental information concerning the community, agriculture, and the school needed in making judgments as to how well existing programs are meeting educational needs. Part II deals with the various phases of the vocational agriculture program and includes the criteria upon which the evaluation is made. Part III is the summary evaluation where strengths, weaknesses and recommendations are made concerning various phases of the program.

Procedure

It is recommended that the study be made by a local evaluation committee composed of (1) a school administrator, (2) the agriculture teacher, (3) a young and/or adult farmer, (4) a member of the board of trustees and (5) a layman - from agricultural business, industry or banking, etc. Completed copies of the final report should be submitted to the school administrator, the teacher of agriculture and the district supervisor of agricultural education. It is suggested that a chairman and a secretary be selected by the committee to expedite the work and to consolidate the report.

Supplemental Information

Information pertaining to the community situation, agricultural situation and school situation should be largely obtained and recorded prior to the meeting of the evaluation committee. This can be accomplished primarily by the completion of Part I of the evaluative criteria. The teacher of agriculture and the school administrators will have access to much of this information. It is suggested that the teacher of agriculture and the school administrator record the available information and present it at the evaluation committee meeting.

The evaluative criteria reflect the basic philosophy and objectives of vocational agriculture as encompassed in public school practices, State Plans and current legislation. Guiding statements should serve as philosophical references when working on the various sections.

Checklists

Items in the checklists, Part II, pertain to provisions, characteristics or conditions relating to the phases of the vocational agriculture program. Items for each phase should portray the quality of the program and the educational outcomes of the program of vocational agriculture.

In rating items in the checklist, use the following letters:

E - Excellent: Provisions or conditions are extensive and/or functioning excellently.

VG - Very Good: Provisions or conditions are - (1) extensive and/or functioning well, or (2) moderately extensive and/or functioning excellently.

G - Good: Provisions or conditions are moderately extensive and/or functioning well.

F - Fair: Provisions or conditions are (1) moderately extensive and/or functioning poorly, or (2) limited in extent and/or functioning well.

P - Poor: Provisions or conditions are limited in extent and/or functioning poorly.

M - Missing: Provisions or conditions are missing. If the need for the provisions or conditions in question can be substantiated in the opinion of the evaluators, they should make pertinent recommendations in the summary evaluation.

N - Does not apply: Provisions or conditions are missing but do not apply, or they are not desirable for this school or community, or they do not conform to the school's philosophy and objectives.

Comments

Pertinent comments should be recorded at appropriate places or on margins of pages. Such comments could be of value in identifying strengths and weaknesses or in making recommendations in Part III.

Evaluation

Committee members evaluating each phase of the program should make a judgment as to how well the practices of the school conform to the philosophy and objectives exemplified in the evaluative instrument. Also, consider how well school practices meet the needs of in-school and out-of-school students and the community. The relative importance of the items in the checklist should be considered in making the evaluation. Since the committee is functioning to study and make recommendations concerning vocational agriculture, judgments should be based on information from records, special reports, interviews, observations, checklists and other sources.

Summary Evaluation

Part III is a summary evaluation showing strengths, weaknesses and recommendations for improving the local program of vocational agriculture. This summary evaluation will represent the vital contribution to public education made by the evaluation committee. Members of the committee are urged to be realistic and impartial in recording strengths and weaknesses of the existing program. Also committee members are especially urged to make recommendations for improvement based upon their considered opinions and best judgments.

Strengths, weaknesses and recommendations should be recorded in Part III by program phases as they are completed to enable the committee to use all information most efficiently. Phases of the program included in Part III are:

1. Instructional Program
   a. Program Planning and Development
   b. In-school Program
   c. Out-of-school Program

2. Physical Facilities

3. Professional Improvement

4. Local School and Community Relationships.

Steps in Conducting the Study

Step 1. Appoint and secure services of an evaluation committee.

Step 2. Secure, record and make available the supplemental information needed for the study in Part I.

Step 3. Use supplemental information, interviews, records, observations, special reports and any other information deemed important in rating the items in the checklists.

Step 4. At the end of each checklist describing characteristics, provisions or conditions of a phase of the program, evaluate that phase by making a judgment based upon the checklist and all other information at hand.

Step 5. After completing the evaluation of each phase or area of the program included in Part II, turn to Part III and record strengths, weaknesses and recommendations for that phase of the program.

Step 6. One copy of the completed study should be retained by the teacher of agriculture; one copy retained by local school administrator; and one copy submitted to the district supervisor of agricultural education.

PART I

THE COMMUNITY SITUATION

Guiding Statement: The needs of students enrolled, or who should be enrolled, in a school are related to resources and opportunities in the environment; therefore, the community, in which a school is located, should be accurately described. The school should adapt an educational program to its own community and to the larger communities of which it is a part.

I. Basic Data Regarding The Community

A. Population Data for the School Attendance Area

1. Describe the area included within your school attendance area (length, width and number of square miles)

2. Population:[1] (county) White _____ Non-White _____ Total _____

3. Number of youth of high school age in attendance area _____

4. Total enrollment in this high school _____

B. Occupational Status of Adults[2] (county)

	Male	Female	Total
1. Total Employed			
2. Professional, Technical, and Kindred Workers			
3. Farmers and Farm Managers			
4. Managers, Officials and Proprietors			
5. Clerical and Kindred Workers			
6. Sales Workers			
7. Craftsmen, Foremen and Kindred Workers			
8. Operatives and Kindred Workers			

1. United States Census Population, 1960, South Carolina. General Social and Economic Characteristics - PC (1) 42 C, S.C. pp. 150-153.

2. ibid, pp. 154-157.

C. Educational Status of Adults[3] (County)

Educational Status		Male	Female	Total
25 Years Old and Over				
Elementary:	1-4 years			
	5-6 years			
	7-8 years			
High School:	1-4 years			
	4 or more years			
College:	1-3 years			
	4 or more years			
Median School Years Completed				

D. School's Financial Resources[4]

Fiscal year to which information applies: 19____ - 19 _____

1. Expenditures (not including capital outlay) of this secondary school per pupil in average daily attendance . . . . . $_____

2. Assessed valuation of school district . . . . . $_____

3. Approximate percent valuation is of true valuation . _____%

4. Assessed valuation per pupil . . . . . $_____

5. Percent of funds obtained from local taxation . . . _____%

6. Percent of funds obtained from State and other sources . . . . . _____%

E. Rural Students

1. Percent of enrollment in this school classified as rural (from rural areas and towns of fewer than 2,500 population) . . . . . _____%

2. Percent of students in this school transported at public expense . . . . . _____%

---

3. ibid. pp. 150-153.

4. Local School Superintendent's Report.

F. Composition of the Community

Describe all important characteristics of the community which are related to the school and its program, such as cultural interest, stability of population, per capita income and distribution of wealth.

II. Community Agencies Affecting Education

List agencies actually used by the school and community regardless of their location.

A. Educational Agencies

1. Libraries

2. Other Schools (for youths of secondary school age)

3. Collegiate Institutions

4. Non-collegiate post secondary schools

5. Museums, Art Galleries, etc.

6. Youth organizations (Boy Scouts, Girl Scouts, Clubs, etc.)

B. Recreation Opportunities

List recreational facilities for:

1. Youths

2. Adults

C. Civic Organizations

List all civic organizations in the community which are active in programs for improvement (Religious, social service, fraternal, farm, labor, veteran, cultural, business and professional organizations and service clubs).

D. Health and Sanitation Facilities

List all services and facilities which contribute to the physical and mental welfare of the people in the community (number of doctors, nurses, hospitals, organizations).

AGRICULTURAL SITUATION

Guiding Statement: Teachers of agriculture should know the agricultural situation of the community. Such knowledge enables teachers to formulate realistic educational programs for those enrolled.

_____ County[1]	1960
1. Number of farms	
2. Land in farms (acres)	
3. Average size of farms (acres)	
4. Farms by size (number)	
a. Under 10 acres	
b. 10-69 acres	
c. 70-179 acres	
d. 180-259 acres	
e. 260-499 acres	
f. 500-999 acres	
g. 1000 acres and over	
5. Cropland harvested (acres)	
6. Cropland pastured (acres)	
7. Woodland (acres)	
8. Types of farms (numbers)	
a. Field crop (other than vegetables, fruit and nut)	
b. Cash grain	
c. Cotton farms	
d. Fruit and nut	
e. Dairy	
f. Poultry	
g. Livestock (not dairy or poultry)	
h. General farms	

9. Farms by tenure of operator (numbers)

a. Full owners	_____	d. Tenants	_____
b. Part owners	_____	e. Croppers	_____
c. Managers	_____	f. Part-time farm operators	_____

1. Program Planning with Agricultural Facts, Agricultural Education Department, Clemson College, 1962.

10. All farm products sold . . . . . _____
11. All crops sold . . . . . _____
12. Vegetables sold . . . . . _____
13. Fruit and nuts sold . . . . . _____
14. All livestock and livestock products sold . . . . . _____
15. Dairy products sold . . . . . _____
16. Forest products sold . . . . . _____
17. Farm machinery: (numbers)
    a. Milking machines . . . . . _____
    b. Grain combines . . . . . _____
    c. Corn pickers . . . . . _____
    d. Pick-up hay balers . . . . . _____
    e. Motor trucks . . . . . _____
    f. Tractors . . . . . _____
    g. Automobiles . . . . . _____
18. Farm expenditures:
    a. Machine hire . . . . . _____
    b. Hired labor . . . . . _____
    c. Feed for livestock and poultry . . . . . _____
    d. Gasoline and petroleum . . . . . _____
    e. Commercial fertilizer . . . . . _____

19. Ages of farmers:

	Number		Number
a. Under 5	_____	e. 25-29	_____
b. 5-14	_____	f. 30-34	_____
c. 15-19	_____	g. 35-49	_____
d. 20-24	_____	h. 50-69	_____

20. Crops: Cash receipts, acreage, and yield - 1962

Crops	Cash[2] Receipts	Acreage[3]	Yield[3] County	Yield[3] State
Cotton and Cottonseed				
Tobacco				
Soybeans				
Corn				
Oats				
Wheat				
Peaches				xxxx
Vegetable crops				
Other crops				
Forest Products				
Total Receipts Crops				

21. Livestock and livestock products - 1962

	Cash Receipts[2]	Number or Head[4]	Production
Dairy products		xxxx	xxxx
a. Milk cows	xxxx		
b. Beef cattle	xxxx		
Hogs			
Eggs		xxxx	
Broilers		xxxx	
Other livestock and livestock products		xxxx	xxxx
Total Livestock and Livestock products			
Total all Commodities			

2. South Carolina - Cash Receipts From Farm Marketings - AE 247, Crops and Livestock Series No. 37, S.C. Experiment Station, October 1963.
3. South Carolina Crop Statistics, County Estimates 1961 and 1962 - AE 239, Crops and Livestock Series No. 34, S.C. Experiment Station, June 1963.
4. South Carolina Livestock and Poultry Statistics, County Estimates - AE 240 Crops and Livestock Series No. 35, S.C. Experiment Station, June 1963.

22. Farm placement and agricultural work experiences

List enterprises offering opportunities for agricultural occupational experiences for in-school students (farm and non-farm).

Enterprise or Firm	Number for Whom Firm Can Provide Experiences

23. Major non-farm agricultural enterprises[5]

Enterprise	Number of Firms	Actual number of employees as of 1962	Estimated number of additional persons needed as of 1964
Farm custom service			
Farm machinery			
Forestry related			
Conservation			
Poultry related			
Dairy related			
Feeds, seeds, farm supplies			
Horticultural related			
Farm realestate			
Farm Insurance			
Agricultural Fieldmen			
Other			

5. Form 4-A South Carolina Vocational Education Survey, 1963.

SCHOOL SITUATION

Guiding Statement: The school exists primarily for the benefit of the people of the community which it serves. The school should know the distinctive characteristics and needs of the people of the school community. The school should, therefore, adapt its general philosophy and specific purposes to its own community and to the larger communities of which it is a part.

General Information:

1. Number of high schools in county _____

2. Number of feeder schools serving local high school _____

3. High school operates as county or district unit _____

4. Number of schools local superintendent supervises:

   High School(s) _____ Jr. High School(s)_____ Grammar School(s) ____.

5. Number of teachers in high school: Male _____ Female _____

6. Extra curricular activities offered in high school:

   (List) _____

   _____

   _____

7. Educational Television, high school - Yes _____ No _____

8. Type(s) diploma offered _____

   _____

9. Types of curricula offered _____

   _____

10. Number of students graduating last year:

    Boys _____ Girls _____ Total _____

11. Number entering college last year:

    Boys _____ Girls _____ Total _____

12. Current school enrollment: (Boys)

    (By Grades) 12 _____, 11 _____, 10 _____, 9 _____, Total _____

    8 _____, 7 _____, 6 _____, 5 _____, Total _____

13. DAILY TIME SCHEDULE

Period	From	To	Length In Minutes	Agriculture Grade	Agriculture Enrollment

14. Vocational Courses offered in high school and enrollment:

Home Economics (Girls) _____ (Boys) _____

Family Living (Girls) _____ (Boys) _____

Vocational Agriculture _____

Industrial Arts _____

Commercial _____

Diversified Occupation _____

Distributive Education _____

Trades and Industries (Trade Classes):

Carpentry _____ Auto Mechanics _____ Plumbing _____

Masonry _____ Textiles _____ Machine Shop _____ Mechanical

Drawing _____ Electricity _____ Others: _____, _____.

15. Number of years Vocational Agriculture has been offered in school _____

Number of different agriculture teachers in school during past

20 years _____.

16. Number of years of Vocational Agriculture offered in school _____

17. Total number of class periods taught per week by agriculture teacher ____

18. Agriculture is required of all 9th grade boys Yes _____ No _____

19. What is status of former students (graduates or drop-outs) completing two years of Agriculture during 1959-63?[1] (Five year totals.)

1. Total completing Vo-Ag . . . . . _____
2. Farming on home farm . . . . . _____
3. Self-employed on farm other than home farm . _____
4. Farm work for wages (not on home farm). . . . _____
5. Share cropper . . . . . _____
6. Part-time farming and other employment . . . _____
7. Agricultural occupation (non-farm) . . . . . _____
8. Attending college of agriculture . . . . . _____
9. Nonagricultural job . . . . . _____
10. Attending college (other than agriculture) . _____
11. Armed forces* . . . . . _____
12. Present job unknown . . . . . _____
13. Deceased . . . . . _____

* Of those in armed forces _____ were farming when inducted.

---

1. Occupational Status of Students Completing a Prescribed Course in Vocational Agriculture in South Carolina 1959-63 - Use Survey form completed by local agriculture teacher December 1963.

PART II

PROGRAM EVALUATION

Instructional Program

Guiding Statement: The local program of vocational agriculture should be designed to meet the agricultural education needs of individuals engaged in or planning to engage in farming and other agricultural occupations. A complete program in vocational agriculture provides training for in-school students who are preparing to enter agricultural occupations or further their education in agriculture in college; young farmers and adult farmers who are becoming established in farming or who wish to increase their proficiency in farming; and out-of-school persons who desire to enter agricultural occupations other than farming.

Directions - Using the following scale, rate the extent to which the provisions or conditions as described in each statement are being fulfilled: E - Excellent; VG - Very Good; G - Good; F - Fair; P - Poor; M - Missing; and N - Does Not Apply.

A. PROGRAM PLANNING AND DEVELOPMENT

( ) 1. Instruction in vocational agriculture is available to youth and adults in the community interested in or concerned with agriculture.

( ) 2. Prospective students are given a clear understanding of the program in vocational agriculture before they are enrolled.

( ) 3. The local program is planned to meet the needs of in-school students, young farmers, adult farmers and out-of-school persons who have entered or are preparing to enter other agricultural occupations.

( ) 4. The teacher is allotted adequate time to provide individual instruction and supervise the agriculture practice programs of in-school students, young farmers and adult farmers throughout the year.

( ) 5. An advisory or consultant committee is used in planning and developing the local program.

( ) 6. Annual and long-time written programs are prepared and revised periodically.

( ) 7. Surveys and studies of the community and the agricultural situation are made to determine needs and assist in planning instructional programs.

( ) 8. The school principal and/or superintendent assists with planning the over-all vocational agriculture program.

( ) 9. In-school students, young farmers and adult farmers are provided an opportunity to participate in planning instructional programs and activities within the framework of established objectives.

( ) 10. Classroom instruction and agricultural practice are closely integrated to meet the needs of and differences among individuals.

( ) 11. The program is planned to provide practical experiences in farming and/or other agricultural occupations.

( ) 12. The program is evaluated periodically in terms of changes in agriculture and needs of students.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area of Program Planning and Development by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for Program Planning and Development.

B. IN-SCHOOL PROGRAM

I. Course of Study

( ) 1. Is based on an analysis of student needs and of the agriculture problems common to the community.

( ) 2. Includes instruction in agricultural occupations, both farming and other agricultural occupations.

( ) 3. Provides the basis for advancement in agricultural occupations, including advanced study in agriculture.

( ) 4. Provides instruction in basic agricultural sciences.

( ) 5. Provides instruction in production practices of agricultural products.

( ) 6. Provides instruction in farm management practices and procedures.

( ) 7. Provides instruction in soil and water management.

( ) 8. Provides instruction in the use and care of basic hand and power tools.

( ) 9. Provides instruction in selecting and securing farm machinery and equipment.

( ) 10. Provides instruction in maintaining and operating farm machinery and equipment.

( ) 11. Provides an opportunity to study economic principles and problems related to agriculture.

( ) 12. Provides an opportunity to study civic and social problems related to agriculture.

( ) 13. Provides an opportunity for students to learn about farm organizations and their activities.

( ) 14. Provides an opportunity for students to learn about public services available to farmers and methods of obtaining these services.

( ) 15. Provides laboratory experiences, demonstrations and field trips to supplement classroom work when applicable.

( ) 16. Provides an opportunity for students to understand the broad area of agriculture and its importance to people.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Course of Study by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

II. Supervised Practices in Agriculture

( ) 1. All students, whenever conditions permit, are required to develop a supervised farming program to provide a wide range of desirable work experiences in agriculture.

( ) 2. When the students' home conditions are not adequate for the development of a supervised farming program provisions are made for desirable learning experiences through farm placement and other agricultural enterprises.

( ) 3. Supervised practice opportunities are provided for students in major learning areas. (Land classification and treatment, livestock judging, etc.)

( ) 4. Supervised practices are expanded in quality and quantity consistent with needs and abilities of students.

( ) 5. Opportunities are provided for students to make managerial decisions while engaged in farm placement and other agricultural occupations.

( ) 6. Students have an opportunity to earn monetary returns from their agricultural work experiences.

( ) 7. Adequate surveys are made to determine the opportunities in agricultural work experiences to assure an effective supervised practice program.

( ) 8. Planned visits to students' farms and/or places of employment are made often enough to assure adequate supervision.

( ) 9. Students, parents, employers and school administrators are thoroughly familiar with the purpose of, and are involved in planning, supervised agricultural work experience programs.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Supervised Practices in Agriculture by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

III. Future Farmers of America and New Farmers of America

( ) 1. A written chapter program of work is prepared each year by October 31.

( ) 2. An annual budget is adopted for the chapter.

( ) 3. Chapter earns sufficient money to adequately finance its activities.

( ) 4. Membership dues are paid to the State Association for each member.

( ) 5. All official paraphernalia is available for chapter meetings.

( ) 6. Chapter has a planned program for each regular meeting.

( ) 7. All chapter officers can recite from memory their part in the official opening and closing ceremony.

( ) 8. Official manuals are available to all members.

( ) 9. Official ceremonies are used in conferring degrees in the chapter.

( ) 10. Chapter sends representatives to federation, district and State activities.

( ) 11. National FFA Foundation Medals are presented to at least two members of the chapter.

( ) 12. Chapter participates in the following contests: Parliamentary Procedure, Soil Judging, Public Speaking, Dairy Judging and Livestock Judging.

( ) 13. Chapter has had at least three State Farmer Degrees or Modern Farmer Degrees awarded to its members in the last three years.

( ) 14. All members are trained in leadership and parliamentary procedure and are basically skilled in the use of this training.

( ) 15. Chapter has received the Standard Chapter Award <u>at least once</u> in the last two years.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area <u>Future Farmers of America and New Farmers of America</u> by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

IV. <u>Guidance</u>

( ) 1. Teacher is aware of his responsibilities in the guidance program.

( ) 2. Teacher discusses educational and occupational implications of his subject matter.

( ) 3. Teacher uses information from cumulative records to increase his understanding of individuals.

( ) 4. Teacher refers students to appropriate professional personnel as needed.

( ) 5. Teacher prepares for each interview by studying pertinent data.

( ) 6. Teacher collects and makes available, information on opportunities for agricultural employment to students, counselors, administrators, and other interested persons.

( ) 7. Teacher collects and makes available information on educational experiences needed to prepare for agricultural employment.

( ) 8. Teacher counsels with prospective vocational agricultural students.

( ) 9. Teacher assists students in locating appropriate jobs and further training opportunities in the field of agriculture.

( ) 10. Teacher provides assistance to former students through keeping follow-up records.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Guidance by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for In-School Program.

C. OUT-OF-SCHOOL PROGRAM

1. Young Farmer

( ) 1. Instruction for young farmers is directed toward clearly formulated objectives.

( ) 2. Instruction is provided on an individual and group basis throughout the year.

( ) 3. A chapter committee assists in planning the annual program of instruction and activities.

( ) 4. An annual program of work is planned and followed.

( ) 5. Young farmers are organized on a local chapter basis.

( ) 6. Local chapter is affiliated with State Young Farmer Association.

( ) 7. The majority of young farmers of the community are members of the local young farmer chapter.

( ) 8. Young farmers participate in cooperative activities to benefit their individual farming operations and community improvement.

( ) 9. Leadership training is provided young farmers through chapter programs and activities.

( ) 10. Proper emphasis is placed on the production and marketing of all major farm crops and livestock in the community.

( ) 11. Major emphasis is placed on the management phases of the farm business to include financing, marketing, record keeping, analysis, organization and efficient use of labor and machinery.

( ) 12. Group and individual instruction is provided in the operation, care and repair of farm machinery and equipment.

( ) 13. Instruction is provided in the production, conservation and proper use of farm woodlands and idle lands.

( ) 14. Instruction is given in the conservation and use of natural resources.

( ) 15. Instruction is provided on purposes and uses of farm cooperatives.

( ) 16. Farm and home beautification is stressed in the instructional program.

( ) 17. Information is provided concerning services that are available from public service agencies, i.e., S.C.S., Forestry Service, etc.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Young Farmer Program by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

2. Adult Farmer

( ) 1. Instruction for adult farmers is planned and directed toward clearly formulated objectives.

( ) 2. The program of instruction is based on individual, group and community agricultural needs.

( ) 3. Adult farmers participate in planning programs of instruction to be conducted.

( ) 4. Full use is being made of Technical Agricultural services available.

( ) 5. Information is provided regarding the use of school-community facilities and services.

( ) 6. Adequate time is available to follow up organized group instruction with individual on-farm visits.

( ) 7. Farmers are assisted in securing and using available reference material which is applicable to individual farming problems.

( ) 8. Proper emphasis is placed on the production and marketing of all major farm crops and livestock in the community.

( ) 9. Major emphasis is placed on the management phases of the farm business to include financing, marketing, record keeping, analysis, organization and efficient use of labor and machinery.

( ) 10. Group and individual instruction is provided in the operation, care and repair of farm machinery and equipment.

( ) 11. Instruction is provided in the production, conservation and proper use of farm woodlands and idle lands.

( ) 12. Instruction is given in the conservation and use of natural resources.

( ) 13. The advantages and uses of farmer cooperatives are taught.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Adult Farmer by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

3. Special Courses

Short courses have been conducted by the regular teacher to train out-of-school persons in:

Operation, care and repair of farm machinery Year(s) _____

Farm Electrification . . . . . Year(s) _____

Farm Welding . . . . . Year(s) _____

Other (list) _____ Year(s) _____

Special instructors were employed to conduct short courses for out-of-school persons in:

Operation, care and repair of farm machinery Year(s) _____

Farm Electrification . . . . . Year(s) _____

Farm Welding . . . . . Year(s) _____

Other (list) _____ Year(s) _____

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Special Courses by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for Out-of-School Program.

PHYSICAL FACILITIES

Guiding Statement: The facilities should be planned, maintained and utilized so as to adequately provide for instruction in agriculture.

Directions - Using the following scale, rate the extent to which the provisions or conditions as described in each statement are being fulfilled: E - Excellent; VG - Very Good; G - Good; F - Fair; P - Poor; M - Missing and N - Does Not Apply.

1. Adequate space is provided for:

( ) (a) Classroom instruction

( ) (b) Office

( ) (c) Library

( ) (d) Agricultural mechanics shop

( ) (e) Agricultural land laboratory.

( ) 2. The agricultural library is adequate in that sufficient teaching and reference materials are available in all areas of instruction.

( ) 3. Audio-visual materials (in addition to 2 above) are available.

( ) 4. Audio-visual equipment is available.

( ) 5. The agriculture classroom is suitable for use of audio-visual materials and equipment.

( ) 6. Adequate storage space is provided for classroom and laboratory equipment and materials.

7. The Agricultural mechanics shop is equipped with adequate:

( ) (a) Hand tools and portable power tools.

( ) (b) Power-operated machines.

( ) (c) Benches and other work stations.

( ) (d) Welding (gas and electric) equipment.

( ) (e) Equipment and tools for instruction in farm power and machinery.

( ) (f) Equipment and tools for instruction in farm structures including concrete and masonry, paint, metal and carpentry.

( ) (g) Equipment and tools for instruction in farm electricity.

( ) (h) Equipment and tools for instruction in farm drainage, sanitation, and water supply.

( ) (i) Safety equipment such as first-aid supplies and fire extinguishers.

( ) (j) Storage facilities for lumber, metal, bolts, screws, nails and other shop supplies.

( ) (k) Adequate lighting in relation to work requirements.

( ) (l) Ventilation equipment with special provision for welding areas.

( ) 8. Provisions are made for consumable supplies needed in all areas of instruction.

9. Adequate space is provided for agricultural land laboratory in the following areas:

( ) (a) Greenhouse

( ) (b) Plant nursery

( ) (c) Forest area

( ) (d) Small fruit and vegetables

( ) (e) Lawn

( ) (f) Crops (row crops, pastures and small grains).

( ) (g) Livestock.

( ) 10. Adequate tools and equipment are available for use in agricultural land laboratory.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Physical Facilities by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for Physical Facilities.

PROFESSIONAL IMPROVEMENT

Guiding Statement: Teachers of agriculture should continue to grow professionally through participation and leadership in professional organizations, in-service, credit and non-credit educational programs, continuous individual study and upholding the highest ideals.

Directions - Using the following scale, rate the extent to which the provisions or conditions as described in each statement are being fulfilled: E - Excellent; VG - Very Good; G - Good; F - Fair; P - Poor; M - Missing and N - Does Not Apply.

The teacher:

( ) 1. Participates in efforts to influence high caliber young men to prepare for teaching vocational agriculture.

( ) 2. Reads regularly professional and technical magazines, journals and books.

( ) 3. Holds membership in local, State and National professional associations and participates in their functioning.

( ) 4. Budgets time to include opportunity for individual study and improvement.

( ) 5. Has definite plans to attain a permanent professional certificate or a Master's Degree.

( ) 6. Enrolls in approved technical and professional credit courses at least once in five years.

( ) 7. Cooperates in programs for the improvement of co-workers and the profession.

( ) 8. Participates in scheduled workshops, conferences or training sessions.

( ) 9. Participates in research individually or in cooperation with supervisors and research assistants.

( ) 10. Maintains high ethical and moral standards in all personal and social relationships.

( ) 11. Exhibits professional pride and energy in his daily work.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Professional Improvement by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for Professional Improvement.

LOCAL SCHOOL AND COMMUNITY RELATIONSHIP

Guiding Statement: Teachers of vocational agriculture should be effective members of their faculties in developing local school programs which offer maximum educational opportunities for the community.

Directions - Using the following scale, rate the extent to which the provisions or conditions as described in each statement are being fulfilled: E - Excellent; VG - Very Good; G - Good; F - Fair; P - Poor; M - Missing and N - Does Not Apply.

( ) 1. Teacher assumes appropriate responsibilities which contribute to the development of the total school program.

( ) 2. Teacher shares in the development of written school policies, including those for the vocational agriculture department.

( ) 3. Teacher contributes to effective working relationship among the faculty, school administrators and State staff.

( ) 4. Teacher involves specialized professional personnel in local programs, i.e. County Supervisor, Guidance Personnel and Curriculum Specialist.

( ) 5. Teacher assists with extra curricular activities and school duties.

( ) 6. The school superintendent and principal are kept informed on program of vocational agriculture conducted in community.

( ) 7. The school superintendent and principal are consulted frequently relative to vocational agriculture program.

( ) 8. School authorities regard the vocational agriculture program as an integral part of the total school program.

( ) 9. School authorities support instruction for Young Farmer and Adult Farmer groups.

( ) 10. School authorities supervise in-school and out-of-school instructional program.

( ) 11. Teacher establishes correct attitude with students: Friendly, democratic, helpful.

( ) 12. Teacher demonstrates the characteristics of good teaching -- maintaining high professional standards and ethics.

( ) 13. Teacher communicates intelligently and sufficiently to insure understanding with all individuals and groups toward community improvement.

( ) 14. Teacher stays up-to-date on new developments in agriculture.

( ) 15. Teacher is involved in and contributes to solution of agricultural problems in community.

( ) 16. Teacher develops a public relations program beneficial to both the school and the department of vocational agriculture.

Evaluation: Using the above check list and pertinent supplemental information, evaluate the area Local School and Community Relationship by encircling the appropriate word.

Excellent - Very Good - Good - Fair - Poor.

Turn to Part III and record strengths, weaknesses and recommendations for Local School and Community Relationship.

PART III

SUMMARY EVALUATION

Write a brief statement concerning strengths, weaknesses, and recommendation of each area in the evaluation.

Instructional Program

A. Program Planning and Development

Strengths:

Weaknesses:

Recommendations:

B. In-School Program

Strengths:

Weaknesses:

Recommendations:

C. Out-of-School Programs

Strengths:

Weaknesses:

Recommendations:

Physical Facilities

Strengths:

Weaknesses:

Recommendations:

Professional Improvement

Strengths:

Weaknesses:

Recommendations:

Local School and Community Relationship

Strengths:

Weaknesses:

Recommendations:

The study was completed and approved by the Committee on _____, 1964.

1. _____

2. _____

3. _____

4. _____

5. _____

EVALUATION AND PROJECTION
PROGRAMS OF
VOCATIONAL AGRICULTURE
SOUTH CAROLINA

PLANNING THE EVALUATION

School administrator and agriculture teacher select evaluation committee composed of (1) a school administrator, (2) the agriculture teacher, (3) a young or adult farmer, (4) a member of the board of trustees and (5) a layman - agri-business, industry, banking, etc. Submit names of committee to district office as soon as they have been selected and have accepted.

Teacher assemble publications, etc., listed under "Information To Be Used For Part I".

Teacher and school administrator complete Part I of Evaluation and insert information in six copies of booklet. Administrator and teacher call together, by April 1st, committee and explain purpose and method of evaluation and make plans for future meetings to carry out evaluation. Give each member of committee a copy of booklet (Part I completed) "Evaluation and Projection Program of Vocational Agriculture In South Carolina".

Select chairman and secretary for committee.

Teacher assemble all information for Part II, "Evaluation and Projection of Program in Vocational Agriculture", prior to second committee meeting for evaluation of Part II. After evaluation has been completed, teacher make out three copies of consolidated report on evaluation - turn in one copy to district office by May 15th; one copy to school administrator's office and keep one copy for teacher's file.

INFORMATION TO BE ASSEMBLED AND USED FOR COMPLETING PART I

COMMUNITY SITUATION

1. U. S. Census Population - 1960, South Carolina, General, Social and Economic Characteristics - PC (1) - 42 C.S.C.
2. Ninety-fifth Report of State Superintendent of Education - 1962-63.
3. Handbook - South Carolina Department of Agriculture - 1963.

4. "Program Planning With Agricultural Facts" - Agricultural Education Department Clemson College, 1962.

5. "South Carolina - Cash Receipts from Farm Marketing" - AE 247, Crops and Livestock Series No. 37, S. C. Experiment Station, October 1963.

6. "South Carolina Crop Statistics,County Estimates 1961 and 1962" - AE 239, Crops and Livestock Series No. 34, S. C. Experiment Station, June 1963.

7. "South Carolina Livestock and Poultry Statistics, County Estimates" - AE 240, Crops and Livestock Series No. 35, S. C. Experiment Station, June 1963.

8. Form SC-4A - South Carolina Vocational Education Survey, "Job Opportunities In Agriculture-Related Occupations" - 1963.

9. Copy of daily high school schedule showing periods, beginning and ending time, length in minutes for home room periods, breaks, recess and regular class periods.

10. "Occupational Status of Students Completing a Prescribed Course in Vocational Agriculture in S. C. - 1959-63". Use survey form completed by local agriculture teacher - December 1963.

KEY FOR INFORMATION TO BE SECURED FOR COMPLETING - PART I

THE COMMUNITY SITUATION (PAGE 4)

I. Basic Data Regarding the Community.

A. Population Data For School Attendance Area:

1. Reference - Handbook - S. C. Department of Agriculture - 1963. (Section III - County Information)

   Use County Information and pro-rate for school attendance area or get information from school superintendent's office.

2. Population Reference Listed - Table 82 - Pages 146-149 (pro-rate for school - attendance area).

3. Secure from superintendent's report submitted to State Superintendent of Education.

4. Secure from principal's office.

B. Occupational Status of Adults: (County)

1. See Reference (White and Negro Information Combined) Table 84 - Pages 154 - 157.

C. Educational Status of Adults:

See Reference (White and Negro Information Combined) Table 83 - Pages 150 - 153.

D. School's Financial Resources:

1. See Reference (Table 19 - Pages 302 - 305) - Pro-rate for school district if given for county and not for district or secure from local superintendent's report.
2. Secure from superintendent's report or county treasurer.
3. Same as Number 1 - above.
4. Secure from superintendent's report or from county treasurer, county superintendent or county auditor.

E. Rural Students:

1. Secure from superintendent's report or principal's office.
2. Same.

F. Composition of the Community:

1. Secure from Chamber of Commerce, County Treasurer, Auditor's or Supervisor's office, Libraries and Handbook - S. C. Department of Agriculture - 1963.

II. COMMUNITY AGENCIES AFFECTING EDUCATION (PAGE 6)

This will have to be secured through Mental Survey, Community Survey and by asking other persons.

AGRICULTURAL SITUATION (PAGE 8)

Reference: "Program Planning With Agricultural Facts" (Yellow Book for your individual county.)

Items 1 - 4:	Page 1 of Reference	Items 10 - 16:	Page 7 of Reference
Items 5 - 7:	Page 2 of Reference	Item 17 :	Page 9 of Reference
Item 8 :	Page 3 of Reference	Item 18 :	Page 10 of Reference
Item 9 :	Page 4 of Reference	Item 19 :	Page 12 of Reference

Insert Between Items 15 and 16 - Poultry and Poultry Products Sold - Page 9

Item 20 - 21: See Reference Material Section of Page 10 - "Evaluation" Booklet.

Item 22 : Secure from survey made of Agriculture Occupational Business Firms.

Item 23 : List figures you submitted for your community on Form SC-4A -- S. C. Vocational Education Survey - "Job Opportunities In Agriculture-Related Occupations". (List total number under each occupational category).

SCHOOL SITUATION--(PAGE 12)

Items 1 - 5: Secure from local principal.

Item 6 : List all athletic activities, clubs, etc.

Item 8 : List whether school offers High School Acedemic, State High School Diploma and/or Certificate.

Item 9 : List whether school offers college preparatory, regular high school, Vocational or general type curricular.

Items 10-12: Secure figures from high school principal.

Item 13 : Give entire daily time schedule for high school; under column for periods list home room, breaks, lunch, etc., as well as periods 1st, 2nd, etc. In last two columns, give grade and enrollment for agriculture only.

Item 14 : Give enrollment of each Vocational Course listed or write words "none" in blank.

Item 15 : List total number of years agriculture has been taught in high school.

Item 16 : Show whether a 2 or 3 or 4 year course is offered.

Item 17 : Multiply total number of single periods that you teach times 5 days.

Item 19 : Insert information from survey made (total for 5 years) -- "Occupational Status of Students Completing A Prescribed Course In Vocational Agriculture in South Carolina - 1959-63".

PART II
PROGRAM EVALUATION

INFORMATION, REPORTS, ETC., TO BE ASSEMBLED FOR PART II (PAGE 15)

1. "Program Planning For Instruction In Vocational Agriculture For Local Department" (Course of Study).
2. "Guide For Developing The Curriculum In Vocational Agriculture" - May 1962 - Agricultural Education - Mimeographed Publication.
3. "Final Supervised Farming Report" - Form 2 - In-School Students - 1963.
4. "Preliminary Supervised Farming Report" - Form 2 - In-School Students and Supplement for Farm Placement and Agricultural Occupations - 1964.
5. "Preliminary and Final Young Farmer Report" - 1962-63.
6. "Preliminary and Final Adult Farmer Report" - 1962-63.
7. "Chapter Program of Work" - 1963-64.
8. List of Contests entered - 1963-64.
9. National Chapter Awards Program - Standard Application - 1963-64.
10. Inventory of Shop Equipment and Hand Tools.
11. Inventory of Teaching Aids in classroom.
12. Monthly Reports - 1963-64 (July-March Inclusive).

.....

EVALUATION COMMITTEE

Submit to District Office with March Monthly Report - Due April 5th.

Name of School _____ Address _____

Date Evaluation to Start _____

Evaluation Committee:

	Name	Representing
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

Signed: _____
School Administrator

Signed: _____
Agriculture Teacher

VT 001 204

VT 001 204
A Guide for Constructing Classroom Tests in Business Arithmetic.

New York State Education Dept., Albany. Bureau of Business and Distributive Education
MF AVAILABLE IN VT-ERIC SET.
Publications Distribution Unit, State Education Department, Room 169, Education Building, Albany, New York 12224 ($.25).
Pub Date - 63 24p.

*GUIDELINES; *BUSINESS EDUCATION; *TEST CONSTRUCTION; *ARITHMETIC; TESTS; HIGH SCHOOLS

Developed by the State staff of business and distributive education in cooperation with the Bureau of Test Development, this guide provides teachers with a brief description of the common objectives in a business arithmetic course, suggestions concerning the technical aspects of test construction, and questions designed to illustrate ways of measuring the high school student's mastery of essential arithmetic skills. Sample questions illustrate mental and written fundamental calculations,,computations and method selections in problem solving, and construction and interpretation of tables and graphs. (PS)

ED027441

A Guide For Constructing Classroom Tests In Business Arithmetic

VT001204

The University of the State of New York/The State Education Department/Bureau of Business and Distributive Education/Albany/1963

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Guide For Constructing Classroom Tests In Business Arithmetic

The University of the State of New York/The State Education Department/Bureau of Business and Distributive Education/Albany/1963

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Regents of the University

With years when terms expire

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Chief, Bureau of Business and Distributive Education

JOHN E. WHITCRAFT, M.S.

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without permission except by
teachers for classroom testing purposes.

INTRODUCTION

This guide has been developed to assist teachers in preparing classroom tests in business arithmetic. It contains a brief description of the common objectives in a business arithmetic course, suggestions concerning the technical aspects of test construction and questions designed to illustrate ways of measuring the student's mastery of essential arithmetic skills. It has been prepared by the staff of the Bureau of Business and Distributive Education in cooperation with the Bureau of Test Development.

Aims and Objectives for Business Arithmetic*

The following are the purposes of instruction in business arithmetic in today's secondary schools:

1. To develop in the student the ability to perform with accuracy and facility the four fundamental operations with whole numbers, common fractions, mixed numbers and decimals
2. To instill in the student the habit of making neat figures and of arranging all numerical work in a form acceptable to a well-regulated business
3. To give instruction in the more useful short methods applicable to both mental and written calculations
4. To provide adequate practice in rapid mental calculation
5. To instruct the student in problem solving in arithmetic
6. To develop in the student an elementary knowledge of the interpretation and preparation of scale drawings and graphs
7. To show the application of denominate numbers in problem solving
8. To acquaint the student with some elementary information regarding the development of the number concept
9. To promote those personal traits, attitudes and ideals considered essential for success in modern business

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* Business Arithmetic Syllabus, State Education Department, 1961

The Test Blueprint

Obviously, an examination can be no better than the planning and the question material that go into its construction. It is essential to define the purpose a test is to serve and the skills and content areas to be measured before a single test question is selected. The relative weights to be assigned to the various parts of the test can then be determined.

The first step is to prepare a written outline showing exactly what the test should cover and the exact weights to be assigned the various skills and content areas in terms of their relative importance. Such an outline or blueprint will help assure a balanced sampling of content to provide a test score that will be a valid index of pupil achievement. There is no single blueprint or type of blueprint that is best for all tests. For a brief classroom quiz, a rather simple listing of the major areas and their relative weights is usually sufficient. The broad scope of a final examination, however, may call for a comprehensive and detailed classification of course content and objectives.

On the following page is a sample blueprint for a unit test on computing interest. The major steps to be followed in constructing a test blueprint are:

1. Adaptation of the subject matter content area(s) being tested to overall course objectives
2. Selection of topics to be tested within a subject matter area
3. Allocation of credit to the topics and skills

The blueprint has the advantage of showing what aspects of the subject have received emphasis and insuring that no major topics have been neglected; and it obviously becomes even more important when several content units are tested in the same examination.

There are many variables in the blueprint: content areas may be added or subtracted, skills to be tested may vary and credit assignments may change. These variables may change not only from test to test but also from class to class when one class group differs from another in ability.

Blueprint for a 25-Question Test on Computing Interest

6TH PERIOD CLASS	SKILLS					
SUBJECT MATTER CONTENT	FUNDAMENTAL CALCULATIONS		PROBLEM SOLVING			
Computing Interest	Mental	Written	Method Selection	Computation	Table Construction or Interpretation	No. of Questions
1. Finding days between dates	1	2				3
2. 60 days at 6% 30 days at 6% 15 days at 6%	2 1 1					2 1 1
3. 6 days at 6% 60 days at 3% 60 days at 2%	1 1 1					1 1 1
4. Other time periods		2		3		5
5. Other rates		2		1		3
6. Interchanging dollars and days	2					2
7. Compound interest			1	2	2	5
No. OF QUESTIONS	10	6	1	6	2	25

Developing the Test Questions

The preparation of test questions is a challenging task. Potentially valuable questions, designed to test significant aspects of the curriculum, may lose much of their effectiveness because of flaws in the manner in which they are presented to pupils. Sufficient care should be taken in writing a question to assure that it provides a valid and reliable index of what it is designed to measure.

Once the significance of the information to be tested has been established, then the choice of question types may be considered. Here the question arises, "How is this knowledge or skill best measured?" No one type of test question is inherently superior to other types. How well a question is constructed is more important than the type of question it represents.

The question type most commonly used in business arithmetic is problem completion, although multiple-choice is used occasionally. The choice of question type will depend a great deal upon the skills to be tested. Multiple-choice items can be used advantageously for mental

calculation. method selection and table interpretation questions. In the other two skills areas. either type of question may be suitable.

When multiple-choice questions are used. care should be taken to construct wrong choices that may result from the use of an incorrect method or obvious computational errors. Too often the choices provide a clue to the correct answer.

The sum of 12. 65. 39 and 42 is

(1) 157 (3) 167
(2) 158 (4) 168

In such a question a student who arrives at any number other than 7 or 8 in the unit's place will immediately know that his answer is incorrect and work the problem again. If, as a fifth choice, " none of these " is added to this question, then the choices will not limit possible answers to only two different digits in the unit's place. The use of this choice in computation problems also will help prevent the student from " working back " from the choices to determine the correct answer. If used, " none of these " should appear consistently throughout the test in multiple-choice questions and should be used as a correct answer a proportionate number of times.

The manner of labeling choices is optional; either numbers or letters may be used. In either case, care should be taken to use a parenthesis rather than a period for punctuation to avoid the student's mistaking the period for a decimal point.

In developing questions and problems in a course such as business arithmetic. the teacher must be sure that rates or other data used are realistic in terms of current practice. Wherever possible, data to be used in writing a question should be verified against actual practices followed locally or generally throughout the State.

Another problem encountered in the construction of questions in business arithmetic is that of developing questions with only one correct answer. The teacher must seek to frame each question so that the answer will be expressed in a precise, limited way. (Mathematically correct variations in answers should be allowed, unless otherwise specified.)

The questions presented later in the guide illustrate only a few ways in which the various objectives of the business arithmetic course can be measured. It is hoped that they will stimulate a search for question materials that will adequately measure the objectives of the course and present to students a challenging measure of their arithmetic skills.

Mechanical Features of the Test

How a test is printed and arranged, what instructions are given to students and how the test is to be scored are no less important than the test items themselves. Some mechanical features have a definite bearing on pupil performance and therefore influence the significance of the test scores. A variety of suggestions on this and other aspects of test construction are incorporated in the booklet *Improving the Classroom Test*, available without charge from the Regents Examination and Scholarship Center of the State Education Department.

Special mention should be made of a format for printed tests that avoids the need for scrap paper for the students. The questions are printed on one-half of the page only: the other half is left blank. The students are instructed to do all computations in the blank space. Further instructions concerning identification of computations for specific problems may be given if necessary. This format also provides a further check on number writing skills and neatness of work habits, particularly in tests composed entirely of multiple-choice questions. (In situations where number writing skills and neatness of work habits are to be considered for credit, the students should be so informed and the amount of credit allocated to this should be indicated.)

DESCRIPTION OF SKILLS AND ILLUSTRATIVE QUESTIONS

I. FUNDAMENTAL CALCULATIONS

Questions written to test the mastery of skills in fundamental calculations should be concerned with the addition, subtraction, multiplication and division of whole numbers, common fractions, decimal fractions and denominate numbers; the computation of interest and percents; and number concepts. Certain of these skills may be measured by mental calculation when the figures used are appropriate. Note: In testing the computation of interest by the 6- and 60-day methods, the State syllabus recommends that mental problems should be handled easily in the following categories:

a 60, 30, 15 and 6 days at 6%
b 60 days at 3% or 2%
c interchanging dollars and days (Problems used for *c* should utilize figures presented in *a* and *b* above.)

A. Mental

The following are sample question types that might be used as a part of a rapid calculation test. It is expected that all of these questions will be worked mentally and only the answers will be recorded.

Illustrative Questions

Directions (1–6): Make the following extensions:

1	400 gallons at 2½ cents per gallon	1 $10.00
2	12 quarts at 40 cents per quart	2 $ 4.80
3	1.000 pounds at $45 per ton	3 $22.50
4	2.500 cards at $42 per M	4 $105.00
5	12 quarts at $6 per gallon	5 $18.00
6	18 inches at 10 cents per foot	6 $ .15

Directions (7–11): Complete *each* of the following:

7	17.2% expressed as a decimal is	7 .172
8	72 increased by 12½% of itself is	8 81
9	.8725 multiplied by 1,000 is	9 872.5 *or* 872½
10	80 is ⅓ of what number?	10 60
11	¼% of $400 is	11 $ 1.00

Directions (12–15): Compute the interest:

12	$500 for 15 days at 6%	12 $ 1.25
13	$60 for 113 days at 6%	13 $ 1.13
14	$1,000 for 60 days at 2%	14 $ 3.33
15	$400 for 60 days at 3%	15 $ 2.00

Directions (16–30): Write the *number* preceding the correct answer in the space provided:

16 5% of 2,980 is approximately
(1) 75 (2) 90 (3) 150 (4) 300 — 16 3

17 At $1.25 per pound, how many pounds can be purchased for $12.50?
(1) 8 (2) 10 (3) 15 (4) 20 — 17 2

18 If an article marked at $48 is sold for $40, the percent of discount given is
(1) 25% (2) 20% (3) $16\frac{2}{3}\%$ (4) $12\frac{1}{2}\%$ 18 3

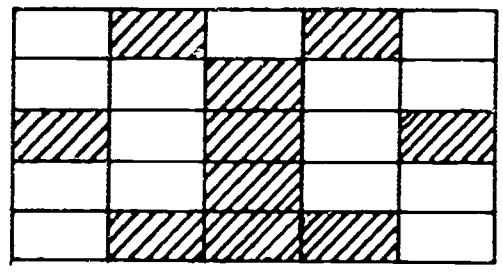
19 The correct number of days from April 25 to June 4 is
(1) 9 (2) 29 (3) 39 (4) 40 19 4

20 Which fraction is less than $\frac{1}{2}$?
(1) $\frac{3}{10}$ (2) $\frac{5}{6}$ (3) $\frac{2}{3}$ (4) $\frac{5}{9}$ 20 1

21 Dividing 4.5 by .05 gives the same answer as dividing 450 by
(1) .005 (2) .5 (3) 5 (4) 50 21 3

22 What percent represents the idea of the whole of something?
(1) 1% (2) 50% (3) 100% (4) 1,000% 22 3

23 What percent of the figure is shaded?
(1) 25%
(2) 40%
(3) 50%
(4) 60%



23 2

24 165 is what percent of $165?
(1) 200% (2) 100% (3) 1% (4) 0% 24 2

25 Which is the highest real estate tax rate?
(1) 21 mills per $1.00 (3) $3.50 per $100
(2) 2.6% (4) $42 per $1.000 25 4

26 20 is 40% of what number?
(1) 8 (2) 50 (3) 200 (4) 500 26 2

27 Which decimal has the same value as $3\frac{1}{2}\%$?
(1) .035 (2) .35 (3) 3.5 (4) 3.50 27 1

28 Which of the following has the *smallest* value?
(1) $\frac{3}{4}$ (2) .80 (3) 66% (4) $2\frac{1}{2}\%$ 28 4

29 An automobile travels 8 miles in 15 minutes. At that rate, how many miles will the automobile travel in one hour?
(1)16 (2)23 (3)32 (4)60 29 3

30 On March 10. Mr. Kline borrowed $500 on a promissory note. On May 10 he repaid the loan. For how many days did Mr. Kline pay interest?
(1)30 (2)31 (3)60 (4)61 30 4

B. Written

These problems should be more difficult than those that are readily solved by mental computation. This increase in difficulty is achieved by using more complicated numbers which are not readily adapted to mental calculation.

Illustrative Questions

Directions (31–38): Write the answer to *each* question in the space provided. [Wherever necessary, reduce the answer to the simplest form.]

31 Add 1.684; 37.09; 423.213; .9275 31 462.9145

32 Divide 25.7420 by 3.05 and multiply the quotient by 2 32 16.88

33 Multiply 14.5 by .35 33 5.075

34 Multiply $9\frac{1}{4}$ by $4\frac{2}{3}$ 34 $43\frac{1}{6}$

35 Add $3\frac{1}{4}$; $17\frac{2}{5}$; $9\frac{1}{8}$ 35 $29\frac{31}{40}$

36 Divide $2\frac{2}{5}$ by $1\frac{1}{3}$ 36 $1\frac{4}{5}$

37 Find the interest on $2,700 for 96 days at 6% 37 $43.20

38 Find the interest on $870 for 86 days at $4\frac{1}{2}\%$ 38 $ 9.35

II. PROBLEM SOLVING

Questions in this area should emphasize (*a*) recognition of the proper methods or procedures to be followed in solving specific problems, (*b*) application of the correct procedures and computations in solving arithmetical situations most commonly met in business and in everyday life (computing discounts, taxes, commissions, insurance premiums, depreciation, profits, markup and payrolls; reconciling bank statements; verifying utility bills; buying and selling stocks, bonds and real estate; financing on the installment plan, etc.) and (*c*) preparation and interpretation of tables and graphs, including extrapolations to determine implications, trends or tendencies beyond the given data.

Major emphasis in these problems should be placed on measuring the student's acquisition of the terminology, concepts, skills, understanding and habits outlined in the Business Arithmetic Syllabus that will have a lasting value in adult life. In essence, problems should measure the knowledge and understanding of those important arithmetical facts and principles that every well-educated adult should have at his command.

A. Method Selection

Problems in this category are concerned entirely with the student's ability to identify the correct method for solving an arithmetical situation rather than his ability to use the method.

Illustrative Questions

Directions (39–43): Write the *number* preceding the correct answer in the space provided:

39 The weight of a wagonload of hay is given in pounds.
To find the weight in tons,

(1) multiply by 2,000 (3) divide by 2,000
(2) multiply by 1,000 (4) divide by 1,000 39 3

40 Mr. Bester purchased merchandise at a total cost of $3.75, including a 3 percent county sales tax. To determine the actual purchase price of the merchandise before the sales tax was added,

(1) divide $3.75 by .03
(2) divide $3.75 by 1.03
(3) multiply $3.75 by .03
(4) multiply $3.75 by 1.03

40 2

41 The September 1962 registration in typewriting in a certain school was 184 students, a decrease of 8 percent from the September 1961 registration in typewriting in the same school. To determine the September 1961 registration,

(1) multiply 184 by .08; add 184 to the product
(2) multiply 184 by .08; subtract 184 from the product
(3) divide 184 by 1.08
(4) divide 184 by .92

41 4

42 Ralph Bacon earned $90 for each of 14 weeks; the 15th week he earned $105 and the 16th week $60. To determine his average weekly earnings for the 16-week period, which method should be used?

(1) $\frac{(\$90 \times 14) + \$105 + \$60}{16}$

(2) $\frac{\$90 + \$105 + \$60}{3}$

(3) $\frac{(\$90 \times 14) + \$105 + \$60}{3}$

(4) $\frac{\$90 + \$105 + \$60}{16}$

42 1

43 A building valued at $10,000 was insured for $7,500 under a policy which contained an 80% coinsurance clause. Fire caused a loss of $4,800. To determine the amount of money that might be recovered from the insurance company, which formula should be used?

(1) $\frac{7,500}{10,000} \times 4,800 = \text{Recovery}$

(2) $\frac{8,000}{10,000} \times 4,800 = \text{Recovery}$

(3) $\frac{7,500}{8,000} \times 4,800 = \text{Recovery}$

(4) $\frac{4,800}{8,000} \times 7,500 = \text{Recovery}$

43 3

B. Computation

For this area of a classroom test, emphasis should be placed upon the application of correct mathematical procedures and computations in solving specific problems that are encountered in everyday business activities.

Illustrative Questions

1. Individual Questions

Directions (44–47): Solve *each* of the following problems. Write the answer in the space provided.

44 If an invoice for $720 dated April 3, terms 8/10, 2/30, N/60, is paid on April 13, what should be the amount of the check? 44 $662.40

45 After liquidating his assets, an insolvent debtor was able to pay $128 to one of his creditors. This amount represented 32% of the original account. How much was the original account? 45 $400.00

46 If an electric meter read 17,628 kilowatt hours on May 1 and one month later read 18,124 kilowatt hours, how much would the electric bill be at an average cost of $3\frac{1}{2}$ cents per kilowatt hour? 46 $ 17.36

47 A car purchased in 1954 for $4,200 has a resale value 5 years later of $400. What was the average amount of depreciation per year for this car during the 5-year period of ownership? 47 $760.00

2. Problems with Two or More Independent Questions

Problems in this category should be constructed so that there are at least two independent questions; the total number will be determined by the significant situations that can be tested in a given problem.

Directions (48–49): Below is an uncompleted earnings record of two salesmen employed by the Gates Manufacturing Company during the week of July 16–20. Each salesman is paid a base salary plus a commission on his total weekly sales.

Salesman	Weekly Sales	Base Salary	Rate of Commission	Total Earnings	DEDUCTIONS					
					Fed. Income Tax	N.Y.S. Income Tax	FICA Tax (3⅝%)	State Disability Insurance (½ of 1% up to 30 cents per week)	Total Deductions	Net Take-Home Pay
A. Butler	$1,700	$100	3%	$151.00	$30.00	$4.80	XXX	XXX	XXX	XXX
B. Collins	$1.200	$100	3%	XXX	$25.00	$3.20	XXX	XXX	XXX	XXX

48 What is the amount that Mr. Butler will receive as *net take-home pay* during this week? 48 $110.43

49 What is the amount of the *total deductions* that will be made from Mr. Collins' earnings? 49 $ 33.43

Directions (50–51): In order to raise money, Joseph Tyler discounted the following note at his bank at 6% on January 30, 1962, and received credit for the net proceeds.

> $500 Binghamton, N.Y. Date January 15, 1962
>
> 90 days after date I promise to pay to the order of
>
> Joseph Tyler
>
> Five hundred and 00/100----------DOLLARS
>
> Interest at 5%
>
> Rodger Baker

50 What was the term of discount of this note? 50 75 days

51 What was the value of this note at maturity? 51 $506.25

Directions (52–53): Mr. Smith has prepared the following summary of the 3-year term insurance policies which he carries on his home and its contents. Base your answers to questions 52 and 53 on this summary.

Fire Insurance Coverage

COMPANY	ITEM INSURED	INSURED FOR	3-YEAR RATE (PER $100)
A	House	$15,000	$.51
B	Contents	6,000	.60

52 What is the *total* cost of the 3-year policy which Mr. Smith carries on his house? 52 $ 76.50

53 What is the *average annual* cost of the policy which Mr. Smith carries on the contents of his home? 53 $ 12.00

Directions (54–55): Base your answers to questions 54 and 55 on the information given below.

Henry Samson purchased 15 shares of a preferred stock quoted at 88. The stock has a par value of $100 per share and has been paying a dividend of 4% annually.

54 What was the total cost of the shares of stock purchased? [Disregard brokerage.] 54 $1,320

55 What amount of money should Mr. Samson receive as an annual dividend? 55 $60

Directions (56–58): Base your answers to questions 56–58 on the information given below.

Anderson, Benson and Foster formed a partnership with investments of $45,000, $15,000 and $10,000, respectively. The partnership agreement stated that the annual net profit would be divided as follows: Each partner was to receive 6% interest annually on his investment; the remaining profit was to be divided equally. The net profit of the business for the first year was $12,300.

56 What amount did Anderson receive that year as his total share of the net profit? 56 $5,400

57 What amount did Benson receive? 57 $3,600

58 What amount did Foster receive? 58 $3,300

Directions (59–60): Base your answers to questions 59 and 60 on the information given below.

On April 30, 19—, Mr. Henry Hanson's checkbook balance was $832. On the same date the bank statement showed a balance of $628. The following checks were found to be outstanding: $52.80; $3.90; $4.20. The statement showed that the bank had deducted a service charge of $4.02. It was also discovered that a deposit of $260.88 had been mailed to the bank too late to be recorded on the April statement.

59 What is the total amount of checks outstanding? 59 $ 60.90

60 What is the correct available checkbook balance? 60 $827.98

Directions (61–62): Base your answers to questions 61 and 62 on the information given below.

Jackson, an appliance dealer, bought an electric range for $145.02. His operating expenses amount to 25% of sales. His profit is 15% of the selling price.

61 The purchase price is what percent of the selling price? 61 60%

62 What is the selling price? 62 $241.70

C. Construction and Interpretation of Tables and Graphs

Test questions of this type should require the student to construct or interpret charts. graphs and other data and to extrapolate beyond the given data to determine implications. trends. consequences. etc., which are in accordance with the conditions included in the data. graph or other communication. [Several questions may be developed from one chart or table.]

Illustrative Questions

1. Individual Questions — [Note: Questions 63 and 64 would *not* appear on the same test.]

63 Complete the following table to be used by a cashier in selling tickets for a play.

NO. OF TICKETS	SEATS IN SECTIONS A — M	SEATS IN SECTIONS N — Z
1	$1.65	$1.25
2		
3		
4		
5		

63 (See table in question 64.)

64 What will be the total amount for 3 seats in section C and 2 seats in section R at a play if the cashier refers to the following table?

Cost of Seats

NO. OF TICKETS	SEATS IN SECTIONS A — M	SEATS IN SECTIONS N — Z
1	$1.65	$1.25
2	3.30	2.50
3	4.95	3.75
4	6.60	5.00
5	8.25	6.25

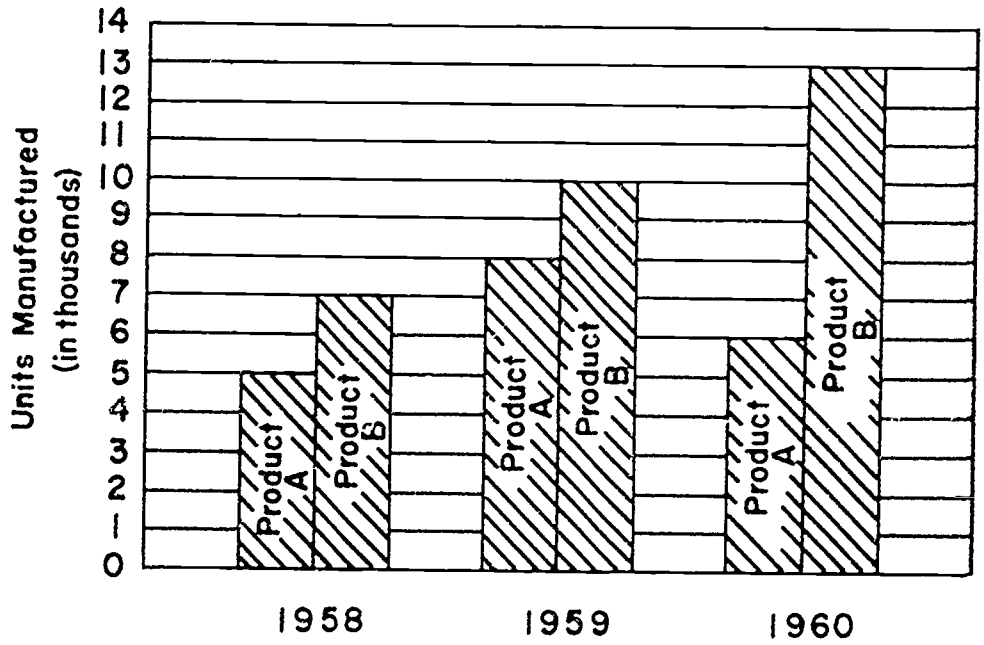
64 $7.45

2. Problems with Independent Questions

Directions (65–68): Base your answers to questions 65–68 on the Production Record of the Upstate Manufacturing Company as presented on the graph below.

PRODUCTION RECORD

Product A and Product B
Upstate Manufacturing Company
Three-Year Period
1958–1960



65 How many more units of Product *A* were manufactured in 1959 than were manufactured in 1958? 65 3,000

66 What was the *percent* of decrease in the number of units of Product *A* manufactured in 1960 as compared with 1959? 66 25%

67 What was the *percent* of increase in the number of units of Product *B* manufactured in 1960 as compared with 1959? 67 30%

68 What was the *average annual* production of units of Product *B* during the period covered by the graph? 68 10,000

Directions (69–70): The compound interest table shown below is similar to tables used to figure interest due depositors in savings banks. Using the table, answer *each* of the following questions:

Interest Table for $1.00 Compounded Annually

Year	1 ½%	2%	3%	4%
1	1.0150	1.0200	1.0300	1.0400
2	1.0302	1.0404	1.0609	1.0816
3	1.0457	1.0612	1.0927	1.1249
4	1.0614	1.0824	1.1255	1.1699
5	1.0773	1.1041	1.1593	1.2167
6	1.0934	1.1262	1.1941	1.2653
7	1.1098	1.1487	1.2299	1.3159
8	1.1265	1.1717	1.2668	1.3686
9	1.1434	1.1951	1.3048	1.4233
10	1.1605	1.2190	1.3439	1.4802

69 Ralph Jackson had $500 deposited in the Southern State Bank for a period of 2 years. That bank pays interest compounded *semiannually* at the rate of 4%. How much *interest* did Jackson earn on this account during the 2-year period?

69 $41.20

70 Howard Freeman had $1,000 on deposit in the Upstate Bank for a period of 1½ years. The bank pays interest at the rate of 3% compounded *semiannually*. What was the total amount of money on deposit in Freeman's account at the end of the 1½ year period? [Assume that there were no additional deposits and no withdrawals.]

70 $1,045.70

Directions (71–74): The following amortization table was prepared by a local bank for a customer who borrowed $12,000 as a house mortgage loan. Base your answers to questions 71 74 on this table.

AMORTIZATION TABLE

Monthly Payment Number	Payment on		Balance of Loan
	Interest	Principal	
1	$60.00	$30.00	$11,970.00
2	59.85	30.15	11,939.85
3	59.70	30.30	11,909.55
4	59.55	30.45	11,879.10
5	59.40	30.60	11,848.50
6	59.24	30.76	11,817.74
211	$4.49	$85.51	$813.40
212	4.07	85.93	727.47
213	3.64	86.36	641.11
214	3.21	86.79	554.32
215	2.77	87.23	467.09
216	2.34	87.66	379.43
217	1.90	88.10	291.33
218	1.46	88.54	202.79
219	1.01	88.99	113.80
220	.57	89.43	24.37
221	.12	24.40	—0—

Last payment may differ from the regular payment.

71 The amount of interest paid monthly on this mortgage loan
(1) remains the same
(2) increases slightly each month
(3) decreases slightly each month
(4) more than doubles each month — 71 3

72 The unpaid balance of the loan is reduced each month by
(1) $24.52
(2) $60.00
(3) the amount of the interest payment
(4) the amount of the payment on principal — 72 4

73 The total amount of the first monthly payment is
(1) $60.00 (3) $ 90.00
(2) $30.00 (4) $11,970.00 — 73 3

74 If payments are made regularly on the mortgage, the $12,000 debt will be paid at the end of
(1) 5 years (3) 22 years and 1 month
(2) 18 years and 5 months (4) 221 years — 74 2

M E M O R A N D U M

TO: The ERIC Clearinghouse on Vocational and Technical Education
The Ohio State University
980 Kinnear Road
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(Address) State Education Department, Albany, New York 12224

DATE: April 1, 1968

RE: (Author, Title, Publisher, Date) A Guide for Constructing Classroom Tests in Business Arithmetic. Bureau of Bus and Distr Ed., 1963.

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Appropriate School Setting high school
Type of Program high school class
Occupational Focus general office and business occupations
Geographic Adaptability no limitation
Uses of Material lesson planning, evaluation, achievement testing.
Users of Material high school teacher

(4) Requirements for Using Material:
Teacher Competency Regular teacher of business mathematics
Student Selection Criteria N/A

Time Allotment N/A

Supplemental Media --
Necessary ____)
Desirable N/A) (Check Which)

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VT 001 208

VT 001 208
National Standard School Shop Safety Inspection Check List.

Joint Safety Committee of the American Vocational Assn. and the National Safety Council
MF AVAILABLE IN VT-ERIC SET.
National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 ($1.00 for packets of 50).
Pub Date - Jul64 4p.

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A safe environment is an essential part of the school shop safety education program. This checklist was developed to standardize the evaluation of shop facilities and equipment. It covers: (1) General Physical Condition, (2) Housekeeping, (3) Equipment, (4) Electrical Installation, (5) Gas, (6) Personal Protection, (7) Instruction, (8) Accident Records, and (9) First Aid. In most categories, space is provided for listing of standards, requirements, or regulations which have local application only. (EM)

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NATIONAL STANDARD SCHOOL SHOP SAFETY INSPECTION CHECK LIST

Prepared by the Joint Safety Committee of the
AMERICAN VOCATIONAL ASSOCIATION — NATIONAL SAFETY COUNCIL

Date_____

INTRODUCTION

A safe environment is an essential part of the school shop safety education program. The safe environment will exist only if hazards are discovered and corrected through *regular* and *frequent* inspections by school personnel—administrators, teachers and students. Safety inspections are to determine if everything is satisfactory.

Inspections may be made at the request of the board of education, the school administration or upon the initiative of the teacher. Some communities have drawn upon the cooperative service of professional safety engineers, inspectors of state labor departments, insurance companies and local safety councils to supplement and confirm inspections by school personnel.

The National Standard School Shop Safety Inspection Check List, recommended by the President's Conference on Industrial Safety is an objective inspection procedure for the school shop.

DIRECTIONS

WHO INSPECTS?

This will depend upon local policies. It is recommended, however, that shop teachers, and students—the student safety engineer and/or student safety committee—participate in making regular inspections. This not only tends to share responsibility but stimulates a broader interest in the maintenance of a safe school shop.

WHEN TO INSPECT?

As a minimum, a safety inspection should be made at the beginning of every school term or semester. More frequent inspections may be advisable.

HOW TO INSPECT?

Inspections should be well planned in advance.

Inspections should be systematic and thorough. No location that may contain a hazard should be overlooked.

Inspection reports should be clear and concise, but with sufficient explanation to make each recommendation for improvement understandable.

FOLLOW-UP

The current report should be compared with previous records to determine progress. The report should be studied in terms of the accident situation so that special attention can be given to those conditions and locations which are accident producers.

Each unsafe condition should be corrected as soon as possible in accordance with accepted local procedures.

A definite policy should be established in regard to taking materials and equipment out of service because of unsafe conditions.

The inspection report can be used to advantage as the subject for staff and class discussion.

CHECKING PROCEDURE

Draw a circle around the appropriate letter, using the following letter scheme:

S — Satisfactory (needs no attention)
A — Acceptable (needs some attention)
U — Unsatisfactory (needs immediate attention)

Recommendations should be made in all cases where a "U" is circled. Space is provided at the end of the form for such comments. Designate the items covered by the recommendations, using the code number applicable (as B-2).

In most categories, space is provided for listing of standards, requirements or regulations which have local application only.

A. GENERAL PHYSICAL CONDITION

1. Machines, benches, and other equipment are arranged so as to conform to good safety practices..... S A U
2. Condition of stairways..... S A U
3. Condition of aisles..... S A U
4. Condition of floors..... S A U
5. Condition of walls, windows, and ceiling..... S A U
6. Illumination is safe, sufficient, and well placed..... S A U
7. Ventilation is adequate and proper for conditions..... S A U
8. Temperature control..... S A U
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained..... S A U
10. Teacher and pupils know location of and how to use proper type for various fires..... S A U
11. Number and location of exits is adequate and properly identified..... S A U
12. Proper procedures have been formulated for emptying the room of pupils and taking adequate precautions in case of emergencies S A U
13. Lockers are inspected regularly for cleanliness and fire hazards. S A U
14. Locker doors are kept closed..... S A U
15. Walls are clear of objects that might fall..... S A U
16. Utility lines are properly identified..... S A U
17. Teachers know the procedure in the event of fire including notification of the fire department and the evacuation of the building. S A U
18. Air in shop is free from excessive dust, smoke, etc.... S A U
19. _____ S A U
20. _____ S A U
21. _____ S A U
22. _____ S A U
23. Evaluation for the total rating of A. GENERAL PHYSICAL CONDITION..... S A U

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B. HOUSEKEEPING

1. General appearance as to orderliness..... .... S A U
2. Adequate and proper storage space for tools and materials. S A U
3. Benches are kept orderly..... S A U
4. Corners are clean and clear..... S A U
5. Special tool racks, in orderly condition, and provided at benches and machines..... S A U
6. Tool, supply, and/or material room is orderly..... S A U
7. Sufficient scrap boxes are provided..... S A U
8. Scrap stock is put in scrap boxes promptly..... S A U
9. Materials are stored in an orderly and safe condition.. S A U
10. A spring lid metal container is provided for waste and oily rags. S A U
11. All waste materials and oily rags are promptly placed in the containers ..... S A U
12. Containers for oily rags and waste materials are frequently and regularly emptied ..... S A U
13. Dangerous materials are stored in metal cabinets..... S A U
14. Machines have been color conditioned..... S A U
15. Safety cans are provided for flammable liquids..... S A U
16. Bulk storage of dangerous materials is provided outside of the main building ..... S A U
17. A toe-board or railing around a mezzanine used for storage or washing facilities ..... S A U
18. Materials are stored in an orderly and safe condition on this mezzanine ..... S A U
19. Flammable liquids are not used for cleaning purposes S A U
20. Floors are free of oil, water and foreign material..... S A U
21. Floors, walls, windows, and ceilings are cleaned periodically. S A U
22. _____ S A U
23. _____ S A U
24. _____ S A U
25. _____ S A U
26. Evaluation for the total rating for B. HOUSEKEEPING S A U

C. EQUIPMENT

1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc..... S A U
2. Danger zones are properly indicated and guarded..... S A U
3. All gears, moving belts, etc., are protected by permanent enclosure guards ..... S A U
4. All guards are used as much as possible..... S A U

C. EQUIPMENT (continued)

5. All equipment control switches are easily available to operator. S A U
6. All machines are "locked off" when instructor is out of the room. S A U
7. Brushes are used for cleaning equipment..... S A U
8. Nonskid areas are provided around machines..... S A U
9. Machines are in safe working condition..... S A U
10. Machines are guarded to comply with American Standards Association and local state code..... S A U
11. Adequate supervision is maintained when students are using machines and dangerous tools..... S A U
12. Tools are kept sharp, clean and in safe working order S A U
13. All hoisting devices are in safe operating condition... S A U
14. Machines are shut off while unattended..... S A U
15. Adequate storage facilities for tools, equipment, etc., not in immediate use ..... S A U
16. _____ S A U
17. _____ S A U
18. _____ S A U
19. _____ S A U
20. Evaluation for the total rating for C. EQUIPMENT.. S A U

D. ELECTRICAL INSTALLATION

1. All switches are enclosed..... .. S A U
2. There is a master control switch for all of the electrical installations ..... S A U
3. Electrical outlets and circuits are properly identified.. S A U
4. All electrical extension cords are in safe condition and are not carrying excessive loads..... S A U
5. All machine switches are within easy reach of the operators. S A U
6. Electrical motors and equipment are wired to comply with the National Electric Code..... S A U
7. Individual cut-off switches are provided for each machine. S A U
8. Machines are provided with overload and underload controls by magnetic pushbutton controls..... S A U
9. No temporary wiring in evidence..... S A U
10. _____ S A U
11. _____ S A U
12. _____ S A U
13. _____ S A U
14. Evaluation for the total rating for D. ELECTRICAL INSTALLATION .....S A U

E. GAS

1. Gas flow to appliances is regulated, so that when appliance valve is turned on full, the flames are not too high..... S A U

2. Gas appliances are properly insulated with asbestos or other insulating material from tables, benches, adjacent walls, or other flammable materials ..... S A U

3. No gas hose is used where pipe connections could be made. S A U

4. Gas appliances have been adjusted so that they may be lighted without undue hazard..... S A U

5. Students have been instructed when lighting gas appliances to light the match first before turning on the gas..... S A U

6. There are no gas leaks, nor is any odor of gas detectable in any part of the shop..... S A U

7. Shop instruction has been given concerning the lighting of gas furnaces operating with both air and gas under pressure.. S A U

8. When lighting the gas forge, goggles are worn..... S A U

9. When lighting the gas furnace, the following procedure is used: (a) light the match; (b) turn on the gas; (c) drop the match in the hole in top of the furnace..... S A U

10. In shutting down the gas furnace, the gas valve is closed before the air valve..... S A U

11. _____ S A U

12. _____ S A U

13. _____ S A U

14. _____ S A U

15. Evaluation for the total rating for E. GAS..... S A U

F. PERSONAL PROTECTION

1. Goggles or protective shields are provided and required for all work where eye hazards exist..... S A U

2. If individual goggles are not provided, hoods and goggles are properly disinfected before use..... S A U

3. Shields and goggles are provided for electric welding.. S A U

4. Rings and other jewelry are removed by pupils when working in the shop..... S A U

5. Proper kind of wearing apparel is worn and worn properly for the job being done..... S A U

6. Leggings, safety shoes, etc., are worn in special classes such as foundry, etc., when needed..... S A U

7. Respirators are provided for dusty or toxic atmospheric conditions such as when spraying in the finishing room..... S A U

8. Provisions are made for cleaning and sterilizing respirators. S A U

9. Students are examined for safety knowledge ability.. S A U

10. Sleeves are rolled above elbows when operating machines. S A U

11. Clothing of students is free from loose sleeves, flopping ties, loose coats, etc. ..... S A U

12. _____ S A U

F. PERSONAL PROTECTION (continued)

13. _____ S A U

14. _____ S A U

15. _____ S A U

16. Evaluation for the total rating for F. PERSONAL PROTECTION. S A U

G. INSTRUCTION

1. Shop Safety is taught as an integral part of each teaching unit. S A U

2. Safety rules are posted particularly at each danger station. S A U

3. Printed safety rules are given each student..... S A U

4. Pupils take a safety pledge..... S A U

5. Use of a safety inspector..... S A U

6. Use of a student shop safety committee..... S A U

7. Use of safety contests..... S A U

8. Motion and/or slide films on safety are used in the instruction. S A U

9. Use of suggestion box..... S A U

10. Use of safety tests..... S A U

11. Use of safety posters..... S A U

12. Talks on safety are given to the classes by industrial men. S A U

13. Tours are taken of industrial plants as a means of studying safety practices ..... S A U

14. Periodic safety inspections of the shop are made by a student committee ..... S A U

15. Men from industry make safety inspections of the shop S A U

16. Student shop safety committee investigates all accidents S A U

17. A proper record is kept of safety instructions which are given, preferably showing the signature of student on tests given in this area ..... S A U

18. Rotate students on the Shop Safety Committee so that as many students as possible have an opportunity to participate... S A U

19. _____ S A U

20. _____ S A U

21. _____ S A U

22. _____ S A U

23. Evaluation for the total rating of G. INSTRUCTION S A U

H. ACCIDENT RECORDS

1. There is a written statement outlining the proper procedure when and if a student is seriously hurt..... S A U

2. Adequate accident statistics are kept..... S A U

3. Accidents are reported to the proper admini trative authority by the instructor ..... S A U

H. ACCIDENT RECORD (continued)

4. A copy of each accident report is filed with the State Department of Education ..... S A U

5. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards..... S A U

6. _____ S A U

7. _____ S A U

8. _____ S A U

9. _____ S A U

10. Evaluation for the total rating of H. ACCIDENT RECORDS. S A U

I. FIRST AID

1. An adequately stocked first aid cabinet is provided... S A U

2. The first aid is administered by a qualified individual S A U

3. The school has individuals qualified to administer first aid. S A U

4. _____ S A U

5. _____ S A U

6. _____ S A U

7. _____ S A U

8. Evaluation for the total rating of I. FIRST AID.... S A U

RECOMMENDATIONS

Code No.	

VT 001 209

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Leslie, John D.
Training Needs in Central Kentucky, Student Interest and Availability. Report 121 Supplement.

Spindletop Research, Lexington, Ky.
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KENTUCKY

The objective of this part of the overall study (see VT 000 086) was to provide information relating to student availability and interests and to recommend ways to keep enrollment and curriculum responsive to the employer need pattern of Central Kentucky. Principal findings were (1) There were an estimated 34,880 16- to 20-year-olds in 1965 with a projection of 43,660 in 1970 and 46,800 in 1975, (2) About one-third of the students were enrolled in vocational programs, (3) The student's family provided most of the guidance on course selection, (4) 20 percent of the students would switch programs if others were available, (5) There is little difference between the perception of job opportunities between vocational and non-vocational students, (6) Only nine occupations were considered to offer good employment by 50 percent of the students, (7) 98 percent of the vocational students and 90 percent of the non-vocational students indicated they would select one or more vocational courses if they were available, (8) One-fourth of the vocational students planned to enroll in post-secondary vocational programs, (9) Over one-half of the counselors indicated that 14 or the 20 vocational courses should be more widely offered, and (10) Qualified job applicants were in short supply for 19 jobs. Statistical data gathered by questionnaires and opinionnaires are given. (EM)

ED027441

Report 121 Supplement

TRAINING NEEDS IN CENTRAL KENTUCKY

Student Interest and Availability

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Report 121 Supplement

TRAINING NEEDS IN CENTRAL KENTUCKY

Student Interest and Availability

by

John D. Leslie

Prepared for

Kentucky Departments of
Education and Commerce
Frankfort, Kentucky

Approved as an official report
of Spindletop Research, Inc., by:

Robert A. Porter

Robert A. Porter, Vice President
and Technical Director

August 1966

SPINDLETOP RESEARCH CENTER • LEXINGTON, KENTUCKY

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I. INTRODUCTION

BACKGROUND

A new vocational technical training facility has been approved for location near Lexington in Fayette County, Kentucky. The facility is being designed to help meet the rising demand for trained skilled, clerical, and technical workers created by the recent rapid influx of industry into Central Kentucky.

The Commonwealth of Kentucky, acting through the Departments of Commerce and Education, contracted with Spindletop Research to conduct a study of the five year needs of Central Kentucky employers for skilled, clerical, and technical (SCT) workers and of Central Kentucky student interests and probable availability. The major portion of the study was covered in the Spindletop Research report Skilled, Clerical and Technical Training Needs in Central Kentucky which describes the employer needs aspect of the study. Original plans for the study called for information on student interests and availability to be included as a chapter of the main report. However, because the report on employer needs was required at an earlier date, it was decided to publish separately the following material on student interest and availability.

STUDY OBJECTIVE

The objective of this part of the overall study is to provide information relating to student availability and interests and to recommend ways to keep enrollment and curriculum responsive to the (SCT) employer need pattern of Central Kentucky.

This report provides:

- Demographic projections of the high school age segment of the Central Kentucky population
- Information concerning current area high school students' vocational and educational interests
- Information with respect to area high school students' views of SCT employment opportunities
- Recommendations for keeping the new vocational-technical training facility's training programs in tune with the SCT training needs of area employers

- Recommendations for acquainting students with the SCT employment opportunities of area business and industry

STUDY AREA

For the purposes of the study, Central Kentucky was defined as the twenty counties identified in Figure 1 and listed below:

Anderson	Franklin	Mercer
Bath	Garrard	Montgomery
Bourbon	Harrison	Nicholas
Boyle	Jessamine	Powell
Clark	Lincoln	Scott
Estill	Madison	Woodford
Fayette	Menifee	

STUDY DATA

Both original and existing data were used in the course of this portion of the study. The demographic analysis was based on existing data secured from a number of primary and secondary sources. The data for the remainder of this portion of the study was collected by means of a survey conducted by Spindletop Research. All Central Kentucky high school students, guidance counselors, and principals were surveyed.

ACKNOWLEDGEMENTS

The overall study was conducted under the direction of Mr. John D. Leslie, Manager of Manpower Utilization Services. Assisting Mr. Leslie on the portion of the study reported herein were: Mr. Donald C. Mitchum, Survey Coordinator, Mrs. Darlene Drake, Mr. William Hall and Mr. Edward Seidman, Research Assistants. Dr. Gary R. Gates assisted by Mrs. Linda Taylor conducted the demographic analysis.

Special acknowledgement of advice and counsel is due Mr. E. P. Hilton, Assistant Superintendent for Vocational Education, and the Steering Committee which he appointed to work with Spindletop Research on the study. The Steering Committee was comprised of representatives of several departments of Kentucky State Government and the ACTIVE Committee, headed by Dr. Carl F. Lamar, who holds a joint appointment with the University of Kentucky and the Department of Vocational Education.

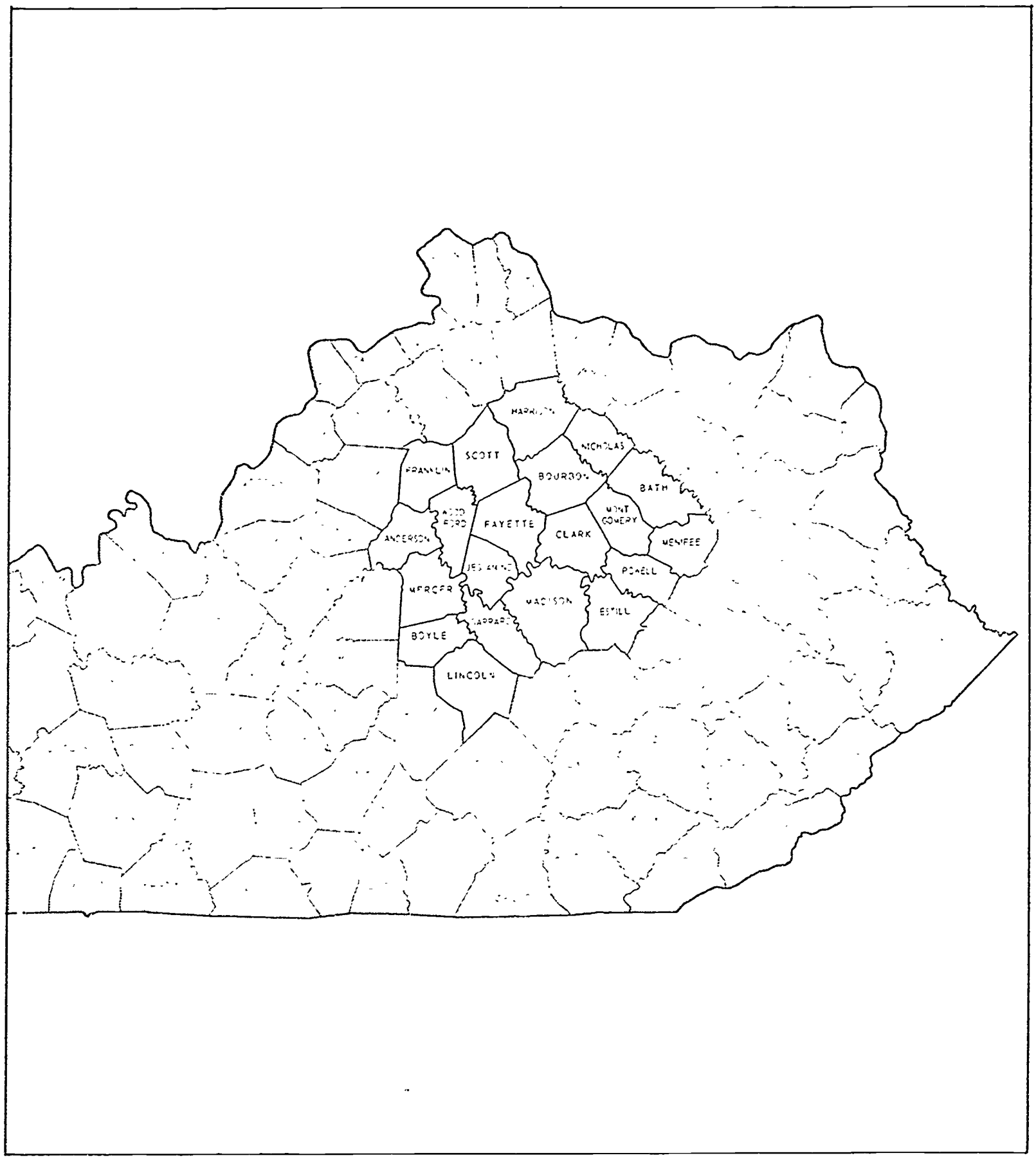


Figure 1. Location of 20-county study area.

The Steering Committee consisted of:

C. F. Lamar--Director, Research Coordinating Unit, Kentucky Department of Vocational Education

D. Harrison--Executive Assistant, Kentucky Department of Commerce

D. E. Elswick--Director of Research, Kentucky Department of Education

R. W. McDonald--Principal Statistician, Kentucky Department of Economic Security

C. V. Youmans--Chairman, ACTIVE Committee and Manager of Education and Training, IBM

J. D. Leslie--Project Manager, Spindletop Research Center

In addition, the school administrators from each of the participating school districts are due special thanks for their assistance in collecting the data from each high school student in Central Kentucky.

II. SUMMARY AND CONCLUSIONS

INTRODUCTION

While the demand for additional skilled, clerical, and technical workers is determined by employers' needs, the supply (if in-migration is not considered) is determined by the capacity of and enrollment in vocational-technical programs in area schools. The principal effort of the overall study was devoted to the demand side of the equation and was covered in the Spindletop Research report B-121, Training Needs in Central Kentucky. The portion of the study relating to the supply side of the equation is reported herein as a supplement to the main report.

The purpose of this supplementary report is to provide information which could be used in developing ways to keep enrollment responsive to Central Kentucky employers' needs for skilled, clerical and technical workers.

SUMMARY AND FINDINGS

The following statements summarize the principal findings developed and reported in the body of the report:

- The number of 16-20 year olds in Central Kentucky are projected to increase from an estimated 34,880 in 1965 to 43,660 in 1970 and 46,800 in 1975.

- About one-third of all Central Kentucky high school students are now enrolled in vocational programs.

- A majority of the students said that their current course enrollment resulted primarily from guidance provided by a member of their family (in most cases by the mother).

- Twenty percent of the students not now enrolled in vocational programs said they would switch to programs in these fields if made available.

- There is little difference between the views of vocational and non-vocational students with respect to their perceptions of the SCT job opportunity situation in Central Kentucky.

- Only nine SCT occupations were considered by as many as 50 percent of the students to offer good employment opportunities.

- Ninety-eight percent of the vocational and 90 percent of the non-vocational students selected one or more vocational courses which they would take if they were available to them.

- One-fourth of the vocational students planned to enroll in additional vocational training programs on completion of their high school work.

- Over one-half of those engaged in counseling indicated that 14 of the 20 vocational courses currently being offered should be made more available.

- Qualified job applicants for 19 different job occupations were considered to be in short supply by over one-half of those engaged in counseling.

- From 7.5 percent to 54.3 percent of the responding counselors indicated they had "no opinion" as to the applicant-job, supply-demand picture of the sample occupations listed.

CONCLUSIONS AND RECOMMENDATION

It is clear that the demand for skilled clerical and technical workers is increasing in Central Kentucky. The survey of high schools students gave a clear indication that more students would enroll in vocational courses if they were more available.

On the other hand, it was found that many of the students and those engaged in guidance did not have a clear picture of the SCT occupational opportunities in the area. Students seemed to have a better grasp of the occupational picture in the services sector than in the manufacturing sector.

It is important that any program developed to increase the level of occupational knowledge of students be designed to include not only the students but also the parents in recognition of the finding that the family influence ranked high among those affecting students choice of courses.

Some schools in the area have active guidance programs staffed by trained professional personnel. Recognition of the need for this service is increasing, but it will be some time before all schools in Central Kentucky are adequately served.

Ideally, one trained vocational guidance counselor should be designated in each school to provide information and advice to students and parents with respect to occupations requiring less than a college education. This individual, aided by others where necessary, would:

- Maintain contact with local area business and industry.
- Arrange presentations for school assemblies and parent groups to desiminate general information concerning SCT occupations, employment opportunities, vocational curriculum, and course availability.
- Provide individual counseling to students and parents on a regular basis.

Since a trained vocational counselor is not feasible for all school districts at the present time, it is recommended that as an alternative approach that a member of the teaching or administrative staff who has a basic interest in the "world of work" be relieved of some of his regular duties and assigned the responsibility for providing occupational information to students and parents. Emphasis on occupational information rather than on occupational counseling is recommended because mass communication techniques can be used to allow broader coverage by a limited staff.

This "occupational information specialist" could serve to provide a liaison between the school, area employers, students, and parents. A great deal could be done by one person by collecting occupational information from area employers, the State Bureau of Vocational Education, the University of Kentucky School of Education and disiminating it by means of written "take home" memos and group meetings of parents and students.

The Bureau of Vocational Education could provide a valuable service to back up the "occupational information specialist" in the high schools by designating one person from the Bureau to work with the local specialist. This would provide a central clearing house for disseminating area-wide information and for providing advice on communications techniques.

It is recognized that each specialist will find different ways to present occupational information to students and parents and that many will, in effect, have a different story to tell. Counties which are highly industrialized will want to emphasize the occupations involved in their local industry. Counties with little or no industry will want to emphasize occupational information relating to area employment opportunities. For example, while Boyle County will want to include occupations from the glass industry, counties which have little industry in the eastern section of the area would probably not emphasize these occupations but would stress others from nearby industry.

III. CENTRAL KENTUCKY HIGH SCHOOL ENROLLMENT TRENDS

INTRODUCTION

Even though the new vocational-technical training facility will serve a student body of wide age variations, it is assumed that a large fraction of the daytime enrollment will be in the 16-20 age group. For this reason population projections for the 16-20 age group and current enrollment patterns in Central Kentucky high schools were analyzed to provide the administrators of the new school with information which they could use in detailed planning.

POPULATION PROJECTIONS

The 1960 population of the 20-county study area was 412,069. Fayette County with 32.0 percent of the population accounted for the largest share of the total, followed by Madison County with 8.1 percent and Franklin County with 7.2 percent. Clark and Estill Counties had 5.2 and 5.1 percent, respectively, of the area population. None of the remaining 15 counties accounted for more than 4.4 percent of the total. The 1960 population of Central Kentucky is shown by county in Table 1. Also shown in this table are the 1950-60 changes in population totals and the change in rural to urban mix of the population.

The national trend to urbanization is reflected in the study area. While the total population increased only nine percent for the years 1950-60, the urban population increased 39.3 percent. Only Estill County had a decrease (9.3 percent) in urban population; this county experienced a 15.1 percent decrease in total population during the period.

In the report on the major part of the study, Skilled Clerical and Technical Training Needs in Central Kentucky, it was stated,

> because population growth is expected to be dependent upon the number of available employment opportunities, it is necessary that the probable ranges of new employment opportunities be determined to reliably project population for the study area.

In Section III of the previous report, total population projections for the 20-county study area for the years 1970 and 1975 were

Table 1
County Population--1950-1960

County	1960 Population	Percent of 20-County Total	Percent Change 1950-1960 in Total Population	1960 Urban Population	Percent Urban Population of County Total	Percent Change 1950-1960 in Urban Population	1960 Rural Farm Population	Net Loss in Rural Farm Population 1950-1960
Anderson	8,618	2.1	(4.1)	2,523	29.3	--	3,204	1,377
Bath	9,114	2.2	(12.4)	0	0.0	0.0	3,536	3,267
Bourbon	18,178	4.4	2.4	7,791	42.9	12.7	5,161	1,689
Boyle	21,257	5.2	3.5	9,010	42.4	3.7	3,159	2,031
Clark	21,075	5.1	11.5	10,187	48.3	10.4	4,230	1,866
Estill	12,466	3.0	(15.1)	2,955	23.7	(9.3)	3,436	3,846
Fayette	131,906	32.0	30.9	111,940	84.9	48.6	5,709	897
Franklin	29,421	7.2	13.5	18,365	62.4	5.4	3,731	1,540
Garrard	9,747	2.4	(11.6)	3,021	31.0	--	4,794	2,581
Harrison	13,704	3.3	(0.2)	5,641	41.2	16.4	5,554	1,668
Jessamine	13,625	3.3	9.4	7,048	51.7	106.9	3,682	778
Lincoln	16,503	4.0	(11.6)	0	0.0	0.0	7,982	2,999
Madison	33,482	8.1	7.4	16,470	49.2	20.7	8,819	2,852
Menifee	4,276	1.0	(10.9)	0	0.0	0.0	2,550	1,131
Mercer	14,596	3.6	(0.3)	6,061	41.5	15.2	4,833	2,309
Montgomery	13,461	3.3	3.3	5,370	39.9	1.4	4,205	832
Nicholas	6,677	1.6	(11.4)	0	0.0	0.0	3,398	1,516
Powell	6,674	1.6	(2.0)	0	0.0	0.0	2,036	1,372
Scott	15,376	3.7	1.6	6,986	45.4	26.6	4,735	2,707
Woodford	11,913	2.9	6.3	4,060	34.1	47.1	3,632	704
Total	412,069	100.0	9.0	217,428	52.8	39.3	88,386	37,962

Source: U.S. Bureau of Census

derived and shown to be 474,000 and 520,000, respectively. An independently derived population projection was made for the Kentucky Outdoor Recreation Plan. This projection allocated total anticipated state growth to each of Kentucky's counties based on their 1950-60 trends. The total 20-county 1970 projected population derived by this approach was 470,020. This figure compares favorably with the 474,000 projected from employment data.

Cumulative age-distribution curves for the population were prepared for each county in the study area, for the state of Kentucky, and for the nation and projections were estimated to the years 1970 and 1975 for the 20-county study area. Figure 2 shows the assumed average cumulative curves derived from these projections for 1965 and for 1975. These curves were used to calculate the number of persons 14 years of age and older (for applying a percentage in the labor force), and to calculate the anticipated total population of the 20-county study area based on employment and unemployment discussed in Section III of the previous report. They were also used to calculate the number of persons in the 16-20 age group for this report.

Table 2 summarizes the estimated number of persons between 16 and 20 years old based on the age distribution curves and the estimated population for the years 1965, 1970 and 1975. A substantial increase

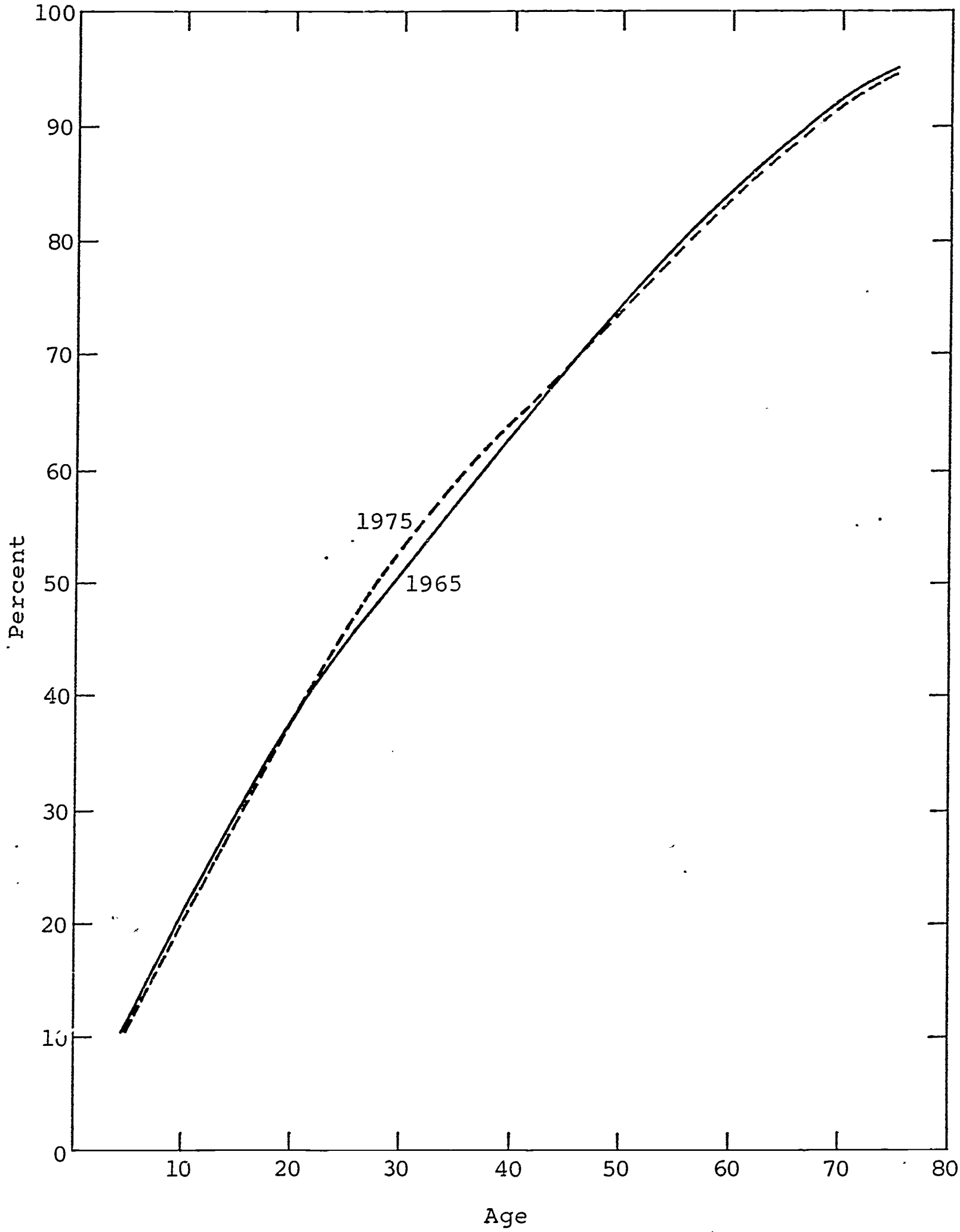


Figure 2. Assumed Cumulative Age Distribution--20 County Area: 1965 and 1975.

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Table 2
Estimated Number of Persons, Age 16 to 20,
in Central Kentucky in 1965, 1970, and 1975

Year	Percent of population between 16 and 20*		Estimated population†		Number of 16 to 20-year-olds‡
1965	8	x	436,000	=	34,880
1970	9	x	474,000	=	43,660
1975	9	x	520,000	=	46,800

*Estimate based on analysis of age distribution.
†From Table 3-6, page 3-2, Training Needs in Central Kentucky.
‡Product of columns 2 and 3.

is expected between 1965 and 1970 in this age group, after which the rate of increase will be only moderate.

CURRENT HIGH SCHOOL ENROLLMENT

The 51 public and private high schools in Central Kentucky had a combined enrollment of 19,086 at the start of the 1965-66 school year. The schools in Fayette County accounted for over 31 percent of the total enrollment; Madison County with slightly under 8 percent of the Central Kentucky high school enrollment occupied second place; and Nicholas County with 258 high school students had the smallest high school enrollment--about 1.4 percent of the total. Table 3 shows the distribution of Central Kentucky's high school population by county and by grade.

The greater enrollment in grade 10 than in grades 11 and 12 results from the fact that the number of babies born since 1949 has increased every year in the United States and almost every year in Kentucky and from school cumulative drop-outs. Population data indicate that each year a larger number of youth will reach high school age; consequently, further increases in high school population can be expected.

HIGH SCHOOL PROGRAM ENROLLMENT PATTERNS

The superintendent of each school system and the head of each private high school in Central Kentucky was surveyed to obtain data reflecting the distribution of the high school population in

Table 3
Central Kentucky High School Enrollment

County	Enrollment by Grade 10th	11th	12th	Total	Percent of Total Enrollment
Anderson	147	136	137	420	2.2
Bath	97	152	135	384	2.0
*Bourbon	361	329	344	1,034	5.4
Boyle	237	210	191	638	3.3
*Clark	289	293	279	861	4.5
Estill	190	176	156	522	2.7
*Fayette	2,056	2,110	1,856	6,022	31.6
*Franklin	482	452	357	1,291	6.7
Garrard	161	100	102	363	1.9
Harrison	217	153	183	553	2.9
Jessamine	193	137	132	462	2.4
Lincoln	448	438	431	1,317	6.9
*Madison	546	498	447	1,491	7.8
Menifee	111	86	102	299	1.6
Mercer	230	195	233	658	3.4
Montgomery	302	278	272	852	4.5
Nicholas	94	90	74	258	1.4
Powell	96	108	65	269	1.4
*Scott	256	239	180	675	3.6
*Woodford	274	233	210	717	3.8
Total	6,787	6,413	5,886	19,086	100.0
Percent of Total Enrollment	35.6	33.5	30.9	100.0	

*Public and private schools combined

Source: Survey data.

in the various programs of study. Table 4 shows that on the basis of school records, about 31 percent of all students currently enrolled in high school are enrolled in vocational programs, nearly 40 percent in college preparatory programs, and the remainde. in a general high school program.

Table 4
Program Distribution of Current
Central Kentucky High School Students

Programs	All Boys Enrolled (%)	All Girls Enrolled (%)	Girls & Boys Enrolled (%)
Industrial and Technical	8.3	0.3	4.2
Vocational Business (Commercial)	7.5	22.4	15.1
Vocational Agriculture	9.5	--	4.8
Vocational Home Economics	--	14.3	7.3
Distributive Education	1.3	0.8	1.0
College Preparatory	42.2	37.8	39.8
General	31.2	24.4	27.8
Total	100.0	100.0	100.0

IV. HIGH SCHOOL STUDENT INTERESTS IN VOCATIONAL TECHNICAL TRAINING

INTRODUCTION

If there is anything that can be said with great certainty about young people in the high school age group, it is that they certainly will change. Their interests and outlooks will be in an almost constant state of change. Nonetheless, it is felt that a survey, in effect a snap shot, of current high school students educational interests and plans, and their opinions with respect to job opportunities would be of value if the findings were considered broadly and were not over-interpreted. Thus, even though the sample reported is statistically sound, absolute enrollment projections for specific programs based on student interests as revealed in the survey would be risky indeed. On the other hand, the overall findings provide valuable insights into the mainstream of current student thinking in the area of interest to this study.

To obtain the information reported on this section all high school students in the 20-county Central Kentucky area were asked to complete a questionnaire. The questionnaires were administered at school by teachers and administrators from each school system in the study area. The completed questionnaires were then systematically sampled under controlled conditions at Spindletop Research. This sampling approach was used to ease the burden on school administrators; a rigorous sampling procedure would have been exceedingly time consuming for them.

The sample design provided for all of those who indicated that they were enrolled in vocational programs to be identified and their responses tabulated separately. Their responses are reported under the category Vocational. The questionnaires completed by the other students were sampled in proportion to school enrollment. The sample was drawn in two increments, each of approximately five percent of the high school population. Substantial agreement between the two increments obviated the necessity for an additional incremental sample. These responses were tabulated as a group, and the results are reported under the term General.

ENROLLMENT DISTRIBUTION

The previous section of this report presented the enrollment distribution among the various available programs as reported by school administrators and was based on offical school records.

Table 5 shows how the offical record contrasts with the programs in which the students perceive they are enrolled.

Table 5
Program Enrollment Distribution as Seen
by Students Versus School Enrollment Data

Program	Enrollment as reported by: School Administrators	Students
Industrial and Technical	4.2	6.1
Vocational Business (Commercial)	15.1	18.6
Vocational Agriculture	4.8	6.8
Vocational Home Economics	7.3	7.8
Distributive Education	1.0	1.2
College Preparatory	39.8	27.6
General	27.8	26.6
Other	--	3.4
Did not answer	--	1.9
Total	100.0	100.0

These differences are presented to point out a typical data problem faced by the school administrators. School records offer also only a snap shot just as do the survey findings. Many of the students have undoubtedly changed their program direction but have not yet informed the school officials. Others probably do not have a clear sense of direction and might be expected therefore to mark one program one time and another the next.

Nonetheless, the overall pattern is clear even though details are not so certain. Enrollment is about evenly distributed between vocational, college, and general programs as shown both by school enrollment data and by the survey.

UNMET DEMAND FOR VOCATIONAL-TECHNICAL TRAINING

Program Preferences

In order to determine the unmet demand, if any, for vocational programs, Central Kentucky high school students were asked to

indicate in which high school programs they would enroll if all were available in their school. Table 6 shows current enrollment compared with desired enrollment. The comparison shows that most students enrolled in college preparatory programs and in vocational programs would stay in these programs no matter which of the other programs were available. On the other hand, a significant number of the students now enrolled in a "General Program" indicated they would switch to a vocational program if the right one were available.

Table 6
Current Student Enrollment Compared
With Student Preferred Enrollment

Program	Program Enrollment Distribution			
	General Students		Vocational Students	
	Current	Desired	Current	Desired
Industrial and Technical	--	9.6	15.3	12.9
Vocational Business (Commercial)	--	11.3	45.8	34.9
Vocational Agricultural	--	2.9	16.9	11.4
Vocational Home Economics	--	5.4	19.1	11.0
Distributive Education	--	3.9	2.9	3.1
College Preparatory	46.4	44.3	--	7.3
General	44.7	9.5	--	1.3
Other	5.7	1.1	--	2.3
Did not answer	3.2	12.0	--	15.8
Total	100.0	100.0	100.0	100.0

Examination of the profile of the vocational programs desired by the students not now enrolled in vocational programs indicates that the current demand for vocational agriculture programs is the one now best being met by area schools. Business education and industrial and technical programs placed first and second, respectively, when the data are ranked by desired vocational program enrollment for both the general and vocational students.

Taken in entirety, these data indicate that if business education and industrial and technical vocational programs were more readily available throughout Central Kentucky, enrollment in these two curricula would increase significantly.

Vocational Course Preferences

To further explore high school students' interests in vocational training, students were given the opportunity to select--from a list of courses taught in vocational programs throughout the state--those which they would take if available in their school. Table 7 shows the responses to this question. While 10.2 percent of the general students indicated they would take none of the

Table 7
Vocational Courses Desired

Vocational Courses	Percent of Total Responses by Students Enrolled as: General	Vocational
Auto Body Repair	4.5	4.8
Auto Mechanics	7.7	8.2
Electronics	8.1	3.4
Drafting	6.1	5.4
Electrical Appliance Repair	0.6	1.9
Industrial Electricity	0.8	1.1
Machine Shop	1.8	3.1
Radio and TV Repair	1.6	1.9
Sheet Metal	0.6	0.8
Tool Design	0.9	1.2
Automatic Transmission Repairman	1.8	2.1
Clerk-Stenographer	6.4	12.5
Office Machine Repairman	0.6	0.4
Industrial Machine Repairman	0.7	0.5
Photolithographer	1.0	0.7
Refrigeration Repairman	0.3	0.3
Practical Nursing	9.4	7.8
Welding	2.9	5.0
Bookkeeping	8.7	10.2
Typist	18.0	22.8
Other	7.3	4.0
None	10.2	1.9
Total	100.0	100.0
Average number of choices per respondent	1.31	1.34

courses listed, only 1.9 percent of the vocational students showed no interest in taking other courses. Clerical courses had the largest following in both the General and Vocational groups. Drafting, electronics, and auto mechanics as well as practical nursing also drew a significant number of responses. Perhaps of greatest interest is the small percentage interested in taking the Machine Shop course, particularly in the light of the high proportion of openings forecast by area employers which require these kind of skills. (See Section V of the report on Training Needs in Central Kentucky.) On the other hand the student interest profile seems in line with the needs employers reported for clerical occupations.

STUDENTS PERCEPTIONS OF SCT EMPLOYMENT OPPORTUNITIES

A large mismatch between employers needs and student perception of employment opportunities can result in enrollment in vocational programs which do not lead to ready employment opportunities. To gain some insight into high school students' views of the SCT employment opportunity situation, they were asked to indicate which occupations--from a long list of occupations--they thought offered good employment opportunities. In addition to the jobs listed, spaces were provided for them to name any additional occupations which they felt offered good employment opportunities in Central Kentucky.

Table 8 lists the occupations and shows for each the percentage of respondents who indicated it was an occupation offering good employment opportunity. Each occupation was rank ordered on the basis of frequency of choice by the vocational program respondents. The correspondence between the responses of the Vocational and the General category students is quite close as examination of the table reveals.

Very little use was made of the eleven opportunities to name an occupation not listed. This suggests that the high school respondents either took the path of least resistance and checked only those occupations listed or that they had such a limited view of the world of work that they had no alternative but to choose among those listed. The preponderance of service occupations in the upper end of the rank order scale would tend to indicate they selected as opportunities those occupations with which they or their families had most frequent contact. The principal exception is in the clerical category.

Table 8
SCT Employment Opportunities as Perceived
by Central Kentucky High School Students

Occupation	Vocational Students		General Students	
	Rank Order	Percent Checking	Rank Order	Percent Checking
Salesman-Saleswoman	1	62.6	2	60.1
Beautician	2	59.1	7	49.8
Automobile Mechanic	3	57.4	5	52.5
Registered Nurse	4	55.4	1	60.7
Electrician	5	54.8	3	58.1
Typist	6	53.7	13	44.5
Dental Technician	7	53.0	4	53.7
Steno-Secretary	8	52.4	6	50.3
Bank Clerk	9	50.5	10	45.7
Waiter-Waitress	10	49.7	16	42.7
Office Machine Operator	11	49.0	12	44.8
Mechanical Technician	12	48.5	14	43.5
Carpenter	13	47.3	15	43.1
Practical Nurse	14	45.0	17	40.3
Barber	15	44.3	9	46.7
Electronics Technician	16	44.2	8	46.8
TV & Radio Serviceman	17	43.4	11	45.4
Farm Machine Serviceman	18	39.1	25	32.6
Agricultural Technician	19	38.0	18	39.9
Brick Layer	20	35.9	24	33.0
Restaurant Manager	21	35.4	21	36.0
Plumber	22	34.8	20	36.2
Bank Teller	23	34.4	10	45.7
Cook-Chef	24	33.3	23	33.8
X-ray Technician	25	31.3	19	38.0
Farm Manager	26	30.9	25	32.6
Computer Operator	27	27.5	26	30.1
Junior Accountant	28	25.8	29	24.7
Business Machine Serviceman	29	24.2	28	25.2
Air Conditioner and Refrigerator Serviceman	30	19.2	31	22.1
Chemical Technician	31	16.2	30	24.3
Computer Programmer	32	13.2	32	21.0
Other Health Technician	33	5.4	33	8.6
Other Health Service	34	5.1	34	6.1
Control Technician	35	4.3	35	5.3
Other General Service	36	2.8	36	3.2
Other Sales	37	2.2	39	3.0

Table 8 (cont.)

Occupation	Vocational Students		General Students	
	Rank Order	Percent Checking	Rank Order	Percent Checking
Other Banking	38	2.0	37	3.2
Other Agricultural	39	1.5	38	3.0
Other Clerical	40	1.3	43	1.5
Other Building Trade	41	1.2	42	1.6
Other Mechanic and Repair	42	1.2	45	.9
Other Technician	43	1.2	44	1.3
Other Business	44	1.0	40	2.1
Other Restaurants	45	0.2	41	1.6

Table 9 was developed to show the needs as expressed by employers in contrast to the opportunities as seen by the students. In effect, this table presents a profile of the occupational needs anticipated by employers who responded to the questionnaire and a profile of the SCT job opportunities as the students see them. More than 83 percent of the openings anticipated by responding employers by 1970 are included in the index categories a, b, and c.

The employers reported needs for 73 different skilled occupations. Nineteen of these occupations had a five-year anticipated need of 50 or greater. Only three of the 19 were included as sample occupations on the student questionnaire (carpenter, auto-mechanic, cook-chef). Less than 60 percent of the vocational students perceived the occupation of auto-mechanic as a good employment opportunity. Less than 50 percent of the vocational students perceived carpenter as a good employment opportunity, and less than 35 percent saw cook-chef as a good opportunity. On the other hand, several occupations considered by employers as having five-year needs below 50 were perceived by students as good job opportunities.

Even after discounting the bias caused by not providing a complete list of skilled occupations, it is clear that the students' perception of skilled employment opportunities differs markedly from the needs reported by employers.

COURSE SELECTION GUIDANCE SOURCES

To obtain information with respect to the guidance sources students perceive as being influential with them, students were asked "who

Table 9

Central Kentucky SCT Employment Opportunity Profile Reported by Employers And Perceived by Students

Occupation	Need/Opportunity Profile		
		Students	
	Employers	Vocational	General
Skilled			
Machine Operator	a	o	o
Utility Lineman	a	o	o
Maintenance Man	a	o	o
Offset Press Operator	a	o	o
Carpenter	b	B	B
Machinist	b	o	o
Cook-Chef	b	B	B
Drill Press Operator	b	o	o
Meat Cutter	b	o	o
Machine Repair	b	o	o
Operating Engineer	c	o	o
Tool and Mold Maker	c	o	o
Auto Mechanic	c	A	A
Inspector	c	o	o
Assembly Adjuster	c	o	o
Tool & Die	c	o	o
Clay Finishing	c	o	o
Welder	c	o	o
Sewing Machine Operator	c	o	o
Salesmen	-	A	A
Beautician	-	A	A
Electrician	d	A	B
Waiter-Waitress	-	B	B
Barber	-	B	B
Radio TV Serviceman	d	B	B
Farm Machine Serviceman	d	B	C
Brick Layer	d	B	B
Plumber	d	B	B
Business Machine Serviceman	d	C	C
Air Conditioning Serviceman	d	D	D
Clerical			
Switchboard Operator	a	o	o
Secretary-Steno	a	A	A
Office Machine Operator	a	B	B
Accounting Clerk	b	o	o

Table 9 (cont.)

Occupation	Need/Opportunity Profile		
		Students	
	Employers	Vocational	General
Clerical (cont.)			
Bookkeeper	c	A	B
Key Punch Operator	c	--	--
Clerk	c	--	--
General Clerk	c	--	--
Dispatch Clerk	c	--	--
Bookkeeping Machine Operator	c	--	--
Bank Teller	c	B	B
Typist	d	A	B
Computer Operator	d	C	C
Technical			
Draftsman	a	--	--
Registered Nurse	b	A	A
Industrial Technician	b	--	--
Practical Nurse	b	B	B
Engineering Technician	b	--	--
Medical Technician			
Junior Accountant	c	C	C
Mechanical Technician	c	B	B
Laboratory Technician	c	C	B
Electronics Technician	d	B	B
Agricultural Technician	d	B	B
Farm Manager	d	C	C
Chemical Technician	d	D	D
Computer Programmer	d	D	D
Control Technician	d	--	D

Profile Index Key

Employers:

a - More than 200 openings anticipated by 1970

b - Between 100 and 200 openings anticipated by 1970

c - Between 50 and 100 openings anticipated by 1970

d - Less than 50 openings anticipated by 1970--only occupations named by students were listed in this category. See Appendix C of main report for full listing of occupations.

- - No data reported on this occupation.

Table 9 (cont.)

Students:
- A - 50% or more students checked as good employment opportunity
- B - More than 33% but less than 50%
- C - More than 25% but less than 33%
- D - More than 5% but less than 25%
- o - Less than 5% or no students checked as good employment opportunity.

Source: Employer Respondent Data from Appendix C, Skilled Clerical and Technical Training Needs in Central Kentucky, Spindletop Research. Student perceptions from survey data.

encouraged you to take the courses you are now taking, or gave you information that led you to believe they were good courses to take?" The summary of the students responses is shown in Table 10. The students were encouraged to check as many guidance sources as they needed and the data shown is expressed in term of percentage of total responses.

Table 10
Course Guidance Sources

Guidance Source	Student Responses Vocational (%)	General (%)
Mother	22.9	22.8
Father	15.5	17.4
Other Adult	6.6	4.0
Older Brother or Sister	9.6	9.1
Teacher	13.5	13.6
Guidance Counselor	9.4	12.1
Friend your own age	14.0	10.9
Other	8.5	10.1
Total	100.0	100.0

The pattern of the students responses indicate that family is the major influence on course selection and that the mother is the most influential member of the family in this regard. Vocational students indicated teachers had more impact on their course selection than did their guidance counselors; the general category students gauged

their impact to be about the same level. For both categories of students, teachers and guidance counselors combined accounted for less than 25 percent of the responses. It is clear that the majority of the students regard their families as their principal source of guidance.

POST HIGH SCHOOL PLANS

The last two items of the students' questionnaire were designed to discover their post high school plans. They were first asked to indicate their post high school plans, given a variety of alternatives from which to chose. Then they were asked what they would do if they were unable to follow their first choice. The results of these items are summarized in Table 11.

About one-fifth of the vocational category students and one-half of the general students said they planned to enter a four-year college on graduation from high school. One-fourth of the vocational and one-tenth of the general students indicated they would enter some form of vocational or technical training school.

The information concerning alternative plans revealed that one-third of the students had no alternative plans and that very few of the 53.8 percent of the general students who planned to attend college planned to go to a vocational school if their college plans did not materialize.

Table 11
Post High School Plans and Alternates

Options	Vocational Students		General Students	
	Plan	Alternate	Plan	Alternate
Enroll in a 4-year college	19.2%	3.0%	53.8%	5.5%
Enroll in a 2-year college	6.5	3.9	3.5	10.8
Enroll in a vocational or technical school	25.0	12.1	9.9	8.3
Enroll in another school	4.5	2.5	5.3	3.2
Sub-total	55.2	21.5	72.5	27.8
Go to work	16.2	16.5	6.7	9.4
Go to work and attend school part-time	1.4	3.8	.7	7.2
Enter military service	5.8	9.8	4.6	10.8
Become a housewife	4.2	8.2	1.5	3.6
Undecided	15.0	34.3	10.4	35.7
Did not answer	2.2	5.9	3.6	5.5
Total	100.0%	100.0%	100.0%	100.0%

V. GUIDANCE COUNSELORS VIEWS

INTRODUCTION

Introducing occupational information relative to the world of work into school systems is becoming the function of the guidance counselor. A relative newcomer to the educational scene, the guidance counselor can be a key contact point with the students. Even in schools without formal guidance programs, occupational guidance is usually provided by some means, either formal or informal. In some cases the school administration provides orientation meetings; in others the information is provided to parents through PTA meetings. Often interested teachers informally provide students with occupational advice.

To obtain the views of those engaged in guidance, each school superintendent in the 20-county study area was asked to administer a special questionnaire to his guidance counselors and/or to others frequently engaged in guidance work in his system. Those engaged in guidance counseling were asked two basic questions. The first was designed to obtain a profile of their views on SCT job opportunities and the second to ascertain their opinion as to which vocational courses needed to be made more widely available.

SCT Employment Opportunity Profile

Those engaged in guidance of high school students were asked to indicate, for each entry in a long list of occupations, whether they felt job applicants for that job were in short supply, in balance, or in oversupply, or to indicate that they had no opinion. Table 12 provides a summary of their responses.

Few of the respondents felt job applicants were in oversupply for any of the occupations. In fact, if the "In Short Supply" and "In Balance" columns are considered together, one would conclude that as a group the respondents were optimistic about employment possibilities in all of the occupations listed. A lack of job opportunity knowledge on the part of many of those engaged in counseling is testified to by the number of rather high percentages in the "No Opinion" column.

Table 13 compares the SCT job opportunity perception of the students and counselors with the job opportunities found in the employer need survey. In general those engaged in guidance are more optimistic about occupation opportunities than are the students.

Table 12

Central Kentucky SCT Employment Opportunities
Perceived By Counselors

Occupation	Percentage of Guidance Counselors Seeing Job Applicants: In Short Supply	In Balance	In Over Supply	No Opinion
Technicians				
Dental	67.0	17.0	2.1	13.8
Electronics	64.9	6.4	0.0	28.7
X-Ray	64.9	10.6	4.3	20.2
Computer Operator	61.7	9.6	2.1	26.6
Chemical	59.6	6.4	0.0	34.0
Computer Programmer	58.5	8.5	5.3	27.6
Mechanical	57.4	14.9	1.1	26.6
Junior Accountant	57.4	23.4	1.1	18.1
Office Machine Operator	53.2	20.2	3.2	23.4
Steno-Secretary	47.9	38.3	6.4	7.5
Farm Machine Serviceman	41.5	28.7	7.5	22.4
Agricultural	39.4	29.8	6.4	24.4
Control	36.2	9.6	0.0	54.3
Typist	34.0	52.1	6.4	7.5
Farm Manager	29.8	33.0	9.6	27.6
Salesman	22.3	50.0	12.8	14.9
Medical	4.2	0.0	0.0	95.8
Service				
Registered Nurse	81.9	5.3	4.3	8.5
Practical Nurse	76.6	10.6	5.3	7.5
Air Conditioner and Refrigerator Serviceman	71.3	13.8	2.1	12.8
Electrician	66.0	21.3	4.3	8.5
Plumber	63.8	18.1	4.3	13.8
Brick Layer	60.6	27.7	1.1	10.6
Business Machine Serviceman	58.5	16.0	0.0	25.6
Carpenter	55.3	29.8	5.3	9.6
Cook-Chef	54.3	27.6	2.1	16.0
Auto Mechanic	54.2	28.7	7.5	9.6
TV & Radio Serviceman	46.8	37.2	4.3	11.7
Barber	17.0	59.6	7.5	15.9
Bank Clerk & Related	13.8	58.5	6.4	21.3
Beautician	12.8	51.1	21.1	15.0

Table 12 (cont.)

Occupation	Percentage of Guidance Counselors Seeing Job Applicants: In Short Supply	In Balance	In Over Supply	No Opinion
Service (cont.)				
Tellers	10.6	59.6	5.3	24.4
Lab Technicians	2.1	0.0	0.0	97.9
Quality Control	1.1	0.0	0.0	98.9
Painter	1.1	0.0	0.0	98.9
Paper Hanger	1.1	0.0	0.0	98.9
Plasterer	1.1	0.0	0.0	98.9
Tool & Die Maker	1.1	0.0	0.0	98.9
Agriculture Teacher	0.0	1.1	0.0	98.9

Table 13

Central Kentucky SCT Employment Opportunity Profile
As Reported By Employers, Students, and Counselors

Occupation	Need/Opportunity Profile			
			Students	
Skilled	Counselors	Employers	Vocational	General
Machine Operator	o	a	o	o
Utility Lineman	o	a	o	o
Maintenance Man	o	a	o	o
Offset Press Operator	o	a	o	o
Carpenter	A	b	B	B
Machinest	o	b	o	o
Cook-Chef	A	b	B	B
Drill Press Operator	o	b	o	o
Meat Cutter	o	b	o	o
Machine Repairman	o	b	o	o
Operating Engineer	o	c	o	o
Tool and Mold Maker	o	c	o	o
Auto Mechanic	A	c	A	A
Inspector	o	c	o	o
Assembly Adjuster	o	c	o	o
Tool & Die Maker	o	c	o	o
Clay Finishing	o	c	o	o
Welder	o	c	o	o
Sewing Machine Operator	o	c	o	o
Salesman	D	-	A	A
Beautician	D	-	A	A
Electrician	A	d	A	B
Waiter-Waitress	C	-	B	B
Barber	D	-	B	B
Radio-TV Serviceman	B	d	B	B
Farm Machine Serviceman	B	d	B	C
Brick Layer	A	d	B	B
Plumber	A	d	B	B
Business Machine Serviceman	A	d	C	C
Air Conditioning Serviceman	A	d	D	D
Clerical				
Switchboard Operator	o	a	o	o
Secretary-Steno	B	a	A	A

Table 13 (cont.)

Occupation	Need/Opportunity Profile			
			Students	
Clerical (cont.)	Counselors	Employers	Vocational	General
Office Machine Operator	A	a	B	B
Accounting Clerk	o	b	o	o
Bookkeeper	D	c	A	B
Key Punch Operator	o	c	o	o
Clerk	o	c	o	o
General Clerk	o	c	o	o
Dispatch Clerk	o	c	o	o
Bookkeeping Machine Operator	o	c	o	o
Bank Teller	D	c	B	B
Typist	B	d	A	B
Computer Operator	A	d	C	C
Technician				
Draftsman	o	a	o	o
Registered Nurse	A	b	A	A
Industrial Technician	o	b	o	o
Practical Nurse	A	b	B	B
Engineering Technician	o	b	o	o
Medical Technician				
Junior Accountant	A	c	C	C
Mechanical Technician	A	c	B	B
Laboratory Technician		c	C	B
Electronics Technician	A	d	B	B
Agricultural Technician	B	d	B	B
Farm Manager	C	d	C	C
Chemical Technician	A	d	D	D
Computer Programmer	A	d	D	D
Control Technician	B	d	o	D

Profile Index Key

Employers:

a - More than 200 openings anticipated by 1970
b - Between 100 and 200 openings anticipated by 1970
c - Between 50 and 100 openings anticipated by 1970
d - Less than 50 openings anticipated by 1970--only occupations named by students were listed in this category. See Appendix C of main report for full listing of occupations.
- - No data reported on this occupation.

Table 13 (cont.)

Students & Counselors:

A - 50% or more checked as good employment opportunity
B - More than 33% but less than 50%
C - More than 25% but less than 33%
D - More than 5% but less than 25%
o - Less than 5% or none checked as good employment opportunity

Source: Employer Respondent Data from Appendix C, "Training Needs in Central Kentucky", Spindletop Research.
Student Perceptions from survey data.

Those engaged in guidance were also asked to review the list of vocational courses currently being offered in Central Kentucky and to indicate which they felt should be made more available, less available, kept the same, or dropped. The responses to this question are summarized in Table 14.

In keeping with their general optimism with respect to SCT occupations, from one-half to two-thirds of the guidance counselors felt that 14 of the 20 current vocational courses listed should be made more available. Very few felt any of the courses should be dropped or made less available.

The lack of occupational information mentioned earlier appears again here. For example, 46 percent of the respondents had no opinion on whether the photolithographer course needed to be made more or less available. About one-fourth were uncertain about industrial electricity, tool design, sheet metal, and industrial machine repair courses.

Table 14

Vocational Course Availability Reported By Guidance Personnel

Vocational Courses	Guidance Personnel (Percent) Felt the Course Should Be: Made More Available	Made Less Available	Kept About the Same	Dropped	No Opinion
Auto Body Repair	67.0	0.0	25.5	0.0	7.5
Auto Mechanics	75.0	3.3	16.3	0.0	5.4
Drafting	60.2	4.3	25.8	0.0	9.7
Electronics	74.2	0.0	18.3	0.0	7.5
Electrical Appliance Repair	67.3	0.0	22.8	0.0	9.9
Industrial Electricity	56.0	0.0	19.8	0.0	24.2
Machine Shop	60.2	0.0	26.9	0.0	12.9
Radio & TV Repair	60.2	4.3	28.0	0.0	7.5
Sheet Metal	38.7	1.1	30.1	0.0	30.1
Tool Design	57.0	0.0	18.3	0.0	24.7
Auto Transmission Repair	63.4	1.1	23.7	1.1	10.8
Clerk-Steno	44.7	3.2	41.5	0.0	10.6
Office Machine Repair	58.1	1.1	23.7	0.0	17.2
Industrial Machine Repair	47.3	3.2	22.6	0.0	27.0
Photolitheographer	30.1	0.0	23.7	0.0	46.2
Refrigerator Repair	53.8	3.2	23.7	0.0	19.4
Practical Nursing	76.3	1.1	16.1	0.0	6.5
Welding	58.1	1.1	23.7	0.0	17.2
Bookkeeping	43.0	4.3	43.0	0.0	9.7
Typist	42.6	3.2	46.8	0.0	7.4

VT 001 213

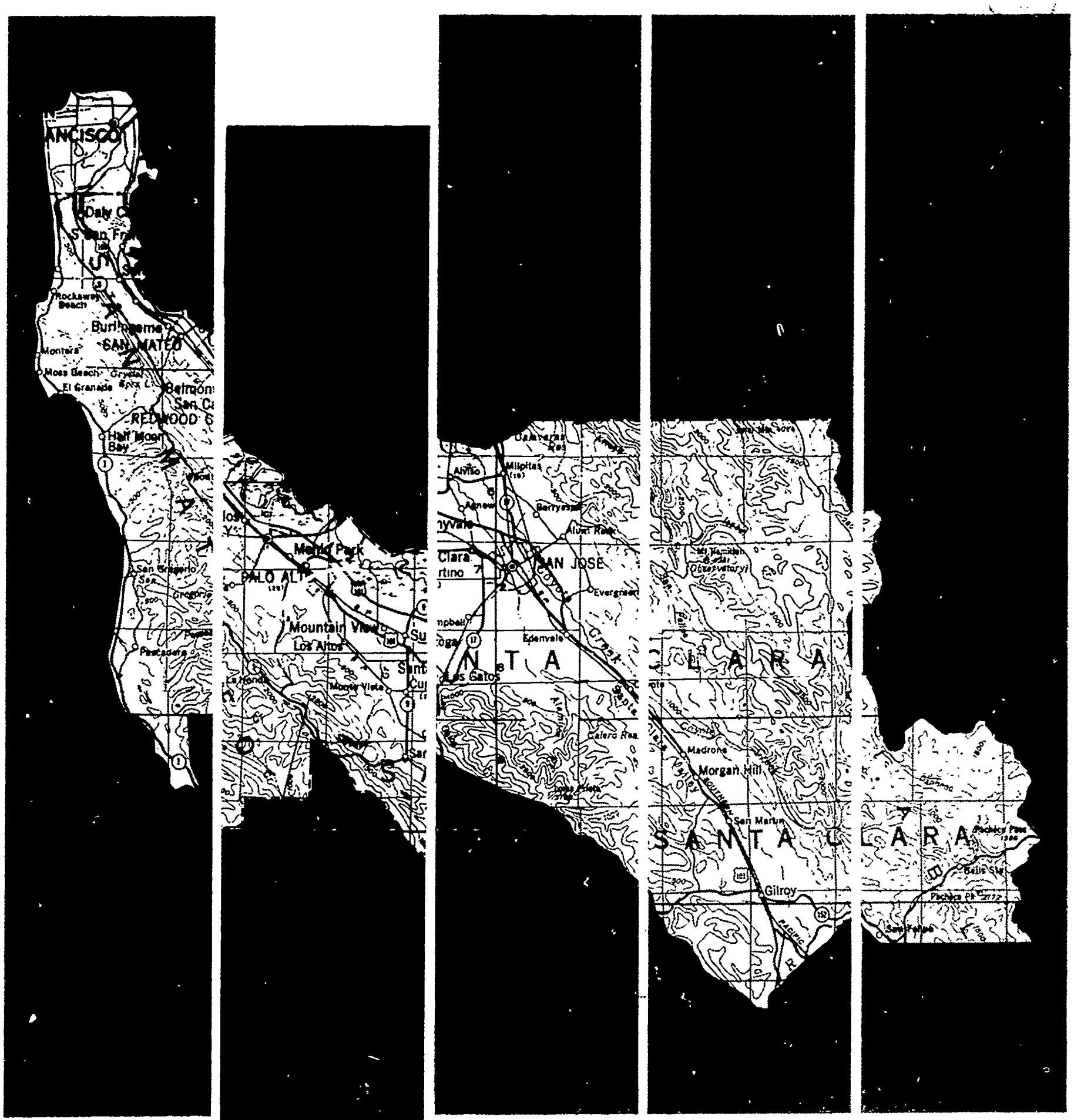
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Science and Engineering Technician Study, A Study of Employment and Education and Science and Engineering Technicians in San Mateo and Santa Clara Counties, California.

California State Dept. of Education, Sacramento. Instructional Materials Laboratory
San Mateo Coll., Calif.
San Jose City Coll., Calif.
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*ENGINEERING TECHNICIANS; *SUBPROFESSIONALS; QUESTIONNAIRES; JOB ANALYSIS; EMPLOYMENT PROJECTIONS; EMPLOYMENT STATISTICS; *OCCUPATIONAL CLUSTERS; OCCUPATIONAL INFORMATION; MATHEMATICS; EDUCATIONAL BACKGROUNDS; TECHNICAL EDUCATION; EDUCATIONAL NEEDS; OCCUPATIONAL SURVEYS
SAN MATEO COUNTY; SANTA CLARA COUNTY; CALIFORNIA

The purposes of this study were: (1) to identify and enumerate science and engineering personnel employed by industry, (2) to make a job analysis of the work of technicians, and (3) to determine the role of junior colleges in training technicians. A "Company Questionnaire" and a "Technician Questionnaire" collected data from 207 firms which employed 3,167 technicians and 10,346 professionals. Job titles were identified for 88 jobs in 19 occupational areas: aeronautical, ceramic, civil, design, electrical, electromechanical, industrial, mechanical, metallurgy, mining, nuclear, plastics, chemistry, geology, physics, mathematics, meteorology, biological science, and food chemistry. Electronics and drafting technicians were omitted because programs existed in these areas. Employer's projections indicated a need for an additional 2,294 technicians in 1963 and 2,382 for 1965. Major sources of technicians were (1) upgraded employees, (2) new but experienced employees, (3) new employees with junior college background, and (4) professional employees. Preferred sources coincided with these employee sources. More than 50 percent of the technicians had completed 2 years of college and were continuing to attend courses. Over 80 percent of the companies reimbursed employees for advanced course work. Statistical data are given for: (1) technician employment, (2) women technicians, (3) ratio of technicians to professional and to total employees, (4) distribution of technicians by college district and occupational family, and (5) sources and training of technicians. Data are also given on mathematical competencies by occupational family. (EM)

ED027441



SCIENCE AND ENGINEERING TECHNICIAN STUDY

CALIFORNIA STATE DEPARTMENT OF EDUCATION • MAX RAFFERTY, SUPERINTENDENT OF PUBLIC INSTRUCTION • SACRAMENTO 1964

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SCIENCE AND ENGINEERING TECHNICIAN STUDY

A Study of Employment and Education and Science and Engineering Technicians in San Mateo and Santa Clara Counties, California • A Tri-college Cooperative Study

College of San Mateo • Foothill College • San Jose City College

California State Department of Education
Sacramento, 1964

INSTRUCTIONAL MATERIALS LABORATORY
BUREAU OF INDUSTRIAL EDUCATION

FOREWORD

Rapid growth in the number of technicians needed by California industry has become an increasingly important and complex phenomenon in the state during the past two decades. Training competent technicians has become equally important and complex.

In order to provide educational programs for technicians, the junior colleges of the state have developed and currently offer a variety of technical education courses. The California State Department of Education participates in these programs by assisting wherever and whenever possible in the further development of worthwhile technical curriculums.

It is hoped that this survey of science and engineering technicians will be of value in encouraging the continuing development of occupation-centered curriculums, thus contributing to the enrichment of one of California's primary sources of competent and well-trained technical workers.

Max Rafferty

Superintendent of Public Instruction

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PREFACE

Three colleges--College of San Mateo, Foothill College, and San Jose City College--participated in a study of science and engineering technicians in Santa Clara and San Mateo Counties in order to determine the industrial role of those technicians and the part of junior colleges in training them. This report represents the findings of that study.

The study and continuing phases of the tri-college project are under the following members of an executive committee:

Joseph C. Bellenger, Director of Vocational Education, San Jose Unified School District

Nathan H. Boortz, Director of Technical Education, Foothill College

P. M. Bliss, Dean of Instruction San Jose City College

Jacob H. Wiens, Coordinator, Technician Program Development, College of San Mateo

Members of this committee were responsible for the conception, assistance, and policy decisions of the study.

In order to study intensively the employment and education of science and engineering technicians on the San Francisco Peninsula, the three colleges applied jointly for and received a study grant through Title VIII of the National Defense Education Act of 1958. The study, under the provisions of the grant, is consistent with the intent and purposes of the California Plan for Vocational Education.

RICHARD M. CLOWES
Chief, Division of Instruction

WESLEY P. SMITH
Director of Vocational Education

ERNEST G. KRAMER
Chief, Bureau of Industrial Education

INTRODUCTION

California junior colleges are faced with an ever-increasing challenge to keep abreast of industry's demands for well-trained and competent technicians. This need has increased at a phenomenal rate in recent years because of California's growing industrial community and advancements in technologies.

The project to identify the industrial role of science and engineering technicians and determine training needs appropriate for junior college participation was conducted as a large and well-coordinated effort by many groups and individuals. Hundreds of man hours were expended by representatives of 207 companies and members of the advisory committee participating in interviews and questionnaire responses. Data gathered by Robert P. Thompson, survey director, was compiled through the technical assistance of Dr. Melvin Barlow, Director, Division of Vocational Education, and Dr. William Schill, Research Consultant for Technical Education, with the cooperation of the Western Data Processing Center, University of California, Los Angeles.

Additional compilations and organization of the report were made by the executive committee with the assistance of the Instructional Materials Laboratory, Bureau of Industrial Education, California State Department of Education.

JOSEPH C. BELLENGER
Director of Vocational Education
San Jose Unified School District

NATHAN H. BOORTZ
Director of Technical Education
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JACOB H. WIENS
Coordinator
Technician Program Development
College of San Mateo

ADVISORY COMMITTEE

Acknowledgment is given to the members of the advisory committee and and the companies they represent for their assistance in the planning and execution of projects within the scope of the survey. The following individuals served as committee members:

Victor Buell	Hewlett-Packard Corporation
William S. Cox, Jr.	General Electric Company
Burton W. Davis	Western Gear Corporation
John Doolittle	Ampex Data Products Company
George F. Gayer	Westinghouse Electric Corporation
DeWitt J. Griffin	Goudie & Griffin, Architects
George M. Grist	Food Machinery & Chemical Corporation
William H. Gunder	International Business Machines
Norman E. Hansen	Sylvania Electric Products
Leslie N. Olsen	United Technology Corporation
Edgar A. Post	Stanford Research Institute
Alfred Sigmund	Lockheed Missiles & Space Company
John Galberth*	Lockheed Missiles & Space Company

*John Galberth replaced Alfred Sigmund who joined the faculty of the College of San Mateo.

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1 SUMMARY CONCLUSIONS RECOMMENDATIONS

SUMMARY

* The technician was identified in the study by definition, not by job title. (See p. 11)

* The number of science and engineering technicians in the survey area increased at a rate of approximately 600 per year from 1958 through 1961. (See p. 13)

* The number of new technicians to be employed was estimated to increase at a rate of approximately 1100 per year from 1963 through 1965. (See p. 13)

* The ratio of technicians to professionals was approximately 1 to 3 (3167 technicians to 10,346 professionals). The range was 1 to 0.9 to 1 to 5.3. (See p. 18)

* Very few women were employed as technicians; few companies employed women technicians. (See p. 16)

* Over 50 percent of the companies secured technicians by upgrading their own personnel. They preferred this method. The only other major source was to hire experienced technicians from other fields. (See p. 47)

* The availability of technicians in most of the occupational fields studied was inadequate. (See p. 15)

* Five-sixths of all technicians reported in the study could be classified in one of the seven job families: Biology, Chemistry, Computer-Mathematics, Electrical Engineering, Electromechanical, Mechanical Engineering, and Physics. (See p. 24)

* Mathematics needed for the job ranged from beginning algebra through applied calculus. Forty-three percent of the technicians required trigonometry, with an additional twenty-three percent requiring only advanced algebra. (See p. 51)

* Within each job family, distinct patterns were found in the technician's use of equipment, materials, and concepts. However, there were job requirements common to all families. (See p. 38)

* Advancement to technician status required at least two post high school years of college work and on-the-job experience. The pattern of three years of full-time employment, including a year of part-time college preceded classification as a technician in over fifty percent of the cases surveyed. (See p. 51)

CONCLUSIONS

* More science and engineering technicians must be trained in the near future than have been trained in the immediate past.

* Industry has, to this point, assumed primary responsibility for the training of technicians.

* The person who becomes a technician must have both work experience and college training.

* The ratio of technicians to professionals is fairly constant throughout industry in this area at approximately 1 to 3. An interesting conclusion may be drawn: Management currently prefers a ratio of approximately one technician to three professionals.

* The vast variety of tools, knowledge, skills, and concepts that composes the total range of technician requirements precludes an easy solution to organizing formalized training programs. There may be some core courses applicable to all technical work--certain math requirements, for example. There may be other courses applicable to a number of technical jobs and, at the extreme, some courses applicable only to very specific jobs.

* Although the technicians were trained by a combination of on-the-job training and college courses, the junior colleges of this area have had little part in providing this training. However, when educational requirements are examined--math, science, mechanical--it is evident that junior college curriculums could well fit this need.

* Companies indicated an increasing preference for relying on junior colleges for technician training.

RECOMMENDATIONS

* Programs and courses to train technicians should be offered by the junior colleges as a part of their assigned responsibility in California's tripartite system of higher education.

* Each college should consider establishing programs to train technicians for employment in the electromechanical and mechanical engineering fields, and each college should consider other family fields in which programs meeting local needs should be established.

* The junior colleges and industry should participate in area planning to avoid unnecessary duplication of facilities and programs on the various college campuses.

* Continued liaison should be effected through joint college-industry advisory committees so that industry can become better informed on the potential for technical programs in the junior colleges.

* Working with industry, each college should identify the courses it can present to employed persons seeking upgrading to technician status.

* Colleges should explore with industry the feasibility of carrying on work experience concurrently with full- or part-time junior college schooling.

* Colleges should recognize that financial support for technician training programs is available through federal funding.

* Industry and the schools should arrive at a more precise meaning and usage of the term "technician."

2 THE STUDY

SCOPE OF STUDY

NEED

The tremendous industrial and population growth and technological advancement on the San Francisco Peninsula prompted personnel at the College of San Mateo, Foothill College, and San Jose City College to give increasing attention to technical education programs. Manpower needs that accompanied this rapid transition have impelled many groups and organizations to make surveys in a variety of vocational fields; technical programs in these fields have been developed in accordance with the findings of such surveys. However, one important vocational area has not been thoroughly investigated, that of science and engineering technicians.

PURPOSE

The purpose of the study was determined to be threefold:

1. To identify and enumerate science and engineering personnel employed by industry in San Mateo and Santa Clara Counties

2. To make a job analysis of the work of science and engineering technicians

3. To determine the role of the junior colleges in training science and engineering technicians

THE PROJECT

To carry out the above purpose, a three-phase project was planned by the executive committee:

Phase 1 - Survey industry and prepare a report, including recommendations relating to training programs at the participating junior colleges.

Phase 2 - Develop, in each junior college as appropriate, curriculums, courses, instructional materials, and facilities, and evaluate results with industries served.

Phase 3 - Continue to develop curriculum and instructional facilities to provide a steady flow of persons trained to fill science and engineering technician entry positions in industry.

Phase 1 of the project is the subject of this report. The specific objectives of Phase 1 follow:

- To determine the kind and number of science and engineering technicians currently employed in industry located in the area served by the three junior colleges.
- To determine industry's present source of these personnel.
- To determine how presently employed technicians were trained.
- To determine knowledge and skills required of these technicians.
- To determine industry's estimated manpower requirements for these technicians in 1963 and 1965.

LIMITATIONS

- The study was limited to those technicians mutually agreed by the survey team and company representatives as meeting the definition for technician as shown on page 9 of this report.
- A consideration of electronics and drafting technicians was excluded. Educational programs for these two occupations are already developed.
- The study area was limited to Santa Clara and San Mateo Counties.
- Only those companies that employed science and engineering technicians or persons performing the duties of these technicians were included in the study.

PROCEDURES FOR STUDY

SOURCES OF COMPANY SELECTION

In an effort to conduct a careful and thorough study of science and engineering technicians in the two counties, the research design was based on the universe of companies that engage in research, research and development, manufacturing, fabricating, assemblying, and/or technical servicing. A list of these companies was developed from the following sources:

Bay Area Register of Manufacturing

Directories prepared by Chambers of Commerce in each of the cities

Interviews with industrial representatives of large, medium, and small firms within the two counties

International Science Foundation's Directory of Bay Area Resources

Telephone directories (yellow pages)

DEVELOPMENT OF SURVEY QUESTIONNAIRES

The study instruments were limited to two questionnaires (See Appendix). A variety of questionnaires was drafted prior to the final selection of the two used in the survey, and procedures for a pilot study were developed. The pilot study was conducted to provide a basis for analyzing and evaluating the questionnaires, methods of interviewing, and field contact plans. More than a dozen firms representing five different types of industry in the survey area participated in the pilot study.

The several questionnaires were revised and condensed into two questionnaires, the Company Questionnaire and the Technician Questionnaire, operational procedures for the survey were refined, and criteria were established for technician positions as a result of the pilot study.

ADMINISTERING QUESTIONNAIRES

The survey director conducted personal in-plant interviews with management, scientists, engineers, first line supervisors, and technicians. No mail inquiries were made. With few exceptions, all questionnaires were completed during the interview. In addition to the questionnaire data, case study information was collected as part of the interviews. This uniformity of questionnaire completion, personal inquiry, recording of responses, and notation of significant information contributed to data reliability. Returns from individuals and companies were 99 percent complete.

The Company Questionnaire was completed by management staff of each company. When the form was completed by nontechnical persons, additional information was secured from technical staff members.

The Technician Questionnaire was completed by the technician at his work location except in the case where the work location was within a military restricted area. The technician was requested to enter his job title in the space provided at the top of the form. Under the section headings (i.e., "A. Working with

Equipment") the technician was asked to write in the "kinds" of equipment with which he works. The same pattern of write-ins was included in Sections "B" through "G". In Section "H" (mathematics) the technician wrote in the number corresponding to the highest level of mathematics that he used on the job. In addition, he indicated the frequency with which he performed each task that was outlined in the questionnaire. The technician was further interviewed to determine how he became a technician. These data are presented in Chapter 5.

IDENTIFYING JOB CATEGORIES

Numerous categories for technician jobs were determined as a result of the survey. A discussion of the evolution of those categories into seven job families is presented in the introduction to Chapter 4.

VALIDITY OF DATA

The sources of information from industry were identified in advance as management, scientists, engineers, and technicians by empirical decision of the executive committee. The structured interview and the questionnaires developed as a result of the pilot study insured consistent guidelines, providing a degree of objectivity in the investigation. Considered delimitation of the study contributed in large part to the validity of both the sources of information and the data collected during the survey. The selection of firms to be surveyed within the industry cross-section provided good sample selection that suggests a validity as good as many surveys taking a much broader sampling. Firms finally selected for survey participation were determined in advance to have employed science and engineering technicians.

Job descriptions for any given job title were found to vary widely among the firms surveyed and specific interviews with line supervisors and department managers indicated wide differences of employer opinions. Personal interviews with technicians within several firms revealed, however, a high frequency of agreement concerning job content, duties, and responsibilities.

It was assumed, therefore, that technicians' responses to questions about what they did on the job were more valid than the responses made by the supervisor as to what these workers must know and do. Further validity of this point is provided by the fact that: (1) supervising scientists and engineers indicated that they could not give a full reporting of what their technicians did without the aid of the technician to fill in the details of the job; (2) many employers stated that any attempt to write job descriptions of top technician positions depends, for the most part, on information from the technicians themselves.

3 THE TECHNICIAN

IDENTIFICATION OF TECHNICIAN

The use of the word "technician" as a job title is surrounded by considerable ambiguity and distortion. In research, development, manufacturing, and other fields of industry, the title technician is used to identify persons working in a wide variety of jobs. The varied meanings of the title were probably a result of rapid industrial growth coupled with a coinciding scientific and technological advance in the years following World War II.

The job descriptions presented in this report define new and existing positions that are in transition. The titles "Science Technician" and "Engineering Technician" very rarely occur in industry. However, these titles have been adopted for the study to represent those technicians who work with scientists or engineers and have a background and high level of competence in one or more of the science or engineering fields.

There have been many efforts to define and classify the technician's work and his place in industry. The following statement is more precise than most in defining the job and skill level of a science and engineering technician:

> The technician is a person who works at a job which requires applied technical knowledge and applied technical skill. His work in this respect is somewhat akin to that of the engineer, but usually narrower in scope. His job also requires some manipulative skills--those necessary to handle properly the tools and instruments to perform the technical tasks.
>
> In his special field he has considerable technical knowledge of industrial processes, and knows how to apply the necessary principles of the physical sciences and mathematics. In general, he uses instruments in contrast with tools. His contribution is mainly through mental effort in contrast with muscular exertion.*

*Emerson, Lynn A., Vocational-Technical Education for American Industry, U.S. Office of Education, Circular No. 530, Washington, D.C., 1958.

SCIENCE AND ENGINEERING TEAM

San Francisco Peninsula industry has reached its highest level of production and creativity through teamwork rather than individual effort. Two basic teams have made a major contribution to this development: the professional team and the craftsman team. The role of the team members and the position of the technician in relation to them are important considerations in defining job requirements of the science and engineering technician.

Scientists and engineers. The work of the scientist and engineer is mostly mental in character. He studies and visualizes how new knowledge can be put into practice. The majority of these professionals need very little manual skill with tools and other devices. Among the many activities they engage in are: the design of tools, the planning of industrial processes, theoretical research; research and development for methods, systems, or hardware; administration duties in research or production; sales planning and development; customer engineering; assuring quality production of prototypes or manufactured products through precision testing and inspection; and long range planning for any of the above operations.

Science and engineering technicians. These technicians have made their particular contribution as members of the professional team. They engage in work that requires some of the knowledge and skills of both the professional and skilled craftsman. They know many of the basic scientific theories and apply them in helping the scientists and engineers to solve complex problems. They have some "know why" (theory) and some "know-how" (practice) and serve as a vital connecting link between the two groups.

In his unique position situated between the professional and the craftsman, the technician has his own specialized field of action. Because of recent development of this new area of work, there is no standard universally accepted by industry as to the duties and responsibilities of qualifications and training required on the job. The only area of agreement seems to be the fact that most science and engineering technicians have training equal to at least two years of college in science and/or engineering, plus two years work experience.

For the most part, this lack of agreement within industry is due to the great variety of specific tasks, further complicated by the diversity of classifications and titles by which this technician is known.

A discussion of job families presented in Chapter 4 shows the variety of activities and job titles among several of 88 titles. It is suggested that the training is different from that required for either scientists or engineers. If not different, it is most certainly less than the training required of the professional in industry.

Skilled craftsmen. The work of the engineer would be meaningless without the contribution of the skilled craftsman who carries out the engineer's ideas and converts them to hardware. A model maker, for example, fabricates a model or prototype from a design conceived by the engineer, and detailed by a draftsman or technician.

The craftsman may have some responsibilities equal to those of the engineering technician in working directly with a scientist or engineer, and although he may not have formal training beyond high school, he is a person of superior hand skill.

Figure 1 shows the relationship of science and engineering technicians and members of the craftsman and professional teams.

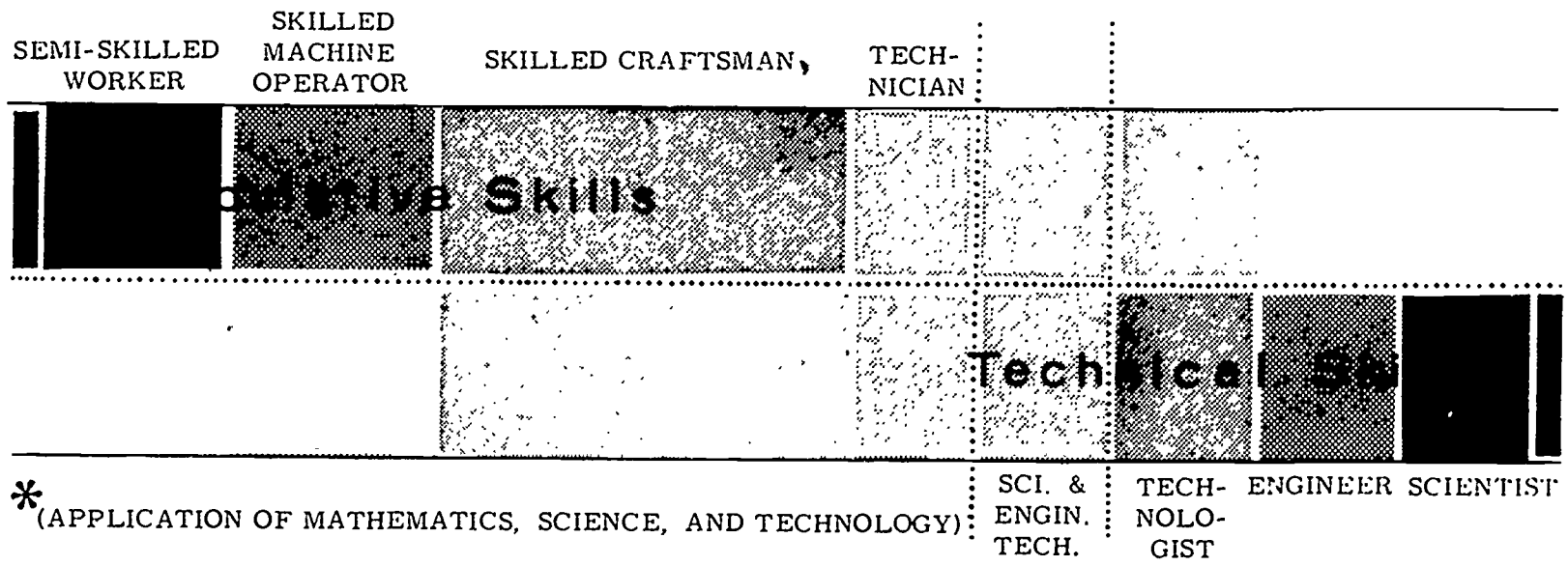


Fig. 1 Relation of Science and Engineering Technician to members of the craftsman and professional teams.

TECHNICIAN DEFINED

With this background for consideration, the following definition for the science and engineering technician was developed to provide the guidelines necessary for the study:

> SCIENCE AND ENGINEERING TECHNICIANS ARE SEMI-PROFESSIONALS WHO HAVE FORMAL TRAINING BEYOND HIGH SCHOOL BUT LESS THAN A BACHELOR'S DEGREE IN THEIR FIELD OF EMPLOYMENT; WHOSE WORK REQUIRES COMPETENCE IN ONE OF THE FIELDS OF SCIENCE OR ENGINEERING AND LIES BETWEEN THAT OF THE SKILLED CRAFTSMAN AND THE PROFESSIONAL.

TYPICAL INDUSTRY COMMENTS

Although most companies consider the technician as a member of the professional team, his work function is situated slightly nearer to that of the professional than the craftsman. Through this blending of ability, experience, and training in both groups, a new vocational area of associate professional or technologist has developed. Difficulty in defining this vocational area can be understood when it is seen that industry itself has yet to identify clearly the technician's role.

As a part of the general discussion that accompanied the survey interviews, industrial managers and other professionals were invited to make comment on the role of the technician in industry. Several direct quotations are representative of many significant remarks that reflect the views of industry, and they are presented here.

Research and development laboratory manager of a medium size production company:

> Our engineering technicians are known by several titles in our labs but they represent what we affectionately call the "monkey wrench" scientist members of our R. & D. team. We couldn't afford to run a lab if the professionals were required to do this hardware work, yet the machine shop workers could not meet the need.

Superintendent of a chemical plant:

> I didn't know anyone had stopped to identify and consider the group of top technicians who help our research people turn a concept into a product or who improve existing products or help maintain quality. We have used many university drop-outs for this work, but if the supply of these students should cease, I don't know what source we could use.

Vice-president of a communications equipment company:

> Until industry and the schools become sufficiently concerned about the supply of these men and women [Science and Engineering Technicians], we have no choice but to continue growing our own. Our company is selecting a small percentage of shop men for outside training in evening college. The best of these are promoted to the research and development labs. Our efforts would be more effective, if we could utilize a specific program in the junior college or university extension division.

President of a small solid state physics company:

> These Science and Engineering Technicians, as you call them, are not new to industry but they have created a new problem because they now occur in large enough numbers to be recognized as a group unto themselves and yet there is no reliable source of supply.

Division chairman of a research firm:

> For years we have successfully trained research-oriented production workers into science technicians. This can be a rather long and costly task and I don't believe that privately we should be expected to assume the full burden indefinitely.

NUMBER OF TECHNICIANS

Table 1 shows the number of technicians employed within the Junior College Districts of San Mateo and Santa Clara Counties.

Table 1
NUMBER OF TECHNICIANS EMPLOYED

Year	San Mateo	Foothill	San Jose	West Valley	Total
1958	312	854	199	37	1402
1959	395	1301	285	62	2043
1960	492	1573	396	88	2549
1961	576	2091	403	97	3167

Table 2 indicates the anticipated growth of technician employment in the survey area. Projections of requirements for qualified technicians made by employers

Table 2
PROJECTED NUMBER OF TECHNICIANS TO BE EMPLOYED

Year	San Mateo	Foothill	San Jose	West Valley	Total
1963	761	3834	669	197	5461
1965	999	5629	916	299	7843

of the 207 firms employing science and engineering technicians were an additional 2294 for the year 1963 and 2382 for 1965.

A further investigation of employment of technicians in the area is shown in Table 3, Technicians Employed, 1961, as Replacements, in New Positions, and in Unfilled Positions. These data were obtained in response to an item in the Company Questionnaire requesting employment information for the year 1961.

Table 3
TECHNICIANS EMPLOYED, 1961

		Men	Women	Total
As Replacements	San Jose	34	4	38
	Foothill	59	2	61
	San Mateo	86	1	87
	West Valley	14	0	14
	Total	193	7	200
In New Positions	San Jose	27	0	27
	Foothill	125	2	127
	San Mateo	54	3	57
	West Valley	6	0	6
	Total	212	5	217
Unfilled Positions	San Jose	10	1	11
	Foothill	65	0	65
	San Mateo	24	1	25
	West Valley	2	0	2
	Total	101	2	103
	GRAND TOTAL	506	14	520

The figures in this table reflect employment needs in the various college areas. In the San Jose area, for example, 38 men and women were hired during the year 1961 as replacements, 27 were hired in new positions, and there were 11 positions left unfilled. In addition, the figures support the conclusion drawn previously that the demand for technicians during 1961 does not reflect any major change in the ratio of technicians to professionals as shown in Tables 8 through 15 that follow. The total number of technicians hired in new positions during that year was 217, reflecting a growth rate of approximately 7 percent per year.

AVAILABILITY OF TECHNICIANS

In appraising the current availability of technicians in 37 major vocational fields, shown in Table 4, only two fields (chemistry and design) were assessed by industry as having many technicians available. Ten of the 37 vocational fields were

Table 4
INDUSTRY'S APPRAISAL OF CURRENT AVAILABILITY OF QUALIFIED TECHNICIANS IN 37 OCCUPATIONAL FIELDS

Many	Adequate	Few	Occupational Fields
	◀		Aeronautical
	◀		Agriculture
	◀		Animal Sciences
		◀	Atomic Energy
		◀	Bacteriology
	◀		Biochemistry
		◀	Biophysics
		◀	Ceramics
◀			Chemistry
	◀		Civil Engineering
◀			Design
	◀		Engineering Economics
		◀	Electromechanical Engineering
		◀	Experimental Psychology
		◀	Flight Test Engineering
		◀	Geology
		◀	Graphic Science
	◀		Industrial Engineering
		◀	Instrumentation
		◀	Mathematics
		◀	Mechanical Engineering
		◀	Metallurgy
		◀	Meteorology
		◀	Microbiology
		◀	Nursing
		◀	Oceanography
		◀	Optics
	◀		Pharmacy
		◀	Physics
		◀	Physiology
		◀	Plant Sciences
		◀	Plastics
		◀	Programming
		◀	Psychiatry
		◀	Rocketry
	◀		Sanitation
		◀	Test Engineering

appraised as having an adequate number of technicians available, and the majority of 25 were determined to have few. Such data give an indication of the shortage of science and engineering technicians in the survey area as estimated by company representatives.

A chi-square analysis showed that company size in the survey area was not related to technician availability.*

EMPLOYMENT OF WOMEN

A small number of women are employed as engineering and science technicians by the 207 companies, as shown in Tables 5 and 6. In each company surveyed there was a high correlation between the number of women professionals and

Table 5
NUMBER OF WOMEN TECHNICIANS EMPLOYED (New Hires)

	1958	1959	1960	1961	1963**	1965**
San Mateo	9	13	10	10	13	14
Santa Clara	24	29	35	38	157	126
TOTAL	33	42	45	48	170	140

Table 6
NUMBER OF COMPANIES EMPLOYING WOMEN TECHNICIANS

	1958	1959	1960	1961	1963**	1965**
San Mateo	5	5	6	5	6	5
Santa Clara	11	15	15	14	28	27
TOTAL	16	20	21	19	34	32

*Chi-square is the measure of data in terms of the normal U.S. population distribution as interpreted from the Population Statistics Table of Significance. In comparing the companies below the mean number of employees with those above the mean (in their responses concerning the availability of technicians), the chi-square was found to be 3.98 (with two degrees of freedom) for males and 1.09 for females. Any chi-square below 8.0 was not considered significant for this study.

**Estimated.

the number of women employed as technicians. Where women are employed as professionals they are also working as technicians. No women were found to be employed as top level technicians in industries where there were no professional women. This pattern is contrary to other levels of work where, for example, among production workers there are a large number of women employed with few or none at the professional level.

The 1963 and 1965 figures represent additions to staff as projected by industry.

Reasons given by employers for not employing women as science or engineering technicians are ranked as follows:

1. Restrictions of hours and working conditions as set forth by Title 8 of the California Administrative Code, Industrial Relations, 11345, Order Number 4-5, Employment of Women and Minors.

2. Relatively limited work expectancy of women employees as characterized by the employers' experience with female clerical workers.

3. Small number of women trained in specialized fields.

4. Working conditions unsatisfactory for women, including irregular hours, remote locations of work, occasional temperature extremes, as well as air pollution.

TECHNICIAN AND PROFESSIONAL CLASSIFICATIONS

Table 7 shows a further breakdown of technician and professional classifications. Survey data have been tabulated by college district and by the following 19 occupational fields found to be dominant in the survey area:

Aeronautical	Industrial	Geology
Ceramic	Mechanical	Physics
Civil	Metallurgy	Mathematics
Design	Mining	Meteorology
Electrical	Nuclear	Biological Science
Electromechanical	Plastics	Food Chemistry
	Chemistry	

The table may be read as follows: On the Technicians side, the third column shows data for the College of San Mateo district, and the first line shows the number of technicians employed in the aeronautical field--there were zero technicians employed in aeronautics in the San Mateo district. On the Professionals side, column 3, line 1, there were 128 professionals employed in aeronautics in the College of San Mateo district at the time of the survey.

Table 7
DISTRIBUTION OF TECHNICIANS
AND PROFESSIONALS BY JUNIOR COLLEGE DISTRICT
AND OCCUPATIONAL FIELD

Occupational Field	TECHNICIANS					PROFESSIONALS				
	Foothill	San Jose	San Mateo	West Valley	TOTAL	Foothill	San Jose	San Mateo	West Valley	TOTAL
Aeronautical	67	0	0	0	67	131	1	128	1	261
Ceramic	15	0	1	0	16	39	1	13	0	53
Civil	42	85	7	3	137	107	76	25	9	217
Design	49	3	3	2	57	370	6	69	16	461
Electrical	129	26	54	19	228	1159	260	178	62	1659
Electromechanical	537	50	205	13	805	843	50	651	33	1574
Industrial	118	4	36	3	161	389	50	133	38	610
Mechanical	424	68	143	34	669	1740	394	399	40	2573
Metallurgy	57	36	6	0	99	311	36	54	5	406
Mining	0	0	0	0	0	56	0	8	1	65
Nuclear	13	26	0	0	39	50	54	6	0	110
Plastics	33	5	8	0	46	82	0	21	2	105
Chemistry	175	40	85	16	316	396	76	198	30	700
Geology	11	0	0	0	11	31	3	16	1	51
Physics	270	29	6	6	311	532	78	61	10	681
Mathematics	101	3	8	0	112	326	31	60	5	422
Meteorology	17	0	0	0	17	127	1	24	1	153
Biology	29	11	7	1	48	114	81	13	1	209
Food Chemistry	4	17	7	0	28	4	23	6	0	33
TOTAL	2091	403	576	97	3167	6807	1221	2063	255	10346

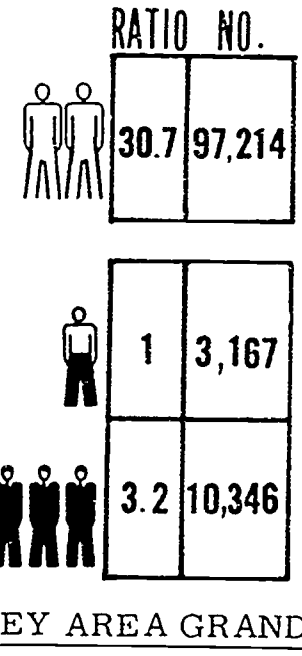
RATIO OF TECHNICIANS TO PROFESSIONALS

The tables on the following pages show the number of technicians employed and the ratio of technicians to professionals and total employees of the 207 firms surveyed. The data are classified by size of firm and by college area in order to make the information more useful for personnel at each junior college.

It is significant that a ratio of one technician to each 3.2 professionals was tabulated from the survey data. This ratio is in direct contrast to the various

estimates common in current literature, which run as high as 10 technicians to each one professional. If a greater number of technicians had been available to the firms surveyed, the ratio of technicians to professionals might have been higher. However, it can be noted from the data presented in Table 3, Technicians Employed as Replacements, in New Positions, and Unfilled Positions, 1961, that the demand for technicians by San Mateo and Santa Clara County industry for that year was not indicative of any major change in the ratio as it now exists.

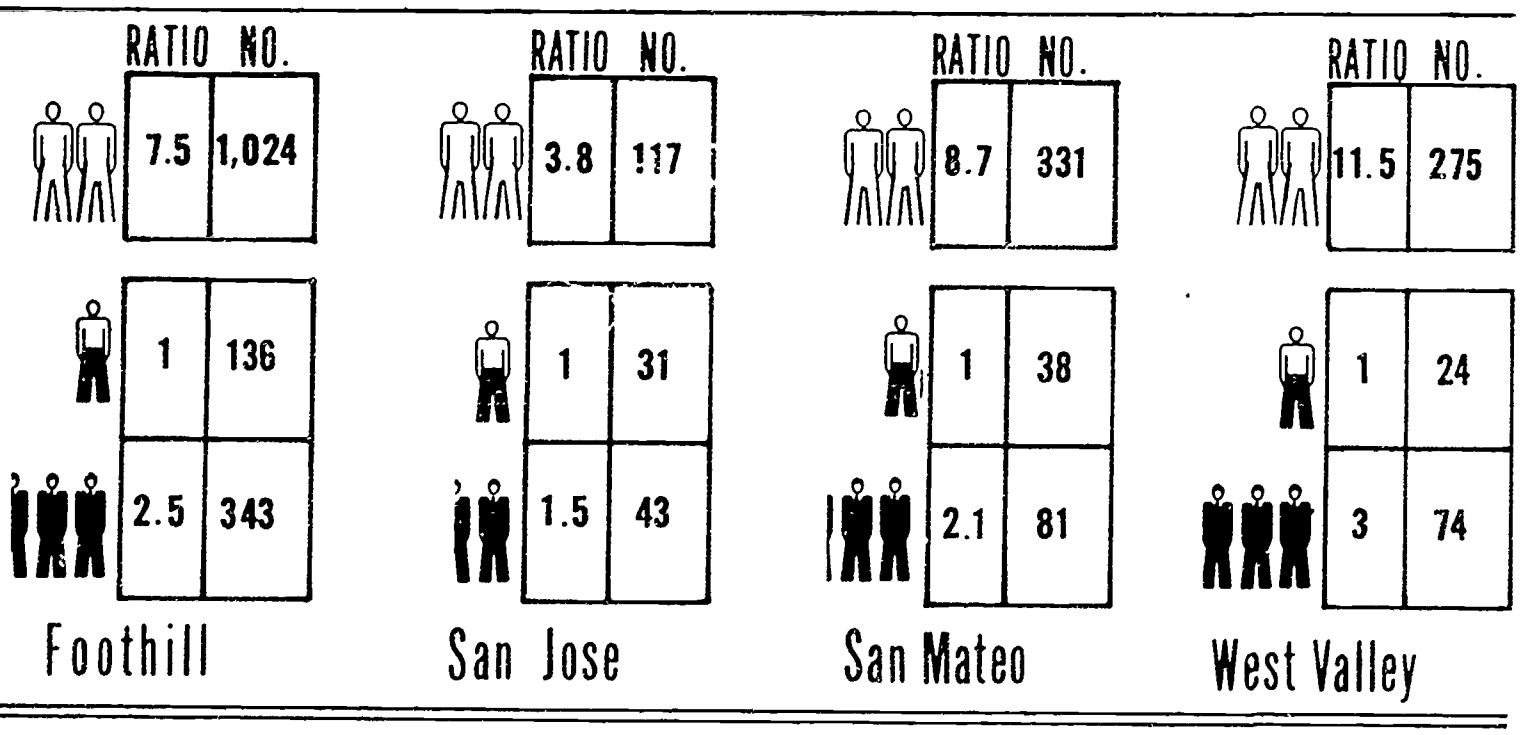
Table 8
RATIO OF TECHNICIANS TO PROFESSIONALS AND TO TOTAL EMPLOYEES



SURVEY AREA GRAND TOTAL

Table 9
RATIO OF TECHNICIANS TO PROFESSIONALS AND TO TOTAL EMPLOYEES

Firms with 0-49 Employees (63 Firms Reporting)



LEGEND { TOTAL EMPLOYEES } TECHNICIAN PROFESSIONAL

Table 10
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

Firms with 50-99 Employees (34 Firms Reporting)

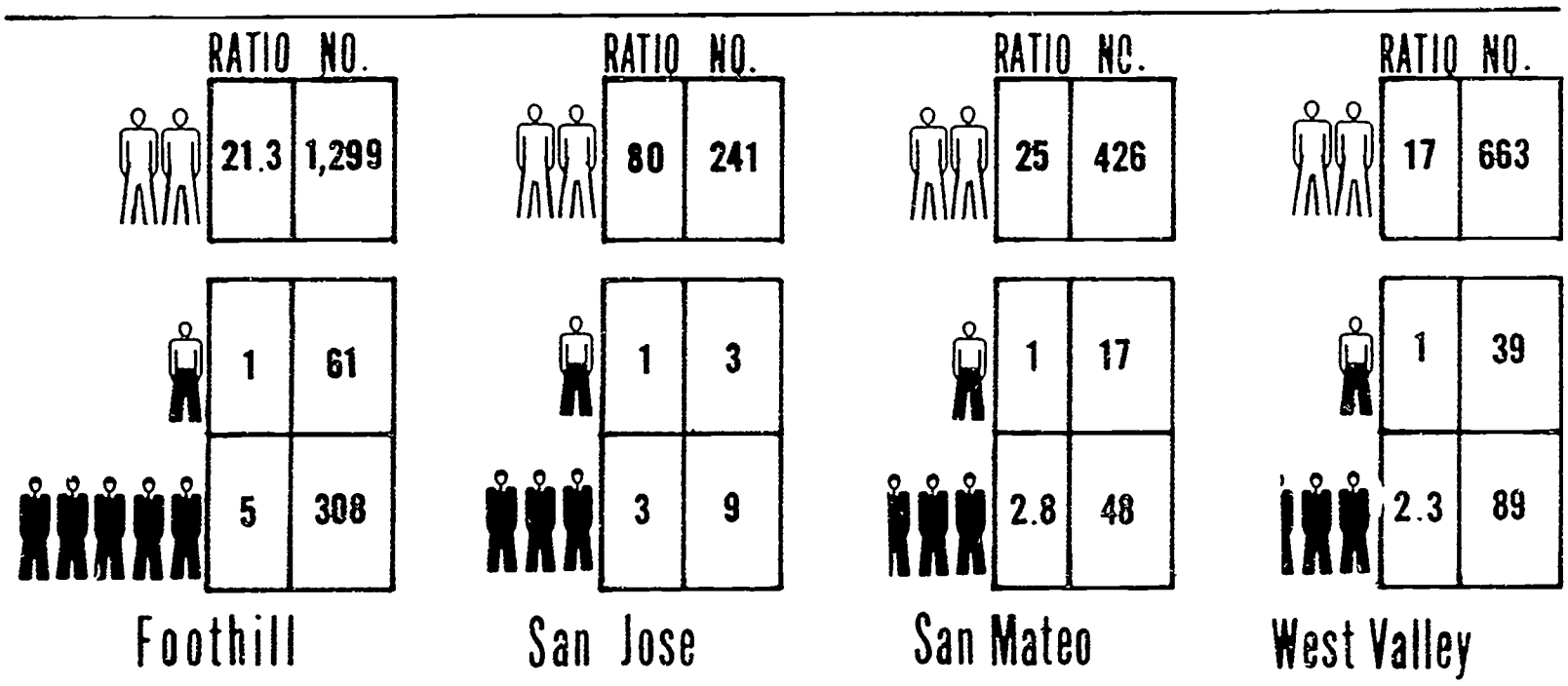
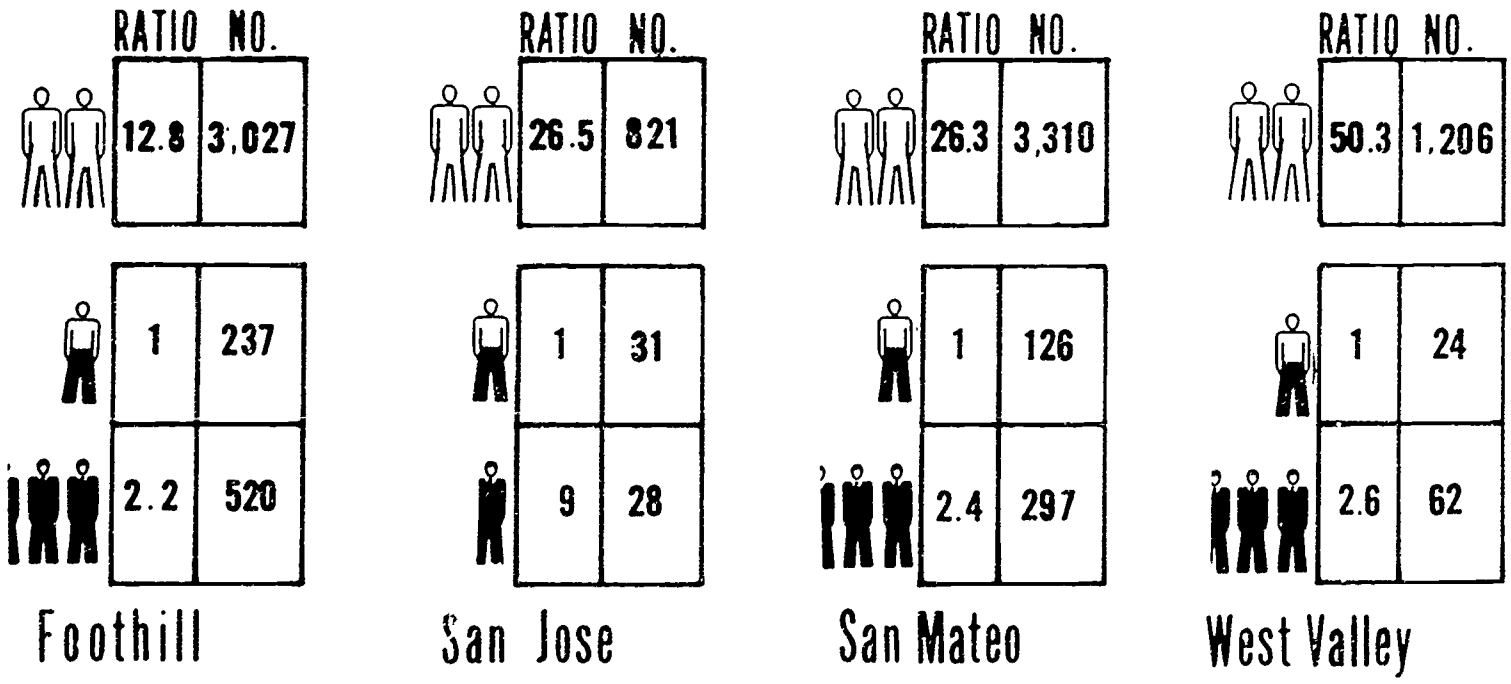


Table 11
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

Firms with 100-249 Employees (21 Firms Reporting)



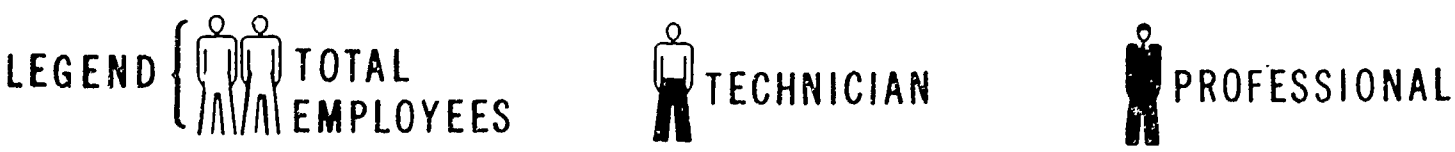


Table 12
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

Firms with 250-500 Employees (31 Firms Reporting)

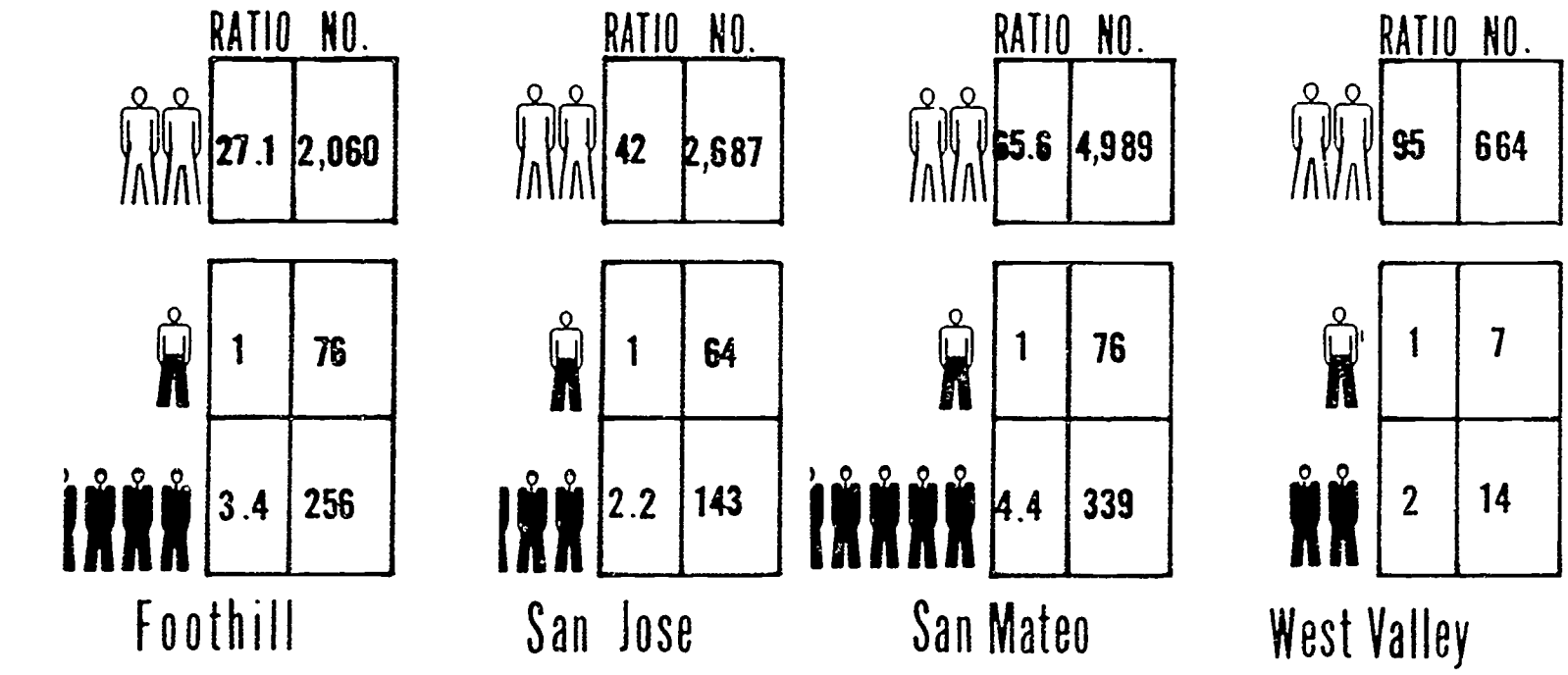
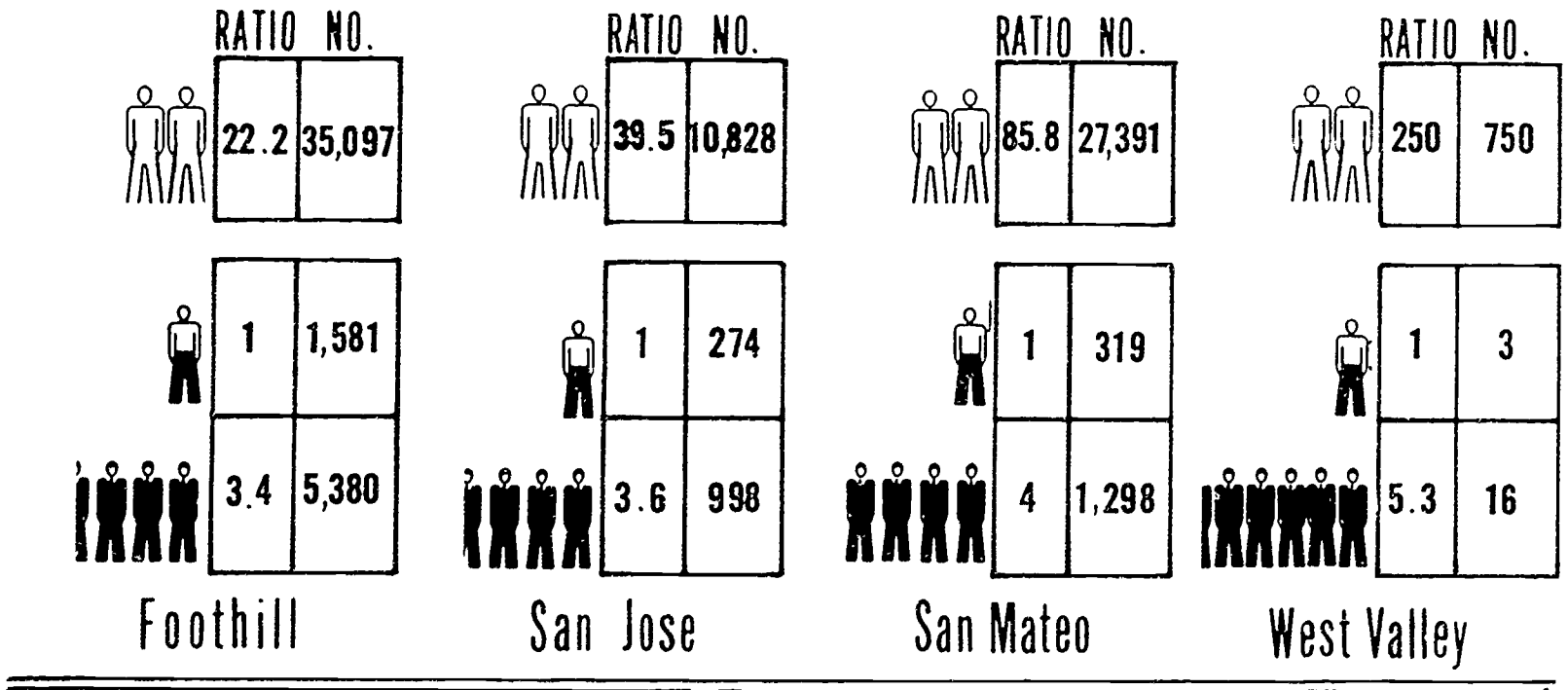


Table 13
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

Firms with Over 500 Employees (28 Firms Reporting)



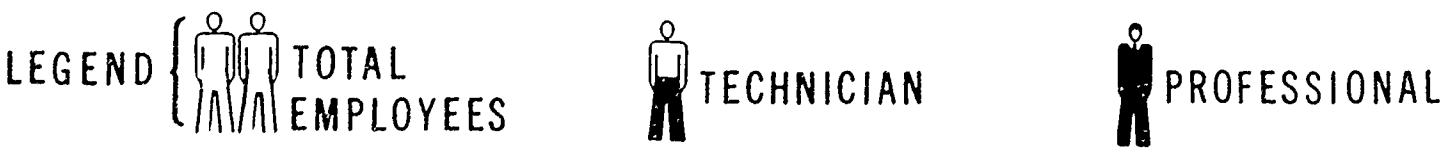


Table 14
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

DISTRICT TOTALS

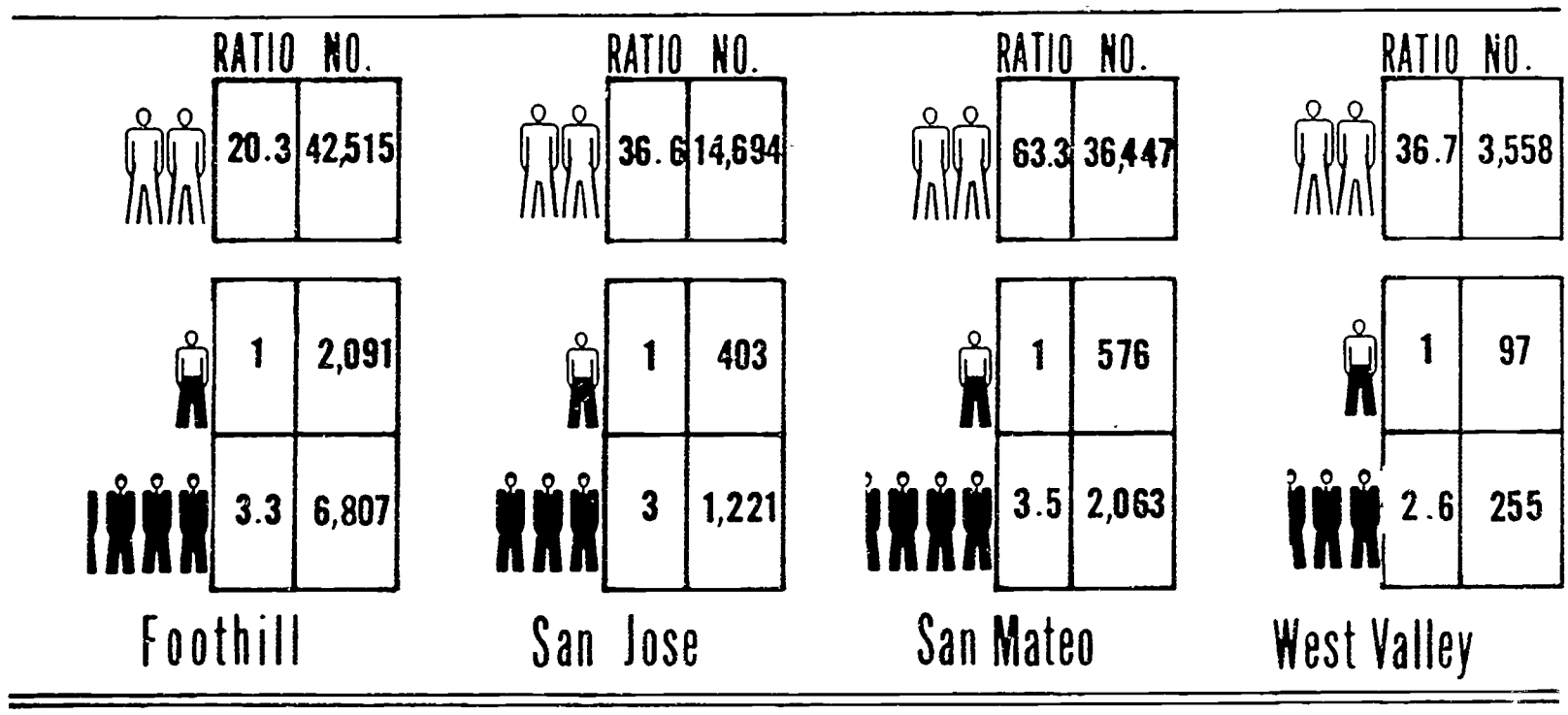
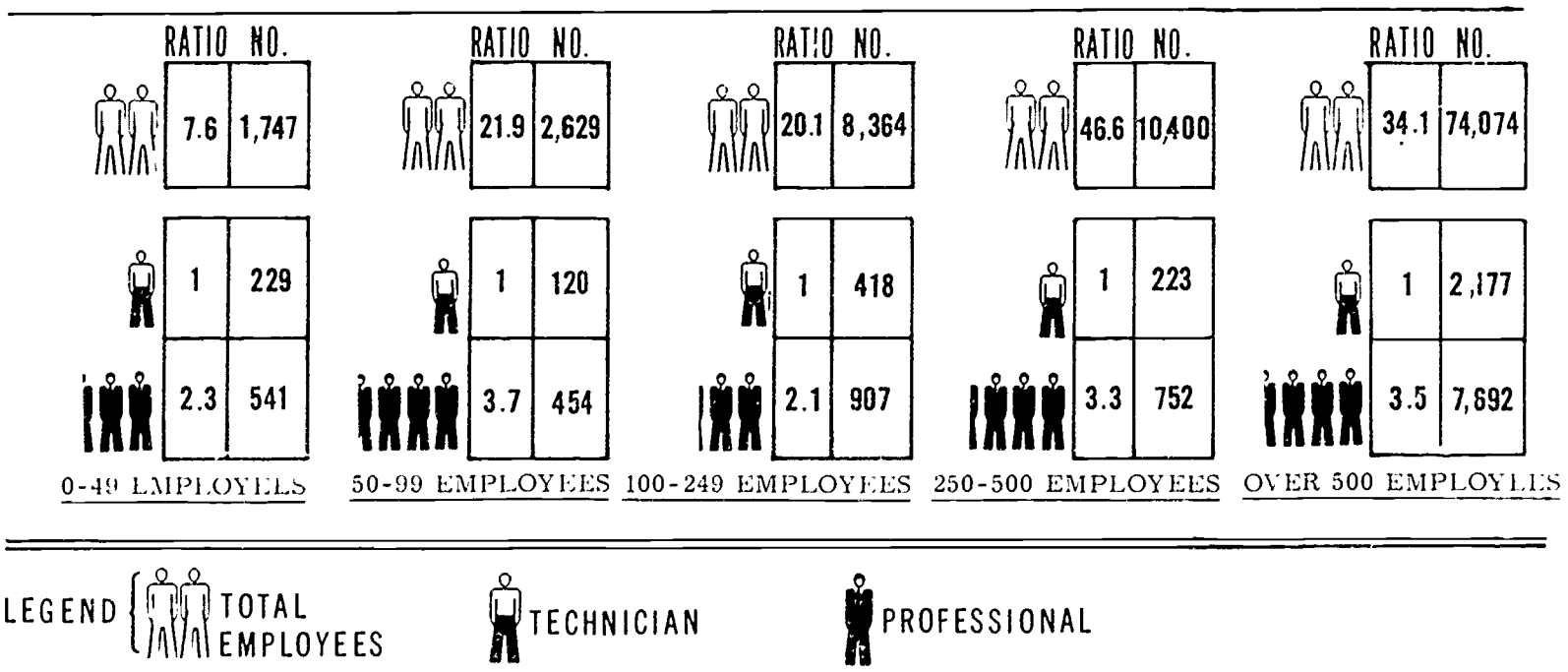


Table 15
RATIO OF TECHNICIANS TO PROFESSIONALS
AND TO TOTAL EMPLOYEES

SURVEY AREA TOTALS BY COMPANY SIZE



4 THE TECHNICIANS JOB

In order to clarify the jobs of science and engineering technicians, it was necessary to condense the overwhelming number of job titles used by industry for these technicians. Initially, 20 occupational areas were selected by the executive committee for inclusion in the Company Questionnaire, listed under the following headings: Engineering, Physical and Earth Sciences, and Biological Sciences (See Appendix). It became apparent, however, following the survey, that only 19 of the 20 occupational areas were valid for consideration. One category, that of animal sciences, received no responses and was excluded. In addition, responses from representatives of industry indicated 37 occupational fields in existence in the survey area (See Table 4, p. 15), some of which were included in the original list of 20.

Technician Questionnaire responses, on the other hand, provided a list of 88 job titles for positions that fit within the range of the definition for science and engineering technicians developed by the survey group. These job titles were found to be consistent with the 37 occupational fields provided by the management group, but a great deal of duplication of job titles was found within each occupational area.

In order to make the data useful for curriculum development, the executive committee selected the 88 job titles resulting from responses to the Technician Questionnaire as most descriptive of the actual work done by science and engineering technicians. Within these 88 job titles, a pattern was observed that would provide useful categories for developing technical education curriculums. These categories have been identified as job families, and information gathered from survey responses and outside sources, including job titles, nature of work, and technician distribution, has been organized into seven job family groupings: Biology, Chemistry, Computer-Mathematics, Electrical Engineering, Electromechanical, Mechanical Engineering, and Physics.

Following the job family section, additional data have been included that represent a summary of the types of skill activities performed by science and engineering technicians. These data are presented in Table 30. Many common and unique skills required of these technicians are shown that offer innumerable implications for training.

In addition, information was obtained regarding the tools used by science and engineering technicians. It was not possible to categorize this material into job families, but it has been included in the Appendix as information.

Much of the information included in the section on the seven job families was substantiated by the U.S. Department of Labor publication, Occupational Outlook Handbook, 1961 edition, and A Directory of Occupation-Centered Curriculums, compiled by Joseph M. Jacobsen and published by the California State Department of Education, 1962.

Distribution of technicians in the seven job families was found to be as follows:

	NUMBER OF TECHNICIANS
Biology Family	100
Chemistry Family	352
Computer-Mathematics Family	110
Electrical Engineering Family	230
Electromechanical Family	798
Mechanical Engineering Family	675
Physics Family	306
Other	596
TOTAL	3167

BIOLOGY FAMILY

JOB TITLES

Twelve job titles for technicians working in the biology family were identified by the survey. They are:

Agriculture Inspector
Agriculture Technician
Biological Research Technician
Biology Technician
Microbiology Technician
Inspection Technician
Laboratory Associate
Molecular Biology Technician
Planner
Research Technician
Soil Technician
Tissue Technician

NATURE OF WORK

Biological sciences are concerned with the world of living things--men and microbes, wild and domestic animals, plants and insects, birds and fish. Biological scientists study the structure of living organisms, their life processes, and the relation between these organisms and their environment.

The number and variety of plants and animals are so vast and the life processes so varied that biologists must, of necessity, become specialists. Biological scientists may be classified into three broad groups characterized by the type of organism with which they work: Botanists, Microbiologists, and Zoologists. Some biological scientists, particularly those whose work cuts across more than one of these major groupings, may call themselves simply biologists.

The following job description of a microbiology technician gives a sample of the types of duties performed by one of the various technician classifications in the biology family:

Microbiology Technician. The technician assists in setting up and conducting various laboratory tests and experiments in the study of bacteria, viruses, molds, and other organisms of microscopic and sub-microscopic size. He works under the supervision of a professional biologist. He prepares all phases of bacteriological experiments, records data, and writes reports based on the data. In addition, he assists in programmed research in certified biology laboratories under the direction of professionals.

Table 16
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
BIOLOGY FAMILY

College District	Number
San Mateo	9
Foothill	80
San Jose	10
West Valley	1
TOTAL	100

Table 17
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
BIOLOGY FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	1	5		1	7
501 - 1,000		1			1
1,001 - 2,000	1		1		2
2,001 - 5,000					0
5,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	2	7	1	1	11

CHEMISTRY FAMILY

JOB TITLES

Fifteen job titles for technicians working in the chemical field were identified by the survey. They are:

Assistant Chemist
Chemical Analyst
Chemical Operations Technician
Chemomechanical Technician
Food Chemist
Food Technician
Food Technologist
Fuel Laboratory Technician
Laboratory Chemist
Plastics Technician
Process Operator
Production Control Technician
Propellants Technician
Science Laboratory Technician
Senior Chemical Laboratory Technician

NATURE OF WORK

Technicians specializing in this area work with chemists and chemical engineers in the development, production, sale, and utilization of chemical products and equipment. They apply their knowledge of chemistry and other physical sciences and of apparatus and equipment to such work as the control of complicated chemical processes or laboratory research. The field of chemistry is so broad that chemical technicians often become specialists in the problems of a particular industry and in a particular type of activity--for example, quality control or research.

Most chemical technicians assist chemists and other scientists or engineers in research and development, testing, or other laboratory work. Those helping to conduct experiments may make the computations and tabulate and analyze results. In testing work, technicians make chemical tests to determine whether particular substances are present, and, if so, in what quantities. They may, for example, analyze steel for carbon, phosphorous, and sulphur content, or water for the amount of silica, iron, and calcium present. They also perform experiments to determine the characteristics of substances, such as the viscosity and flash point of oil. The work of technicians employed in research or testing laboratories often requires the assembly and use of such apparatus and instruments as dilatometers, interferometers, analytical balances, and centrifuges.

The following job description of an assistant chemist gives a sample of the duties performed by one of the various technicians in the chemistry family:

Assistant Chemist. Technicians with this job title assist chemists in investigating and altering matter. Their job functions may be categorized generally as assisting in the following areas: fundamental research, the search

for scientific knowledge of the inherent properties of chemical entities; applied research and development, the application of existing knowledge to problems involved in the creation of a new product or process or the improvement of an existing product or process; analysis and testing; and supervision of manufacturing processes. Chemists are classified into five main branches--organic, inorganic, physical, analytical, or biochemical--and the largest of these branches is the province of the organic chemist with fields of specialization within the branch ranging from paints and plastics to rubber and petroleum. Assistant chemists assist professionals in the organic branch by investigating the composition of carbon compounds by chemical determination or physical measurement, and they assist in the altering of carbon compounds to build up new products. Other job functions include preparation for plating metal with brightening solution and anodizing, performing the operation of pH control, preparing and controlling environment and materials for plastic forming, and controlling the conditions of pressure, temperature, catalysis, and flow of raw petroleum to isolate a variety of products.

Table 18
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
CHEMISTRY FAMILY

College District	Number
San Mateo	91
Foothill	173
San Jose	68
West Valley	20
TOTAL	352

Table 19
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
CHEMISTRY FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	13	15	9	5	42
501 - 1,000	1	4	1	1	7
1,001 - 2,000	2	1	1		4
2,001 - 5,000		1	2		3
5,001 - 10,000					0
10,001 - 15,000					0
15,001 - 20,000					0
20,001 - 25,000					0
TOTAL	16	21	13	6	56

COMPUTER-MATHEMATICS FAMILY

JOB TITLES

Twelve job titles for technicians working in the field of computer-mathematics were identified by the survey. They are:

Assistant Programmer
Computer-Mathematics Technician
Computer Operator
Computer Technician
Data Processing Technician
Data Reduction Technician
Digital Devices Technician
Mathematics Analyst
Mathematics Assistant
Mathematics Technician
Measurement Standards Technician
Program Planner

NATURE OF WORK

Technicians in the computer-mathematics family utilize mathematical knowledge and modern computing equipment, ranging from desk calculators to complex electronic computers, to obtain numerical answers to specific problems. Mathematics aids or assistants, for example, assist mathematicians, engineers, and scientists by doing computations involving the use of algebra, logarithms, trigonometric functions, and higher mathematics. Although such work often requires a very high level of mathematical knowledge and skill, many positions in this field--for example, those of programmer and coder for digital computers--do not require the advanced training and inventiveness needed in other types of mathematical work. Much of the mathematical work connected with scientific research and development, as well as statistics and business, is of this type. Therefore, certain industrial areas in San Mateo and Santa Clara Counties require competent technicians with a wide variety of knowledge and skills in the computer-mathematics family.

The following job description of a computer-mathematics technician gives a sample of the duties performed by one of the various technicians in the computer-mathematics family.

Computer-Mathematics Technician. The technician tabulates, computes, and plots science and engineering data by means of prescribed mathematical formulas and procedures. Seven job duties were found to be prevalent in this specific job area:

1. Plan sequences and procedures of work operations in order to solve assigned problems

2. Receive, make readings of, and record on data and work sheets engineering data from test and research laboratory records, including data taken from films, photographs, oscillograms, and other sources

3. Perform machine, slide rule, and mental calculations with data, following prescribed forms, procedures, correction factors, mathematical formulas, and other computing aids

4. Plot technical data as directed, selecting scales and preparing cross plots as required

5. Check standard mathematical computations made by others

6. Assist in programming for digital and analog computers

7. Assemble complex reports material in proper sequence for a variety of group presentations

Table 20
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
COMPUTER-MATHEMATICS FAMILY

College District	Number
San Mateo	8
Foothill	98
San Jose	4
West Valley	0
TOTAL	110

Table 21
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
COMPUTER-MATHEMATICS FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	1	5			6
501 - 1,000		1			1
1,001 - 2,000	1		1		2
2,001 - 5,000					0
5,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	2	7	1	0	10

ELECTRICAL ENGINEERING FAMILY

JOB TITLES

Fourteen job titles for technicians working in the electrical engineering field were identified by the survey. They are:

Assistant Engineer
Component Technician
Development Engineer
Electrical Laboratory Technician
Engineering Aid
Engineering Assistant
Engineering Technician
Laboratory Foreman
Manufacturing Technician
Materials and Process Analyst
Production Coordinator
Quality Control Technician
Research Technician
Transformer Technician

NATURE OF WORK

Electrical engineering has been among the most rapidly growing branches of the profession in recent years and is currently one of the largest branches of engineering. Electrical engineers are concerned with the generating of electricity and its transmission and use. They may design, develop, and supervise the manufacture of electrical and electronic equipment--including electric motors and generators; communications equipment; electronic apparatus, such as television, radar, computers, and missile guidance systems; and electrical appliances of all kinds. They may also participate in the design and operation of facilities for generating and distributing electric power. The major areas of work in this branch of engineering include electronics, electrical machinery and equipment manufacturing, telephone and telegraph, power, illumination, and transportation. Electrical engineers usually specialize in one of these broad areas of work or even in a subdivision of some one area.

Technicians trained in the electric power field usually work in one of two major areas--the generation and distribution of electric power or the manufacture of electrical machinery and equipment. They may also work in the field of industrial electronics (for example, in connection with induction or dielectric heating, use of X rays, diathermy, and ultrasonics) and in such a capacity their job functions may overlap those of electronics technicians. In companies that manufacture electrical equipment, technicians in the family of electrical engineering may assist professionals in designing electric motors, generators, appliances, and other products. They may also perform experimental laboratory work or aid in solving problems connected with the manufacture of many new products.

The following job description of a research technician gives a sample of the duties performed by one of the various technicians in the electrical engineering family:

Research Technician. The technician assists in conducting assigned scientific research or routine tests by using standard or tentative methods, and he records and reports test data. Details of an assignment are planned by the technician, following instructions or given criteria. He assists electrical engineers in making tests, or he performs routine or less complicated tests under the direction of an engineer. Included in such tests are chemical analysis, investigation of electrical or mechanical components of circuits, determination of lead capacity of structures and strength of materials, and evaluation of new parts, designs, and processes. In addition, the research technician participates in the construction, assembly, and disassembly of test set-ups, prepares and maintains records of tests, organizes test data, makes simple engineering calculations under direct supervision, and prepares charts, drawings, graphs, and simple reports.

Table 22
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
ELECTRICAL ENGINEERING FAMILY

College District	Number
San Mateo	53
Foothill	123
San Jose	30
West Valley	24
TOTAL	230

Table 23
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
ELECTRICAL ENGINEERING FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	7	21	1	7	36
501 - 1,000		2			2
1,001 - 2,000	3	2	1		6
2,001 - 5,000		1	1		2
5,001 - 10,000					0
10,001 - 15,000					0
15,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	10	27	3	7	47

ELECTROMECHANICAL FAMILY

JOB TITLES

Sixteen job titles for technicians working in the electromechanical field were identified by the survey. They are:

Apparatus Technician
Chief Communications Technician
Components Engineer
Design Technician
Development Engineer
Development Test Technician
Display Technician
Electromechanical Technician
Field Engineer
Liaison Engineer
Manufacturing Technician
Planning Technician
Process Technician
Quality Control Analyst
Research Technician
Systems Research Technician

NATURE OF WORK

In the electromechanical family, the technician is concerned with the electrical, electronic, or feedback equipment that forms the link between machines and the devices that control them. This equipment obtains data, such as temperature, from the machine and gives the data to units such as computers, which in turn control the activities of the machine.

The duties of the technician in the electromechanical family may include a wide variety of tasks. They develop, service, and test such intricate electromechanical control or regulatory units as gyroscopes, accelerometers, inertial distance or velocity meters, resistors, transducers, magnetic heads, amplifiers, actuators, electronic tubes, and capacitors. In addition, they test instruments such as voltmeters, oscilloscopes, and frequency measuring units; they produce or install devices including associated electrical, electronic, and mechanical components; and they apply their advanced technical knowledge to plan sequences of operations and methods required to layout, fabricate, assemble, and test electromechanical equipment and products.

The following job description of an electromechanical technician gives a sample of the duties performed by one of the various types of technicians in the electromechanical family:

Electromechanical Technician. Technicians in this area are involved in the research, design, and development of electrical and electronic circuits and mechanical components. In addition, they develop and establish testing methods and procedures and test and modify prototypes of electrical, electronic, electromechanical, and, in some cases, hydromechanical devices and mechanisms. Electromechanical technicians are engaged in the following laboratory activities: determining the mechanical practicability of proposed circuitry;

experimental arranging of electronic components; working with high vacuum systems; assisting in planning testing procedures; setting up and running complex mechanical tests of completed assemblies; using standard and specialized test instruments; changing values, components, and systems to obtain desired performance; participating in the construction of experimental models; testing and evaluating test results; and making modifications to obtain optimum performance. These technicians also write informal summaries of tests and include suggestions for changes in design and construction for consideration by the project engineer.

Table 24
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
ELECTROMECHANICAL ENGINEERING FAMILY

College District	Number
San Mateo	204
Foothill	520
San Jose	58
West Valley	16
TOTAL	798

Table 25
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
ELECTROMECHANICAL ENGINEERING FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	7	19	3	5	34
501 - 1,000	1	2			3
1,001 - 2,000	5				5
2,001 - 5,000		1	1		2
5,001 - 10,000					0
10,001 - 15,000					0
15,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	13	23	4	5	45

MECHANICAL ENGINEERING FAMILY

JOB TITLES

Twenty-one job titles for technicians working in the mechanical engineering field were identified by the survey. They are:

Apparatus Technician
Associate Laboratory Engineer
Assistant Process Engineer
Component Technician
Development Engineer
Display Devices Technician
Engineering Technician
Engineering Test Equipment Technician
Equipment Technician
Instrument Technician
Mechanical Engineering Technician
Manufacturing Technician
Materials and Process Analyst
Production Analyst
Production Engineer
Quality Control Analyst
Sample Maker
Standards Laboratory Test Technician
Technical Assistant
Vacuum Technician
Welding Technician

NATURE OF WORK

Mechanical engineering is one of the largest branches of the engineering profession. If aeronautical and industrial engineering, offshoots of this branch, were included in it, mechanical engineering would represent by far the largest branch of the profession. Much of the work formerly done by mechanical engineers is now delegated to technicians in this field.

Mechanical engineering technicians deal primarily with machines, power, and heat. They help develop and design machines, such as internal combustion engines, steam turbines, jet engines, and nuclear reactors, which produce power from fuels and other sources. They assist in developing a great variety of machines and devices that use power--refrigerating and air-conditioning equipment, elevators, machine tools, printing presses, steel rolling mills, and many others. Mechanical engineering technicians assist engineers in supervising the installation, operation, and maintenance of industrial machinery. Because virtually all industries use machines and require power, the work of these technicians underlies all kinds of industrial operations.

The following job description of a mechanical engineering technician gives a sample of the duties performed by one of the various technicians in mechanical engineering:

Mechanical Engineering Technician. Under the direction of an engineer, the technician performs various semi-professional engineering assignments, including routine calculations, preliminary data reduction, preparation of

graphs and charts, schematics, and basic engineering drawings. He performs his duties in a variety of areas:

1. Uses prescribed mathematics formulas, sets up suitable computation procedures, and performs calculations

2. Assists in liaison capacity in the areas of engineering, design, research and development, and production

3. Assists in the preparation of all but the most complex design data and computes results in accordance with prescribed formulas

4. Assists and advises engineer in the preparation of reports

5. Prepares schematics and basic engineering drawings to be used by the shop in conjunction with fabrication or modification

Table 26
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
MECHANICAL ENGINEERING FAMILY

College District	Number
San Mateo	142
Foothill	411
San Jose	79
West Valley	43
TOTAL	675

Table 27
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
MECHANICAL ENGINEERING FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	21	39	4	13	77
501 - 1,000	2	2			4
1,001 - 2,000	4	2	1		7
2,001 - 5,000		2	2		4
5,001 - 10,000	1				1
10,001 - 15,000					0
15,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	28	46	7	13	94

PHYSICS FAMILY

JOB TITLES

Fifteen job titles for technicians working in the field of physics have been identified by the survey. They are:

Aerodynamics Technician
Atmospheric Physics Technician
Component Technician
Development Technician
Irradiation Technician
Measurement Standards Technician
Physics Laboratory Technician
Physics Technician
Process Instruments Technician
Propulsion Systems Technician
Prototype Technician
Radiation Monitor
Research Photographer
Standards Test Technician
Test Engineer

NATURE OF WORK

Physics, one of the most rapidly growing scientific professions, is concerned with energy in all its forms, with the structure of matter, and with the relationship between matter and energy. Physicists try to discover the fundamental laws of nature and to understand how these laws may be put to use. Much of the scientific progress in the past several decades stems from discoveries made in such critical fields as nuclear energy, electronics, radiation, and solid state.

The following job description of a propulsion systems technician gives a sample of the duties performed by one of the various technicians in the physics family:

Propulsion Systems Technician. The technician assists the physics research engineer in the design, fabrication, installation, calibration, modification, and operation of new and existing propulsion systems. He also gives assistance in using the instruments designed to acquire scientific data of propulsion systems. Under the general direction of the engineer, the technician performs complex duties or assists professionals in this performance by receiving directions from blueprints, sketches, and written or verbal instructions. The propulsion systems technician directly assists engineers in the design, fabrication, assembly, and testing of prototype systems and assemblies, and he completely takes care of trouble shooting of systems and components. In addition, he fabricates, installs, calibrates, modifies, and maintains electromagnetic, oscillographic, hydraulic, and electric strip chart recorders, amplifiers, magnetic tape recorders, and related electronic equipment used to acquire scientific data. Part of his duties include maintaining, repairing, installing, and performing function tests on electronic systems used in the measurement of various parameters pertinent to missile testing. Also included are such tasks as calibrating, testing, and rechecking audio-oscillators, oscilloscopes,

oscillographs, counters, and voltmeters to detect, diagnose, and correct instrument malfunction; disassembling, cleaning, and adjusting or replacing defective components of electronic instrumentation; and working with project, test, and production staff in establishing the functions and limits of electronic instruments and equipment.

Table 28
DISTRIBUTION OF TECHNICIANS BY COLLEGE DISTRICT
PHYSICS FAMILY

College District	Number
San Mateo	6
Foothill	260
San Jose	34
West Valley	6
TOTAL	306

Table 29
DISTRIBUTION BY SIZE OF COMPANIES EMPLOYING TECHNICIANS
PHYSICS FAMILY

Company Size	San Mateo	Foothill	San Jose	West Valley	Total
500 or less	2	19	1	2	24
501 - 1,000		2			2
1,001 - 2,000	2	2	1		5
2,001 - 5,000		1	1		2
5,001 - 10,000					0
10,001 - 15,000					0
15,001 - 20,000					0
20,001 - 25,000		1			1
TOTAL	4	25	3	2	34

JOB ACTIVITIES BY FAMILY

Technician Questionnaire responses were isolated by job family. The data are presented in Table 30, Response to Technician Questionnaire by Job Family.

Significant facts concerning science and engineering technician job activities are learned from the table by making both horizontal and vertical comparisons of the data. For example, Item A, Working with Equipment, reveals by horizontal comparison that technicians frequently construct experimental equipment in the physics, mechanical engineering, and electromechanical families; that constructing equipment is rarely performed by technicians in the biology, chemistry, and electrical engineering families; and that technicians in the computer-mathematics family are not involved in the construction of experimental equipment. It can be noted by vertical comparison that physics, mechanical engineering, and electromechanical engineering family technicians are frequently involved in working with many kinds of equipment but rarely design, maintain, or fabricate it.

There are many implications in these data for preparatory technician training. All science and engineering technicians have activities involving the use of mathematics, as shown in Item H, Mathematics, for example. This item has been given special treatment in Chapter 5. The significance of other responses will be of increasing importance to the colleges during Phase 2 of the project.

Table 30
RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY # Frequently + Occasionally Rarely = No Response	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
A. WORKING WITH EQUIPMENT							
1 Constructs experimental equipment	Not applicable to work		#	#	#		
2 Performs experiments		+	#	#	#	+	#
3 Repairs equipment			#	+	+		
4 Remodels and adapts equipment			#	#	#		
5 Operates equipment		#	#	#	+	#	#
6 Installs equipment			+	+	+		+
7 Tests and tries out equipment			#	#	#		+
8 Adjusts equipment		#	#	#	#	#	#
9 Sets up equipment for production			#	+	+		

Table 30
RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY # Frequently + Occasionally Rarely = No Response	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
A. WORKING WITH EQUIPMENT (CONT.)							
10 Evaluates equipment	Not applicable		#	+	+		
11 Trouble-shoots equipment			#	+	+		#
12 Designs equipment							+
13 Maintains equipment			#				
14 Fabricates equipment							
B. WORKING WITH INSTRUMENTS, GAGES							
1 Repairs instruments	Not applicable to work						
2 Calibrates instruments				+			
3 Performs experiments with instruments		#	#	#	#	#	#
4 Changes instrumentation		#	+	+	+	+	+
5 Maintains instrument test data		#	#	#	#	#	#
6 Inspects with instruments		#	#	#	#	#	#
7 Trouble-shoots with instruments			#	#	#		#
8 Constructs instruments							
9 Designs instruments							
10 Sets-up measuring instruments		#	#	#	#	#	#
11 Designs special purpose instruments				+	+		+
12 Recommends gage construction				#	#		#
13 Makes computations from instruments		#	#	#	#	#	#
C. WORKING WITH MATERIALS							
1 Performs routine tests	Not applicable to work	#	#	#	#	#	#
2 Works out specifications		+	#	#	#	+	#
3 Calculates weights, tensile strengths		+	#	#	#	+	#
4 Performs research on materials		#	#	#	#	+	#
5 Tests for stresses, strains, motion, impact			#	#	#		#
6 Selects materials for making repair parts		+	#		+	+	
7 Determines material machine ability			+	#	#		#
8 Tests raw materials		#	#	+		#	
9 Determines suitability of various materials to differing applications		#	#	#	+	#	#
10 Specifies materials				#			

Table 30

RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY
Frequently
\+ Occasionally
Rarely
= No Response

	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
D. WORKING WITH MACHINE & HAND TOOLS	Not applicable to work						
1 Performs operations with hand tools				#	#		#
2 Uses machine tools (lathe, mills, etc.)				#			#
3 Brazes, welds, solders					+		#
4 Uses drafting instruments					+		
5 Performs research using tools and machines				#	+		#
6 Repairs personal tools							
7 Grinds cutting tools, makes layouts				#			
8 Localizes and changes machine parts							
9 Makes layout prior to machine operations				#			
E. WORKING WITH DRAWINGS, REPORTS, ETC.	Not applicable to work						
1 Plots curves, graphs, etc.		#	#	+	+	#	#
2 Reads technical reports		#	#	#	#	#	+
3 Writes technical reports		#	#	+	+	#	#
4 Uses engineering and technical manuals		#	#	#	#	#	+
5 Makes free hand sketches, working drawings				+	+		
6 Records and compiles data		#	#	#	#	#	#
7 Makes finished scale drawings							+
8 Works with blueprints, sketches				#	#		+
9 Works with wiring diagrams				+	+		
10 Keeps preventative maintenance records				+	+		+
11 Takes details from master designs							
12 Uses manufacturer catalogues to order		+	+	+	+	+	+
13 Corresponds with customers							
14 Works out pictorial layouts							
F. WORKING WITH ENERGY, POWER	Not applicable						
1 Trouble-shoots power problems					+		+
2 Lays out hydraulic circuits							
3 Rebuilds hydraulic equipment							
4 Controls electrical power							#
5 Calculates heat input				+			+
6 Checks work input to motors				+			

Table 30

RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY # Frequently + Occasionally Rarely = No Response	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
F. WORKING WITH ENERGY, POWER (CONT.)	Not appl.						
7 Adapts stock hydraulic and pneumatic cylinders to molds and special tools							
8 Designs hydraulic cylinders							
G. WORKING WITH PERSONNEL							
1 Inducts and orients new personnel							
2 Hires other personnel to work with him in the field							
3 Trains others on the job			+	+	+		#
4 Works with individual persons	+	#	+	#	#	#	
5 Works with group situations		#				#	
6 Appraises the work of others			+	+	+		#
7 Supervises the work of others			+	+	+		#
8 Coordinates the work of others							+
9 Performs liaison work			+	+			+
10 Advises other personnel on technical problems			+	#	+		#
11 Works with other departments			#	+	+		#
12 Consults and seeks information from supervisors		#	#	#	#	#	#
H. MATHEMATICS (Answers to the question regarding level of mathematics required on the job are given in detail in Chapter 5.)							
1 Computes ratios		#		+	+	#	+
2 Solves equations	#	#	+	+	+	#	+
3 Substitutes in formulas	#	#	+	+	+	#	+
4 Computes stress analysis	#		+	+	+		+
5 Uses proportions in design			+	+			+
6 Solves formulas	#	#	+	+	+	#	+
7 Computes for evaluating materials	#		+	+	+		+
8 Computes for analyzing substances	#	+	+	#	+	+	+
9 Computes for interpreting reports	+	#	+	+	+	#	+
10 Computes statistical control				+			

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Table 30
RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY
\# Frequently
\+ Occasionally
Rarely
= No Response

	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
H. MATHEMATICS (CONT.)							
11 Computes for layout work			+	+	+		+
12 Computes for drafting, drawing				+			#
13 Calculates angles, forces			+	+	+		
14 Computes for fabricating work			+	#	+		
15 Computes for tooling activities					+		
16 Computes for interpreting drawings	#		#	+	+		+
17 Computes angles	#		#	+			
18 Lays out jigs, tools			+	+			
19 Computes shapes			+	+			
20 Calculates indirect dimensions			+	+			
21 Solves triangular ratios	+		+	+			
22 Accounts time and materials			+	#			
23 Makes cost estimates			+	+			
24 Computes for designing new products	#		+	+			
25 Computes savings			+				+
26 Interprets formulas	+	#	+	#	+	#	+
27 Interprets reports	#	+		+	+	+	+
28 Uses handbooks and manuals	#	#	+	#	+	#	#
29 Uses slide rule	#		+	#	+		
30 Uses specialized computers	#						
31 Operates calculating machines	#			+			
I. APPLIED SCIENCE	Not applicable to work						
1 Uses applications of springs, rotating masses, leverage				+	+		
2 Tests strength of materials		=	=	+	+	=	
3 Utilizes machine functions and capabilities		=	=	#	#	=	
4 Designs devices and moving parts		=	=			=	
5 Inspects gears and tools		=	=	+	+	=	
6 Analyzes materials		#	#	#	#	#	
7 Measures motor speeds		=	=			=	+
8 Relates mechanics to electricity		=	=	+	+	=	#

Table 30

RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY
Frequently
+ Occasionally
Rarely
= No Response

	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
I. APPLIED SCIENCE (CONT.)							
9 Uses motion transfer systems		=	=	+	+	=	
10 Makes dial hook-ups		=	=	#	#	=	#
11 Heat-treats materials		=	=	+	+	=	
12 Makes heat specifications		=	=	#	#	=	
13 Uses induction heating		=	=	+	+	=	
14 Hardens and draws metals		=	=	+	+	=	
15 Utilizes heat and burned-off gases		=	=			=	
16 Operates electric furnaces		=	=	+	+	=	+
17 Uses electrical theory in circuitry, motors, solenoids	Not applicable to work	=	=			=	#
18 Uses electric symbols		=	=	#	#	=	#
19 Works with electrical process controls		=	=			=	#
20 Uses activating devices		=	=	+	+	=	#
21 Designs, repairs solenoids, relays		=	=			=	#
22 Uses basic electronics		=	=			=	+
23 Reduces sound and noise		=	=			=	
24 Transmitts sound and light		=	=	+	+	=	+
25 Works with acoustics		=	=	+	+	=	
26 Works with waterflow, valves, tubing		=	=	+	+	=	
27 Maintains hydraulic controls		=	=	#	#	=	
28 Evaluates hydraulic functions		=	=	+	+	=	
29 Applies principles to valves in various media, collodion		=	=	+	+	=	
30 Applies principles to plating				+	+		
31 Applies principles to synthetic materials, plastics, solvents		+	+	+	+	#	
32 Makes routine checks, basic tests		#	#	#	#	#	#
33 Evaluates effects of tolerances on hydraulic proportions		=	=	+	+	=	
34 Designs and repairs hydraulic machines		=	=			=	
35 Designs hydraulic machines		=	=			=	
36 Uses metallurgy in design		=	=	+	+	=	
37 Constructs metals		=	=			=	

Table 30
RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY
\# Frequently
\+ Occasionally
Rarely
= No Response

	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
I. APPLIED SCIENCE (CONT.)							
38 Heat-treats within known limits		=	=	#	#	=	
39 Distinguishes properties of metals		=	=			=	
40 Knows effects of heat treatment, polishing, plating		=	=	#	#	=	
41 Knows functions of steels in welding		=	=	#	#	=	
42 Measures strength of machine parts		=	=	#	#	=	
43 Chooses correct parts for machine maintenance		=	=	+	+	=	
44 Determines capabilities and limitations of ceramic materials		=	=	+	+	=	
45 Uses strength of steels in tool design		=	=			=	
46 Specifies size of fasteners		=	=			=	
47 Constructs and installs new equipment		=	=			=	
48 Conducts chemical analysis		#	#	=	=	#	=
J. COMMUNICATIONS							
1 Gives instructions in training	=			+	+		+
2 Puts across ideas, explanation				#	#		#
3 Describes conditions, causes		#	#	#	#	#	#
4 Verbalizes and discusses problems		#	#	#	#	#	+
5 Coordinates efforts among others	=	+	+	+	+	+	
6 Secures cooperation							+
7 Handles complaints				+	+		+
8 Communicates with all concerned	=						
9 Makes records and reports	=	#	#	#	#	#	#
10 Writes brief directions and short notes	=	+	+	#	#	+	#
11 Reads written communications	+			#	#		#
12 Reads shipping schedules	=	+	+			+	
13 Corresponds with in-plant notes	=	+	+	+	+	+	+
14 Makes time schedules	=						
15 Routes procedural instructions	=						
16 Writes assembly specifications	=						
17 Requisitions materials	=			#	#		#

Not applicable to work

Table 30

RESPONSE TO TECHNICIAN QUESTIONNAIRE
BY JOB FAMILY

KEY
Frequently
\+ Occasionally
Rarely
= No Response

	Comput.-Math.	Biology	Physics	Mech. Engin.	Electromech.	Chemistry	Elect. Engin.
J. COMMUNICATIONS (CONT.)							
18 Writes to suppliers, customers	=						
19 Writes instruction manuals	=			+			+
20 Makes statements of progress	#	+	+	#	#	+	#
21 Makes charts, graphs, drawings	=			+	+		+
22 Makes freehand sketches	=			+	+		+
23 Diagrams circuits	=						
24 Illustrates new machinery, products	=						
K. PERSONNEL RELATIONS							
1 Ability to work with many supervisors		#	#	+	+	#	+
2 Ability to achieve with a minimum of supervision	#	#	#	#	#	#	#
3 Tries out and tests new ideas	=	#	#	+	+	#	
4 Carries out assignments	#			#	#		#
5 Works closely with project engineer	#	#	#	#	#	#	#
6 Handles sensitive people							
7 Gives orders for maximum understanding				#	#		#
L. ENGINEERING DRAFTING	Not applicable						
1 Designs hydraulic machines		=	=			=	
2 Repairs hydraulic machines		=	=			=	
3 Uses metallurgy in design		=	=			=	
4 Diagrams circuits		=	=			=	
5 Makes freehand sketches		=	=	+	+	=	
6 Makes charts, graphs, drawings		=	=			=	

5 THE TECHNICIANS PREPARATION

SOURCES OF TECHNICIANS

It was found that technicians are hired with a variety of education and employment experiences. The data in Tables 31 and 32 give evidence that most companies surveyed secure their technicians through upgrading from within the company and by hiring experienced technicians from outside the company.

Table 31
SOURCES OF NEW TECHNICIANS

Sources	Rank Order of Current Sources (Percent) 1st	2nd	3rd	4th
Upgrade from within	58	22	6	8
Hire experienced from outside	33	60	6	0
Hire inexperienced from J.C.	2	3	58	32
Use professional staff	0	8	27	56
University & college students	6	4	3	2
Hire college graduates	0	0	0	0
University & college dropouts	1	3	0	2
NUMBER OF RESPONSES	196	191	183	175

Table 32
PREFERRED SOURCES OF NEW TECHNICIANS

Sources	Rank Order of Preferred Sources (Percent) 1st	2nd	3rd	4th
Upgrade from within	76	11	5	2
Hire experienced from outside	13	77	9	1
Hire inexperienced from J.C.	4	6	71	14
Use professional staff	0	1	10	70
University & college students	5	4	4	6
Hire college graduates	1	0	0	0
University & college dropouts	1	1	1	7
NUMBER OF RESPONSES	160	154	154	144

TRAINING METHODS

Company representatives were asked, "What types of outside training have you found to be most successful?" Table 33 contains a tabulation of data obtained from responses to this question.

Table 33
TYPES OF PREVIOUS TRAINING
FOUND SUCCESSFUL BY INDUSTRY

Types of Training	Rank Order of Success (Percent)							
	1st	2nd	3rd	4th	5th	6th	7th	8th
On-the-job	36	9	12	14	10	8	7	2
College & University	30	19	8	11	10	8	8	8
Vocational Schools	4	10	27	17	14	15	4	2
College & Univ. Ext.	17	28	10	17	9	10	8	2
Junior Colleges	4	15	18	14	27	19	8	2
Technical Institutes	6	11	13	12	10	23	25	2
Correspondence Schools	0	0	1	2	3	4	19	72
Military Training	3	8	11	13	17	13	21	10
NUMBER OF RESPONSES	164	161	146	132	123	118	119	116

Company representatives were asked also what types of outside training they would prefer prospective technicians to have. Table 34 presents these data.

Table 34
TYPES OF PREVIOUS TRAINING
PREFERRED BY INDUSTRY

Types of Training	Rank Order of Preference (Percent)							
	1st	2nd	3rd	4th	5th	6th	7th	8th
On-the-job	33	13	16	15	14	6	4	2
College & University	30	16	8	14	10	11	8	6
Vocational Schools	4	9	21	16	17	18	5	1
College & Univ. Ext.	7	29	14	16	12	9	7	3
Junior Colleges	16	14	21	12	17	15	5	0
Technical Institutes	6	8	13	12	12	23	30	2
Correspondence Schools	0	0	0	1	2	2	20	74
Military Training	4	11	7	14	16	16	21	12
NUMBER OF RESPONSES	150	149	134	129	120	109	111	113

Company representatives were asked, "What supplementary training methods are endorsed by your company to bring employees to technician status?" Responses are compiled in Table 35 and represent a tabulation of training methods used by companies for employed personnel.

Table 35
TYPES OF SUPPLEMENTAL TRAINING
CURRENTLY ENDORSED BY INDUSTRY

Types of Training	Rank Order of Endorsement (Percent)				
	1st	2nd	3rd	4th	5th
Formal In-plant Classes	10	17	16	26	22
On-the-job	37	28	30	5	0
Junior Colleges	8	38	25	26	5
Correspondence Schools	0	3	6	25	67
College & University Ext.	45	14	23	18	6
NUMBER OF RESPONSES	141	127	115	105	101

Table 36 presents data related to supplementary training methods that company representatives would prefer for personnel employed by their firms.

Table 36
TYPES OF SUPPLEMENTAL TRAINING
PREFERRED BY INDUSTRY

Types of Training	Rank Order of Preference (Percent)				
	1st	2nd	3rd	4th	5th
Formal In-plant Classes	13	17	19	30	19
On-the-job	40	31	31	6	1
Junior Colleges	19	38	28	17	2
Correspondence Schools	0	1	7	22	72
College & University Ext.	28	13	15	25	6
NUMBER OF RESPONSES	123	114	107	103	96

In analyzing the data presented in these tables, it is interesting to note that even though a large percentage of responses favored on-the-job training, an even larger percentage preferred education on the collegiate level. In addition, since there was little in the way of training programs for science and engineering technicians in the three junior colleges during and prior to the survey, the indicated desire of company representatives for junior college training is regarded as significant.

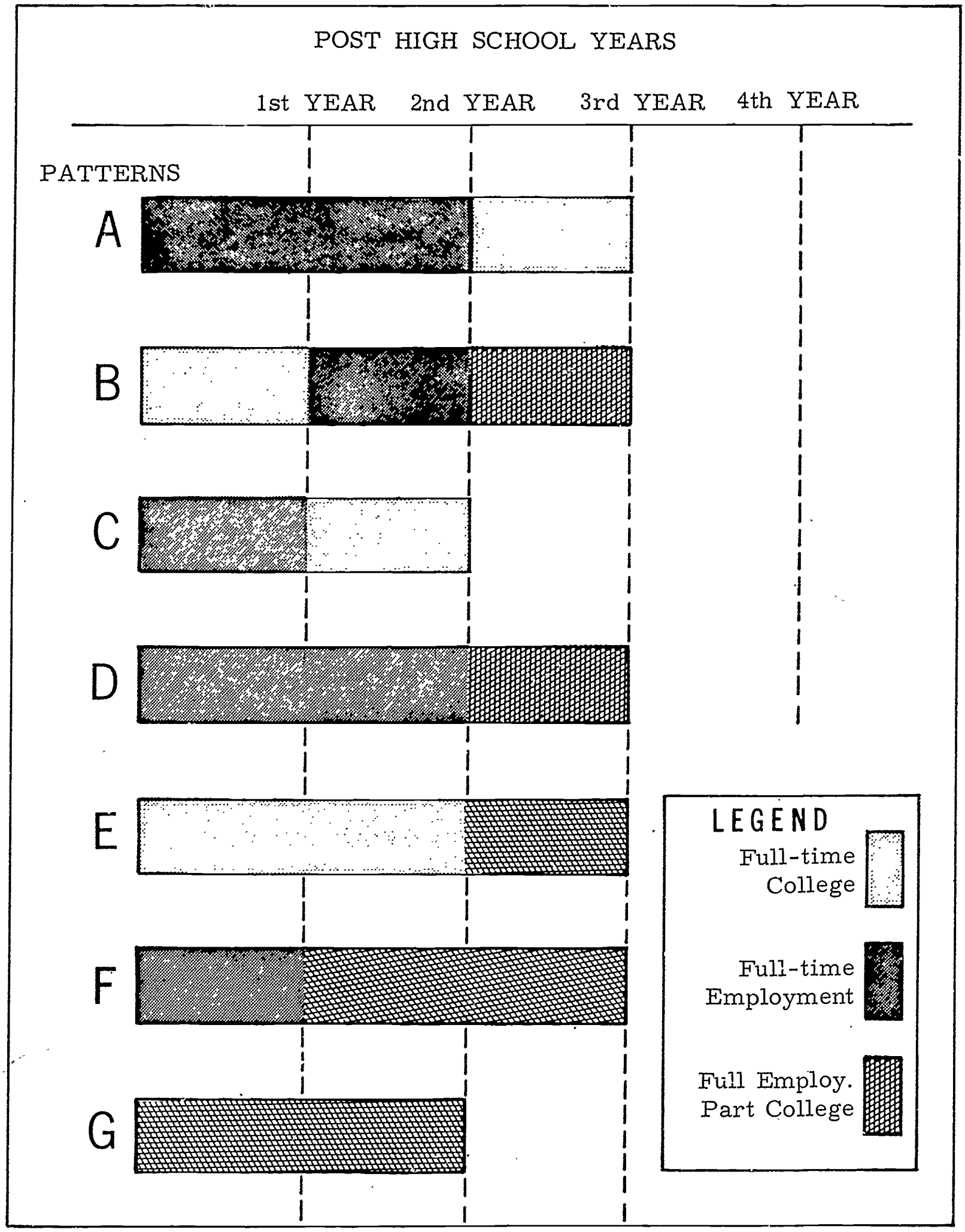


Fig. 2. Patterns of education and experience.

INDUSTRY SPONSORSHIP OF TRAINING

Over 80 percent of the companies surveyed reimbursed workers for advanced course work when such training was part of the employer's training program or, in the case of some small companies, when the employer informally encouraged workers to enter school on a part time basis. Training directors in a large number of firms have developed formal study plans with the assignment of courses and "completion credit" noted in the technician's personnel folder upon successful completion of the course or program. The employee's work record, evaluation by his immediate superior, and "completion credits" were considered in the total evaluation for upgrading or promotion.

PATTERNS OF EDUCATION AND EXPERIENCE

Information gathered from individual interviews with science and engineering technicians employed by the 207 participating companies was analyzed to obtain patterns of education and employment. By using the case study method, it was found that all technicians had post high school work experience and formal training prior to advancement as science and engineering technicians. A significant number of workers hired from outside the company or upgraded from within were required to have college level work before they were considered equipped to serve as qualified technicians. The analysis revealed that seven discernable patterns of work experience and formal training existed among individuals with payroll designations of technician.

Each lettered pattern in Fig. 2 represents post high school employment and education histories that were found common to a significant group of technicians. The total length of each bar represents the time required in the pattern to qualify for technician status. Black areas represent full-time college training, white areas represent full-time employment, and shaded areas represent full-time employment with concurrent part-time college.

Pattern "E" of Fig. 2 occurred in more than 50 percent of the cases studied. Classification as technicians for individuals in this pattern was achieved during or at the end of their third year.

MATHEMATICS COMPETENCY

Technicians were asked in Item H of the Technician Questionnaire to select one of seven levels of mathematics that represented the highest level required on the job. The seven levels were:

1. Beginning Algebra
2. Plane Geometry
3. Advanced Algebra
4. Trigonometry
5. Solid Geometry
6. Descriptive Geometry
7. Applied Calculus

The charts that follow show technician responses grouped by job families. The data show clearly that while science training may vary somewhat from job family to job family, the pattern of training includes some kind of mathematics in all cases.

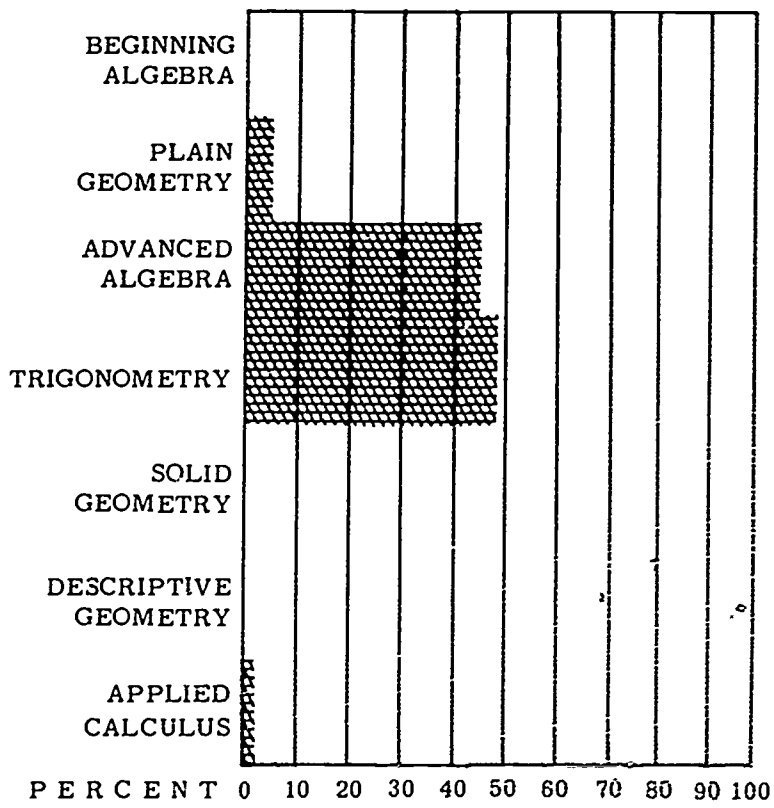


Fig. 3. Mathematics competence required of technicians in the Biological Sciences Family.
(100 Responses)

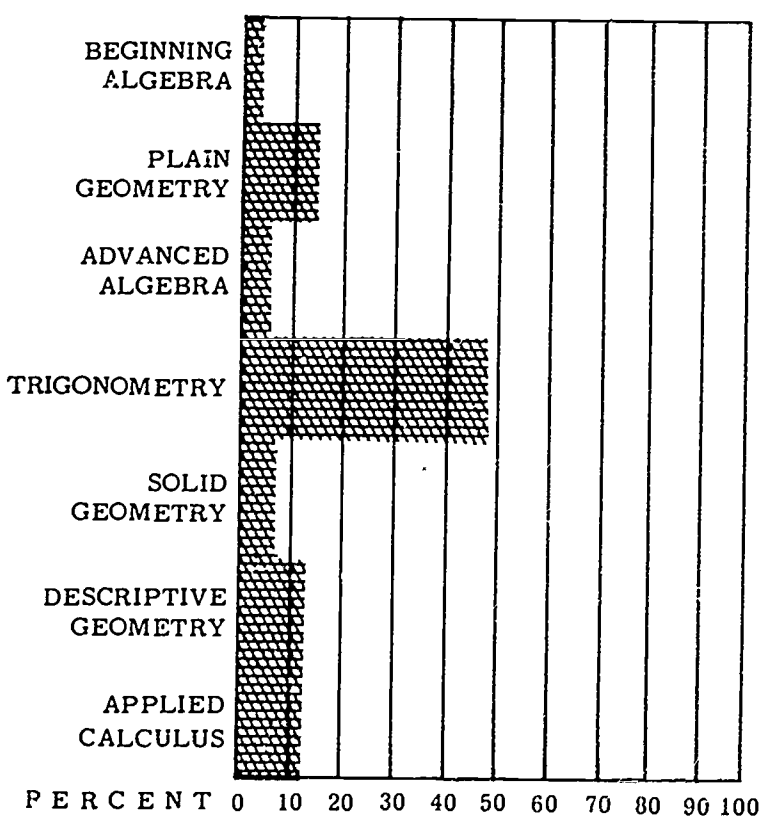


Fig. 4. Mathematics competence required of technicians in the Chemical Family.
(352 Responses)

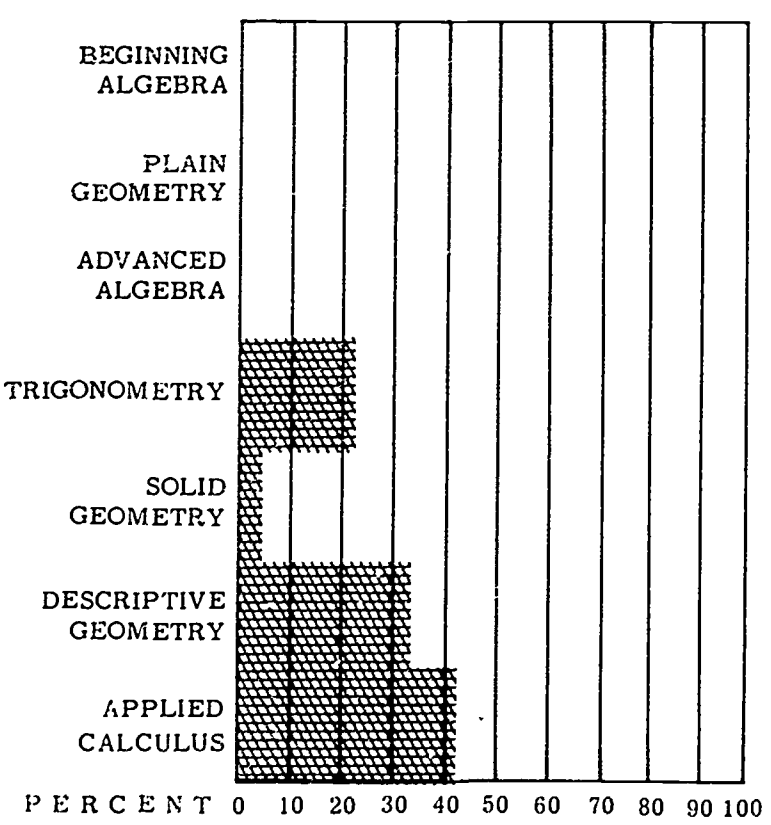


Fig. 5. Mathematics competence required of technicians in Computer-Mathematics Family.
(110 Responses)

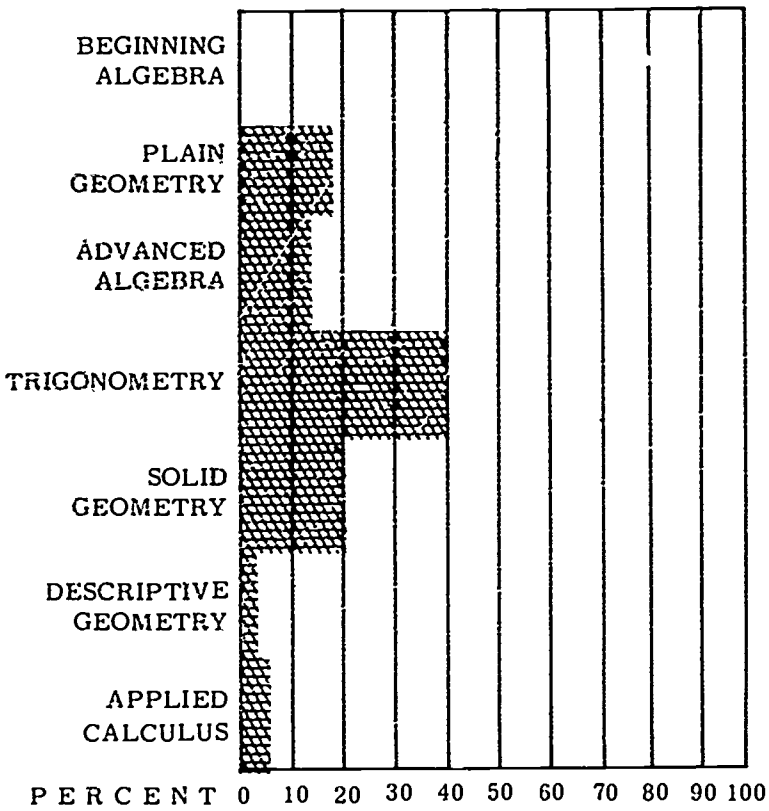


Fig. 6. Mathematics competence required of technicians in the Electrical Engineering Family.
(230 Responses)

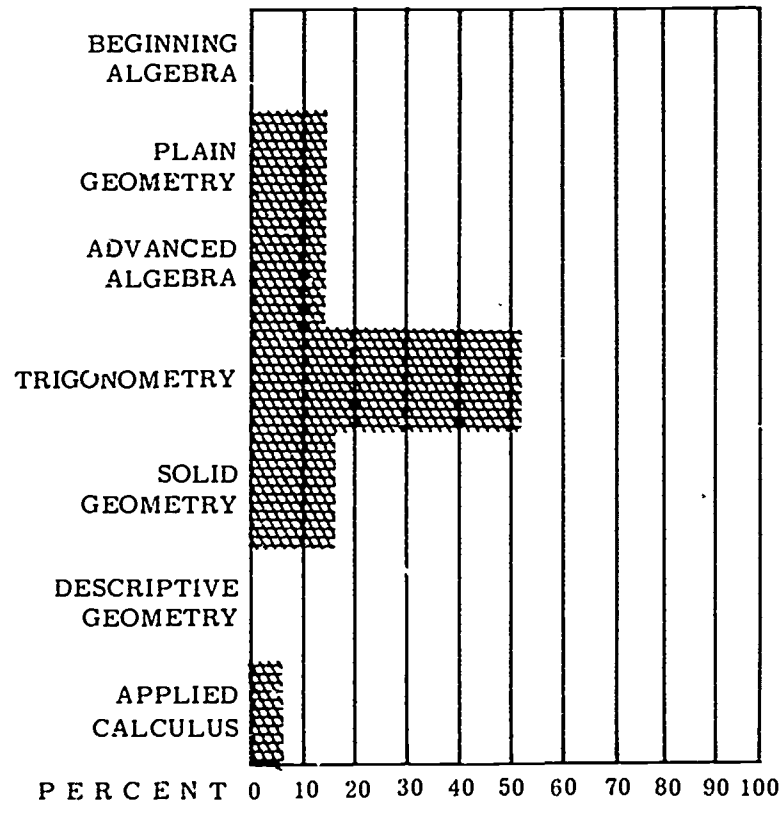


Fig. 7. Mathematics competence required of technicians in the Electromechanical Family.
(798 Responses)

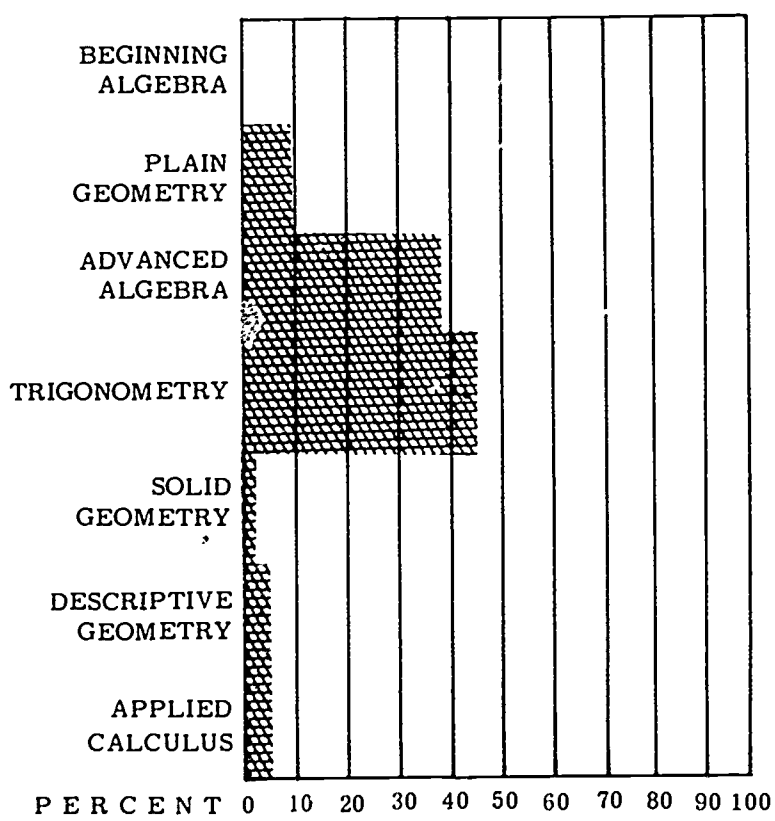


Fig. 8. Mathematics competence required of technicians in Mechanical Engineering Family.
(675 Responses)

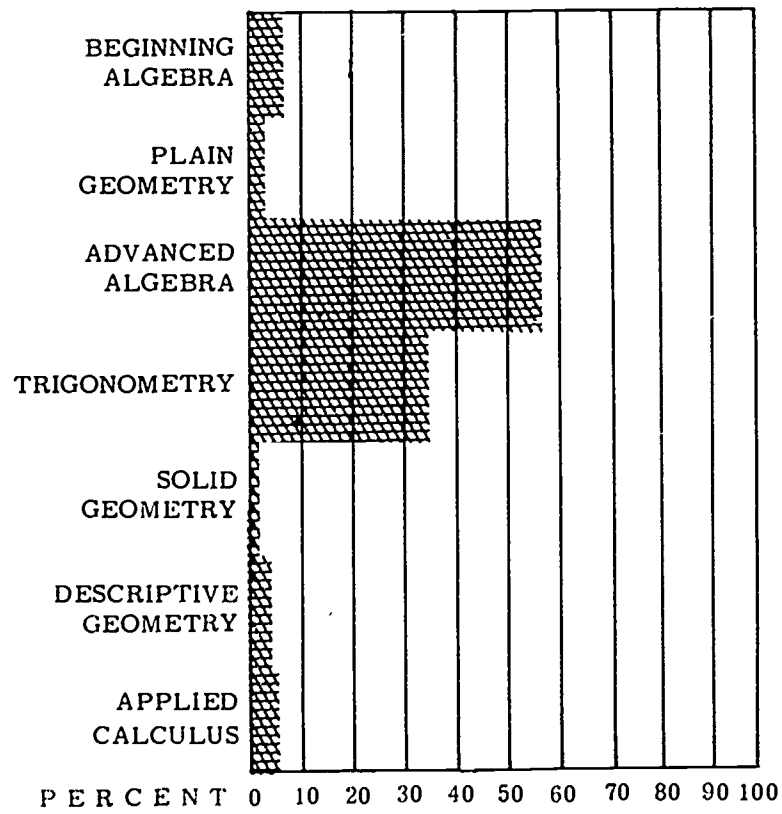


Fig. 9. Mathematics competence required of technicians in the Physics Family.
(306 Responses)

APPENDIX

TYPES OF BUSINESS

Instead of listing each of the 207 firms that participated in the study, the types of business have been recorded in the following list:

Agriculture Science Research
Fluid Dynamics Research and Development
Data Processing Machine Manufacture - Systems
Mechanical Component Testing
Systems Analysis
Atomic, Mechanics, Astronautics
Consulting Engineers and Machine Manufacture
Optical Equipment
Precision Blown Glass Products
Research in Forest Products
R. & D. in Graphic Science
Vacuum Hardware
Radiation Detection
Technical Plating
Development and Production
Development of Automatic Production Equipment
Atomic Energy Measurement Devices
R. & D. High Temperature Metals
Design and Manufacture of Specialized Solid State Components
Manufacture of Glass Fiber Products
Aero Space R. and D.
Pharmaceuticals
R. & D. and Manufacture of Military Vehicles
R. & D. and Manufacture of Space Vehicles
Computer Data Processing
Industrial Seals
Industrial Sprinklers
Electrical-Mechanical-Electronic Manufacturing
Thermodynamics
Soil Testing and Conditioning
Chemical Ink
Industrial Tools
Research and Development
Technical Display Devices
Communications Research, Design and Manufacture
Photo Processing
Nuclear Instruments
Oceanographic Research
Astronomical Observations
Instrumentation for Combustible Gases
Research in Medicine
Laboratory Equipment Manufacture
Explosive Devices
Solid State Physics Research
Glass to Metal Bonding
Industrial Adhesives
Instruments
Laboratory Analysis of Minerals
Rocket Engines and Propellants
Computer Cards
Test of Electrical and Petroleum Products
Semiconductor Manufacture
Asbestos and Cement Pipe
Mechanical Abrasives
Agriculture Science Research
Food Processing
Food Chemistry
Chemical Engineering
Industrial Chemicals
Plastics
Paper Products
Printing
Municipal Government
Utilities
Marine Products
Civil Engineering
Engineering Services
Air Transportation
Electrical Equipment
Automic Power Equipment
Research, Development and Manufacture Electronic Devices
Metal Products
Steel
Computer Manufacture
Rubber Products
Manufacture of Mechanical Devices
Cement
Paint
Missile Parts
Farm Equipment
Electrical Power Control
Hardware Manufacture and Design
Radio Equipment
Communications Equipment

USEFUL COURSES

In answer to a free-response survey question, the following list of courses was compiled. The courses represent suggestions by management that would fit the particular needs of individual companies if offered in junior college curriculums. It is interesting to note that 27 firms recommended a course in laboratory techniques; 10 firms, a course in laboratory physics; 7 firms, a course in instrumentation; 6 firms, a course in engineering mathematics; 5 firms, a course in plastics; and 4 firms, a course in chemistry laboratory technology. The balance of the courses recommended represent responses from one to three firms.

Electric Motor Technology
Catalogue Engineering
Mechanical Engineering
Food Chemistry
Plant Engineering
Chemistry Lab. Technology
Laboratory Techniques
Food Technology
Graphic Science
Public Works Inspector
Building Materials Analysis
Sheet Metal Practices
Manufacturing Methods
Analytical Chemistry Lab. Technology
Sales Engineering
Plastics
Metallurgy
Paint Technology
Molecular Biology
Electronics
Advanced Tube Technology
Microwave Frequency
Glass Blowing
Civil Engineering
Chemistry-Wood Chemistry
Circuitry
Fluid Dynamics
Life Sciences
Mathematics
Machine Laboratory
Magnetics
Data Processing Equipment
Drafting
Machine Shop Mathematics
Polymer Chemistry
Radioactive Materials
Statistics
Aircraft Sciences
Electronic Testing Equipment
Welding - Exotic Materials
Aircraft Maint. Engineering
Meteorology
Electrical and Mechanical Instrumentation
Telecommunications Engineering
Instrumentation - Survey of Instruments
Solid State Physics
Research Methods
Laboratory Physics
Nuclear Physics
Electronic Instrumentation
Thermodynamics
Industrial Chemistry
Programming
Atmospheric Physics
Model Making
Chemical Engineering
Transistors
Industrial Adhesives
Instrument Design
Engineering Mathematics
Engineering Mechanics
Mechanical Laboratory Methods
Machine Tools
Physics
Vacuum Technology
Electrophysics Laboratory
Optics Technology
Basic Electrical Engineering
Machine Shop Practices
Coatings Chemistry
Plant Biology
Industrial Arts
Computer Hardware
Laboratory Mathematics
Blueprint Reading
Missiles and Propulsion
Computer Mathematics
Nuclear Laboratory Methods
Hydraulics
Industrial Standardization
Technical Report Writing
Engineering Procedures

"TOOLS OF WORK"

As part of the Technician Questionnaire, the technicians were asked to identify the kinds of hardware, materials, and concepts with which they work. (See Appendix for sample Technician Questionnaire). These items are identified by the study as "tools of work" and include kinds of equipment, instruments and gages, materials, hand and machine tools, drawings and reports, energy and power, human communications, and mathematics.

A computer correlation analysis was made of these "tools of work" by technician job title and by technician job title and by response to each item in the 12 questions. The analysis revealed that there is no significant difference in responses to questions when the tools of work vary among workers with the same job title (see Table 30 for list of responses).

TOOLS OF WORK AS REPORTED BY TECHNICIANS

Question "A" - Working with Equipment. Kinds:

Adhesive Manufacture
Aerodynamics Test Laboratory
Agriculture Laboratory
Aircraft
All Communication
Automatic Production
Biology Laboratory
Cameras and Related Equipment
Cement and Asbestos
Ceramic Laboratory
Ceramic Processing and Forming
Chemical Laboratory
Chemical Manufacturing
Civil Engineering
Computer Test Laboratory
Construction Materials, Surveying
Control Devices
Cutters, Multiple Drills, Presses, Rolling Mill, Furnace
Design
Drafting
Earth Science Laboratory
Electrical Laboratory
Electrical Test
Electromechanical
Electromechanical-chemical Laboratory
Electronic Laboratory
Electrophysics Laboratory
Food Chemistry
Forming Devices - Metal Forming
Furnace, Presses, Autoclave, Welders, Vibrators, Grinders
Glass Blowing
Glass Laboratory
High Vacuum Equipment
Instrumentation
Laboratory Equipment
Marine
Manuals, Drafting, Catalogs
Material and Structural Test Equipment
Material Test and Fluid Test Equipment
Mechanical Laboratory
Mechanochemical Laboratory
Medical Laboratory
Metals Laboratory
Missiles
Model Making
Nuclear
Optical
Paint Testing
Paperboard Forming
Paper Test Equipment
Pharmaceuticals
Photochemical Processing
Physics Laboratory
Physical Test, Furnaces
Physical Test, Plastic Presses
Plastics
Plastics and Rubber Engraving
Plating
Precision Tools
Pressure Instruments
Printing Laboratory
Printing Press
Production
Radio Laboratory
Research and Test Laboratory Instruments
Rocket Fuel
Rubber Laboratory
Semiconductor Manufacturing Equipment
Solid State Computer
Solid State Test
Space Hardware
Steel Fabrication
Tape Recorder, Camera, Schlieren Apparatus, Cathetometer, Wind Tunnel Controls
Telephone Communications
Telescope and Associated Equipment
Vibration, Shock, Centrifuge
Wind Tunnel Chamber, Compressors, Wind Turbines, Propulsion Power
X ray, Diffractometer, Emission Spectro, Epitaxiolograph, Vacuum Evaporators, Diffusion and Oxidation Furnaces, Micro-etching machine

Question "C" - Working with Materials. Kinds:

Abrasives
Adhesives
Asbestos
Biological
Cement
Ceramics
Clay
Cotton
Crystals
Electronic Components
Fabrics
Film and Camera Components
Fluids
Food
Gases

Question "C" - Working with Materials. Kinds: (cont.)

Human Tissue
Ink
Minerals
Models
Nuclear Materials
Paper and Paper Pulp
Pharmaceuticals
Plastics
Radioactive Materials
Rubber
Soils
Solid Propellants
Wood
Metals
Aluminum, Brass, Steel, Copper, Stainless Steel, Zirconium, Magnesium, Tungsten, Molybdenum, Tantalum

Question "D" - Working with Machine and Hand Tools, Instruments. Kinds:

Bench Tools
Biology Laboratory Tools
Calibration Equipment
Chemical Laboratory
Drafting
Electric Shop
Electromechanical
Forming Tools
Glass Welding, Blowing, Bonding
Hardware Research Laboratory
Inspection
Instruments
Instrument Repair
Machine Shop
Metal Fabrication and Layout
Physics Laboratory
Small Hand Tools
Specialized Tools
Wood Shop

Question "E" - Working with Drawings, Reports, Records, Handbooks. Kinds:

Chemical
Civil Engineering
Computer
Construction
Construction Planning
Design
Electrical
Electrical-Mechanical-Civil
Electronic Laboratory
Engineering
Inspection
Instrument Test
Laboratory Reports, Laboratory Data
Maintenance
Mechanical
Molding
Printing
Production
Quality Control
Radio Laboratory
Research and Development
Sales
Specifications
Technical Handbooks
Test

Question "F" - Working with Energy and Power. Kinds:

Air
Chemical
Electrical
Electro-hydro-mechanical
Electronic-Pneumatic
Gas
Heat, Electronic, Liquid
High Voltage Heating
Hydraulic
Hydrostatic
Infrared
Jet
Magnetic
Mechanical
Nuclear
Pneumatic
Rocket Fuel
Steam
Tensile and Compression
Ultraviolet
Water
X ray

STANDARD MEASURING INSTRUMENTS USED BY TECHNICIANS IN SANTA CLARA AND SAN MATEO COUNTIES

Mechanical Instruments

1. Cast Iron Surface Plates
2. Dividing Heads
3. Gage Blocks
4. Gas Analyzers
5. Granite Surface Plates
6. Hardness Testers
7. Huck Gages
8. Length Rods
9. Measuring Machines
10. Measuring Wires
11. Mechanical Height Gage
12. Mechanical Indicators

Mechanical Instruments (cont.)

13. Micrometers (all types)
14. Null Indicators
15. Plain Plugs and Rings
16. Precision Hite-Chek
17. Precision Levels
18. Precision Rolls
19. Profilemeter
20. Roll Thread Snap Gages
21. Sine Plates and Bars
22. Spring Scale
23. Squares, Blade Type
24. Squares, Cylinder
25. Super Micrometers
26. Surface Indicator
27. Tachometer
28. Taper Plugs and Rings
29. Thread Plugs and Rings
30. Time and Interval
31. Toolmaker Microscope
32. Torque Wrenches and Gages
33. Vernier Calipers (all types)

Electronic Measuring Instruments

1. Accelerometers
2. Amplifiers
   a. DC
   b. Audio
   c. RF and IF
   d. Pulse
3. Analyzers
   a. Waveform
   b. Distortion
4. Barometers
   a. Metric
   b. Aneroid
5. Capacitances
   a. Variable
   b. Decade
   c. Fixed
6. Channel Selector Tuning Units
7. Component Testing Equipment
   a. Tube Testers
   b. Crystal Testers
   c. Transistor Testers
8. Dead Weight Testers
9. Electro Balance
10. Electronic Counters
    a. Frequency
    b. Pulse
    c. EPUT
    d. Time Interval
11. Filters
    a. Lumped Constant Types
    b. Distributed Network Types
12. Flowmeters
    a. Turbine
    b. Vibration Area
    c. Orifice
    d. Venturic
13. Impedance Measure Devices
    a. Q Meters
    b. V.S.W.R.
14. Inductance
    a. Variable
    b. Decade
    c. Fixed
15. Ionization Gages
16. Leak Detectors
17. Local Calls and Associated Equipment
18. Manometers
19. Meters
    a. Panel Meters
    b. Phase Meters
    c. Frequency Meters
    d. Vacuum Tube Voltmeters
    e. Multimeters (Volt-Ohm-Ammeter and like types)
    f. Power Indicating (R. F. etc., and all associated devices)
    g. Digital, Volt, Ohm, Ratio with associated equipment
    h. Portable types of Voltmeters, Ammeters, Wattmeters
20. Oscilloscope (Cathode Ray Tube)
21. Oscillographs
    a. Hot Stylus Type
    b. Mirror Galvanometer
    c. Magazines
22. Power Suppliers
23. Pressure Gages
24. Pressure Transducers
25. Pyrometers
26. Receivers, WWV
27. Recorders
    a. Strip Chart
    b. Audio
    c. Circular Chart
    d. Process Control-(used with recorders)
    e. Digital Printer
28. Resistors
    a. Decade
    b. Fixed
29. Signal Generators and Oscillators
    a. RF
    b. Audio
    c. Noise
    d. Pulse
    e. Square Wave
    f. Function
    g. Time Delay
    h. Electronic Switch (Multivibrator)
30. Spectometers
31. Subcarrier Discriminators
32. Thermometers
    a. Dial
    b. Glass
33. Vibration Test Family of Equipment

Optical Instruments

1. Alignment Scope
2. Auto Collimator
3. Clinometers
4. Collimators
5. Interferometer (Plano)
6. Jig Transit
7. Magnetic Mirror
8. Measuring Microscopes
9. Optical Flats
10. Optical Micrometer
11. Optical Scale
12. Optical Square
13. Optical Targets
14. Spherical Adapters
15. Striding Level
16. Stroboscopes and associated equipment
17. Theodolite
18. Tilting Level
19. Vertical Leveling Mirror

ENGINEERING TECHNICIAN SURVEY
COLLEGE OF SAN MATEO, FOOTHILL COLLEGE, SAN JOSE CITY COLLEGE
COMPANY INFORMATION QUESTIONNAIRE

For the purpose of the survey, science and engineering technicians are defined as semi-professionals who have had formal training beyond high school but less than a bachelor's degree in their field of employment. The area of work lies between the skilled craftsman and the scientific professional, requiring competence in one of the fields of science or engineering. This survey will exclude drafting and electronic technicians.

The information that you will provide will be held in strict confidence. Neither you nor your company will be identified.

1. COMPANY NAME _____
2. ADDRESS _____
3. TYPE OF BUSINESS _____
4. KIND OF PRODUCTS _____
5. TITLE OF PERSON COMPLETING QUESTIONNAIRE _____
6. TOTAL NUMBER OF EMPLOYEES _____
7. HOW MANY EMPLOYEES DO YOU HAVE IN THE FOLLOWING PROFESSIONAL AREAS WHO ARE: 1. DEGREED; 2. TECHNICIANS?

A. ENGINEERING:

	Degree Requirement	Technicians
1. Aeronautical		
2. Ceramic		
3. Civil		
4. Design		
5. Electrical		
6. Electronic		
7. Industrial		
8. Mechanical		
9. Metallurgical		
10. Mining		
11. Nuclear		
12. Plastic		

B. PHYSICAL AND EARTH SCIENCES:

13. Chemist		
14. Geologists		
15. Physicists		
16. Mathematicians		
17. Meteorologists		

C. BIOLOGICAL:

18. Animal Sciences		
19. Plant Sciences		
20. Microbiology		

8. TOTAL NUMBER OF SEMI-PROFESSIONAL EMPLOYEES (not including drafting and electronics):
   Science and Engineering Technicians _____

9. WHAT JOB TITLES DO YOU USE FOR THIS CATEGORY? (i.e. Engineering Aid, Laboratory Technician)

1. _____	4. _____	7. _____	10. _____
2. _____	5. _____	8. _____	11. _____
3. _____	6. _____	9. _____	12. _____

10. HOW MANY OF THE ABOVE TECHNICIANS DID YOU HAVE IN:

		July, 1958		July, 1959		July, 1960	
	*	men	women	men	women	men	women
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

11. HOW MANY TECHNICIANS DO YOU EXPECT TO EMPLOY IN:

	July, 1958		July, 1959		July, 1960	
	men	women	men	women	men	women
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

*12. HOW MANY QUALIFIED TECHNICIANS ARE CURRENTLY AVAILABLE:

1. Many
2. Adequate
3. Few

men	women

13. IN THE PAST 12 MONTHS, WHAT WAS THE NUMBER OF TECHNICIAN:

1. Replacements
2. New Positions
3. Unfilled Openings

men	women

SOURCES OF NEW TECHNICIANS:

1. Upgrade from within the company
2. Hire experienced technicians from outside
3. Hire recently graduated technicians from J.C. level who are inexperienced
4. Use professional staff

Order of Preference	
current	preferred

WHAT TYPES OF OUTSIDE TRAINING HAVE YOU FOUND MOST SUCCESSFUL?

1. On-the-job training and apprenticeship
2. College and university
3. Vocational schools
4. College and university extension
5. Junior colleges
6. Technical institutes
7. Correspondence schools
8. Military training

current	preferred

TRAINING METHODS ENDORSED BY YOUR COMPANY

1. Formal in-plant classes
2. On-the-job training
3. Outside training in junior college
4. Correspondence courses
5. Outside college or university extension

current	preferred

COURSES OR PROGRAMS THAT WOULD BE USEFUL TO YOUR COMPANY IF THEY WERE ADDED TO THE CURRICULUM OF A LOCAL JUNIOR COLLEGE:

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

WITHIN WHAT PROFESSIONAL DISCIPLINES COULD YOU USE WELL-TRAINED TECHNICIANS?

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

ENGINEERING TECHNICIAN SURVEY
TECHNICIAN QUESTIONNAIRE

Please mark each of the following activities (and any others subsequently added) by placing in the parenthesis before each item one of the following to indicate the frequency with which the activity is performed for the position of _____ _____ ( ):

F (frequently), O (occasionally), R (rarely), leave blank for none.

A. WORKING WITH EQUIPMENT--KINDS: _____

1 ( ) Constructs experimental equipment
2 ( ) Performs experiments
3 ( ) Repairs Equipment
4 ( ) Remodels and adapts equipment
5 ( ) Operates equipment
6 ( ) Installs equipment
7 ( ) Tests and tries out equipment
8 ( ) Adjusts equipment
9 ( ) Sets up equipment for production
10 ( ) Evaluates equipment
11 ( ) Trouble-shoots equipment
12 ( ) Designs equipment
13 ( ) Maintains equipment
14 ( ) Fabricates equipment
( ) Other _____

B. WORKING WITH INSTRUMENTS AND GAGES--KINDS: _____

1 ( ) Repairs instruments
2 ( ) Calibrates instruments
3 ( ) Performs experiments with instruments
4 ( ) Changes instrumentation
5 ( ) Maintains data obtained by use of instruments
6 ( ) Inspects with instruments
7 ( ) Trouble-shoots with instruments
8 ( ) Constructs instruments
9 ( ) Designs instruments
10 ( ) Sets-up measuring instruments
11 ( ) Designs special purpose instruments
12 ( ) Recommends gage construction
13 ( ) Makes computations from instruments
( ) Other _____

C. WORKING WITH MATERIALS--KINDS: _____

1 ( ) Performs routine tests
2 ( ) Works out specifications
3 ( ) Calculates weights, tensile strengths
4 ( ) Performs research on materials

C. WORKING WITH MATERIALS (CONT.)

5 ( ) Tests for stresses, strains, motion, impact
6 ( ) Selects materials for making repair parts
7 ( ) Determines material machine ability
8 ( ) Tests raw materials
9 ( ) Determines suitability of various materials to differing applications
10 ( ) Specifies materials
( ) Other _____

D. WORKING WITH MACHINE AND HAND TOOLS, INSTRUMENTS--KINDS:_____

1 ( ) Performs operations with hand tools
2 ( ) Uses machine tools (lathe, mills, etc.)
3 ( ) Brazes, welds, solders
4 ( ) Uses drafting instruments
5 ( ) Performs research with use of tools and machines
6 ( ) Repairs personal tools
7 ( ) Grinds cutting tools and performs layout work
8 ( ) Localizes and changes machine parts
9 ( ) Makes layout prior to machine operations
( ) Other _____

E. WORKING WITH DRAWINGS, REPORTS, RECORDS, HANDBOOKS--KINDS:_____

1 ( ) Plots curves, graphs, etc.
2 ( ) Reads technical reports
3 ( ) Writes technical reports
4 ( ) Uses engineering and technical manuals, handbooks
5 ( ) Makes free hand sketches, working drawings
6 ( ) Records and compiles data
7 ( ) Makes finished scale drawings
8 ( ) Works with blueprints, sketches
9 ( ) Works with wiring diagrams
10 ( ) Keeps preventative maintenance records
11 ( ) Takes details from master designs
12 ( ) Uses manufacturer catalogues for ordering
13 ( ) Corresponds with customers
14 ( ) Works out pictorial layouts
( ) Other _____

F. WORKING WITH ENERGY AND POWER--KINDS: _____

1 ( ) Trouble-shoots power problems
2 ( ) Lays out hydraulic circuits
3 ( ) Rebuilds hydraulic equipment
4 ( ) Controls electrical power
5 ( ) Calculates heat input
6 ( ) Checks work input to motors

F. WORKING WITH ENERGY AND POWER (CONT.)

7 ( ) Adapts stock hydraulic and pneumatic cylinders to molds and special tools
8 ( ) Designs hydraulic cylinders
( ) Others _____

G. WORKING WITH PERSONNEL

1 ( ) Inducts and orients new personnel
2 ( ) Hires other personnel to work with him in the field
3 ( ) Trains others on the job
4 ( ) Works with individual persons
5 ( ) Works with group situations
6 ( ) Appraises the work of others
7 ( ) Supervises the work of others
8 ( ) Coordinates the work of others
9 ( ) Performs liaison work
10 ( ) Advises other personnel on technical problems
11 ( ) Works with other departments
12 ( ) Consults and seeks information from supervisors
( ) Other _____

H. MATHEMATICS

1*( ) 1. Beginning Algebra 2. Advanced Algebra 3. Plane Geometry
4. Trigonometry 5. Solid Geometry 6. Descriptive Geometry
7. Applied Calculus

*In the starred blank please write the number of the highest level of math required on your job.

2 ( ) Computing ratios
3 ( ) Solving equations
4 ( ) Substituting in formulas
5 ( ) Computing stress analysis
6 ( ) Using proportions in design
7 ( ) Solving formulas
8 ( ) Computations for evaluating materials
9 ( ) Computations for analyzing substances
10 ( ) Computations for interpreting reports
11 ( ) Computing statistical control
12 ( ) Computations for layout work
13 ( ) Computations for drafting, drawing
14 ( ) Calculating angles, forces
15 ( ) Computations for fabricating work
16 ( ) Computations for tooling activities
17 ( ) Computations for interpreting drawings
18 ( ) Computing angles
19 ( ) Laying out jigs, tools
20 ( ) Computing shapes
21 ( ) Calculating indirect dimensions
22 ( ) Solving triangular ratios

H. MATHEMATICS (CONT.)

23 ( ) Accounting time and materials
24 ( ) Making cost estimates
25 ( ) Computations for designing new products
26 ( ) Computing savings
27 ( ) Interpreting formulas
28 ( ) Interpreting reports
29 ( ) Using handbooks and manuals
30 ( ) Using slide rule
31 ( ) Using specialized computers
32 ( ) Operating calculating machines

I. APPLIED SCIENCE

1 ( ) Using applications of springs, rotating masses, leverage
2 ( ) Testing strength of materials
3 ( ) Utilizing machine functions and capabilities
4 ( ) Designing devices and moving parts
5 ( ) Inspecting gears and tools
6 ( ) Analyzing materials
7 ( ) Measuring motor speeds
8 ( ) Relating mechanics to electricity
9 ( ) Using motion transfer systems
10 ( ) Making dial hook-ups
11 ( ) Heat treating materials
12 ( ) Making heat specifications
13 ( ) Using induction heating
14 ( ) Hardening and drawing metals
15 ( ) Utilizing heat and burned-off gases
16 ( ) Operation of electric furnaces
17 ( ) Using electrical theory in circuitry, motors, solenoids
18 ( ) Using electric symbols
19 ( ) Working with electrical process controls
20 ( ) Using activating devices
21 ( ) Designing, repairing solenoids, relays
22 ( ) Using basic electronics
23 ( ) Reducing sound and noise
24 ( ) Transmitting sound and light
25 ( ) Working with acoustics
26 ( ) Working with waterflow, valves, tubing
27 ( ) Maintaining hydraulic controls
28 ( ) Evaluating hydraulic functions
29 ( ) Applying principles to valves in various media, collodion
30 ( ) Applying principles to plating
31 ( ) Applying principles to synthetic materials, plastics, solvents
32 ( ) Making routine checks, basic tests
33 ( ) Evaluating effects of tolerances on hydraulic proportions
34 ( ) Designing and repairing hydraulic machines
35 ( ) Designing hydraulic machines

I. APPLIED SCIENCE (CONT.)

36 ( ) Using metallurgy in design
37 ( ) Construction of metals
38 ( ) Heat treatment limits
39 ( ) Distinguish properties of metals
40 ( ) Effects of heat treatment, polishing, plating
41 ( ) Functions of steels as related to welding
42 ( ) Measuring strength of machine parts
43 ( ) Choosing correct parts for machine maintenance
44 ( ) Determine capabilities and limitations of ceramic materials
45 ( ) Using strength of steels for tool design
46 ( ) Specifying size of fasteners
47 ( ) Constructing and installing new equipment
( ) Other _____

J. COMMUNICATIONS

1 ( ) Giving instructions in training
2 ( ) Putting across ideas, explanation
3 ( ) Describing conditions, causes
4 ( ) Verbalizing and discussing problems
5 ( ) Coordinating efforts among others
6 ( ) Securing cooperation
7 ( ) Handling complaints
8 ( ) Communicating with all concerned
9 ( ) Making records and reports
10 ( ) Writing brief directions and short notes
11 ( ) Reading written communications
12 ( ) Reading shipping schedules
13 ( ) Corresponding in-plant notes
14 ( ) Making time schedules
15 ( ) Routing, procedural instructions
16 ( ) Writing assembly specifications
17 ( ) Requisitioning materials
18 ( ) Writing to suppliers, customers
19 ( ) Writing instruction manuals
20 ( ) Making statements of progress
21 ( ) Making charts, graphs, drawings
22 ( ) Freehand sketching
23 ( ) Diagramming circuits
24 ( ) Illustrating new machinery, products
( ) Other _____

K. RELATIONS WITH PEOPLE

1 ( ) Ability to work with many supervisors
2 ( ) Ability to achieve with a minimum of supervision
3 ( ) Trying out and testing new ideas
4 ( ) Carrying out assignments
5 ( ) Working closely with project engineer
6 ( ) Handling sensitive people
7 ( ) Giving orders for maximum understanding

L. ENGINEERING DRAFTING

1 ( ) Designing hydraulic machines
2 ( ) Repair hydraulic machines
3 ( ) Use metallurgy in design
4 ( ) Diagramming circuits
5 ( ) Freehand sketches
6 ( ) Making charts, graphs, drawings

VT 001 237

VT 001 237
Goff, Maurice L.
Selected Techniques for Formulating the Questionnaire, Mechanics and Related Materials of a Follow-Up Procedure Dealing with Post Secondary Vocational-Technical Graduates.

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*QUESTIONNAIRES; *LITERATURE REVIEWS; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; *RESEARCH DESIGN; POST SECONDARY EDUCATION; *GRADUATE SURVEYS; VOCATIONAL FOLLOWUP

A comprehensive review of the literature dealing with the mail questionnaire is presented for three general areas: instrument of the follow-up procedure, mechanics of the follow-up procedure, and supplementary materials of the follow-up procedure. Examples of subtopics are (1) justification for use of the mail questionnaire, (2) consideration for its construction, (3) follow-up of non-respondents, and (4) accompanying letter and validation of the questionnaire. A bibliography is included. (SL)

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SELECTED TECHNIQUES for formulating the QUESTIONNAIRE, MECHANICS and RELATED MATERIALS of A FOLLOW-UP PROCEDURE dealing with POST SECONDARY VOCATIONAL-TECHNICAL GRADUATES



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SELECTED TECHNIQUES FOR FORMULATING THE QUESTIONNAIRE, MECHANICS, AND RELATED MATERIALS OF A FOLLOW-UP PROCEDURE DEALING WITH POST SECONDARY VOCATIONAL-TECHNICAL GRADUATES

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REVIEW OF LITERATURE PERTAINING TO TECHNIQUES FOR DEVELOPING A FOLLOW-UP PROCEDURE

Literature about the development of a follow-up procedure using the mail questionnaire to obtain information from numerous subjects may be classified into three general areas: (1) instrument of the follow-up procedure, (2) mechanics of the follow-up procedure, and (3) supplementary materials of the follow-up procedure. The grouping of ideas for developing each of the three general areas constitutes the subdivisions of each area. This organizational pattern facilitates the selection of criteria for developing a follow-up procedure.

Pertinent literature was reviewed to determine what techniques authors believe are the most effective for use in a mail follow-up study. Special attention was given to research studies in this area. As would be expected, there was considerable duplication of ideas among authors. An attempt was made to include each different technique mentioned by the various authors. Only techniques that were applicable to a mail follow-up of post-secondary graduates were included.

Sletto (35:195) reported in 1940 that there were very few studies dealing with questionnaire techniques.

According to Wallace, (45:42) few research studies of a professional calibre relative to the validity of the mail questionnaire had been done by 1954.

INSTRUMENT OF THE FOLLOW-UP PROCEDURE

Justification for Using the Mail Questionnaire

Even though the use of the mail questionnaire as a research tool has been severely criticized by both research workers and respondents, it nevertheless is very valuable (31:69) for collecting certain types of information if it is properly constructed.

Wallace (45:41) presented a case "for and against" the mail questionnaire. He said that the mail questionnaire at times has been grossly abused and is an object of suspicion among some researchers. However, he saw places where the mail questionnaire could be used to good advantage; in some areas, it was preferred to a survey by personal interview.

The Market Research Department of Time (46:53) praised the mail questionnaire because it can reach the recipient quickly and inexpensively and it gives direct access to many people who otherwise would be unwilling to interrupt their busy schedules to respond.

One advantage of the mail questionnaire, pointed out by Franzen and Lazarsfeld, (14:293) is that the mail can carry the questionnaire into any territory. This not only assures communication with persons otherwise inaccessible for economic reasons, but it also enables one man to conduct a very extensive survey. These authors also pointed out that the mail questionnaire is superior to the personal interview in some instances. Shortcomings of the personal interview are: (1) subjects often are unavailable, and (2) subjects may be less candid in their replies due to the presence of another person when answering

questions. "Far fewer persons refuse income information by mail than by interview making the mail response probably the more accurate picture of the economic worth of such a universe as this." (14:317)

Length of the Questionnaire

Rummel (32:89) stated that to achieve a high percentage of returns, the questionnaire must be designed to require a minimum of time to complete.

The number of items in the questionnaire was a concern of McGrath, Jelinek, and Wochner (21:105) who recommended that not more than two hundred items be included.

Norman (26:239) stated that there seemed to be a relationship between the length of the questionnaire and the number of responses to the questionnaire; the more questions presented in the questionnaire, the less likely was the subject to respond.

The idea of brevity was shared by Koos (20:130) who said that with other things being equal, the shorter the questionnaire, the more prompt the return, and the greater the percentage of response.

Kneeland (19:13) reported that a one-page questionnaire is more likely to be returned than one of two or more pages.

A somewhat different point of view (40:949) was that the interest of the respondent and the ease of answering are the chief factors, rather than the length of the questionnaire, in determining whether the subject will respond to the questionnaire.

Payne (28:234) suggested that the researcher use as few words as possible in asking the questions; most questions can be asked in twenty words or less.

Nixon (25:484) felt that if the questionnaire required a relatively short time to complete, fifteen minutes or less, this information should be placed in a prominent location on the first page of the questionnaire.

Wording of the Questionnaire

McGrath, Jelinek, and Wochner stated that: "There are very few standards for constructing a questionnaire save that of clearly worded, understandable items." (21:105)

The most critical consideration when wording a questionnaire is to make sure that the particular issue which the researcher has in mind is the particular issue on which the respondent gives his answers. According to Payne: (28:9, 16) "If all the problems of question wording could be traced to a single source, their common origin would probably prove to be in taking too much for granted." Other suggestions offered by Payne (28:234-6) include the following: (1) double negatives should never be used; (2) if the antecedent is not very clear, restate it; (3) check all meanings of words; (4) avoid use of concept words; (5) familiar words are most useful if they do not have too many meanings; (6) to make questions more readable, no words should be abbreviated; (7) to avoid misplaced emphasis, underscore words which should be emphasized; and (8) use a minimum of punctuation.

Car must be taken to see that the wording of the questions (40:948-9) will be clearly understood by all respondents. Clear and precise definitions should be included with each question containing terms that may have more than one interpretation; average daily

attendance would be an example of such a term. Technical terms which may not be understood should be defined.

Freed (15:187) also was concerned about unclear or controversial terms which are frustrating to the respondent. He suggested the use of illustrations and definitions to clarify their meanings.

The researcher must ask specific rather than "shotgun" questions, according to Van Dalen, (44:304-5) if he is to be successful in obtaining information about income, marital status, and age. Van Dalen also stated that the researcher should not ask the respondent for information that is available elsewhere.

McGrath, Jelinek, and Wochner (21:105) suggested that neither personal references nor humor should be incorporated into the questionnaire.

The wording of the questions should not be so complicated (31:69-70) that elaborate or lengthy directions are required. Frequently, two simple questions may be better than one complex question. Caution should be exercised in asking such complicated questions that the respondent will be forced to guess.

Questions asked on the questionnaire (1:311) must not strain the respondent's memory too much. This idea applies to the recency of the date or period of time to which the information requested applies, the length of the period of time to which the question applied, and the detail in which the information is requested.

The language of the questionnaire must approximate the language of the respondent, according to Festinger and Katz, (12:343-7) if

complete and accurate communication of ideas is to prevail. The questionnaire must be constructed in a frame of reference familiar to the respondent; it must begin at the point "where the respondent is." These authors stated also that questions should be limited to a single idea.

In preparing the questionnaire, (19:13), the respondent should be kept upmost in mind. Questions should be stated in the language of the respondent, and only essential items should be included in the questions.

The vocabulary used in the questionnaire (15:187) should be at the anticipated level of education of the respondent.

Avoid the appearance of talking down to the respondent; (28:116, 233) this is insulting to the intelligence of the respondent. The mistake of talking down may be committed by giving explicit definitions of terms in common use. Although some respondents will need these definitions, they need not be undisguised definitions.

In an extensive follow-up study reported by Droege and Crambert, (8:253) the respondents were requested to complete an "information sheet." The term "questionnaire" was not used with the respondents because of their possible undesirable reaction.

According to Nixon, (25:483) the words "questionnaire" or "check list" should not appear on the questionnaire form; this avoidance is to reduce the irritating effect these words have upon some respondents. Reference to the questionnaire as a "form" or "instrument" may have a less irritating effect.

Questions should be as short as possible (28:129, 161) and contain only simple words; however simple words can also cause trouble. The word "and" can be taken either as separating two alternatives or as connecting two parts of a single alternative. Words with "any" root may be subjected to problems of meaning; anybody can mean everybody or some one person; anything may mean everything or one particular thing.

Freed (15:187) recommended that questions be stated in a decisive manner: "...do not include modifiers that qualify the question to the extent that it becomes useless. Terms such as fairly, sometimes, usually, perhaps, and maybe should be avoided."

Good grammar should be used, (28:233, 234) but do not make the questionnaire sound stilted; do not use slang of folksy expressions. Beware of questions with double or triple meaning. For example, a direction such as: "Please check your sex" has three meanings--mark, restrain, and verify.

Ferber (10:223) warned that when developing a questionnaire, care should be taken to see that wording is imparcial in order not to yield a biased picture of the true state of affairs.

Festinger and Katz (12:346) agreed that the questions should be phrased in such a way that they contain no suggestions as to the appropriate response. "One way in which a question may suggest a positive or negative answer is through the use of words which have become emotionally 'loaded,' either favorably or unfavorably."

Payne (28:235, 236) stated that the "loading" of questions is seldom desirable but is easily done by the introduction of the status

quo, stereotype, and "dead give away" questions. Introduction of certain examples will also bias a response. Payne warned against "pride pricking" questions such as: "Do you own a car?" This question may result in the problem of a prestige response.

Questions should be stated so that they are clearly understood (40:949) by the respondent but they should not give any hint as to the expected, desired, or acceptable answer.

Rummel (32:97) stated that questions should be phrased to avoid academically or socially acceptable responses. Every attempt should be made to phrase questions so that each respondent can answer truthfully without embarrassment.

Chamberlin (5:429) reminded researchers that they must be careful not to force the respondent into an embarrassing situation by asking for "pro or con" responses to controversial questions.

It was noted in gathering labor force data (1:310) that antagonism on the part of the respondent resulted when respondents who were not employed and not seeking employment were asked: "Why are you not actively seeking work?" Frequently, this type of question will be ignored by the respondent.

Van Dalen (44:304) suggested that to elicit honest replies, the questions must be worded to allay any fear, suspicion, embarrassment, or hostility on the part of the respondent.

Stoke and Lehman (37:436) expressed the opinion that questionnaires are peculiarly vulnerable when employed for collecting personal information or when used with individuals who see or imagine they see

an opportunity to advance their personal interests by means of the response they make.

Koos (20:113) felt that the researcher should request only original data rather than derived data such a proportions and percentages.

Arrangement and Organization of the Questionnaire

According to Ferber and Verdoorn, (10:213, 219, 221-2) clear, simple, and to-the-point questions must also be well organized, at least from the point of view of the respondent; this is particularly true of a mail questionnaire that must "speak for itself." The first two or three questions in the questionnaire are very important in gaining the respondent's favorable attitude toward responding to the entire questionnaire. The questions that are easiest to answer should be placed near the beginning of the questionnaire. Questions that should be avoided at the beginning of the questionnaire are those that put too great a strain on the memory or the intellect, questions related to personal wealth, and questions of a personal nature. A clear and smoothly-moving question sequence is the most important factor in determining whether or not rapport is maintained. The question sequence should conform as nearly as possible to the respondent's way of thinking; questions should follow a "time line" and should go from the general to the specific.

Festinger and Katz (12:348, 350) suggested that questions should be asked from the general to the specific and called this the "funnel approach." These authors also stated that the sequence of ideas in a questionnaire should follow the logic of the respondent. The first

question serves to motivate the respondent to participate more thoroughly in the topic under consideration.

Travers (43:250) suggested that early questions in a series can be constructed so the accuracy of subsequent responses can be checked; if income information is desired, place of employment, grade, and base pay should be asked prior to asking the amount of income.

Continuity should play a part in the arrangement of questions. (15:187) "A well-designed instrument will educate the respondent as well as the researcher."

Use of numbered questionnaires was recommended (25:482) for two reasons: (1) if the respondent fails to write his name on the questionnaire, an accurate record of the returned questionnaires is maintained, and (2) numbered questionnaires are useful in tabulation of information; instead of using tally marks, the code number can be used, thus giving identity to individuals without looking at individual reports.

Romine (31:69) suggested that questions that can be answered in like fashion should be grouped to reduce the need for repetition of directions. Also, questions should be stated in such terms as will permit interrelating and grouping in order that a more comprehensive and unitary picture of the whole is presented.

McGrath, Jelinek, and Wochner (21:105) recommended division of the questionnaire into specific sections with no fewer than twenty typical items in each section and no more than two hundred items in the total instrument.

In preparing a questionnaire, (19:13) consideration should be given to how the results will be tabulated or organized.

Form of Questions and Questionnaire

Rummel (32:366, 398) reported that a post card can be used successfully as a questionnaire. When additional space is needed, a card in the shape of an envelope may be used. An example of this type of questionnaire, bearing the insignia of the school, was displayed.

Whipple (47:253) stated that the questionnaire should be constructed so that a minimum of writing is required of the respondent. He favored questions that would elicit unequivocal replies that may be subjected to statistical treatment.

The suggestion was made by Payne (28:229-32) that researchers should consider converting the free-answer question to a categorical type of question. He also suggested that the free-answer question should indicate the number of choices available to the respondent. Suggestions involving two-way questions and multiple-choice questions include the following: (1) if mutually exclusive choices cannot be made, a "both" answer box should be included; and (2) all possible alternatives should be included. Payne did not recommend a limit of five or six questions as did some researchers who felt that a person cannot keep more than six alternatives in mind simultaneously. When given a list of numbers, (28:80, 84) respondents tended to select those near the middle of the list. The reverse of this tendency was true when people were asked to select from a card containing a variety of ideas or statements; in this case, extreme positions were selected with the top of the list being favored.

One of the ten cardinal principles for questionnaire construction set forth by Freed (15:188) was that the researcher should observe parallelism and exclusiveness in multiple-choice questions.

In Rummel's (32:89, 97) discussion of the multiple-choice form of question, he stated that the multiple-choice form has the least weaknesses for questionnaire use. Rummel favored the use of the type of question, whenever possible, that requires a check mark to indicate the respondent's answer.

The opinion was expressed by Romine (31:70) that to avoid undue or invalid channeling of responses, a sufficient number of responses should be stated for the respondent to select from in answering multiple-choice questions.

In Sheatsley's article, (33:127) "Closed Questions Sometimes More Valid Than Open," he presented some evidence in support of the idea of multiple-choice questions as superior in the construction of a questionnaire.

One of the disadvantages of the unstructured question (10:214) is that the answers may not be comparable with each other because of the wide range of data; however, this wide range of data may be a decided advantage in some studies. The unstructured reply easily can be biased by the researcher's injecting his own interpretation of the respondent's replies.

Directions Included in the Questionnaire

Nixon (25:484-5) offered the following suggestions for giving written directions on the questionnaire: (1) make them brief; (2)

group questions according to different types of response or marking; (3) set off directions with heavy, large distinctive lettering; (4) place "yes" and "no" replies vertically rather than horizontally; (5) on the bottom of the first page write "over" if more items appear on the back of the page; and (6) number each page of the questionnaire consecutively.

Directions (31:69) should be complete, clearly stated, and placed close to the point of application. Illustrations may be helpful in some cases.

Directions for completing the questionnaire (32:92) should be complete but not lengthy; they should stand out sharply by the use of bold-face type, capital letters, italics, or underscoring; and they should be stated precisely.

Ferriss (11:247-8) conducted a scientific project in which he determined various factors that are effective to use with the mail questionnaire. Setting a deadline for return of the questionnaire seemed to be very effective in stimulating an immediate, heavy response. Ferriss recommended that the deadline be set at ten days after mailing.

Chamberlin (5:429) presented a thirteen-point check list which a questionnaire must pass or it will "find its way to circular file thirteen." One of the requirements was that the date for return of the questionnaire must allow sufficient time for the respondent to complete the questionnaire.

Appearance of the Questionnaire

Nixon (25:481-2) stated: "It is generally agreed by authorities in educational research that more returns will be forthcoming when

questionnaire forms are effectively presented and easy to read and mark." Nixon's other suggestions included: (1) a high quality paper should be used; (2) colored paper or colored ink can be used to enhance the appearance of the questionnaire; and (3) the form should be printed rather than mimeographed, if possible.

Typewritten questionnaires produced more responses than duplicated ones in an experiment that was reported by Norman. (26:237) The typewritten questionnaires produced an average return of 61 percent while only 51 percent return was reported for the duplicated questionnaires.

A study conducted by Mooren and Rothney (24:412) of 688 subjects was designed to find out if personalizing a follow-up by using handwritten letters would affect the number of responses. It was found that personalizing the follow-up produced only slight gains in the number of replies and none in the quantity of responses to the questions asked.

McGrath, Jelinek, and Wochner (21:105) agreed that the questionnaire must be attractive, but they stated that there is little need for having the questionnaire printed, unless spacing problems are better met by printing.

According to Topp and McGrath, (42:60) good substitutes for printing are neat mimeographing, multilithing, or lithographing.

Failing to allow ample space (19:13) on the questionnaire discourages respondents from answering, and it makes interpretation of the responses difficult. If information is to be typed, fit the lines to typewriter spacing.

Assurance that Information Will Be Held in Confidence

Corban (6:406) recommended a procedure for evaluating the curriculum of the community college which is based upon receiving information from the graduates concerning their employment status. To obtain the dates of employment, the name and address of the employer, and the position held by the graduates, assurance must be given that this information will be given confidential treatment.

Nixon (25:483) reported that questionnaires are much more likely to be returned if the respondent has the opportunity to indicate on the questionnaire if he desires the follow-up information to be kept confidential. Nixon suggested that a question with a "yes" or "no" answer be constructed to provide for this situation.

The recipient of the questionnaire should be asked to sign the questionnaire and list his title or position (42:60) with the assurance that all data will be treated impersonally.

If personal information is requested (44:305) on the questionnaire, assurance should be given the respondent that information will be held in strict confidence.

Requesting Respondent's Signature on the Questionnaire

Gerberich and Mason (16:122-4) conducted a study to determine if asking a respondent to sign his name to the questionnaire affected the response to the items on the questionnaire. No marked difference existed.

A researcher should be conscious of the possible inaccuracy of answers to personal questions, according to Hubbard; (18:504) some

researchers believe that by not requiring a signature, more accurate information is received. Hubbard commented that in studies he had reviewed, it appeared that students were about as free in expression of their opinions when the questionnaires were signed as when they were not signed.

Fischer's study (13:225) showed that the respondent's signature on the questionnaire may have had an inhibiting effect on the honesty and frankness of the response; this was especially true when highly personal items or serious problems were presented.

According to Koos, (20:108) the waiver of the signature on the questionnaire, thus preventing identification, will encourage greater accuracy and frankness on the part of the respondent in answering the questionnaire.

Other Considerations in Developing the Questionnaire

Being specific when formulating the objectives of the study (15:187) is a prerequisite to good questionnaire construction. Each question should clearly further the avowed purpose of the questionnaire.

Prior to questionnaire construction, the research objectives (12:341) and the specifications of the data required to meet those objectives must be clearly determined.

Nixon (25:483-4) recommended the following: (1) the title of the study should be displayed prominently near the top of the first page of the questionnaire; (2) the name of the sponsoring agency should be centered at the top of the first page of the questionnaire; (3) space for the respondent's name and title should be provided; (4)

the mailing date of the questionnaire should appear on page one; and (5) the name, title, and complete address of the compiler to whom the form should be returned should be included on the first page, if possible; otherwise, it should be entered as the last item on the form.

All questionnaires (32:106) should include, in addition to whatever is presented in the accompanying letter, a descriptive title, brief statement of the purpose of the study, name of the sponsoring institution, and the name and address of the person to whom the questionnaire is to be returned.

Response to the questionnaire was increased (20:122) when some person held in high regard by the recipients endorsed the project. This endorsement can be accomplished by means of a letter which accompanies the questionnaire.

MECHANICS OF THE FOLLOW-UP PROCEDURE

Orientation of Questionnaire Recipient

The percentage of response to the mail questionnaire tended to be high, according to Donald (7:100, 113) when the respondent was associated with the organization sponsoring the study. The response was also better when the respondent had a special interest or involvement in the content area covered by the questionnaire. "The higher the involvement, in terms of active participation, knowledge, and understanding of the organization, and loyalty to it, the fewer the stimuli required to induce a response."

Based upon his own study plus other research pertaining to questionnaire respondents and nonrespondents, Burchinal (3:172) stated that whether or not a questionnaire is returned is dependent upon the subject's approval of the problem under study and whether or not the subject has a positive relationship with the agency conducting the research.

The importance of the topic to the recipients of the questionnaire was ranked by Toops (39:212) as the most important factor in getting a high return.

In an experiment conducted by Shuttleworth, (34:652-7) a twenty-five cent reward was included with the questionnaire to determine if this kind of inducement would increase the percentage of return. The percentage of return was higher, but because of the added expense, use of a monetary reward was not recommended.

From an extensive study done by a German investigator, (26:243) it was concluded that the reasons for not answering a questionnaire are: (1) indifference, (2) negligence, (3) suspicion, (4) lack of understanding, (5) fear of affecting status, and (6) minimizing the importance of personal data.

Festinger and Katz (12:344) stated that the respondent was reluctant to communicate when he failed to see the relationship between a question and his own interpretation of the research objectives.

If conditions of the follow-up study will permit, an orientation (7:100) with the prospective questionnaire recipients prior to receiving the questionnaire is of upmost importance in getting a good response to the questionnaire. The purpose of the orientation period is to

motivate the respondent to participate in the follow-up study and to sharpen the respondent's perception of the fact that returning the questionnaire may help him fulfill a personal goal.

This was further discussed by Cartwright (4:253-67) who collected a large number of separate studies conducted by social psychologists, employed by the federal government, for the purpose of doing research on mass persuasion as it applied to selling United States War Bonds. These ideas deal with basic processes involved in the induction of mass behavior. To the extent that the principles are valid, "they should apply to all inductions, whether through the mass media or in a face-to-face situation." This material dealt with the process of induction and how it must be concerned with the establishment of cognitive, motivational, and behavioral structure. "Only when conditions are proper in respect to all three of these, will the actual induction of behavior occur." To change a person's behavior, it is necessary to change his cognitive structure. This means that the "message" must reach the sense organs of the person who is to be influenced. Research points out quite clearly that merely hearing and seeing will not guarantee that the "message" will reach the person. It was pointed out that, of the people receiving a pamphlet distributed to nearly every household in the country by the Treasury Department, only 17 percent recalled receiving a copy. "Upon the basis of a first general impression, people categorized the pamphlet as something they did not care to read and disposed of it without further scrutiny." Having reached the sense organs of the individual, the "message" must

be accepted as a part of the individual's cognitive structure; it must be rejected, or it must be distorted to fit. Cartwright felt that a person's behavior is guided by his cognitive structure; however, it is necessary to energize this behavior. Behavior is energized by need, and the strength of the need determines the amount of energy. To induce a given response, the subject must see the action as a path to some goal that he has; the more goals seen as obtainable by a single path, the more likely the subject will be to take that path. Even if an action is seen by the subject as leading to a desired goal, he will tend not to choose that goal if easier, cheaper, or otherwise more desirable actions also lead to the same goal. In addition to creating a favorable cognitive and motivational structure for the purpose of inducing a given action, this structure must gain control of the person's behavior at a particular point in time. "The more specifically defined the part of action to a goal, the more likely it is that the structure will gain control of behavior;" that is, unless a proposed action is defined very specifically, probably the action will not be carried out although it has been accepted as desirable.

Validation of Questionnaire

Corbman, (6:410) in his explanation of how junior college curriculums should be evaluated by follow-up studies, recommended that the questionnaire be validated by submitting it to trial use on a small number of respondents. Such an empirical trial will determine if the questionnaire needs improvements, simplifications, or revisions in presentation or arrangement; if the instructions and questions are

clear; if each question is so worded as to evoke the same interpretation from all respondents; and if the interpretation is the one needed to obtain the information the questionnaire was designed to obtain.

Romine (31:70) pointed out that the completed questionnaire should be carefully studied and then submitted to a number of persons for their suggestions and criticisms prior to the final draft.

Festinger and Katz (12:353) stated that no matter how astute the researcher has been in wording and designing the questionnaire, he should try it out with a small group before launching into the actual study.

The questionnaire should be submitted (40:949) to critical experts who will attempt to "pick the questionnaire to pieces" finding all of its faults. After this action and the appropriate revisions are made in the questionnaire, it should be submitted to a small sample population.

Topp and McGrath, (42:60) suggested that to forestall serious weaknesses in the questionnaire, it should be submitted to a trial jury for a pilot run before sending it to the subjects of the study.

Who Should Receive the Questionnaire

Prior to sending a questionnaire to an individual, (44:301) consideration should be given to how free, willing, and qualified the individual is to divulge information that the researcher is seeking.

The questionnaire should be mailed (42:60) only to those who have previously expressed a willingness to participate in the research study.

It is generally wise to write in advance to the intended recipient to acquaint him with the project and to ask him if he would be willing to complete a questionnaire. (9:56)

Officials of the Pasadena City College (22:260-3) felt that it was important to contact all of their graduates instead of using a sampling technique to gather follow-up information. The reasons for this decision included the following: (1) each student's comment concerning evaluation of courses and services was valuable to the college, (2) information received helped keep placement records of graduates up-to-date, (3) graduates could be informed of additional educational opportunities, and (4) the follow-up showed the school's interest in each of its alumni.

Stimson (36:179) pointed out that one of the valuable features of sending follow-up questionnaires to all graduates is recruitment of new students. He explained that the good public relations derived from the follow-up study will ultimately result in recruiting students.

Distribution of the Questionnaire

In a study conducted by Hayes, Landy, and Beery, (17:43, 70) an attempt was made to get questionnaires from the school into the hands of a large number of former students; three methods were used--delivery by mail, delivery by student messenger, and delivery by the faculty. As a result of this study, it was recommended that distribution be made by mail.

Orr and Neyman (27:374, 378) reported that in Project Talent direct mailing was selected for contacting 440,000 ninth to twelfth

grade students. Research prior to mailing did not show any clear evidence that one postal treatment was more effective than another. The questionnaire was sent directly to the permanent address that was furnished by the student in the initial testing period. If students were no longer at the permanent address, it was anticipated that the questionnaire would be forwarded by the parent or other recipient. It was noted that placing the questionnaire in an envelope did not increase the number of returns, but air mail postage possibly does increase the returns.

Norman (26:238) reported that: "Early in the week and early in the school year seem to be the best times for receiving replies." He strongly suggested that the researcher find out, prior to sending the questionnaire, when would be the most convenient time for the recipient to return the questionnaire.

From an extensive study conducted by Ferriss, (11:247) it was found that questionnaires are most frequently returned by the respondent on Thursday and Friday.

Topp and McGrath (42:60) stated that the best month to submit a questionnaire varies with conditions and the nature of the project.

Follow-Up of Nonrespondents

Need for follow-up of nonrespondents. Norman (26:235-45) stated that the respondent to the questionnaire varies greatly from the nonrespondent. Because of this difference, the basic reason for a follow-up of nonrespondents is to get a larger number of returns in order to reduce the bias of the study.

Nixon (25:486-7) stated that the ultimate objective of the follow-up study is to obtain as many responses with useable data as possible. Every effort should be made to get a 100 percent response to the questionnaire.

Studies generally agreed (14:294) that mail questionnaires are more likely to be answered by people who, due to their educational and occupational background, can express themselves easily in writing. Persons interested in the topic are more likely to respond than those not interested.

Donald (7:99-114) reported a study involving 2,905 members of League of Women Voters. Forty-two percent of the initial questionnaires were returned in this study. Various follow-up methods were used to get a 77.3 percent return. This author stated that one of the biggest disadvantages of the mail questionnaire is the difficulty in obtaining a high percentage of returns. She also contended, based upon this large study of nonrespondents, that the nonrespondent is decidedly different from the respondent. An analysis of nonrespondents showed that they were less likely to have completed college, more likely to have a high income, and less likely to have young children.

This study showed that the less complete the data are, the more likely the bias is to be in favor of that section not completed. Internal nonresponse to specific items is most likely to occur when the response would not have been favorable.

Extensive research has been done by the Market Research Department of Time (46:60) concerning the reliability of the mail questionnaire.

In studying mail questionnaire response in a comparatively homogeneous group, the following conclusion was reached: "...the results show clearly that in groups of this kind, the persons who reply by mail... are similar in most practical respects to those who do not reply."

Bennett and Hill (2:178-9) reported that there is general agreement among statisticians and research workers that sample bias results from nonresponse to a mail questionnaire. A 60 percent return is considered good but not sufficient to eliminate the effect of bias. An 80 percent response is considered necessary to eliminate the effect of nonresponse bias in a small, heterogenous group. The nature of the problem and the homogeneity of the population are factors affecting the percentage of response necessary to eliminate nonresponse bias. Returns of 70 to 80 percent are characteristic of reputable educational research. This study failed to show that respondents and nonrespondents differ significantly on such normative variables as sex and intelligence.

A study was made at the State College of Washington and reported by Reuss (30:438) which determined in what respects respondents differ from nonrespondents. Certain information was available about both groups prior to the questionnaire study. The conclusion from this study was that the higher the intelligence of the questionnaire recipient, the greater his qualities of purposefulness and initiative, and the stronger the strength of his ties with the institution sponsoring the questionnaire, the more likely he was to return the questionnaire. Respondents with a rural background were found to be more

likely to respond to the questionnaire. Reuss felt that if returns can be obtained from those individuals normally unlikely to respond to a questionnaire as well as from those who normally are responsive to a questionnaire, the accuracy of the data obtained through the mail questionnaire technique can be relied upon more fully.

A survey made by Thomas (38:122) of thirty-six studies utilizing questionnaires sent to administrators and reported in an educational journal between 1952 and 1963 indicated that the median return was 73.5 percent. This median figure may be high because some researchers, apparently out of neglect or embarrassment, fail to include the percentage of return for the questionnaire.

Toops (41:96) reported that sheer repetition of stimuli, by follow-up letters, is apparently the most potent method of eliciting replies from recipients of a questionnaire. His study also showed that to obtain a 70 percent response from the trade school group, it was necessary to send nearly six follow-up letters per respondent; this was more than twice the number of follow-up letters required to get a response from the college group.

Follow-up materials sent to nonrespondents. In the spring of 1960, Project Talent (27:373, 377) involved 440,000 students in grades nine through twelve in 1,353 secondary schools in a nationwide study. An experiment was set up to determine the best method for getting nonrespondents to return the questionnaire. It was found that reminders were not as effective in getting a response as sending a new questionnaire; therefore, because the difference in cost is minimal, it was recommended that a new questionnaire be sent.

An experiment was designed by Sletto (35:197) to determine whether a post card or letter was more effective as a follow-up notice. There was no significant difference found, but because of the economy of using the post card, it was adopted.

Distribution of follow-up material. Corbman (6:411) recommended that a follow-up of nonrespondents be done within two weeks of the original mailing. The reminder should be a personal appeal stressing the importance of the completion of the questionnaire and offering to send the respondent a copy of the study.

Nixon (25:486) suggested that a follow-up letter be sent to non-respondents two weeks after the probable date of receipt of the original questionnaire.

In a study by Droege and Crambert, (8:615) 12,615 high school graduates were contacted two years after graduation. Follow-up letters for those graduates not responding were sent either directly to the graduate or to the parents of the graduate. It was found to be more successful to send the letter to the parents.

SUPPLEMENTARY MATERIALS OF THE FOLLOW-UP PROCEDURE

Letter Accompanying the Questionnaire

Corbman (6:411) recommended that a letter explaining the purpose of the study should accompany the questionnaire. This letter should be personal enough to encourage the recipient to reply.

The letter accompanying the questionnaire (20:124) should not only explain the project; it also should motivate the recipient to

respond. The letter should not mention that the purpose of the project is to meet the requirements for an advanced degree.

Chamberlin (5:429) listed thirteen points that are necessary to obtain a good response to a mail questionnaire. One of those points was that the researcher must make clear to the recipient of the questionnaire the purpose of the study.

Three suggestions were made by Nixon (25:985) for preparing a cover letter: (1) address the letter personally and specifically to individual respondents, (2) design the letter to arouse interest in the study, and (3) keep the letter short.

Ferber and Verdoorn (10:219) concurred with other authors that a simple and short introductory letter is most effective.

Topp and McGrath (42:60) recommended that a letter of introduction be included with the questionnaire.

Moore's experiment (23:141) showed that the typewritten letter of transmittal was more effective than the duplicated letter.

An investigation was made by Sletto (35:196), prior to his main study, of the extent to which questionnaire returns were affected by the nature of the appeals employed in the letter accompanying the questionnaire. Three letters, each offering a different type of appeal, were sent to three groups of former university students. Letter "A" called upon the recipients to help improve education for thousands of young people; letter "B" noted the changes taking place in education and requested help in guiding these changes, and letter "C" challenged the recipients to help do something "that people say can't be done." Letter "A" resulted in a 67 percent return of the questionnaire;

letter "B," 64 percent; and letter "C," 60 percent. From this experiment, Sletto concluded that letter "A" should be used to accompany a mail questionnaire sent to 1,600 former university students.

Other Material Accompanying the Questionnaire

Norman (26:237) discussed various techniques that were used to solicit a greater return from questionnaires sent. Some of these techniques involved material rewards such as money and pencils. Although this approach did increase the number of returns, care must be exercised in using a reward because it may be construed by the recipient as a bribe.

Chamberlin (5:429) recommended that a "work copy" or "file copy" of the questionnaire be enclosed with the initial questionnaire.

Envelopes Used in the Follow-Up Procedure

The outgoing envelope (25:485) should have the return address of the compiler. The return envelope should be one size smaller than the outgoing envelope, addressed to the compiler, and stamped.

In offering suggestions for conducting a mail questionnaire study, Reid (29:96) also recommended that the return envelope be enclosed with the questionnaire. The return envelope should be one size smaller than the sending envelope in order to prevent folding.

An extensive study to find the most effective techniques for getting a high percentage of returns (11:247) showed that including a stamped, addressed envelope for returning the questionnaire increased the flow of returns.

Nixon (25:484) stated that the researcher should enclose a stamped, self-addressed return envelope with the questionnaire; it is desirable to mention on the first page of the questionnaire that such an envelope has been enclosed.

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Industrial Arts Education in Escambia County, A Report of the Findings and Recommendations of the Survey Committee.

Florida State Dept. of Education, Tallahassee
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 13May64 40p.

*INDUSTRIAL ARTS; *PROGRAM EVALUATION; *TEACHER EVALUATION; EDUCATIONAL EQUIPMENT; *CURRICULUM EVALUATION; HIGH SCHOOLS
ESCAMBIA COUNTY; FLORIDA

A four-man committee spent February 3-7, 1964 (1) reveiwing the industrial arts program, (2) observing facilities and classes, (3) interviewing the teachers, students, and prinsipals, and (4) securing related information. Evaluation checklists covered: (1) personal qualities of the teacher, (2) professional preparation, (3) instructional preparation, (4) teaching methods, (5) shop management practices, (6) teacher's professional activities, (7) plans for program improvement, (8) characteristics of facilities and equipment, and (9) safety provisions. Specific findings and recommendations, based on collected data, are given for 16 secondary schools. Some general conclusions were: (1) Lesson planning is not being done, (2) Discipline is good, (3) Content level is too elementary, (4) Shop libraries are inadequate, (5) Evaluation is subjective, and (6) Instruction is not designed for varying ability. Some general recommendations were (1) Methods for improving instruction should be established, (2) Junior high programs should assume the exploratory feeder concept, (3) The budget for consumable supplies should be at least two dollars per pupil, (4) Programs for Negroes should contain projects and study areas which will upgrade the home and community, and (5) Only quality machinery should be purchased. The evaluation form is included. (EM)
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INDUSTRIAL ARTS EDUCATION IN ESCAMBIA COUNTY

A REPORT OF THE
FINDINGS AND RECOMMENDATIONS
OF THE SURVEY COMMITTEE

STATE DEPARTMENT OF EDUCATION
Thomas D. Bailey, Superintendent
DIVISION OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION
Tallahassee, Florida

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STATE OF FLORIDA

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THOMAS D. BAILEY
SUPERINTENDENT

EDUCATION MOLDS OUR FUTURE

BETTER SCHOOLS BUILD A STRONGER AMERICA

May 13, 1964

Dr. William J. Woodham, Jr.
Superintendent of Public Instruction
Escambia County
P. O. Drawer 1470
Pensacola, Florida

Dear Dr. Woodham:

Under the date of May 6, 1963, a request was received from your office asking that a study of industrial arts education in Escambia County be made by the Division of Vocational, Technical, and Adult Education of the State Department of Education. This study was conducted during the week of February 3-7, 1964. Herewith is transmitted the written report of the committee.

The group confined its study to determining the adequacy of the industrial arts facilities and instructional program. The findings and recommendations of the committee are included in this report.

The committee was given valuable assistance and cooperation by the county staff, principals, and teaching personnel both before and during the study.

It is hoped that this report will be useful in the further development of the respective industrial arts programs in the Escambia County schools.

Very truly yours,

W. R. Williams, Jr.

Walter R. Williams, Jr., Director
Vocational, Technical, and
Adult Education

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INDUSTRIAL ARTS EDUCATION IN ESCAMBIA COUNTY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A REPORT OF THE
FINDINGS AND RECOMMENDATIONS
OF THE SURVEY COMMITTEE

STATE DEPARTMENT OF EDUCATION
Thomas D. Bailey, Superintendent
DIVISION OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION
Tallahassee, Florida

FOREWORD

Escambia County has recognized the essential role and values of industrial arts education in the educational sequence which prepares youth for life in an expanding technological society. No one is truly educated for our rapidly advancing technical society unless he has an understanding of the new methods, materials, techniques, and developments of industry. The educational leaders of Escambia County have indicated an awareness of the need to provide industrial arts experiences in view of the shifting occupational opportunities and the evolving economic pattern of life in our state and nation.

Escambia County is commended for initiating a survey of industrial arts education which has culminated in this report of findings and recommendations. The purposes of this survey, the first of its type to be held in Florida for industrial arts education, are to evaluate the industrial arts facilities, to evaluate the industrial arts instructional program and teaching, and to recommend and indicate future directions which might be taken to improve and expand the industrial arts program.

At the request of Dr. William J. Woodham, Superintendent, Escambia County, through the State Department of Education a survey team was appointed. The members of the team included Dr. Ralph Steeb, Survey Chairman, Consultant for Industrial Arts Education, State Department of Education; Dr. Irving Shutsy, Director of Student Teaching, California (Pennsylvania) State College; Dr. Talmage Young, Associate Professor of Industrial Arts, North Carolina State University at Raleigh, and Mr. Stephen Johnson, Supervisor of Industrial Arts, Broward County.

Prior to the survey committee's visit to the schools of the county, certain information was prepared by the county personnel to acquaint the committee with the county philosophy, the nature of the community, and data regarding the industrial arts program. During this previsitation period the committee members developed and organized evaluation instruments to facilitate the observation and evaluation of the industrial arts programs, teachers, and facilities. Copies of these instruments may be found in the appendix.

Prior to the survey, the industrial arts teachers prepared reports concerning their individual facilities, programs, philosophies, and schedules. The committee spent February 3-7 in Escambia County reviewing the program; observing the facilities and classes; interviewing the teachers, students, and principals; and generally securing information needed for this report. An oral preliminary summary was given by the members of the committee to the County Superintendent and certain county personnel at a meeting on February 7.

When a report is compiled by a visiting survey team the results frequently emphasize the needs, deficiencies, and the inadequacies of the program. As a result the reader of the report may assume an overly negative view when at the same time there are many fine things being done within the program. The survey committee found many fine facilities and teaching practices which may not be specially identified in this report. Commendation is given to the Board of Public Instruction for the increase in industrial arts facilities and programs from nine programs in the school year 1953-54 to nineteen programs in 1963-64.

The survey committee wishes to thank all local personnel for their unfailing cooperation while the study was in progress. It expresses its thanks to Mr. E. G. Holly, Director, Technical and Vocational Education, for collecting preliminary information and data and for making arrangements for the survey team during its visit to the county. The committee also expresses its appreciation to the industrial arts teachers for their cooperation and professional attitude in receiving the committee and in discussing their programs.

Ralph V. Steeb
Consultant for Industrial Arts
Chairman of the Committee

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PHILOSOPHY OF INDUSTRIAL ARTS

Present day America is a changing, ever-expanding industrial and technical complex. In consideration of the nature of contemporary society, industrial arts education provides instruction in the areas of industrial technology for the development of insights and understandings about modern manufacturing, communications, construction, power, and transportation. Learning experiences are provided which help to discover, identify, and develop student talents for a more effective selection and completion of further academic, vocational, technical, or professional courses.

Through the use of tools, machines, materials, and processes, industrial arts courses develop a measure of skill in designing, experimenting, planning, constructing,and evaluating instructional projects. In this respect industrial arts makes its unique contribution to the education of all youth.

Industrial arts is an integral part of the total school program and should be available to all students at all grade levels. While industrial arts is general education, it is also related to and lays a foundation for vocational, technical, and professional programs.

Industrial arts instruction is closely related to science and mathematics. The industrial arts experiences give form and meaning to academic knowledge. Through the activities of the industrial arts laboratory, academic subject matter is reinforced and correlated. The experiences provided are organized in a progressive sequence commensurate with the student's ability and maturity.

All boys must someday find a satisfying place in the world of work. The development of an understanding and appreciation of technology and industrialization is a major objective of present day industrial arts. In this way industrial arts assists the total educative process by helping to prepare students to live effectively in our contemporary industrialized society.

Traditionally, industrial arts has been a program primarily of tool manipulation in a shop context. However, the changing nature of our industrial-technical society as pointed out above requires that the place and purpose of industrial arts be examined and restated. The shift in emphasis to such areas as electronics, power mechanics, and advanced drafting implies instruction satisfying each of the three education objectives which pupils might wish to attain. Courses should, therefore, be planned and differentiated to satisfy the needs of pupils preparing to (1) secure a higher education, (2) enter vocational industrial or technical education, or (3) continue their general education.

More specifically, industrial arts may be characterized by a sequence of four grade-level phases with different objectives which, however, reflect the general purposes of the junior and senior high school.

Industrial Arts Program Characteristics

Grade Level	Characteristic	Purposes-Junior High School
Grade 7	Orientation or Introduction	1. Provide an introduction to industry and technology. 2. Develop a degree of skill with tools, materials, and processes. 3. Identify aptitudes and interests significant for vocational and educational guidance
Grades 8 and 9	Exploratory Experiences (It is recommended that one year of industrial arts be required of all boys in grades 8 with an elective year available in grade 9. In these grades students should rotate through at least four industrial arts areas, usually drafting, wood, metal, and electricity-electronics.	

Grade Level	Characteristic	Purposes-Senior High School
Grade 10	Specialization (Students should elect one shop or industrial arts area best suited to their abilities and chosen educational goals. Courses may include drafting, electronics, metal, power mechanics, graphic arts, wood.	1. Provide broad technical information and understanding. 2. Correlate practical experiences and academic subjects; especially physical science. 3. Provide a more intensified study of industry. 4. Develop a higher level of competence and skill. 5. Develop the ability to design, experiment, plan, construct, and evaluate projects and learning experiences. 6. Provide a comprehensive background for better adjustment to the changing world of work and for wiser and better choice of terminal or post-high school courses.
Grades 11 and 12	Concentration (Students preparing for college or who have not elected a vocational industrial program should take advanced courses, i.e., engineering drafting and electronics for the pre-engineer or technician. In addition, first year industrial arts courses should be available to any 11th or 12th grade student.)	

In addition, industrial arts has a role in the elementary school program. Elementary school industrial arts is characterized by the use of tools and materials in planning and construction activities which are correlated to academic studies.

Elements of an Industrial Arts Program

An effective program of industrial arts includes (1) a well-prepared, well-qualified teacher; (2) an adequately equipped shop laboratory; (3) a carefully planned, comprehensive instructional program; and (4) the necessary instructional materials and supplies. Without any one of these factors the total program is incomplete to achieve the desired pupil outcomes.

Industrial Arts Facilities

The organization of each industrial arts shop depends upon the area or areas to be taught, the grade level, the school enrollment, and the objectives of the program. There is no one plan which is best in all localities. Therefore, it is a county responsibility to organize programs and plan facilities. State recommendations as found in state bulletins for industrial arts,accreditation, and junior high school facilities should be followed in regard to space allotments and the number of shops to be provided based on the school enrollment. Consultive services are available when requested of the State Department of Education.

When the school enrollment is small, one general shop is recommended. A general shop should be sufficiently large to include all necessary equipment to provide adequately for experiences in at least four areas or subareas of industrial arts. When the enrollment warrants two or more shops, general unit shops are recommended. A general unit shop, sometimes called a limited general shop, provides instruction in one or two basic areas of industrial arts. The areas selected for a particular program should be based on the nature of the community and the county philosophy of industrial arts.

BELLVIEW JUNIOR HIGH SCHOOL

The visiting team commends the principal of the Bellview Junior High School for his desire to have a strong industrial arts program. The principal indicated that in his opinion the industrial arts instructor was doing an excellent job. However, the visiting committee suggests that the teacher have a more clearly defined program. An enrichment type program is required of all boys in either seventh or eighth grade, but the time schedule is most limited. The teacher sponsors a club activity once a week for both boys and girls.

FINDINGS

1. The space and equipment provided is not being used most effectively.

2. A very limited amount of time is scheduled for students who are enrolled in the enrichment program courses (one period per week).

3. The general and preventive maintenance of shop equipment is very laxed.
    a. The belt guard is not secured on the scroll saw.
    b. The return spring on the jointer guard is inoperative.

c. The bench tops need to be fastened and finished.
d. No disc or belts were found on the sanders.
e. The electrical tunnel and power unit is laying on the floor and needs to be put to use.
f. The drill press is ungrounded since the prong has been broken on the male plug.
g. The brake and shear need to be fastened to the floor.
h. The soldering iron needs to be replaced as the cord and heating element are defective.
i. The clamp is missing on the lathe tail stock.
j. The circular saw does not have a belt guard.

4. The rest room is too far from the industrial arts laboratory.

5. A drawing or planning area is not provided.

6. The power mechanics area needs to be relocated and properly housed with necessary equipment provided.

7. The metals and electrical areas are too limited to be effective.

8. The arrangement of storage needs to be reviewed. The loft is particularly cluttered.

9. There are no tanks for acetylene welding.

10. Master electric cut-off buttons are not provided.

11. Color dynamics are not used.

RECOMMENDATIONS

1. A drawing and planning room or area should be provided.

2. A metal bench needs to be provided for power mechanics or one of the present woodworking benches should be used for this purpose by covering it either with sheet metal or masonite.

3. By placing tools on panels in the shop the tool room might be converted to better use, such as a finishing room or storage room.

4. Additional equipment should be provided for metals, power, and electricity. At the same time instruction in these areas should be more diversified.

5. Effort should be made to improve the craftsmanship on the part of students.

6. The planning and designing phase of instruction should be improved and expanded.

7. The instructor's method for evaluating students' progress should be improved.

BLOUNT JUNIOR HIGH SCHOOL

The visiting team commends the industrial arts instructor at the Blount Junior High School for his enthusiasm, excellent housekeeping, safety program, emphasis on craftsmanship, and an excellent organization for instruction. The principal of this school is most interested in the development of the program. The program was initiated this year by converting two classrooms to shop space.

FINDINGS

1. The space provided for the program is not adequate, however, usage of the space is good.

2. Desks are used instead of drafting tables.

3. Safety cut-off switches are not provided.

4. The non-fireproof construction limits activity in the metals area.

5. The single facility limits the number of pupils who may be enrolled in the industrial arts program. The program is not available, therefore, to a majority of the eighth grade boys.

RECOMMENDATIONS

1. Although the present teacher now carries a full teaching load of five periods, a study should be made of ways to make industrial arts available to more students.

2. A separate switch panel should be provided for the shop with master safety cut-off switches.

3. Equipment should be fastened to the floor.

4. A metal shear (squaring) would be helpful.

5. The electricity area should be upgraded.

BRENTWOOD JUNIOR HIGH SCHOOL

The industrial arts instructor at Brentwood Junior High School has a pleasing personality and in general a good relationship with the pupils. The instructor exhibits a friendly attitude and thereby has a most congenial relationship with other faculty members. The pupils demonstrate a desire to acquire basic industrial arts skills and knowledge. The hand tools available are adequate.

FINDINGS

1. Housekeeping in this shop is extremely poor.

2. Storage spaces are poorly organized. Tools and materials are scattered about the shop. There is improper storage of bar clamps and other special tools in the shop area.

3. Teaching material and content are insufficiently organized.

4. Several serious instructional weaknesses exist:
   a. A lack of a knowledge of industrial arts teaching methods is noted.
   b. Although there was some evidence of student planning, there is a lack of sufficient detail in planning plus a lack of good craftsmanship and adequate evaluation of student work.
   c. The instructor exhibited total inattention to his class.
   d. There was evidence of improper instruction in the areas of electricity and drafting.

5. The instructor and his program are not making use of some of the equipment provided. Certain machines are inoperable. There is evidence of some misuse of equipment.

6. There is little evidence of a safety program. Particularly noticed is the lack of guards on certain machines.

7. The instructor is capitalizing only on approximately 60% of the shop space.
   a. The general clutter in the shop restricts student work.
   b. An extremely large scrap box takes much of the demonstration room.
   c. The bulletin board shows no evidence of recent change.
   d. The tool room consumes too much space as well as requiring the loss of one student from the shop program each week.
   e. The tables and bases for certain machines are crudely constructed.
   f. The instructor's desk assumes space which could be used for a student bench.

8. Power machines show a lack of maintenance and repair. The jig saws are too light for school use.

9. The shop area is too small. Crowded machine and work areas tend toward an unsafe condition.

RECOMMENDATIONS

1. Class enrollment should be limited to 18-20 students. An enlarged facility should be provided.

2. The instructor should be placed under close supervision to both encourage and insist on improvements to the shop facility, instructional program, and teaching methods.

3. Immediate steps should be taken to remove all extraneous materials from the shop area.

4. The instructor should organize a detailed course outline covering each area taught. In addition the instructor should submit daily lesson plans.

5. In order to provide some additional space which is much needed, the outer wall of the tool room could be removed to enlarge the shop area. Open tool panels would then be required. A central demonstration and planning area might then be developed.

6. All projects and material storage should be confined, insofaras possible, to the lumber room with the exception of long boards which are placed on the lumber rack in the shop.

7. The instructor should develop a student planning and evaluation procedure as a pre-requisite and constant guide to project construction.

8. Three dimensional teaching devices should be developed to facilitate and motivate learning by students.

9. The drafting program should be updated by discarding the mutilated block procedure and assuming boy-interest problems.

10. The instructor should develop an organized safety program correlated with the course of instruction.

BROWNSVILLE JUNIOR HIGH SCHOOL

The industrial arts instructor at Brownsville Junior High School is an enthusiastic teacher, active in his professional associations, and a good disciplinarian. The committee observed very good rapport between the teacher and his principal. The industrial arts laboratory is well kept and attractive.

FINDINGS

1. The drafting room is currently being used as a band room.

2. The use of the halls outside of the shop doors by physical education classes creates distractions.

3. Far too few students are taking industrial arts compared to the total enrollment of this school. At least two industrial arts teachers are needed.

4. Instruction is over-balanced toward woodworking with limited drafting and metal work.

5. Guards on the circular saw and jointer are inadequate.

6. The metals, electrical, and power mechanics areas are not adequately equipped.

7. The band saw and jointer are of light construction, homeshop variety type.

8. There are no master safety cut-off switches in the shop.

9. The lavatory near the shop is not being used. The available lavatory is some distance from the shop.

RECOMMENDATIONS

1. Other facilities should be secured for the band and the room converted to an industrial arts drafting and electricity-electronics laboratory.

2. Two industrial arts teachers should be employed in order to enroll a number of students which is closer to the average recommended and found in Florida schools.

3. Divide the existing laboratory space into two areas. This reorganization would cluster woodworking in one part of the room and metals-power mechanics in the other.

4. Study the sequence and organization of the instructional program and correlate it to a county-wide scope and sequence guide when this is organized.

5. The general metals program should be expanded and diversified.

6. Additional metals equipment should be provided.

7. If feasible, open the adjacent lavatory.

CARVER HIGH SCHOOL

The industrial arts instructor at the Carver High School seems to be well trained and oriented to his position as a teacher and to his responsibility, specifically, instructing students in the areas of industrial arts. He is trying under hardships to provide instruction in the necessary and important areas of industrial arts especially woodworking, drawing and planning, electricity, and power mechanics.

FINDINGS

1. The shop space provided is inadequate.

2. There are not enough tools to conduct programs in the areas of metals, power mechanics, and electricity.

3. There is an insufficient number of outlets to allow for flexibility in the program. The fuse panel should be provided with a lock. Power equipment does not have magnetic cut-off switches.

4. Color dynamics and safety lines are not used.

5. The conduit from the circular saw to the wall should be under the concrete floor.

6. There are no book shelves in the shop.

7. Guards are not in place on the circular saw or on the belt system of the wet grinder. The ripping fence on the saw is not intact.

8. New glass is needed in windows.

9. Too many routine projects were being constructed.

10. The principal indicated a need for an expanded industrial arts program which would be somewhat more vocationally oriented since students from this school are unable to commute to a distant vocational program.

RECOMMENDATIONS

1. Facilities should be provided so that more adequate instruction may be given in the areas of power mechanics; metals-welding, foundry, machine metals, bench metals; electricity-electronics; and drafting.

2. By providing tool panels in the shop area the present tool room may be converted into storage space.

3. The present exploratory program should continue to be offered to all boys and to girls who could benefit from the program. The exploratory areas would be general metals, electricity, drawing and planning, and woodworking.

4. If the program in grades nine-twelve is offered on an elective basis, then the exploratory program should consist of a sequentially organized program in which students rotate through the areas taught.

5. Book shelves should be provided.

CENTURY HIGH SCHOOL

The industrial arts instructor at Century High School shows evidence of a fine professional interest in industrial arts. His rapport with students is very good.

FINDINGS

1. The industrial arts facilities are very poor
   a. Equipment is old and in poor repair
   b. Benches are obsolete and in poor repair
   c. There are no safety (master) switches
   d. The high voltage cabinet needs a lock
   e. Storage space is urgently needed
   f. A shop window is broken
   g. There are no drafting benches.

2. Insufficient attention is given to safety factors
   a. The grinder and circular saw need guards
   b. The band saw needs a guard
   c. Electrical equipment is improperly or not grounded.
   d. Tools and obstructions are found on the shop floor.

3. The arrangement of the tools is poor. Tool storage takes up usable shop space. Tools are found to be dull.

4. The shop is in need of a general clean up including the painting of walls and equipment.

5. Instruction is not given in all areas desired. Especially noted is the lack of a metals area.

6. Drafting is primarily house planning.

7. The instructor's skills are very inadequate to teach industrial arts. The instructor does not know the subject matter which should be included in the program.

RECOMMENDATIONS

1. A completely new facility with more adequately equipped areas is urgently needed before many of the other deficiencies can be considered.

2. The instructor needs to study and approve all facets of instruction, organization, methods, and housekeeping.

3. The instructional program should be broadened beyond woodworking and drafting.

CLUBBS JUNIOR HIGH SCHOOL

Clubbs Junior High School is commended for recognizing the need for industrial arts instruction and providing the space and equipment for initiating a program. The instructor's appearance is very good as is his ability to work with boys. The instructional atmosphere is excellent.

FINDINGS

1. The space provided for the industrial arts program, in the basement of the school, is limited by the lack of natural light and ventilation.

2. Too many routine projects were being constructed which lack flexibility. The concept of relating the total project to instruction and daily lessons for effective teaching is not evident. Emphasis seems to be on making things rather on the understanding of principles, content, and information which is involved in the planning, designing, construction, and evaluation of a project.

3. Demonstrations are not given frequently enough and are not related or correlated to the sequence of activities and experiences involved in the student project construction.

4. The electrical work area is not large enough.

5. The space allotted to drawing and planning is inadequate. No drafting tables have been provided.

6. The following items related to maintenance and safety are observed:
   a. There is no guard on the grinder and the grinder is not secured to the bench.
   b. Vises were not secured.
   c. The brake and bender are not fastened to the floor.

7. A course outline is available but is not flexible.

RECOMMENDATIONS

1. The instructional program should be expanded to include more significant activities in the areas of drafting, metals, woods, electricity-electronics,and possibly power mechanics.

2. Instructional procedures should be improved to include more student planning; more attention to problem solving, design, and basic principles; more use made of audio-visual aids; and more attention given to instruction at or near the time of student need.

3. The instructor should become better acquainted with up to date methods, materials, and curricula content.

ESCAMBIA SENIOR HIGH SCHOOL

The industrial arts program at Escambia Senior High School is commended for its expansion during the past four years. The knowledge of the instructors regarding tool skills and content is adequate. The instructional program has been carefully organized. Student-teacher rapport is good.

FINDINGS

Wood Shop

1. The wood shop instructor demonstrates ability to organize but his ability to motivate pupils is weak. His mastery of the subject matter is adequate.

2. The course outline is limited and the content is somewhat below senior high school level.

3. The instructional methods used by the instructor are over-balanced toward dictating procedures rather than the directed discovery method.

4. The combination band saw could be better utilized in the metal shop.

5. No CO_2 extinguishers are provided.

6. The teachers' offices are cluttered and contain scrap or unnecessary items.

7. The planer is too small.

8. The following improvements are needed to certain machines: magnetic switches, new return springs on the jointer guards, safety lines, and the repair of the dust vacuums.

9. Bench tops need refinishing.

10. The course content does not include sufficient project designing.

11. The instructional program needs to be changed; first, in regard to project selection and, second, in regard to the development of tool skills by the practice-exercise method. This teaching method is no longer used in industrial arts instruction.

Metal Shop

1. The quantity and variety of equipment available appears to be adequate.

2. Metals instruction is given in several sub-areas giving variety to the program.

3. The following observations are made in regard to safety devices in this shop:
   (a) Tool rests, spark arresters,bulbs in the eye shields of the grinder are missing. Wire wheel guards are not in place.
   (b) Safety lines are not used.
   (c) Magnetic cut-off switches are not provided
   (d) Safety solenoid cut-off switches are not provided on gas lines
   (e) Panic or safety switches are not provided.
   (f) A fume hood should be located over the hot metal area.
   (g) Certain pieces of equipment (brake and bender) are not bolted to the floor.
   (h) The power hack saw belt and pulley system is unguarded.
   (i) The shop arrangement or layout of equipment is poor, especially for handling hot metal.

Electronics Shop

1. A temporary frame building has been provided for the electronics facility. This is an improvement but is still inadequate for a full program.

2. Electronic equipment and supplies are needed. The equipment presently supplied is totally inadequate for a senior high school.

3. The instructor and administration are commended for their initiative in beginning an electronics program. The instructor has made a genuine and commendable effort to prepare himself in electronics subject matter.

4. The instructor has excellent rapport with students.

Drafting Room

1. Good sketching practices on the part of the pupils are noted.

2. The sequence of the instructional program in drafting repeats itself each semester. This is questioned as the best content organization.

3. Student-teacher rapport is good, but discipline is lax.

RECOMMENDATIONS

1. The recent growth and expansion of the program should be continued, especially in the areas of electronics, power mechanics, metals, and plastics.

2. The instructors should consider and organize a program for pupil recruitment.

3. A study should be made for improving the articulation between the junior and senior high schools. As more new junior high school programs are organized in feeder schools, the senior high school courses should contain more advanced units of instruction.

4. In the advanced senior high school courses additional attention should be given to problem solving experiences using research and experimentation.

5. The wood shop should have a central dust collection system.

6. The office in the wood shop should be reorganized as a shop planning center.

7. The elementary hand tool approach to woodworking should be shifted to machine operations.

8. Equipment in the metal shop should be rearranged and set in place.

9. A safety check of all machines and equipment should be made to identify and correct unsafe conditions.

10. Consideration should be given to adding power mechanics instruction to the program. This could be organized for the metals area.

11. Review the drafting course of study and develop a program of depth rather than the repeating of instructional content each semester.

12. Vary the drafting problems to encompass every day objects of interest to the students.

13. Consider additional teaching techniques such as the use of the overhead projector and three dimensional teaching aids.

14. Paint the drafting tables.

15. Immediate consideration should be given to improving and strengthening the electronics program by providing for three urgent needs:
    a. An adequate facility
    b. Electronic instructional and test equipment
    c. Materials, supplies and component parts

FERRY PASS JUNIOR HIGH SCHOOL

The Ferry Pass Junior High School industrial arts program has been carefully organized and the instructional content in several areas has been well defined by the previous instructor. The current instructor has been only recently employed and is following the instructional pattern developed

by his predecessor. The present teacher is soft spoken with a pleasant manner. He shows evidence of being able to organize, to stimulate students, and to obtain the respect of both teachers and students.

Although the shop space is undersized, the quality and quantity of equipment provided are evidences of excellent shop planning.

FINDINGS

1. The instructor is in the process of developing course outlines in the various areas being taught.

2. The electric area of instruction is being neglected at the present time but we assume instruction in this area will soon be added to the course content.

3. The size of the shop is sub-standard. The machine area is crowded with insufficient space for equipment safety zones or for adequate aisles. Project storage and finishing areas are small. No planning area is provided.

4. The instructor lacks an organized program of safety and some dangerous safety practices were observed, such as students not using goggles while grinding, high speed drilling, or operating the lathe.

5. As a new teacher, the instructor is still reluctant to exhibit strong disciplinary control.

6. The instructor carried too much of the burden of cleaning up the shop and putting away the tools.

7. The foundry furnace is too small if this area is to be used extensively as a portion of the general metals instruction.

RECOMMENDATIONS

1. Instructional supervision and encouragement in the development of a boy-interest instructional program are needed in each of the areas that are taught.

2. An organized safety program should be developed and correlated with the course of study. The laboratory should be equipped with emergency cut-off switches.

3. The instructor should strengthen immediately his discipline and class control so as to avoid future problems. A functional student personnel system should be organized so that each student carries a responsibility.

4. Instruction sheets, procedure sheets, more detailed student planning devices, and better evaluative materials should be developed as an integral part of instruction.

5. Three dimensional teaching devices should be developed and used by the instructor to facilitate learning.

6. A larger foundry furnace is indicated.

7. More adequate use might be made of the bulletin board.

8. The shop library should be enlarged and more adequately stocked.

9. In view of the excellent equipment and the crowded shop space, planning for future industrial arts shops should adhere more closely to recommended size and proportions.

PENSACOLA SENIOR HIGH SCHOOL

The Pensacola Senior High School industrial arts program is not as comprehensive as it might be. However, the drafting program seems to be well organized and is meeting the needs of the school and students. The need for electronics instruction has been recognized. The use of teacher aides seems to meet the needs of some students for advanced work. The class size or enrollment is good.

FINDINGS

1. The organization of the shop in regard to size, equipment, and layout is not adequate for a senior high school program in areas most desired for schools with so large a total enrollment.

2. No space is available in the laboratory where pupils may be seated in an adequate arrangement for teaching (lecturing and testing) particularly if the laboratory is in operation by any portion of a class.

3. The metal area needs to be reorganized. There is no acetylene welding equipment. A melting furnace is needed in the foundry area as well as a heat treating facility.

4. Dust is a serious problem.

5. No safety lines are provided for defining equipment operation areas.

6. A complete clean up of the shop and painting of the laboratory are needed immediately. There is too much clutter.

7. Color dynamics or color coding is not being used.

8. There is no visual evidence of a safety program. However, there is a good safety record at this school. Adequate guards were lacking on the grinder, wire wheel, and lathe pulley system.

RECOMMENDATIONS

1. It is recommended that the total instructional program in industrial arts be reorganized in three directions: (1) Broaden the areas offered, (2) provide a higher level of instruction and content, and (3) provide better organized sequential experiences based upon a county-wide approach and plan for better articulation between grades.

2. Electricity-electronics should be expanded and both space and equipment be provided for a separate laboratory for adequate instruction.

3. It is suggested that the following areas be considered as unit offerings. The suggestions are not complete and need further study.

Metal shop:	Hot metals and foundry, machine metals, advanced bench metals, sheet metal
Electricity-Electronics:	AC-DC circuits, power-generators and motors, appliances, applications, communications and electronics.
Drafting:	More advanced work including pre-technical and pre-engineering content
Woodworking:	Cabinet making, furniture making, and wood technology
Power Mechanics:	May be considered as a separate shop or could be included in either the metals or woods areas.

RANSOM HIGH SCHOOL

The industrial arts instructor at Ransom High School has a pleasing personality and is a teacher facing realistically the facts regarding the problems of students of his race. He has worked hard in the development of course outlines. His instruction is reinforced by the use of three dimensional teaching aids. Girls in addition to boys are scheduled to industrial arts classes. The teacher publicizes his program before the PTA, parents, and other teachers of his school.

The school administration, in addition to the teacher, shows a willingness to face realistically the educational problems of Negroes.

FINDINGS

1. The industrial arts facility is inadequate for the number of pupils assigned.

2. The present facility could be more efficiently used if the following were better organized: lumber storage, the power mechanics area, tool storage system, and the electrical area. The four station bench top which is stored could be utilized. Vise handles are missing on vises.

3. A complete safety program is not being carried out. Safety lines should be placed around power machines and guards should be kept on the circular saw and jointer.

4. The instructor recognizes and fully understands what should be covered in an industrial arts program. However, he has not directed his instruction to the students' ability levels. There is a great overemphasis on copying from textbooks and a lack of balance in utilizing actual tool manipulation.

5. The instructor is attempting to raise the program to a high academic level and thereby sacrifices the practical needs of the boys and girls engaged in the program.

6. Evidences of weak instructional practices are as follows:
   1. Students arrive tardy to class.
   2. Poor organization of the method for beginning each class is noted.
   3. A system for organizing student personnel is not being used.
   4. An organized plan is lacking for the students to produce and evaluate each shop project.

7. There is a lack of adequate materials especially in metals, electricity, and drafting. A better use could be made of thick planks by resawing rather then planing a major portion of the wood away on the surface planer.

RECOMMENDATIONS

1. Additional emphasis should be placed on tool skills and construction with materials which might upgrade the home conditions of the students of this school. Such experiences or projects should lean toward the home mechanics and practical home construction content areas. For example, problems of construction and operation of the following might be given; (a) septic tank systems, (b) plumbing repairs, (c) concrete block construction, and (d) carpentry construction and repair.

2. Efforts should be made to more closely correlate textbook reading with student think-through processes, such as having several students develop three dimensional devices to express the knowledge gleaned from the textbooks. For example, when a student studies piston displacement by reading the theory in a textbook, could not practical devices be made to demonstrate this principle.

3. A special program for girls should be developed. This program should be closely related to home needs, repairs, and problems.

4. The power mechanics area should be developed with motors mounted on benches, with an area for cleaning, and other service areas as found in any organized repair shop.

5. An outside storage area or addition should be built so that the shop area may be more efficiently utilized.

6. An open tool panel for hand tools is recommended. The present tool room should be converted to a project storage area or an electrical area.

7. A comprehensive safety program should be organized including machine safety lines and the constant use of guards.

8. A student personnel system should be developed.

TATE HIGH SCHOOL

The school administration, industrial arts teacher, and students are

commended for their sincere desires to overcome all odds in order that they might have an industrial arts program. This shop was created almost entirely through the efforts of the students and the instructor. This fact could not help but win the admiration of the visiting team.

The recent additions such as closing in additional space at the end of the shop and adding the use of a room for drafting are commended. The tentative proposal to convert the present cafeteria to a shop facility warrants further study.

FINDINGS

1. The present facilities curtail the number of students which may be assigned to this area.

2. The equipment is of such poor quality and in unsafe condition that it needs to be replaced by heavier machines suitable to an industrial arts program. Many bench vises are inoperative.

3. A separation of the junior and senior high school programs at this school should be considered. The school enrollment warrants at least two teachers.

4. The instructor needs additional help in the following.
    a. The development of materials and units to be taught
    b. Daily lessons plans and demonstrations
    c. An adequate safety program
    d. Reorganizing the drafting program to include broader content and more rapid progress on the part of pupils.
    e. The student work observed was too elementary for the age level of the pupils.

5. The budget for expendable materials is too limited. Students must purchase materials from dealers in the community. This restricts the instructional program.

RECOMMENDATIONS

1. Immediate steps should be taken to provide a new shop facility complete with adequate new equipment for instruction in four areas. During preliminary planning for this facility the instructional program should be re-evaluated in relation to the total school enrollment and the grade levels to be served.

2. Based on student demand for the program the industrial arts offerings should be expanded using two instructors. This can thus be accomplished immediately by using the drafting room and shop areas full-time.

3. The instructor needs to develop a scope and sequence guide which organizes instructional units and materials for presentation.

4. The instructor and principal should devise a plan to make materials available in school at cost rather than depend on students securing their own materials.

WARRINGTON JUNIOR HIGH SCHOOL

The Warrington Junior High School industrial arts facility contains adequate space, has a pleasant atmosphere, has a durable finish on the walls, and in general is a well planned shop. Shop size is considered to be excellent.

The attitude of the teacher is good. He has the initiative to seek ways to improve his instructional program. His rapport with pupils is good. The teacher is especially commended for requesting and organizing a special class for problem pupils.

The attitude of the principal toward the program is commended.

FINDINGS

1. A course outline as a guide to the instructional sequence has not been organized.

2. The class control maintained by the teacher is excellent, however, teaching methods are weak. Instruction through demonstrations and lectures is not given regularly.

3. A lack of the use of three dimensional teaching aids is noted.

4. The craftsmanship of student work is poor.

5. Machine and equipment inspection and safety checks are needed. The following is noted:
   a. Certain machines are inoperable
   b. The grinder has no tool rest and is too light for school use.
   c. The circular saw needs an adequate guard.
   d. A CO_2 fire extinguisher is not provided.
   e. The planer needs parts and is unsafe in the present condition.
   f. The sander needs a motor.
   g. Color dynamics such as the color coding of machines and safety lines is needed.

6. The teacher's appearance and dress are not up to the best professional standards.

7. A procedure for project planning and development is not in evidence.

8. The tool checking and personnel management system appear to be working well. Classes begin on time and without undue confusion.

9. The shop and store rooms are somewhat disorderly.

RECOMMENDATIONS

1. The instructor needs to develop a functional course outline complete with lesson plans for daily teaching for each area taught. Greater emphasis should be placed on the demonstrations and the supplementation of this instruction with duplicated assignment sheets and textbook study. A procedure for planning projects should be organized.

2. The instructor needs to broaden his instruction in drafting, metals, and electricity. Junior high pupils should explore at least four areas of industrial arts. It is recommended that a boy-interest drawing program be correlated to shop activities.

3. The scheduling of students to the shop should be reviewed with the administration. All eighth grade boys should be scheduled for one year of industrial arts with ninth grade as an elective.

4. Consideration should be given to the dust problem. A dust collection system is recommended.

5. Certain additional hand tools are needed and should be provided.

6. The finishing room needs an observation window.

7. A general repairs program (for shop equipment)should be developed.

8. The enrollment at this school would justify two industrial arts instructors to teach a broad program in woods, drafting, electricity, and metals.

WASHINGTON JUNIOR HIGH SCHOOL

The newly converted facility for the industrial arts program at the Washington Junior High School adequately houses the industrial arts program. The industrial arts teacher seems to have a good background, is well organized, is fair but firm in his discipline, has the start of a good shop layout, and keeps a very clean shop area.

FINDINGS

1. The facility contains adequate space but requires additional equipment such as a scroll saw and metal working tools.

2. The power equipment purchased is too light for school use (table saw, band saw, grinder) and will be difficult to maintain in proper working order.

3. The lumber supply is completely inadequate consisting mainly of salvaged packing crates.

4. The instructor shows thought and careful preparation for the lessons taught. He presents lessons at the start of the class period and makes adequate use of the chalk board.

5. The students did not participate in the lesson being taught. There are several reasons for this:
   a. Greatly over crowded classes hinder students from working because they can not see the chalk board and are too far from the instructor.
   b. There is inadequate space for such large classes to have writing arms or tables.
   c. The instructor uses no other teaching aid than the chalk board.
   d. The material covered by the instructor is too broad for one presentation.

6. Some lack of craftsmanship is observed. This is due in part to large classes.

RECOMMENDATIONS

1. Instructional and consumable materials must be made available at once for this program. Although it was reported that certain materials are now on order, wood, paper, and rulers are needed now.

2. The purchase of metal working equipment and a scroll saw is recommended. All future machines purchased should be of high quality.

3. The instructor should involve his students in each demonstration through greater participation. He should use questions and draw his lessons out of the students because telling is not teaching.

4. The instructor should use three dimensional and other visual aids to help the students grasp the lesson.

5. The instructor should divide his overall lesson into smaller parts since too much material presented at one time causes the students to become inattentive.

6. Because of overcrowding in the classes some students cannot see the chalk board. The instructor could multiply his efforts by using duplicated instruction sheets which could be placed in the hands of each student.

7. The instructor should develop a student project procedure sheet which includes space for a sketch, bill of materials, procedures for construction, and tools to be used. The use of such a procedure sheet helps to correlate English and math with the activity of the shop.

8. It is recommendedthat a second teacher be considered as soon as possible. With a second teacher it will be possible to offer industrial arts to more than only ninth grade pupils. The second teacher could teach drafting in the same shop area by rearranging the shop furniture. However, class size will have to be carefully scheduled and controlled.

WASHINGTON SENIOR HIGH SCHOOL

The two industrial arts instructors at the Washington Senior High School have pleasant personalities and cooperate in the total school program. The hiring of a new instructor during this school year presents an opportunity to revise the offerings and upgrade the program.

FINDINGS

1. Equipment is extremely abused with actual destruction in some cases by the students.

2. The students present an attitude of indifference and disrespect which

will be difficult to overcome.

a. There is laxness in punctuality for arriving at classes.
b. Students are extremely slow in following directions.
c. There was very little evidence of students being disciplined to follow directions.
d. A factor in this attitude is the overcrowding of classes.

3. Quality equipment has been provided, however, it is unused, not in working condition, and in unsafe condition. Guards and parts are missing on most machines. Replacement parts and proper maintenance can put all machines in safe operating condition.

4. Housekeeping is extremely poor especially in the teachers' office and store rooms. Among the scrap and debris is a metal lathe (still in its original crate thereby unused for many years, by now it has rusted and parts have been lost), a miter box, and hand tools.

5. Almost no hand tools are available as they have been abused and stolen. The teacher found it necessary to abandon the tool panel and place the few remaining tools in a locked cabinet.

6. The teachers lack both organization of teaching materials and teaching methods, however, (a) the mechanical drafting teacher presented a brief course outline that shows he has some sense of direction for his program. All of the student work is copy work from the textbook. (b) The wood shop teacher presented a detailed course outline which is not followed in actual teaching. There is an over-reliance on the textbook in place of organized construction activity.

7. The drafting equipment storage cabinet is crudely constructed. The storage lockers beneath the metal benches are impossible to use because all handles had been removed by the students. The mechanical drawing room lacks a bulletin board. All drawing is done on the back of discarded commercial printing paper. When new drafting equipment is purchased, quality paper and pencils can be purchased at moderate prices.

8. The lack of wood and other materials hinders instruction. The school budget and student fees are used for items other than the purchase of consumable materials.

9. The overall atmosphere in the shop reflects a laxed administration and supervision of the instructional staff by the school administrator.

10. The level of instruction observed is too elementary and represents no more than seventh grade level work. The program is limited to wood, drafting, and simple electricity.

RECOMMENDATIONS

1. Many of the problems at this school can be aleviated by a stiffening of the policies by the administration and the teachers.
   a. The students must learn to respect equipment and the value of an education because the general attitude

found at this school is one of marking time and willful destruction.

2. The instructors need in-service help in preparing realistic course outlines and incorporating good teaching methods.

3. Tighter student control should be gained by initiating systems for student personnel, tool checking, and clean up.

4. The teachers' office and store room should be cleaned up immediately.

5. All equipment should be repaired and placed in operating condition. This includes the bench drill press, floor model bill press, scroll saw, grinder, band saw, circular saw, and jointer. When these machines have been placed in safe operating condition, they should be either used by the teacher as part of his instructional program or be moved to another facility. Repairs should also be made to the drafting tables. We suggest that the handles be welded into place to avoid their removal. The vises and tool panel should be repaired for use.

6. Funds for the repair and maintenance of equipment and machines should be provided by the county rather than using money from the school budget which is normally used for instructional materials.

7. Hand tools should be purchased providing the instructor initiates adequate control methods.

WORKMAN JUNIOR HIGH SCHOOL

As a new teacher, the industrial arts instructor at Workman Junior High School is found to have a pleasing personality, is a hard worker, and is developing a good shop layout including a fine shop library. The instructor's math and science background directly correlates with an industrial arts program. The visiting committee felt that the school plant is forward looking with adequate space designated for the current industrial arts program.

FINDINGS

1. Improvements are needed in the machine area.
   a. Certain machines such as the jig saw and grinder are too light for school use.
   b. A band saw and jointer should be added to the power equipment.
   c. The circular saw guard is not being used.

2. The instructor is in the process of developing a program of studies for industrial arts at this school.

3. The electricity and metal areas are in the process of being set up and are not yet in operation.

4. Certain poor teaching techniques are used in the teaching of mechanical drawing.

5. Evidence indicates a lack of daily lesson planning especially in regard to the demonstration portion of the program.

RECOMMENDATIONS

1. The industrial arts instructor should be given special supervision and encouragement to develop programs more directly correlated to pupil interests in the various areas to be taught.

2. The development and use of three dimensional visual aids will facilitate project construction and content instruction.

3. A central dust system is needed.

4. A safety program correlated to the course of study should be organized and put in operation.

5. Because of the instructor's background as a math and science teacher, he should be encouraged to relate industrial arts activities and experiences to math and science.

6. The instructor should participate in local, state, and national industrial arts meetings for his information and the improvement of his instructional techniques.

SUMMARY OF FINDINGS

1. Considerable progress has been made during the last three years through the efforts of the county staff and the industrial arts instructors toward the improvement of industrial arts programs and facilities.

2. There is evidence of good rapport between teachers and pupils, teachers and principals, and teachers and the County Director of Technical and Vocational Education. The attitudes of pupils, teachers, and administrators are found, in general, to be very positive. In some instances the attitude of the principal toward his industrial arts program tends to be somewhat passive.

3. Discipline in the industrial arts laboratories and drafting rooms throughout the county is very good, in general.

4. The industrial arts physical facilities (shop laboratories) are steadily being improved especially as new schools are constructed. In certain older schools the programs have been reviewed and new facilities and/or equipment provided. In regard to facility improvement, the committee wishes to commend the Director of Technical and Vocational Education for his leadership and support. There is, however, a need for continued facility expansion and adequate equipping of industrial arts programs in the county, especially for two or three laboratories which have very poor equipment.

5. The committee equated and summarized the overall needs, problems, and direction for improvement of industrial arts education to be approximately
   - 75% Instructional (organization, method, and techniques used by teachers)
   - 20% Equipment and Supplies
   - 5% Repair and Maintenance of Equipment

6. The supervision of instructional practices is infrequent and is generally carried out by persons with limited backgrounds in this subject area.

7. The committee finds many needs and problems in the area of instruction.

   a. Program Organization

      1. Certain teachers have prepared elaborate course outlines; other teachers have not. Some teachers who have organized course outlines are not using them to guide daily student work. In general, course outlines are not sufficiently realistic, detailed, and functional.

      2. Lesson planning either daily or weekly is generally not being done.

      3. Although course and program objectives are written on paper by teachers, many are copied from source materials and are not considered in organizing and presenting the instructional program.

b. Content

1. There is a lack of sequence to the content of courses from the junior high schools to the senior high schools. Articulation between course levels is poor.

2. The level of the content is too elementary and is satisfying only minimum standards. This is especially true of the senior high school courses.

3. The activities and experiences are not functional. Too many are abstract rather than satisfying objectives with a boy-interest approach.

4. The exercise teaching method is frequently used rather than the directed problem solving approach to content.

5. Operations are taught without teaching the basic principles involved. The "how" is stressed more than "why."

6. Negro programs are not related closely enough to the home and community environment or to the specific needs of these pupils. Content units are not sufficiently practical.

c. Instructional Materials

1. A great number of textbooks are observed in this county. The committee commends this availability of text materials. However, a serious dependency on textbooks by teachers causes over-emphasis on book and paper work. Some classes use textbooks entirely to copy from.

2. The use of duplicated, teacher-made instruction sheets is limited.

3. Shop libraries of reference materials including related information and project sources are inadequate.

d. Teaching Methods and Techniques

1. A lack of daily preparation for instruction is evident. In general, day-by-day plan books are not used. These include lesson plans which grow out of course outlines which are developed and correlated to the county guide for industrial arts. (It is understood that a county guide is being prepared and will soon be ready for distribution.)

2. Demonstrations are given too infrequently. The textbook method is being substituted. Some instruction by the teacher should be given almost every day. Students were observed doing processes which they had not learned or had not been shown. As a result many incorrect methods and procedures on the part of students were observed.

3. In one school the old manual training exercise-drill method was being used. This deters student motivation.

4. Insufficient pupil planning for construction activities and projects is apparent.

5. Instruction is not differentiated for pupils of varying ability levels. Only one junior high school schedules a special class for under-achievers.

8. The evaluation of pupil progress is limited to teacher judgments and tests.

9. Project design is poor. Not only is the quality of the design poor but certain designs being used are obsolete. Projects lack creativity.

10. There is an over emphasis on putting together a project without learning the related information or principles.

11. Not all machines had guards in place. Certain machines need maintenance and repair. Many machines are too light or lack the quality required for school use.

RECOMMENDATIONS

1. Since the findings of the committee indicate that the major need for the improvement of the industrial arts program concerns instructional organization and methods, a supervisor or coordinator of industrial arts should be appointed to provide (in addition to administrative duties) the leadership and direction for instructional improvement in regard to
    a. the development of course outlines
    b. organizing daily lesson plans
    c. improving teaching methods and techniques
    d. utilizing three-dimensional teaching aids
    e. organizing a safety program
    f. the proper use of textbooks
    g. pupil records and evaluative procedures
    h. pupil participation in instructional activity
    i. the preparation of instruction sheets

2. Most of the instructional problems identified can be solved or decreased through such supervisory practices as in-service training programs, group meetings, individual conferences with teachers, the organized study of content and methods, and classroom visitation.

3. The county in-service classes for industrial arts teachers should be continued with emphasis on teacher training or instructional methods and techniques as well as material and tool skills.

4. The county Industrial Arts Guide or Course of Study should be completed as soon as possible to give external stability to the overall program.

5. Each teacher should develop a course outline for his specific program in order to provide the flexibility required by the individual abilities of the teacher and the physical facility and equipment available. Supervisory personnel should see that course outlines are followed in daily instruction.

6. A study of the scope and sequence of the content to be included in a County Guide should be made with special consideration to program articulation between junior and senior high schools. Senior high school programs, projects, and instruction should be at a higher level so as not to be repetitious of the junior high school programs. The senior high programs should shift to machine operation at once. The junior high school programs should assume the concept of being an exploratory feeder program for specialized senior high courses.

7. All machines and equipment should be put in safe condition, provided with adequate guards, and properly used. Teachers should improve their machine maintenance programs. General building maintenance should also be improved.

8. Planning for new laboratories should consider a facility large enough to adequately house the instructional program, functional auxiliary rooms, and an area for drawing and planning. Separate drafting rooms should be equipped with visual aids, mechanical equipment for the chalk board, a sink, proper storage for drawings and equipment, and developing equipment. Shops should have equip-

ment in sufficient variety and quantity for the instructional program being offered.

9. Only quality machines should be purchased. Home shop and light equipment should not be considered.

10. Equipment should be provided for electricity-electronics, power mechanics, and metals in existing programs. Steps should be taken to evaluate and improve facilities and equipment located at the older shops.

11. Negro programs should construct projects and study areas which will up-grade the home and community. The shop might be the hub for community learning in regard to community problems, for example, home repairs, cabinet and furniture construction, septic tank installation, landscape improvements, etc.

12. Study should be made of methods to differentiate instruction by levels in keeping with pupils' varying abilities. Consideration might be given to organizing a special course for pupils who are potential dropouts and who are not achieving academic success in the regular school program. Such a course would group these pupils in classes of 15-18 for special instruction in occupations, tool skills related to construction and repair, and vocational guidance.

13. Shop library materials should be provided to supplement instruction by the teacher and regular textbooks. These materials would include sources of related information, project ideas, and enrichment content.

14. All teachers are encouraged to participate in local, state and national professional meetings and conferences related to industrial arts education so that they may keep abreast of latest techniques, materials, terminology, and technology in their fields of specialization.

15. The funds provided from the school budgets for consumable supplies should be at least $2.00 per pupil enrolled in the course. Both the quantity and variety of the supplies should be increased. Teachers should be better informed regarding the county policy on budgeting supply monies.

16. Developments for future program improvement should include providing opportunities for (a) problem solving experiences and experimentation, (b) girls to elect courses, (c) research investigations, (d) increased correlation with other subjects especially mathematics and science, and (e) instruction which encompasses the most recent technological developments.

SCHOOL _____ Total Enrollment _____

TEACHER _____ Industrial Arts Enrollment _____

Areas Taught _____

	E	VG	G	F	P	Comments
I. PERSONAL QUALITIES						
1. Does the teacher possess the ABILITY TO ORGANIZE, to be resourceful, and to stimulate and MOTIVATE STUDENTS?						
2. Is the teacher COOPERATIVE AND ENTHUSIASTIC not only for industrial arts but for his activities with administrators and other teachers?						
3. Does the teacher have a PROFESSIONAL ATTITUDE AND APPEARANCE?						
II. PROFESSIONAL PREPARATION						
1. In addition to MASTERY OF HIS SUBJECT field, does the teacher have a basic UNDERSTANDING OF EDUCATIONAL PSYCHOLOGY?						
2. Does the teacher maintain his industrial arts skills and knowledge through additional STUDY AND PROFESSIONAL READING?						
III. PREPARATION FOR INSTRUCTION						
1. Does the teacher have a well-planned, flexible COURSE OUTLINE?						
2. Is there an organized, in operation, SAFETY PROGRAM?						
3. Does the teacher maintain an adequate SHOP LIBRARY?						
4. Has the teacher prepared and organized visual aids and INSTRUCTIONAL MATERIALS?						
IV. DIRECTING LEARNING						
1. Are DEMONSTRATIONS and lectures, which are concise, clear and SKILLFULLY PRESENTED, a part of the REGULAR PLAN for instruction?						
2. Does the instructor use the DIRECTED DISCOVERY METHOD rather than dictating procedures?						
3. Is CLASS CONTROL maintained by the teacher at all times through democratic self-control on the part of the students?						
4. Does the teacher INDIVIDUALLY COUNSEL STUDENTS regarding their daily work and future educational plans?						

5.	Are activities and projects based on PROBLEM SOLVING TECHNIQUES?						
6.	Are all students motivated to their MAXIMUM ABILITIES?						
7.	To what extent does a pupil DESIGN, PLAN, CONSTRUCT, AND EVALUATE his projects?						
8.	Are SAFE SHOP PRACTICES insisted upon?						
9.	Does the instructor DIFFERENTIATE HIS INSTRUCTION and content for the various ability levels of pupils; slow, average, gifted?						
10.	Are the procedures and devices for PUPIL EVALUATION adequate?						
V.	SHOP MANAGEMENT						
1.	Are EQUIPMENT, SUPPLIES, AND MATERIALS on hand when needed?						
2.	Are all machines adequately GUARDED and in safest operating condition?						
3.	Are the shop and store rooms ORDERLY AND CLEAN?						
4.	Is there a working system for TOOL CHECKING and PERSONNEL MANAGEMENT?						
5.	Do classes begin ON TIME and WITHOUT UNDUE NOISE or confusion?						
VI.	INSTRUCTOR'S PROFESSIONAL ACTIVITIES						
1.	Does the teacher PUBLICIZE HIS PROGRAM and its results?						
2.	Does the teacher PARTICIPATE IN THE TOTAL SCHOOL PROGRAM and activities?						
3.	Does the teacher sponsor an INDUSTRIAL ARTS CLUB?						
4.	Does the teacher join his LOCAL, STATE AND NATIONAL ASSOCIATIONS?						
5.	Does the teacher PARTICIPATE IN AND ATTEND MEETINGS of his professional associations?						
VII.	INSTRUCTOR'S PLAN FOR PROGRAM IMPROVEMENT						
1.	Are there increasing opportunities: for GIRLS to elect courses?						
	for PROBLEM SOLVING experiences and experimentation						

	E	VG	G	F	P	Comments
for RESEARCH through books and factual information						
for correlating MATH AND SCIENCE						
for content to include TECHNOLOGICAL DEVELOPMENTS						

SCHOOL _____

SHOP _____

		S*	A*	I*	Comments
I.	BUILDING				
	1. Location in respect to rest of school				
	2. Entrances and delivery access, size and location				
	3. Ceiling height, 14' - 16'				
	4. Accoustical treatment				
II.	EXISTANCE AND ADEQUACY OF AUXILIARY ROOMS				
	1. Project storage room				
	2. Material storage room				
	3. Finishing room				
	4. Teacher office space				
	5. Planning room or area				
	6. Toilet Facilities				
	7. Tool storage room or panels				
	8. Separate evening class storage				
III.	OPEN SHOP SPACE				
	1. Size and proportion				
	2. Equipment placement and spacing				
	3. Equipment, quality and variety				
	4. Adequate racks where materials are stored in the shop				
	5. Washing facility available in shop				
	6. Chalk and tack boards				
	7. Safety provisions,				
	a. guards				
	b. safety zones				
	c. quality equipment				
	d. first aid kit				
	e. color coded equipment				
	8. Fire extinguishers				
	9. Quality of benches and cabinets				

* S - Superior A - Adequate I - Inadequate

		S	A	I	Comments
10.	Adequate lighting (natural, artificial)				
11.	Temperature and ventilation, controlled				
12.	Floors, non slip, solid, clean				
13.	Wall treatment and color				
14.	Proper maintenance of shop and equipment				
15.	Adequate hand tools				
16.	Adequate electrical outlets				

VT 001 245

VT 001 245
A Survey of Anticipated Need for Vocational-Technical Education Teachers in Michigan.

Michigan State Dept. of Public Instruction, Lansing. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Apr65 1p.

*EMPLOYMENT OPPORTUNITIES; *EMPLOYMENT PROJECTIONS; *VOCATIONAL EDUCATION TEACHERS; *STATE SURVEYS
MICHIGAN

Questionnaires returned by 320 K-12 districts and 13 community colleges indicated (1) 3,259 vocational-technical teachers were currently employed, (2) 261 were currently needed, (3) 1965-66 needs totaled 634, and (5) 1970 projections indicated 1,862 additional teachers would be needed. Occupational subject areas covered by these schools are (1) agriculture, (2) office occupations, (3) distributive occupations, (4) home economics, (5) industrial occupations, (6) food service occupations, (7) health service occupations, (8) public service occupations, (9) tourist and resort occupations, and (10) management development. (EM)

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DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION
LANSING, MICHIGAN

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A Survey of Anticipated Need for Vocational-Technical Education Teachers in Michig

One of the critical problems associated with the development of a greatly expanded vocational-technical education program in Michigan high schools and community colleges will be the recruitment and training of teachers. In an effort to be of assistance to local administrators and teacher education institutions, a survey of anticipated need for vocational-technical education teachers was conducted.

Questionnaires were sent to the 528 K-12 Michigan school districts and the 18 operating Michigan community colleges plus the one new community college district which will begin operating in the fall of 1965. Questionnaires were returned by 320 of the K-12 districts and 13 of the community colleges. The results of this survey are contained in the following table:

Anticipated Need for Vocational-Technical Education Teachers
In Michigan K-12 School Districts and Community Colleges

Teachers for	Number Employed Now		Number Additional Needed Now		Additional Number Needed for New Programs or Expansion			
					1965-66		By 1970	
	K-12	C. C.	K-12	C. C.	K-12	C. C.	K-12	C. C.
Agricultural Occupations	86	2	6	2	12	2	65	5
Office Occupations	777	57	45	4	111	24	295	61
Distributive Occupations	127	7	21	2	58	9	253	26
Home Economics and Related Occupations	967	0	34	1	71	0	267	10
Industrial Occupations	753	205	84	11	188	41	405	102
Food Service Occupations	115	3	9	0	39	4	107	22
Health Service Occupations	60	59	16	6	20	30	67	82
Public Service Occupations	5	3	1	1	13	4	46	15
Tourist and Resort Occupations	0	0	44	0	4	0	31	3
Other: Management Development	0	33	0	4	0	4	0	0
SUBTOTAL	2,890	369	260	31	516	118	1,536	326
GRAND TOTAL	3,259		291		634		1,862	

VT001245

VT 001 248

VT 001 248
Lunder, Robert O.; Ringo, Earl N.
Measures of Academic Aptitude of First-Year Post-High School Students in the Area-Vocational-Technical Schools of Minnesota.

Minnesota Univ., Minneapolis. Bureau of Institutional Research
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Apr65 13p.

*AREA VOCATIONAL SCHOOLS; TECHNICAL EDUCATION; VOCATIONAL EDUCATION; *STUDENT CHARACTERISTICS; *POST SECONDARY EDUCATION; ACADEMIC APTITUDE; COMPARATIVE ANALYSIS; *COLLEGE FRESHMEN; JUNIOR COLLEGES; COLLEGES; STATE UNIVERSITIES; HIGH SCHOOL STUDENTS; GRADE 11; ACADEMIC ACHIEVEMENT
MINNESOTA

The purpose of the study was to ascertain certain academic characteristics of first-year post-high school students in the area vocational-technical schools of Minnesota in the Fall of 1964. There were 2,881 first-year students in 17 schools. The preselected measures of academic ability were high school rank, scores of the Minnesota Scholastic Aptitude Test (MSAT), and scores of the Cooperative English Test, Form Z (CET). Data for vocational students were compared with those of freshmen in junior colleges, state colleges, the University of Minnesota, and high school juniors in 1962 to get some idea of the relative position of the vocational students on the academic scale. Data were available for 92 percent of the vocational students on high school rank, 87 percent on MSAT, and 86 percent on CET. Entering vocational school students had a lower high school percentile rank and earned lower scores on the MSAT and CET than entering freshmen in the other institutions. Conclusions included (1) The vocational students as a group came largely from the lower half of the high school population, and (2) Vocational schools were attracting a large number of young adults not being served by any of the public colleges. A cooperative institutional effort to provide programs for all levels of ability and aptitude was recommended. (SL)

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MEASURES OF ACADEMIC APTITUDE OF FIRST-YEAR POST-HIGH SCHOOL STUDENTS IN THE AREA-VOCATIONAL-TECHNICAL SCHOOLS OF MINNESOTA

by

Robert O. Lunder
Research Fellow

And

Earl N. Ringo
Research Associate

A Study Conducted For The Liaison Committee
On Higher Education in Minnesota

Bureau of Institutional Research
University of Minnesota
April 1965

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MEASURES OF ACADEMIC APTITUDE OF FIRST-YEAR POST-HIGH SCHOOL STUDENTS IN THE AREA-VOCATIONAL-TECHNICAL SCHOOLS OF MINNESOTA

Purpose of the Study

The purpose of this study was to find out about certain academic characteristics of first-year post-high school students at the Area-Vocational-Technical Schools of Minnesota in the Fall of 1964. These characteristics of the Area-Vocational-School students were then compared with those of freshmen in the Junior Colleges, State Colleges, and the University of Minnesota as well as with those of the population of high school juniors in order to get some idea of the relative position of the vocational students on the academic scale.

Population Included in the Study

Through the cooperation of the Vocational Education Section of the State Department of Education a list of students from each of the 17 Area-Vocational-Technical schools was obtained as of the start of the school year, Fall 1964. This list included 2,881 students (2,054 males and 827 females) who were enrolled in the Area-Vocational-Technical post-high school programs at that time as first-year students.

The total enrollment was composed of 2,741 students who had graduated from 436 public high schools and 42 private schools in the State of Minnesota, 94 students who had graduated from 90 high schools outside the State of Minnesota, and 46 students who were not high school graduates.

For the 2,835 high school graduates the year of graduation from high school varied as follows:

Year of Graduation	Number of Students	Per Cent of Total (2,835)
1964	1,620	57.1
1963	685	24.2
1962	227	8.0
1961	94	3.3
1960	38	1.3
Prior to 1960	171	6.0

Procedure

The three measures selected as indicators of academic ability were high school rank (HSR), scores on the Minnesota Scholastic Aptitude Test (MSAT), and scores on the Cooperative English Test, Form Z (CET). Data on these measures were obtained through the cooperation of the State-Wide Testing Program and the Student Counseling Bureau at the University of Minnesota. Data were then punched on IBM cards for each individual and descriptive statistics were obtained for each group on each of the three measures through the use of the computer. Some analyses were made for sub-groupings (e.g. by sex and by individual Area Vocational School) but these analyses have not been included in this report.

Limitations

Data were not available on all three measures for all 2,881 students. Students for whom data were not available included the following: 1) women registered in the A-V-T Schools who listed only their married names; 2)

students who graduated prior to the time of the start of the State-Wide Testing Program; 3) those who graduated from high school in states other than Minnesota; and 4) students who were not enrolled in high school through the eleventh grade. Sometimes information was available on one or two of the measures but not on all three. Data were obtained for 92 per cent of the students on high school rank, 87 per cent on MSAT and 86 per cent on CET.

Measures of Academic Aptitude

The descriptive statistics obtained on each of the three measures of academic aptitude and comparisons of the A-V-T group with entering freshmen in the State Colleges, Junior Colleges, and University of Minnesota are discussed, for each measure, in the following paragraphs.

High School Rank

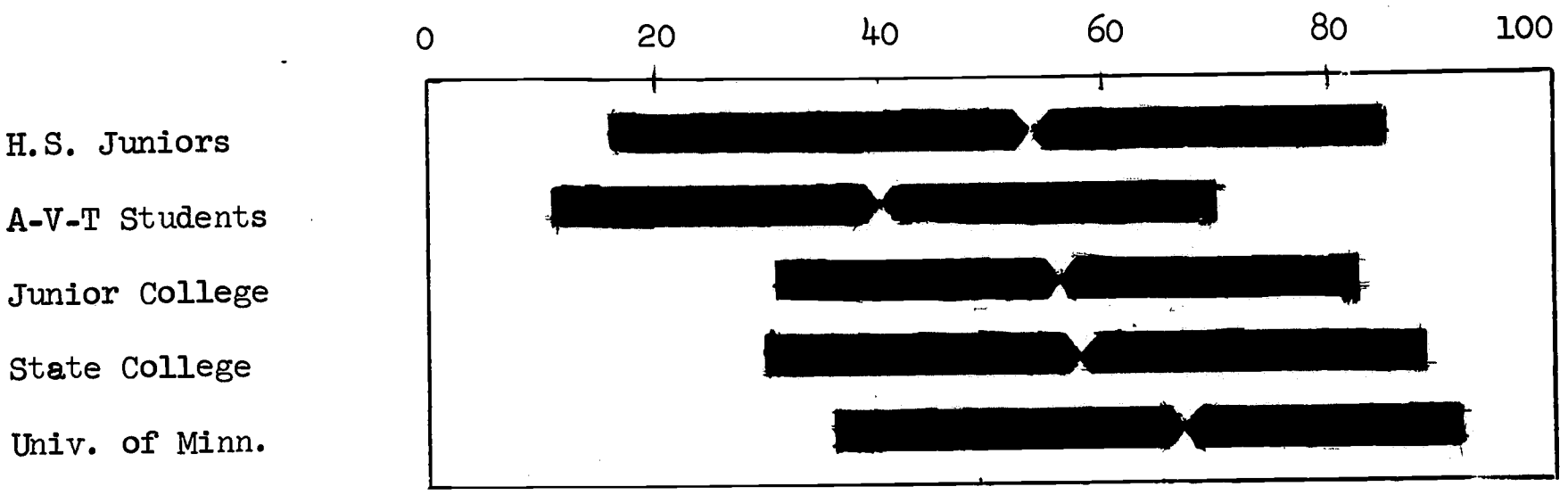
The student's percentile rank within his own class, based upon grades which were earned through the end of the junior year in high school, was used as a measure of past achievement. The mean high school rank obtained by first year Area-Vocational-Technical School students was 41.0 in comparison with a mean rank of 50.7 for all high school juniors, 55.0 for junior college freshmen, 58.0 for state college freshmen and 66.2 for freshmen at the University of Minnesota. Over three-fourths of the new A-V-T students had a high school percentile rank below 60 and one-fourth of them had a high school percentile rank below 20. The detailed report for A-V-T students and selected comparative groups is contained in Table 1 and the results are shown graphically in Figure 1.

Table 1: A COMPARISON OF HIGH SCHOOL PERCENTILE RANK OF HIGH SCHOOL JUNIORS 1962, COLLEGE AND UNIVERSITY ENTERING FRESHMEN 1963 AND A-V-T FIRST-YEAR STUDENTS 1964.

	N	Q_3	Md	Q_1	Mean	S.D.
H.S. Juniors 1961-1962	4,622	75	50	25	50.7	28.8
A-V-T Students Fall 1964	2,635	59	39	20	41.0	30.9
Junior College Freshmen 1963	2,098	72	a	38	55.0	25.6
State College Freshmen 1963	4,109	79	60	38	58.0	25.2
Univ. of Minn. Freshmen 1963[b]	6,995	87	71	49	66.2	25.0

[a] Not available

[b] Includes all U. of M. entering freshmen for whom data were available.



The range for each group extends from the first to the hundredth percentile. The bar represents the middle 70% of the group. The indentation in the bar represents the mean of the group.

Figure 1. VARIABILITY OF HIGH SCHOOL PERCENTILES FOR HIGH SCHOOL JUNIORS AND SELECTED POST-HIGH SCHOOL GROUPS.

Minnesota Scholastic Aptitude Test

The Minnesota Scholastic Aptitude Test (MSAT) was used as a measure of scholastic aptitude. This test has been administered to approximately 99 per cent of all Minnesota High School Juniors since 1960. The mean raw scores of the individual A-V-T Schools varied from a low of 24.9 to a high of 31.0 with an overall mean of 27.3. These may be compared to mean raw scores of 32.6 for all high school juniors, 34.5 for junior college freshmen, 34.4 for state college freshmen and 41.3 for freshmen at the University of Minnesota. (See Table 2)

Table 2: A COMPARISON OF MSAT RAW SCORES OF HIGH SCHOOL JUNIORS 1962, COLLEGE AND UNIVERSITY ENTERING FRESHMEN 1963 AND A-V-T FIRST-YEAR STUDENTS 1964.

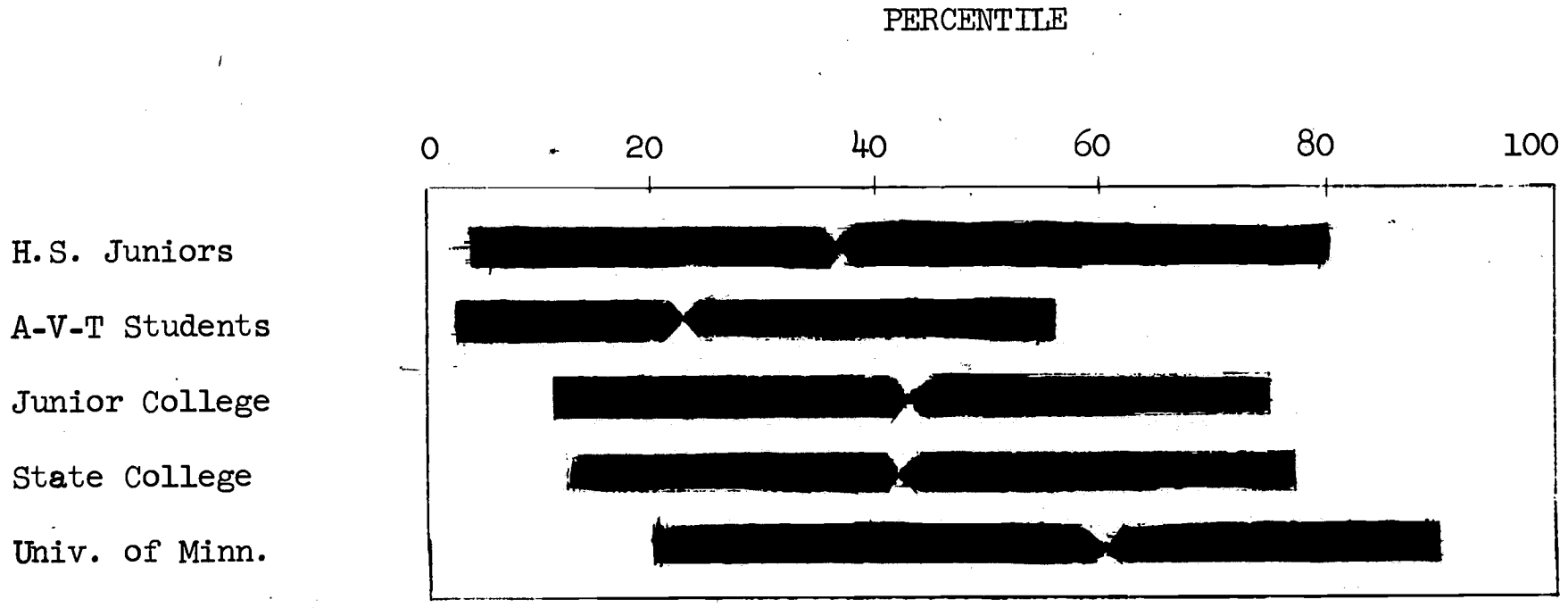
	N	Q_3	Md	Q_1	Mean	S.D.
H.S. Juniors 1961-1962	4,622	42	30	21	32.6	14.6
A-V-T Students Fall 1964	2,505	32	25	19	27.3	11.7
Junior College Freshmen 1963	2,064	43	a	26	34.5	12.9
State College Freshmen 1963	4,051	42	33	25	34.4	12.2
Univ. of Minn. Freshmen 1963[b]	6,995	51	40	31	41.3	13.8

[a] Not available

[b] Includes all U. of M. entering freshmen for whom data were available.

Raw scores have been converted to percentile ranks on the basis of a norm group of 3,401 entering freshmen at the University of Minnesota, Fall 1959. Figure 2 graphically shows the comparison among entering A-V-T students, high

school juniors and freshmen in the various types of public institutions. The mean percentile rank for A-V-T students was 23, while approximately 85 per cent of the A-V-T students scored below the fiftieth percentile on the MSAT.



The range for each group extends from the first to the hundredth percentile. The bar represents the middle 70% of the group. The indentation in the bar represents the mean of the group.

Figure 2. VARIABILITY OF MSAT PERCENTILE RANKS FOR HIGH SCHOOL JUNIORS AND SELECTED POST-HIGH SCHOOL GROUPS.

Cooperative English Test

English competency was measured by the Cooperative English Test, Form Z (CET). Although three raw scores were available for this test (Mechanics of Expression, Effectiveness of Expression and Total Composite), only the Total Composite score was used in this study since comparative data were not available for the subsections.

The mean composite raw scores of the individual A-V-T schools varied from a low of 99.7 to a high of 131.0 with an overall mean (reported in Table 3) of 114.6. About seventy-five per cent of the A-V-T students had scores which were lower than the lowest mean score made by any of the college freshmen groups.

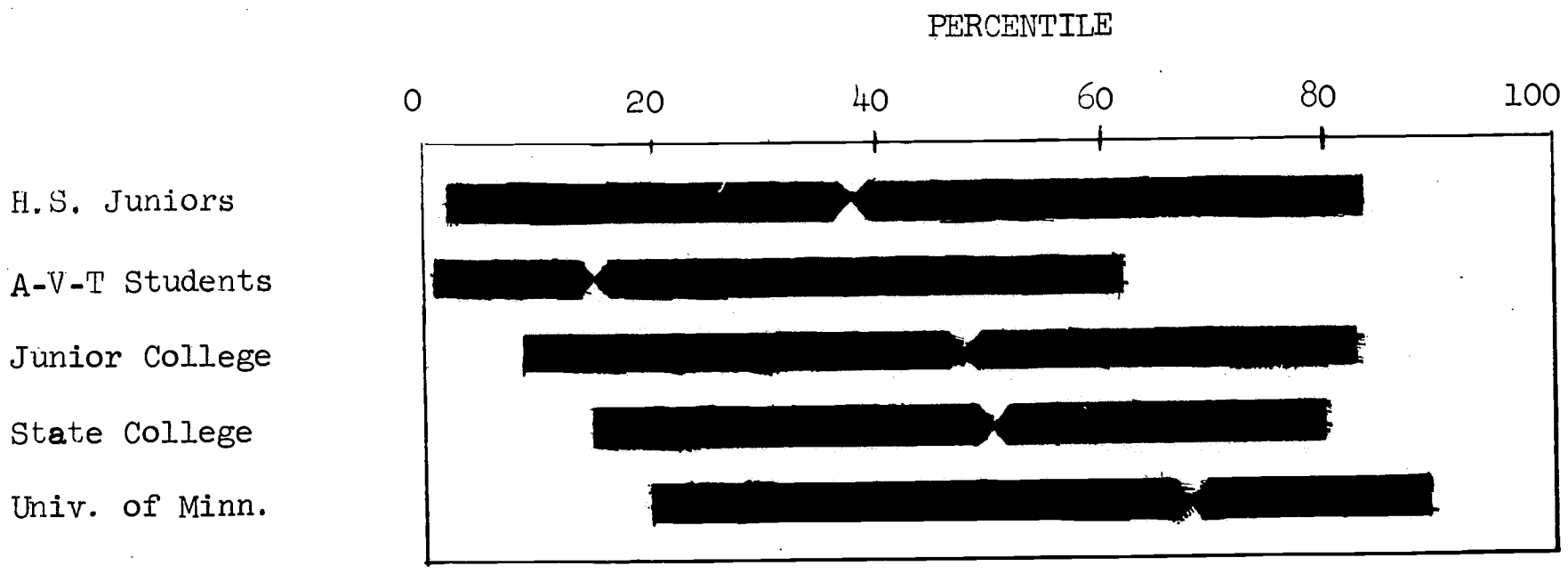
Table 3: A COMPARISON OF CET TOTAL COMPOSITE RAW SCORES OF HIGH SCHOOL JUNIORS 1962, COLLEGE AND UNIVERSITY ENTERING FRESHMEN 1963 AND A-V-T FIRST-YEAR STUDENTS 1964

	N	Q_3	Md	Q_1	Mean	S.D.
H.S. Juniors 1961-1962	4,622	163	134	103	131.4	41.6
A-V-T Students Fall 1964	2,487	139	114	88	114.6	39.8
Junior College Freshmen 1963	2,061	162	a	116	139.2	34.5
State College Freshmen 1963	4,049	159	a	121	140.3	28.4
Univ. of Minn. Freshmen 1963[b]	6,995	178	156	132	152.5	33.4

[a] Not available

[b] Includes all U. of M. entering freshmen for whom data were available.

A graphic comparison of the various post-high school groups on percentile rank on CET has been made in Figure 3. The normative Table for the conversion from raw scores to percentile rank was based on entering freshmen in all Minnesota colleges from Fall 1947 to Fall 1952 who had been given the CET as juniors and had been retested as seniors. The mean score earned by the A-V-T students was below the 20th percentile of the norm group and 85 per cent of the A-V-T students earned scores below the 65th percentile of the norm groups. The mean score on the CET earned by entering freshmen in the Junior Colleges, State Colleges, and the University of Minnesota exceeded the score earned by approximately 50 per cent of the norm group, whereas the mean score earned by the A-V-T students was below the score earned by approximately 20 per cent of the norm group.



The range for each group extends from the first to the hundredth percentile. The bar represents the middle 70% of the group. The indentation in the bar represents the mean of the group.

Figure 3. VARIABILITY OF CET TOTAL COMPOSITE PERCENTILE RANKS FOR HIGH SCHOOL JUNIORS AND SELECTED POST-HIGH SCHOOL GROUPS.

Summary and Conclusions

Approximately 90 per cent of the 2,835 high school graduates who were registered as first-year students in the Area-Vocational-Technical Schools of Minnesota, Fall 1964, had graduated from high school within the preceding three years (since 1962). In fact, almost 60 per cent of them had graduated in the spring of 1964. It would seem, therefore, that the A-V-T schools were attracting the major share of their first-year students from the potential college freshmen population.

New entering A-V-T students had a lower high school percentile rank and earned lower scores on the Minnesota Scholastic Aptitude Test and Cooperative English Test than did freshmen entering Junior Colleges, State Colleges or the University of Minnesota. Indeed, the high school percentile ranks and test

scores of this group were lower than those of the high school juniors tested during the 1961-62 school year and seem to indicate that the A-V-T students as a group came largely from the lower half of the high school population. There was considerable variation among the students attending various A-V-T schools. The lowest percentile scores earned by the entering A-V-T students as a group, on the three measures studied, were on the Cooperative English Test.

These data suggest that the Area Vocational Schools are attracting a large number of young adults not now being served by any of our public colleges. The programs currently being offered in the A-V-T schools indicate an awareness of the ability levels of the student body being served. Additional research is needed to determine ability level according to type of program, as well as follow-up studies which will produce data indicating the characteristics (i.e. mechanical ability, manipulative skills, personality, etc. as well as academic aptitude) of students who succeed in the various kinds of programs and who later succeed on the kind of job for which they were trained.

These findings seem to support the need for post-high school educational programs to encompass all levels of ability and aptitude through the cooperation of the institutions offering post-high school programs. The entire range of abilities and aptitudes could be met through this cooperative effort. Without this kind of cooperative effort, where each type of institution offers those programs in which it has had the most experience and for which its students seem to be selected and adapted,the post-high school educational institutions cannot serve the range of abilities and interest shown by the youth of this state.

VT 001 252

VT 001 252
Widdowson, Ralph D.; Jacoby, Robert
A Report on the Present Status of Trade and Technical Education in Pennsylvania.

Pennsylvania State Dept. of Public Instruction, Harrisburg
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Feb63 23p.

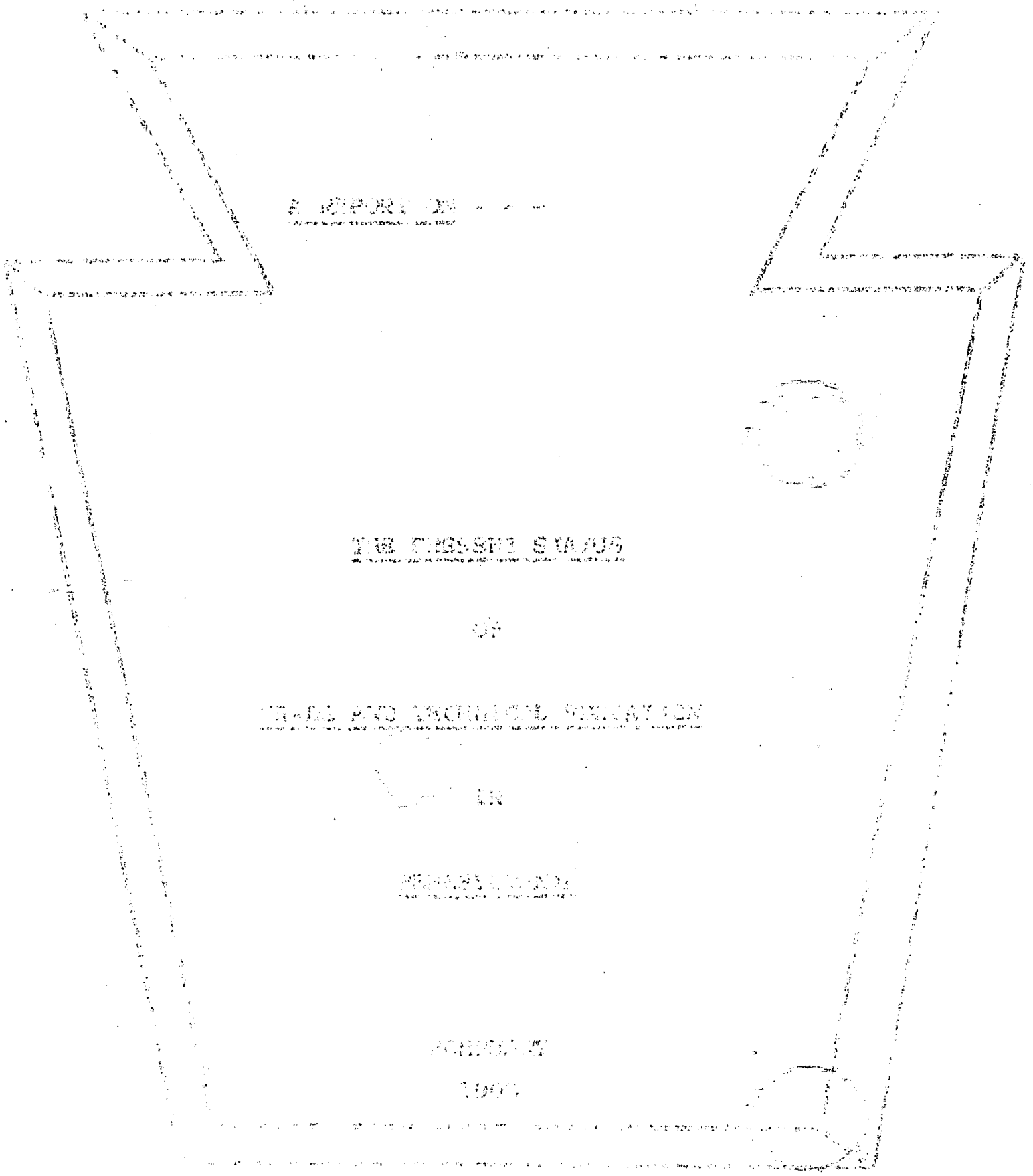
STATISTICAL DATA; *STUDENT ENROLLMENT; *EDUCATIONAL PROGRAMS; *TEACHER QUALIFICATIONS; JOB PLACEMENT; *TRADE AND INDUSTRIAL EDUCATION; GRAPHS; STATE PROGRAMS; VOCATIONAL RETRAINING; HIGH SCHOOLS
PENNSYLVANIA

In graphic form, this report presents statistics on the continuing status of the secondary school and retraining programs of trade and industrial education in Pennsylvania. Much of the information was secured from the various statistical reports of the technical and industrial education division of the Department of Public Instruction. The charts describe pupil enrollments, size and types of programs, placement of graduates, status of teachers and administrators, finance, state supervision, and training of the unemployed. Statistics cover the period from 1958-1962. (PA)

ED027441

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT-012252

FOREWORD

Trade and industrial education programs have operated in the secondary schools of the Commonwealth for many years, In spite of periodic revision of program standards, policies and legislation, a number of basic problems and limitations continue to exist. The rapidly increasing complexity of business and industry operation demands better preparation than ever in technical knowledge and skills for young people entering the world of work. Therefore, the future growth and development of trade and technical education in Pennsylvania requires a realistic understanding of our basic problems, a critical analysis of present status of the program, followed by a strong positive program of action.

This brief statistical report presents, in graphic form, the continuing status of the secondary school and retraining programs of trade and technical education in Pennsylvania. The charts describe pupil enrollments, size and types of programs, placement of graduates, status of teachers and administrators, finance, state supervision, and training of the unemployed.

The report should assist interested individuals and groups to revise educational programs and standards, and justify support for increased and expanded trade and technical education opportunities for the development of skilled tradesmen and technicians in Pennsylvania.

Much of the information was secured from the various statistical reports of the technical and industrial education division of the Department of Public Instruction. The report was prepared by Ralph D. Widdowson and Robert Jacoby, Area Coordinators of Industrial Education, with assistance from all Area Coordinators, and under the general supervision and direction of George W. Elison, State Supervisor, Technical, Military, and Industrial Education.

John W. Struck
State Director of Vocational Education
Pennsylvania Department of Public Instruction

February 1963

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State Supervision-Need and Pattern 17

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State Supervision-Typical Area Coordinator 19

Teacher Education 20

ENROLLMENT OF PUPILS

CHART 1

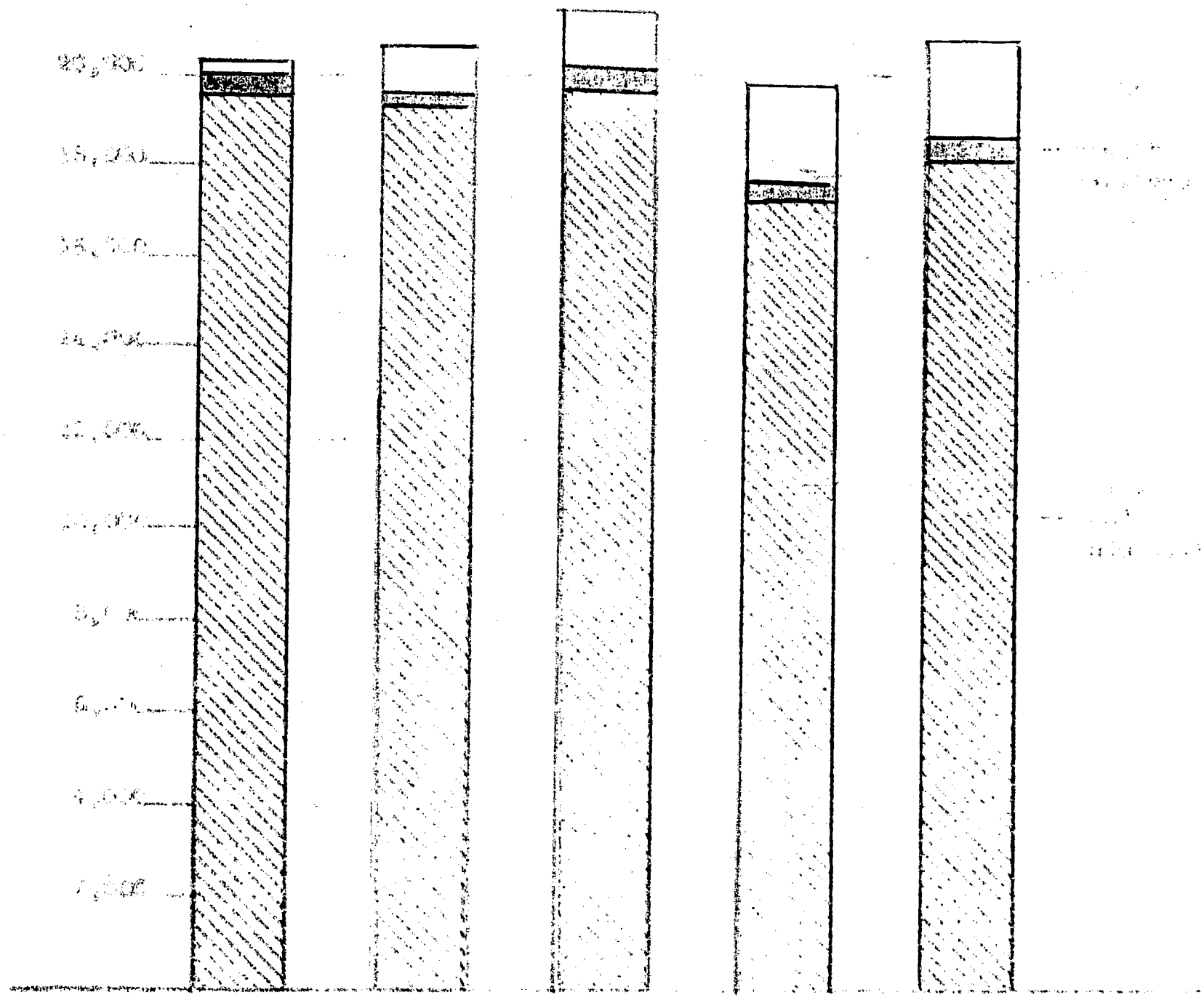


CHART 2

SECONDARY TRADE AND TECHNICAL EDUCATION
PUPIL ENROLLMENTS FOR 1962
COMPARED WITH
PUPIL INTEREST AND OCCUPATIONAL REQUIREMENTS

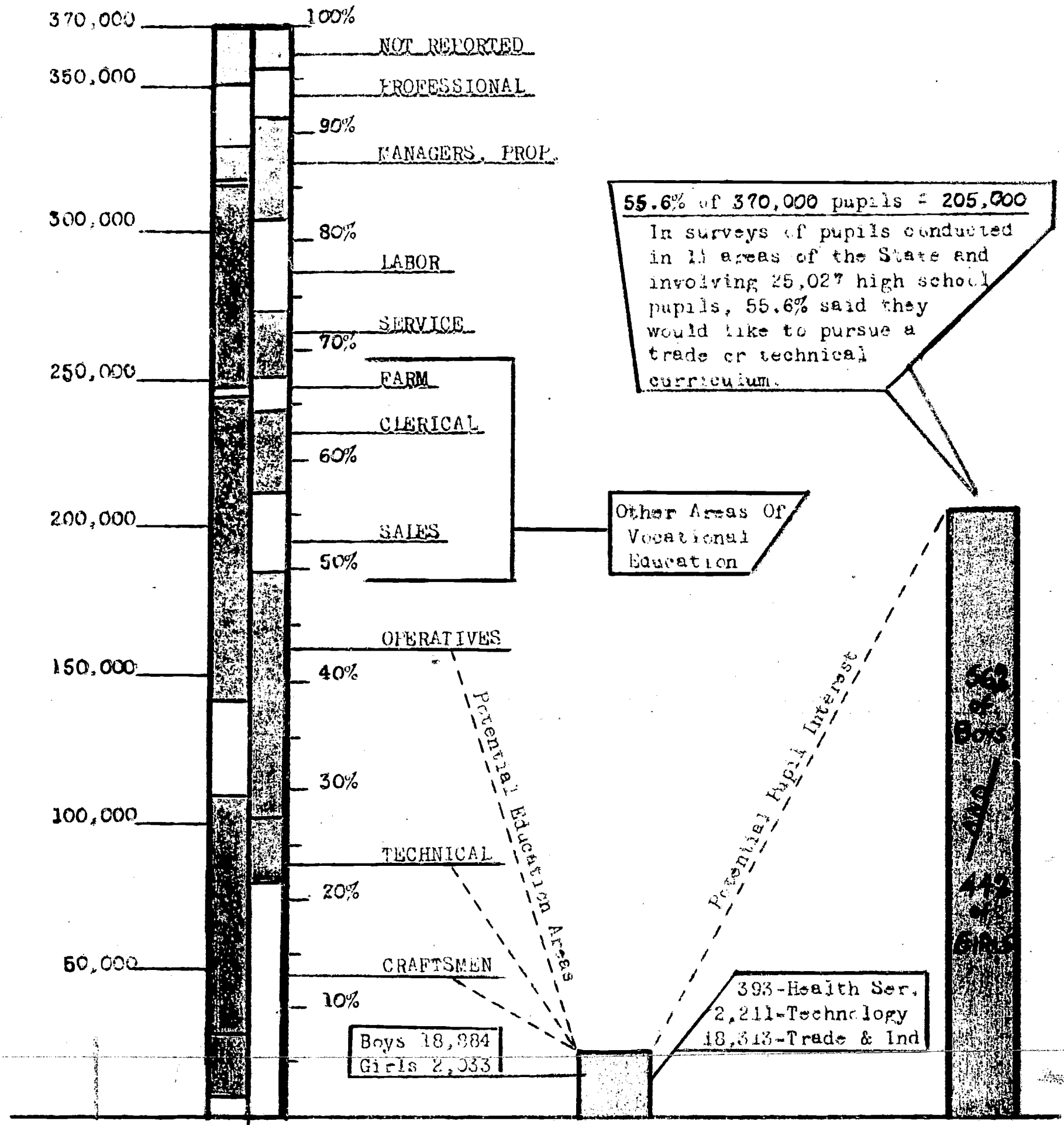
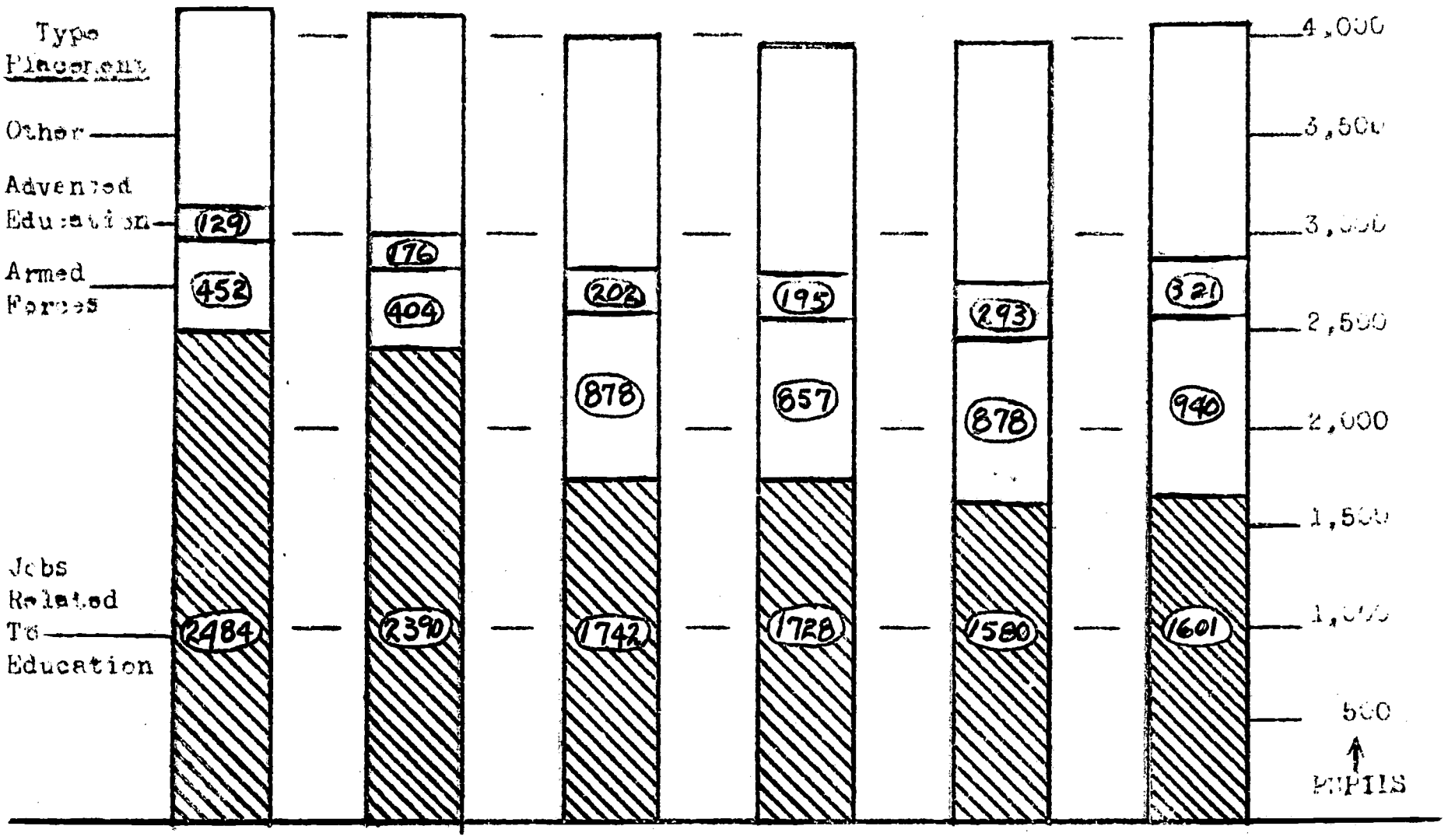


CHART 3

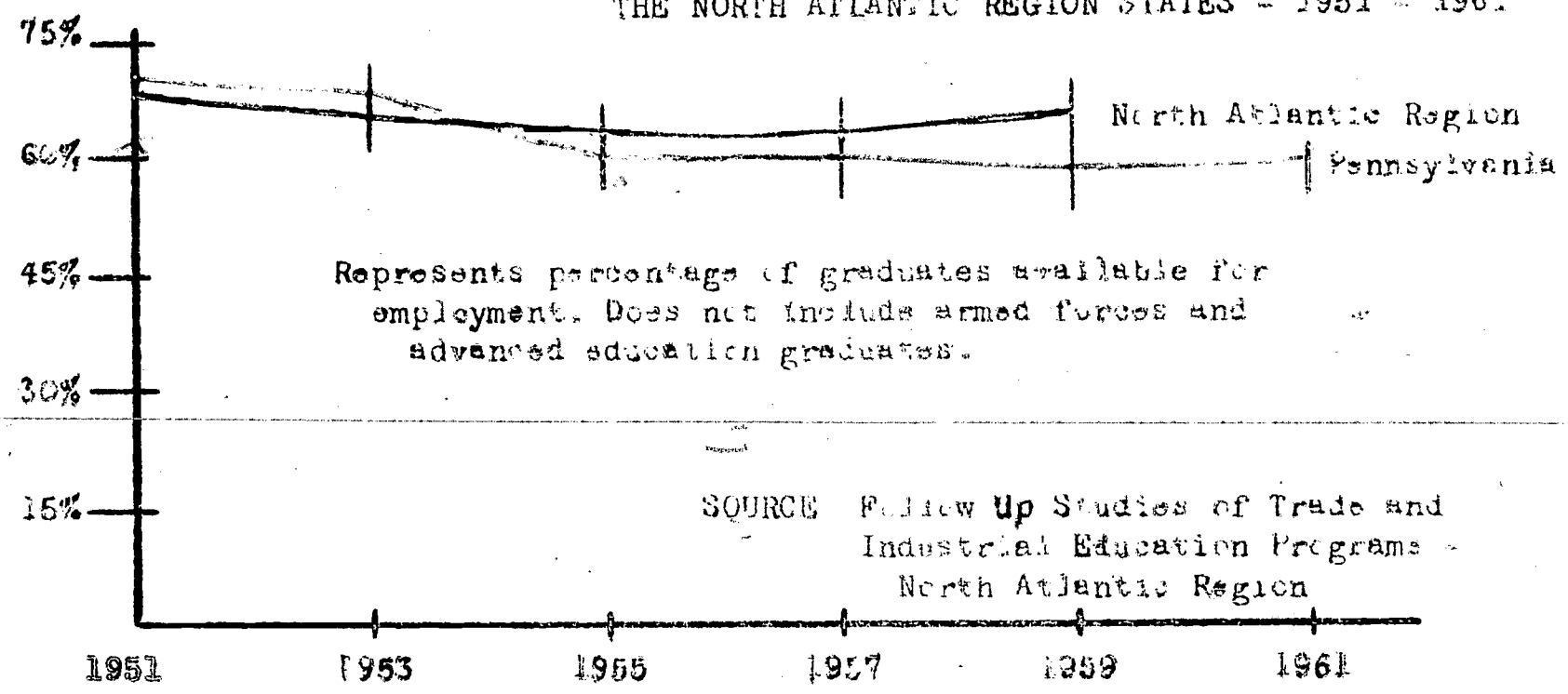
PLACEMENT OF
TRADE AND TECHNICAL EDUCATION
GRADUATES IN
MAJOR PLACEMENT CATAGORIES
1951 - 1961



Total Graduates →	1951	1953	*1955	1957	1959	1961
	4,081	4,064	4,001	3,935	3,960	4,010

CHART 4

PENNSYLVANIA TRADE AND INDUSTRIAL EDUCATION
GRADUATE PLACEMENT RECORD COMPARED WITH
THE NORTH ATLANTIC REGION STATES - 1951 - 1961



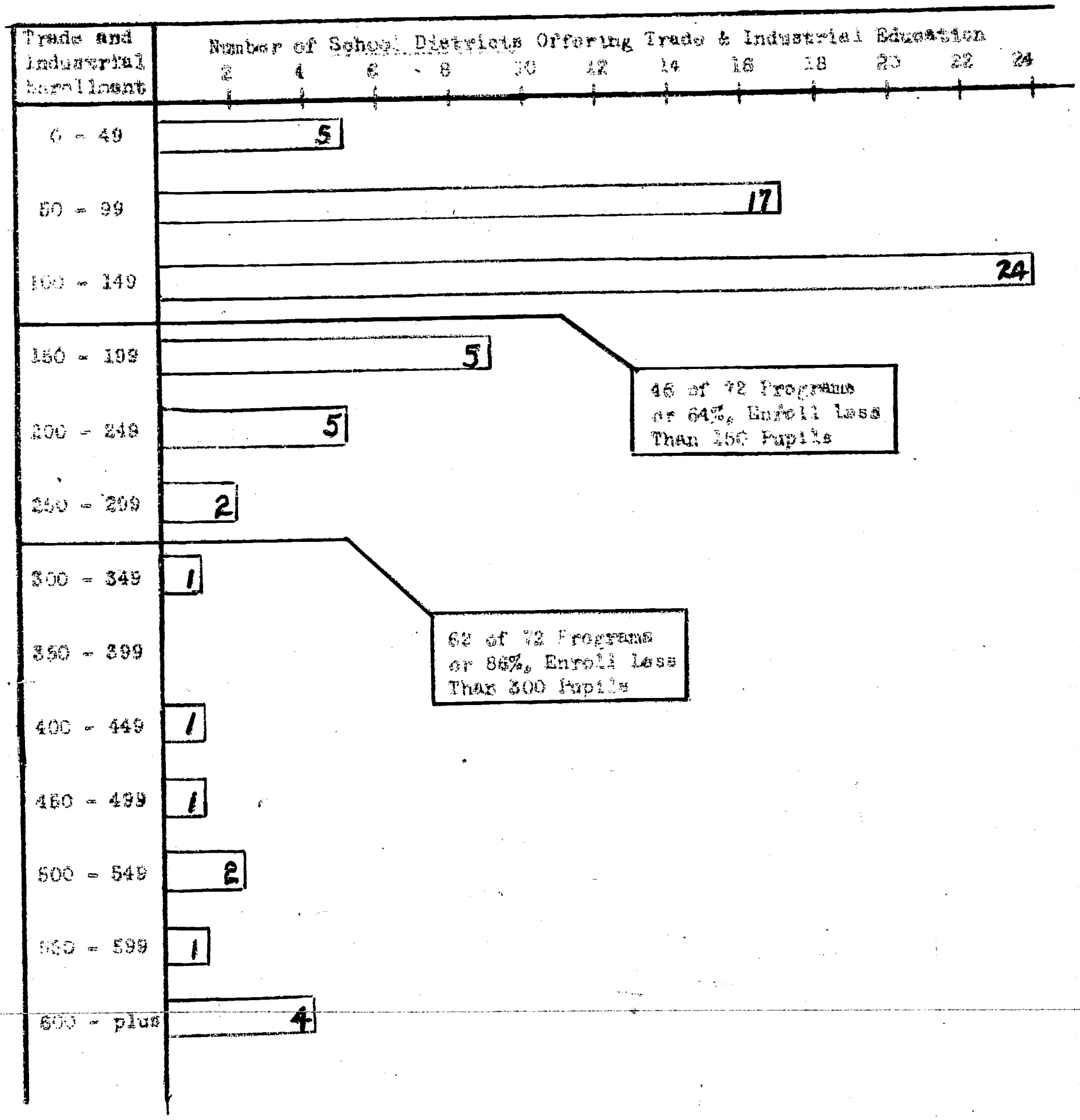
Represents percentage of graduates available for employment. Does not include armed forces and advanced education graduates.

SOURCE Follow Up Studies of Trade and Industrial Education Programs - North Atlantic Region

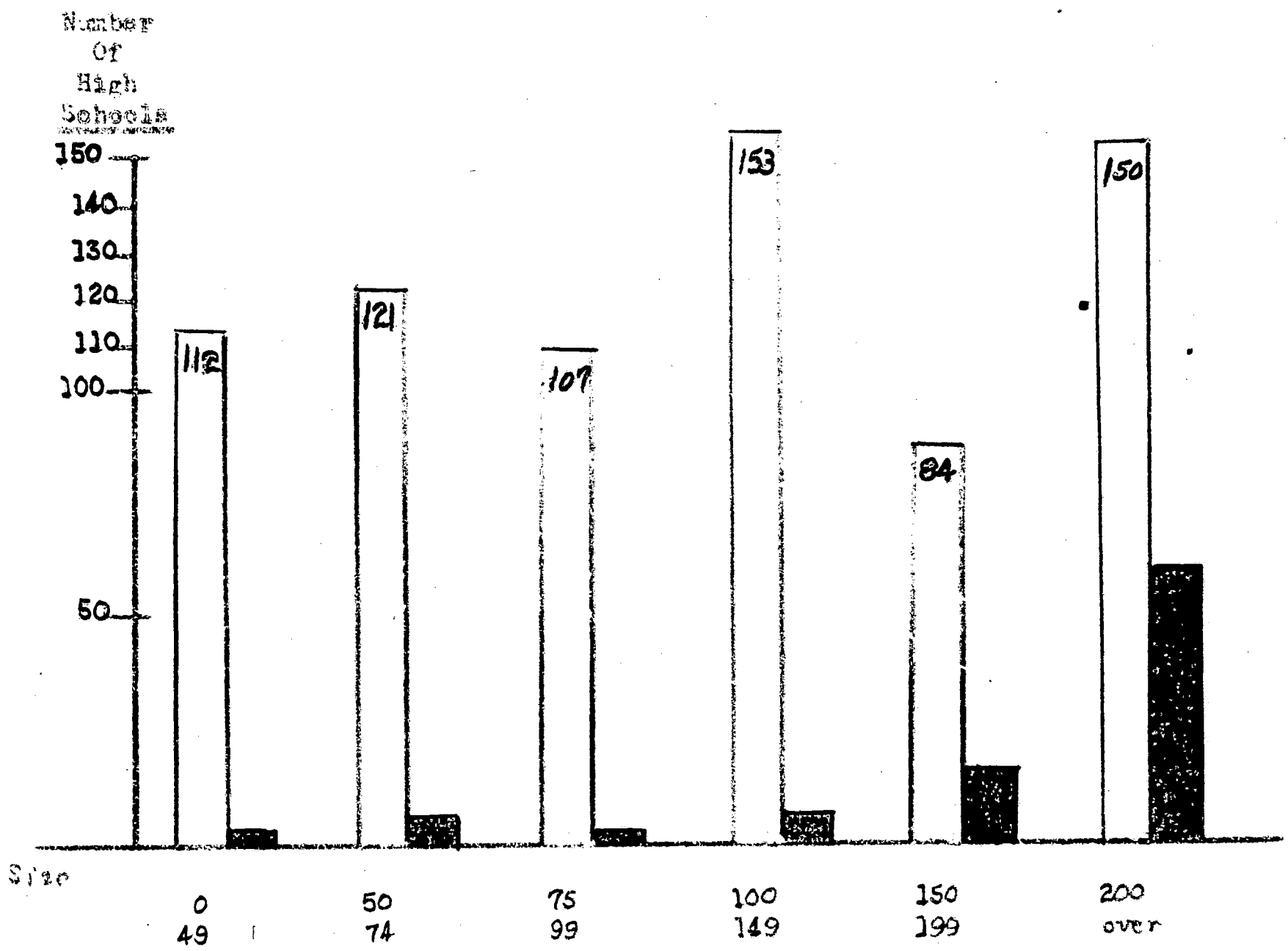
PROGRAMS BY PUPIL SIZE

CHART 5

TRADE AND INDUSTRIAL EDUCATION PROGRAMS
BY
SIZE OF PUPIL ENROLLMENT IN THE CURRICULUM
1960 - 1961



PROGRAMS BY [illegible] SIZE

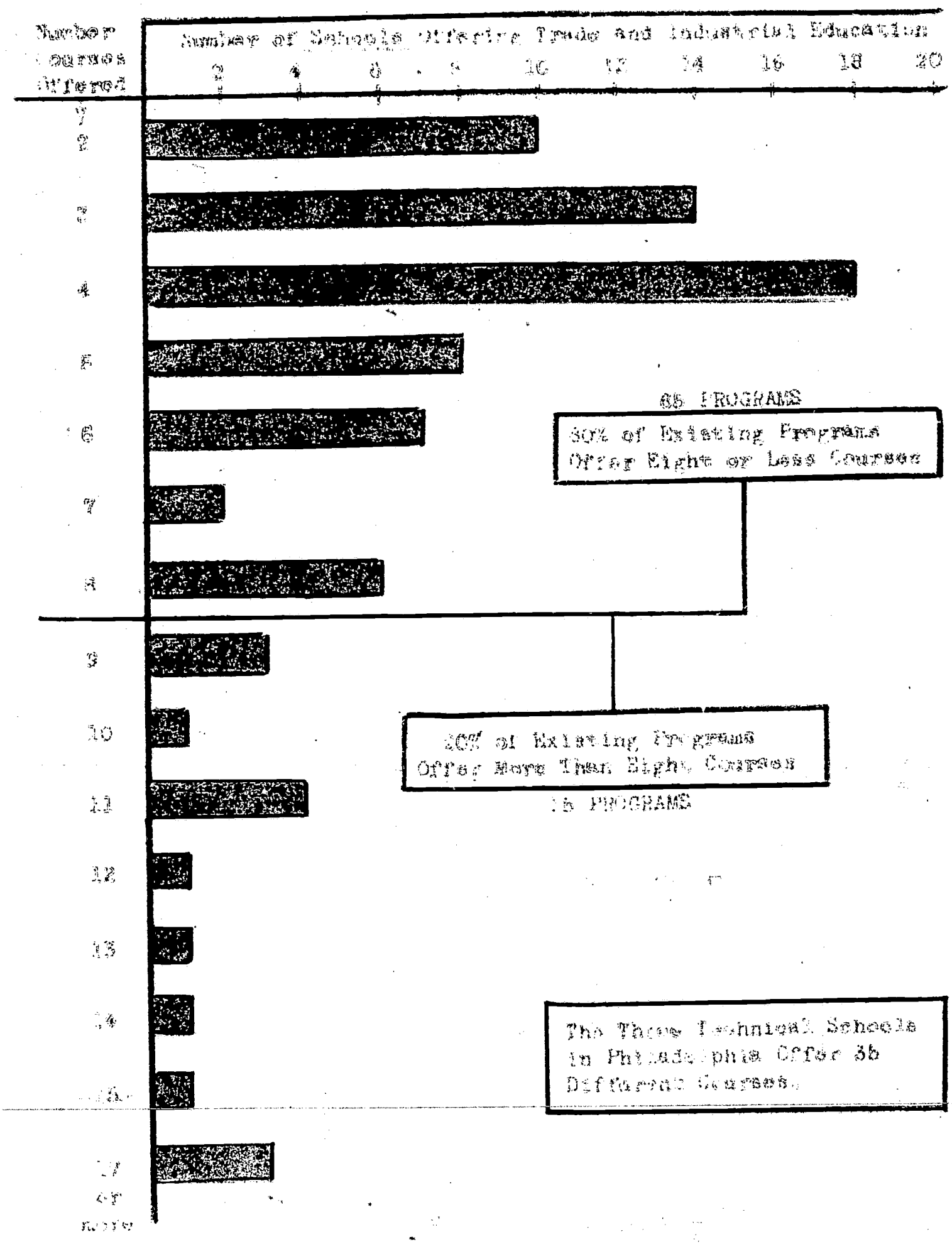


SOURCE: Governor's Committee On Education
Report Number 3, pp. 2 and 22
Report Number 5, p. 11

PROGRAMS & COURSE OFFERINGS

CHART 7

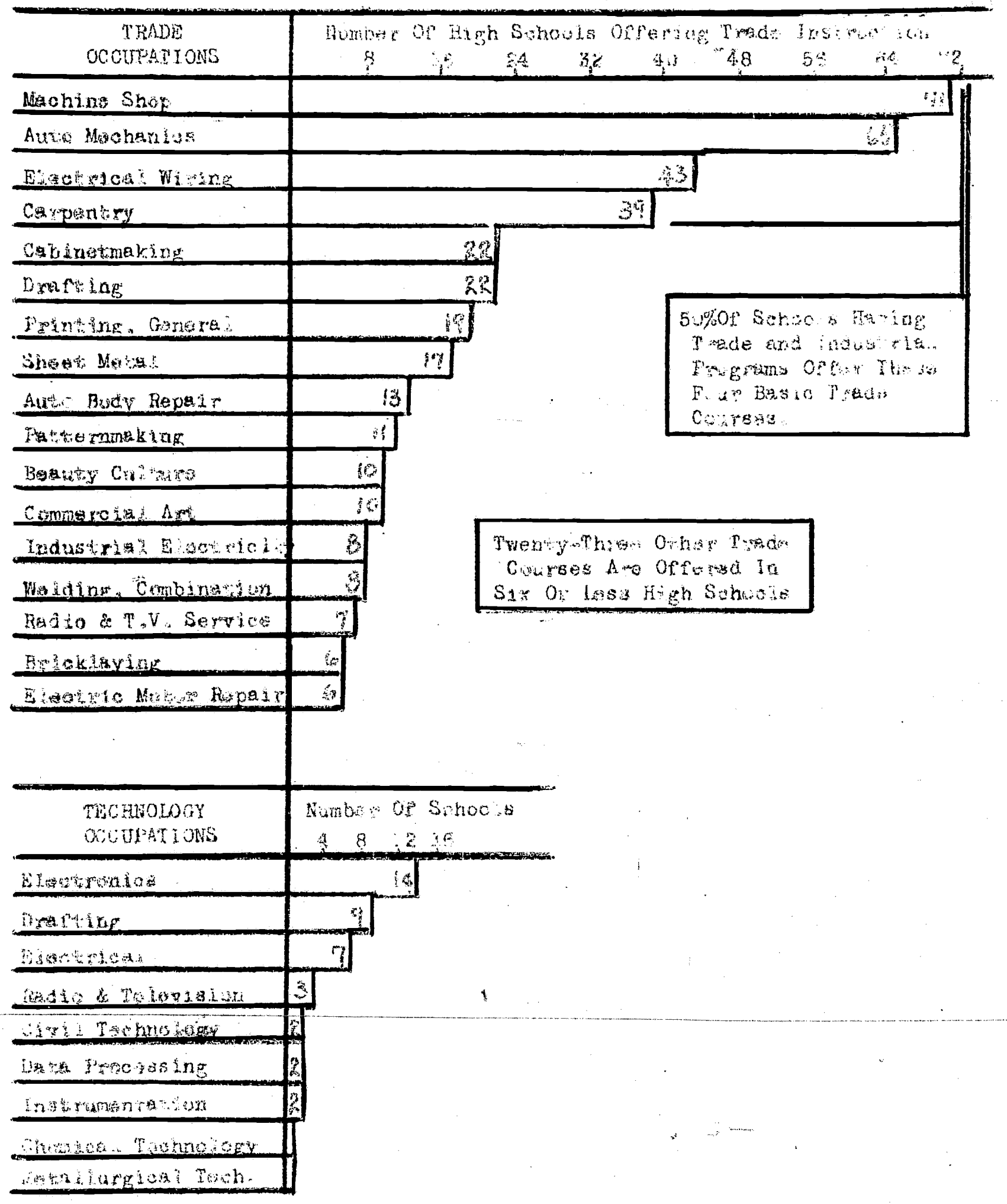
SCHOOL SYSTEMS PROVIDING
TRADE AND INDUSTRIAL EDUCATION PROGRAMS
BY
NUMBER OF COURSES OFFERED, 1960 - 1961



FREQUENCY OF COURSES OFFERED

CHART 6

FREQUENCY OF TRADE AND TECHNICAL SHOP AND LABORATORY COURSE OFFERINGS - 196[illegible]-196[illegible]



ADVISORY COMMITTEES

CHART 9

PART OF PUBLICATION

THE TRADE AND INDUSTRIAL EDUCATION DIVISION

OF THE

U. S. OFFICE OF EDUCATION

HAS BEEN INFORMED

THAT ADVISORY COMMITTEES IN 1948

WERE

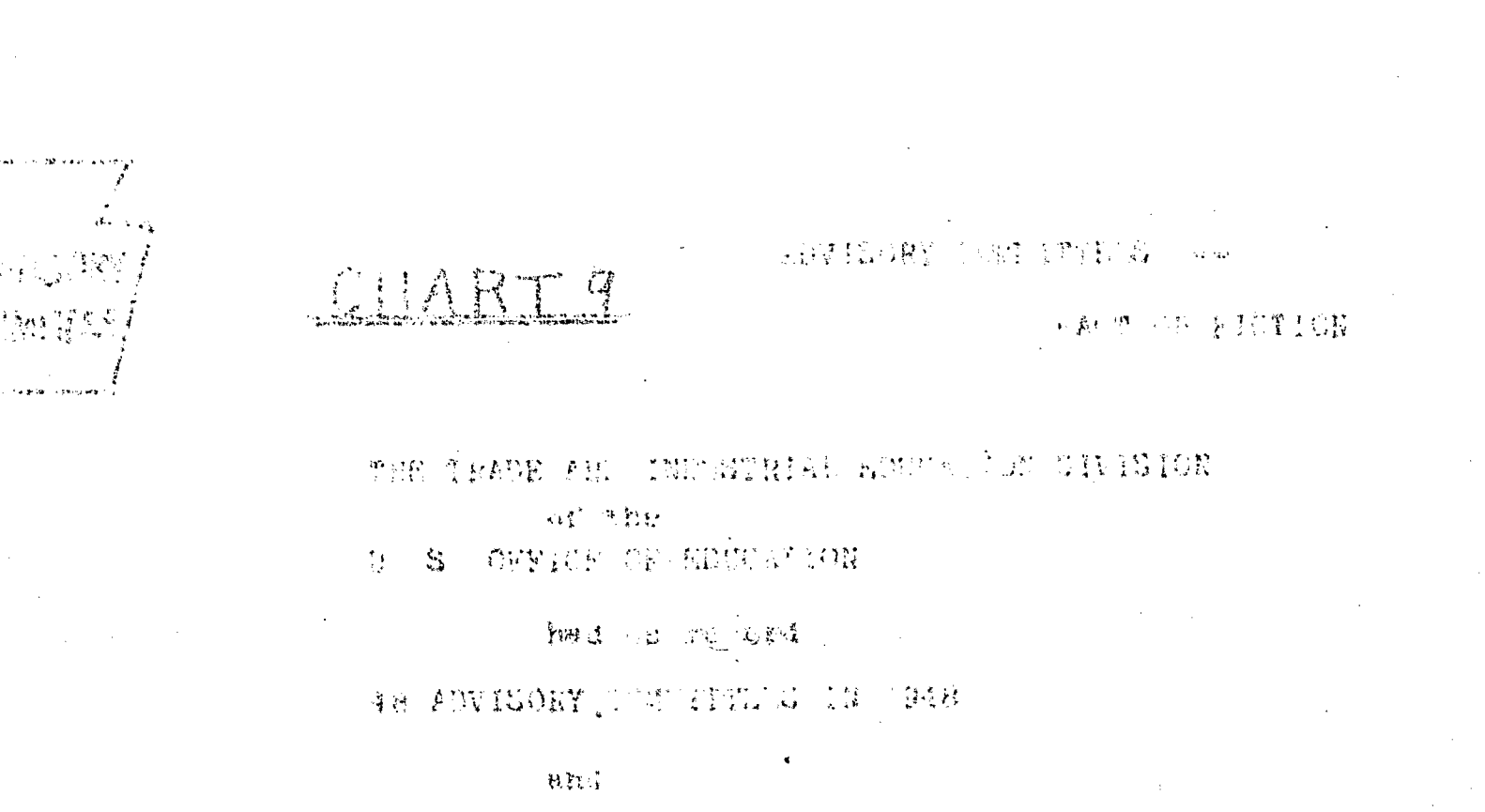
[illegible] IN 1951

BUT IN 1956

PENNSYLVANIA'S USE OF ADVISORY COMMITTEES IN

SECONDARY PROGRAMS HAS LARGELY PERSONAL

OF THE 86 TRADE AND INDUSTRIAL
PROGRAMS SURVEYED



ADVISORY COMMITTEES ARE

REQUIRED BY LEGISLATION OR POLICY STATEMENTS

REGULAR ACTIVE USE OF

ADVISORY COMMITTEES IS

Typical Trade Programs

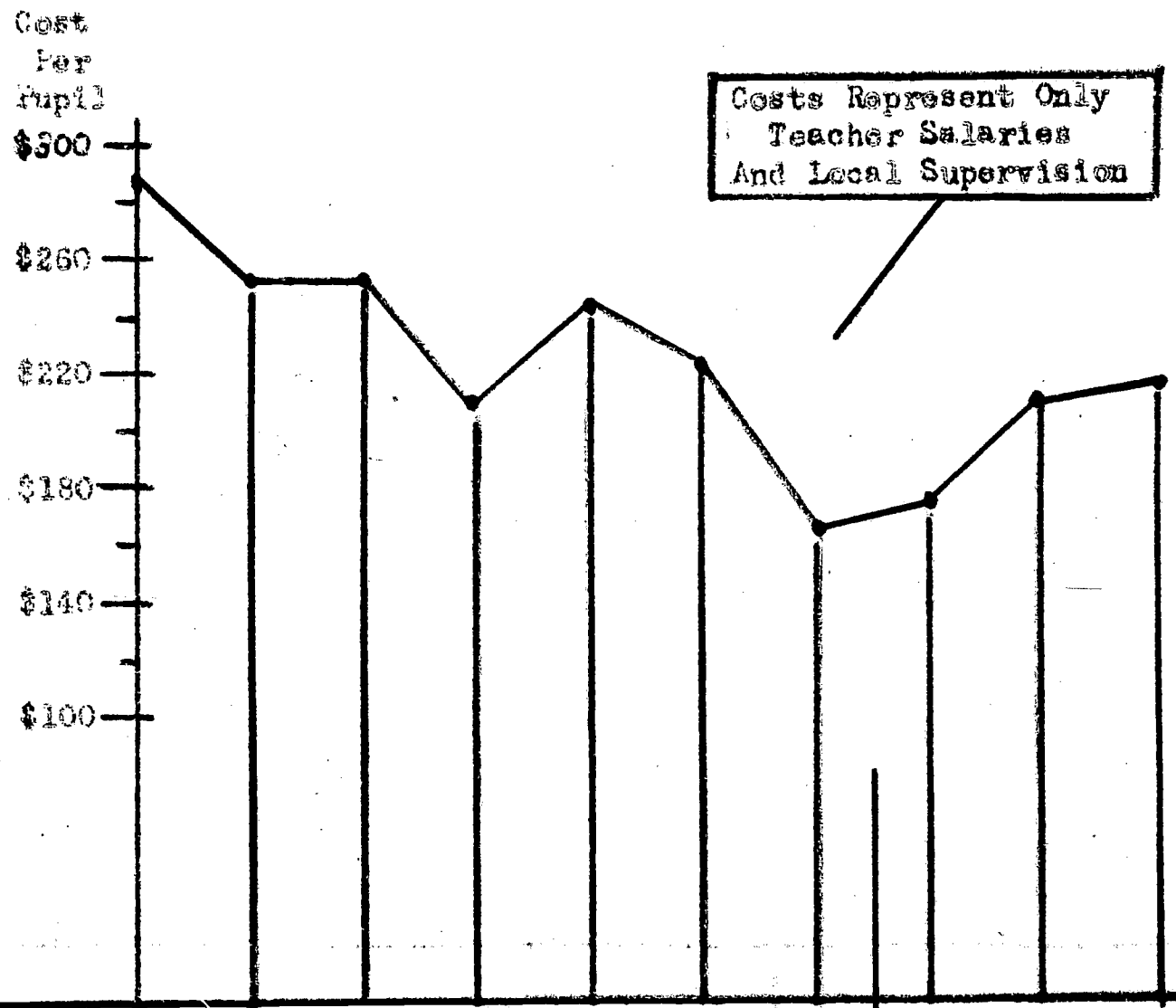
N. S. A. Recommends

Area Vocational Schools

COST PER PUPIL BY SIZE PROGRAM

CHART 10

PER PUPIL COST
OF
TRADE AND INDUSTRIAL EDUCATION
BY
SIZE OF PROGRAM



Pupil Size Of Program	0 49	50 99	100 149	150 199	200 249	250 299	450 499	500 549	550 599	600 over
Number Schools	4	19	23	10	5	3	1	3	1	5
Cost	$286	$255	$258	$205	$242	$226	$162	$172	$212	$218

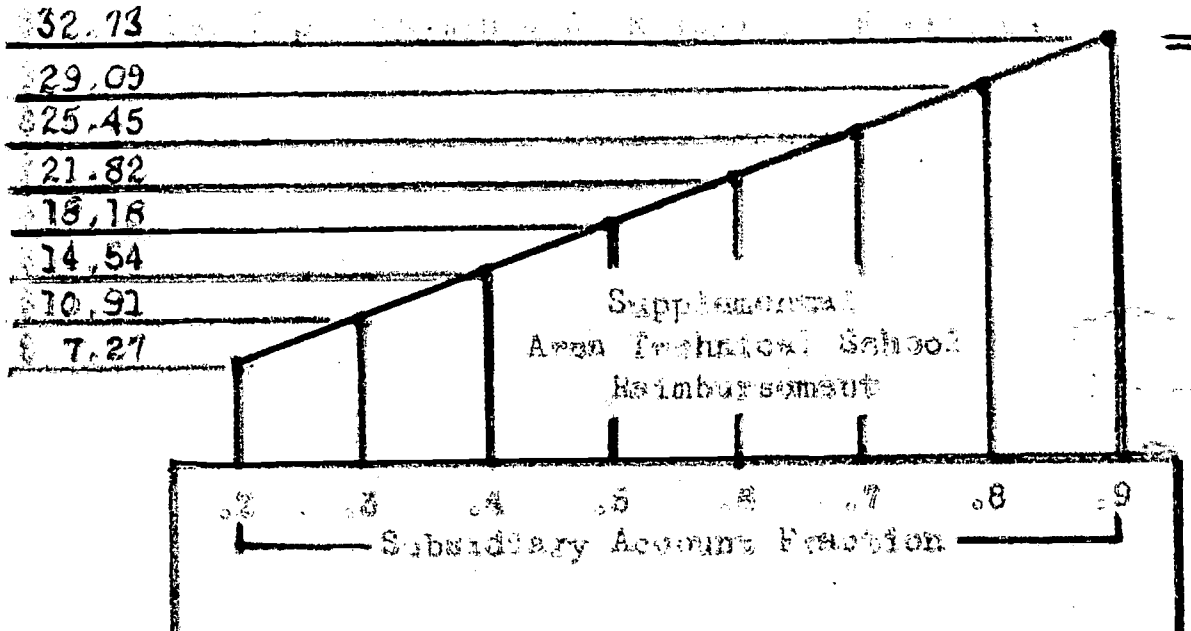
Cost of Shop or Laboratory Phase of Program Only

Number of Programs.....	65	7
Percentage of Programs....	90%	10%
Average Cost.....	$233	$201

SUPPLEMENTAL REIMBURSEMENTS

CHART II

PER PUPIL ENROLLED IN
TRADE AND INDUSTRIAL EDUCATION CURRICULUM
AND
AREA TECHNICAL SCHOOLS



$800 Per
Teaching Unit
Times
Subsidiary
Account Fraction

TOTAL SUBSIDY
1960-1961
$26,000

Vocational Curriculum Reimbursement
$35.00 Per Pupil In A.D.M.

$35.00
Per Pupil

TOTAL SUBSIDY
1960-1961
$336,000

General And Balance Aid
For All Pupils And School Districts

PER PUPIL
SUPPLEMENTAL REIMBURSEMENTS
FOR PUPILS ENROLLED IN
TRADE AND INDUSTRIAL EDUCATION CURRICULUM
and
AREA TECHNICAL SCHOOLS

PUPIL and TOTAL STATE REIMBURSEMENTS

CHART 12

PER PUPIL REIMBURSEMENTS
AND
TOTAL STATE EXPENDITURES
FOR SECONDARY
TRADE AND TECHNICAL EDUCATION

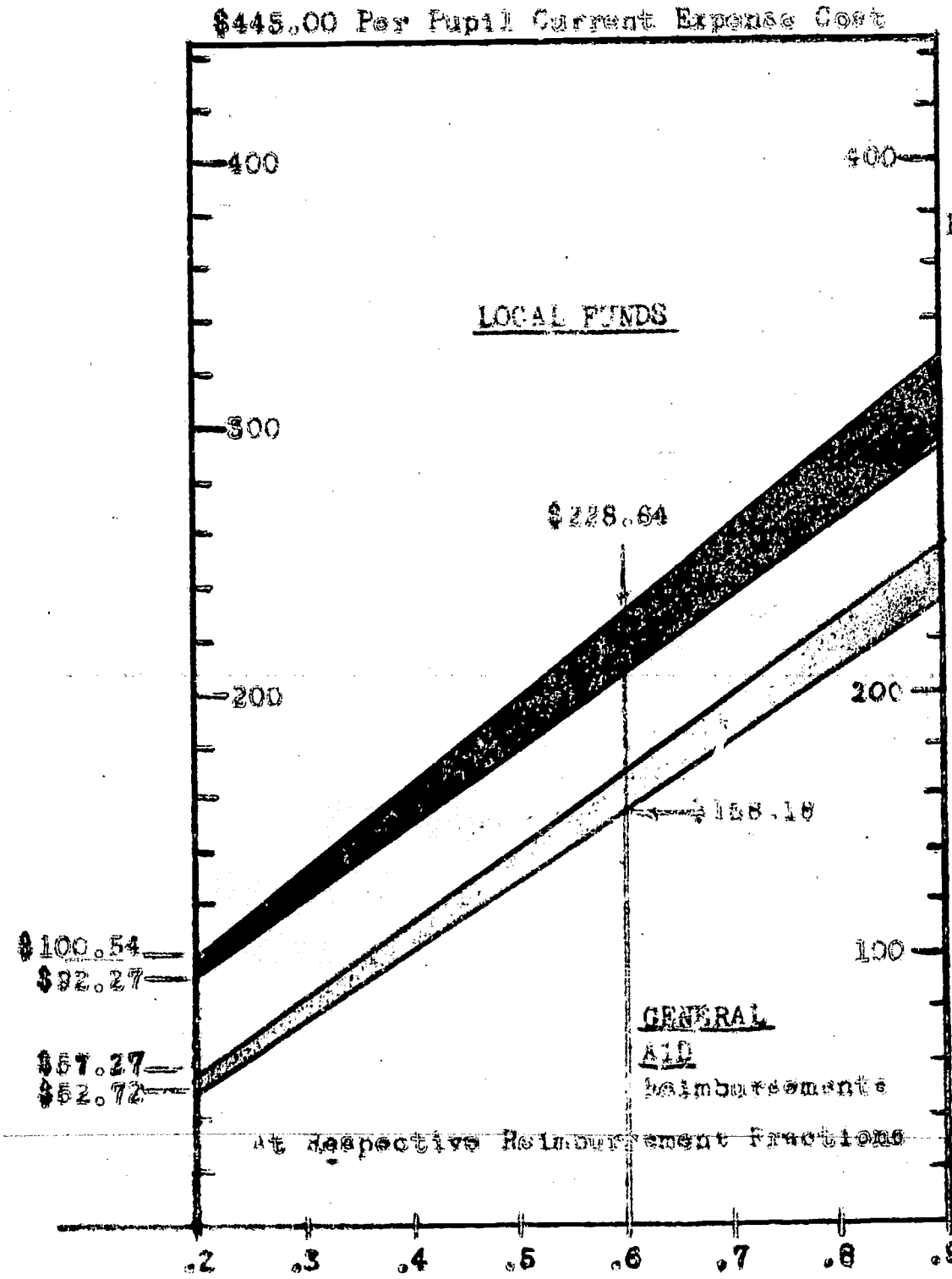
METHOD OF CALCULATING REIMBURSEMENTS.

☐ 1. GENERAL AID: $6800 per teaching unit x Basic Account Fraction.

☒ 2. JOINTURE AID: $500 per teaching unit x Subsidiary Account Fraction.

☐ 3. VOCATIONAL AID. $35 per pupil enrolled in trade and technical education.

■ 4. AREA TECHNICAL SCHOOL AID: $800 per teaching unit x Subsidiary Account Fraction.



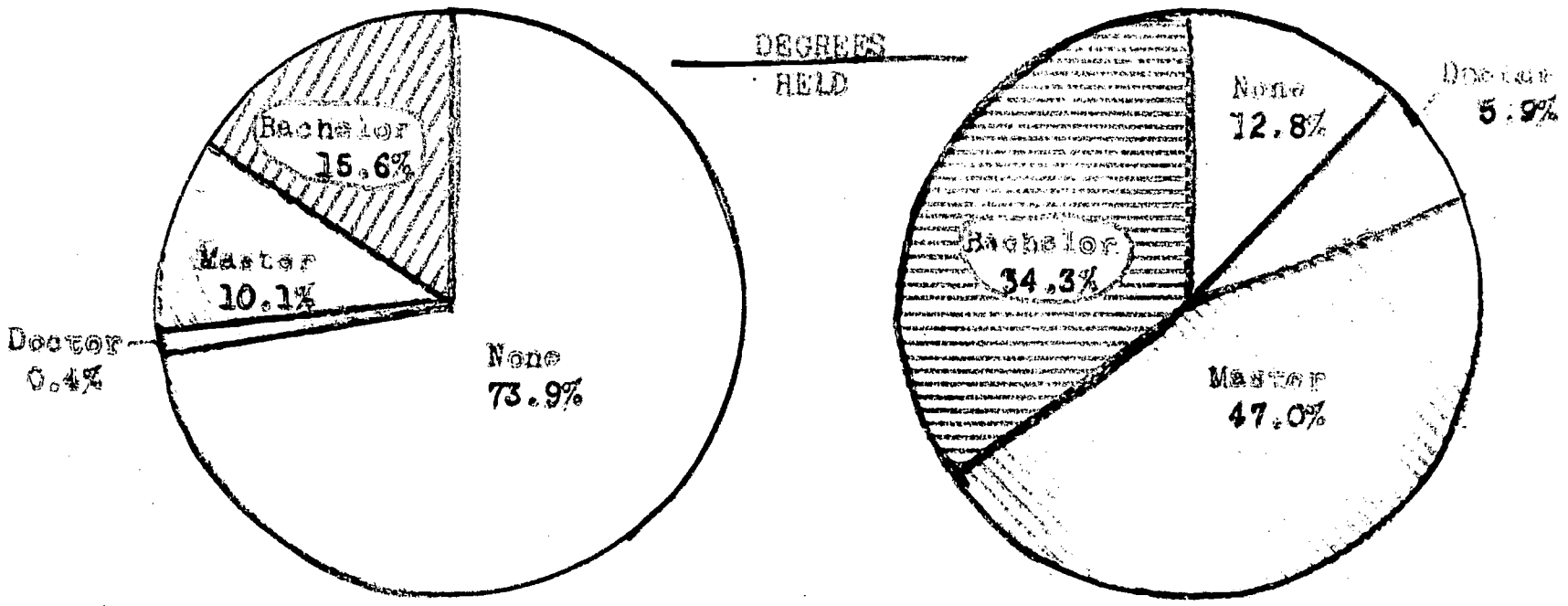
PER PUPIL AID AT .9 FRACTION	TOTAL AID AT EACH LEVEL	TYPE OF AID	TOTAL STATE EXPENDITURE
	$325.45		
$32.73		ATS Supplement	$28,000
	$292.72		
$35.00		Vocational Aid	$635,000
	$257.72		
$20.45		Jointure	$ 45,000
	$237.27		
$237.27		General Aid (Half)	$1,500,000
		TOTAL	$2,201,000

PER PUPIL
REIMBURSEMENTS FOR INSTRUCTION
AT
RESPECTIVE SUBSIDIARY ACCOUNT FRACTIONS

EDUCATIONAL DEGREES OF STAFF

CHART B

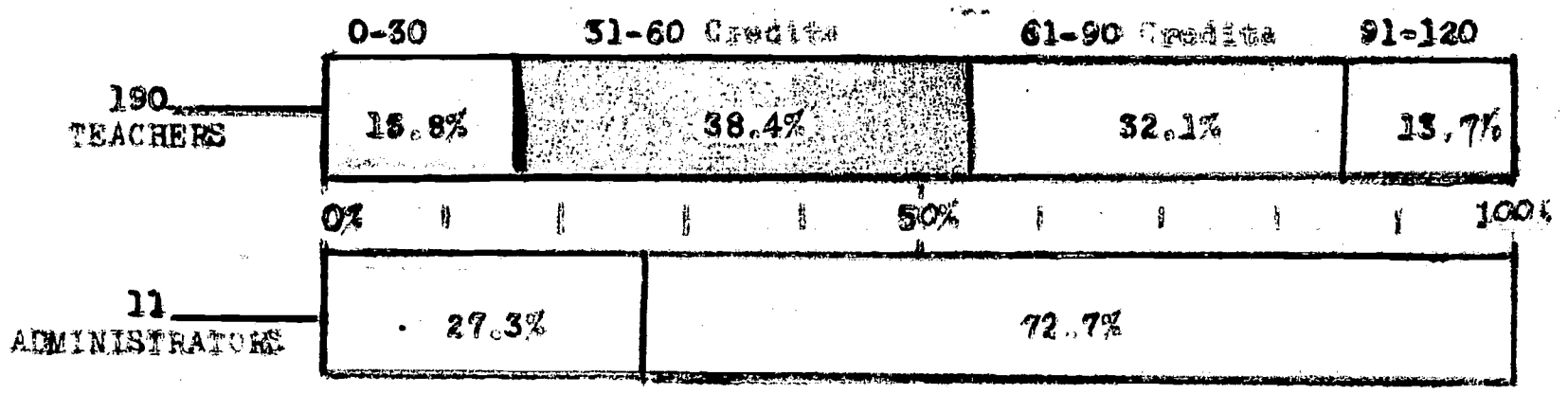
EDUCATIONAL DEGREES AND CREDITS
HELD BY
TRADE AND INDUSTRIAL EDUCATION
TEACHERS AND ADMINISTRATORS



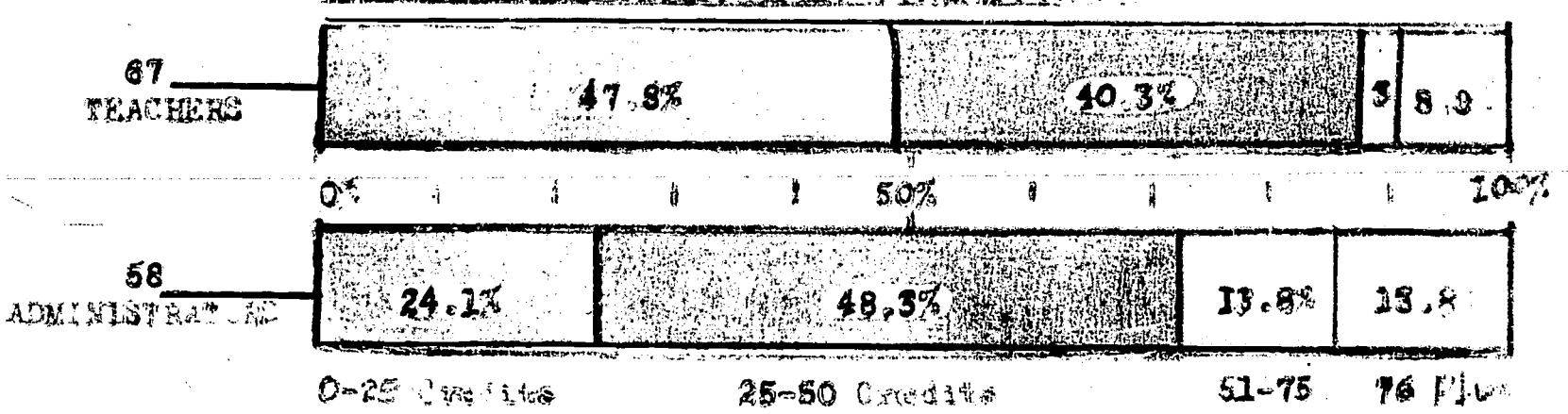
257 TEACHERS

55 ADMINISTRATORS

UNDERGRADUATE CREDITS COMPLETED BY TEACHERS AND ADMINISTRATORS WHO DID NOT HOLD DEGREES



GRADUATE CREDITS COMPLETED BY TEACHERS AND ADMINISTRATORS WHO HAVE COMPLETED THE BACHELOR'S DEGREE

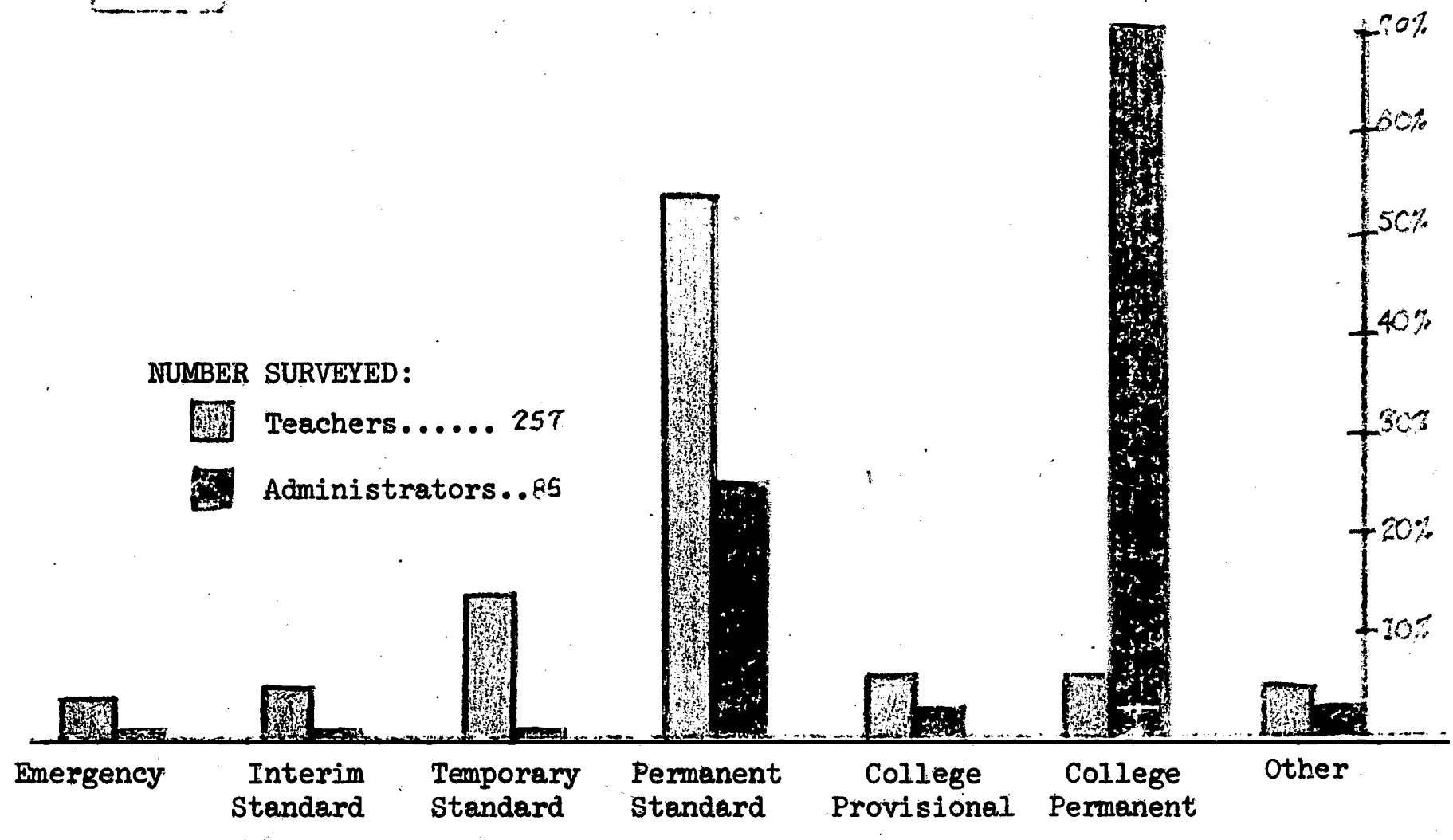


SOURCE An Appraisal Of Selected Courses Of The Vocational Trade and Industrial Teacher Education Curriculum in Pennsylvania
S.T. Brantner, 1962
University of Pittsburgh

CERT-IFICATION STATUS OF STAFF

CHART 14

TYPES OF CERTIFICATES
HELD BY
TEACHERS AND ADMINISTRATORS



A TYPICAL SHOP TEACHER WOULD BE CHARACTERIZED BY THE FOLLOWING:

1. Is a teacher in a second class school district.
2. Does not hold a degree.
3. Has a permanent standard teaching certificate.
4. Started to teach between 1938 and 1959.
5. Has between 10 and 14 years of experience.
6. Is between 42 and 49 years of age.
7. Has completed between 31 and 60 credits of under graduate college.
8. Has exceeded the minimum credit requirements for certification.

THE TYPICAL ADMINISTRATOR WOULD BE CHARACTERIZED BY THE FOLLOWING:

1. Is employed in a second class school district.
2. Has a master's degree.
3. Has a college permanent certificate.
4. Started to teach between 1939 and 1959.
5. Has 20 years or more of educational experience.
;. Is between 50 and 57 years of age.
7. Has completed between 25 and 50 graduate credits.
8. Has exceeded the minimum credit requirements for certification.

SOURCE: An Appraisal of Selected Courses of the Vocational Trade and Industrial Teacher Education Curriculum in Pennsylvania
S. T. Brantner, 1962,
University of Pittsburgh

AGE AND EXPERIENCE OF STAFF

AGE AND EXPERIENCE
OF
TRADE AND INDUSTRIAL EDUCATION
TEACHERS AND ADMINISTRATORS

CHART 15

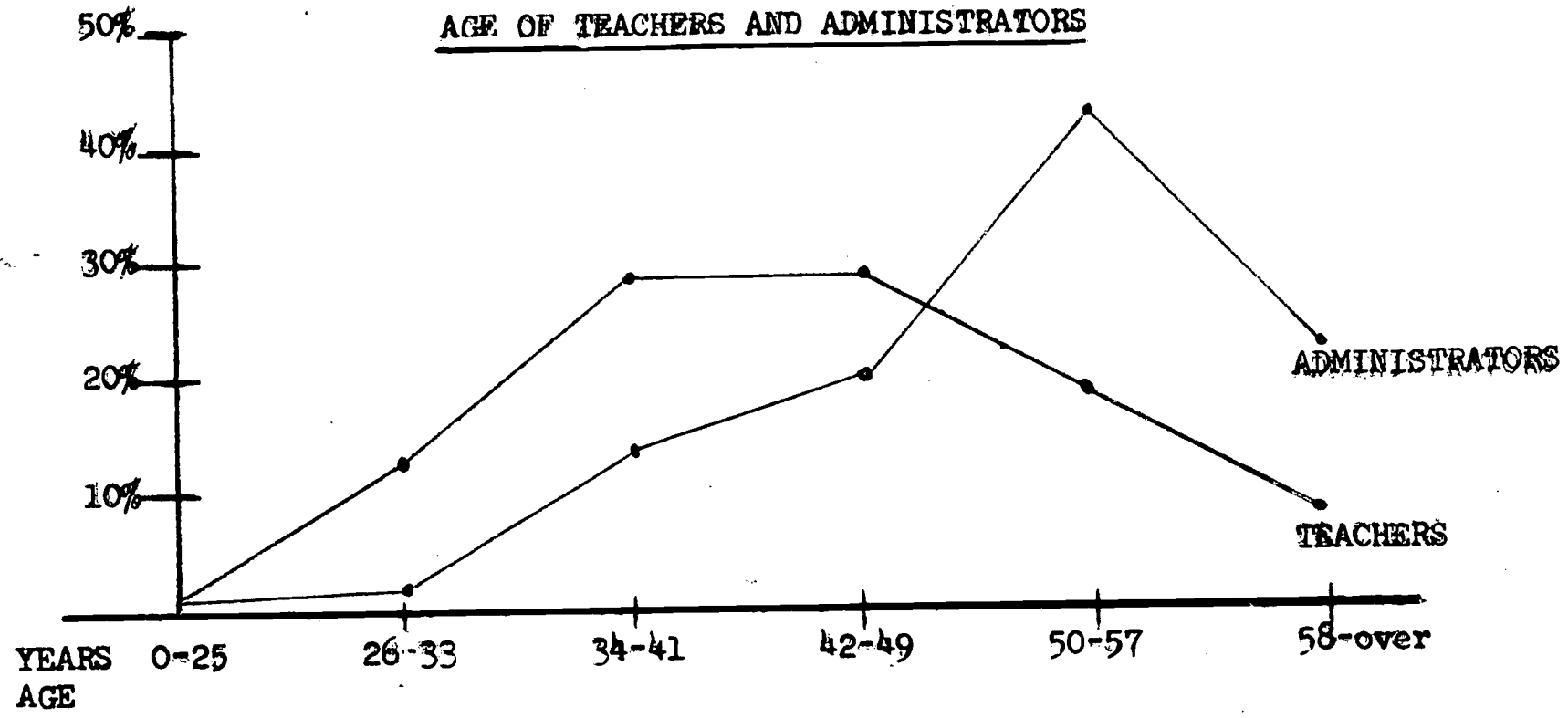
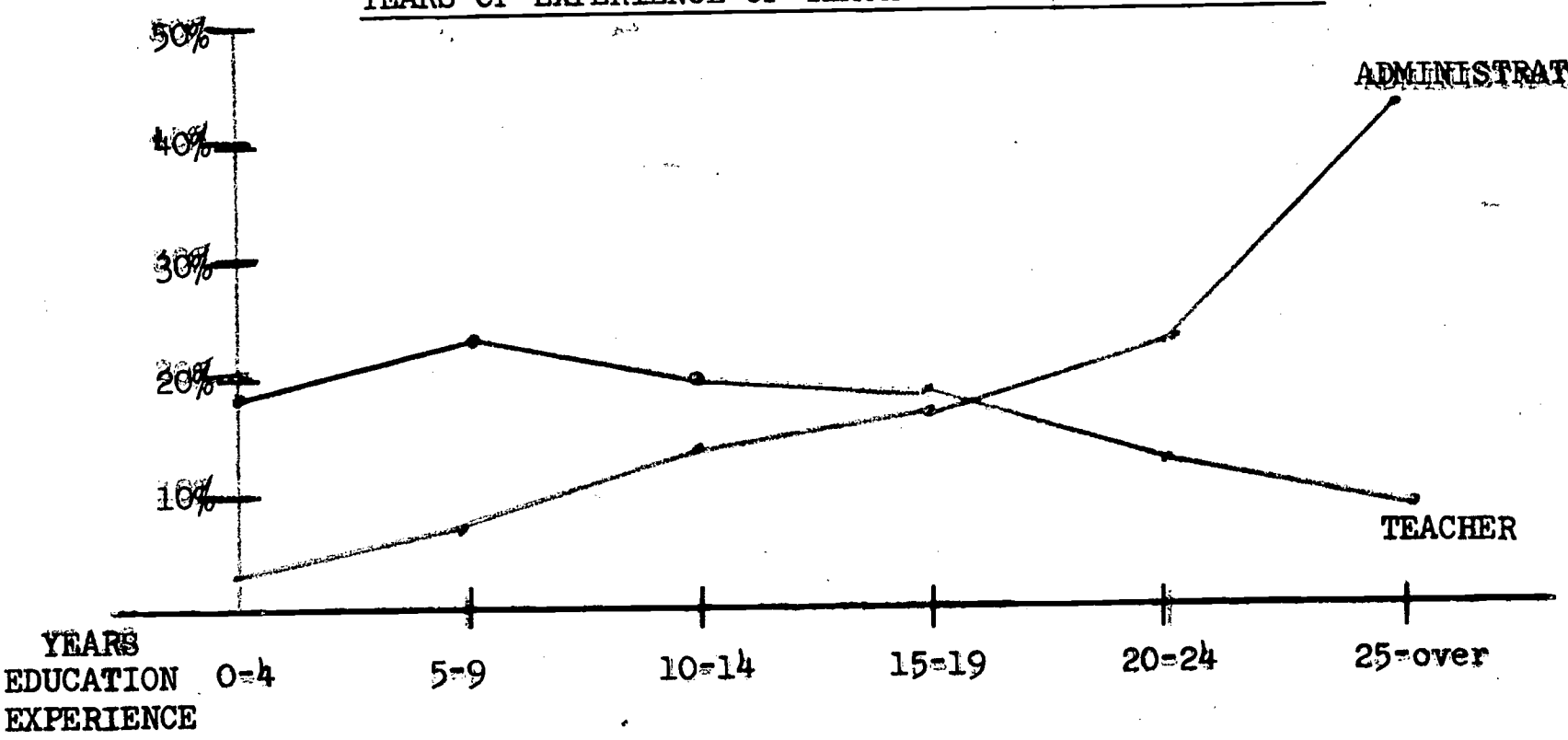


CHART 16



SOURCE: An Appraisal of Selected Courses of the VocationalTrade and Industrial Teacher Education Curriculum in Pennsylvania
S.T. Brantner, 1962
University of Pittsburgh

RETRAINING OF THE UNEMPLOYED
TRAINEES AND COSTS - 1952-1962

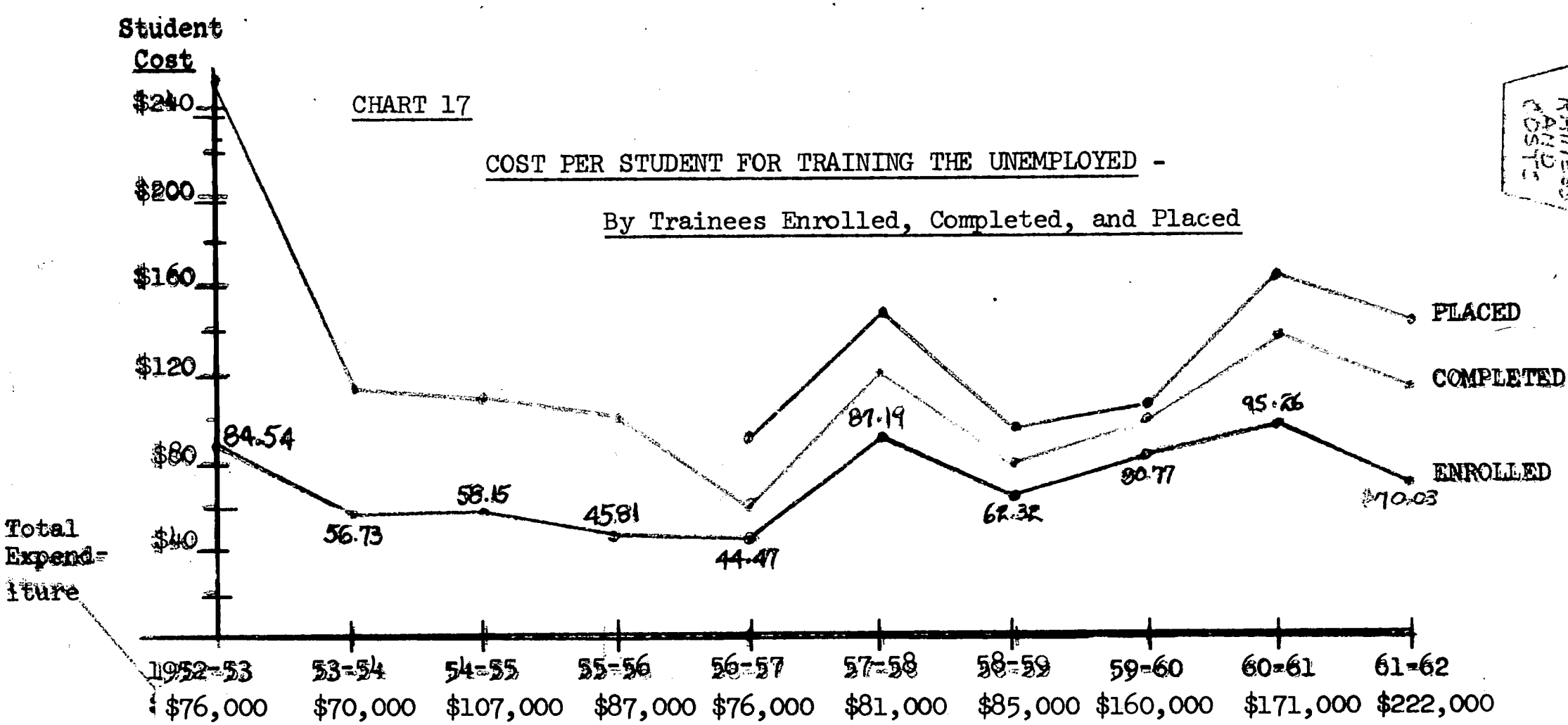


CHART 17

COST PER STUDENT FOR TRAINING THE UNEMPLOYED -

By Trainees Enrolled, Completed, and Placed

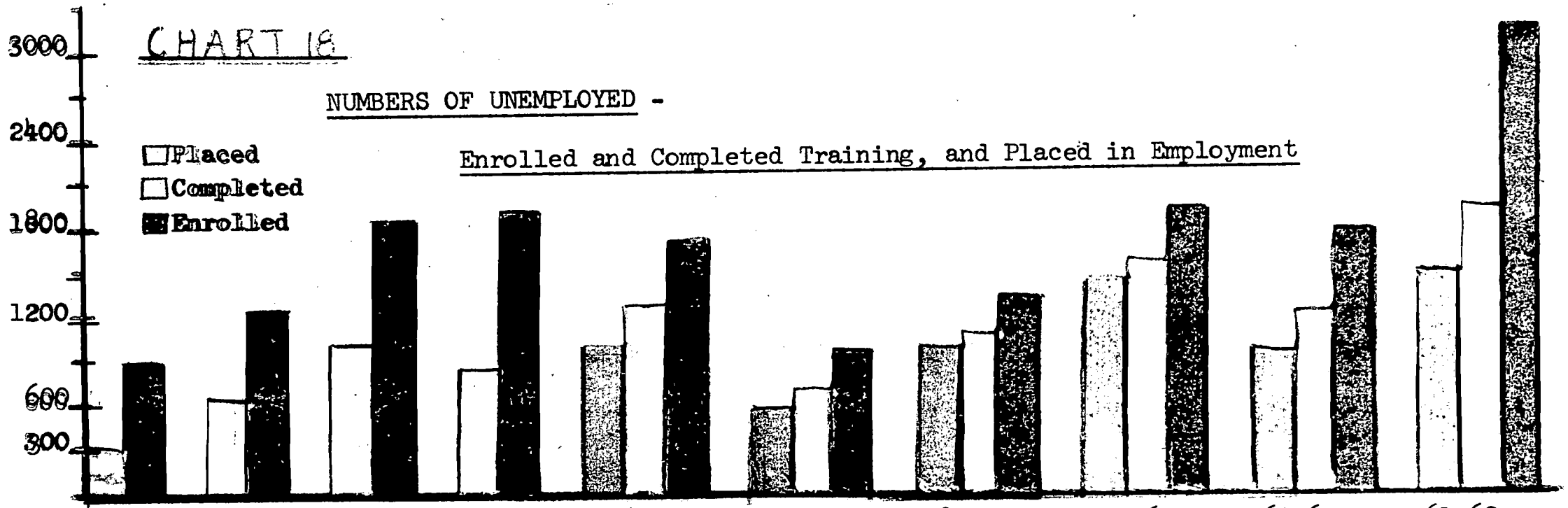


CHART 18

NUMBERS OF UNEMPLOYED -

Enrolled and Completed Training, and Placed in Employment

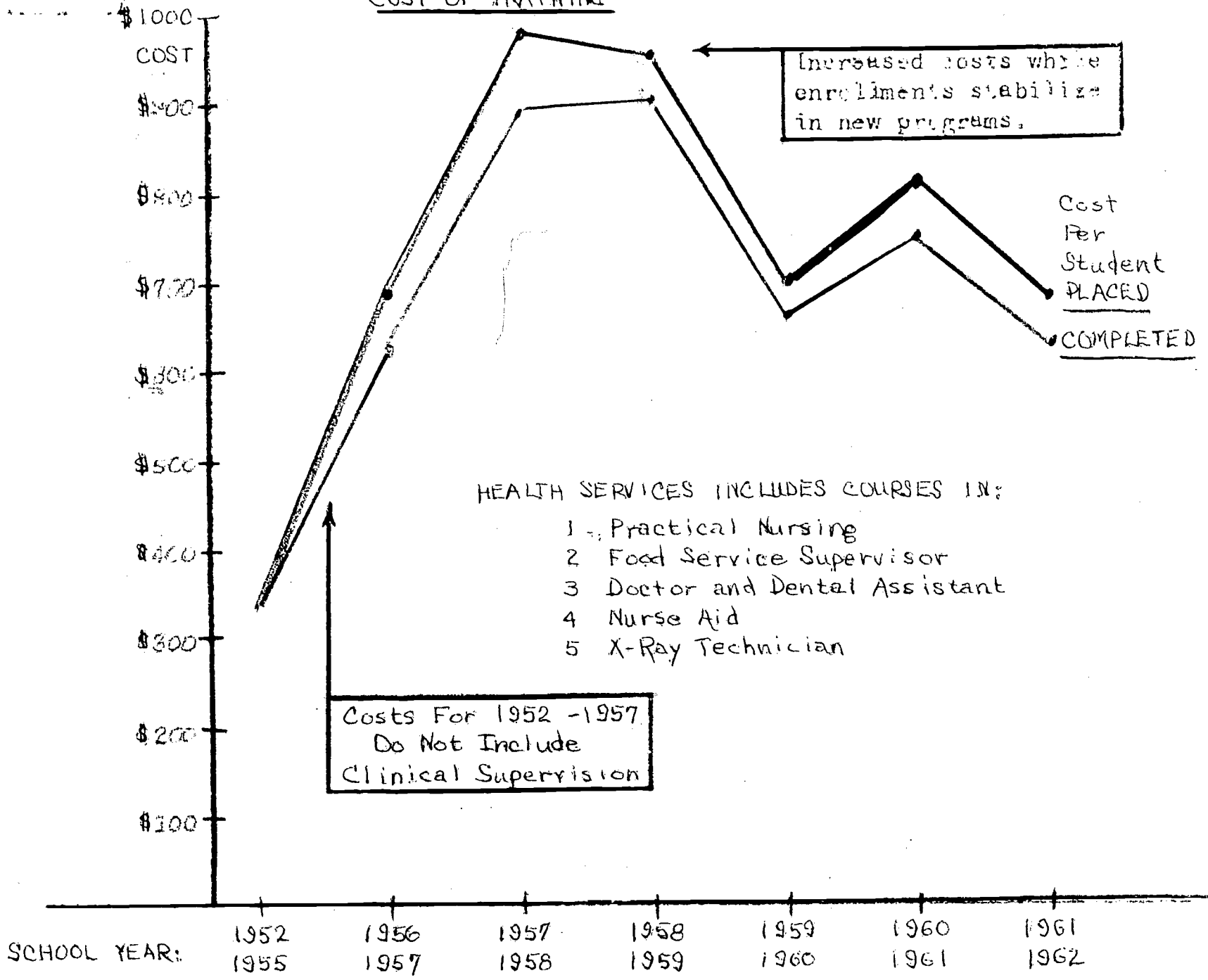
YEAR: →	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62
ENROLLED →	899	1234	1840	1899	1709	929	1364	1981	1795	3170
COMPLETED: →	298	632	992	878	1292	671	1073	1604	1245	1968
PLACED: →	-	-	-	-	962	556	933	1442	1048	1559

RETRAINING
HEALTH
SERVICES.

HEALTH SERVICES
RETRAINING OF THE UNEMPLOYED —
COMPLETIONS, PLACEMENTS, COSTS

CHART 19

COST OF TRAINING

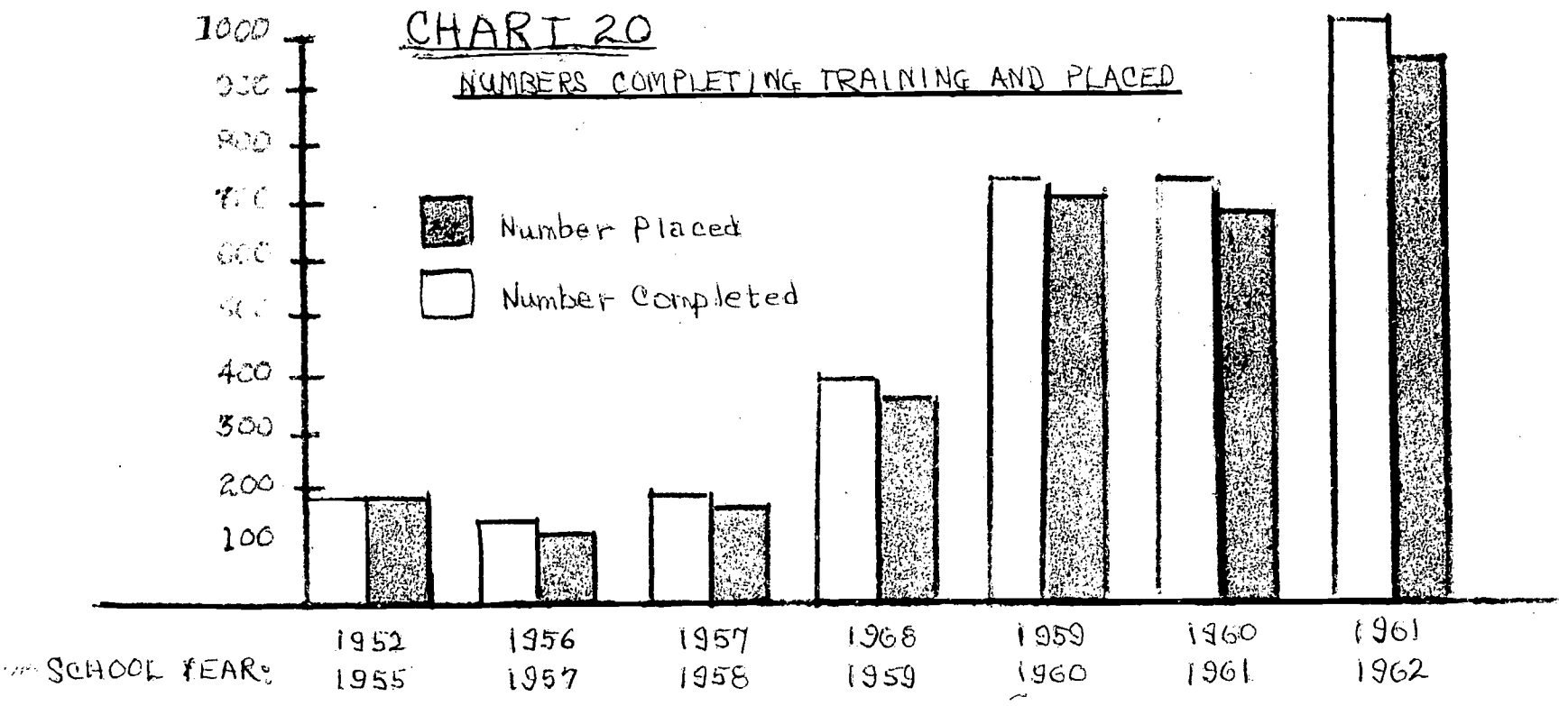


HEALTH SERVICES INCLUDES COURSES IN:

1. Practical Nursing
2. Food Service Supervisor
3. Doctor and Dental Assistant
4. Nurse Aid
5. X-Ray Technician

CHART 20

NUMBERS COMPLETING TRAINING AND PLACED



[illegible] trade and technical education [illegible] kinds of [illegible] required to operate, direct, [illegible] the program throughout the state.

[illegible]

The necessity for a [illegible] trade and technical education [illegible] number of considerations.

1. Significant [illegible] problems [illegible] skilled and technical manpower fields.

2. Acceptance by school and community of a program of education which provides for trade and technical education.

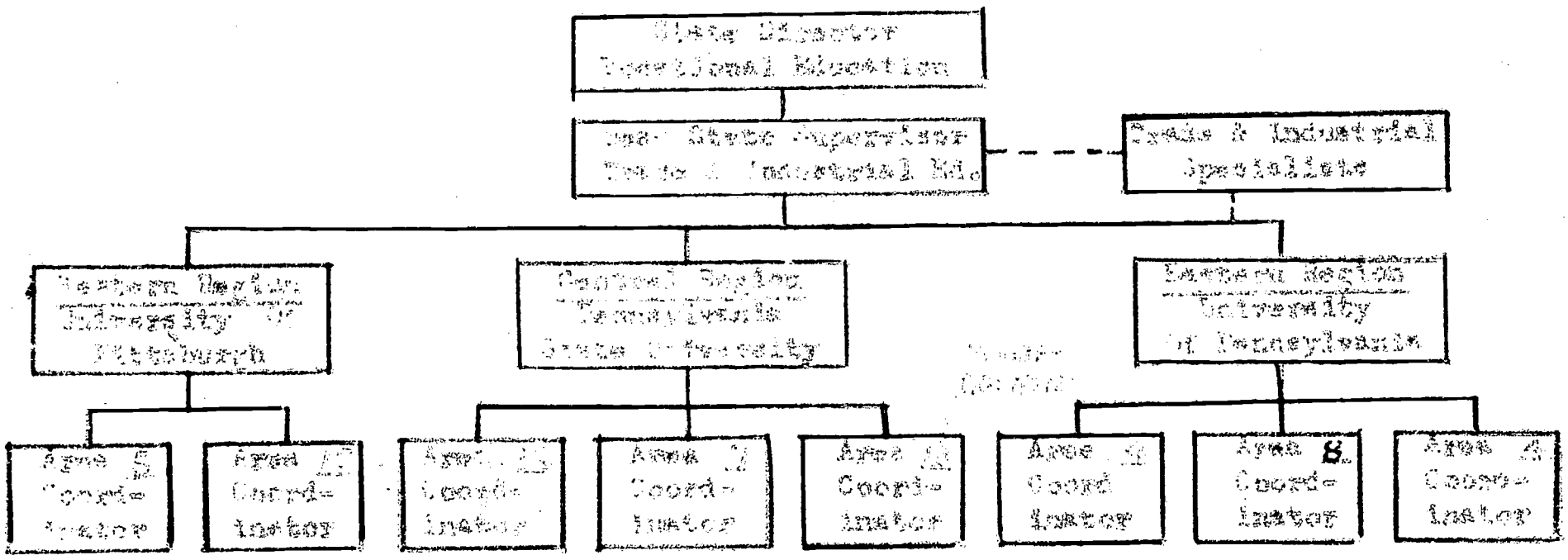
3. Interest in upward extension of trade and technical education on a full time post-high school level.

4. Increased educational opportunities for out-of-school youth and adults through retraining and trade extension programs.

5. Increased demand from [illegible] of schools and local school administrators for [illegible] courses, and surveys leading toward the establishment of area vocational schools.

6. The increasing [illegible] of the [illegible] type of industrial arts programs as a result of recent [illegible] legislation.

[illegible] Supervision Pattern [illegible]



THE AREA VOCATIONAL SCHOOL

1. Secondary Vocational Education
2. Area Vocational Schools
3. Adult Trade Extension
4. Retraining of the unemployed
5. National Defense Education Act
6. Industrial Arts



STATE SUPERVISION =
TYPES OF
AREA COORDINATION SERVICES

GENERAL SERVICES RELATING TO ALL PROGRAMS

1. To promote trade and industrial education for all pupils not being served.
2. Assist areas in the development of a sound program of Trade and Technical Education in conformity with State and Federal requirements.
3. Review school programs to improve the quality and quantity.
4. Coordination between Vocational Teacher Education Institutions, Department of Public Instruction, and the local school district.
5. Assist in the formulation of effective program standards and policies.
6. Conduct teacher education classes as required.
7. Provide informal teacher education for instructors in service such as professional conferences, workshops, clinics, and county institute programs.
8. Prepare reports, statistics, and studies on special problems.
9. Advise on revision and development of legislation.
10. Suggest and interpret standards for certification of personnel.
11. Assist in the conduct of local and state research and development studies.
12. Prepare general promotional literature and information.

SERVICES RELATED TO SPECIAL PROGRAMS

To Operating Programs:

1. Interpret plans, laws, and policies to administrators.
2. Plan, review, or revise programs for conformity with minimum standards, and recommend changes toward more effective service.
3. Receive and review reports.
4. Assist in the formal evaluation of programs.
5. Give assistance to related non-reimbursable programs.
6. Advise on teacher or administrative problems of the local district.

To New Program and Facility Planning:

1. Consult and advise school officials and architects on industrial education programs and building plans.
2. Plan educational program, shop facility, equipment layout, and specifications.

To Area Technical Schools:

1. Advise administrators and boards of education concerning laws and policies.
2. Conduct surveys to determine interest and need.
3. Develop educational program plans and cost analysis.
4. Review program plans with administrators, boards of education and other interested groups.
5. Assist school administrators to plan procedures for formal establishment.

To Retraining Programs:

1. Confer with related interested groups to determine program need and advisability for establishment of training.
2. Work with local school district administration to plan educational program and budget.
3. Inspect facilities, equipment, and course outlines.
4. Review monthly statistical and financial reports.

STATE SUPERVISION
IN
TYPICAL AREA COORDINATOR

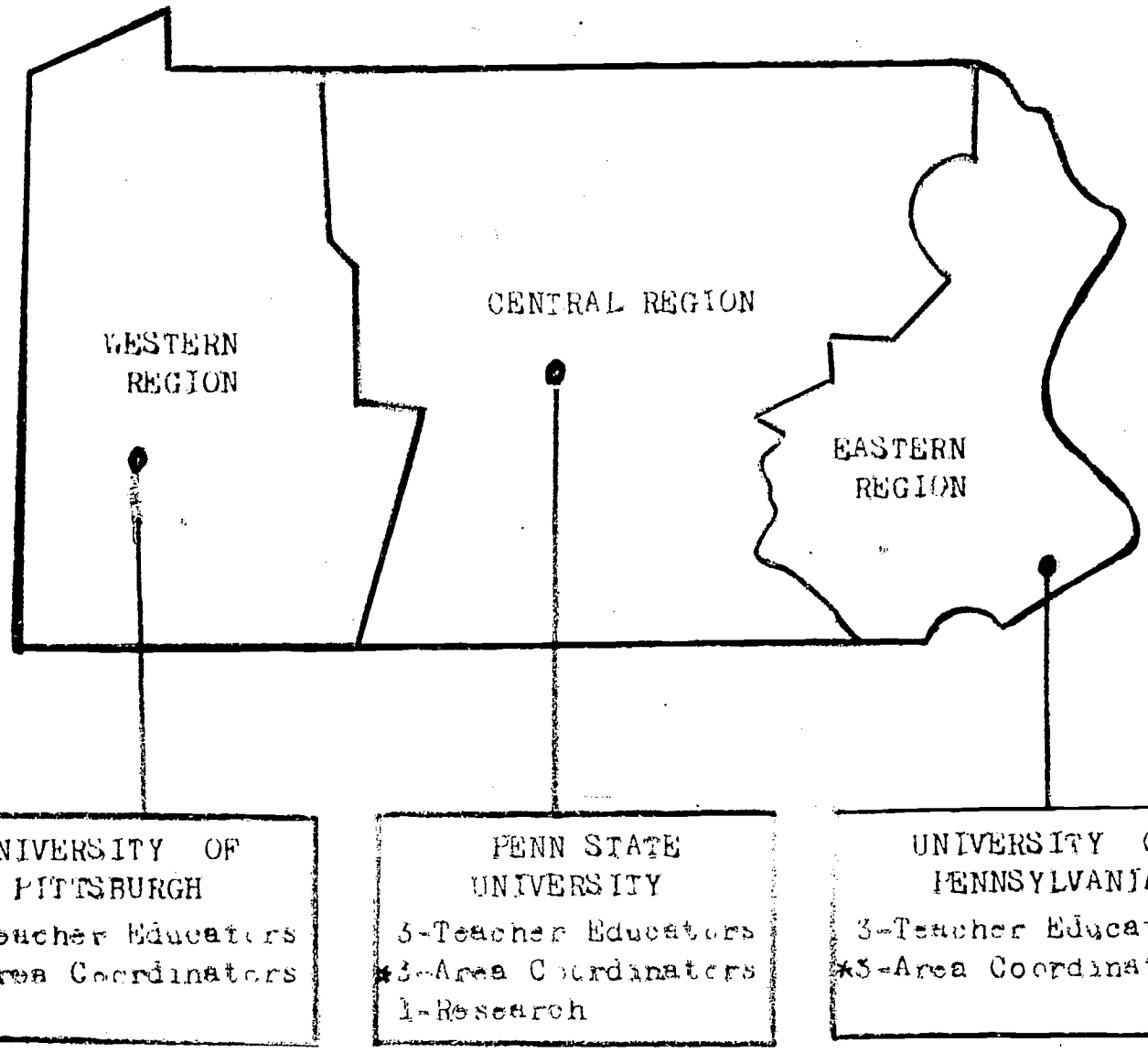
THE TYPICAL AREA COORDINATOR

A typical Area Coordinator of Industrial Education would be characterized by the following:

1. He is about 54 years of age.
2. Has a college permanent certificate.
3. Holds a master's degree.
4. Holds certification in Industrial Arts Education as well as Trade and Industrial Education.
5. Has approximately 30 years of educational experience.
6. Has served 11 years as an Area Coordinator of Industrial Education.
7. Serves from four to fifteen counties depending on the geographical area.
8. Serves an average of eight trade and industrial education programs involving about 2200 secondary school pupils and 3000 adult trainees.
9. Has an average of 275 Industrial Arts teachers in the service area.
10. Makes an average salary of $9,100.
11. Has a travel allowance of $1,800.

CHART 21

TEACHER EDUCATION
FOR
TRADE AND TECHNICAL EDUCATION
TEACHERS AND ADMINISTRATORS



SERVICES PROVIDED BY THE UNIVERSITIES:

1. Graduate and undergraduate teacher education.
2. Preparation and administration of trade competency examinations.
3. Research in trade and technical education.
4. Headquarters for area coordination field services.
5. In-service teacher improvement.

* Reduced to two Area Coordinators beginning July 1, 1963

VT 001 329

VT 001 329
Impact of Automation on Office Occupations. Report of Conferences and Recommendations for Business Education Programs in the Secondary School.

California State Dept. of Education, Sacramento. Bureau of Business Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 53p.

CONFERENCES; *OFFICE OCCUPATIONS EDUCATION; *AUTOMATION; *EDUCATIONAL CHANGE; *EDUCATIONAL NEEDS; *BUSINESSMAN OPINION; BOOKKEEPING; SECRETARIES; STENOGRAPHERS; TYPISTS; CLERICAL WORKERS; OFFICE MACHINE OPERATORS

Businessmen attended three conferences on the impact of automation on office occupations in Sacramento, Los Angeles, and Burlingame, California in February and March 1962. A summary of the conference findings, recommendations for the development of business education programs to meet changing needs, and a selected bibliography are included in this report. Findings included: (1) The emphasis in typewriting instruction should be on production work rather than on timed writings, (2) The shorthand program should prepare students to take dictation at 80 to 100 words per minute and to achieve these rates in the shortest possible time, (3) Bookkeeping should be taught with emphasis on the theory aspects of the course, (4) Instruction should be provided on the kinds of business machines used in offices in which students are likely to seek employment, (5) Automation in the office has not affected the demand for qualified secretaries, stenographers, and typists, (6) There is likely to be a decrease in the number of jobs which involve the operation of one machine, and (7) Many jobs requiring bookeeeping skills have been eliminated, and bookkeeping activities have been divided into many different tasks or assignments. Recommendations concerned increased business-community cooperation, more effective counseling, changed emphasis in skills preparation, emphasis on developing desirable attitudes, and improved courses and methods. (PS)

ED027441

IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

REPORT OF CONFERENCES

AND

RECOMMENDATIONS FOR BUSINESS EDUCATION PROGRAMS IN THE SECONDARY SCHOOL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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California State Department of Education
Bureau of Business Education
Sacramento, California

VT 01329

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INTRODUCTION

The Bureau of Business Education is pleased to make this report, "Impact of Automation on Office Occupations" available to businessmen and business educators in the State of California.

Miss M. Claire O'Brien of the staff of the Bureau assumed the responsibility for making the original inquiry and conducting the conferences of businessmen in Sacramento, Los Angeles, and San Francisco.

As we move ahead in Business education, we hope that businessmen and business educators will confer frequently on problems which relate to meeting our changing needs in business brought about through automation and technological change.

R. C. Van Wagenen, Chief
Bureau of Business Education
California State Department
of Education

PARTICIPANTS ATTENDING CONFERENCES

Sacramento

Baldwin, Leland P. Regional Supervisor, Bureau of Business Education, California State Department of Education, Sacramento
Barnes, Stewart L. Senior Data Processing Systems Analyst, Department of Finance, State of California
Bissell, O. B. Wage Administration, Aerojet General
Cook, Dale E. Manager, General Employment, Aerojet General
Cresci, Gerald D. Researcher and Teacher Trainer, Bureau of Business Education, California State Department of Education
Eddy, Jr., C. C. Division Traffic Supervisor, Pacific Telephone
Gester, Bill. Personnel Director, California Western States Life Insurance Company
Hinman, R. B. Division Personnel Manager, Pacific Gas and Electric Company
O'Brien, M. Claire. Consultant, Bureau of Business Education, California State Department of Education
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Van Wagenen, R. C. Chief, Bureau of Business Education, California State Department of Education
Warner, William N. Manager Personnel Department, Sacramento Municipal Utility District

Los Angeles

Anderson, Lowell. Regional Supervisor, California State Department of Education, Bureau of Business Education, Los Angeles
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Parsons, Kenneth B. Bureau of Public Assistance, Los Angeles County Los Angeles
Pine, Miles C. Hughes Aircraft Company, Culver City
Reynolds, K. M. Shell Oil Company, Los Angeles
Safford, H. B. General Telephone Company, Santa Monica
Sheehan, Gene. Warner Bros. Pictures, Burbank
Wilson, John Jr. United California Bank, Los Angeles
Woods, Vance. Ralph's Grocery Company, Los Angeles

Burlingame

Auerhamer, Evelien. Supervisor, Stenographic Service, Standard Oil of California, San Francisco

Burlingame

Boynton, Ralph E. Vice-President, Bank of America, San Francisco
Crowe, A. L. Supervisor, Reproduction Service, Standard Oil Company of California, San Francisco
Crum, Dwight R. Regional Supervisor, Bureau of Business Education, California State Department of Education, Oakland
Cunningham, Russell H. Wage and Salary Analyst, Pacific Gas and Electric Company, San Francisco
Haire, L. W. Manager Office Operations, Lockheed Missiles and Space Company, Sunnyvale
Heon, Larry L. Personnel Assistant, Pacific Gas and Electric Company, San Francisco
Mayall, Donald. Area Labor Market Analyst, California Department of Employment, San Francisco
McAllister, L. B. Assistant to Comptroller (Personnel), Pacific Telephone, San Francisco
Myers, Harold W. Supervisor of Employment, Southern Pacific Company, San Francisco
O'Brien, M. Claire. Consultant in Business Education, Bureau of Business Education, California State Department of Education
Postle, W. Research Technician, California Department of Employment, San Francisco
Sicklebower, Dr. Russell. San Francisco State College, San Francisco
Skimin, Eleanor. San Francisco State College, San Francisco
Van Wagenen, R. C. Chief, Bureau of Business Education, California State Department of Education, Sacramento
Yuen, Dr. Jack. San Francisco State College, San Francisco

SECTION I

THE IMPORTANCE OF STUDYING THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

Business education is taught in California's public schools as an integral phase of the total program of education offered in the secondary schools. The objectives of business education must provide for (1) furthering the general education of all who participate in it; (2) developing the skills and acquiring the knowledge and understandings essential to employment in business; and (3) developing the skills and acquiring the knowledge and understandings desired for personal reasons.

As part of the business education program, one of the responsibilities of the secondary school in California is to provide opportunities for the education of workers who will be able to meet the requirements of the available jobs in the offices of business and industry located in the community served by the school district.

Business education programs must be geared to meet the technological changes taking place in business and industry. Programs designed to meet this responsibility are offered in the public schools of the state. Close cooperation between school personnel and businessmen is important in the development of these programs.

The development of new methods of office operations and of more sophisticated methods of dealing with data as a result of the introduction of automated processes make it necessary that educators keep up to date concerning the methods and procedures used in the office in order to adequately prepare students for office occupations.

The Bureau of Business Education conducted a study of the impact of automation on the office occupations to provide information to serve as guidelines for educators who are developing business education programs designed to meet the needs of students preparing for careers in office occupations and to meet the needs of the business offices in the community served by the school district.

The report of this study includes the following: an explanation of the purposes and a description of the plan of the study; summary of the findings of the conferences; recommendations for the development of business education programs in office education to meet the changing needs of business; a selected bibliography; and an appendix containing the minutes of the conferences held and notes on some of the literature.

Purposes of the Study

The purposes of the study were (1) to determine the impact of automation and other technological changes on office occupations and (2) to make recommendations for the development of business education programs to meet these changing needs.

Plan of the Study

The first phase of the study of the impact of automation on office occupations was as follows: (1) review of the literature, (2) review of reports of conferences held by government agencies and other insitutions, and (3) contacts

with businessmen. Reports of conferences and notes from some representative references are included in the appendix.

The second phase of the study included three conferences of businessmen conducted by the Bureau of Business Education. Representatives from medium and large businesses and industries were asked to describe the changes which have been made in office occupations because of automation, to express their opinions about the effect of future technological changes on office occupations and to make suggestions for the development of business ecucation programs offered in the secondary schools of California.

Three meetings were held in the following cities: Sacramento, Los Angeles, and Burlingame.

The third phase of the study is this report, which will be made available to educators in California.

SECTION II

SUMMARY OF FINDINGS

The summary of the findings of the study included in this section of the report is an attempt to crystalize the opinions expressed by the participants in the conferences held by the Bureau of Business Education in Sacramento, Los Angeles, and Burlingame.

It is very difficult to make an accurate synthesis of all opinions expressed by conferees. No attempt is made to indicate complete agreement on all points expressed. The final summary of findings has been reviewed by some conferees in Los Angeles, Sacramento, and Burlingame to check the accuracy of certain observations.

It is hoped that while complete agreement regarding the statements included in the summary of findings of the conferences may not be possible, a trend of thought may have been identified which will be valuable to business educators in the schools of California.

For the purpose of this study, automation is considered in its broadest sense. Participants in the conferences were concerned with the effect that the introduction of mechanical or automatic equipment and new methods of operation have on people performing office jobs.

Effect on Office Occupations of the Introduction of the Computer and Other Technological Changes

For more than a decade, changes have been taking place in office occupations. The dramatic impact of computers and other technological changes on office organization and jobs in medium and large businesses and industries has focused attention on the problem of what happens to persons and the demand for their skills with the introduction of a computer and integrated data processing.

Some of the same job titles are to be found in offices today that were used years ago. The significance, however, is in the number of persons performing under any given job title. The shift by companies from hand processes, to mechanical processes, to automatic processes, have all had their effect on jobs. There have been many changes - additions and subtractions of jobs and people employed in certain jobs - as a result of these different processes. On the drawing boards of equipment manufacturers are even newer devices which in the future will further change job demands and skill requirements.

At this point in time, however, a fundamental generalization of what is happening to certain jobs and the training needs for these jobs can be made. There is a definite need to provide training in the basic business skills. Students whose education has stressed the "why" of business organization and operation will find themselves in more demand than students whose training has emphasized the "how to do it."

Every industry has been affected in a different manner by the introduction of automated processes in the office but there is a similarity in office routine which makes possible certain generalizations.

Automation in the office should be considered a mark of progress because it has made possible the processing of work in a more efficient manner. In addition, automation has made possible the processing of data some of which was available

before the introduction of automated processes but which could not be used because it was not economically feasible to hire the number of employees necessary to prepare it in usable form. The result of the use of electronic equipment is that more information is available; more uses are found for this information; and more specialized jobs are created to plan the operation, to operate the equipment, and to analyze the data.

There have been many changes - additions and subtractions of jobs and people employed in certain jobs - as a result of these different processes. Accuracy is extremely important in the preparation of source documents and in the preparation of input data to be used in automated processes.

Jobs that are eliminated because of automation usually are those which cannot be performed as efficiently by hand labor. Machines used before the introduction of automation are not adequate to process efficiently the increased amount of paper work which has accompanied the growth of business and the services offered by business in recent years. There will be an increase in the number of operators of machines and other devices concerned with the input of computers.

Very few companies have dismissed employees even though jobs have been eliminated. Employees have been retrained or transferred to other departments during the planning period preceding the introduction of automation. During the conversion to automated processes the work force tends to increase as specialists are hired for a specific job. When the job is completed, following the installation of the new equipment and the setting up of programs, these specialists are not replaced. However, because of the new processes and the additional services which will be possible because of the use of automated processes, new kinds of jobs will be available.

Two kinds of workers are affected by automation: those who have to be taught new skills and those who have to broaden their education because of the necessity of dealing with more sophisticated processes. The introduction of automation has emphasized the need for workers who possess a high level of skill and maturity of judgment.

The introduction of automated processes in centralized operations has caused some people to leave the companies in which they were employed because they are not willing to move to another location.

Requirements for jobs in some industries have changed since the introduction of automation. For instance, since 1920, when the dial system was introduced in the telephone industry, the number of people employed by the company has increased two or three times because of the growth of the industry. However, instead of being hired for a particular skill, high school graduates are hired on the basis of their potential in a broad field of work. Telephone operators are called upon to make more decisions than formerly.

The introduction of centralized accounting through electronic data processing methods has caused a reduction in the employment of machine bookkeepers in offices in large businesses.

Effect of the Introduction of Automation on the Job of Bookkeeper

The job of bookkeeper is changing. Even before the introduction of automation, the bookkeeping activity was divided into many different tasks or

assignments. This trend has increased since the introduction of automation. Many jobs requiring bookkeeping skills have been eliminated. There is more and more difference between the kinds of skills required for the accounting type of job in which data is analyzed and the record keeping type of job in which data is recorded.

In many large businesses, which hire the majority of office workers, the job title of bookkeeper has disappeared. This change had been coming for several years. Specialization of duties has been breaking the bookkeeping job down into segments handled by clerks.

In small businesses the entire bookkeeping cycle might be performed by one person. However, many small firms take advantage of the service bureaus to perform bookkeeping operations. In these instances, the small business is concerned only with preparing source documents.

Effect of the Introduction of Automation on the Jobs of Secretary, Stenographer, and Typist

Automation in the office has not affected the demand for qualified secretaries, stenographers, and typists.

There is a demand for well-qualified secretaries and stenographers who possess shorthand skills at the present time and it is predicted that, even with the greater use of machine dictation, the demand will continue for the foreseeable future.

The jobs of secretary and stenographer should be considered separately as their duties and responsibilities are different. The stenographer will transcribe material dictated either by the executive or by means of a dictation machine or a telephone connected to a central installation of dictating machines.

The secretary will continue to be given greater responsibility and authority. The job of secretary is classified by many companies as a managerial position. She takes the place of the executive in his absence, writes letters, makes appointments, and makes decisions in matters which have been delegated to her by the executive. The salary for persons in these positions is usually substantially more than is paid for stenographic services. The secretary acts as an administrative assistant.

There is a need in business for competent typists to prepare reports and manuscripts. People in these jobs generally type from rough drafts and are required to type accurately and in correct form the material contained in these documents.

Effect of the Introduction of Automation on the Jobs of Clerk and Machine Operator

Jobs involving repetitive, routine tasks are disappearing from the business office. These tasks are being done by machines. In companies which have not adopted automated procedures for all of their operations there is still a demand for clerical workers in entry jobs which are classified according to pre-automation standards. In addition, there is still a demand for both clerical workers and machine operators in small business offices.

There is likely to be a decrease in the number of jobs which involve the operation of one machine. The possible exception may be the key punch machine.

There is a decreasing demand for such workers as comptometer operators and bookkeeping machine operators in large businesses.

The comptometer operator is generally the first casualty when automated processes are introduced. However, some comptometer operators are employed in offices which have been partially automated.

The desk calculator is replacing the comptometer. Because the person who uses the calculator usually is assigned other duties, he should possess skills that are not generally required of a person who is employed exclusively as a comptometer operator.

At the present time, there is an increase in the demand for key punch operators. Even though the use of magnetic characters and various scanning devices may replace the use of punched cards, key punch operators will be in demand for some time to prepare input data for computors. In cases where other methods of input are used clerks will be necessary to check for errors. There must always be a way to check the computer input data.

The person who held a routine clerical job has frequently been retrained as a tabulating machine operator.

New Jobs Which Have Been Added Because of Automation

Most of the new jobs which have been added because of the introduction of automation involve work connected with the computer. The necessity of preparing data for the computer has increased the demand for key punch operators.

Some of the new jobs which have been added as a result of the introduction of automated processes in the office are: key punch operators, tabulating machine operators, coders, console operators, programmers, analysts, and systems designers.

Service Bureaus, organized to process the data of businesses which do not have automated processes in their offices, employ people to operate equipment which is included in the data processing operation.

Relation of the Educational Program in Secondary Schools and the Changing Needs of Business--Evaluation of Skill Subjects Taught in California Schools

Business education skill subjects should continue to be taught in California secondary schools. The introduction of automation in the office will have an effect on the emphasis in the training which will be given in the skill subjects but there will still be a need for students to prepare themselves in these areas in order to meet the requirements for jobs which will be available in the office.

Typewriting

The emphasis in typewriting instruction should be on production work rather than on timed writings. Accuracy, neatness, ability to type with understanding, and such related skills as spelling, vocabulary, and grammar are the requirements for success in jobs involving the skill of typewriting. Tests should be used which are designed to measure achievement on production work in typewriting as well as achievement on timed writings.

There should be more emphasis on the mastery of the electric typewriter in order to prepare students to work in offices equipped with these machines.

Shorthand

The demand for persons possessing shorthand skills will continue for the foreseeable future. Shorthand should be taught in the secondary schools to prepare students for stenographic positions. Most stenographers are required to take dictation at the rate of from 80 to 100 words per minute. The school program should be planned in a manner that will enable students to achieve these rates in the shortest possible time.

Bookkeeping

Bookkeeping should be taught in high school with emphasis on the theory aspects of the course. The value to students of a course in bookkeeping should be in the development of a better understanding of the operation of a business and the interrelationships of the various departments within the business. It has additional value in the development of an understanding of the control function of business. The personal use value is another reason for offering a course in bookkeeping in the high school.

Business Machines

Instruction should be provided on up-to-date machines. However, it was recognized by the conference participants that schools are limited by the availability of funds as they attempt to modernize their instructional equipment.

Attention should be given to providing instruction on the kinds of machines which are used in offices in which students are likely to seek employment.

Suggestions for the Improvement of Educational Programs for Careers in Office Occupations

Production output per worker as a result of the adoption of automated procedures in manufacturing has increased without a corresponding increase in the output of individual office workers. Business has introduced automated processes in the office in order to keep up with the increasing amount of paper work. These processes will increase the output of each office worker. The attitude of office workers toward their responsibility to increase the rate of production is also an important factor in raising the output per person. Therefore, business education programs should include activities which would develop this attitude of responsibility in students training for business occupations.

The demand for office workers has been so great in recent years that many people have been hired who would not have been considered eligible for office jobs a few years ago. Many factors should be taken into consideration in the preparation of office workers. Some of these factors are the training needs of jobs which are available; facilities available for appropriate training; and recognition of the abilities, interests, and aptitudes of students. Another factor to be taken into consideration in the preparation of office workers is the knowledge of differences in the sociological backgrounds of students and the awareness of the necessity of preparing them for conditions to be found in the modern office.

The entry jobs in the area of business data processing can be prepared for in the two-year college. Jobs oriented to a computer require a person who has the ability to look beyond the theory and principles of the subject matter and to see relationships. Business education students preparing for jobs in this field should be given the training which will develop these abilities.

The following additional suggestions concerning the business education program of the secondary school should be taken into consideration in the development of business education programs:

1. Schools should emphasize the importance of good citizenship, personal grooming, and business ethics.

2. More case studies should be used in teaching business education courses.

3. Representatives of the schools and of business should continue to explore methods of exchanging ideas and methods of cooperation so that the business education program in the schools will keep pace with the needs of business.

4. More emphasis should be put on written and oral communication techniques in the education of an office worker.

5. The addition of a course in Introduction to Business Data Processing in the high school would be valuable in acquainting qualified students with the employment opportunities offered in this field.

It is very important that an effective program of vocational counseling be provided in the schools. Young people generally know little about careers in business. Some business firms hire counselors and business education teachers during the summer so that they will have an opportunity to observe office activities. This experience is designed to contribute to the improvement of the understanding of counselors and business education teachers concerning the needs of business and the kinds of personal qualities, knowledge, and skills which the student must possess in order to qualify for jobs.

The following differing opinions were expressed by the participants in the conferences regarding the role of the school in preparing students for office occupations: (1) that the schools should teach the fundamentals (3 R's, typewriting, and shorthand) as thoroughly as possible and leave the training on specialized machines to business and industry; (2) that, in addition to the fundamentals, it is desirable for schools to offer training leading to a salable skill on machines which are most frequently used by business.

SECTION III

RECOMMENDATIONS FOR RESEARCH AND DEVELOPMENT IN BUSINESS EDUCATION PROGRAMS IN SECONDARY SCHOOLS

Cooperation with Businessmen and Community

Conferences	Conduct conferences of businessmen to determine the impact of automation on business and industry located in the area served by the school.
Advisory Committee	Undertake studies of present and projected business education programs with the help of Advisory Committees appointed to serve for a specific period of time for the purpose of considering a particular phase of program.
Participation by Businessmen	Invite representatives of business to speak to groups of students to interview individuals or small groups of students in their business offices, and to participate in seminars and panel discussions for the study of different aspects of office occupations.
Office Visitation	Visit offices to observe office procedures, working conditions, and equipment.
Work Experience Education	Provide a vocational work experience education program for students preparing for careers in office occupations.
Community Surveys and Follow-up Studies	Conduct community surveys for the purpose of determining the kinds of jobs which are available in the area served by the school and make follow-up studies of graduates and dropouts to determine the effectiveness of the educational program and to provide guidelines for the future development of the business education program.

Counseling

Vocational Guidance	Provide an effective program of vocational counseling to meet the requirements of changing job requirements.
Aptitude Tests	Use available aptitude tests to insure proper placement of students in classes preparing for a career in office occupations.
Cooperation Between Counselors and Business Education Teachers	Develop methods whereby counselors and business education teachers cooperate in providing students with up-to-date information relative to opportunities and careers in the office occupations.

Preparation - General

General Education	Provide a program designed to make it possible for students preparing for positions in the office occupations to have a thorough mastery of the 3 R's with emphasis on understanding fundamental processes.

General Business Education	Offer courses designed to give students an understanding about the organization, activities, and terminology of business.

Preparation - Skills

Typewriting	Emphasize production work rather than timed writings in typewriting instruction. Accuracy, neatness; ability to type with understanding; and such related skills as spelling.
Electric Typewriter	Emphasize the mastery of the electric typewriter.
Shorthand	Offer preparation for stenographic positions since the demand for these workers will continue.
Bookkeeping	Teach the course in bookkeeping with emphasis on the theory aspects of the course.
Business Machines	Provide instruction on up-to-date business machines which are used in the offices where students will seek employment.

Attitude

Attitude Toward Work	Include activities in business education classes which will develop in students a sense of responsibility and the ability to work with others.
Attitude Toward Change	Develop in students an understanding of present requirements for careers in office occupations and an awareness of the possibility of future changes in requirements which will make it necessary to continue education throughout the period of employment.

New Courses or Methods

Data Processing	Provide instruction in high school designed to acquaint students with the basic principles of business data processing and with the employment opportunities in the field.
Scheduling, Instructional Methods and Materials, and Utilization of Staff	Participate in studies designed to determine the most effective kind of (1) scheduling, (2) instructional methods and materials, and (3) utilization of staff which it is possible to use in the individual school to offer effective and efficient preparation for office occupations.
Certificates of Achievement	Issue certificates to students to provide evidence that they have achieved a certain proficiency in the business education skill subjects.

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Appendix A

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Bureau of Business Education
721 Capitol Avenue
Sacramento 14, California

A G E N D A

CONFERENCES ON THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

Sacramento - February 26, 1962
Los Angeles - March 22, 1962
Burlingame - March 30, 1962

I. Introduction of Participants

M. Claire O'Brien, Consultant
Bureau of Business Education
California State Department of Education

II. "Automation--Impact on Office Occupations"

Rulon C. Van Wagenen, Chief
Bureau of Business Education
California State Department of Education

III. What effect has the introduction of the computer and other technological changes had on office occupations?

A. To what extent have these jobs changed?

1. Bookkeeping and Accounting
2. Secretarial and Stenographic
3. Clerical and Machine Operator
4. Other office jobs

B. What new jobs have been added because of automation?

C. What new jobs do you anticipate for the future?

IV. What changes should be made in the educational program to meet the needs of our changing technology?

A. Evaluation of the skill subjects taught in California schools

1. Typewriting
2. Shorthand
3. Bookkeeping
4. Business Machines
5. Other courses in Skill Subjects

B. Additional suggestions for the improvement of educational programs for careers in business

Appendix B

California State Department of Education
Bureau of Business Education

REPORT OF CONFERENCE ON THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

CTA Building, Burlingame
March 30, 1962 - 2-4 p.m.

Participants

Auerhamer, Evelien, Supervisor, Stenographic Service, Standard Oil Company of California, San Francisco
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Crowe, A. L., Supervisor, Reproduction Service, Standard Oil Company of California, San Francisco
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Haire, L. W., Office Manager, Lockheed Missiles and Space Company, Sunnyvale
Heon, Larry L., Personnel Assistant, Pacific Gas and Electric Company, San Francisco
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McAllister, L. B., Assistant to Comptroller (Personnel), Pacific Telephone, San Francisco
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O'Brien, M. Claire, Consultant in Business Education, Bureau of Business Education, California State Department of Education, Sacramento
Postle, W., Research Technician, California Department of Employment, San Francisco
Sicklebower, Dr. Russell, San Francisco State College, San Francisco
Skimin, Eleanor, San Francisco State College, San Francisco
Van Wagenen, R. C., Chief, Bureau of Business Education, California State Department of Education, Sacramento
Yuen, Dr. Jack, San Francisco State College, San Francisco

Introduction

Mr. Van Wagenen explained that the purpose of the meeting was to study the impact of automation and technological changes on office occupations. He stated that the Bureau of Business Education is interested in assisting the schools of California to keep the business education program up to date. The results of these conferences will be compiled and sent to the schools of the state to be used in the development of business education programs and in counseling students.

Mr. Van Wagenen expressed appreciation to the members of the conference for their interest in assisting the Bureau of Business Education in gathering this information which should be of value to the schools of California.

Miss O'Brien opened the discussion by calling attention to two studies pertaining to office automation. One study was based on the experience of 5,187 commercial and government offices employing 1,140,000 clerical workers.

The increase in the introduction of automated processes in these offices is illustrated by the following data from the survey:

In 1958, 10 percent of these offices had automated, 6 per cent were planning on automating during the year, and 7 per cent were studying the possibility of automating. In 1961, 44 per cent had automated, 9 per cent were planning on automating during the year, and 34 per cent were studying the possibility of automating.

The response to a question concerning the use and purchase of "conventional" equipment in 1961 as compared with previous years indicated that 26.4 per cent of the organizations would use and purchase additional conventional equipment; 56 per cent would use and purchase the same equipment generally used; and 17.6 per cent would use and purchase less conventional office equipment. Therefore, 82.4 per cent of the 5,187 commercial and government offices expect to continue or to expand the present level of operating procedures in the next year in spite of the introduction of automation in some of these offices.

The second study reported that the objectives for installation of electronic data processing in 20 offices studied were the following: clerical labor saving, greater accuracy, and time saving.

The job status of workers in these offices one year after the introduction of automated processes was reported as follows: 53.3 per cent of the office workers had had no change in position, 31.8 per cent had changed, and 15.2 per cent had left the company for various reasons.

The grade status of employees in offices after the installation of electronic computers was affected as follows: 67.4 per cent were in the same grade status, 31.2 percent were in a higher grade status, and 1.4 per cent were in a lower grade status.

Before the introduction of automated equipment, 57.2 per cent of the employees were high school graduates and 5.8 per cent were college graduates. After the introduction of this equipment, 15 per cent of the new employees hired were high school graduates and 64.8 per cent were college graduates.

The aptitudes, temperament, and educational level deemed desirable for positions in electronic data processing varied with the type of position. Writing reports and instructions clearly was listed by 15 and stressed by 6 of the firms as a desirable ability for persons in planning and programming positions. Only two firms listed this ability as necessary for auxiliary equipment operators. A knowledge of accounting, decimals, fractions, and percentage is apparently desirable for programmers but is not essential for console operators or auxiliary equipment operators.

Effect on Office Occupations of the Introduction of the Computer and Other Technological Changes

It is important not to generalize when considering the impact of automation on office occupations. Every industry has been affected in a different manner.

Some industries have been most affected by the introduction of centralized accounting by electronic data processing methods. In some instances the work of the branch offices has not been changed a great deal. The major effect has been to eliminate machine bookkeepers. However, original data must be prepared in the branch offices. Operators of machines used to prepare these data must be employed in all offices. Many key punch operators have been hired at accounting centers.

Most of these people have been trained by the industry.

Sometimes the effect of the introduction of automated processes in centralized operations has caused people to leave the company because they are not willing to move to another location.

The criteria for the selection of tabulating machine operators have not changed. The same kind of people who operated other machines formerly used in the office can be taught to operate equipment.

Two kinds of workers are affected by automation: those who have to be taught new skills and those who have to broaden their education because of the necessity of dealing with more sophisticated processes of analysis.

In many cases, women were found to be more adaptable than men to jobs requiring manual dexterity.

Some companies believe that it is necessary to separate the kind of training needed for dealing with scientific data from that needed for dealing with business data.

Some companies have been operating their offices with the use of automated processes for a number of years. They have found it necessary to train programmers using personnel already employed.

Although the volume of business has increased in many businesses in recent years, there is not necessarily an increase in the number of employees. This has been due to the introduction of automated processes which makes it possible for the same number of employees to turn out a greater volume of work.

Many companies still have a need for large numbers of workers with the same skills which clerical jobs have always required. However, it was pointed out that fewer jobs requiring manual bookkeeping skills are available.

Some companies are discovering that automated processes cost more than they anticipated and that it is necessary to hire more workers than they had planned on to operate the equipment.

Most companies are reluctant to dismiss workers because of automation and they make every effort to train employees for new jobs.

Effect of the Introduction of Automation on the Job of Bookkeeper

Many jobs requiring bookkeeping skills have been eliminated. There is more and more difference between the kinds of skills required for the accounting type of job and the record keeping type of job. In fact, most large companies and government offices do not use the term, bookkeeper. The person employed in the classification which includes the handling of bookkeeping data is generally called an accounting clerk.

Effect of the Introduction of Automation on the Job of Secretary and Stenographer

There are many applicants for the position of stenographer but a great many of these applicants are not qualified.

There is always a job for the well-qualified stenographer and secretary. Even with the greater use of machine dictation, the demand for stenographers will continue.

The differences in the duties of the stenographer and the secretary were pointed out. The secretary will continue to be given greater responsibility and authority. At the present time, there is a dearth of women applicants for jobs which demand managerial skills.

Both the stenographer and the secretary will be operating at a higher level of output both in skills and in kinds of tasks required as the introduction of automation expands.

Effect of the Introduction of Automation on the Job of Clerk and Machine Operator

The comptometer operator is generally the first casualty when automated processes are introduced. However, some comptometer operators are employed in offices which have been partially automated.

The desk calculator is replacing the comptometer. The person who uses the calculator usually should possess more analytical skills than are generally required of a person who is employed exclusively as a comptometer operator.

The machine operator working on tabulating equipment could be the same kind of person who has held a routine clerical job in the office.

The person operating the computer who is called upon to make decisions will have to be one who can think logically and who knows something about the operation of automated equipment.

In companies which have not adopted automated procedures for all of their operations there is still a demand for clerical workers in entry jobs which are classified according to pre-automation standards.

In addition, there is still a demand for both clerical workers and machine operators in small business offices.

New Jobs Which Have Been Added Because of Automation

Most of the new jobs which have been added because of the introduction of automation involve work connected with the computer. The necessity of preparing dat for the computer has caused a demand for key punch operators. Other jobs involve the operation of the different pieces of hardware which make up the computer installation. Most of these jobs require persons with the ability to think clearly and to solve problems.

Relation of the Educational Program in the Schools and the Changing Needs of Busines

The emphasis in typewriting instruction should be on production work rather than on timed writings. Neatness, ability to type with understanding, and such related skills as spelling, vocabulary, and grammar are the most important requirements for success in jobs involving the skill of typewriting.

The comment was made that a typist should be very familiar with the type-

writer and, therefore, it might be advisable to introduce typewriting into the curriculum at an earlier time than is generally practiced.

Tests designed to measure achievement on production work in typewriting as well as on timed writings should be used.

Evidence of achievement in the skill subjects in the form of certificates of achievement from the school in which the course was taken would be valuable to employers in assessing the qualifications of prospective employees.

Shorthand should be taught in the secondary schools because, for the foreseeable future, there will be a demand for persons possessing shorthand skills.

Bookkeeping should be taught in high school with emphasis on the theory aspects of the course. It has value in the development of an understanding of the kinds of decisions necessary in the management of a business. In addition, bookkeeping has personal use value.

It was pointed out that, in many cases, production output per worker as a result of the adoption of automated procedures in manufacturing has increased without a corresponding increase in output of office workers. The attitude of office workers is an important factor in raising the output per person.

The demand for office workers has been so great in recent years that many people have been hired who would not have been considered for office jobs a few years ago. Another factor to be taken into consideration in the preparation of office workers is the awareness of differences in the sociological backgrounds of students and the necessity of preparing them for conditions to be found in the modern office.

Because the output of office workers will of necessity be greater in the future, a higher level of preparation in general education and in skills will be necessary. Mastery of the 3 R's will continue to be of great importance with emphasis on understanding fundamental processes.

Two opinions were expressed regarding the role of the school in preparing students for office occupations.

Some employers would prefer that the schools teach the fundamentals as thoroughly as possible and leave the training on specialized machines to business and industry. In this context, the fundamentals are interpreted as including typewriting and shorthand.

Other employers feel that in addition to the fundamentals it is desirable for schools to offer training in machines which are most frequently used by business.

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Bureau of Business Education
721 Capitol Avenue
Sacramento 14, California

March 22, 1962 - Los Angeles, 2-4 p. m.

CONFERENCE ON THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

Participants

Anderson, Lowell, California State Department of Education, Bureau of Business Education, Los Angeles
Bridgman, R. E., Union Bank, Los Angeles
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Doane, William J., Market Basket, Los Angeles
Eissler, R. K., California State Department of Education, Bureau of Business Education, Los Angeles
Gaghagen, A. G., Union Bank, Los Angeles
O'Brien, M. Claire, California State Department of Education, Bureau of Business Education, Sacramento
Parsons, Kenneth B., Bureau of Public Assistance, Los Angeles County, Los Angeles
Pine, Miles C., Hughes Aircraft Company, Culver City
Reynolds, K. M., Shell Oil Company, Los Angeles
Safford, H. B., General Telephone Company, Santa Monica
Sheehan, Gene, Warner Bros. Pictures, Burbank
Wilson, John Jr., United California Bank, Los Angeles
Woods, Vance, Ralph's Grocery Company, Los Angeles

Introduction

Miss O'Brien explained that the purpose of the meeting was to study the impact of automation and technilogical changes on office occupations. She expressed appreciation to the members of the conference for their interest in assisting the Bureau of Business Education to gather information concerning the effect of automation on office occupations.

Miss O'Brien opened the discussion by calling attention to two studies pertaining to office automation. One study was based on the experience of 5,187 commercial and government offices employing 1,140,000 clerical workers.

The increase in the introduction of automated processes in these offices is illustrated by the following data from the survey:

In 1958, 10 per cent of these offices had automated, 6 per cent were planning on automating during the year, and 7 per cent were studying the possibility of automating. In 1961, 44 per cent had automated, 9 per cent were planning on automating during the year, and 34 per cent were studying the possibility of automating.

The response to a question concerning the use and purchase of "conventional" equipment in 1961 as compared with previous years indicated that 26.4 per cent of the organizations would use and purchase additional conventional equipment; 56 per cent

would use and purchase the same equipment generally used; and 17.6 per cent would use and purchase less conventional office equipment. Therefore, 82.4 per cent of the 5,187 commercial and government offices expect to continue or to expand the present level of operating procedures in the next year in spite of the introduction of automation in some of these offices.

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The job status of workers in these offices one year after the introduction of automated processes was reported as follows: 53.3 per cent of the office workers had had no change in position, 31.8 per cent had changed, and 15.2 per cent had left the company for various reasons.

The grade status of employees in offices after the installation of electronic computers was affected as follows: 67.4 percent were in the same grade status, 31.2 percent were in a higher grade status, and 1.4 percent were in a lower grade status.

Before the introduction of automated equipment, 57.2 percent of the employees were high school graduates and 5.8 percent were college graduates. After the introduction of this equipment, 15 percent of the new employees hired were high school graduates and 64.8 percent were college graduates.

The aptitudes, temperament, and educational level deemed desirable for positions in electronic data processing varied with the type of position. Writing reports and instructions clearly was listed by fifteen and stressed by six of the firms as a desirable ability for persons in planning and programming positions. Only two firms listed this ability as necessary for auxiliary equipment operators. A knowledge of accounting, decimals, fractions, and percentages is apparently desirable for programmers but is not essential for console operators or auxiliary equipment operators.

Effect on Office Occupations of the Introduction of the Computer and Other Technological Changes

There was consensus that jobs that are eliminated because of automation usually are those requiring less ability. Because of the change in the kinds of work being done, it is difficult to determine whether or not personnel have been eliminated. At the present time, more data needs to be processed than formerly, due to the increase of such items as government reports and payroll deductions. With the introduction of new processes of dealing with these data the same number of workers that were employed formerly are able to do the work required.

The introduction of automation has increased the skills required for the performance of certain operations in the office. Many companies have retrained their employees so that their skills have been upgraded to meet the requirements of the new positions.

There is a wider variety of jobs available in offices where automated processes have been introduced. One of the reasons for this is that the availability of more information has caused a demand for more analysis of the data for management decisions.

Before the introduction of automated processes the engineers in one

company were spending a great deal of time on computations which decreased the amount of time available for planning and making decisions.

Effect of the Introduction of Automation on the Job of Bookkeeper

In large businesses the title of bookkeeper has disappeared from the office. The bookkeeping process has been divided into a number of different jobs and much of the work is being handled by machines.

In small businesses the entire bookkeeping cycle might be performed by one person. However, many small firms take advantage of the service bureaus to perform bookkeeping operations. In these instances the small business is concerned only with keeping original records.

Effect of the Introduction of Automation on the Jobs of Secretary and Stenographer

These jobs will not disappear from the office. However, duties of the secretary and the stenographer will change. These two jobs should be considered separate as their duties and responsibilities are different.

The stenographer will transcribe material dictated either by means of a dictation machine or a telephone connected to a central installation of dictating machines. She would not, ordinarily, see the dictator as her desk would be located in a stenographic pool.

The secretary is classified by many companies as a managerial position. She takes the place of the executive in his absence, writes letters, makes appointments, and makes decisions in matters which have been delegated to her by the executive. The salary for persons in these positions is usually substantially more than is paid for stenographic services. The secretary acts as an administrative assistant.

Effect of Introduction of Automation on Clerical and Machine Operator Jobs

There will be a decrease in the number of jobs which involve the operation of one machine except the key punch. There is a decreasing demand for such workers as comptometer operators, bookkeeping machine operators, and NCR machine operators.

There is an increase in the demand for key punch operators. Even though the use of tape may replace the use of punched cards in some instances, key punch operators will be in demand for the forsseeable future.

Jobs involving repetitive, routine tasks are disappearing from the busines office. These tasks are being done by machines. People who work on these machines will need to be able to solve problems, to think, and to arrive at decisions.

New Jobs Which Have Been Added Because of Automation

Some of the new jobs which have been added as a result of the introduction of automated processes in the office are: key punch operators, programmers, analysts, and systems designers.

Service Bureaus, organized to compile the data of businesses which do

not have automated processes in their offices, employ people to operate equipment which is included in the data processing operation.

Relation of the Educational Program in the Schools and the Changing Needs of Business

There should be more emphasis on the use of the electric typewriter.

In most of the businesses represented stenographers were required to take dictation at the rate of from 80 to 100 words per minute.

The course in bookkeeping should include more emphasis on theory and less time spent on practice sets.

Key punch operation should be offered in high school.

Less emphasis should be put on the operation of the comptometer and bookkeeping machines.

The following additional observations were made concerning the business education program of the secondary school:

1. Schools should emphasize the importance of good citizenship, personal grooming, and business ethics.

2. More case studies should be used in teaching business education courses.

3. Representatives of the schools and of business should continue to explore methods of exchanging ideas and methods of cooperation so that the business education program in the schools will keep pace with the needs of business.

4. More emphasis should be put on written and oral communication techniques in the education of an office worker.

5. The addition of a course in Introduction to Business Data Processing in the high school would be valuable in acquainting qualified students with the employment opportunities offered in this field.

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Bureau of Business Education
721 Capitol Avenue
Sacramento 14, California

REPORT OF CONFERENCE ON THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS
Sacramento, February 26, 1962 - 2:00 p. m.

Participants

Baldwin, Leland P., Regional Supervisor, Bureau of Business Education, California State Department of Education
Barnes, Stewart L., Senior Data Processing Systems Analyst, Department of Finance, State of California
Bissell, O. B., Wage Administration, Aerojet General
Cook, Dale E., Manager, General Employment, Aerojet General
Cresci, Gerald D., Researcher and Teacher Trainer, Bureau of Business Education, California State Department of Education
Eddy, Jr., C. C., Division Traffic Supervisor, Pacific Telephone
Gester, Bill, Personnel Director, California Western States Life Insurance Company
Hinman, R. B., Division Personnel Manager, Pacific Gas and Electric Company
O'Brien, M. Claire, Consultant, Bureau of Business Education, California State Department of Education
Roesner, Robert E., Youth and Student Supervisor, California State Employment Service
Tetlow, George H., Controller, A. Teichert and Son, Inc., President, NOMA, Sacramento Chapter
Van Wagenen, R. C., Chief, Bureau of Business Education, California State Department of Education
Warner, William N., Manager Personnel Department, Sacramento Municipal Utility District

Introduction

Mr. Van Wagenen explained that the purpose of the meeting was to study the impact of automation on office occupations. He stated that there were different opinions regarding the long-range effect of automation on such office occupations as bookeeeper, secretary, and clerical workers.

Mr. Van Wagenen expressed appreciation to the members of the conference for their interest in assisting the Bureau of Business Education in appraising the impact of automation and technological change on office occupations.

Effect on Office Occupations of the Introduction of the Computer and Other Technological Changes

The members of the conference expressed themselves as follows:

Not many persons have lost their jobs because of automation but many have to be retrained in order to meet a higher standard of performance.

The introduction of automation in the office makes it possible to handle certain kinds of work more efficiently. Therefore, automation should be considered as a mark of progress.

The use of the computer tends to make operations in the office more efficient and to increase the number of services which may be provided. Automation makes possible the availability of more information; therefore, more uses for this information are found which leads to the creation of more jobs.

Requirements for jobs in some industries have changed since the introduction of automation. For instance, since 1920, when the dial system was introduced in the telephone industry, the number of people employed by the company has increased two or three times because of the growth of the industry. However, instead of being hired for a particular skill, high school graduates are hired on the basis of their potential in a broad field of work. Telephone operators are called upon to make more decisions than formerly.

In most cases, the introduction of automation is preceded by long-range planning, probably 18 months in advance. Firms do not discharge employees who are replaced by automation, but they do not rehire persons for jobs which have been eliminated.

The use of the computer has emphasized the need for a person to have a higher level of skills and maturity in order to be successful in office occupations.

Effect of the Introduction of Automation on the Job of Secretary

Different opinons were expressed by members of the group regarding the future of shorthand as part of the job of the secretary. Most of the participants thought that the secretary will still be a part of the business scene but some of the participants believed that other methods besides shorthand will be used to take dictation. In some instances, secretaries, though trained in shorthand, use this skill very little in their regular duties. New machines are being made available which will have an impact on the job of the secretary.

Effect of the Introduction of Automation on the Job of Bookkeeper

The job of bookkeeper is changing. Even before the introduction of automation, the bookkeeping activity divided into many different tasks or assignments. This trend has increased since the introduction of automation. It was generally felt that the course in bookkeeping should be taught in the schools, as the course is valuable for an understanding of business organization and business operation. In addition, it has personal use values.

Effect of Introduction of Automation on the Clerical Occupations

There will be less demand for routine clerks in the future. Higher developed skills will be needed; for instance, the analytical type of skills.

It was reported that some jobs in the clerical field have been replaced since the introduction of automation. Billing machine operators have been replaced by automated processes but the billing machine operators are placed in other type of jobs, generally of an upgraded nature. Through automation the same number of people handle a greater work load.

It was observed that the present surplus of clerical workers in the labor force is composed of people who possess predominantly marginal skills.

Employers now find it necessary to find a place for the marginal workers

who are already employed in the office. An employee is rarely dismissed because of the introduction of automation. He might be offered a job in another department or location or retrained for a new job.

Relation of an Educational Program of the Schools and the Changing Needs of Business

Many machines used for instructional purposes in the schools are obsolete. Instruction schould be provided on up-to-date machines. However, it was recognized that schools are limited by the availability of funds as they attempt to modernize their instructional equipment.

Many of the advanced jobs in the area of business data processing require graduation from a four year college though some of the entry jobs can be prepared for in the two year college. Most jobs in the field of data processing require a person who has the ability to look beyond the theory and principles of the subject matter and to see relationships.

It is very important that an effective program of vocational counseling be provided in the schools. Young people generally know little about careers in business. Some business firms hire counselors and business education teachers during the summer so that they will have an opportunity to observe the activities of the employees of the company. This experience is designed to contribute to the improvement of understanding of counselors and business education teachers concerning the needs of business and the kinds of personal qualities, knowledge, and skills which the student must possess in order to qualify for jobs.

The meeting was adjourned at 4:00 p.m.

Appendix C

CALIFORNIA STATE DEPARTMENT OF EDUCATION
Bureau of Business Education

NOTES AND EXCERPTS OF SOME REFERENCES REGARDING THE IMPACT OF AUTOMATION ON OFFICE OCCUPATIONS

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Ribicoff, Abraham. Secretary, Health, Education, and Welfare. Statement made at a Hearing Before the Sub-Committee on Employment and Manpower of the Manpower Development and Training Act of 1961, June 7, 1961. 42

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How much should I teach about automation in my office practice class? What should I be doing about the offset process of duplication? Should I buy photocopy equipment for my office practice laboratory? Our school placement office has received several calls for collection clerks. Should we teach this in office practice? How? Each of these questions reflects a commendable concern on the teacher's part to keep his office practice offering up to date in our fastmoving world. Business educators must be sensitive to changes in the requirements of occupations for which they are preparing students.

Survey the Employment Market

Teachers of office practice classes are dealing with a terminal course preparing beginners for the local employment market. With limited funds, facilities, and time, business educators must strive to do the greatest good for the greatest number. This means that common qualifying elements or competencies demanded by most of the employers and for which training can appropriately be given in school must be identified.

An objective study of typical job specifications indicates that:

1. All jobs require command of the fundamental skills of reading, figuring, speaking, spelling, and handwriting.

2. All jobs require certain character and personality traits.

3. All jobs require some knowledge of business organization and modern business ethics.

4. Most jobs involve some knowledge of: record keeping, telephone technique, filing, meeting and getting along with people, and handling business papers.

5. Performance in most jobs would be helped by knowledge of: typing, mailing procedures, office operations, handling cash, operating simple business machines, business communications, and reference materials.

6. Additional skills and knowledge such as the following might improve beginners' chances for advancement: efficient work methods and habits, leadership, control accounts, bookkeeping and accounting, research ability, shorthand, and trade information.

7. Certain skills and knowledge would probably be acquired on the job: complex machine operation, company policies, specialized company procedures, and trade terminology.

Recognize the Implications

If this method of dealing with preparation for job requirements is correct, it also serves to remind us that we should not overlook the obvious. Beginners will need even more competence in fundamental processes, human relations, personality adjustment, business organization, and basic technical skills in the complex world of the future. (See categories 1-4).

Automation and Vocational Guidance, Vocational Guidance Series No. XXXII, Evaluation and Research Section, Report No. 235, Los Angeles City School Districts, May, 1961.

What is the Extent of Automation in Office Work?

Clerical work is primarily concerned with record keeping and communicating, both of which have been found to be adaptable to automation. Office automation has proceeded most rapidly in those industries which require large scale paper operations, such as insurance companies, banks, public utilities, government ogranizations, and enterprises with a large number of customers.

The increase of office automation is shown by the sharp increase in the sales and rentals of business computers between 1953 and 1959. In 1953, sales and rentals were reported at $25 million; in 1954 at $47 million; and in 1959, at $350 million. A conservative estimate indicates that expenditures for business computers will attain one billion dollars by 1970. Another projection forecasts that sales and rentals will reach $2.6 billion by 1970.

How Does Automation Affect the Skills of Office Workers?

In the fully automated office, the sorters, filers, typists, bookkeepers, and billing clerks tend to disappear and their places are taken by clerical workers with such titles as methods analyst, console operator, programmer, and card-type converter operator. However, most offices have a great need for coders, key-punch operators, key-punch verifiers, billing-machine operators and the like. Most offices in large businesses of the nation are now in this transition period, and will remain so for some years to come. Many small and medium-sized offices continue to depend on typewriters, mechanical calculators, and hand-operated filing systems.

When a business firm converts to a fully automated office procedure, the clerical staff for the new equipment is usually recruited directly from the staff already working in the office.

What Provisions May be Made to Alleviate the Adverse Effects of Automation on Employment?

Certain provisions have been incorporated into union-management agreements to alleviate the adverse effects of automation on employment. Among these are the following:

1. Severance pay may be provided to mitigate the loss of earnings resulting from a lay-off caused by automation.

2. Seniority rights have been broadened so that when a worker's job is jeopardized, he may more easily transfer from one classification to another. If retraining is required, management may make it available to the worker while he remains on the job.

3. A bonus fund may be provided for the purpose of making a special payment to the displaced worker or to any worker whose hours have been reduced through the advent of automation.

4. Certain procedures are usually provided to make the transition to

automation less onerous to workers. For example, a worker may receive the same rate of pay even though his job has been downgraded by the new equipment. In offices, it is common practice to allow a worker displaced by new equipment to select another job from within the prevailing office staff.

5. A shorter work week may be provided, with the result that the use of automated equipment does not necessarily lead to reduced employment. Many labor leaders have voiced their approval of the shorter work week but there has been no concerted economic drive in this direction. Labor's fear that a shorter work week will lead to a reduced weekly pay check has made this remedy less attractive than those mentioned above.

How Does Automation Affect the Need for Office Workers?

In spite of the introduction of office automation, there is little evidence that any substantial segment of the nation's clerical staff is being displaced. . .The number of office workers in the United States almost doubled in the nineteen-year period from 1940 to 1959. During the same period, the total labor force was increasing by only one-third.

Automated equipment in offices has been introduced primarily to take care of the increasing complexity of clerical work rather than to displace present clerical workers. A few years ago, it was feared that society would be overwhelmed by the ever-expanding volume of record keeping and communications. These fears have been allayed by the ability of office automation to organize this volume. By enormously expanding the limits of record keeping, office automation may further increase the need for office workers. The Department of Labor indicates the prospe in this manner:

". . .the experience of some offices suggests the possibility of expanding employment in new areas of office activity to handle information which had previously been uneconomical to acquire."

Even with this new activity it appears that office automation is beginnir to catch up with the nation's record keeping activities. The Occupational Outlook Handbook has stated that it appears likely that employment in clerical occupations will continue to increase but at a slower pace than during the past several decades

VOCATIONAL GUIDANCE IN AN AUTOMATED AGE

The occupational structure has been described as a pyramid rising from a broad base comprised of unskilled, semi-skilled, and skilled manual workers to an apex of managerial and professional personnel. Since the turn of the century, the shape and appearance of this more or less familiar structure has been in process of change. The base has shrunk appreciably and the top is leveling off at an increasing rate. Each technological advance brings with it some modification and redistribution of the work force; and the process of change is accelerated as jobs in factories, offices, and elsewhere are altered by automation.

Job Opportunities Under Automation In helping youth with plans for a career, it becomes difficult if not impossible to predict job content and the special abiliti that will be needed. It is possible, however, to say that change will continue as

a challenge to all workers. The following trends may be interpreted broadly as guidelines into the future:

1. Industries performing services will have more job opportunities; those producing goods will have declining opportunities. Automation will accelerate this trend.

2. Automation will open up a wide range of occupational opportunities. Industries closely identified with automation such as systems development, data processing, electronics, and instrumentation, should have a growth rate considerably in excess of other industries.

3. Automation accelerates the upgrading of jobs. In almost every case, the job that is created or modified by automation requires a longer and more intensive period of training than did the one it replaced. To meet the training requirements of an automated economy, increasing demands will be made on the present generation of young people to extend their educational life to a substantially higher level than that required of past generations.

Vocational Choice: A Process

Automation necessitates a continuing re-evaluation of occupations, educational decisions, and vocational choices.

At a given point in a person's life, it is not possible to know accurately what he is best suited for; nor is it possible to predict that a job for which he has aptitude will remain stable in content and responsibility until he is trained for it. In the future, change will be typical; stability will be rare.

Flexibility in Planning

Automation implies that the person who is flexible and adaptable in vocational selection and training will be prepared to respond more readily to future changes in the work environment. In the future, workers will be expected to adapt to new situations and different opportunities as changes occur. Counseling will tend to focus more attention on the development of broad abilities and capacities as a basis for the achievement of flexibility.

The Career and Career Guidance

Automation requires guidance for two kinds of careers. The career itself is a sequence of positions experienced by all workers, but the sequence may proceed in either of two directions depending on the kind of career. The usual concept of a career is that of movement upward from a lower to a higher rung on a ladder of success. However, there are many workers who will find satisfaction and advancement through horizontal movement. These workers will shift position in the course of a lifetime career, but they are less likely to climb the ladder.

Close to 40 percent of all high school students will experience the second kind of a career. As workers and employees, they will move from one machine to another, from one product to another, between departments, between plants, and about the country.

Guidance for this second kind of a career can help the student to develop versatility and to prepare for mobility; to plan with reference to a change of position which is not necessarily in a line of advance but nonetheless compatible to his abilities and aspirations.

Blackstone, Bruce I., Specialist, Office Education, Division of Vocational Education, U. S. Office of Education, Department of Health, Education, and Welfare, 1962.

PROGRESS OF AUTOMATION IN THE OFFICE

Number of Offices Automating

The January 1961 issue of The Office reported a five-year study of the progress of automation among large and medium sized offices on the basis of annual surveys.

Year	Already Automated	About to Automate (current year)	Studying Possibility of Automation
1958	10%	6%	7%
1959	24%	4%	11%
1960	32%	5%	15%
1961	44%	9%	34%

Number of Offices and Workers Concerned

This study is based on 5,187 commercial and government offices employing 1,140,000 clerical workers.

Use and Purchase of Conventional Equipment

Of particular interest was the response to the question concerning the use and purchase of "conventional" equipment in 1961, as compared with previous years; 26.4 per cent of the organizations stated there would be more use and purchase of conventional equipment; 56 per cent said there would be the same use and purchase of conventional equipment, while 17.6 per cent stated there would be less use and purchase of conventional office equipment. It, therefore, appears that 82.4 per cent of the 5,187 commercial and government offices expect to continue or to expand the present level of operating procedures in the next year.

Objectives for Installation of Electronic Data Processing (Study of twenty offices)

The management objectives for installation of electronic data processing are, in order of importance:

Clerical labor saving
Greater accuracy
Time saving

Effect of Introduction of Electronic Data Processing on Personnel after One Year

Type of Job Change:

Type of Job Change	Number	Per cent
Total	2,808	100.0
No change in position	1,498	53.3
Position changed	883	31.8
Reassigned within same work unit	552	19.7
Transferred	331	11.8
To computer	52	1.9
To other units	279	9.9
Quits, layoffs; and other separations	427	15.2
Quits	338	11.7
Retirement and deaths	42	1.5
Leaves of absence	35	1.2
Discharges	13	.5
Layoffs	9	.3

Effect on Grade Status:

Grade Status	Number	Per cent
Total	2,372	100.0
Same grade	1,599	67.4
Higher grade	740	31.2
Lower grade	33	1.4

Educational Levels of Employees in Affected Units:

Educational Level	Employees in affected units: All Employees		Employees in electronic data processing positions: All Employees			
					New Hires	
	Number	Per cent	Number	Per cent	Number	Per cent
All levels	2,799	100.0	915	100.0	173	100.0
Grade School, non-graduate	8	0.3				
Grade School, graduate	95	3.4	6	0.6		
High School, non-graduate	374	13.4	40	4.4	1	0.6
High School, graduate	1,600	57.2	340	37.2	26	15.0
Business School, graduate	255	9.1	42	4.6	3	1.7
College, non-graduate	273	9.7	100	10.9	9	5.2
College, graduate	162	5.8	316	34.5	112	64.8
College, post-graduate	32	1.1	71	7.8	22	12.7

EMPLOYEE TRAITS TEMPERAMENTS DESIRED FOR POSITIONS IN ELECTRONIC DATA PROCESSING

EMPLOYEE TRAIT	Planning and programming positions		Console operators		Auxiliary Equipment operators	
	Number of Companies					
	Listing trait	Stressing trait	Listing trait	Stressing trait	Listing trait	Stressing trait
Aptitudes						
Person should have a special ability for:						
Writing reports and instructions clearly and effectively	15	6	6	0	2	0
Performing arithmetic operations quickly and accurately	11	2	4	0	1	0
Perceiving significant details in tabulations, etc.	12	2	9	1	5	1
Understanding instructions and underlying principles	16	9	13	7	12	6
Coordinating eye and hand or fingers rapidly and accurately	0	0	12	3	11	2
Manipulating small objects rapidly and accurately	0	0	9	1	11	2
Temperament						
Person should be readily adaptable to work involving:						
Variety of duties and frequent change	14	6	11	1	10	0
Responsibility for planning and controlling an entire activity	15	7	4	3	0	0
Repetitive or short-cycle operations carried out according to set procedures	5	1	13	2	12	3
Judgments based on quantitative data	13	5	6	1	3	0
Decisions based on qualitative data	12	6	8	2	3	0
Deadlines, unusual workloads, and calls outside hours	12	5	14	4	13	2
Precise, preset standards	13	1	15	3	13	3
Educational level						
Person should have knowledge of:						
Theoretical mathematics	4	0	1	0	1	0
Calculus	5	0	1	0	1	0
Accounting	11	3	8	0	1	0
Decimal, fractions, percentages	11	1	8	0	6	0

Summary

The changing manpower needs of the United States in the coming decade is almost beyond comprehension. New factors will come into play. The demand for white collar workers will expand significantly and the demand for additional educational facilities will increase tremendously. The educational level of our population will increase and the nature of our work force will change. Into this changing world, students of office education must move and successfully carry out their assignments. It is the responsibility of our schools to recognize the fact that adequate vocationa preparation is a national necessity.

Brown, Edmund, Governor of California, Statement at the Governor's Conference on Automation, Los Angeles, November 28, 1961.

During the 1960's, the number of young people in California who will be ready for college or work will increase by 70 per cent--compared to 46% across the nation . . .We must give young people the motivation to stay in school and to develop to the limits of their ability.

Professional guidance, the pooling of information--every type of action to bring the workers to the job must continue to be encouraged.

CONFERENCE

Education and training for a changing technology

1. Vocational guidance

   Schools and employment services must provide improved quantity and quality in all vocational guidance and curriculum.

   Conferences are beneficial for the exchange of ideas which will initiate action.

   Better communication is needed between industry and the parents to channel young people into the jobs that are available.

   Better aptitude tests must be used to measure ability for job success, rather than relying solely on the standard "IQ" evaluation.

   Curriculum requirements must not be so rigid as to restrict changes to meet the changing needs of our economy.

2. Occupational training and retraining--office, clerical, accounting, and communications

   Responsibility for training and retraining is held cooperatively by business, the schools and the individual himself.

   Before retraining needs can be determined there must be greater identification of the skills needed in office and clerical occupations and before identifying the skills there must be agreement on the skills needed.

   There has been an increase in office workers of 93% between 1940 and 1959, compared with a 33% increase for total labor force. There is less unemployment in office jobs than in other fields.

   Labor and industry must cooperate in providing education with the latest trends and forecasts in our economy so that school counselling can be up-to-date.

Buckingham, Walter, "White-Collar Automation," The Nation, January 6, 1962. (Mr. Buckingham is Director of the School of Industrial Management, Georgia Institute of Technology.)

About 10,000 electronic computers have been installed in offices in the U. S. in 1961. The Bureau of Labor Statistics estimates that, on the average, each computer affects 140 jobs. 1,400,000 workers were affected last year alone on this basis. About $\frac{1}{4}$ (350,000) of these jobs will be abolished.

If the 68 companies which manufacture computers should double their sales this year, 700,000 additional clerical jobs will be eliminated.

IBM has a reading machine that can scan 1,800 words a minute and automatically operate a teleprinter for long-distance transmission of its messages. A scanner in use by a New Jersey utility company does the work of 24 key-punch clerks. RCA has an electronic-systems center in New York that provides daily individual processing of stock exchange transactions such as brokerage commissions, taxes, and customers' balances. The center can also calculate the payroll for a business enterprise, including salaries, fringe benefits and social security.

Automation is moving rapidly into industries in which information-handling or accounting play important roles.

The U. S. Treasury uses a computer to keep track of 350 million checks a year. The machine replaces 450 clerical employees and rents for $900,000 a year ($2,000) for every employee replaced.

Sylvania Electric Products--computer processes a 26,000 weekly payroll in 25 minutes, calculating regular pay, overtime, absences, late-to-work adjustments, withholding taxes, union dues, social security, bond purchases, pension deductions, etc. United Air Lines--provides president with an up-to-date profit and loss statement every morning.

The number of new jobs that must be created every year if full employment is to be reached and maintained includes not only the number of new workers expected to enter the labor force, but also those who will be displaced by automation.

The National Planning Association recently calculated that this year the same level of production as in 1961 can be maintained with 1.8 million fewer workers. The U. S. Department of Labor estimates that in the next ten years 26 million workers will enter the job market; 2.6 million a year. Thus 4.4 million people will be added to the jobless rolls if new jobs are not created for them by economic growth.

Those who have the most to lose from automation are the least worried--the personnel in the offices of American industry where automation is making great strides.

Why? Typically, most clerks are women who consider their jobs temporary; married ones supplement family income until husbands get a raise; unmarried ones are waiting for a proposal. Relatively few are dependent entirely on their clerical jobs and fewer still plan to spend their lives in offices.

Most Bureau of Labor Statistics studies show few lay-offs. These studies cover the effects of automation introduced during periods of prosperity and expanding employment. Permanent reductions in the work force due to technological changes are often postponed until a general business downturn permits the lay-offs to be blamed on the "depression" or "recession."

Since businessmen are sensitive to the public relations effects of lay-offs, some university research investigators have voiced the suspicion that they have had easier access to data in those firms where the introduction of automation coincided with increased employment.

A changeover to office automation usually takes longer than in the factory. The continuity of office operations cannot be interrupted and the data of the old arrangement usually cannot be transferred directly to the new system. The changeover involves several distinct states during which time at least three separate work forces are needed:

1. One to continue the old system.

2. One to convert records and procedures to the new system.

3. One to initiate and operate the new system.

This may take anywhere from one to four years. Consequently automation has been proceeding slowly enough to allow normal turnover to disguise its effects.

IMPACT OF AUTOMATION AND TECHNOLOGICAL CHANGE ON EMPLOYMENT AND UNEMPLOYMENT--
Prepared for use by State Employment Security Agencies; U. S. Department of Labor; Bureau of Employment Security, September, 1961.

During the present decade a rise of about 25% is expected in clerical and sales workers. The number of skilled workers may rise somewhat faster than average, while semi-skilled and unskilled workers will find relatively fewer job opportunities. There will be an increased demand for highly trained people.

Automation and technological changes may create new operations and raise the skill levels of others. Professor Walter S. Buckingham, Director, School of Industrial Management, University of Illinois, points out that "The effects of automation may be simultaneously to enlarge and upgrade some jobs and further specialize, trivialize, and downgrade others even in the same plant. . . The kinds of jobs affected by automation are frequently those that are most routine, simple, and repetitive. Semi-skilled workers who are machine operators, routine assemblers and fabricators, and clerical workers are the most vulnerable."

In banks, insurance companies, and other firms with large accounting functions and mainly young women workers "the number of jobs is most likely to shrink since electronic computers sharply decrease the need for clerks. There will probably continue to be openings for secretaries in law, real estate, insurance, and business in general, but there will be increased skills requirements."

Mr. Eli Ginzberg points out, "Alterations will occur in the nature and type of the work that people will perform with increasing emphasis on attention to detail, greater individual responsibility, less intimate contact with fellow workers, and more professional supervision."

Mr. Ginzberg believes that the groups "most vulnerable to the adverse consequences of automation are:

1. "Skilled workers who have passed the age where they can be readily retrained.

2. "Young workers who had previously held positions as operatives whose aptitudes and education do not make them desirable candidates for retraining.

3. "Part-time workers who used to supplement the family's income by working at peak periods of the year.

4. "Mature women, very large numbers of whom have in the past been employed in routine clerical operations."

Howard Coughlin, President, Office Employees International Union, AFL-CIO, believes that office jobs should be watched during the next years. "In the past few years, automation has affected offices with large staffs. Due to expenses involved, it is not economical to use this equipment in small places. Development of small size computers and ability by a firm to rent time on a computer will affect the lives of clerical workers in establishments employing only a relatively few such workers." In addition to replacing traditional clerical jobs, new developments in the field of electronic data processing equipment are eliminating some of the new jobs. Automatic insertion of impact data into a computer "will eliminate need for

equipment such as coders, key punch, sorter, and card-to-tape converters."

The elimination of any clerical jobs by automated machines has implications for business education courses in high schools. An article in Computers and Automation magazine states that "bookkeeping duties have been reduced to clerical tasks in many large offices, and bookkeeping probably will not survive in its present form; principles will largely take precedence over practice in bookkeeping classrooms. Typists will be upgraded and they will assume duties of stenographers; shorthand will decline as a vocational use subject. Typists will . . .type from information that has been dictated to a transcription machine. . .all business courses will be affected by electronic data processing to some extent, and both teachers and students should probably familiarize themselves with the principles that are basic to electronic data processing. Training in fundamentals. . .is going to be the best kind of training for the workers in a mechanized office. Students are going to have to be more responsible, able to think for themselves, and have a more solid foundation in logic and mathematics."

Professor William A. Faunce, University of Michigan, says that "the anticipated rate of growth in the size of the labor force during the next decade makes it imperative that we have more adequate information regarding the structure of job opportunities during the period. Insuring that there will be job opportunities which exist is a major challenge to our economic, political, and educational systems.

"There is a need for considerable flexibility in the labor force today both in the sense that workers should be able to perform a wide variety of tasks and in the sense that they should be able to move to areas where job opportunities exist. Structural unemployment is more apt to be confined to particular types of workers, who are least flexible in terms of employment possibilities.

"Many studies indicate that semi-skilled and unskilled workers will have an increasingly difficult time getting employed. Retraining is one solution most often proposed. Most of these proposals are based on the apparently erroneous assumption that automation results in an upgrading of the work force in companies introducing thi equipment. Most case studies do not suggest that automation has created skilled jobs in any substantial number.

"It is very likely, however, that there will continue to be shortages of skilled workers of various sorts. The collection of information regarding these job opportunities and training of people to fill them is and should be increasingly a public responsibility."

Johnson, Richard A., "Office Workers - How will Automation Affect Their Careers?" Advanced Management-Office Executive, February, 1962. (Mr. Johnson is Associate Professor, Department of Policy, Personnel, Production, at the College of Business Administration, University of Washington, Seattle)

The advent of automation in the office is inevitable. Factors supporting this contention are:

1. The cost of data processing has become a significant part of total company operating costs.

2. Sophisticated data processing systems are necessary to consolidate the flow of information and data as companies increase in size and diversity of operations.

3. Reducing the time required to process data makes possible better service to the customer.

4. Accuracy in processing data is very important.

Conversion of office procedures to automatic machines will proceed slowly. Most companies realize that the computer is a refined tool which is valuable only within the limits of man to plan and utilize its potential.

Automation will mean drastic changes for many individuals. It will affect the demand for office workers, the skills required, the composition of the office force, the wages, the need for training, and the length of the work week.

Automatic machines are practical only if they displace labor, reduce the per unit labor cost, or make possible some desirable result that cannot be accomplished in any other way. We must accept the fact that machines will replace workers.

The office worker of the future will be a person interested in making a career of this kind of work--a person willing to learn new skills required in the automated office.

The skill of office workers will be upgraded. Machines will do the routine repetitive jobs, leaving the worker to become more creative. This trend will require training of workers in new skills and techniques. The unskilled worker, the older worker, and the female worker who is not interested in making office work a career will find it more difficult to maintain a job in the office of the future.

Kerr, Clark, President, University of California, Statement made at the Governor's Conference on Automation, Los Angeles, November 28, 1961.

President Kerr said that there are "Two Faces to Automation"--Progress and Costs of Progress.

Automation is the replacement of man by self-directing mechanisms. Automation is not new. It has been going on since the Industrial Revolution. However, today the rate of change is faster and the speed will increase.

The impact is more drastic on job skills. From 1948 to 1961 production workers in manufacturing dropped 1.5 million workers. In supervisory skills (clerical and other non-production) the workers increased 1.5 million, with the greatest increase in the professional and technical areas.

Automation poses some very real problems for the nation and also for individuals The nation needs the fullest utilization of its manpower. The individual often has the problem of changing jobs when he is least able to because he is too old or too young, he is a member of a minority group, or he is unskilled.

He said that progress has come with increased productivity which is based in part on technological change including automation. This technological change has resulted in more leisure time, greater personal income, and in national growth due to research.

The costs of progress must be measured in terms of both public and private costs. Private costs are measured in unemployment, the adjustment of new skills, and adjustment to new environment. Public costs are measured in the failure to utilize manpower.

Some examples of costs in terms of public costs include funds for providing for the following: (1) full employment must be attained (not more than 3% unemployment); (2) job skills must be developed through vocational guidance and vocational training through schools, colleges, and universities as well as employment services; (3) unemployment benefits must be continued during the job retraining period; (4) basic education must be continually improved; (5) costs of transferring people from one job area to another must be paid.

Some examples of costs in terms of private costs include the following: (1) business must give advance notices whenever jobs are being changed or discontinued; (2) every attempt must be made to time job replacement with attrition; (3) transfer costs and transfer rights and seniority must be considered; (4) assistance should be given in placement.

OCCUPATIONAL OUTLOOK HANDBOOK--1961, U. S. Department of Labor, Bureau of Labor Statistics

Clerical workers-- 1950-1960--grew 30%
1960-1970--estimated growth of 26%

Skill requirements will rise.

Clerical and Sales Occupations:
2/3 of all clerical workers are women.
1/3 of all women who have jobs do clerical work.
1 out of every 4 clerical workers in 1960 was a stenographer, typist or secretary.

Qualifications--
High School graduation
Business education
Work experience education valuable
Employer tests
Other helpful skills and qualities-- ability in arithmetic, spelling, grammar, reading comprehension, ability to get along with other people.

Turnover is high-- 1958--1 out of every 4 positions became vacant during the year.

Secretarial, stenographic, typists positions--

Perhaps 3 out of 10 of the clerical jobs which will be created during the next decade will require this training. Employment is likely to rise faster in stenography and secretarial than in other clerical jobs.

Typists positions will rise but less rapidly than stenographer positions because of the likelihood of increased use of duplicating and other office machines will eliminate much routine typing.

Additional jobs expected in:

1. Bookkeeping and accounting clerk, order clerk, shipping receiving clerk and mail clerk.

2. Office machine operators--demand will rise fast. Especially for operators of electronic equipment.

The rise in employment would be greater than estimated if it were not for the increasing use which will be made of mechanical equipment.

The greatest impact of automation in the next ten years will be on the office workers who handle a large volume of routine and standardized paper work.

Mechanization in both large and small offices is unlikely to have any material effect on the work of secretaries, receptionists, or people responsible for collecting bills and handling complaints, and of other office workers whose duties bring them in contact with the public and require them to use initiative and judgment.

Ribicoff, Abraham, Secretary, Health, Education, and Welfare, Statement made at Hearing before Sub-Committee on Employment and Manpower--Manpower Development and Training Act of 1961, June 7, 1961.

In Detroit with nearly 12% of its labor force out of work, Employment Service reported job openings for highly trained specialists--electronic computer and machine bookkeeping systems specialists.

. . .Due to automation and rapid technological advances, and other changes in the structure of our economy, large numbers of unemployed workers have had their skills made obsolete. Other workers need to have their skills improved and upgraded.

This technology is . . . .creating vast changes in machines, production methods, workflow, office procedures, manpower requirements, labor skills, and industrial vocations.

Employment opportunities have increased appreciably in retail and wholesale trade, finance, insurance and real estate. Indications are that these were not suitable job alternatives for many displaced factory production and maintenance workers, railroad workers and miners who often lacked the basic educational equipment and vocational skills necessary to enable them to shift to other jobs.

The following steps are necessary in the training program: (1) Provision for professionally trained counsellors; (2) assessment of employment prospects in field for which the person is best suited for training; (3) determination of the kind of training best suited for the individual situation.

Wood, Helen, "Trends in Clerical Employment." Business Education World, November 1961. (Miss Wood is Chief, Occupational Outlook and Specialized Personnel Bureau of Labor Statistics, United States Department of Labor)

Clerical employment has increased in the U. S.--1910, 1 in 20 workers in a clerical occupation; 1940, 1 in 10; 1950, 1 in 8. Since 1950 the clerical force has grown more slowly but it is still increasing faster than the work force as a whole. Today, 1 in 7. 10 million clerical workers.

Will business expansion and the ever-mounting volume and increasing variety of paper work continue to outweigh the depressing effects of technological change on office employment?

The forces which make for expansion in our economy are very strong.

Industries that provide services include insurance, finance, insurance and real estate; trade ;professional, recreational and business services; state and local government. These industries use exceptionally large numbers of clerical workers.

Employment of office workers has been increasing in manufacturing, and a larger proportion of the employees on manufacturers' payrolls are white collar workers than was true twenty years ago.

It is our present conclusion that clerical employment as a whole will continue to increase at a rate somewhat faster than that of the labor force as a whole during the 1960's.

The detailed studies of the trends in different occupations made by the Bureau of Labor Statistics in connection with its occupational outlook program suggest an increase of about one-fourth in clerical employment between 1960 and 1970--roughly the same rate of increase as is projected for proprietors and managers as a group, for skilled workers, and for service workers. Professional and technical personnel are the only occupational group expected to increase at a significantly faster rate --probably 40%.

Factors expected to underlie the continued increase in clerical employment include the expected rapid expansion in trade, finance and other industries with large clerical forces already referred to, plus the constantly mounting volume of record keeping and other paperwork resulting from the ever-growing size and complexity of modern business organization and present-day government.

Manufacturing will probably continue to be the largest employer of clerical workers --half million over the decade. Wholesale and retail trade--800,000. Large increase in service industries, finance, insurance, real estate, government, transportation and public utilities.

Altogether--increases in clerical work force may add up to over $2\frac{1}{2}$ million bringing the total number of clerical workers to 12 million by 1970.

These figures do not include allowance for new workers who will need to be recruited and trained to replace those who retire or leave their occupations. Two out of three clerical workers are women. Replacements in occupations employing large numbers of women are high. Replacement needs are a continually large source of jobs

for clerical employees.

Even if clerical employment should decline there will continue to be large numbers of openings in many of the big office occupations.

Great numbers of secretaries and stenographers will continue to be needed. A good many typists will be needed. (Practicable machine that will turn dictation directly into finished manuscripts is a long way off.)

Even with new methods of duplication it seems unlikely that within this decade they will do more than reduce the rate of growth in demand for typists.

Key punch--punched cards used for many purposes. Increasing demand for key punch operators for different purposes for which punched cards are used.

Operators of bookkeeping and other office machines--good many openings.

Continual changes in the nature of office machines may be expected--and business educators will be expected to provide students with the needed background on new developments.

It is important to help young people interested in office work to get as good a general education as possible, in addition to training them in specific office skills. In this decade they will need to be trained more broadly and thoroughly than ever before, in order to give them the adaptability required to meet changing employment conditions.

Stiff competition is likely do develop in many entry occupations, including the lower-level clerical jobs. This prospect underlines the need for good educational preparation of today's students, who will make up the oncoming force of new workers. The better an individual's education and training, the greater his chances of surmounting the competition and technological changes ahead and achieving a satisfactory work adjustment.

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A Study of the Relationships Between Employment Opportunities and Vocational Education Programs in Columbia County, Oregon.

Oregon Univ., Eugene. Bureau of Educational Research
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Pub Date - Jul65 155p.

*EMPLOYMENT OPPORTUNITIES; *VOCATIONAL EDUCATION; HIGH SCHOOLS; *PROGRAM EVALUATION; OCCUPATIONAL SURVEYS; SURVEYS; HIGH SCHOOL STUDENTS; EDUCATIONAL INTEREST; EMPLOYMENT PROJECTIONS; ECONOMIC FACTORS; LABOR FORCE; ADMINISTRATOR ATTITUDES; VOCATIONAL FOLLOWUP; TEACHER ATTITUDES; SCHOOL LIBRARIES; VOCATIONAL EDUCATION TEACHERS; OCCUPATIONAL GUIDANCE; EUDCATIONAL FACILITIES
COLUMBIA COUNTY; OREGON

The purpose of the study was to examine the existing vocational education programs of the five high schools in the county and their relationships to occupational opportunities available to Columbia County youth. Data to determine employment distribution and occupational needs were obtained from the Oregon Department of Employment for all major nonagricultural industry divisions, second quarter of 1964, and a sampling of employers in each major industrial division. The sample accounted for approximately 50 percent of the total employment in each division. Employers completed a report form providing present and previous employment information. Each school principal was contacted for information about vocational programs. Vocational education courses were offered in areas of trade and industrial education, business and office education, home economics education, and vocational agriculture education. There were no offerings in distribution education. The greatest need for employees in 2 and 5 years would be in skilled, clerical, sales, and service occupations. The philosophies of the five school districts indicated that vocational education had a minor role in the central purpose of the schools. In general, vocational education in Columbia County had little relationship to current and projected employment needs within and around the county. Recommendations included (1) Establishing an area vocational school, (2) Updating the curriculum and the vocational library, (3) Educating for jobs outside the county, and (4) Establishing a vocational guidance program and a placement program. (SL)

ED 027 434

A Study of the Relationships Between Employment Opportunities and Vocational Education Programs in Columbia County, Oregon

BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon
Eugene, Oregon

July, 1965

A STUDY OF THE RELATIONSHIPS BETWEEN EMPLOYMENT OPPORTUNITIES AND VOCATIONAL EDUCATION PROGRAMS IN COLUMBIA COUNTY,

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

Boyd Applegarth

and

Lawrence D. Fish

BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon
Eugene, Oregon

July, 1965

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Chairmen and Members of the
Boards of Directors, and
School Administrators of
Columbia County, Oregon

Submitted herewith is the report of the comprehensive study of the vocational education programs in Columbia County high schools made by the staff of the Bureau of Educational Research of the University of Oregon.

It is a wise practice for any school district to assess periodically its programs and procedures. The potential for population and industrial growth in Columbia County and the need for qualified workers in our modern society make this a propitious time to assess vocational education. The administration and boards of directors of Columbia County are to be commended for taking such action at this stage of the county's development.

In connection with this study it has been necessary to seek the assistance of a large number of people. We are indebted to the county superintendent and the superintendents, principals and some staff members of the five participating high schools. We are also indebted to many students for their cooperation in the study. Representatives from the Community Manpower Programs of the Oregon State Department of Employment and employers in the county have also contributed valuable service. We are grateful to all who assisted in making this survey possible.

We appreciate the opportunity to be of service to you. If we can be of any further assistance, please call on us.

Sincerely,

P B Jacobson

Paul B. Jacobson, Dean
School of Education

PBJ:aa

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INTRODUCTION

There are five school districts in Columbia County serving high school age students: (1) Union High School District #5J, Clatskanie; (2) Union High School District #3, Rainier; (3) Union High School District #4JT, Scappoose; (4) District #502, St. Helens; and (5) District #47J, Vernonia. The school boards and chief school administrators of these districts, alert to the social and technological changes of a dynamic society and the potential for population and industrial growth in Columbia County, contracted with the Bureau of Educational Research, University of Oregon, to conduct a study of the existing vocational education programs in the five high schools in the County and their relationships to occupational opportunities available to Columbia County youth.

The salient features of the contractual arrangements called for an examination of the economics of Columbia County, the job opportunities and potential manpower resources within the County and a treatment of the current high school vocational education programs and facilities.

This report is a result of that study.

Definition of Terms

The recent interest and attention devoted to vocational education in the United States has contributed to the emergence of numerous terms and definitions. The following definitions, as used in this report, are provided in order to improve communication and encourage continuity of interpretation:

Industrial Arts. A part of the general education of youth designed to orient the student to the nature and problems of industry and our technological society. Exploratory in nature, industrial arts is concerned with tools, materials, processes, products and occupations in the world of work. It is pre-vocational as English and mathematics are pre-vocational.

Vocational Education. All formal instruction and training for students at the high school level which prepares them for entrance into and advancement within an occupation or group of related occupations. Vocational education does not refer to instruction leading directly to a baccalaureate or professional degree.

Technical Education. A part of the natural continuum of vocational education. Technical education calls for a more rigorous science and mathematics background and requires more exacting skills than vocational education.

Area Vocational School. A school that has two outstanding characteristics: (a) it is vocational in nature, providing training which leads to employment in specific occupations; and (b) it serves students of more than a single community or local school district.

Work Experience Programs. Students are released from class time during the school day to work in related occupations in business and industry. Close cooperation exists between the school and the work place.

Apprenticeship Training. Combines training on the job with related technical instruction at school. The apprentice is a full-time employee who has graduated from high school. The training is conducted under a written program of training standards agreed to by employers, journeymen and apprentices in accordance with federal and state laws. The program provides the beginning worker with the basic skills necessary for economic success in his craft.

CHAPTER I

GENERAL DESCRIPTION OF COLUMBIA COUNTY

Columbia County, located in northwestern Oregon, has a total land area of 64C square miles and a population of 24,213.[1] Geographic characteristics of the county include the low mountainous Coast Range in the southern and western regions, which diminishes eastward into a series of rolling hills interspersed with shallo valleys. The lower stretches of the Columbia River serve as the northern a d eastern borders of the county The plai adjacent t the Columbia River v ries in width up to five miles and contains a number of large, generally low-lying islands and diked lands. Elevations range from a few feet above sea level to approximately 2,000 feet on some of the mountain ridges.

The political boundaries are contiguous with Clatsop County to the west, and Washington and Multnomah Counties to the south and southeast. The city of St. Helens, serving as the county seat of Columbia County, is approximately 30 miles north and slightly west of Portland, Oregon.

Southwestern Columbia County is drained by the Nehalem River and its tributaries. The Columbia River and its tributaries provide drainage for the remainder of the county.

Columbia County's climate is generally mild, uniform and relatively humid. The average rainfall is between 40 and 50 inches per year. The measured snowfall is one of the lowest in the state. Temperatures occasionally drop below freezing in some areas of the county during three or four months of the year, but never exceed a high of 100 degrees Fahrenheit.

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[1]Oregon State Board of Census Estimate, July, 1964.

Transportation

The most important transportation facilities available to Columbia County are highway and water facilities.

Highway. The principal highway providing east-west mobility is Highway No. 30 which roughly parallels the south bank of the Columbia River and leads to coastal ports and communities in western Washington and Oregon. Approximately 30 miles southeast of the County, Highway No. 30 enters the Portland Metropolitan Area and connects with multilane highways that unite all parts of the Pacific Northwest, California and other sections of the United States. Highway No. 47 supports north-south traffic in the County and connects Highways No. 30 to the north and No. 26 to the south. There are at least seven other paved roads that complete the county road net.

The Bureau of Municipal Research, University of Oregon, is presently conducting a study of the existing and needed road net in southeastern Columbia County -- between Columbia City and Scappoose. This area has been selected by the Columbia County Planning Commission and the City Planning Commissions of St. Helens and Scappoose because it is believed future industrial and residential expansion will probably be concentrated here. Highway No. 30 is the major artery for transportation and must be considered as an axis of future industrial development.

Water. The Columbia River continues to be what is probably the most important inland waterway in the Pacific Northwest. Its geographic location and channel depth permit deep-draft vessels access to the Portland-Vancouver area and allow shallow-draft river tugs to operate hundreds of miles upstream from Portland, and south towards Corvallis, Oregon.

Columbia County, positioned on the lower Columbia River and claiming 55-60 miles of river frontage, is in a strategic position to take advantage of and

contribute toward any future increase in river traffic through the development of industrial plant sites that employ deep-draft channel facilities.

Population

The population of Columbia County has been characterized by a steady and sharp increase from 1900 to 1930; a consistent, but slower rate of growth from 1930 to 1950; and a slight decline from 1950 to 1960. The period from 1960 to 1964, however, indicates another upward turn, resulting in a population of 24,213 for July, 1964, which exceeds the previous high of 1950. (See Figure I.)

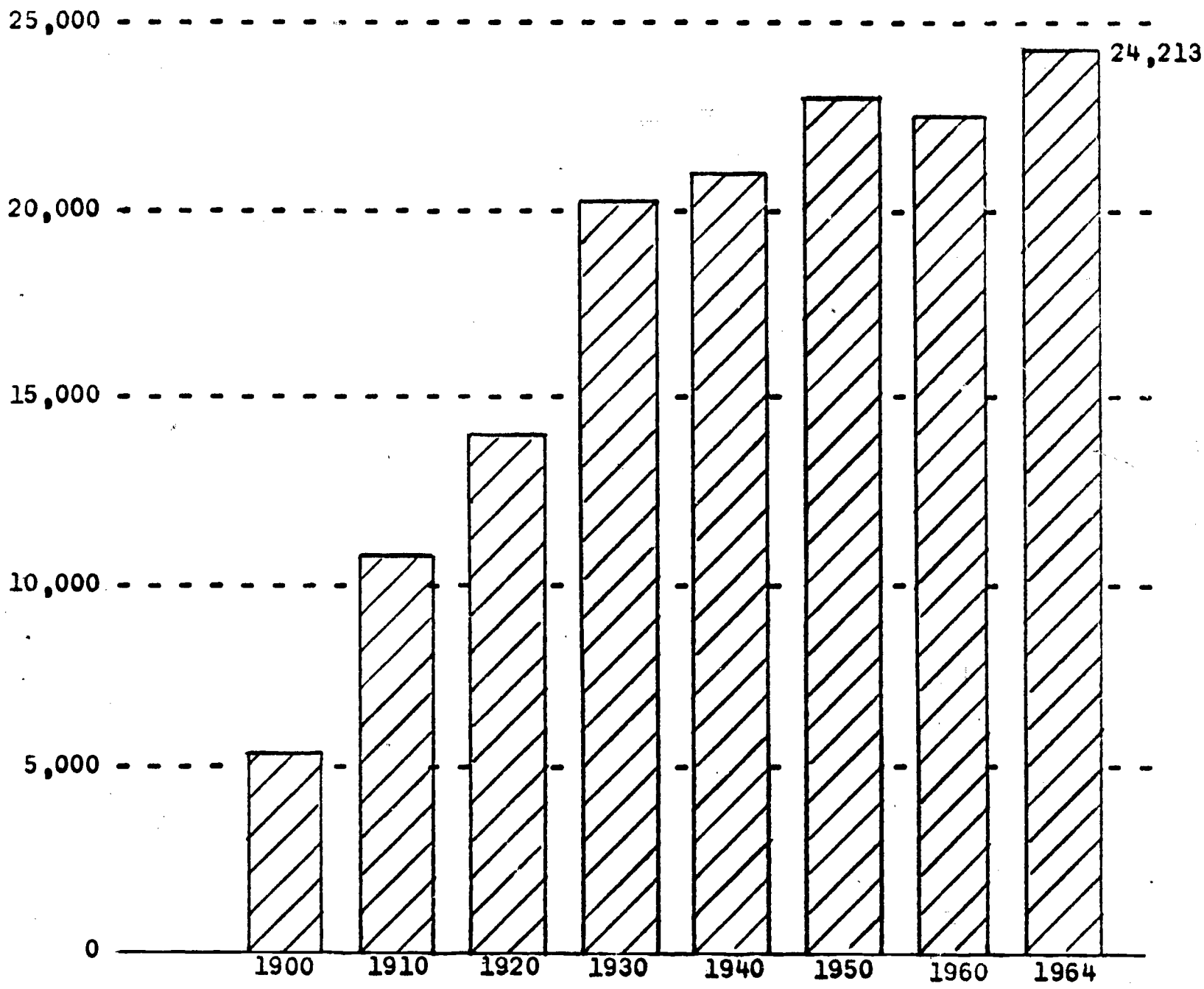
Within Columbia County 57 percent of the 1960 population (some 13,000 persons) were living in or around the cities of St. Helens and Scappoose. In 1960 St. Helens had a population of 5,022, and an additional 4,800 persons lived on the fringes of the city, in Columbia City to the north, or in close-in rural areas. Scappoose had a population of 923 in 1960, and around 2,000 persons lived in the immediate area outside the city. Although the total population of the county declined by 588 persons or -2.6 percent in the decade between 1950 and 1960, the population in the St. Helens-Scappoose area increased by approximately 2,000 persons. Table 1 shows the population of the five largest cities of the county for the period 1940 to 1960.

Table 1.

POPULATION OF FIVE LARGEST CITIES IN COLUMBIA COUNTY
1940-1960

Year	Clatskanie	Rainier	St. Helens	Scappoose	Vernonia	Columbia County	State
1940	708	1,183	4,304	336	1,412	20,971	1,089,684
1950	901	1,285	4,711	659	1,521	22,967	1,521,341
1960	797	1,152	5,022	923	1,089	22,379	1,768,687
1964	-	-	-	-	-	24,213	1,906,000

Source: U. S. Bureau of Census, 1960.



Source: U. S. Bureau of the Census, 1960, and Oregon State Board of Census

Figure I. POPULATION GROWTH BY DECADE, COLUMBIA COUNTY, OREGON, 1900-1960 and 1964

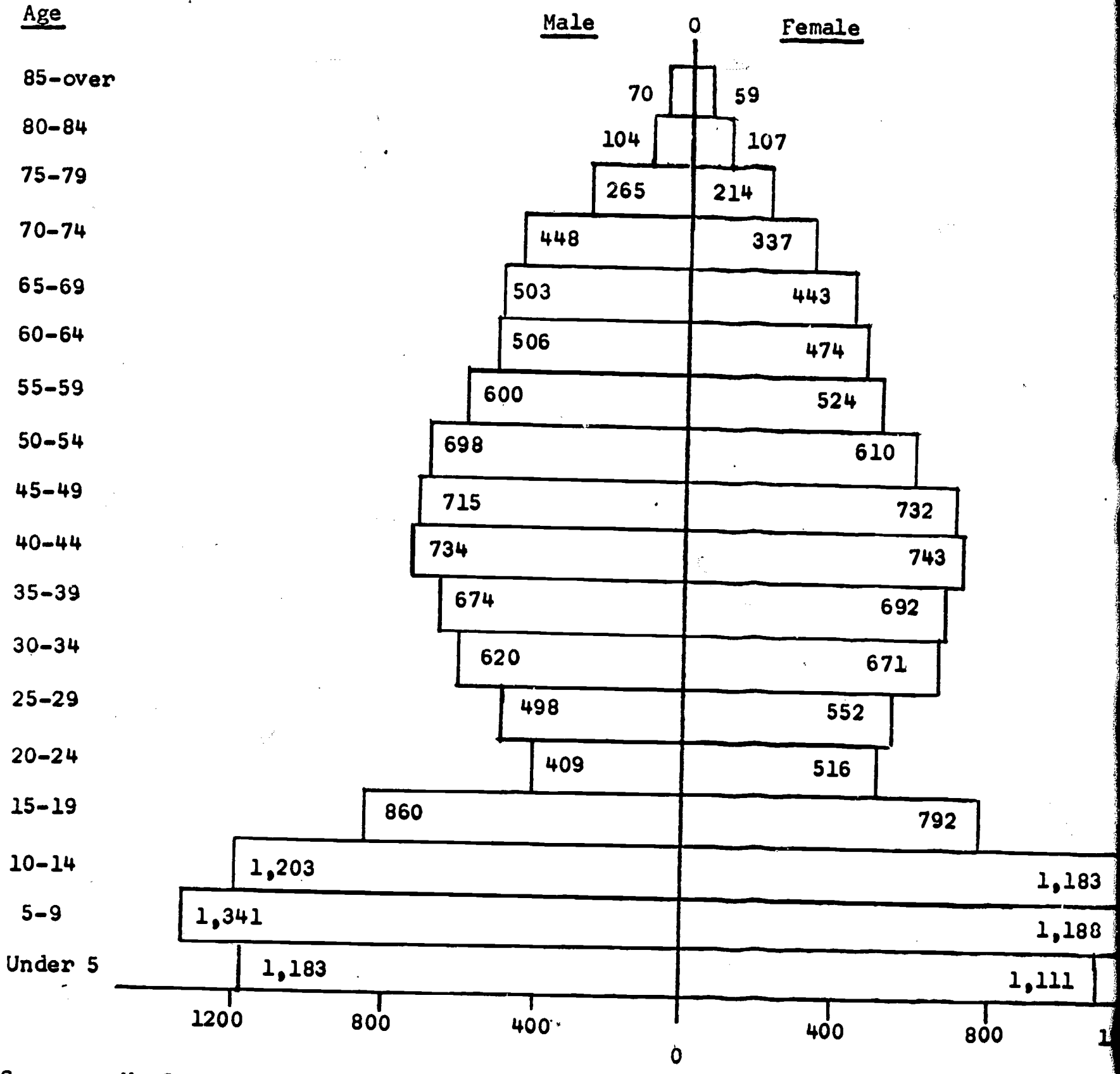
Table 2

DISTRIBUTION OF THE POPULATION BY AGE GROUP
COLUMBIA COUNTY AND STATE OF OREGON - 1960

Years of Age	Male	Female	Total	Percent of Total	Oregon	Percent of Total
Under 5	1,183	1,111	2,294	10.2	185,454	10.5
5-9	1,341	1,188	2,529	11.3	188,225	10.6
10-14	1,203	1,183	2,386	10.7	171,610	9.7
15-19	860	792	1,652	7.4	130,131	7.4
20-24	409	516	925	4.1	96,452	5.5
25-29	498	552	1,050	4.7	95,646	5.4
30-34	620	671	1,291	5.8	107,932	6.1
35-39	674	692	1,366	6.1	118,527	6.7
40-44	734	743	1,477	6.6	116,883	6.6
45-49	715	732	1,447	6.5	114,227	6.5
50-54	698	610	1,308	5.8	99,601	5.6
55-59	600	524	1,124	5.0	85,442	4.8
60-64	506	474	980	4.4	74,904	4.2
65-69	503	443	946	4.2	66,994	3.8
70-74	448	337	785	3.5	53,582	3.0
75 and over	439	380	819	3.7	63,097	3.6
1960 Total	11,431	10,948	22,379	100.0	1,768,687	100.0
Under 18 years	4,330	4,069	8,399	37.5	630,627	35.7
65 and over	1,390	1,160	2,550	11.4	183,653	10.4
Median age	31.8	31.0	31.4	-	30.8	-

Source: U. S. Bureau of Census, 1960.

Columbia County is not unlike the State of Oregon in its distribution of the population by age group. Table 2 above states that the difference in percent of total population for each five-year age group between the County and the State is within one percent in all age brackets except the 20-24 year category. Columbia County records 4.1 percent of the total population in this group; Oregon is somewhat higher with 5.5 percent. The 20-24 year group is particularly important to a community or county in that it represents a singular segment of the youth and labor force. Men in particular are beginning a career and developing a trade. Young



Source: U. S. Bureau of the Census, 1960.

Figure II. POPULATION DISTRIBUTION BY AGE AND SEX, COLUMBIA COUNTY, OREGON, 1960.

persons of this age group are raising a family and providing a core of workers upon which a community can grow and prosper. It is also a time when post-high school education, military service, and employment in areas external to the County draw them away.

Figure II, a graphic presentation of the population distribution by age and sex for the County, emphasizes the reduced number of persons in the 20-34 age groups. The "pinched in" image is most severe for the 925 persons in the 20-24 group. The population starts to "grow" by age group beginning with the 25-29 category until constriction occurs again in the 45-49 year old category. No post-high school age classification is as large as the 15-19 group. The sharp decrease represented by the 20-24 group is never completely recovered.

The County population is again growing after a minor recession. Most of the population is found in the St. Helens-Scappoose area in the southeastern section of the County. Thirty-seven percent of the 1964 population resides within the five largest cities of the County. The population distribution by age and sex is similar to that of the state of Oregon.

The population growth in any county is determined largely by the opportunities the county affords to earn a living. Some of the factors that affect employment and assist in the assessment of the overall economy of Columbia County are treated in the following pages.

CHAPTER II

ECONOMICS OF COLUMBIA COUNTY

The economic base of Columia County is primarily dependent upon the manufacturing industry as it relates to lumbering and wood products, paper and allied products, wholesale and retail trade, agriculture and services. The proper balance among those factors contributes to the economic stability of the County.

Forest Resources

The logging and sawmill operations in Columbia County were among the earliest and most concentrated in Oregon. From approximately 1910--when the railroad provided impetus to logging throughout the County--until the mid-1930's logging reached its period of highest productivity. In 1927 a peak was reached when 527 million board feet of logs were cut. Average annual production during the years 1925-1929 was 505 million board feet. By the early 1940's the County had, in effect, been logged out. Log production in 1945 was reduced to 77 million board feet and in 1950 reached a low of 54.5 million board feet.[1] Forest fires, uncontrolled cutting, agricultural use of cutover land, and public indifference contributed to the severe reduction of logs produced during the years 1930-1950 and, concomitantly, slowed regeneration of some forest areas of the County. However, in recent years, with improved fire control, abandonment of agriculture on cutover timber land, and a public realization of the need for conservation and reforestation, nearly all of the forest land is now producing second growth timber.

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[1]U.S. Forest Service, Forest Statistics for Columbia County.

Lumber production has not experienced the fluctuations that characterized the production of logs. During the years of high log productivity, Columbia County exported logs to nearby Clatsop and Multnomah Counties. In recent years, marked by reduced log productivity, substantial lumber production has been maintained largely by importing logs from out-of-county sources. Inexpensive water transportation has enabled local sawmills to maintain a reasonably steady supply of logs. During the years 1940-1945, when Columbia County log production had fallen to 15 percent of its previous high, the sawmills, through importation, were able to maintain 88 percent of their productivity.[2]

The forest industry in Columbia County is in a transitional period. Harvesting of some second growth timber has begun. Comparisons between the volume of old and new growth timber during selected inventory years, presented in Table 3, is indicative of change in Columbia County forest resources.

Table 3

INVENTORY OF LIVE SAW TIMBER IN COLUMBIA COUNTY: 1932, 1938, and 1954
(millions of board feet, log scale, Scribner rule)

Year of Inventory	Volume of Old Growth Timber	Volume of Young Growth Timber	Total Volume
1932	2,161	654	2,815
1938	1,299	502	1,801
1954	86	2,320	2,406

Source: U.S. Forest Service, Pacific Northwest Forest and Range Experiment Station

[2]U.S. Forest Service, Forest Statistics for Columbia County.

The total volume of 1954 had nearly achieved that of the 1932 inventory which was made near the end of a period of peak logging activity. However, the significant difference is the volume of young growth timber found on restocked cutover land or on restocked burn areas.

The characteristics of saw timber in the County have changed in a manner that has significance for Columbia County.

> The major portion of the old growth Douglas fir in the county shown in the 1932 inventory was of large, slow-growing, fine-grain timber which provided a high percentage of the higher grades of lumber and was a source of large-diameter peeler logs for the early plywood industry. The young growth timber comprising a large part of the 1954 saw timber inventory was a fast-growing, coarse-grained timber suitable for dimension lumber, ties, and common boards. Some of it will undoubtedly be utilized for pulp and some of the larger young timber can be peeled for sheathing grade plywood.[3]

The Forest Service estimates that the rapid upward trend in log production is likely to continue. Considering present trends in forest management, and as present pole timber stands grow into saw timber size, an annual cut of around twice the present production could probably be sustained. Thus log production will increase by about 100 to 110 million board feet.[4] The forest industries employ an average of 8.7 persons per million board feet of logs consumed and in 1955 had an average annual payroll of $41,000 per million board feet of logs consumed. At these figures, an additional 900 to 1,000 persons might be employed in the forest industry in Columbia County if all logs produced here were utilized in the county. The number of employees per million board feet of logs consumed varies considerably between sawmills and veneer and plywood plants and also with the capacity of the sawmill. The above employment figures (which are based on

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[3]Population, Economic Resources and Land Use - St. Helens and Vicinity. A Report to the City of St. Helens, Columbia County, Port of St. Helens, and School District No. 502-C , Prepared by the Bureau of Municipal Research (Eugene: University of Oregon, 1959),pp. 16-17.

[4]Estimates made by the Pacific Northwest Forest and Range Experiment Station.

calculations for Lane County, Oregon) should therefore be taken as indicative and only an approximate relation between production and employment.[5]

Columbia County is one of the few counties in western Oregon in which most of the forest land (92 percent) is in private ownership. The remaining 8 percent is owned by public agencies. The privately held forests are concentrated in the hands of a few large companies which had converted 40 to 50 percent of that land into tree farms. Proper management and controlled cutting by the major land holding corporations will insure judicial consumption of the present and future timber supply in the County.

The U.S. Forest Service has recently restudied the national timber supply and demand situation. Based upon specified assumptions of economic and social conditions and use of wood in construction, projections were made of the outlook for timber demand in the year 2000. Prospective demand for lumber is expected to increase from 37.3 billion board feet in 1962 to 53.5 billion feet by 2000, of which 81 percent will be softwoods, and net imports will be 7 billion feet. Prospective demand for plywood and veneer use will rise from 12 billion square feet (3/8 inch basis) in 1962 to 31.5 billion feet in 2000.[6] Columbia County can be expected to produce or process an increasing share of the timber to meet this rising demand.

Agriculture

Livestock farms, poultry and dairy farms, vegetable, grain, and fruit and nut farms are represented in the agricultural operations of Columbia County. Most of the farms are concentrated in the southeastern portion of the County around St.

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[5]Population, Economic Resources and Land Use - St. Helens and Vicinity, p. 19.

[6]Forest Resources and Forest Industries for Northwest Oregon (Portland: Pacific Northwest Forest and Range Experiment Station, December, 1964), p. 43.

Helens and Scappoose, with smaller farms located in the Nehalem Valley and the Clatskanie dike lands. A sprinkling of farms exists throughout the County.

The number, acreage, average size and value of farm products declined between 1950 and 1954. By 1959, the average size and the value of farm products had increased over 1954.

For the purpose of correlating agriculture in Columbia County with vocational education in the schools and employment opportunities, it is necessary to focus attention on the commercial farms as opposed to subsistence farms. Commercial farms hold the potential for employment and generally justify in part, programs of vocational agriculture in high school curricula. Table 4 shows that farm operators from 168, or 46 percent, of the 362 commercial farms found it necessary to work off their farms in 1959. Of the 168 who worked off the farm, 131 or 78 percent worked away from the farm for 100 or more days. One hundred and thirty-six, or 38 percent, of the commercial farm operators reported that their other family income exceeded the value of the agricultural products sold. Not only did 46 percent of the farm operators work away from the farm, but 81 percent of that number reported that off-farm income exceeded farm income.

A sharp decrease in the number of farms reporting hired workers existed between 1954 and 1959. The total number of hired workers dropped from 701 to 149, while regular workers (those employed 150 or more days per year) increased from 57 to 84 for the same period. Fewer farm workers were employed, but more gained "regular" status.

Agriculture, although still the second largest of the major industries in Columbia County, continues to decline as a source of employment. Of the 7,371 employed persons in the County in 1960, 687 or 9.3 percent were engaged in agriculture. The number engaged in this industry declined 55 percent between 1950 and 1960. (See Table 5.)

Table 4

CHARACTERISTICS OF COMMERCIAL FARMS AND FARM LABOR IN COLUMBIA COUNTY -- 1959 - WITH COMPARISONS

		Columbia County			Oregon		
		1959	1954	1950	1959	1954	1950
All commercial farms	number	362	-	-	22,802	-	-
Land in farms	acres	73,599	-	-	19,348,735	-	-
Average size of farm	acres	203.3	-	-	848.6	-	-
Farm operators							
Working off their farms	number	168	-	-	9,343	-	-
Working off their farms 100 or more days	number	131	-	-	4,858	-	-
With other family income exceeding value of agricultural products sold	number	136	-	-	4,642	-	-
Hired workers	farms reporting	60	170	150	5,819	8,663	8,211
	persons	149	701	283	16,332	37,772	20,016
Regular workers (employed 150 or more days)	farms reporting	40	44	-	3,766	4,503	-
	persons	84	57	-	7,459	8,675	-

Source: U. S. Census of Agriculture, 1959 and 1954.

Table 5

COMPARISON OF CHANGE IN AGRICULTURAL EMPLOYMENT WITH NON-AGRICULTURAL EMPLOYMENT -- COLUMBIA COUNTY: 1940-1960

	1960		1950	1940	Percent change
	Total	Women	Total	Total	Total 1950-1960
Total population	22,379	10,948	22,967	20,971	- 2.5
Civilian labor force	7,741	1,969	16,767	16,219	- 7.2
Employed	7,371	1,883	8,595	7,271	-14.2
Agricultural	687	120	1,532	1,439	-55.2
Farm operators and unpaid family workers	392	62	1,171	1,093	-66.5
Hired farm workers	295*	58	319	320	- 7.5
Non-agricultural	6,714	1,777	7,063	5,832	- 4.9
Unemployment	370	86	545	914	-32.1

Source: U.S. Bureau of Census: 1960, 1950, 1940.

*Note: The number of hired workers in Tables 4 and 5 do not agree. The figure for Table 4 was taken from U.S. Census of Agriculture 1959, and the figure for Table 5 from the U.S. Bureau of Census, 1960.

The above census data identify a diminishing need for farm workers and simultaneously suggest an analysis of the present high school vocational agriculture programs. The changing direction and emphasis of vocational agriculture in the state high schools is mentioned in a subsequent section of this report.

Additional Indicators of Economic Health

Additional indicators of the economic health of the County are found in areas of fiscal transactions, construction of buildings, summaries of property assessments and reports of related activities.

Bank Deposits, Loans and Debits

An annual comparison of bank deposits, loans and debits indicates the County is financially stable. While not one of the wealthier counties in Oregon, the generally steady increase in deposits suggests profits are being realized by

business firms and that private residents are able to reserve some of their income. The 1964 deposits are equivalent to approximately $1,027 per capita for the County; deposits for the State of Oregon are equal to approximately $1,503 per capita. The consistent increase in bank loans is indicative of greater use of money for general expansion. Bank debits represent the dollar value of checks drawn against the deposit accounts of individuals and business firms and are considered good indicators of current activity. Bank debits for Columbia County have generally and steadily increased since 1960. (See Table 6)

Property Valuation

The total valuation of property in Columbia County has increased each year except one since 1959. Each of the classifications in Table 7, with the exception of "Personal Property" in 1960 and "Total Valuation" in 1962, is larger than the previous year. The largest increase, which occurred in 1961, was probably due in part to the change to an assessment ratio of 25 percent for all property. The assessment ratio has remained constant since that time.

Table 6

BANK DEPOSITS, LOANS AND DEBITS IN COLUMBIA COUNTY: 1960-1964

(Thousands of dollars)

Year	Deposits[1]	Loans	Debits	Oregon Deposits
1960	19,095	5,722	106,948	2,150,946
1961	20,746	5,684	106,974	2,322,789
1962	23,204	6,261	121,627	2,489,091
1963	25,051	7,190	124,376	2,638,396
1964	24,876	7,626	130,558	2,865,333

[1]The term "bank deposits" is defined as "total deposits of all banks." This includes national banks in the county in addition to banks and trust companies under the jurisdiction of the Oregon State Banking Department.

Table 7

COLUMBIA COUNTY SUMMARY OF ASSESSMENT ROLL, 1959-1965

Classification	Fiscal Year Beginning 1959	1960	1961	1962	1963	1964
	$	$	$	$	$	$
Real Property	16,402,275	23,031,740	26,172,460	25,475,810	26,237,685	27,310,590
Personal Property	9,933,880	3,687,680	3,989,780	4,050,780	4,304,120	4,485,680
Less Exemptions	291,730	321,890	415,315	437,610	462,390	694,990
Total net taxable value as equalized by County Board of Equalization	26,044,425	26,397,530	29,746,925	29,088,980	30,079,415	31,101,280
Value of Public Utilities	2,142,805	2,145,790	2,473,270	2,719,500	2,805,180	2,969,160
Total Valuation	28,187,230	28,543,320	32,220,195	31,808,480	32,884,595	34,070,440
Percent of true cash value for public utility property assessment	24%	24%	25%	25%	25%	25%
Percent of true cash value for all other property assessment	23%	23%	25%	25%	25%	25%

Source: Summary of Assessment and Tax Roll for years cited.

There are 14 counties in the State with assessed valuations lower than the $34,070,440 for Columbia County in 1964 and 21 counties with higher valuations.[7]

A major reason for the increase in property valuation since 1961 is the upgrading of existing property and the construction of new buildings. An acceptable though not wholly accurate measurement of building renovation and new construction is the number of building permits issued annually within the County.

Building Permits

For the years 1961 through 1964 not less than 370 building permits were issued annually for construction valued in excess of $2,000,000. The permits recorded in Table 8 are for the most part permission for all new construction, additions and alterations. It should be noted that permits are issued upon stated intent to build, and the following table records intentions and estimated value of construction rather than actual construction or value. It is reasonable to assume, however, that the figures are representative of construction that did occur. In reality, the totals are probably somewhat higher, since some data were not available.

St. Helens shows a particularly vigorous building program in relation to other communities in the County. Scappoose shows some decline in the years presented, but remains ahead of the other communities in number and value of permits. Building expansion in the St. Helens-Scappoose area is consistent with the population totals that indicate the most rapid growth as being on the south-eastern edge of the County.

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[7]Oregon Economic Statistics (Eugene: Bureau of Business Research, University of Oregon, April, 1965), p. 28.

Table 8

BUILDING PERMITS ISSUED IN COLUMBIA COUNTY FOR
ALL NEW CONSTRUCTION, ADDITIONS AND ALTERATIONS: 1960-1964

	1960 Number	1960 Valuation in dollars	1961 Number	1961 Valuation	1962 Number	1962 Valuation	1963 Number	1963 Valuation	1964 Number	1964 Valuation
County (excluding cities listed below)	NA*	NA	274	1,639,022	359	1,155,399	325	1,331,099	247	1,022,856
St. Helens	8**	85,300	16**	156,940	22**	248,790	127	1,434,870	128	635,970
Scappoose	38	300,904	36	288,276	32	192,935	29	561,895	19	189,115
Vernonia	None required									
Rainier	15	20,000	12	40,000	17	20,000	1	15,000	12	130,000
Clatskanie	18	29,870	23	62,765	23	241,446	22	105,495	15	126,250
Prescott	NA									
Columbia City	6	383,464	9	219,000	15	165,150	5	6,600	9	231,105
TOTAL	85	819,538	370	2,406,003	468	2,023,720	509	3,454,959	430	2,335,296

*Not available.

**New residential permits only - other data not available.

Source: Interviews and correspondence with Columbia County Clerk and individual city recorders.

Wholesale and Retail Trade

The volume of wholesale and retail trade is considered an acceptable barometer of the economy. The prosperity of a community or county, or its absence, is rapidly revealed in the volume of purchases made in a given period. Seasonal patterns of buying would make hazardous the measurement of the economy on a month to month basis. However the annual summary of wholesale and retail sales is a reliable indicator of the direction in which the economy is moving.

Wholesale trade in Columbia County between the years 1954 and 1958 increased in total sales by $1,817,000 or 50 percent. The number of establishments also increased by 5 or 24 percent. The relationship between the number of establishments and amount of sales is similar for Columbia County and the State of Oregon in that they both show increases. Oregon had a 17 percent increase in establishments and a 33 percent increase in sales for the same period.

The retail sales in the County present a slightly different image in that the distinctive increase in total sales is accompanied by a decrease in the number of retail firms in both the County and the State. A 20 percent reduction in the number of retail establishments failed to reduce consumer purchases as the sales increased by 12 percent.

It is noted that prominent increases in both retail and wholesale sales occurred during part of the decade when the County population declined by 2.6 percent. The years measured in Table 9 and 10 are not coincidental with the decade in which the census was taken and are not intended to be representative of that entire period.

The economy of the County measured in part by wholesale and retail sales is healthy and growing.

Table 9

WHOLESALE TRADE IN COLUMBIA COUNTY: 1954 and 1958

	Columbia County	Oregon
Number of establishments		
1954	21	2,995
1958	26	3,501
Sales (thousands of dollars)		
1954	3,636	2,432,342
1958	5,453	3,245,321
Percent of increase 1954-1958		
Number of establishments	24	17
Sales (thousands of dollars)	50	33

Source: Oregon Economic Statistics, April, 1965

Table 10

RETAIL TRADE IN COLUMBIA COUNTY: 1954-1963

	Columbia County	Oregon
Number of establishments		
1954	277	19,082
1958	265	18,056
1963	211	17,276
Sales (thousands of dollars)		
1954	17,234	1,906,063
1958	18,574	2,137,084
1963	20,833	2,679,337
Percent of increase 1958-1963		
Number of establishments	-20	- 4
Sales (thousands of dollars)	12	25

Commutation by Columbia County Workers

Some workers in the southern and eastern parts of Columbia County travel to the Portland Metropolitan Area. Other employees in the western and northern sections commute to Clatsop County and the State of Washington. Twenty-one percent of the employed persons work in other counties due to personal preference or the absence of jobs in Columbia County. A comparison can be made in Table 11 between Columbia County and other counties in the percent of employees working within the county of residence. Those Oregon counties in geographic proximity to Columbia County were selected for comparison.

Table 11

PERCENT OF EMPLOYEES WORKING IN COUNTY OF RESIDENCE IN SELECTED OREGON COUNTIES: 1960

County	All Workers	Work in County of Residence	Percent
Tillamook	6,466	6,216	96
Clatsop	10,165	9,642	95
Multnomah	199,472	181,208	91
Yamhill	11,005	8,786	80
Columbia	7,133	5,643	79
Clackamas	40,116	20,720	52
Washington	32,484	16,960	52

Source: U.S. Bureau of Census, 1960.[1]

[1]There exists a difference between the total number of employed persons in Columbia County as reported by the U.S. Bureau of the Census and the Oregon State Department of Employment. In 1960, the number employed was 7,133 according to the census count, as compared to the Department of Employment's annual average of 6,020. The latter total is based upon actual employment in the County. Conversely, the household count includes all of the persons working within and outside the County boundaries. The difference is largely made up of residents commuting to nearby places of employment in other counties.

The bulk of workers commuting from Columbia County are employed in the Portland Metropolitan Area, Cowlitz County, Washington, and Clatsop County in that order. The percent of workers commuting outside of the County is neither unusually high nor low when compared with other counties in northwestern Oregon.

A small number of workers live outside, but work within Columbia County.

Table 12

EMPLOYED PERSONS COMMUTING TO COLUMBIA COUNTY: 1960

Place of Residence	Place of employment (Columbia County)	Percent of Total
Clatsop County	37	14
Portland Metropolitan Area (Washington, Multnomah, Clackamas Counties in Oregon and Clark County, Washington)	225	86
Cowlitz County, Washington	Not available	--
TOTAL	262	100

Source: U.S. Bureau of Census, 1960 and Oregon State Department of Employment

Table 13

PLACE OF WORK OF EMPLOYED PERSONS
BY CENSUS COUNTY DIVISION FOR COLUMBIA COUNTY: 1960

Place of Work	Place of Residence (Census County Division)										
	Clatskanie	Columbia	Goble	Marshland	Rainier	Scappoose	St. Helens	Vernonia	Warren	Total	Percent of Total
Portland	4	47	12	-	8	261	52	43	159	586	8
Balance of Multnomah County	-	7	8	-	-	89	20	-	16	140	2
Clackamas County	-	-	-	-	-	8	-	-	-	8	-
Washington County	-	4	4	-	-	16	4	36	-	64	1
Clark County (Washington)	-	-	-	-	-	4	8	-	-	12	-
Columbia County	665	519	240	185	597	560	1,642	564	671	5,643	79
Clatsop County	60	-	-	31	8	-	-	4	8	111	2
Tillamook County	-	-	4	-	-	-	-	4	-	8	-
Cowlitz County (Washington)	50	-	36	4	195	4	9	-	8	306	4
Elsewhere or not reported	42	19	16	9	20	24	42	39	44	255	4
Total	821	596	320	229	828	966	1,777	690	906	7,133	100

Source: U. S. Bureau of Census, 1960.

Unemployment in Columbia County

The rate of unemployment is a symptom of the economic well-being of a county. Employment in Columbia County suffered a severe setback in the latter part of 1957 and 1958 when the Oregon-American Lumber Company in Vernonia ceased operations. The mill closure, along with its timber operations and a general state-wide recession, raised the rate of unemployment to the highest level in the past seven years.

By 1960, the unemployment rate had shown marked improvement as jobless workers left the County or found employment in other industries or adjacent counties. The increase in 1961 seems to be a reflection of the unemployment rate in the State and across the nation. Unemployment for 1962 and 1963 remained steady at the lowest rate since 1958 as the State figures continued to decline. No County data are available for 1964.

In each year cited the rate of unemployment in Columbia County has been substantially higher than that of Oregon or the United States. Unemployment continues to be a major problem in the economic structure of the County, but the situation is improving. Columbia County was removed from the list of those areas classified by the U.S. Department of Labor as having "substantial and persistent unemployment" in June, 1964, because the County rate of unemployment decreased to below six percent. (See Table 14)

Table 14

PERCENT OF TOTAL UNEMPLOYMENT FOR COLUMBIA COUNTY: 1958-1964

	Columbia County	Oregon	United States
1958	12.1	7.5	6.8
1959	7.6	5.0	5.5
1960	7.1	5.1	5.6
1961	8.5	6.2	6.7
1962	6.2	5.2	5.6
1963	6.2	4.7	5.7
1964	Not Available	4.6	5.2

Source: Research and Statistics Division of Oregon State Dept. of Employment.

A partial description of the unemployed worker in Columbia County emerges in Tables 15 and 16. The data in both tables pertain only to unemployed persons covered by state unemployment insurance and admittedly represent a single "snapshot" of the insured unemployment situation rather than a historical treatment with chronological comparisons. The data refer to the week ending April 2, 1965.

The construction and manufacturing industries represented 65 percent of the unemployment in the period cited, with wholesale and retail trade contributing another 16.5 percent. Occupationally, the semiskilled and unskilled workers made up 50.5 percent and clerical and sales 21.6 percent of the jobless personnel. Slightly over 52 percent were under 45 years of age and 74 percent had received benefit checks for five or more weeks. Thirty-five percent had been continuously unemployed for 15 or more weeks.

The duration of continuous unemployment was longest for the manufacturing industry, followed by wholesale and retail trade. Unskilled, clerical and semiskilled occupations, in that order, experienced the most extensive periods of unemployment, while persons under 45 years of age were more often found to be unemployed for five or more weeks than workers in an older age group.

The high rate of unemployment in the manufacturing industry is not surprising since most of the County workers are employed in this industrial classification. But if the week ending April 2, 1965, is any indication of the occupational classifications suffering from unemployment, then Columbia County is not unlike other areas of Oregon and the nation. The unskilled and semiskilled are the first to become unemployed, remain jobless for the longest period, and are in command of the fewest abilities when employment does become available. This condition emphasizes the need for competent trained personnel in the competitive labor market and demands steps be taken to better qualify our youth for needed occupations.

Table 15

INSURED UNEMPLOYED, BENEFIT PAYMENTS
FOR WEEK ENDING APRIL 2, 1965, FOR COLUMBIA COUNTY

Characteristics	Number	Percent	State of Oregon-Mid-April, 1965 Number	Percent
Total	97	100.0	18,075	100.0
Industry Attachment				
Construction	18	18.6	2,358	13.1
Manufacturing	45	46.4	8,737	48.4
Food	6	6.2	3,293	18.2
Lumber	20	20.6	3,594	19.9
Other Mfg.	19	19.6	1,850	10.3
Transportation	10	10.3	893	4.9
Trade	16	16.5	3,605	20.0
Finance	0	0	415	2.3
Services	6	6.2	1,621	9.0
All Others	2	2.1	426	2.3
Occupations				
Professional and managerial	0	0	509	2.8
Clerical and sales	21	21.6	2,857	15.8
Services	11	11.3	2,129	11.8
Skilled	16	16.5	2,857	15.8
Semiskilled	19	19.6	3,823	21.2
Unskilled-Other	30	30.9	5,880	32.6
Sex				
Men	50	51.5	10,378	57.5
Women	47	48.5	7,677	42.5
Age				
Under 25	10	10.3	2,992	16.6
25-34	19	19.6	3,096	17.1
35-44	22	22.7	4,186	23.2
45-54	16	16.5	4,550	25.2
55-64	28	28.9	2,867	15.9
65 and over	2	2.1	364	2.0
Unemployment[1/]				
1-2 weeks	11	11.3	5,225	28.9
3-4 weeks	14	14.4	2,493	13.8
5-14 weeks	38	39.2	6,057	33.5
15 weeks and over	34	35.1	4,280	23.7

1/ Number of consecutive weeks for which individuals had received benefit checks.

Source: Oregon State Department of Employment.

Table 16

DURATION OF UNEMPLOYMENT BY MAJOR INDUSTRY GROUP, MAJOR OCCUPATION GROUP, SEX AND AGE FOR COLUMBIA COUNTY FOR WEEK ENDING APRIL 2, 1965

Characteristics	Insured Unemployment						
		Sex		Weeks of Current Unemployment 1/			
	Total	Men	Women	1-2	3-4	5-14	15 & Over
Total	97	50	47	11	14	38	34
Industry Attachment							
Construction	18	18	0	3	5	3	7
Manufacturing	45	29	16	8	3	22	12
Food	6	2	4	1	1	3	1
Lumber	20	20	0	2	1	12	5
Other Mfg.	19	7	12	5	1	7	6
Transportation	10	0	10	0	1	2	7
Trade	16	1	15	0	4	6	6
Finance	0	0	0	0	0	0	0
Services	6	0	6	0	0	4	2
All Others	2	2	0	0	1	1	0
Occupations							
Professional and managerial	0	0	0	0	0	0	0
Clerical and sales	21	1	20	0	4	7	10
Services	11	0	11	0	1	5	5
Skilled	16	15	1	2	5	5	4
Semiskilled	19	18	1	3	2	8	6
Unskilled-Other	30	16	14	6	2	13	9
Sex and Age							
Men	50	-	-	5	9	23	13
Under 45	24	-	-	3	2	14	5
Over 45	26	-	-	2	7	9	8
Women	47	-	-	6	5	15	21
Under 45	27	-	-	5	1	8	13
Over 45	20	-	-	1	4	7	8

1/ Number of consecutive weeks for which individuals had received benefit checks.

Source: Oregon State Department of Employment

Poverty

All indicators of the County's economy are not favorable. The State Public Welfare Commission has identified ten counties in Oregon in which problems of poverty appear to be widespread and to affect various segments of the population. In general, these counties tend to have widespread unemployment, a high proportion of aged persons, and a generally lower income than that of the rest of the State. Columbia County was marked as one of the above counties.

Utilizing 1960 census data the Welfare Commission reports:

> Columbia County's problems center around low income, frequent unemployment and limited education.
>
> Per capita personal income was $1,494 in 1960, $1,611 in 1961. Twenty-one percent of the families had income under $3,000...compared with a statewide average of 17 percent; 13.7 percent had income under $2,000 compared with a statewide average of 9.8 percent. Net effective buying income in 1962 was the fourth lowest in the state, both on a per capita and per household basis at $1,497 per person and $4,787 per household.
>
> Columbia County has had a consistently high rate of insured unemployment from 1960 until 1963, ranging from 10.1 percent to 7.5 percent compared with a statewide average of 6.8 percent to 4.5 percent for the same period.[8] It has only recently been removed from the list of counties designated as having substantial and persistent unemployment.
>
> Columbia County is in the upper quarter of the state with regard to the percentage of aged persons in the population.
>
> With only 1.3 percent of the total number of families in the state, Columbia County had 8.4 percent of the families receiving public assistance in January, 1964.[9]

The position of Columbia County in relation to the State in terms of public assistance is shown in Table 17.

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[8]These data are unlike those presented on page 26 of this report.

[9]"Oregon's Poor - Who They Are and Where They Live" (Salem: State Public Welfare Commission, December, 1964), p. 3 (Mimeographed).

Table 17

RECIPIENT RATES FOR PROPORTION OF THE POPULATION IN SPECIFIED AGE GROUPS BY PROGRAMS FOR COLUMBIA COUNTY, WITH STATE COMPARISONS: June, 1964

Program	Columbia County Rate	Rank	Oregon Rate	Rank
Old Age Assistance (cases per 1,000 persons over 65)	53.6	22	56.0	19-20
Aid to Disabled (cases per 1,000 persons 18 to 64)	7.4	14	7.6	12-13
Medical Assistance to Aged (cases per 1,000 persons over 65)	19.2	14	17.9	15-16
Aid to Dependent Children (cases per 1,000 persons under 18)	27.0	13	32.0	8-9
General Assistance (cases per 1,000 persons over 18)	2.0	24	3.5	9-11

Source: State Public Welfare Commission

Education Level

The level of education of the general population of the County appears to be a matter for more serious concern. The 10.3 median school years completed for persons 25 years old and over is the lowest figure for any county in the State. The highest county records 12.5 years completed; the State figure is 11.8 years completed. A total of 38.5 percent of the same age group have completed at least a high school education. This too is the lowest percent for any county in the State. A corresponding figure for Oregon is 48.4 percent.[10]

[10]U.S. Bureau of the Census, County and City Data Book, 1962 [A Statistical Abstract Supplement], (Washington: U.S. Government Printing Office, 1962).

Potential for Industrial Growth

An extensive and thorough study recently conducted by Ivan Bloch and Associates[11] indicates a critical shortage of acceptable sites for major industrial location in the Pacific Northwest. Sites having access to deep-draft water are particularly valuable inasmuch as the industrial economy of the region will probably continue to be directed toward the utilization of its major forest, agricultural and water resources, and toward markets accessible to water transportation. Further, the improved availability of hydroelectric power made possible through new generation in the Pacific Northwest and Canada is expected to attract new units of electroprocess industry, which also demand access to deep-draft navigation. Industrial emphasis on deep-draft waters enhances the importance of sites on Puget Sound, Washington and Oregon coastal areas, and the Columbia River, particularly as it borders Clatsop, Columbia and Multnomah Counties.

Twelve industrial sites were analyzed in Columbia County which appear to contain the attributes necessary for qualification as potential locations for major industry. Characteristics necessary for qualification include:

> ...topographic features, accessibility or availability of rail and highway transportation, proximity to the deep-draft channel of the Columbia River, possible availability of deep-draft channel spoil, relation of site surfaces to high water flows and consequent elevations of the Columbia River, aspects of foundation conditions, proximity to utilities, and labor supply.[12]

In keeping with the stated importance of appropriate river-front sites, Bloch and Associates identified eleven sites on the Columbia River and one inland position as possible locations for future industry in Columbia County. (See Figure III) A summary of the principal physical features of the plant sites is found in Table 18.

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[11] Ivan Bloch and Associates, Industrial Plant Sites of Columbia County, Oregon, A Study Prepared for Port of St. Helens, Columbia County, Oregon (Portland, Oregon, 1964).

[12] Ibid., vi.

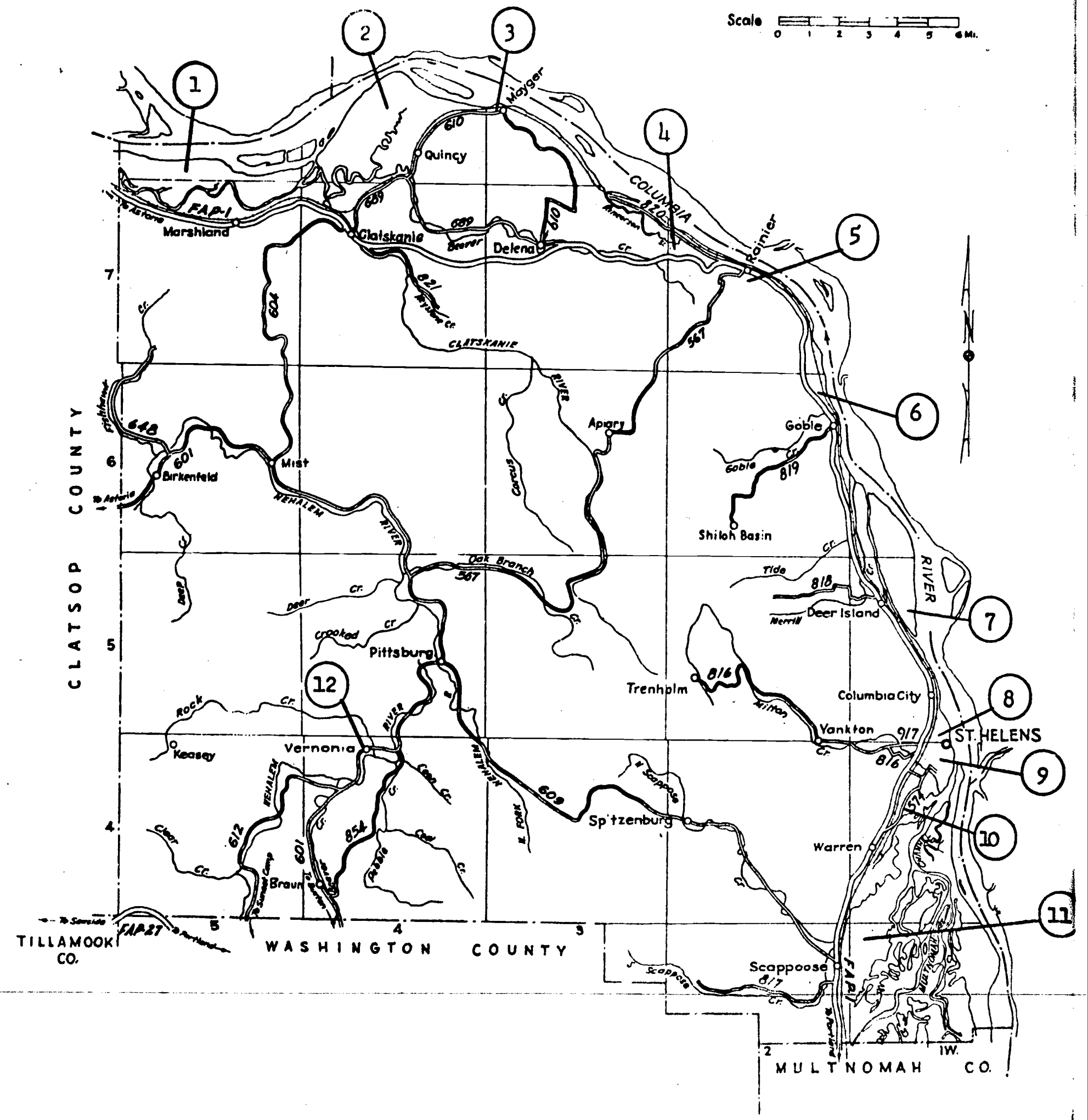


Figure III. IDENTIFICATION OF POTENTIAL INDUSTRIAL SITES IN COLUMBIA COUNTY, OREGON, 1964.

Table 18

SUMMARY OF PRINCIPAL PHYSICAL FEATURES OF
SELECTED MAJOR INDUSTRIAL PLANT SITES IN COLUMBIA COUNTY, OREGON[13]

(See Figure III)

Site Designation and Approximate Location	Approximate Size (Acres)	Accessibility to Transportation			Priority Consideration
		**Water	Road	Rail	
1 Marshland Area	6,000	Good	Good	Good	Long-range future possibility
2 Locoda (Beaver) Area	7,000	Good	Good	Good	First priority
3 Mayger Area	160	Good	Good	Good	Long-range future possibility
4 Rainier Drainage Area	250	Good	Good	Good	First priority
5 Rainier Area	350	Fair	Fair	Fair	Long-range future possibility
6 Prescott "A" Area	225	Good	Good	Good	Long-range future possibility
and Prescott "B" Area (Trojan)	500	Good	Good	Good	Long-range future possibility
7 Deer Island Area	3,000	Good	Good	Good	First priority
8 St. Helens "Z-Z" Area	95	Good	Good	Good	Probably not available in forseeable future
9 Milton Creek Area	240	Fair	Good	Good	Second priority
10 Scappoose Bay Area	800	Poor	Good	Good	Long-range future possibility
11 Scappoose Area	Several thousand	Poor	Poor	Fair	Long-range future possibility
12 Vernonia Area	175	None	Good	Good	Available only on a short-term lease, as the site is considered for future forest sustained yield industrial operation

**Refers to accessibility to deep-draft channel of Columbia River.

[13]Bloch and Associates, Industrial Plant Sites, p. 51 and text.

The Beaver site is particularly attractive in that until very recently it was under the control and partial ownership of the U.S. Department of the Army and available only for military defense purposes. Its release by the federal government and the availability of its fully-developed facilities contribute to the attractiveness of this site for the location of heavy industry. The Port of St. Helens has initiated action to acquire control of this and other sites in Columbia County for future industrial development.

The Deer Island site has recently been selected by the Shell Chemical Company as the site for the production of anhydrous ammonia and other fertilizers. Plant construction is scheduled for completion in the spring or early summer of 1966.

The recent announcement by Crown-Zellerbach Corporation of a $74 million pulp and paper manufacturing complex to be developed at Wauna, Clatsop County, is further evidence of the potential for industrial expansion in the Lower Columbia River area. Although beyond the political boundaries of Columbia County, the Crown-Zellerbach firm will provide employment opportunities for qualified workers within the County. The Wauna project, scheduled for completion early in 1967, is the largest single development Crown-Zellerbach has undertaken to date, and will provide employment for approximately 1,000 persons. Supporting facilities will include an all-refiner ground-wood mill with an annual capacity of 105,000 tons and a multi-stage bleach plant with a capacity of 225,000 tons a year.[14]

The Bloch report states that the Beaver, Deer Island and other sites which have been viewed in Columbia County as warranting development have a number of distinct locational advantages for major industry plant establishment.

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[14] Eugene Register-Guard, April 10, 1965, p. 8A.

> First, these sites are virtually (though not actually) a part of the Portland Metropolitan Area, with immediate access to that area's industrial and commercial services, and to its labor pool. Second, they are situated sufficiently far away from residential population concentrations to enhance heavy industry location operations. It is also believed that prevailing wind conditions would be considered as favorable by establishing industry. Third, the Columbia County sites are situated on a single railroad,...which is jointly owned by the Great Northern and Northern Pacific Railways. [15]

The report also states that other industrial development capabilities involve the favorable ecological and management conditions with regard to the county's forest development which is expected to reach its peak in two to three decades, and the existence of major reserves of ferruginous bauxites in Columbia and adjoining counties.

The need for appropriate plant sites in the Pacific Northwest and Oregon, the identification of available sites in Columbia County, the adequacy of transportation facilities, and more importantly, the geographic and economic relationship between Columbia County and the Columbia River would suggest that the county is in a favorable location to participate in industrial growth and development in the years ahead.

Summary

The economics of Columbia County, as measured by the data presented, is generally sound. Because of its relatively small population and its limited number of large business and industrial firms, the County is not one of the wealthier areas of the State. There are, nevertheless, positive indicators that the economic well-being will continue to improve. The forest land is now producing second growth timber. The lumber mills can expect to process this and other timber to meet the

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[15] Bloch and Associates, p. 165.

increasing demand for paper and wood products. Bank deposits, wholesale and retail trade, building permits and property valuation have all demonstrated a general upward trend. The rate of unemployment, while still higher than that of Oregon or the nation, has steadily decreased since 1958 with few exceptions. Census data reveal the population in the past four years has surpassed the previous high of 1950 and the potential for industrial growth, particularly along the Columbia River, is distinctly promising. Excluding unforeseen circumstances, the future health of the economy appears secure.

CHAPTER III

EMPLOYMENT NEEDS IN AREAS EXTERNAL TO COLUMBIA COUNTY

Confronted with a highly mobile population and changing economic and labor needs, the schools must assume that youth will search for employment beyond the area in which they are trained. Columbia County youth seeking work commensurate with their potential training and skills will necessarily be attracted to the Portland Metropolitan Area and other areas throughout the state and Pacific Northwest that offer employment opportunities.

This is not to suggest that vocational education and training should de-emphasize the local needs. Schools and training institutions should be responsive to the labor force needs of those firms in proximity to the schools. Locally trained and employed workers offer stability and continuity to the economic setting of a community, tend to promote closer working relationships between business and industry and the schools, and allow the student to develop an awareness of the relationship between his vocational education experiences and actual employment. Local taxpayers may also be more willing to support training programs for local needs.

Practically speaking, however, it is imperative that personnel interested in the development of vocational education for Columbia County students be alert to the present and potential employment needs of labor market areas external to the County.

Current and Projected Employment Needs in the Portland Metropolitan Area

The Portland Metropolitan Area, which includes Washington, Multnomah and Clackamas Counties in Oregon and Clark County, Washington, serves a population

of 779,676[1] (Oregon counties only) and provides employment for 348,000[2] workers. Inasmuch as Columbia County is in proximity to the Portland Metropolitan Area and because potential employees look to and gravitate toward population and occupational centers, the employment situation in the Portland area will be of particular interest to educators and administrators of Columbia County schools. This section of the paper will attempt to present some generalizations regarding the labor force and employment opportunities in the Portland Metropolitan Area. Subsequently, these generalizations will be related to vocational education programs in Columbia County.

The Oregon Department of Employment recently completed an analysis of the manpower resources of the Portland Metropolitan Area. The following is a summary of selected sections of that analysis.

It should be noted that in Table 19 the "Total Demand" category includes expansion needs, replacement needs and current job openings. The "Total Supply" column includes, in addition to the "high school" and "less than high school" figures, potential employees from the following sources: (1) vocational schools, (2) business schools, (3) college, less than four years, (4) in-plant promotions, (5) college graduate, and (6) unemployed labor market re-entrants.

There are five major occupational groups in which present high school graduates can be expected to seek employment initially: clerical, sales, service, semiskilled and unskilled. Of these, only the clerical is recorded as anticipating a net shortage of employees through 1969. The surplus of 25,847 workers in the remaining four major occupational groups suggests the difficulty untrained and unskilled high school graduates will have in entering the world of work.

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[1]Oregon State Board of Census figures for July, 1964.

[2]The Manpower Resource of the Portland Metropolitan Area (Salem: Oregon Department of Employment, March, 1965), p. 6.

Table 19

SUPPLY-DEMAND RELATIONSHIPS ARRANGED BY BROAD OCCUPATIONAL GROUPS FOR THE PORTLAND METROPOLITAN AREA: 1964-1969

(Figures in parentheses represent that part of "Total Supply")

Major Occupational Groups	Total Current Employment	Total Demand	Total Supply	Partial Source of "Total Supply"		Net Shortage	Net Surplus
				Less Than High School Education	High School Education		
Unskilled	25,421	6,268	18,000	(6,550)	(5,800)	-	11,732
Semiskilled	38,539	9,567	17,850	(250)	(2,750)	-	8,283
Skilled	46,734	12,604	7,000	(0)	(0)	5,604	-
Clerical	54,945	15,889	14,500	(250)	(4,000)	1,389	-
Sales	23,132	11,135	13,300	(250)	(5,250)	-	2,165
Managerial	25,031	4,759	4,250	(0)	(0)	509	-
Professional	30,218	9,656	7,800	(0)	(0)	1,856	-
Service	35,041	9,573	13,250	(500)	(7,500)	-	3,667
Technical	8,639	2,522	2,150	(0)	(0)	372	-

Source: Summary of data contained in The Manpower Resource of the Portland Metropolitan Area (Salem: Oregon Department of Employment, March, 1965), pp. 43-46.

Numerically speaking, the major source of labor supply through 1969 will be the new labor market entrant with no education or training beyond the high school. The second most prolific source of supply will be the labor market entrant with less than four years of education beyond the high school. The third and fourth sources of employees are the in-plant trainees and the professionally trained group.[3]

Of particular importance to the central purpose of this study is the future labor supply for the Portland Metropolitan Area as it relates to high school students. Since the primary available source of labor is the individual with no training beyond high school, a breakdown of the potential high school enrollees for 1964-1968 is included in Table 20.[4]

When Tables 19, 20 and 21 are compared, the following observations are noted. The 33,155 new entrants to the wage and salary labor market with no education beyond high school, and 24 percent of that group with less than four years of high school, will be forced to compete for jobs in the clerical, sales, service, unskilled and perhaps semiskilled occupational groups. Four of these five occupational groups will reflect a net surplus of 25,847 workers through 1969.

Table 21 further demonstrates the pressing need for youth to acquire a marketable skill in order to become gainfully employed. "There is no room at the bottom" -- as the following data will attest. The combined categories of unskilled and semiskilled account for 44.5 percent of the available jobs in manufacturing, 26.1 percent in contract construction, 33.2 percent in transportation, communication and utilities, and 25.6 percent in wholesale trade. There are no

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[3]The Manpower Resource, pp. 43-45.

[4]Adapted from The Manpower Resource, p. 46.

Table 20

THE HIGH SCHOOL STUDENT AS A SOURCE OF LABOR
FOR THE PORTLAND METROPOLITAN AREA, 1964-1968

Classification of Students		Number	
Potential high school enrollees, 1964-1968 inclusive	32,813*		
Will not complete high school		15,734**	
Non-high school graduates entering wage and salary labor market on a full-time basis, 1965-1969			7,867****
Graduating from high school		67,079	
Of those graduating from high school***			
To military service		3,891	
Will not enter labor market (marriage, family enterprise, etc.)		3,086	
Remaining in wage and salary market		60,112	
Continuing school			
Four-year college		27,100	
Junior college		3,766	
Nursing school		335	
Barber school		67	
Beauty school		806	
Technical or business school		1,945	
Religious school		805	
Total in labor force on a part-time basis		34,824	
High school graduates entering wage and salary labor market on a full-time basis, 1965-1969			25,288
Total new full-time entrants to wage and salary labor market with no education beyond high school, 1965-1969		33,155	
Average per year - 1965-1969			6,631
Average per year - 1960-1964			4,856

* U. S. Bureau of Census, 1960.

** Includes deduction at normal death rate of 9.2 per 1,000.

*** Based on studies conducted by the High School-College Relations Committee of the University of Oregon.

**** Approximately 50 percent of those who do not complete high school; the other 50 percent, mostly females, do not enter the labor market directly from school. This is an arbitrary figure because of the lack of reliable information concerning the dropout.

Table 21

EMPLOYMENT DISTRIBUTION BY PERCENT, BY MAJOR OCCUPATIONAL GROUPS, AND BY MAJOR INDUSTRIAL GROUPS IN PORTLAND METROPOLITAN AREA, APRIL 1964

Major Occupational Group	Manufac-turing	Contract Const.	Trans., Commo., Utilities	Whole-sale Trade	Retail Trade	Finance, Insurance, Realty	Service and Misc.	Govt. (Incl. Educ.)		
Total Employed	66,600	14,200	26,600	24,100	47,000	16,900	44,900	47,400	TOTAL	287,700
Unskilled	18.1	13.3	12.3	12.8	-	-	-	4.4		
Semiskilled	26.4	12.8	20.9	12.8	11.9	-	7.6	3.2		
Skilled	27.6	52.6	25.2	12.7	9.9	-	7.0	7.2		
Clerical	10.2	6.3	25.8	23.2	14.4	51.6	19.7	22.2		
Sales	4.7	-	-	17.4	23.0	19.6	-	-		
Managerial	6.0	10.0	6.9	16.8	11.1	21.6	7.1	3.6		
Professional	3.4	-	3.7	-	-	-	18.6	36.1		
Service	-	-	-	-	23.5	4.3	30.3	17.4		
Technical	-	-	-	-	-	-	5.9	5.8		
All other	3.5	5.0	5.2	4.3	6.5	2.9	3.8	-		

Source: Compilation of data from The Manpower Resource of the Portland Metropolitan Area (Salem: Oregon Department of Employment, March, 1965), pp. 22-28.

employment opportunities in three of the major industrial groups for unskilled applicants.

An additional argument in favor of properly and adequately prepared workers is the realization that unskilled and semiskilled employees are customarily the last ones hired, command only the lowest pay scale, and in the event of a slowdown in production or services are the first to experience a layoff or termination of employment.

It is apparent, and this is not new to school personnel, that the student must be encouraged to stay in school and acquire preparation in those areas of employment that offer opportunity for work. There is little value in training for employment in a field forecasting a long-range surplus of employees.

The schools, however, are primarily interested in employment needs rather than occupational surpluses. A number of specific occupations have been selected from among a total of fifty-four identified by the State Department of Employment as representing a prospective shortage of workers in the Portland Metropolitan Area during the period 1965-1969. The twelve occupations extracted for consideration in Table 22, as well as others in the original report, have the following characteristics in common:

a. A prospective shortage of workers based upon forecasts of employers, training institutions, and employers' estimates of the amount and type of training needed for entry into the occupation.

b. Importance of the occupation in the economy of the area based upon the volume of employment in that occupation and/or its unique capability of adversely affecting overall operations in a firm due to shortages of personnel.

c. The occupation requires approximately the same amount and general type of training as other occupations in the same broad occupational categories, has generally the same sex and age characteristics, and is a prevalent occupation in at least three or more of the major industrial groups.

d. All of the occupations have the common factor of need for some degree of specialized training, other than, or in addition to, general high school education, prior to entry on the job.

Another reason for the collective inclusion of the specific occupations in Table 22 is that high schools around the nation with vocational education programs are generally able to offer foundation training for youth seeking employment in these trades and skills.

An analysis of hiring requirements for Portland Metropolitan Area employees indicates some general educational and experience qualifications that will be of value to schools preparing youth for employment. The data were obtained by means of a questionnaire administered by the Oregon State Department of Employment, calling for minimum educational and/or experience requirements that firms would consider in filling individual jobs on their own payrolls.

Some information was unavailable because a few employers were reluctant to offer a rigid set of requirements for a specific task, but preferred to subjectively assess the individual applicant without being limited by predetermined specifications. In addition, some firms under union contracts were prohibited from establishing entry hiring specifications for particular jobs. Also, a policy of promotion from within, particularly among the larger employers, eliminates the need for hiring requirements in all except the entry occupations.

Generally speaking, however, the larger firms tended to rely more on educational qualifications, while the smaller employers placed more emphasis on experience.

The salient observations from the Portland study that may be pertinent to vocational education in Columbia County are as follows:

Table 22

FUTURE NEED IN SELECTED OCCUPATIONS
IN THE PORTLAND METROPOLITAN AREA, 1965-1969[1]

Specific Occupation	Total Current Employment	Net Training Need	Major Hiring Requirements	
			Training	Experience
Auto Body Repair	348	132	A - 4 V - 2	4
Auto Mechanic (General)	1,820	599	A - 4 V - 2	4
Automotive Electrician	232	104	V - 2	3
Bookkeeper	4,957	884	B - 1	2
Carpenter	3,516	851	A - 4 V - 2	4
Clerk-Typist	4,153	1,102	HS - 4 B - 1	1
Diesel Mechanic	274	45	A - 4 V - 2	4
Electrician	1,470	139	A - 4 OJT - 4	4
Machinist	2,257	799	A - 4 V - 3	4
Secretary	5,098	1,351	B - 1 C - 2	3
Sheetmetal Worker	1,254	261	A - 4 OJT - 4	4
Stenographer	2,894	839	B - 1 HS - 4	1
	TOTAL	7,106		

Key: C - College
B - Business School
V - Vocational School
A - Apprenticeship
HS - High School
OJT - On-the-job-Training

Numbers following letters indicate years of training or experience. One year includes less than one.

[1]The "Total Current Employment" includes expansion need to 1969 plus replacement need to 1969 less in-plant trained personnel to 1969. The columns headed "Major Hiring Requirements" are used to indicate the amount and type of training and/or experience which the majority of the employers contacted during the study considered necessary for entry into the specific occupation. The two entries under the column subheading "Training" are to be considered as an "either-or" proposition; representing a difference of opinion among employers as to the best preparation for the occupation. The figures under "Experience" represent the average requirements of employers who specified no training, but hire only on the basis of previous experience in the occupation.

> . . . The forecast for 1969, based on information from all available sources, indicates a shortage of more than 9,700 workers for the types of work that will be available, and a surplus of 25,000 workers, who will lack the proper training and/or skills to fill these jobs. The surplus will be composed of workers whose lack of training will make them acceptable to employers in the service, semi-skilled, unskilled and entry sales occupations.
>
> Plans of employers presently operating in the Portland area call for an employment expansion during the five years ending in 1969 which will be at the highest percentage rate of any five consecutive year period in recent peacetime history. However, if these plans are fully implemented, the increased number of jobs will not match the number of new additions to the labor market.
>
> Almost half of the high school graduates entering the labor market in the next five years will not have a marketable skill. This group will constitute an oversupply amounting to approximately double the number of jobs that will be available to them.
>
> Technological developments of the immediate past have increased the need for professional, technical and skilled personnel. The future outlook is for an accentuation of this need.[5]

It is clearly evident that the Portland Metropolitan Area requires employees with qualifications beyond a heretofore simple interest in and need for a job suggested by workers of an earlier era.

Columbia County educators and high school students anticipating employment in the Portland Metropolitan Area should be cognizant of the general labor market situation and realize the need for not merely a general high school education, although this is important, but for high school vocational experiences that will better qualify them for employment in a specific occupation or cluster of occupations.

Employment Needs for State of Oregon, 1965-1975

The State of Oregon is considered here as a reasonable labor market area for Columbia County youth. The Pacific Northwest, and particularly the State of

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[5]The Manpower Resource , p. 4.

Washington, could also be included as regions attractive to local workers; however, time and space limitations prohibit treatment of these regions in this report. The following is a summary of employment needs for the State of Oregon to 1975.[6]

Table 23 indicates total employment will reach 804,000 by 1975, representing an increase of 84,000 or 12 percent for the ten-year period from 1965 to 1975.

It should be made very clear that projections of ten years or more are of questionable reliability and must be interpreted here as a general guide of what to expect in the next decade. Further, total employment undoubtedly will not progress in a steady upward direction, but is more likely to reflect a pattern of irregular acceleration and periods of slower growth. The figures in the following table represent probable outcomes if past trends continue in the future.

Manufacturing, wholesale and retail trade, non-agricultural self-employment, together with government, will continue to dominate the employment picture in Oregon. Manufacturing, which ranked first in 1965, will remain first in 1975, while government employment will assume the second rank with 139,500 employees in the next ten years. Wholesale and retail trade will drop from second to third, and non-agricultural self-employment will maintain a uniform position of fourth rank. These four classifications constitute 66 percent of the labor force in 1965 and will probably contribute 65.7 percent of the labor force in 1975.

An abbreviated description of each of the components of Oregon employment follows:

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[6]Data taken from, D. A. Watson and W. C. Ballaine, "Oregon Employment Projection to 1975," Oregon Business Review, XXIII (August, 1964), pp. 1-8; Changes in Oregon Employment 1947-1960 with Forecasts to 1985, prepared by The Bureau of Business Research (Eugene: University of Oregon, March, 1964); and Summary Report - Oregon Comprehensive Statewide Planning Study (Portland: State of Oregon, Department of Planning and Development, June, 1964).

Table 23

PROJECTED OREGON EMPLOYMENT BY MAJOR STANDARD INDUSTRIAL CLASSIFICATION GROUP, 1965-1975

Division		1965	Percent of Total	Rank	1975	Percent of Total	Rank
Div. A	Agriculture	72,800	10.11	6	66,250	8.24	6
N.C.	Self-Employed Non-Agricultural	99,200	13.78	4	105,750	13.15	4
Div. B	Mining	1,200	.16	10	1,300	.16	11
Div. C	Construction	27,000	3.75	8	29,000	3.61	9
Div. D	Manufacturing (Total)	145,400	20.20	1	155,000	19.28	1
Div. E	Transportation, Communication, Utilities	43,000	5.79	7	45,000	5.60	7
Div. F	Wholesale & Retail Trade	118,300	16.43	2	128,500	15.98	3
Div. G	Finance, Insurance, Realty	24,000	3.33	9	29,650	3.69	8
Div. H	Services & Miscellaneous	75,000	10.42	5	85,875	10.68	5
Div. I	Government (Total)	114,100	15.85	3	139,500	17.35	2
N.C.	Industry "X"[1]	-	-	11	18,175	2.26	10
	TOTAL	720,000	100.00	-	804,000	100.00	-

[1]Devised by the Bureau of Business Research, University of Oregon, to show those persons expected to be employed throughout the forecast period, but whose point of employment in the economy could not be predicted. It is derived as the difference between the projection of total employment and the sum of the separate industry projections.

Agriculture

In recent years agriculture in Oregon has experienced a reduction in number of employees similar to the national decline. The state's rate of decline has been slower than the rest of the nation partially because of its heavier-than-average production of manually harvested crops for which machinery continues to prove expensive and inefficient. The data reported for any seasonal employment, such as agriculture, are somewhat misleading in that average annual employment is recorded. It should be remembered that individual monthly figures may vary significantly between slack and harvest periods. For example, Oregon agriculture may increase from 40,000 workers in the winter to 100,000 during the harvest period. This difference is usually attributable to school children and housewives and only to a minor degree influenced by interstate migrant labor. The seasonal workers are usually unskilled. Agriculture is the only category to show a decline in the projected number of workers needed by 1975. (See Table 24 below.)

Self-Employed

Ranked in fourth position in projected Oregon employment from 1965 to 1975, self-employed workers make up one of the largest categories of employment. However, difficulty is experienced in discussing trends of growth because of

Table 24

OREGON AGRICULTURAL EMPLOYMENT PROJECTED TO 1975

Reported		Projected		
1947	1960	1965	1970	1975
85,600	76,200	72,800	69,500	66,250

incomplete information. In the absence of reliable data, past trends are projected statistically with the admission that little accurate information is available to any agency, federal or state. Numerically speaking, self-employed workers show an increase of 6,550 employees from 1965 to 1975, but decrease as a percent of total employment from 13.78 to 13.15.

Mining

Mining activity in Oregon is presently restricted to the extraction of sand and gravel for construction purposes, though small quantities of nickel are mined in Douglas County. It is assumed that employment in this category will not change appreciably during the period of projection. Percent of employment will remain at .16 percent of the total throughout the projection period.

Construction

Employment in this industry in Oregon is not expected to increase significantly during the period of projection. Heavy construction, which is characterized by capital investment and urban expansion, has progressed at a slower rate in Oregon than general contract construction which makes up a large share of the state's industry. Numerically, construction employment will probably show an increase of 2,000 workers in ten years, but the category will decline slightly in percent of employment from 3.75 in 1965 to 3.61 in 1975 and decrease from eighth to ninth rank in the same period.

Manufacturing

Manufacturing represents the largest category in total Oregon employment, with projection figures of 145,400 for 1965, climbing to 155,000 by 1975. On the other hand, it is anticipated that percent of employment will decline from 20.20 to 19.28. Manufacturing will maintain first rank in major categories of employment for the same period.

Because the rate of technological advance in manufacturing is a dominant characteristic of the economy, and inasmuch as this trend appears to improve annually in its importance, the level of employment in Oregon manufacturing will probably result in slow steady growth.

> The total figures [Table 23] are heavily dependent upon the projections of lumber and wood products and food and kindred products because they are the only really numerically significant classes of manufacturing in Oregon.
>
> There are two factors in the Oregon economy which could result in the development of divergent trends in our manufacturing industries compared to the rest of the nation. First of these factors is Oregon's geographical distance from large manufacturing and market centers except for those of California. As a result of this factor, the products of our manufacturers are, and will likely continue to be, of three types: resource oriented (forest products), light and high-value specialty items for which freight charges are not a significant part of the selling price, and articles that are costly to ship in comparison to their price and are therefore produced locally, e.g., cement. A second factor, which is obviously related to the first, is the comparatively small size of our nonforest product manufacturing effort compared to the rest of the nation. It would certainly be possible for nonforest products industries, because of their small size, to show much wider percentage changes in output than the national figures for the same industries.[7]

The "manufacturing" category contains many components, some of which are uniquely important to Oregon. A brief description of three of the more significant subdivisions is included here.

Food and kindred products. This category of manufacturing ranks second only to lumber and wood products in the state. At this time there are no important indicators to suggest either a major increase or decrease in employment during the decade in question. It must be recognized that food processing is closely allied with agriculture and may also contribute at some future date to the large scale production of sea food. The expansion of employment in this area may remain small

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[7]D. A. Watson and W. C. Ballaine, "Oregon Employment Projection to 1975," Oregon Business Review, XXIII (August, 1964), p. 4.

because increases in food and kindred products may be accomplished without increasing the labor force.

Lumber and wood products. "This is the largest employment category in manufacturing and because it is expected to decline in numbers of employees throughout the forecast period it will tend to exert a strong dampening influence on total manufacturing in employment."[8] Within the industry, logging and sawmill activities have in the past shown a reduction in employment while plywood employment has grown. It is anticipated that emphasis on plywood and other manufactured board products will continue, but due to technological advances may not result in large increases in employment. Lumber and wood products as part of the major division of manufacturing are expected to decline from 9.45 percent in 1965 to 7.58 by 1975.

Paper and allied products. This subdivision is scheduled for expansion from 7,900 employees and 1.10 percent of manufacturing employment in 1965 to 9,900 employees and 1.23 percent in 1975. The demand for paper continues to increase and Oregon's large share of raw materials needed in paper production suggests an area of potential growth.

Transportation, Communication and Utilities

This segment of Oregon employment is expected to continue its decline until 1975 and then maintain a relatively stable employment figure of 45,000. The anticipated reduction in rail transportation employment will probably be compensated by a slight increase in employment in non-rail transportation until somewhat of a balance is achieved in the combined transportation segment.

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[8]Changes in Oregon Employment 1947-1960 with Forecasts to 1985, prepared by The Bureau of Business Research (Eugene: University of Oregon, March, 1964), p. 14.

Technological advances in the communication field are expected to expand more rapidly than the increased population will raise the demand for new services, resulting in a trend of declining employment. In the sector of public utilities the reverse seems to occur. The demand for increased services, particularly those associated with urbanization, is expected to outstrip the normal growth of mechanization and result in increased employment. If the anticipated decline in communication workers is compared with the anticipated growth of utility employees, there results a balance where one offsets the other and relatively stable employment is projected through 1975.

Wholesale and Retail Trade

Wholesale and retail trade, representing the largest nonmanufacturing division of total state employment, is expected to gain approximately 10,000 workers in the next ten-year period. Table 23 reflects 118,300 employees and 16.43 percent of the total in 1965 and 128,500 and 15.98 percent respectively by 1975. The decline in percent is matched by a slight reduction in rank from second to third position. "The percentage decline will be confined to the retail sector because this is where most of the labor-saving innovations will probably arise. Wholesale trade is expected to increase both in employment and as a percent to total employment in Oregon."[9]

Finance, Insurance and Realty

In spite of extensive mechanization in the field of finance, insurance and realty, the demand for additional services has resulted, and probably will continue to result, in increased employment. As the general affluence of the state continues to improve, it is anticipated that need for workers in these subsectors will grow.

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[9]Ibid., p. 23.

It is noteworthy that the need for the unique skills and abilities of these employees is expected to increase in the future.

The number employed and percentage are both expected to improve between 1965 and 1975 -- from 24,000 to 29,650 employees and from 3.33 to 3.69 percent. During the same time period it is anticipated that finance, insurance and realty will move from its position of ninth rank up to eighth place.

Services and Miscellaneous

Dependent upon rising consumer income, the services and miscellaneous category is expected to advance from 75,000 employees and 10.42 percent of the total in 1965 to 85,875 and 10.68 percent by 1975. While this division of Oregon employment is particularly sensitive to tourist traffic as it relates to hotels, motels, and entertainment, the bulk of employment activity is concentrated in the local fields of legal and medical services. Growth in this area is therefore dependent more on increased services to local residents than on services to tourists and travelers.

Government

Government at all levels has shown a steady increase since 1947 and is expected to maintain its direction and pace until 1975. Due to the growing demand for increased services at the local and state level and in the absence of seasonal or cyclic changes, the field of government will probably move upward from 114,100 employees and 15.85 percent of the total in 1965 to 139,500 workers and 17.35 percent by 1975. In addition, this division of employment will move upward from a rank of third in 1965 to second position in 1975.

Table 25

GAIN AND LOSS IN PROJECTED EMPLOYMENT
BY MAJOR STANDARD INDUSTRIAL CLASSIFICATION GROUP
STATE OF OREGON, 1965 - 1975

Division		1965	1975	Gain	Loss	Percent of Change
Div. A	Agriculture	72,800	66,250	-	6,550	- 9.0
N.C.	Self-Employed Non-Agricultural	99,200	105,750	6,550	-	+ 6.6
Div. B	Mining	1,200	1,300	100	-	+ .8
Div. C	Construction	27,000	29,000	2,000	-	+ 7.4
Div. D	Manufacturing (Total)	145,400	155,000	9,600	-	+ 6.6
Div. E	Transportation, Communication Utilities	43,000	45,000	2,000	-	+ 4.6
Div. F	Wholesale & Retail Trade	118,300	128,500	10,200	-	+ 8.6
Div. G	Finance, Insurance, Realty	24,000	29,650	5,650	-	+23.5
Div. H	Services & Miscellaneous	75,000	85,875	10,875	-	+14.5
Div. I	Government (Total)	114,100	139,500	25,400	-	+22.2
N.C.	Industry "X"[1]	-	18,175	18,175	-	-
	TOTAL	720,000	804,000	90,550	6,550	+12.6

[1]Devised by the Bureau of Business Research, University of Oregon, to show those persons expected to be employed throughout the forecast period, but whose point of employment in the economy could not be predicted. It is derived as the difference between the projection of total employment and the sum of the separate industry projections.

Summary

Collectively speaking, Oregon's rate of employment is expected to increase in all of the major employment divisions during the next decade, except agriculture where it will decrease by 9.0 percent (Table 25 above). New employment opportunities will be available primarily in the areas of government, the many

subdivisions of manufacturing, wholesale and retail trade, and non-agricultural self-employment. Indeed, these four divisions are expected to constitute 66 percent of the employment in 1965 and 1967.

A general interpretation of the direction of the state's employment needs will lend some guidance and direction to those persons involved in the planning and implementation of vocational education for future workers.

CHAPTER IV

EMPLOYMENT DISTRIBUTION AND OCCUPATIONAL NEEDS OF COLUMBIA COUNTY

This chapter discusses the employment opportunities in the County in terms of: (1) existing employment distribution by occupation within each broad industrial group, (2) forecast needs by broad occupational groups, (3) future demand in selected occupations, (4) employer hiring requirements, and (5) employer opinion concerning vocational education and willingness to cooperate with the schools in programs of vocational education.

Methodology

The **tabular data** for this chapter were collected by the Oregon Department of Employment and cover all major non-agricultural industry divisions for which employment was reported in the second quarter of 1964. Agriculture, self-employment, unpaid family workers and domestic service were excluded for two reasons: (1) there is no method of establishing a reliable total of such employment and (2) there is no method of drawing a sample.

The data were developed by a sampling procedure. Total employment for each major industrial division was established and a sample list of employers was drawn accounting for approximately 50 percent of the total employment in each division. Information concerning non-profit organizations and local government was developed on a 100 percent basis, since there was no prior bench mark.

A confidential report form was applied to each employer in the sample list asking for the information listed in the first paragraph of this chapter. All employers were notified by letter that they had been selected for sampling. A subsequent telephone call was used for establishing a definite date for contact and all succeeding contacts were made by field visits.

The returned reports were reviewed for accuracy and completeness, and occupations coded by use of the Dictionary of Occupational Titles. Inflationary factors were applied to bring the employment represented by each industry sample group to the actual employment figure of that group.

Attrition rates were computed by use of Standard Tables of the U.S. Bureau of Labor Statistics.

Employment Distribution

An analysis of the workers presently employed in Columbia County by industry, occupation, sex and age group reveals information useful to school personnel who are considering vocational education programs.

Approximately 25 percent of the total industrial employees are women. There is a steady demand for and a fairly consistent turnover of female employees. Experience shows that due to family responsibilities and other demands approximately 20 percent of the women leave the work force after two years and 50 percent within five years. A small percent of these return at about 35 years of age. Nearly 40 percent of the employees in wholesale-retail trade are women. There is also a high ratio of female workers in the finance, insurance and real estate, service, and government classifications. Fifty-seven percent of the women are in clerical or service occupations.

Workers in the youngest age group, under 25 years, comprise 8.4 percent of the total work force sampled. It is noted that 212 of the 332 workers under 25 years of age are either semiskilled or unskilled employees.

Only five workers in this group are classified as being skilled in their trade. These data suggest that the youth are not remaining in Columbia County and those who do stay and work do not possess the training and related experience necessary to command jobs above the semiskilled level.

Tables 26 through 35 are tabulations of the distribution of employment in Columbia County by sex, age, occupation and industry. Careful study of these tables will give a complete understanding of the employment structure of the County as it relates to the industries and occupations sampled.

Forecast Needs by Broad Occupational Groups

Selection of occupations for tabular exposition was extremely difficult. Viewing the totals for broad occupational groups, with the relatively small totals for expansion and replacement in each group, it is hard to visualize any specific occupations within these groups as being worthy of further treatment.

The data for each occupation were processed manually and subjected to visual checking. This process revealed that there were wide differences in the future estimated demand for varying specific occupations within the broad groups. For example, within the clerical group one specific occupation, that of telephone operator, will be in surplus supply within the next two years, whereas the occupation of general office clerk will probably develop a shortage.

Similarly, in some of the skilled occupations ordinarily associated with Columbia County's manufacturing there will be actual reductions in employment, whereas the skilled occupations associated with trade and service show an above normal expansion in the next five years. The latter is not an abnormal factor -- even the projected increases will not bring the employment in these two industries up to the norm when measured in percentages.

Tables 36 and 37 show forecast needs by broad occupational groups for two and five years. While the schools will not be directly concerned with all the major occupational groups, e.g., professional and unskilled, they have been included to provide a more comprehensive interpretation of employment needs within the County.

Total expansion and replacement needs for 1967, which the schools could help resolve, are most evident in the skilled and clerical occupations. By 1970 the greatest number of workers will again be needed in clerical, skilled and also semiskilled occupations.

A few specific occupations for which vacancies will occur by 1970 are included in Table 38. Other than the occupations listed, the projected expansion is simply too generalized to be tabulated. There are such things to be added as 8 tugboat captains, a like number of deck hands, 3 chemists (pulp), 4 laboratory technicians (medical), 6 grocery checkers (already in training) and other occupations too numerous to note, by ones, twos and threes. The Department of Employment believes that about the only sensible way to use the information available is to take a fix on the need by broad occupational groups, add the employer hiring requirements for each group and try tc arrive at some sensible method of pre-employment training which would be of help to the employer.

Employer Hiring Requirements

Generally speaking, the hiring specifications of Columbia County employers are not stringent. Manufacturing, which accounts for almost two-thirds of the total employment, has little or no experience requirements. The larger firms have a general requirement of high school education, but since most jobs above the entry level are subject to union bid, no specific experience can be identified. The smaller firms ordinarily do specify experience in those jobs where it may be appropriate, but this is usually in lieu of education or other training. (Table 39)

Aside from manufacturing, for those occupations which normally require some training beyond high school there is an almost universal employer preference for experience rather than training. This is not unusual in that due to the absence of training programs, experience, however gained, has become a substitute for training.

Table 26

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX FOR ALL INDUSTRIAL GROUPS
COLUMBIA COUNTY: 1965

Major Occupation Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	437	217	25	72	164	132	38	6
Technical	53	4	0	16	19	8	10	0
Managerial	237	25	0	29	68	86	38	16
Clerical	356	300	33	119	125	57	20	2
Sales	203	75	22	55	66	29	30	1
Service	349	257	35	55	120	83	52	4
Skilled	658	18	5	145	230	193	83	2
Semiskilled	1,003	23	86	285	285	247	98	2
Unskilled	699	55	126	149	161	144	118	1
Total	3,995	974	332	925	1,238	979	487	34

Table 27

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE, AND SEX FOR CONSTRUCTION INDUSTRY
COLUMBIA COUNTY: 1965

Total Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	0	0	0	0	0	0	0	0
Technical	0	0	0	0	0	0	0	0
Managerial	6	0	0	2	4	0	0	0
Clerical	2	2	0	0	0	2	0	0
Sales	4	0	0	0	2	0	2	0
Service	0	0	0	0	0	0	0	0
Skilled	46	0	0	10	24	8	4	0
Semiskilled	24	0	0	10	6	6	2	0
Unskilled	10	0	4	4	2	0	0	0
Total	92	2	4	26	38	16	8	0

Table 28

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX FOR LUMBER, LOGGING AND WOOD PRODUCTS INDUSTRY, COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	25	0	0	2	15	8	0	0
Technical	3	0	0	0	2	0	1	0
Managerial	17	0	0	0	3	7	5	2
Clerical	30	17	3	8	10	5	4	0
Sales	0	0	0	0	0	0	0	0
Service	8	0	0	2	0	1	5	0
Skilled	161	0	0	15	40	76	30	0
Semiskilled	664	0	68	158	207	171	58	2
Unskilled	219	0	41	48	60	35	35	0
Total	1,127	17	112	233	337	303	138	4

Table 29

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX FOR MANUFACTURING PULP INDUSTRY
COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	21	0	0	6	8	4	3	0
Technical	35	0	0	13	9	7	6	0
Managerial	29	0	0	0	5	21	3	0
Clerical	28	15	3	8	8	4	5	0
Sales	0	0	0	0	0	0	0	0
Service	14	0	4	1	0	1	8	0
Skilled	183	0	0	43	64	52	23	1
Semiskilled	158	15	0	54	40	36	28	0
Unskilled	392	48	68	78	76	99	70	1
Total	860	78	75	203	210	224	146	2

Table 30

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX
FOR MANUFACTURING OTHER THAN LUMBER, WOOD PRODUCTS AND PULP
COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	6	2	0	0	2	4	0	0
Technical	1	0	0	0	1	0	0	0
Managerial	13	5	0	0	4	8	1	0
Clerical	13	12	2	2	4	3	2	0
Sales	9	6	2	0	0	5	1	1
Service	3	3	0	2	0	1	0	0
Skilled	50	1	0	7	17	22	4	0
Semiskilled	26	0	4	12	4	6	0	0
Unskilled	5	1	0	2	1	2	0	0
Total	126	30	8	25	33	51	8	1

Table 31

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX
FOR TRANSPORTATION, COMMUNICATIONS AND PUBLIC UTILITIES
COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	2	0	0	0	1	1	0	0
Technical	2	0	0	1	1	0	0	0
Managerial	42	2	0	4	9	14	11	4
Clerical	46	34	2	21	16	6	1	0
Sales	2	0	0	0	2	0	0	0
Service	2	2	0	0	0	0	0	2
Skilled	37	0	0	7	14	9	7	0
Semiskilled	43	0	5	23	12	3	0	0
Unskilled	6	0	2	2	1	1	0	0
Total	182	38	9	58	56	34	19	6

Table 32

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX
FOR WHOLESALE AND RETAIL TRADE INDUSTRY, COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	6	0	0	3	2	1	0	0
Technical	0	0	0	0	0	0	0	0
Managerial	99	11	0	17	36	27	12	7
Clerical	97	89	6	34	42	14	1	0
Sales	159	64	18	47	54	13	27	0
Service	158	125	23	39	49	38	9	0
Skilled	92	0	3	42	36	6	4	1
Semiskilled	39	0	7	16	8	5	3	0
Unskilled	48	5	8	12	16	5	7	0
Total	698	294	65	210	243	109	63	8

Table 33

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE AND SEX
FOR FINANCE, INSURANCE AND REAL ESTATE, COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	3	0	0	1	2	0	0	0
Technical	0	0	0	0	0	0	0	0
Managerial	8	0	0	1	4	2	1	0
Clerical	39	42	2	15	18	4	0	0
Sales	23	4	0	6	8	9	0	0
Service	8	2	0	0	4	0	4	0
Skilled	0	0	0	0	0	0	0	0
Semiskilled	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0
Totals	81	48	2	23	36	15	5	0

Table 34

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE, AND SEX FOR SERVICE INDUSTRY
COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	26	13	0	0	10	9	7	0
Technical	9	4	0	0	6	1	2	0
Managerial	9	4	0	3	1	3	2	0
Clerical	38	33	8	7	14	7	2	0
Sales	6	1	2	2	0	2	0	0
Service	59	48	5	4	44	4	2	0
Skilled	38	0	2	9	9	12	6	0
Semiskilled	19	8	2	7	2	7	1	0
Unskilled	10	1	3	2	4	0	1	0
Total	214	112	22	34	90	45	23	0

Table 35

EMPLOYMENT DISTRIBUTION BY OCCUPATION, AGE, AND SEX FOR GOVERNMENT, INCLUDING EDUCATION
COLUMBIA COUNTY: 1965

Major Occupational Group	Total Employment	Female	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65
Professional	348	202	25	60	124	105	28	6
Technical	3	0	0	2	0	0	1	0
Managerial	14	3	0	2	2	4	3	3
Clerical	63	56	7	24	13	12	5	2
Sales	0	0	0	0	0	0	0	0
Service	97	77	3	7	23	38	24	2
Skilled	51	17	0	12	26	8	5	0
Semiskilled	30	0	0	5	6	13	6	0
Unskilled	9	0	0	1	1	2	5	0
Total	615	355	35	113	195	182	77	13

Table 36

FORECAST NEED BY BROAD OCCUPATIONAL GROUPS, COLUMBIA COUNTY: 1965-1967

Broad Occupational Groups	Current Employment (April 1965)	Expansion Needs 1965-1967		Replacement Needs 1965-1967		Total Expansion and Replacement		Total Estimated Employment 1967
		Number	%	Number	%	Number	%	
Professional	437	29	6.6	21	4.8	50	11.4	466
Technical	53	2	3.8	1	2.0	3	5.8	55
Managerial	237	8	3.5	14	6.0	22	9.5	245
Clerical	356	24	6.6	15	4.1	39	10.7	380
Sales	203	13	6.2	9	4.3	22	10.5	216
Service	349	6	1.7	20	5.7	26	7.4	355
Skilled	658	32	4.8	18	2.7	50	7.5	690
Semiskilled	1,003	25	2.5	20	2.0	45	4.5	1,028
Unskilled	699	15	2.1	23	3.3	38	5.4	714
Total	3,995	154	3.8	141	3.5	295	7.3	4,149

Table 37

FORECAST NEED BY BROAD OCCUPATIONAL GROUPS, COLUMBIA COUNTY: 1965-1970

Broad Occupational Groups	Current Employment (April 1965)	Expansion Needs 1965-1970		Replacement Needs 1965-1970		Total Expansion and Replacement		Total Estimated Employment 1970
		Number	%	Number	%	Number	%	
Professional	437	73	16.7	56	12.8	129	29.5	510
Technical	53	8	15.0	5	9.4	13	24.4	61
Managerial	237	10	4.3	34	14.7	44	18.7	247
Clerical	356	68	18.8	44	12.1	112	30.9	424
Sales	203	21	10.1	25	12.0	46	22.1	224
Service	349	13	3.7	55	15.6	68	19.3	362
Skilled	658	62	9.4	52	7.9	114	17.3	720
Semiskilled	1,003	42	4.1	65	6.4	117	10.5	1,045
Unskilled	699	26	3.7	61	8.7	87	12.4	725
Total	3,995	323	8.1	397	9.9	730	18.0	4,318

Table 38

FUTURE DEMAND IN SELECTED OCCUPATIONS, COLUMBIA COUNTY: 1965-1970

Specific Occupation	Total Current Employment	Expansion Need to 1970*1	Replacement Need to 1970*2	In-Plant Trained To 1970*3	Net Training Need	MAJOR HIRING REQUIREMENTS		
						Training Only*4	Exp. Only	Training and Experience
Appliance Serv. man	11	12	1	0	13		3	V-1 and E-1
Auto Repair (incl. body repair)	77	23	6	4	25	A-4 and V-2	4	V-2 and E-1
Clerk, Gen. Office	93	31	11	0	42	B-1	1	B-1 and E-1
Machinist	19	12	2	1	13	A-4	4	V-2 and E-2
Meat cutter, Retail	30	16	3	2	17	A-4	3	
Sales, Specialty	113	21	12	4	29	H.S.	1	
School Teachers	295	61	39	0	100	C-5		
Switchboard Operator	19	-11	1	1	-11	H.S.		
Construction Equip. Operator (Grader, Bulldozer Crusher, etc.)	33	19	3	0	22		1	
Heavy Truck Drivers	59	23	6	0	29		1	

*1 Includes current vacancies
*2 Current Unemployment deducted
*3 Includes formal apprenticeships

*4 C - College A - Apprenticeship
B - Business School HS - High School
V - Vocational School OJT - On-the-job training

Numbers following letters indicate years of training or experience. One year includes less than one.

Table 3

ANALYSIS OF EMPLOYER HI
COLUMBIA COUNT

MINIMUM TRAINING REQUIREMENTS OF MAJOR OCCUPATIONAL GROUPS
(EXPRESSED IN TERMS OF PERCENTAGES OF TOTAL EMPLOYMENT)

Occupational Group	Total Employment	No Report %	Less than High School %	Less than High School with Experience %	High School %	High School with Experience %	Trade School %	Trade School with Experience %	Business School %	Business School with Experience %
Professional	437	.0	.0	.0	.0	.3	.0	.0	.0	3.6
Technical	53	.0	.0	.0	.0	.0	13.2	36.3	.0	.0
Managerial	237	5.7	.0	.0	.0	54.3	.0	.0	.0	22.3
Clerical	356	.0	.0	.0	14.7	38.3	.0	.0	28.2	18.8
Sales	203	1.0	.0	.0	41.3	55.2	.0	.0	.3	2.2
Service	349	.0	28.0	16.0	28.2	27.8	.0	.0	.0	.0
Skilled	658	.9	.0	.0	.0	12.3	28.2	29.6	.0	.0
Semiskilled	1,003	.0	18.3	16.2	41.1	24.4	.0	.0	.0	.0
Unskilled	699	.0	13.1	4.3	72.6	10.0	.0	.0	.0	.0

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R HIRING REQUIREMENTS
OUNTY: 1965

with Experience	College				College with Experience	Formal Apprenticeship	Optional			MINIMUM EXPERIENCE REQUIREMENTS (EXPRESSED IN PERCENTAGES OF TOTAL EMPLOYMENT) Years of Experience						
	One Year	Two Years	Three Years	Degree			Trade School or College	Business School or College	Trade School or Apprenticeship	No Report	Less than One	One to Two	Two to Three	Three to Four	Four to Five	Five or More
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
6	.0	.0	2.4	77.3	16.4	.0	.0	.0	.0	.0	79.7	3.1	6.5	.0	1.1	9.6
0	.0	13.2	9.4	9.8	18.1	.0	9.3	.0	.0	.0	20.6	9.9	22.6	1.3	.0	.0
3	.0	.0	.0	.0	17.7	.0	.0	.0	.0	.0	20.1	23.4	13.1	4.3	11.1	22.3
8	.0	.0	.0	.0	.0	.0	.0	16.0	.0	.0	.3	43.1	13.7	.0	.0	.0
2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.8	50.3	6.3	.0	.0	.0
0	.0	.0	.0	.0	.0	.0	.0	.0	27.3	.0	.0	41.3	2.5	.0	.0	.0
0	.0	.0	.0	.0	.0	31.0	.0	.0	.0	.0	.0	13.1	5.9	6.0	16.9	.0
0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	36.8	3.1	.5	.0	.0
0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	6.1	8.2	.0	.0	.0	.0

It should be kept in mind that the data in this chapter encompass only the currently operational firms and plants in Columbia County. The two- and five-year estimates of these firms do not indicate any considerable employment expansion, although the expansion indicated closely approaches normal. Moreover, these estimates show a reversal of the downward trend of the past few years.

In addition to the expansion indicated, at least two major firms have projected completely new manufacturing plants in the area, which should assure a continued upward turn in employment. No figures are presently available as to the exact types of occupations which will be used by these firms, but it does appear that the increase in employment will be gradual, and will represent the addition of some 1,200 jobs in manufacturing over a period of ten years. At this point it would be inappropriate to estimate the number of supporting jobs in non-manufacturing which would result from these projected additions. For example, manufacturing presently accounts for almost two-thirds of total non-agricultural employment in Columbia County. If this pattern should hold over the next ten years, there would be an addition of some 600 to 700 jobs in nonmanufacturing. On the other hand, manufacturing normally accounts for only an approximate one-third of the total non-agricultural jobs in any given labor market of the size which Columbia County will reach in the next ten years. On this basis, the addition of more than 2,000 jobs in nonmanufacturing could be expected.

The data developed in the course of this study indicate there will be some shifts of percentages in the major industrial groups which will tend to bring non-manufacturing employment somewhat closer to the norm than at present. None of the 8.1 percent of estimated expansion for the next five years is in the manufacturing group. Indeed, some segments of manufacturing have indicated a decrease in employment, particularly in the clerical, skilled and semiskilled occupations.

On the other hand, both trade and service have indicated considerable expansion in the next five years - approximately 25 percent for trade and almost 20 percent in the case of services.

As elsewhere, communication, transportation and utilities are static, with the only change being a shift in occupational emphasis.

Modest expansion at near a normal rate is estimated for finance, insurance, and real estate, but government, including education, is currently estimating an increase at slightly above the average for all other occupational groups.

Employer Opinion About Vocational Education

The following is a summary of beliefs, considerations and existing conditions from 69 firms sampled in Columbia County that pertain to vocational education in the high schools. The data were obtained from a questionnaire completed by firm owners, managers and supervisors. The best method of presentation is to report the content of the various related portions of the data and then attempt to extract some relevant generalizations.

The most popular method for employers to obtain workers for both large and small firms in each major industrial classification is simply through volunteer application. Nearly 60 percent of the firms sampled listed this as the major means of acquiring workers. The second most frequently used hiring practice, 11.6 percent, is to obtain workers through informal association with current employees. The firms have not had to actively recruit workers, rather they select from among those making application. The public schools are ignored; none of the firms indicated they approach the high schools or even the colleges to obtain workers.

Slightly over half of the firms sampled hire part-time workers - usually a single employee. Seven employers hire two, eight hire three and six firms hire

four employees. Only three companies hire more than six part-time persons. Those existing part-time jobs which could be coupled with vocational education programs in the schools are: hospital aide, secretary, file clerk, stenographer, bookkeeper, sales personnel, service station attendant, auto parts person, and stock boy. The range of occupations is nearly as extensive as the number of opportunities since nearly every employer hires workers with different skills. The problem lies not in the variety of occupations but in the limited number of opportunities for part-time work that might be correlated with vocational training programs in the schools.

A small number of employers, 26 percent, hire seasonal help. Six firms hire from 10 to 50 seasonal employees. Seasonal peaks occur primarily from June through September for construction, lumber and transportation industries and from November through December for many wholesale and retail trade firms. The nature of the seasonal work is not unlike that performed by part-time employees, with the exception of more semiskilled and unskilled workers. Seasonal work is manifestly more difficult to coordinate with programs of vocational education.

Thirty-four percent of the firms conduct their own training programs. These programs consisted of training in hand and manipulative skills and presentation of technical information. The instruction is usually accomplished by a supervisor and fellow worker.

A single firm reported hiring one student under a cooperative work experience program. It is assumed that either the student is from a school district outside of the County or the respondent misunderstood the question since none of the County high schools reported placing a student with any employer under the conditions pertaining to work experience programs. When asked if consideration would be given to hiring acceptable student learners in cooperative work experience

situations, 21 firms or 30 percent replied in the affirmative, 17 or 24 percent were uncertain and the remaining 31 firms either indicated dissatisfaction with the idea or failed to respond. Six firms said they would consider students to work in sales, six companies marked business and office occupations and the remainder reported students could learn and gain experience in the following occupations: automotive mechanics, auto parts man, appliance repair, machinist, welding, service station attendant, cooking (restaurant), sales clerk and drafting. The total number of students considered for work experience programs was 27.

There are only three indentured apprentices registered with the Oregon Apprenticeship Council among the employees of the firms sampled. Each of the apprentices, an electrical power lineman, an industrial maintenance electrician and a pressman is with a separate firm.

When the employers were asked if they would consider providing work for acceptable high school students without pay for periods of one to two weeks, or more, in order to help introduce potential employees to the world of work in general and to the nature of work conducted by their firm, 23 firms or 33.3 percent said "yes," 14 or 20.3 percent were "uncertain" and 32 or 46.4 percent marked "no" or failed to respond. The questionnaire stated that it was assumed that problems relative to the State Industrial Accident Commission and work permits could be resolved and that students would be expected to maintain regular hours and conscientiously devote their time and energy to the tasks assigned them. Many of the employers in the "uncertain" category remarked they were interested but needed more information before they would consider hiring students under the stated conditions. Numerous comments written in the margin of the questionnaire by representatives of those firms giving negative responses indicated they too were interested and considered the idea worthwhile but labor union regulations prohibited

their participation. Those firms friendly to the work without pay program represented one or two of the larger businesses and a few firms with 11 to 35 employees, but the strongest interest came from firms employing from 2 to 10 workers. All industrial classifications indicated either a willingness to cooperate or displayed an interest and reserved making a decision until more data were available. A total of 39 students would be considered under this program. The questionnaire asked the opinions of the firm representatives concerning vocational education programs and the firm's willingness to cooperate in some aspects of occupational training. (See Table 40) In general the firms are strong supporters of vocational education in the high schools. For those questions designed to assess the overall attitude toward vocational education, the percent of favorable responses ranged from 68 to 87 with most of the replies above the 80 percent level. Not only are the firms supportive of the general program of vocational education, but indicated a preference, 81 percent, for hiring high school graduates with two years of vocational training applicable to their business over a student with no training. A strong positive attitude prevails as long as the employer is neither directly nor personally involved. Recognizing there are exceptions, it is noted that when the firms were asked if they would convert their interest into action such as serving on advisory committees and helping to establish and operate pre-employment training programs, the enthusiasm subsided somewhat. The degree of acceptance dropped to the 48 to 55 percent level.

The firms are generally supportive of vocational education, but they are also willing to let someone else do the work necessary to initiate and maintain such a program.

Summary

Approximately two-thirds of the workers covered in the sample are employed in manufacturing industries. Women comprise nearly 25 percent of the sampled workers

Table 40

OPINIONS OF OWNERS, MANAGERS AND SUPERVISORS OF SELECTED BUSINESS AND INDUSTRIAL FIRMS RELATIVE TO VOCATIONAL EDUCATION, COLUMBIA COUNTY: 1965

N = 69

Item	Response											
	SA	%	A	%	U	%	D	%	SD	%	NR	%
The high schools should make pre-employment[1] vocational training available to high school students.	24	34.8	31	44.9	3	4.3	2	2.9	-	-	9	13.0
Would your firm cooperate with the schools by employing acceptable graduates of pre-employment training programs if openings were available?	16	23.2	31	44.9	13	18.8	4	5.8	1	1.4	4	5.8
Would your firm cooperate by having a representative on a committee to advise in establishing and operating such a pre-employment training program?	8	11.6	25	36.2	22	31.9	7	10.1	3	4.3	4	5.8
In general, I would recommend vocational education as a part of the public school system.	22	31.9	38	55.1	2	2.9	2	2.9	-	-	5	7.2
If time were available, I would be willing to work on a vocational education advisory committee.	9	13.0	29	42.0	15	21.7	11	15.9	1	1.4	4	5.8

Legend: SA - Strongly Agree; A - Agree; U - Uncertain; D - Disagree; SD - Strongly Disagree; NR - No Response

[1]The term pre-employment is synonomous with vocational education. It should not be confused with pre-vocational education such as English, mathematics and industrial arts.

Table 40 (Continued)

N = 69

Legend

SA - Strongly Agree
A - Agree
U - Uncertain
D - Disagree
SD - Strongly Disagree
NR - No Response

Item	Response											
	SA	%	A	%	U	%	D	%	SD	%	NR	%
Vocational education should not be offered in the public schools because business and industrial firms can do a better job of training their own workers.	1	1.4	2	2.9	8	11.6	36	52.2	18	26.1	4	5.8
High school training in occupational skills and technical information would be of value to a young person before he enters an apprenticeship.	22	31.9	38	55.1	5	7.2	-	-	-	-	4	5.8
I would recommend vocational education for any community feeling a need for and capable of supporting it.	18	26.1	39	56.5	7	10.1	-	-	-	-	5	7.2
In general, I feel that industry does cooperate in vocational education programs.	2	2.9	29	42.0	28	40.6	5	7.2	1	1.4	-	-
The objectives of vocational education can best be met in industry and not in the public schools.	-	-	5	7.2	17	24.6	34	49.3	7	10.1	6	8.7
The high school graduate who has successfully completed vocational education training in high school is ordinarily better qualified for entry into the world of work than the student who has not had this training.	14	20.3	43	62.3	5	7.2	1	1.4	-	-	6	8.7
Our firm would prefer to hire a high school graduate with two years of vocational training applicable to our business over a student with no vocational training.	19	27.5	37	53.6	5	7.2	3	4.3	-	-	5	7.2
In general, my attitude toward vocational education as an integral part of a public high school curriculum is:	Very Favorable		Somewhat Favorable		Uncertain		Somewhat Unfavorable		Very Unfavorable			
	44	63.8	17	24.6	2	2.9	2	2.9	-	-	4	5.8

and create a constant need for their services by leaving the work force in large numbers each two- and five-year period. More than half of the workers are between 25 and 44 years of age. Workers under 25 years make up 8.4 percent of the employees and largely furnish semiskilled and unskilled labor. The primary areas in which the schools could help resolve future occupational shortages are technical, clerical and skilled occupations. Hiring requirements are not particularly rigid. The larger firms prefer a high school education while the smaller companies place a premium on experience. Columbia County employers have expressed an interest in and desire for vocational education programs in the schools. Numerically, there are limited employment opportunities presently available in Columbia County. Youth can be expected to seek work outside of the County.

CHAPTER V

VOCATIONAL EDUCATION PROGRAMS IN COLUMBIA COUNTY HIGH SCHOOLS

There are five high schools in Columbia County serving in 1964-65 a total of 980 junior and senior students[1]: (1) Clatskanie Union High School (154), (2) Rainier Union High School (160), (3) Scappoose Union High School (224), (4) St. Helens Senior High School (350), and (5) Vernonia High School (92). Data relative to the vocational or occupational education programs in each of these schools were collected and analyzed in order to examine the collective and in some cases the individual status of existing programs. Interviews were held with school superintendents, principals, counselors and librarians. Teachers of vocational education courses and all students in grades 11 and 12 were asked to respond to questionnaires.

Philosophy of Education

Accepting the philosophy of the schools as a barometer of educational values and goals embraced by the community and school personnel, the printed philosophy of each high school or district was reviewed to determine the school's position in regard to vocational education. References to vocational education were generally brief, submerged within the total presentation, and left the reader with the notion that education for employment currently represents a minor part of the central purpose of the schools in Columbia County.

Statements pertinent to vocational education from three schools were extracted as follows:

> Opportunity then must be provided through the school program so that the student may achieve the following ends: . . . Equip himself

---

[1]Data obtained from individual high schools. Figures reflect May 3, 1965, enrollment.

with fundamental skills and knowledge which the individual may use as the foundation for his vocation. (St. Helens)

> . . . we must see that society has traditionally delegated to the American public school . . . the primary responsibility of the mental and intellectual development of the individual. We would define the intellectual development as mental preparation for vocational utilization.

A list of objectives accompanying the above paragraph emphasized preparation in business and office training.

> . . . to provide the opportunity for students to master that form of business training which concerns every member of an organized society and to encourage proficiency in that form of training which prepares individuals for employment in business positions.
>
> . . . to provide the opportunity for students to develop mental and manual skills which will lead to gainful employment. (Scappoose)
>
> The school must extend its program to include courses that help boys and girls to solve practical problems, and to be successful workers in many fields. (Vernonia)

Clatskanie High School has developed a philosophy of industrial arts as it applies to the general school philosophy, but no statement pertinent to vocational education. Rainier omitted any references to vocational education in its stated philosophy.

Identification of Vocational Education Courses and Enrollment Trends

The identification of high school courses to be considered as vocational education for the purpose of this study was an essential yet complex and difficult task. The principal of each school was asked to select, according to the definition presented earlier in this report, those courses which were considered by personnel in his school to be vocational. It then became necessary to relate the course content to the accepted definition in order to properly classify the courses under study. It was disappointing to note that none of the schools had available a comprehensive description of courses they considered to be vocational.

Vernonia High School has prepared topical outlines of vocational courses offered in that school. Three schools offered a brief paragraph of courses from a student handbook -- the type distributed to students at the beginning of the school year, but no complete and thorough report of what the courses contained was available.

For those courses where inclusion was questioned by both the school principal and the writer, the teacher of the course was consulted and texts were examined in order to resolve the question. Not all courses endorsed by the teacher and principal involved as being distinctly vocational in nature were accepted as fully representative of the accepted definition of vocational education. The difference in acceptance arose from conversations with selected teachers and from reading responses to questionnaire items relative to the teacher's interpretation of the content and purpose of that course. However, those courses classified by school personnel as vocational education will be treated as such in this report and are listed below:

Clatskanie

Bookkeeping
Electronics
Shorthand

Rainier

Agriculture
Bookkeeping
Home Economics
Shorthand
Typewriting

St. Helens

Agriculture
Bookkeeping
Home Economics
Mechanical Drawing
Related Occupations
Secretarial Practice
Shorthand
Typewriting

Scappoose

Agriculture
Bookkeeping
Business Machines
Office Practice
Shorthand
Typewriting

Vernonia

Bookkeeping
Electronics
Forestry
Horticulture
Metals - Advanced Shop
Plant and Animal Science
Power Mechanics
Office Practice
Shorthand
Technical Drafting

Enrollment trends. Enrollment trends are an indication of the importance students, the faculty and administration place on elective subjects. Students generally view vocational courses as a practical path to employment. Teachers of elective classes, in this case vocational offerings, maintain enrollment through their teaching proficiency, personality and enthusiasm for courses they teach. Administrators contribute to enrollment through insistence on proper counseling, a program schedule that is fair to all areas of the curriculum and encouraging a general attitude in a school that vocational education is important and worthwhile. Vocational enrollment trends for Columbia County from the school years 1960-61 are indicated in Figure IV.

It should be remembered that the schools were not uniform in their labeling of courses as vocational. One school, for example, would include home economics as being vocational in its structure and content and another would not. Some schools accepted mechanical drawing as preparation for employment under trade and industrial education when a similar program in other schools would be categorized as industrial arts.

One high school had no records available for enrollment in vocational agriculture for the years 1960-61 and 1962-63, business and office education for 1962 through 1964, and no data for home economic enrollees during the total five-year period. Estimates were given for business education. Another school reclassified their vocational courses for the 1964-65 school year and placed former agricultural titles under trade and industry.

In spite of the above limitations, Figure IV shows that student enrollment in vocational education throughout the County is increasing. Business and office education, enrolling as many students as all other categories combined, reached a plateau in excess of 500 students for the years 1963-64 and 1964-65 and recorded an

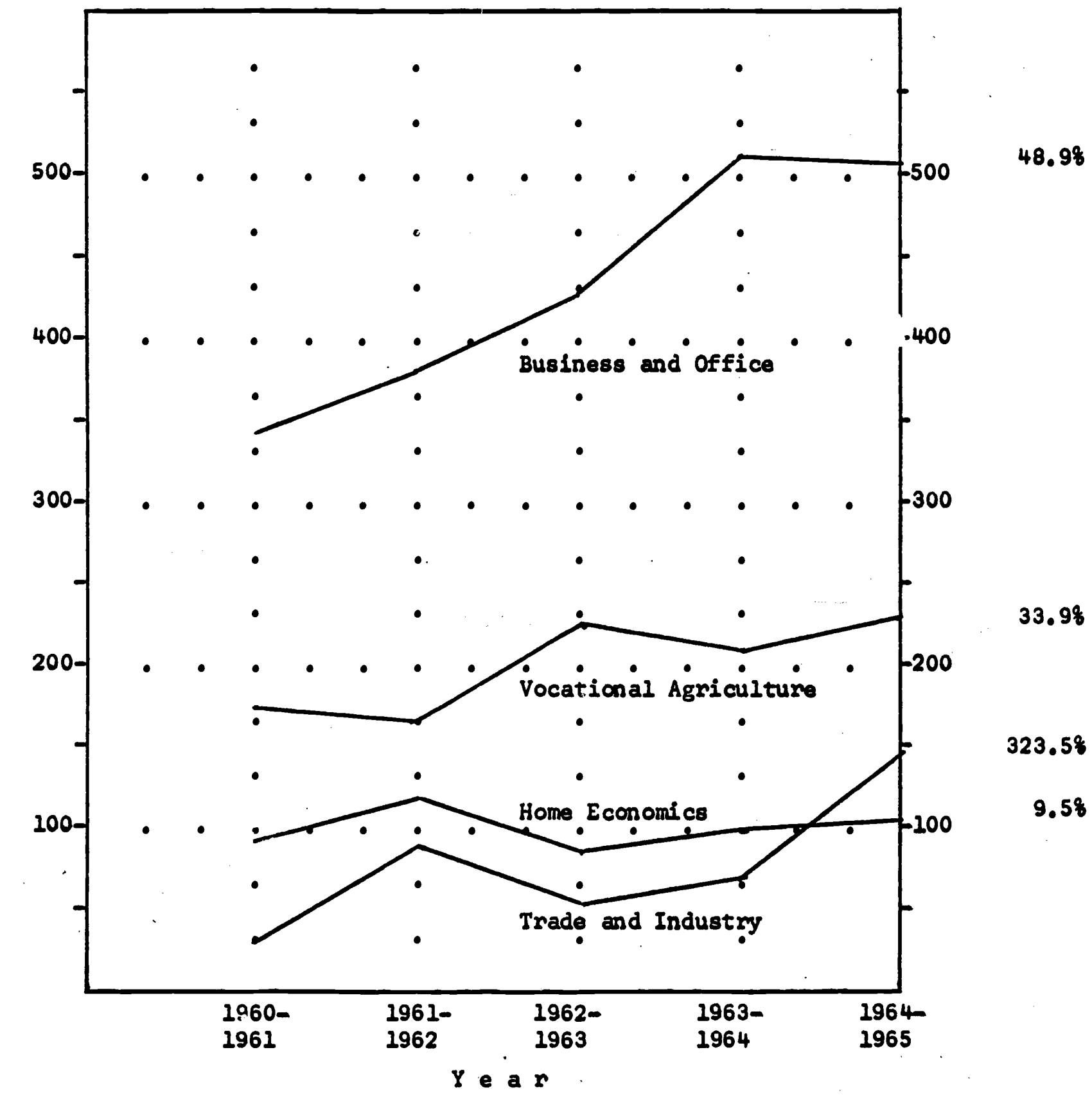


Figure IV. VOCATIONAL EDUCATION ENROLLMENT TRENDS IN COLUMBIA COUNTY HIGH SCHOOLS, 1960-1965.

increase of 48.9 percent from 1960-61 to 1964-65. Vocational agriculture shows an overall improvement or increase of 33.9 percent during the years cited. A high followed by a low and two years of gradually increasing enrollment to 9.5 percent beyond the figure five years previous describes enrollment in home economics. The sharp increase in percent enrolled for trade and industrial classes is explained in part by a change in course content and a redesignation of some classes from agriculture to trade and industry that occurred in one high school for the year 1964-65.

Recent Changes in Vocational Education Courses

The number of vocational courses that have been added to, modified or dropped from the curricula in the past five years will serve as an indicator of the recent changes that have occurred in Columbia County programs of vocational education. Recognizing that change, or its absence, is the result of many forces interacting within and about the school environment, the purpose here is simply to detect and record the program changes and indicate some of the factors giving impetus to change. A thorough analysis of the reasons for curricular changes is beyond the scope of this report.

Vernonia High is the only school to report an addition to its course offerings since the beginning of the 1960 academic year. The inclusion of power mechanics stemmed primarily from a general awareness by the faculty and administration of the need for such a course. Initial interest was prompted by reading from professional literature.

A firm decision has been made by Rainier and Vernonia schoolmen to add courses in forestry and building trades technology, respectively, for the 1965-66 school year. Subject areas for future consideration in other schools are reported

to be automotive mechanics and wildlife management (Rainier), electronics (Scappoose), and vocational home economics stressing home nursing and child care (St. Helens).

Reductions in vocational courses have occurred in two districts since 1960. Clatskanie dropped vocational agriculture in 1961 when declining student enrollment failed to justify its existence and Rainier was forced to cancel automotive mechanics in 1963 when a replacement could not be located for a departing teacher. None of the existing courses in the County are scheduled for elimination in 1965-66.

The single major curricular modification reported by building principals was accomplished when Vernonia attempted to upgrade the quality of their program by revamping the structure and content of vocational agriculture offerings. This alteration caused some of the modified courses to be more closely allied with, and the classification changed to trade and industrial education.

The methods to determine whether courses should be retained, modified in content, added or dropped were the same for all districts in the study -- informal teacher and principal evaluation, primarily in terms of student interest and enrollment. The school principals frequently mentioned that the ability to recruit and maintain proficient teachers of vocational education, quite obviously a function paramount to the conduct of a quality program, has been a challenging task. Qualified and experienced vocational education teachers are in short supply.

Principals' Responses to Questionnaire

When the building principals were asked for suggestions as to what the school could do to better equip the student to move from the classroom to the job, the responses covered a wide range of suggestions. Some of the remarks have been condensed and reproduced as follows:

Enlarge subject offerings, particularly trade and industrial courses, and consider initiating a program of distributive education. Our knowledge of job opportunities both within and outside of the County is limited. We don't know if we are giving our students the kind of training they really need. This situation needs to be corrected.

We need more resource persons to talk with and counsel our students. Field trips need to be expanded in frequency and magnitude in order to give the students a general picture of what work places are like. Work experience programs are still a good way to transfer the student to the job.

Help the terminal student, particularly those with a poor attitude. They won't do any better on the job than they have been doing in school. I don't know how to accomplish this.

Make the students aware of job opportunities. Create more counseling time. Most of our counseling time is spent on the college-bound student. We need more time for the terminal student. We haven't explored cooperative training programs as a way to help students prepare for work.

Work experience programs. Our district has arranged students [boys] to participate in construction projects on school property during the summer months. The work is supervised by faculty members from the vocational education department. A few students are also placed with industrial firms during the summer. These students have been willing to work without pay in order to gain valuable experiences and learn what the job is all about.

There is an expressed need among the administrators for additional counseling efforts to help the non-college student understand more about work opportunities, to view places of work in operation and to become generally acquainted with employment situations he can expect to confront when on the job. Work experience programs were considered by three principals, one of whom has helped to create arrangements in his district whereby students work without pay. Additional occupational information is wanted in order that schools can evaluate their current programs and be more certain the training received by students is representative of the needs of business and industry.

School principals were also questioned as to long-range goals and objectives they believe their school should consider relative to vocational education. A

tripartite theme emerged from their collective responses. The goal most frequently mentioned contained suggestions relative to establishing an effective work experience program that would allow students the opportunity to work on the job while still in high school. A second idea verbalized by the administrators was a belief that their schools as presently structured and financed are generally unable to provide training that would permit the student to move directly to the job. Attention should therefore be given to either strengthening the individual school programs through additional and more intensive course offerings or investigating the sharing of students and programs with other schools. The third aim is to increase the general importance and prestige of vocational education through increased emphasis in counseling and other means designed to upgrade the general attitude toward working with one's hands as well as one's mind.

Vocational Counseling Programs

> Some good counselors say that there is no such thing as vocational guidance, there is just guidance - for life. Others say that all guidance is vocational guidance because education contributes to success and happiness in a vocation . . . . Guidance may be conceived as those procedures that reveal vocational aptitudes, to those techniques that lead pupils to choose schools and vocations in which they will develop their highest potentialities and to those personalities (administrators, teachers, and counselors) who will inspire these youngsters to formulate high ideals and enable them to embody those ideals in their own lives.[2]

The counseling program in each of the county high schools is directed by a one-half or part-time counselor, or counselors, who also serve as classroom teachers or librarians. All counselors selected by the principal as respondents for the questionnaire used in this study, strongly indicated that the counseling personnel had insufficient time in the school day to perform properly the necessary professional duties of advisors and counselors. Many of the activities cited in

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[2]Franklin J. Keller, "Vocational and Educational Guidance," Vocational Education, Sixty-fourth Yearbook of the National Society for the Study of Education, Part I. (Chicago: University of Chicago Press, 1965), p. 141.

Table 41 (Page 94) which the schools fail to perform are, according to the school counselor, a result of insufficient time available for vocational counseling.

Assistance to students in securing employment is confined, for the most part, to vacation and part-time jobs. There are no formal placement services available to youth in any of the schools studied. The standard pattern for moving the student from the classroom to the job is generally irregular and inefficient. Employers needing workers will occasionally inform the local high school and ask them to recommend or send a student for an interview. There are no routine channels or procedures; it is rather an informal arrangement in which the participants are personally acquainted. Ordinarily the nature of this employment again calls for part-time help in retail stores and restaurants or some unskilled maintenance work of short duration. Three counselors expressed opinions that knowledge of permanent employment opportunities available to high school graduates in the nearby lumber and paper mills is not routed through the schools, but made available to selected students through relatives or acquaintances currently working at the firms. Extensive questioning further revealed that the student who withdraws from school without graduating is at an even greater disadvantage since no effort whatever is made to place this person in an occupation commensurate with his interests and abilities.

When asked what percent of the graduating students needing employment each year are aided by the school in locating a job, four schools replied between 1 and 4 percent. St. Helens reported from 20 to 25 percent of their students receive help from the school. Vernonia High has prepared a "Vocational Handbook" for distribution to students and provides some general help in applying for employment by giving to students a set of instructions relative to personal appearance and how to write letters of application. The counselors reported that most assistance

Table 41

ACCOMPLISHMENT OF SELECTED COUNSELING ACTIVITIES RELATED TO VOCATIONAL EDUCATION PROGRAMS BY HIGH SCHOOL

Activity	Clatskanie	Rainier	Scappoose	St. Helens	Vernonia
Assist students in securing part-time and vacation employment	S	N	S	F	S
Assist students who withdraw from school prior to graduation in obtaining suitable employment	N	N	N	N	S
Conduct or collect surveys of local and national occupational and training opportunities	N	S	F	N	S
Organize and file occupational information for effective use by students	F	S	F	F	F
Have knowledge of the local employment opportunities, requirements and conditions	F	F	F	F	F
Make results of occupational surveys available to those responsible for the improvement of the educational program	F	N	N	N	F
Have knowledge of training requirements for various occupations	F	F	F	F	F
Conduct student trips to business and industrial plant sites as potential places of employment	N	S	S	F	S

Legend: F Frequently
S Sometimes
N No

is granted to girls possessing some secretarial and/or business office skills. Girls without these skills and most boys are generally unprepared to command anything other than unskilled labor. There also seemed to be a universal agreement among the school personnel that information was lacking concerning vocational needs, desires and abilities of their students. Some attempts are being made however, to provide this information.

Testing Programs

Numerous methods are utilized to assist the student in uncovering his interests, attitudes and aptitudes and to stimulate his thinking in terms of vocational selection. Among frequently used devices are paper-pencil tests administered by school or other qualified personnel. Table 42 lists the tests that are administered, the year and group to which they are given.

Table 42

ADMINISTRATION OF VOCATIONAL APTITUDE, INTEREST AND ABILITY TESTS, BY HIGH SCHOOL

	Test									
	GATB		Kuder		Strong		DAT		Air Force	
School	Grade	No.	Grade	No.	Grade	No.	Grade	No.	Grade	No.
Clatskanie	12	All								
Rainier	12	All	11	All						
Scappoose	12	All	All volunteers				10	All		
St. Helens	12	All	12	All					12	Boys
Vernonia	12	All			All volunteers					

Legend:

General Aptitude Test Battery
Kuder Preference Record
Strong Vocational Interest
Differential Aptitude Test Battery
Airman Qualification Test

The General Aptitude Test Battery is always administered by a representative from the Oregon State Employment Service or in the case of Rainier High from the Washington State Employment Service. Students are informed of their scores and an interpretation of test results is provided by the Employment Service.

In all cases the school counselors review scores and discuss results with students individually or in small groups. Parents ordinarily do not participate in the analysis of these results.

Techniques for Presenting Vocational Materials and Information

Table 43 indicates some of the techniques used to present vocational materials and information to students. Answers were solicited by open-ended questions rather than a check list of all possible techniques.

Armed forces visitations at each school occur at least once a year and in some instances 3 to 4 times annually. The teaching units requiring one to two weeks usually take place in the modern problems course in the senior year, but are occasionally found in other social studies and English classes in grades 11 or 12.

Table 43

VOCATIONAL COUNSELING TECHNIQUES BY HIGH SCHOOL

School	Armed Forces Visitation	Teach. Unit	Career Day	Oregon Employment Counselor	Field trips to bus. and indus. firms
Clatskanie	X	X		X	X (irregular)
Rainier	X	X	X	X	
Scappoose	X	X		X	
St. Helens	X	X		X	X (irregular)
Vernonia	X	X	X(alternate years)	X	X (alternate years)

Since the unit is taught by academic teachers whose professional preparation and interests are in other areas, the question arises as to whether vocational information is properly treated. Most of the schools have abandoned a "career day" activity because of some evidence of insufficient student response, but more specifically due to inadequate time on the part of counselors to efficiently prepare and conduct such an activity. The field trips, which are ordinarily planned and executed by individual teachers, are coordinated with a single course in the student's curriculum, e.g., office practice, and stimulate a high degree of student interest. Individual teacher initiative and ambition are primarily responsible for the few trips that occur in three high schools.

Follow-up Studies

Follow-up studies of former high school graduates and non-graduates enable teachers and administrators to evaluate the school's contribution to the vocational success of students, to remain responsive to needed curricular changes, and to serve the current student population based upon information gained from their predecessors.

> Ideally the school requests and receives periodic reports from all its graduates, who have been so strongly indoctrinated with the importance of submitting this information that they rarely forget to do so. A staff of coordinators visits employers to acquire general information useful not only in counseling the young people but also in enriching the fund of knowledge and wisdom of the counselors.... With pertinent and meaningful data, longitudinal studies of this type carefully focused upon the combination of type of pupils, kind of curriculum and character of job, could do much for the validation of present counseling practices or for their improvement.[3]

Vernonia High School has conducted a follow-up study of students who graduated between 1955 and 1964. The remaining schools expressed an interest in and need for such a study, but no studies have been completed to date.

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[3]Franklin J. Keller, "Vocational and Educational Guidance," pp. 153-54.

Summary

Overall, it can be said that the vocational counseling programs in the five high schools are relatively dormant. Sufficient time has not been made available to fully explore student interests and abilities and to place them in positions of employment. The schools are unaware of local employment opportunities other than part-time or vacation jobs. Virtually all of the occupational literature available to counselors adequately describes regional and national employment situations, but little is known of current and potential training and occupational needs other than short-term part-time help within the County and in adjacent areas.

In a limited way the schools, with the aid of the State Employment Service, uncover some indications of student interests and aptitudes, however little is done with the test data other than supplying students with scores and interpretations of test results. Limited follow-up occurs to guide students in acquiring the employment skills commensurate with goals and competencies and in moving into an acceptable occupation or cluster of occupations. With the e ception of one high school, no information is currently available to counselors that describes the progress and success of former graduates. There is no way to measure the school's contribution to the student's vocational preparation.

School Libraries And Vocational Education

School libraries serve as repositories of knowledge and perform an integral role in the learning experience of high school youth. Libraries also serve as points for the dissemination of information. Because of this it was deemed advisable to consider ways the high school libraries contribute to programs of vocational education.

Each librarian participated in a structured interview that attempted to reveal the content and nature of library materials that pertain to vocational education,

the means by which students are informed of new and current library materials, and the loan policy of the libraries.

Table 44 gives the portion of total volumes, and periodicals that are classified under vocational and/or technical titles in each high school.

St. Helens High School, the largest school in the County and claiming the largest portion of its faculty classified as vocational teachers, has 0.6 percent of its library volumes devoted to vocational-technical subjects. Vernonia High School, the smallest of the five schools, has the most extensive vocational-technical library with 340 books or 8.9 percent of its total library volumes. Librarians in three of the schools reported that some vocational teachers maintained small collections in their rooms or laboratories for personal and student use. The numbers maintained by individual teachers were not determined and are not included in Table 44.

The extent and nature of vocational-technical periodicals are more varied than that of hard-cover volumes. Periodicals are particularly valuable in that they arouse student attention and encourage use through attractive and colorful covers, illustrations, and most importantly succinct and timely treatments of interesting subjects. Periodicals also frequently avoid the onerous and pedantic image of many hard-cover publications.

A larger percent of total periodicals is devoted to vocational-technical titles than is the case with hard-cover publications. The range is from 7.2 percent at St. Helens to 20.0 percent at Vernonia. Vernonia High School with 65 periodicals subscribes to twice as many journals as the lowest school, Rainier, with 38.

Once again the librarians suggested that while their records of school subscriptions are complete, some vocational teachers may have additional titles in their personal possession that are not recorded in Table 44. Since there is

Table 44

PERCENT OF TOTAL VOLUMES AND PERIODICALS IN SCHOOL LIBRARIES CLASSIFIED AS VOCATIONAL-TECHNICAL PUBLICATIONS, BY HIGH SCHOOL

Publication	Clatskanie	Rainier	Scappoose	St. Helens	Vernonia	Total
Total volumes in school library	3,500	3,200	3,848	4,400	3,800	18,748
Total volumes classified under vocational-technical titles	250	100	85	30	340	805
Percent	7.1	3.1	2.2	0.6	8.9	4.3
Total periodicals in school library	40	38	58	55	65	256
Total periodicals classified under vocational-technical titles	4	4	8	4	13	33
Percent	10.0	10.5	13.7	7.2	20.0	12.8

presented here no precise definition of a vocational-technical type journal and since the identification was made in a somewhat arbitrary fashion, the inclusion or exclusion of some periodicals in the above table may be challenged. The content of all periodicals is nevertheless closely related to vocational subjects.

Pamphlets and other abbreviated reports and descriptions can be an informative and valuable source of vocational information. They can simultaneously be selective in their content, revealing in their explanation and current in their date of publication. Each high school library maintains a "pamphlet file" for student use. Contained in the files are numerous selections, and some hard-cover books, describing in detail major industrial groups and individual occupations. The Occupational Outlook Handbook, "Career" (Largo, Florida), "Occupational Information Monographs," "Careers" (Institute for Research), "Chronicle Occupation Briefs," and the Dictionary of Occupational Titles are prototypes of some library materials found in the county high schools.

It should be stated, however, that a simple enumeration of the printed matter available to students is an inadequate measure of their contribution to programs of vocational education. Attention must be devoted to the appropriateness of content and the use by the student. A cursory examination revealed that the majority of the vocational books in each library were seriously outdated. A random selection of 25 to 30 books in each high school uncovered 15 to 20 publication dates prior to 1955. Social and technological changes in a dynamic society require timely and pertinent coverage unavailable in books printed a decade ago. Dated library check-out cards, in the inside cover of the books examined, revealed they are seldom checked out for individual study away from the library. Periodicals, on the other hand, are frequently read by the students. The pamphlet files are barren of student use. Collectively, the librarians stated the students were

either unaware of the files or uninterested in their content. Another possibility is the students' lack of familiarity in the method of using library materials of this nature.

Professional vocational libraries enable faculty members and administrators to build upon a general knowledge of vocational education and to become cognizant of trends and developments in other school systems. Professional libraries also make known instructional aids and equipment that are available. Three of the schools, Scappoose, St. Helens and Vernonia, maintain modest professional libraries.

The expansion and selection of library materials is influenced by budget limitations and teacher interest and activity. No attempt is made here to discuss library budgets, but the high school librarians were unanimous in their comment that requests by the teacher for the purchase of vocational-technical publications of any description were meager. In the general absence of purchase or subscription orders from teachers, the selection is left to the librarian. Requests by students for selected publications are infrequent.

There are no regular procedures to make students aware of existing or new vocational materials. Bulletin board displays, notification through a specific teacher, or personal knowledge of student interests by the librarian are the usual means of communication regarding library materials. To date there has been little need for a system or method of announcement of vocational publications due to the absence of appropriate materials.

All libraries provide open book shelves for students. Rainier, Scappoose, and Vernonia also offer open shelves for periodicals. St. Helens provides open shelves for some students - for the most part the previous year's graduates who are attending Portland colleges. Books may be checked out from all libraries for the customary 14 days. Only Vernonia High School permits students to check out periodicals.

Table 45

MAINTENANCE AND CONTENT OF PROFESSIONAL VOCATIONAL EDUCATION LIBRARIES, BY HIGH SCHOOL

Content	Schools				
	Clatskanie	Rainier	Scappoose	St. Helens	Vernonia
Professional references	No	No	Yes	Yes	Yes
Collection of courses of study from other school systems	No	No	No	No	No
Samples of available student text materials in vocational areas	No	No	Yes	Yes	No
Catalogs of instructional aids, supplies, materials for vocational education courses	No	No	Yes	No	Yes

Perspectives of Superintendents

The superintendent of schools serves as the chief executive officer of the board of education and is responsible for all phases of the educational program. It is his responsibility to provide the leadership in the planning and evaluation of classroom instruction. A superintendent is expected to possess the experience, wisdom and foresight commensurate with his position as a community leader. Obligations and responsibilities of superintendents include a sensitivity to public opinion and the ability to convert rational public requests for education into school programs. More significant is the assumption that the superintendent functions as the catalyst, the change agent, in the educational structure to effect new directions in thought and action.

The superintendents of the Columbia Intermediate Education District, the three union high school districts and the two unified school districts participated in a structured interview and each answered three comprehensive questions. The questions were: "What do you believe to be the major needs of the present vocational education program in your district?", "What recommendations would you make to better equip the student to move from the classroom to the job?", and "What long-range goals or plans do you have regarding the direction you think your school district should follow in vocational education?" Their responses, some of which are paraphrased, are recorded below in random order.

In response to the query regarding the major needs of the present program the superintendents reported:

> Adequate staff and facilities to carry out a good program in trade and industrial or distributive education. We are somewhat stronger in vocational agriculture and vocational home economics; however, our locality is not strongly agricultural.
>
> We need to improve and broaden our commercial education program, at least the 'top end.' Our present program is good. We need to extend vocational agriculture to something beyond just plowing--we should be stressing kindred agricultural occupations. Some new courses should be added to the curriculum, e.g., electronics. Home economics should be more vocational in nature.
>
> One goal we should endorse is to create and develop an interest in vocational education as well as basic learning in general areas. I don't believe specialization should come from us; it cannot under our present program.
>
> Community understanding of our vocational needs is a major deficiency in our present program. The public is generally unaware of occupational needs and what the schools can do about them.
>
> We have underestimated our students. They are interested and hungry for vocational education.
>
> The ability to attack problems by a 'scientific method.' The correct approach to solving problems calls for accurate and reliable information. We need to possess these kinds of information and abilities to correct our needs in vocational education.

> It is imperative that we be practical in our approach. We should broaden our program beyond agriculture and home economics into the technological aspect of the problem.
>
> Our biggest problem is a need for additional personnel and facilities. We also need to consider expanding our offerings to include auto mechanics and perhaps commercial art.

There is a general assumption that present vocational education programs are inadequate in terms of curricular offerings. Concomitant to this problem is a need for additional personnel and facilities for instruction. None of the superintendents suggested a reduction or elimination of present programs. Methods of attacking vocational education problems and public involvement in resolving needs were brought forth.

Recommendations from the superintendents to better equip the student to move from the classroom to the job included:

> We need to somehow provide students with realistic experiences of what jobs are like. The realities of the job must be learned before the students are thrust completely into the working world.
>
> Vocational guidance is of major importance. The student must be instructed how and where to apply for work. He needs to know what work is available. He must be fully aware of his own capabilities and limitations.
>
> Appropriate training is obviously essential. The student must have experience with up-to-date equipment in modern efficient facilities. The curricula must reflect employment needs.
>
> A program of on-the-job training would be most helpful. I would think that a part-time experience with an employer or employers might be a good means of accomplishing the transition from classroom to job.
>
> Job experience while in school - part-time work. One possibility would be to grant students 'released time' to work one-half day. For example, if a student had enough credits to graduate while working one-half day as a senior, the school would simply release him, morning or afternoon, for that purpose. This would assume close cooperation between the employer and school personnel.

> Enlarge the subject offerings. Initiate instruction in distributive and trade and industrial education. Without proper training in school the transfer from schools to job is extremely difficult. One problem facing students in our school is the extremely limited employment opportunities in our own community. We need to develop contacts with employers in other areas, maybe outside the County.
>
> Improve and expand training facilities and equipment. Add more depth to our instruction. The students need a place to obtain additional training beyond high school. Work experience programs while in high school would ease the transition from the classroom to the job. We should provide training for and encourage more girls to participate in vocational education.

All superintendents are aware that some directive action is necessary to accomplish an effective transition from the school bell to the time clock. Arranging the prominent recommendations in chronological order, the emphasis is on the provision for meaningful vocational training, the acquisition by students of part-time job experience while still in high school and guidance personnel to coordinate personal and personnel facets of the transfer. Consideration for work experience programs was expressed by five of the six respondents.

The third question calling for long-range goals that are being considered by the superintendent elicited some common areas of interest.

> First of all a complete overhaul of our entire program - strengthen some existing programs and add others to the curriculum. We should consider the initiation of some general or pre-vocational programs in the high school that would prepare our students for advanced training in post high school institutions.
>
> One of the most logical goals would be a coordinated program between and among the high schools whereby an exchange type program may take place. Courses in forestry, for example, would be offered at one high school for a concentrated six weeks period. Students from other schools would be invited to participate. Another school properly equipped with the necessary staff and facilities would offer a program of automotive mechanics for high school youth throughout the County.
>
> Another possibility would be the construction of a training institution for all high school and post high personnel that would offer a comprehensive program of vocational and technical education.

Our vocational agriculture program will be more strongly geared to forestry and shop practices, both wood and metal. We would hope to strengthen our commercial and business areas, in order that we may develop a vocational program for interested students.

Our district has gone about as far as it can - we need financial help from here. Once again we need to improve and enlarge our district equipment and facilities. Our students need to work with up-to-date devices and instruments. The kind they will be asked to handle when they go to work.

We should consider a training program that goes beyond a single school district - a cooperative effort involving other high schools in the County.

I don't see how one school district can support the extensive capital outlay that would be necessary to conduct the kind of vocational-technical program this [geographical] area will need to consider if the industrial potential of the County materializes. Long-range plans should certainly include some consideration of a cooperative effort involving all districts with high school age students.

Basically, we should provide a pre-vocational training program with some areas of specialization. Vocational home economics would be an example of the specialized courses we could offer at the high school level. Unless our population grows very fast in the next few years, I don't foresee our district, by itself, being able to do much more than it is now doing in the area of vocational education.

A theme prominent in most of the remarks is the need for the districts to undertake a more comprehensive program than they are presently offering in vocational education. Some attention is awarded the pre-vocational role of the high school with vocational and technical training occurring in post-high school institutions. Cooperative efforts involving all districts in the County are central to four of the six responses.

Teachers of Vocational Education

Nineteen of the twenty teachers (95 percent) designated by the building principals as classroom instructors of vocational education responded to a questionnaire supplying data about themselves, their students and their courses.

Personnel Data

There exists a fairly even distribution of "young" and "old" teachers. Eleven have been teaching 10 or fewer years and 8 have taught for 11 or more years. Teaching of vocational subjects parallels closely the overall instructional experience. Sixteen members of the group (84 percent) have extended their academic experience beyond a four-year college degree. Nine of the 16 have earned masters' degrees or completed work beyond the master's degree. (Table 46)

In-service education includes all activities engaged in by professional personnel during their service designed to contribute to improvement on the job. In-service education customarily takes the form of workshops directed to specific problems, college courses, travel and other means to enhance teacher proficiency. More than half, 10, of the county vocational teachers have received in-service education within one year, two teachers within two years, one within four years and four have not received in-service education for 5 or more years. Two teachers in the group have never experienced in-service education.

Table 46

TEACHING EXPERIENCE AND ACADEMIC PREPARATION OF VOCATIONAL EDUCATION TEACHERS IN COLUMBIA COUNTY, 1964-65

N=19 Years	Total teaching experience	Percent	Total vocational educational teaching experience	Percent
Less than 1	2	10.5	4	21.1
1-5	4	21.1	5	26.3
6-10	5	26.3	4	21.1
11-15	5	26.3	4	21.1
16-20	1	5.3	0	.0
21 or more	2	10.5	2	10.5

Out-of-classroom experiences provide an element of learning for vocational teachers than can be obtained solely in that environment. Practical and meaningful knowledge about the everyday world of work can be brought to focus by an alert and perceptive teacher on the problems facing students of vocational education.

Teachers of vocational education in Columbia County have acquired the out-of-classroom work experiences listed below in Table 47.

Three teachers have been members of labor unions. One has held membership in the Laborers and Operating Engineers, the Teamsters, and the Electrical Workers Unions. Another was affiliated with the union for hod carriers and cement finishers, and a third belonged to the Retail Employees Union.

Data Relative to Students

In order for education to be truly vocational it must be considered as preparation for employment by the administration, the teachers and the students. The teachers were asked to list the courses they considered to be vocational and whether they believed the students considered the courses to be preparation for employment. [redacted]

Table 47

OUT-OF-CLASSROOM WORK EXPERIENCES OF
TEACHERS OF VOCATIONAL EDUCATION IN COLUMBIA COUNTY

Nature of Work Experience	Number of Teachers	Number of Years
Agriculture	5	2, 5, 6, 7, 7
Commercial	6	6 months, 2, 4, 4, 4, 6
Industry	8	1, 2, 2, 3, 5, 6, 6, 9
Retail Trade	4	1, 1, 7,20

The teachers of vocational agriculture believe generally that two out of three of their students considered the courses to be vocational. The interpretations for individual classes ranged from a 100 percent belief that the courses were vocational to a 95 percent indication the students did not accept them as vocational. Teachers of business and office courses also report they believe two out of three of their group have enrolled for vocational purposes. Here the range is from 100 percent "yes" to 75 percent "no." In home economics, having numerically the smallest enrollment, the teachers also believethat two out of three of their students are taking the courses with vocational pursuits in mind. The range is from 100 percent "yes" to 100 percent "no." Trade and industrial teachers suggest that approximately five to six out of ten of their group acknowledge the courses to be vocational in nature. The range is from 100 percent "yes" to 90 percent "no."

Vocational education students in Columbia County were ranked by their teachers in terms of mastery of the basic skills in reading, writing and mathematics. In all categories the bulk of the students were judged to be slightly below the middle range of ability, suggesting that the more academically efficient students are in other programs, and that students representing either extreme of academic ability are neither attracted to nor counseled into vocational education.

Table 48

TEACHER OPINION OF BASIC SKILLS MASTERY BY VOCATIONAL EDUCATION STUDENTS

Mastery of Skill	Basic Skills		
	Reading	Writing	Mathematics
Excellent	0	0	0
Good	6	3	5
Fair	11	13	12
Poor	2	3	2

Fourteen of the nineteen teachers responded to the question: "How many of those [students] completing the most advanced course . . . would you recommend to an employer?" The collective teachers of agriculture listed 39 of 59, or 65 percent; business and office reported 82 of 151, or 54 percent; trade and industrial suggested 39 of 81, or 48 percent; while home economics indicated 18 of 49, or 36 percent. Combining all areas results in a total of 178 of 340, or 52 percent, of the vocational students who would receive a recommendation from their teacher for employment.

Data Relative to Program

Modifications of existing programs between 1960 and the present reported by the vocational education teachers are more detailed and extensive than those suggested by principals in an earlier section of this report. The teachers were given a check list to mark the ways courses may undergo revision. The revision most frequently marked was related to changes in course outlines or guides, followed by increased requirements in manipulative skills, amount of shop or laboratory time and individual instruction. Type of shop or laboratory equipment also experienced change.

All of the changes recorded in Table 49 were made in either agriculture or business and office courses, and every change except one indicated an increase in time and skills or change in methods or equipment. The total of 22 changes must be kept in proper perspective. One instructor could, for example, have accounted for eight or nine of the revisions in two separate vocational courses. If all teachers had been able to report nine changes, the total would have been 153 revisions.

The factors believed by teachers to have caused or influenced the revisions are reported in Table 50. Nearly half of the responses were recorded as emanating

Table 49

TEACHER INDICATION OF MAJOR REVISION OF VOCATIONAL EDUCATION COURSES BY SUBJECT MATTER FIELD FROM 1960 TO 1965

Change	Agri-culture	Business and Office	Home Economics	Trade and Industrial	Sub-Total
Manipulative skill requirements increased	1	2	0	0	3
Related theory requirements increased	1	1	0	0	2
Related theory requirements decreased	0	1	0	0	1
Amount of shop or laboratory time increased	1	2	0	0	3
Approved revision of course outline	1	4	0	0	5
Use of reading materials significantly increased	1	0	0	0	1
Use of group instruction increased	0	1	0	0	1
Use of individual instruction increased	1	2	0	0	3
Change in type of shop or laboratory equipment used	1	2	0	0	3
Sub-total	7	15	0	0	
				Total	22

Table 50

FACTORS BELIEVED BY TEACHERS TO HAVE CAUSED OR INFLUENCED REVISIONS IN VOCATIONAL EDUCATION, COLUMBIA COUNTY HIGH SCHOOLS, 1960-1965

Factors	Number of Teachers Indicating Factor
Revision suggested by employer representative	2
Revision suggested by labor union representative	0
Revision suggested by course instructor	8
Revision suggested by former course students	3
Revision recommended by school curriculum review committee	0
Revision recommended by State Office of Education	1
Revision required by the school administration	3

from one source -- the teachers themselves. The impetus from former students indicates that some informal feedback occurs between graduates and individual teachers. Contact with employers is also accomplished on an individual rather than a school basis. Administrators from three high schools, Scappoose, St. Helens and Vernonia, are credited by teachers with initiating some curricular changes.

Teacher recommendations to reduce the problems attending the transition from high school to the work place are concentrated in two general areas:

(1) closer cooperation between school and industry, primarily through work experience programs, the assistance of appropriate community resource personnel and the initiation of advisory council type groups that would permit school-community-industry coordination, and

(2) improved counseling relative to student interests and abilities and job requirements and opportunities.

The teachers brought forth some suggestions not mentioned by principals or superintendents relative to the direction the school should follow in vocational education. Most frequently mentioned were smaller classes and increased class time. Recommendations for at least two-hour instructional periods were made by teachers from all four areas of vocational education. Other suggestions in order of frequency were: (1) expand course offerings, (2) supply the schools with the kind of equipment used by industry, (3) more effective vocational counseling and scheduling, (4) reduce teacher extracurricular assignments to leave more time for class, and (5) the high school should be pre-vocational in nature and leave the vocational education to junior colleges and trade schools.

The tenor and mood of the teacher remarks are better realized from a review of their statements. Some extracts of teacher comments follow:

Schedule time - two hours if possible. Not so many students in one class. Not overloading teacher with extra-curricular work so there is more time for class preparation.

The school is doing a good job -, could use more modern equipment. Classes are too large.

Increase number and variety of classes. We could do a lot better job if we had smaller classes.

Require more time to be allowed in Shorthand II - rather than just one hour. This would give more experience in typical office situations.

Under the present system students are being introduced to as many vocational areas as is practical. We hope they will be better able to select a vocational area and be able to obtain further training in that area.

It is my feeling that the type of program we have is vital as a guidance media and with increased cooperation the community college would be the answer to vocational training as such.

Find out what industry wants and needs. Know the needs of the students. Better courses of study.

Some one must make a study of the availability of students to be able to join a union if he is trained in a skill. It seems to me that this is one of the obstacles to overcome. For example, try and get in the plumbers union without inside pull.

I think we are not helping enough students. We have a good college preparation program, but not enough for those not going on to a four-year academic type of college program. I think we ought to be better preparing the students for occupations they are qualified to accept.

Summary

In summary, the vocational teachers in Columbia County are fairly evenly divided between those who have taught vocational education less than and more than five years. Eighty-four percent have extended their education beyond a four-year college degree. More than half have received in-service education within one year and all except four have acquired some out-of-the-classroom work experience. The teachers reported they believe between 50 and 65 percent of their students accept the vocational courses as preparation for employment. Students in vocational education were judged to be slightly below the middle range of ability in the

basic skills. The teachers expressed confidence in recommending approximately 52 percent of the students in their most advanced classes for employment. The primary stimulus for change in vocational education in the past five years has been the teachers themselves. Teacher recommendations to better prepare the student for employment include initiation of work experience programs and improved vocational counseling. Suggestions for direction were primarily related to smaller classes and the need for additional time for class and laboratory instruction.

Response of Students to Vocational Education Questionnaire

The interests and aspirations of students as immediate recipients of the existing vocational education programs in Columbia County were considered important to the study. The 980 junior and senior class students enrolled in the participating high schools in May of 1965 were invited to contribute to the study by filling out a questionnaire calling for an indication of their post-high school plans, occupational choices, and other thoughts regarding vocational education. All schools cooperated fully in the study, and 896 students or 91.4 percent returned the completed questionnaire.

A careful analysis of the student questionnaires revealed that these students were unaccustomed to thinking in terms of vocational education, and that some comments and suggestions were unrealistic in terms of educational possibilities. It should be strongly emphasized, however, that the careful manner in which the questions were answered and the unsolicited comments on many papers indicate the students were sincere in their responses and vitally interested in the area of vocational education.

The sex and class were similarly represented, with boys making up 457 or 51 percent of the group, and the junior and senior classes providing 443 (49.4 percent)

and 453 (50.6 percent) respectively of the respondents. Table 51 shows the post-high school plans of the students involved.

The number planning to attend college (44 percent) is appreciably higher than the expected actual enrollment. Unfortunately there are no County data in the form of follow-up studies to compare the pattern of post-high school activities of earlier graduates with that of the present students. Unofficially, counselors of the high schools estimate the number of students actually entering college to be between 20 and 30 percent. In Oregon it is approximately 44 percent and nationally the figure is close to 40 percent. All of these students, of course, will not receive baccalaureate degrees. Throughout the United States data show that eight out of ten youngsters now in school will earn less than a four-year college degree. The significance of these statistics is that 80 percent of today's youth, and there is no reason to omit Columbia County youth, will have need for some occupational education.

Table 51

POST-HIGH SCHOOL PLANS OF
COLUMBIA COUNTY JUNIOR AND SENIOR STUDENTS, 1965

Plans	Boys	Percent	Girls	Percent
Attend a four-year college or university	136	29.8	139	31.5
Attend a two-year community college	79	17.3	42	9.6
Attend a business college	7	1.5	69	15.8
Attend a trade school	30	6.6	43	9.8
Enter military service	67	14.7	8	1.8
Enter apprenticeship training	12	2.6	0	0.0
Obtain a job	72	15.8	74	16.9
Don't know	32	7.0	32	7.3
Other	22	4.7	32	7.3
Total	457	100.0	439	100.0

Excluding those planning to attend a four-year college, 81 percent of the remaining Columbia County students have indicated they will pursue activities providing them with opportunities for vocational education beyond what they are presently receiving in high school. It is apparent that today's students are giving thought to post-high school activities when it is noted that only 54 or 6.0 percent of the group questioned had made no future plans.

The work choice of students by major occupational groups is compared with the present occupation of the principal wage earner in the home in Table 52. Analyzing the student preferences first, it is noted that there is a concentration of interest (42.3 percent) in the professional - semiprofessional - management category. This response is compatible with the earlier preference for enrolling in college. The interest in clerical - sales, service and skilled occupations is roughly the same, between 15 and 16 percent, while agricultural - fishery, semiskilled and unskilled jobs combined attract less than 9 percent of the students' interest. Scant attention is granted the semiskilled and unskilled tasks - those occupations frequently held by a surplus of low income and unemployed workers.

A comparison between student-preferred occupations and those held by their parents displays marked differences in certain areas. Students are more likely to choose occupations in the professional - semiprofessional - managerial, clerical - sales, and service and less inclined to adopt the work pattern of their parents in agriculture, skilled, semiskilled and unskilled occupations.

At this point it might be said that many Columbia County students are actually unable and unready to select an occupation. Lacking thorough vocational guidance and any real work experience, it is suspected student choices are generally based upon current interests and superficial evidence rather than objective analysis of labor needs and individual abilities.

Table 52

A COMPARISON OF STUDENT OCCUPATIONAL CHOICE WITH THAT HELD BY PRINCIPAL WAGE EARNER IN THE HOME

Major Occupational Group	Student	Percent	Wage Earner	Percent
Professional, Semiprofessional, Managerial	379	42.3	145	16.1
Clerical - Sales	143	16.0	57	6.4
Service	139	15.5	48	5.4
Agricultural - Fishery	41	4.6	55	6.1
Skilled	139	15.5	264	29.5
Semiskilled	22	2.4	168	18.8
Unskilled	16	1.8	132	14.7
Other	-	-	20	2.2
No Response	17	1.9	7	.8
Total	896	100.0	896	100.0

Many subtle and overt influences contribute to the selection, albeit tentative, of employment by students nearing completion of high school. However, it was thought possible for students to identify the person having the most influence on their present vocational choice. Sixty-one percent stated the primary influence came from within the family or from the student himself. It can be expected that information from the home regarding any occupation other than that of the wage earner is likely to be incomplete, inaccurate or prejudiced. A large portion of those students admitting self selection indicated they were strongly influenced by reading books, periodicals, and trade journals. The type and source of books were not identified. (See Table 53.)

School personnel are given little direct recognition for having any influence relative to guiding student choice of future work activities. This factor

Table 53

STUDENT IDENTIFICATION OF PERSONS EXERTING PRIMARY INFLUENCE ON OCCUPATIONAL CHOICE

Person	Number	Percent
Family Member	358	40.0
Relative not in immediate family	62	6.9
School counselor	53	5.9
School teacher	97	10.8
Friend own age	62	6.9
Adult acquaintance or neighbor	31	3.5
Employer	26	2.9
Self	190	21.2
No response	17	1.9
Total	896	100.0

emphasizes remarks from another section of this paper in connection with inadequate time for vocational counseling purposes.

All students including the college-oriented juniors and seniors were asked where, geographically speaking, they would seek employment following high school. The question attempted to determine the opinion of the total group of students, assuming they were all looking for jobs, relative to the area in which they believed work to be available or places they preferred to labor. More than 50 percent reported they believe few opportunities are available locally and that they would pursue jobs in areas external to Columbia County. The largest single group, 288 or 32.1 percent, made the Portland Metropolitan Area their first choice. Two-thirds of those selecting their home town or another location within the County were boys. Two-thirds of the students selecting the Portland Metropolitan Area as a work site were girls. Other choices were fairly evenly distributed between

the sexes. Table 54 would tend to support the suggestion that vocational educators should be concerned with employment opportunities within any reasonable distance from the training site.

The President's Report of the Panel of Consultants on Vocational Education suggests that the apprenticeship program is generally considered to be one of the oldest and best training methods for producing needed craftsmen.[4] It combines training on the job with related technical instruction at school. Conducted under a written program of training standards agreed to by employers, journeymen and apprentices in accordance with federal and state laws, the program provides the beginning worker with the basic skills necessary for economic success in his craft.

The Bureau of Apprenticeship Standards reports that new registrations in the United States have declined over the last ten years resulting in a discrepancy in the total skilled manpower needed in the present decade and the number of craftsmen the program is capable of providing.

There is a critical need for skilled workers. The apprenticeship program is considered to be the most efficient means of developing basic skills needed in trade and industry.

The State of Oregon offers training in approximately 135 apprenticeable trades under the direction of the Oregon State Apprenticeship Council. There are currently registered in the State 2,119 apprentices.[5]

One intent of the questionnaire was to learn whether junior and senior boys in the Columbia County high schools were familiar with the apprenticeship program, their source of information and the degree of interest in additional information.

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[4]Panel of Consultants on Vocational Education, Education for a Changing World of Work (Washington, D.C.: U.S. Office of Education, 1963), p. 152.

[5]Interview with the Oregon State Director of Apprenticeship, April 6, 1965, Portland, Oregon.

Slightly over one-third or 36.1 percent of the boys were "quite familiar" or "slightly familiar" with the apprenticeship program in Oregon. The majority (52.5 percent) knew nothing whatsoever about apprenticeship training. The remainder were uncertain. (Table 55)

The 165 students who were familiar with the apprenticeship program were questioned as to their source of information. More than 40 percent acquired this type of vocational information from their immediate families or other relatives, while school counselors and teachers supplied information to 57, or 34.6 percent. The remaining students learned of the program from a variety of sources. (Table 56)

Columbia County boys are eager to learn about the apprenticeship program in Oregon. A total of 323 or 70.8 percent of the junior and senior boys answering the questionnaire expressed a desire for additional data. Responses of this nature and marginal comments on the question forms unrecorded in this report, re-enforce the notion that these students are receptive and anxious to receive information regarding vocational education.

The interest in attending an area vocational school is also high. All students were asked: "If an area vocational school were available in Columbia County, would you be interested in enrolling for training that would specifically prepare you for employment?" Five hundred and thirteen students or 57.2 percent indicated they would be interested in enrollment, 174 or 19.4 percent claimed no interest, and 209 or 23.4 percent were either uncertain or failed to respond. (Table 57)

More than 50 percent of the students sampled would be willing to work <u>without pay</u> for selected employers for periods of one to two weeks or longer in order to learn more about the world of work in general and the nature of work conducted by specific business and industrial firms. The students were informed they would be expected to conscientiously devote their time and energy to the tasks assigned them under these conditions. It was further explained they would have the opportunity

Table 54

GEOGRAPHIC SELECTION OF WORK PLACE

Where seek employment?	Number	Percent
In your home town	179	20.0
In Columbia County other than home town	72	8.0
Portland Metropolitan Area	288	32.1
Outside Portland Metropolitan Area and Columbia County but in State of Oregon	104	11.6
Another state	106	11.8
Don't know	140	15.7
No response	7	0.8
Total	896	100.0

Table 55

AWARENESS OF OREGON STATE APPRENTICESHIP PROGRAMS

Degree of Awareness	Number (Boys)	Percent
Quite familiar with program	23	5.0
Slightly familiar	142	31.1
Uncertain	52	11.4
Know nothing about the program	240	52.5
Total	457	100.0

Table 56

SOURCE OF INFORMATION RELATIVE TO OREGON STATE APPRENTICESHIP PROGRAM

Source	Number (Boys)	Percent
Family member	55	33.3
Relative not in immediate family	13	7.9
Friend own age	11	6.6
School counselor	21	12.8
School teacher	36	21.8
Employer	13	7.9
Other	16	9.7
Total	165	100.0

Table 57

STUDENT INTEREST IN ENROLLING IN AN AREA VOCATIONAL SCHOOL

Interest	Number	Percent
Definitely interested	210	23.4
Interested	303	33.8
Uncertain	199	22.3
Not interested	174	19.4
No response	10	1.1
Total	896	100.0

to experience firsthand the advantages and disadvantages of different kinds of work. The primary purpose of the experience would be to help the student select more effectively his future employment. Two hundred and ninety-nine girls stated that they would be willing to work without pay and 52 said they were not interested while 234 boys answered in the affirmative and 108 indicated no interest. (Table 58)

Summary

In summary, the students in Columbia County are giving thought to post-high school plans which include for most of them some vocational training. Their current occupational interests are generally different from that of their parents with more emphasis surrounding the white-collar trades. The home provides the greatest influence in occupational choice. There are high degrees of interest in attending an area vocational school, working without pay to gain on-site job experience and an expressed desire to learn more about vocational education. The students are interested in and receptive to education and training that will prepare them for employment.

Table 58

STUDENT INTEREST IN WORKING WITHOUT PAY IN EXCHANGE FOR ON-SITE JOB EXPERIENCE

Interest	Number	Percent
Definitely interested	207	23.1
Interested	326	36.4
Uncertain	186	20.8
Not interested	160	17.8
No response	17	1.9
Total	896	100.0

Vocational Education Facilities

This section is a report of the adequacy of the school plant facilities in each high school as they relate to vocational instruction. The data were collected by on-site visitations at each of the school plants, an examination of the existing facilities and recording of pertinent information concerning these installations. The measurement is of two types: (1) an objective assessment resulting from a comparison of existing facilities with a check list of recommended measurements, and (2) a subjective analysis of other factors such as illumination and thermal capabilities.

Assuming the school plant must serve the educational program, the facilities were viewed in terms of adequacy for the present program and for future offerings that are being considered by district administrators.

In the absence of objective criteria for allowable space requirements for high school vocational programs, recommended minimal square feet measurements were adapted from a guide for community colleges and educational centers.[6] It is

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[6]"A Guide to Making Application for State Funds for School Buildings for Community Colleges and Education Centers," (Division of Vocational and Post High School Education, Oregon State Department of Education, June 8, 1964, Revised), pp. 19-21 (Mimeographed).

believed that necessary allowable space for post-high school students is not significantly unlike that required by high school juniors and seniors.

Suggested criteria for space limitations are as follows:

(1) Classrooms - the student capacity of classrooms shall be computed at 15 square feet per student capacity. [The area of 15 square feet appears inadequate at first consideration, however it should be mentioned that the classrooms in question are customarily adjacent to the laboratory or shop and are ordinarily used exclusively for brief lecture periods calling for the student to sit and listen and write. Very often only a portion of the students in a given course will use the classroom at one time.]

(2) Shops and Laboratories

(a) . . . . . .

(b) Industrial type laboratories such as electronics, electrical photography and engineering - a maximum of 75 square feet per student, minimum of 50 square feet per student capacity.

(c) Drafting laboratories - maximum of 50 square feet, minimum of 35 square feet per student capacity.

(d) "Heavy" shops such as auto mechanics, machine shops, welding shops and carpentry-cabinetmaking shops - maximum of 150 square feet, minimum of 100 square feet per student capacity.

(e) "Light" shops or vocational instruction areas such as special shops for service courses, cosmetology units, and vocational nursing units - maximum of 75 square feet, minimum of 50 square feet per student capacity.

(f) Business education laboratories such as typing, accounting, and business machines - maximum of 35 square feet, minimum of 25 square feet per student station.

(g) Allowable space requirements for other types of shops and laboratories will be determined on the basis of the type of activity, equipment requirements, and common practice in similar institutions.[7]

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[7]Ibid.

Scappoose Union High School

Scappoose Union High School provides facilities for agricultural courses, bookkeeping, shorthand and office practice. The agricultural shop and classroom have been in operation since their erection six years ago and need no major renovations. The building appears structurally sound, is well maintained and adequately heated. Ample window space permitting entry of natural light is supplemented by sufficient fluorescent lighting. Adjacent to the shop is a partially covered outside storage and work area measuring approximately 600 square feet. The facilities are sufficient for the existing program; however, if a program of instruction for electronics is initiated, the present shop facilities will prove inadequate.

The business courses are conducted in classrooms and a laboratory constructed three years ago. The rooms used for typewriting, shorthand and bookkeeping flank either side of a smaller laboratory for business machines and office practice. The ceilings are acoustical tile and the floors are covered with resilient tile. Heating, ventilating and illuminating facilities are adequate. No major renovations are needed. (Table 59)

Table 59

MEASUREMENT OF VOCATIONAL EDUCATION FACILITIES AT SCAPPOOSE UNION HIGH SCHOOL BY TYPE OF COURSE: 1964-1965

Facility	Pupil Stations	Recommended Area for Pupil Stations Indicated (square feet) Minimum	Maximum	Actual area (square feet)	Space considered: Sm.	Sat.	Lg.
Agricultural Shop	24	2,400	3,600	2,480		X	
Agricultural Classroom	24	360	-	616		X	
Typewriting Laboratory	40	1,000	1,400	1,280		X	
Business Laboratory	24	600	960	960		X	
Business Laboratory	15	375	600	384		X	

Sm. = Small, Sat. = Satisfactory, Lg. = Large.

Rainier Union High School

The shop facilities at Rainier High, located in a building separate from the main school building, underwent a major renovation fifteen years ago and are again in need of attention. The shop suffers from inadequate light, is dark and unattractive in appearance and needs paint. Sinks and wash-up facilities, locker space and additional storage space for student projects are needed. The general atmosphere and appearance are discouraging and not conducive to learning. It should be mentioned that school personnel are considering construction of new shop facilities. This may account for the diminishing interest in maintaining the present structure. The classroom used for agricultural education is a large regular classroom in the main building and demonstrates no major deficiencies as a classroom. (Table 60)

Rainier, one of the older high schools in the County, lacks the cheerful atmosphere held by buildings of recent construction. The floors of the business and homemaking classrooms are resilient tile. Light fixtures are of the covered fluorescent variety. The homemaking facilities house the traditional foods and sewing type classes. Sufficient sinks, storage area and display area are available. Vocational home economic facilities such as are needed for child care and vocational nurse training are absent.

Table 60

MEASUREMENT OF VOCATIONAL EDUCATION FACILITIES AT RAINIER UNION HIGH SCHOOL BY TYPE OF COURSE: 1964-65

Facility	Pupil Stations	Recommended area for pupil stations indicated (square feet) Minimum	Maximum	Actual area (square feet)	Space considered: Sm.	Sat.	Lg.
Agricultural Shop	20	2,000	3,000	1,800	X		
Agricultural Classroom	24	360	-	800			X
Home Economics Laboratory	20	1,000	1,500	1,400		X	
Business Laboratory	35	875	2,225	900		X	
Business Laboratory	25	725	875	600	X		

Sm. = Small, Sat. = Satisfactory, Lg. = Large.

St. Helens Senior High School

St. Helens High, constructed seven years ago, affords relatively new facilities for vocational education purposes. The physical plant is well maintained and attractive in appearance. The vocational laboratories and classrooms are illuminated by the usual natural light plus covered fluorescent fixtures. Acoustical tile ceilings and resilient tile floors are common throughout the laboratories and classroom areas. (Table 61)

The home economics facilities are sufficient for the present program of foods, sewing and serving related to homemaking; however, there are no laboratory facilities for strictly vocational pursuits such as restaurant practice, child care or practical nursing.

The business courses are housed in adequate facilities for typewriting, bookkeeping, secretarial practice and shorthand. Light, heat, ventilation, and storage space are considered to be sufficient. Vocational facilities at St. Helens appear to be satisfactory for their present program. Initiation of new courses or major modification of existing programs will call for a detailed evaluation of facilities in light of the anticipated curricular changes.

Table 61

MEASUREMENT OF VOCATIONAL EDUCATION FACILITIES AT ST. HELENS SENIOR HIGH SCHOOL BY TYPE OF COURSE: 1964-65

Facility	Pupil Stations	Recommended area for pupil stations indicated (square feet) Minimum	Maximum	Actual area (square feet)	Space considered: Sm.	Sat.	Lg.
Agricultural shop	21	2,100	3,150	2,424		X	
Agricultural classroom	24	360	-	900			X
Home Economics Lab.	24	1,200	1,800	1,817		X	
Typewriting Lab.	32	800	1,120	936		X	
Business Lab.	30	750	1,050	792		X	

Sm. = Small, Sat. = Satisfactory, Lg. = Large.

Clatskanie Union High School

Clatskanie Union High offers a modest program of vocational education consisting of bookkeeping, shorthand and electronics. The business and office courses are taught in a traditional classroom converted to a laboratory that also serves as a study hall. Illumination is from covered fluorescent fixtures supplemented by natural light. Storage and bulletin board space are somewhat limited, but are not considered critical needs. Although the building was erected prior to 1950 no major renovations are recommended at this time. (Table 62)

The electronics course is conducted in a new shop and classroom facility separate from the main building. The classroom divides two separate shop areas that are currently used for carpentry and metal work. (Discussion with the instructor and examination of course materials and the text used determined these courses to be pre-vocational in nature and not vocational education.) Electronics is offered one period in one wing of the shop building. The building, because of its recent construction, appears structurally sound, provides sufficient light, heat and ventilation. The major criticism of the facility lies not in its physical dimensions, but in its utilization. The shops are empty four periods each day. Much greater service could be obtained from the building with a modified and enlarged vocational education program. On the other hand, it is encouraging to note that a school has facilities ready to accommodate program changes and expansion.

Table 62.

MEASUREMENT OF VOCATIONAL EDUCATION FACILITIES AT CLATSKANIE UNION HIGH SCHOOL BY TYPE OF COURSE: 1964-65

Facility	Pupil Stations	Recommended area for pupil stations indicated (square feet) Minimum	Maximum	Actual area (square feet)	Space considered: Sm.	Sat.	Lg.
Electronics Laboratory	20	1,000	1,500	1,536			X
Electronics Classroom	20	300	-	640			X
Business Laboratory	36	900	-	840	X		

Sm.= Small, Sat.= Satisfactory, Lg.= Large.

Vernonia High School

Vernonia offers the widest selection of vocational education courses of the five high schools in the County. The business courses are held in a business laboratory that appears to provide the proper environmental conditions relative to illumination, heating, and physical facilities for storage and display space. Adjoining the business laboratory is a smaller room housing office equipment that will accommodate small groups of four to six students. (Table 63)

The technical drafting or graphic arts course is housed in a combination drafting-planning room containing sixteen drafting desks with lockers and twelve planning tables for student use. Adjacent to the classroom is a blueprint-teaching aid room used for storage of charts, maps, survey instruments and some demonstration equipment.

The general shop-woodshop area is located between the graphic arts classroom and the metal shop. Normal physical comfort is achieved in the general shop with the exception of excessive solar heat entering through a large expanse of windows on one side of the building and also one side of the shop classroom.

The metal shop occupies one end of the entire shop building and is an extension of the general shop. It experiences for the most part the same credits and disadvantages as other areas of the shop building.

There is also a greenhouse, electrically heated, with a bench area on the outside and a cable-heated soil propagation bench inside. There is a tree aboretum and the school has use of a forty-acre city owned tree farm which is used for cruising and management demonstrations and planting and tree identification. The tree farm is some distance from the school site and valuable class time is consumed in travel.

Vernonia High plans the addition of a power mechanics shop in the near future.

Table 63

MEASUREMENT OF VOCATIONAL EDUCATION FACILITIES AT VERNONIA HIGH SCHOOL BY TYPE OF COURSE: 1964-65

Facility	Pupil Stations	Recommended area for pupil stations indicated (square feet) Minimum	Maximum	Actual area (square feet)	Space considered: Sm.	Sat.	Lg.
General Shop	20	2,000	3,000	2,240		X	
General Shop Classroom	24	360	-	759			X
Metal Shop	20	2,000	3,000	960	X		
Electronics Laboratory	16	800	1,200	1,020		X	
Graphic Arts Laboratory	16	560	800	1,047			X
Business Laboratory	24	600	840	1,020			X
Agricultural Classroom	24	360	-	1,020			X
Experimental Land Plot	-	-	-	2,000		X	

Sm.= Small, Sat.= Satisfactory, Lg.= Large.

Summary

In summary, it can be said that facilities used for vocational education in the Columbia County high schools are sufficient for their present purposes. Rainier and Vernonia presently have too little shop space and are currently engaged in planning new construction to compensate for the deficiency. Notation is also made that actual enrollment in a given class may frequently or consistently be smaller than the pupil stations available, resulting in ample student space in a purportedly crowded teaching area.

Any major expansion in vocational education programs in any one of the schools, with the possible exception of Clatskanie, would require a commensurate increase in facilities.

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

This chapter is a presentation of the summary and recommendations resulting from the study.

Summary

The summary brings together in capsule form an overview of each major section of the report.

Economics

The general economy of the County, as measured in this study, appears sound. Confronted with restricting factors such as a small population, a limited number of large business and industrial firms, and low educational level for adults over 25 years of age, the County has continued to grow in many ways. The forest land is beginning to produce second growth timber. Bank deposits, wholesale and retail trade, building permits and property valuation have all demonstrated a general upward trend. The County has recovered from an earlier population decline and is rapidly expanding. The rate of unemployment has steadily decreased over the past few years and is currently at its lowest level since 1958. The potential for industrial expansion and growth along the Columbia River is promising.

Employment Needs External to Columbia County

Portland Metropolitan Area. There is anticipated a shortage of 7,300 skilled technical and clerical workers and a surplus of 20,000 unskilled and semiskilled employees by 1969. The primary available source of labor is the individual with no training beyond high school. It is expected that 50 percent of the high school

graduates entering the labor market in the next five years will not have a marketable skill and will be forced to compete for work as an unskilled candidate for employment. Hiring requirements indicate the larger firms tend to rely more on educational qualifications while the smaller firms place more emphasis on experience.

State of Oregon. The rate of employment is expected to increase in all of the standard industrial classifications during the next decade except agriculture where it will decrease by 9.0 percent. New employment opportunities will be available primarily in the areas of government, the many subdivisions of manufacturing, wholesale and retail trade and non-agricultural employment.

Manpower Resources in Columbia County

Columbia County is unique in that approximately two-thirds of the employed workers are classified in the manufacturing category. (The norm is closer to one-third.) There are numerous small firms in the County employing from one to ten workers and a few large firms employing more than twenty-five workers. Because of the large number of small firms, the projected labor needs indicate that one or two workers are needed in each of many separate occupations. When the needs are consolidated into broad occupational groups and considered in terms of training that could be provided through vocational education programs, it is determined that the greatest needs in the next two- and five-year periods will be in the areas of skilled, clerical, sales and service occupations. Considering all occupational groups except the professional and unskilled groups, by 1970 more than 500 workers will be needed due to worker replacement and firm expansion.

The hiring requirements of Columbia County firms are similar to those in the Portland Metropolitan Area -- the large firms are most interested in educational

qualifications while the small firms emphasize experience. The large firms would prefer applicants with vocational training applicable to their needs, but since this is not available in the County the "educational qualifications" refer to a general high school education.

Eighty percent of the firms sampled indicated they would prefer to hire a high school student with two years of vocational training over a student with no vocational training. Many spokesmen for the firms expressed a desire for additional information about vocational education conducted by the schools.

Thirty percent of the firms reported they would be willing to cooperate with the schools in establishing work experience programs for high school juniors and seniors. One-third of the employers indicated they would consider hiring students without pay for specified periods of time in order for them to become familiar with various occupations and industries.

Collectively, the employers are strongly in favor of vocational education programs in the high schools.

Vocational Education Programs in the Columbia County High Schools

The printed philosophies of education in each of the five school districts indicate that vocational education plays a minor role in the central purpose of the schools. Vocational education courses are offered in the areas of trade and industrial education, business and office education, home economics and vocational agriculture. There are no offerings in distributive education. None of the schools had available a comprehensive description of the courses they consider to be vocational education. In view of the absence of complete descriptions of course content and objectives of vocational education, it is difficult to assess thoroughly and accurately what is actually being done in the various individual high school

vocational education programs in the County. However, it can be safely stated that none of the schools have a complete and comprehensive program of vocational education. The current vocational programs are in reality pre-vocational in content in their relationship with occupational needs in Columbia County and surrounding areas.

Business and office education is perhaps nearer to being vocational in nature than the other areas of education. Here the training is the traditional shorthand, typewriting, bookkeeping and office machines, but there is no instruction in the more recent areas of data processing and business organization and management.

The home economics courses are "vocational" only in the sense they prepare students for the vocation of homemaking through the development of those understandings, attitudes and abilities which contribute toward effectiveness in the homemaking role. None of the home economics training prepares the student for the emerging role as a wage earner.

The trade and industrial courses are generally limited in scope and number of offerings available. Some courses are one semester in length. Three schools offer no training in this category. No evidence was presented by the schools to indicate the trade and industrial curricula were influenced either by local and regional employment needs or by personnel drawn from the occupational group that will ultimately employ the students.

As near as could be determined, vocational agriculture courses while still offering the traditional preparation for farm employment and farm management, are beginning to devote attention to related off-farm activities and areas of study.

In general vocational education in Columbia County bears little relationship to current and projected employment needs within and around the County.

Enrollment

Student enrollment in vocational education courses is increasing. The largest portion of students is enrolled in business and office education; home economics claims the smallest number of students.

Recent Changes in Vocational Education Programs

Since 1960 two schools have reduced the number of course offerings and one school has added a course and also revamped its existing program. All schools are considering future expansion of their vocational programs. Two schools have firm commitments to add new courses for the 1965-1966 school year. Additions and deletions are determined by informal teacher and principal evaluation primarily in terms of student enrollment.

Relatively few internal changes have occurred within the vocational curricula. Recent changes have been characterized by alterations of course outlines, increased manipulative skills and additional time for instruction. Most internal changes were initiated by the course instructor.

Vocational Counseling Programs

All counselors are one-half or part-time counselors who also serve as classroom teachers or librarians. All counselors who were respondents in the study reported that there was insufficient time within their present schedule to direct an effective vocational counseling program. No formal communication exists between the schools and business and industrial firms to coordinate training programs and employment needs. There are no organized placement services available to youth in any of the schools studied. There are no work experience programs conducted in the County to better enable students to move from the classroom to the job. Assistance to students in locating employment has been erratically and informally

accomplished by individual teachers and has been confined to part-time and summer help of short duration.

Numerous methods are used to assist the student in uncovering his vocational interests, attitudes and aptitudes. Students are informed of the results of paper-pencil tests, but little counseling occurs beyond notification of test scores. Armed forces visitations, teaching units and conferences with the Oregon State Employment Service counselor are the most popular techniques for presenting vocational information to the students.

One high school conducts follow-up studies in an attempt to determine the progress and success of its graduates. The remaining schools have not yet completed studies that would provide this data. In general, there is no way to measure the schools' contribution to the students' vocational preparation.

Libraries

Between 0.6 and 8.9 percent of the books in the five school libraries are vocational-technical titles. Most books were published prior to 1955 and are seldom used by the students. Vocational-technical periodicals show extensive use. The pamphlet files contain a wide assortment of occupational information on a national and regional level, but contain no data on local employment needs. The pamphlet files are barren of student use. None of the schools maintain a complete professional library of vocational-technical materials.

Teachers

Eighty-four percent of the vocational education teachers have extended their academic experience beyond a four-year degree. Most have had related out-of-classroom work experiences, and more than half have received some in-service education within the past year. The teachers collectively believe that (1) from 50

to 65 percent of their students are specifically enrolled for vocational purposes, that (2) the vocational students are slightly below the middle range of ability in reading, writing and arithmetic skills, and that (3) they themselves were most responsible for internal curricular changes. Fifty-two percent of the students completing the most advanced class in a given vocational area would be given a recommendation for employment by their teacher.

Students

Approximately 80 percent of Columbia County high school graduates will have some need for vocational training. Present vocational choices of all students favor professional-semiprofessional-managerial, clerical-sales, skilled and service occupations in that order. The strongest influence relative to future work experiences comes from the home. More than 50 percent will pursue jobs outside of the County. The majority of the boys are unfamiliar with the apprenticeship program in Oregon and desire additional information. Over 500 students stated they would be interested in attending an area vocational school and more than 525 said they would be willing to work without pay in order to learn about jobs performed in specific business and industrial firms and work in general. The students are vitally interested in and receptive to education and training that will prepare them for employment.

Facilities

Facilities currently used for vocational education in the County are sufficient for their present purposes. Two schools planning to enlarge their programs are preparing for new construction. Any major expansion in vocational education, with the possible exception of one high school, would require additional facilities.

Recommendations

The recommendations submitted in this report are intended to pertain to the County as a whole. No recommendations will be offered for separate high schools.

1. It is recommended that there be established an area vocational school[1] in Columbia County. The concept of the area vocational school embraces at least two major characteristics: (a) it is vocational in nature, providing training which leads to employment in specific occupations or clusters of occupations, and (b) it serves students of more than a single community or school district.

It is extremely difficult if not impossible for the small high schools in Columbia County to develop individual programs with broad multiple offerings in vocational education. Because of this it is necessary that professional educators and lay persons cooperatively develop a program of vocational-technical education for Columbia County students.

An area vocational school has the following advantages:

a. A wide range of courses is possible.

b. A wide variety of facilities and equipment is made possible.

c. It is usually more flexible and responsive to needed change than local schools because of the nature of the school and because of its broader administrative base.

d. A broad tax base is available for support. The school could be operated by the County, equipped with funds from federal and state sources and supported financially on a cooperative basis by the local school districts.

e. It draws students from multiple attendance areas thereby maintaining a large enough enrollment to justify a diversified program. (More than 500 juniors and seniors from the five high schools in the County have indicated an interest in attending such a school.)

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[1]Other terms by which the area vocational school is identified include: area technical school, regional vocational school and vocational education center.

The major disadvantages associated with an area vocational school are:

a. Scheduling of students.

b. Transportation of students.

Student scheduling could be accomplished by alternating one-day, one-week or two-week periods between the home high school and the area vocational school. Numerous scheduling arrangements are possible. Advantages of attending the area school on a rotating basis include the ability to maintain neighborhood and school ties, preservation of extracurricular activities in the home school and a tendency to avoid the undesirable stereotype of vocational training that has enveloped some vocational schools in the past.

Extensive transportation planning is essential. Assuming the proposed area school would be located near the County population center in the St. Helens-Scappoose area, the following travel time and distance factors must be considered:

From:	Approximate number of miles to St. Helens	Approximate travel time to St. Helens (minutes one way)
Scappoose	7	12
Vernonia	28	45-50
Rainier	18	25
Clatskanie	30	40-45

A partial list of programs which could be offered in an area vocational school and for which there are occupational needs in Columbia County and the Portland Metropolitan Area include the following:

Automotive mechanic
Automotive body repair
Automotive electrician
Bookkeeper
Bookkeeping machine operator
Cabinet maker
Carpenter
Clerk-typist
Diesel mechanic
Draftsman
Heavy duty mechanic
Machinist
Office machine operator
Tab and key punch operator
Programmer - data processing
Refrigeration mechanic
Sales specialty
Secretary
Sheetmetal worker
Stenographer
Power sewing machine operator

2. The following recommendations are made for the curriculum of the area vocational school:

a. It is recommended that less emphasis be given to farm labor and farm management in vocational agriculture, and increased attention be devoted to preparing students for related agricultural activities such as farm machinery sales and service occupations, farm supplies and equipment occupations, forestry and soil conservation occupations, ornamental horticulture occupations and farm service occupations. These changes are needed in view of the reduced number of farms and the diminishing need for farm workers.

b. It is recommended that a distributive education program be initiated to provide training in management and sales occupations. This program would become part of the work experience program and could also be directly related to business and office education and some phases of vocational agriculture.

c. It is recommended that the home economics program train students as wage earners. Examples of training to be offered that would help reduce the need for service workers include child-care training, vocational nursing, hotel-motel housekeeping aide, etc.

3. It is recommended that exploratory or pre-vocational courses of study be maintained in the local schools and offered at a time in the educational experiences of youth to make it meaningful in terms of subsequent vocational training.

4. It is recommended that syllabi be prepared for all vocational courses offered in the County in order to put forth for the examination of all concerned the aims and content of individual or collective training programs. This will contribute to improved communication, coordination between a given course of training and the balance of the program and a general understanding of the total vocational program.

5. It is recommended that in addition to preparing learners for specific occupations, attention be given to providing the student with the fundamental knowledge, concepts and skills common to a number of occupations in a closely related occupational cluster. This would permit greater flexibility on the part of the trainee in acquiring work commensurate with his skills and would improve the efficiency of the vocational-technical curricula. It would also better prepare the worker to face the numerous occupational changes brought about by automation and other technological phenomena.

6. It is recommended that students be trained to accept employment in areas external to Columbia County. The question is raised as to whether a community or county can afford to prepare workers to move away as soon as they are trained. The answer lies in two assumptions: (a) all migration will not be away from Columbia County -- what the County loses may be regained by in-migration of highly qualified personnel, and more importantly (b) the basic purpose of vocational education is to develop people to achieve a more productive life, not to develop an area, an industry, or an occupation.

7. It is recommended that future vocational education planning be directly related to the Columbia County Community Action Council's "war on poverty." A cooperative vocational-technical program could make appropriate training available not only to high school juniors and seniors but also to post-high school youth, high school dropouts and employed and unemployed adult workers. The school could operate days, evenings and Saturdays to provide training for a wide selection of persons needing its services. Consideration should be given to extending the offerings through grades thirteen and fourteen.

8. It is recommended that a complete professional vocational library be established and that current and meaningful literature be made available to

students relative to their vocational interests, to the world of work and to vocational programs available within the County.

9. It is recommended that complete and accurate information pertinent to apprenticeship programs be made available to County high school students and other interested persons. This recommendation is made in the light of present and anticipated needs for skilled workers and in recognition of the worth of apprenticeship training as an effective means of preparing qualified employees. Recent legislative action (HB 1167) provided for the establishment of pre-apprenticeship training in community colleges and other educational institutions. The bill also provided for pre-apprenticeship credit being awarded for completion of school courses that would reduce the length of the apprenticeship term. The bill was vetoed by the Governor for reasons not associated with pre-apprenticeship training. School personnel should discuss with representatives from the craft unions and appropriate employers the feasibility of achieving in Columbia County what HB 1167 had intended for the State.

10. It is recommended that a system of vocational guidance be established that would accomplish the following:

a. Determine the student's interest, aptitudes and abilities and relate the vocational programs and occupational needs to this information. Develop a rational means of student selection for vocational training.

b. Provide students with accurate and timely information relative to current and projected employment needs for local and surrounding areas as well as for regional and national areas. In addition to information about employment needs there should be available data relative to the nature of the work performed, personal attributes needed, known advantages and disadvantages of the occupation, reward systems, etc.

c. Establish lines of communication and develop dynamic cooperative relationships with representatives from business and industrial firms. Solicit their support in planning and developing the vocational program. Explore in detail the means of establishing work experience programs and opportunities for work without pay.

d. Conduct follow-up studies for all high school graduates and dropouts. Knowledge of student academic and vocational pursuits subsequent to high school offers the schools a means by which they can determine some relationships between school and post-school experiences. Specifically, follow-up studies provide a method whereby schools can evaluate vocational education in terms of job success.

11. It is recommended that a placement and programs system be established to help locate appropriate employment for qualified workers. Follow-up studies should be conducted to determine worker success in terms of advancement and rewards, worker mobility, need for additional training, employer satisfaction, employee job satisfaction, and related data. This follow-up would be coordinated with a similar study in an earlier recommendation.

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*MIGRATION PATTERNS; PILOT PROJECTS; QUESTIONNAIRES; ACADEMIC ACHIEVEMENT; ATTITUDES; FAMILY INCOME; SOCIOECONOMIC STATUS; AGE; GEOGRAPHIC LOCATION; *MIGRANTS; *INDIVIDUAL CHARACTERISTICS; MOTIVATION; EMPLOYMENT
WALSH COUNTY; NORTH DAKOTA

The purposes of this study were to serve as a pilot in testing measuring instruments for a statewide migration study and to compare 20 out-of-state migrants, 28 within-state migrants, and 40 stables (individuals who have decided not to move) by identifying characteristics of age, residence, education, and employment along with numerous social factors possibly involved in the decision to migrate. Participants responded to a questionnaire or a followup telephone call. Some findings are: (1) The mean age of stables was 50.2 years, of within-state migrants, 34.6 years, and of out-of-state migrants, 37.3 years, (2) Over 87 percent of all groups was born in North Dakota, (3) Over 50 percent of the out-of-state migration was to the West Coast, (4) Migrant groups had more formal education, (5) The majority of both migrant groups were employed full-time both before and after migration, (6) Both migrant groups raised their mean occupational prestige rating, but out-of-state migrants had the higher mean, (7) Average family income increased significantly for both migrant groups, (8) The stables appeared to have higher incomes than either migrant group before migration, (9) The most frequently named reasons for migration were higher wages, more avenues to success, better community size, (10) Of out-of-state migrants, 66.5 percent indicated they would not return to Walsh County, (11) Approximately 93 percent of the migrants indicated their future would not look so good had they remained in Walsh County. (MM)

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Migration Patterns and Selected Characteristics of Migrants From Walsh County, North Dakota

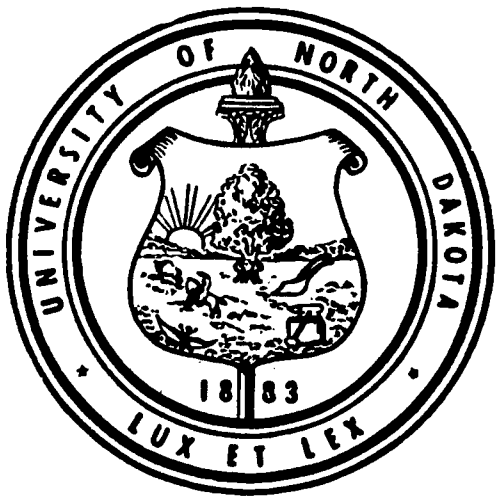
James J. Kiefert

Research Report No. 4

CENTER FOR RESEARCH IN
VOCATIONAL AND TECHNICAL EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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J.J.K.

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INTRODUCTION

There were approximately 117,000 more births than deaths in North Dakota between 1950 and 1960. This addition of individuals through natural growth produced a potential 1960 population of approximately 737,000 persons for the State, as compared to the actual population of 632,000 persons. Whereas a natural increase of 19 per cent over the 1950 population may have been anticipated, in actuality North Dakota's population increased only 2.1 per cent in this ten-year period. Vangsness (1962) and others have pointed out that the State's natural growth was offset in large part by the migration of some 105,000 people from the State. This figure excludes those persons migrating into the State during this period, making the total number of individuals leaving the State even greater.

As this out-of-state migration continues and as community organizations and institutions are weakened by population loss, the direct and indirect effects of population movement are reflected in economic activity, educational systems, governmental efforts,—in the very values and purposes of social existence that motivate human behavior (Klietsche, 1964). Social disorganization cannot be ignored. Communities must ascertain the extent to which individual needs for self-actualization and self-fulfillment are met. In the final analysis, only those communities can grow and flourish which provide individuals with opportunities for personal, social, moral, vocational and intellectual growth and stimulation.

Social scientists maintain that migration is a reaction to a dissatisfactory situation in which the individual has weighed the

psychological, social and economic costs of migration against the costs of staying under existing conditions. It has also been expressed that the individuals' perception of existing opportunities in his home community is colored considerably by his attitude toward the community as a whole (Leslie, 1965). The variables of community satisfaction and perceived social cost have been fundamental in the theoretical framework of Beegle's (1961) migration studies. Studies dealing with the factors involved in the decision to migrate or not to migrate are limited. A review of these studies dealing with migration have indicated numerous factors, often contradictory, which are involved in decisions to migrate. Many of the results reported are unique to the sample or population studied (Andrews 1962, Bauder 1965, Burchinal and Jacobson 1963, McNamara 1961, Taves and Coller 1964, and Youmans 1959). The need to know more, not only about the people who migrate, but also about those who decide not to migrate, is quite evident. Cook (1961) has succinctly stated the problem, "We do not yet have adequate means of learning the personal motives of people who migrate."[1]

This study is an attempt to compare the characteristics of a sample of three specific groups: out-of-state migrants, within-state migrants, and stables (individuals who have decided not to move). These three groups will be compared by identifying characteristics of age, residence, education, and employment along with numerous social factors which are felt to be involved in the decision to migrate.

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[1] *Cook, W. Roy, "Population Changes in North Dakota Counties:1950-1960." N.Dakota Ag. Exp. Station, Vol. 21, July-August, 1961. p. 15.*

RESEARCH DESIGN

An area in North Dakota was selected which had approximately the same ratio of urban and rural families as exists in the State as a whole. It was determined that Walsh County had the most representative population. The State has a net out-migration of 16.9 per cent; Walsh County's net out-migration for the same 1950-1960 period was 16.8 per cent.

The population for this study consisted of individuals who were listed with the township assessors of Walsh County, North Dakota, as having some personal property and therefore taxable. Individuals who had left the assessor's area within the previous five years were identified as migrants and separated into two groups, out-of-state migrants and within-state migrants. A random sample of individuals remaining in the area constituted the sample of stables.

The township assessors provided forwarding addresses from their tax-billing lists. Addresses were thus acquired for 27 out-of-state migrants who had left North Dakota and for 35 within-state migrants who had moved from Walsh County to some other area within the State. A questionnaire was mailed to each of these migrants in the Spring of 1966.

Copies of the questionnaires used are found in Appendix A. Response to the questionnaire and two follow-up questionnaires from out-of-state migrants was 74 per cent (20 individuals); from within-state migrants, response was 80 per cent (28 individuals). Telephone contact with the seven non-respondent within-state migrants indicated that they ignored the questionnaire because they did not choose to answer questions pertaining to their income.

Of the random sample of 50 stables who chose not to migrate from Walsh County, 80 per cent responded (40 individuals); as in the case of migrants, the non-respondent stables expressed in telephone interviews a resentment of the questions about their yearly incomes and declined to complete the questionnaire.

RESULTS AND DISCUSSIONS

One of the objectives of this study was to determine the validity and utility of the instruments developed for each group studied. The results are confined to the reporting of the general characteristics of the sample.

Because not all respondents answered all questions, the figures listed in each of the following tables were computed by determining the number who responded to each part of the question as the percentage of the total number who responded to the question. The number of respondents in each group is indicated in each table.

In each table responses are listed by percentages followed by the frequencies of responses in parentheses.

The age distribution for the three groups is presented in Table 1. The sampling procedure has eliminated the age group of under-twenty-years in each of the three samples. The data show the median age of the migrants to be lower than that of the stables. This finding is consistent with other studies on migration which have reported that the majority of migrants move when between the ages of 16 and 29. The median age of all individuals in Walsh County is well above average for the State, in which only three other counties, Traill, Nelson, and Griggs have an older median age for all residents.

Of the within-state migrants, 42.8 per cent are from 20-29 years of age, and 92.8 per cent are between 20-49 years of age. Of the out-of-state migrants, 44.4 per cent are from 20-29 years of age and 72.2 per cent are between 20-49 years of age. Thus, the majority of the migrants are below 40 years of age and most are below 30 years of age. There is essentially no difference in ages between the within-state migrants and

the out-of-state migrants.

TABLE 1

AGE OF RESPONDENTS

AGE	STABLES (N = 39)	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
Under 20	0 (0)	0 (0)	0 (0)
20-29	10.2 (4)	42.8 (12)	44.4 (8)
30-39	28.2 (11)	25.0 (7)	22.2 (4)
40-49	15.4 (6)	25.0 (7)	5.6 (1)
50-59	15.4 (6)	3.6 (1)	16.7 (3)
60-69	12.8 (5)	3.6 (1)	5.6 (1)
70-79	10.2 (4)	0 (0)	5.6 (1)
80-89	5.2 (2)	0 (0)	0 (0)
90-99	2.6 (1)	0 (0)	0 (0)
Mean	50.2 years	34.6 years	37.3 years

Table 2 indicates the ages of the spouses of the migrants. It would appear that the age of the spouse is generally comparable to but slightly less than the age of the respondent in all groups. Ninety-two per cent of all respondents were male, therefore, the spouses represented here are essentially females.

TABLE 2

AGE OF SPOUSES

AGE	STABLES (N = 32)	WITHIN-STATE MIGRANTS (N = 27)	OUT-OF-STATE MIGRANTS (N = 17)
Under 20	(0)	3.7 (1)	(0)
20-29	21.9 (7)	51.8 (14)	47.0 (8)
30-39	31.2 (10)	25.9 (7)	29.4 (5)
40-49	21.9 (7)	11.1 (3)	5.9 (1)
50-59	12.5 (4)	7.4 (2)	11.8 (2)
60-69	12.5 (4)	(0)	(0)
70-79	(0)	(0)	5.9 (1)

The number of years lived in Walsh County is indicated in Table 3. It appears significant that the within-state migrants lived in Walsh County fewer years than both the out-of-state migrants and the stables. Of the within-state migrants 67.8 per cent lived in Walsh County for less than 20 years; therefore, they had moved into Walsh County from some other place. Of these within-state migrants 88.9 per cent were born in North Dakota (Table 4). They were within-state migrants into Walsh County before the period covered by this study.

The out-of-state migrants lived longer in Walsh County than the within-state migrants. No out-of-state migrants lived less than 10 years in Walsh County and 64.8 per cent lived there more than 20 years.

TABLE 3

YEARS LIVED IN WALSH COUNTY

YEARS	STABLES (N = 40)	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 17)
0 - 9	10 (4)	35.7 (10)	(0)
10 - 19	5 (2)	32.1 (9)	23.5 (4)
20 - 29	12.5 (5)	14.3 (4)	41.1 (7)
30 - 39	25 (10)	10.7 (3)	11.8 (2)
40 - 49	12.5 (5)	7.1 (2)	11.8 (2)
50 - 59	17.5 (7)	0 (0)	11.8 (2)
60 - 69	7.5 (3)	0 (0)	0 (0)
70 - 79	7.5 (3)	0 (0)	0 (0)
80 - 89	2.5 (1)	0 (0)	0 (0)

Table 4, showing the respondent's place of birth, indicates that most of the respondents in each group were born in North Dakota and that nearly an equal proportion of respondents and spouses were born in North Dakota.

TABLE 4

BIRTH PLACE OF RESPONDENTS AND SPOUSES

	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
RESPONDENTS BORN IN NORTH DAKOTA	(N = 40)	(N = 27)	(N = 18)
Yes	87.5 (35)	88.9 (24)	88.9 (16)
No	12.5 (5)	11.1 (3)	11.1 (2)
SPOUSES BORN IN NORTH DAKOTA	(N = 35)	(N = 28)	(N = 17)
Yes	91.4 (32)	82.1 (23)	82.4 (14)
No	8.6 (3)	17.9 (5)	17.6 (3)

The educational level of the respondents, presented in Table 5, indicates that the out-of-state migrants have slightly more education than the within-state migrants and the stables. The age distribution of the groups may account for the difference in the educational level of the stables as compared with that of the migrants. This would indicate that the better educated individuals are in the migrant groups.

TABLE 5

EDUCATIONAL LEVEL OF RESPONDENTS

	STABLES (N = 36)	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
Less than high school	47.2 (17)	21.4 (6)	27.8 (5)
High school graduate	30.6 (11)	39.3 (11)	22.2 (4)
Some college	8.3 (3)	17.8 (5)	22.2 (4)
College graduate	13.9 (5)	21.4 (6)	27.8 (5)

Table 6 indicates the employment status before and after migration. Of the within-state migrants, 4 individuals or 14.3 per cent were unemployed before migration. After migration, one withdrew from the labor market, two gained full-time employment, and the other did not respond. Of the out-of-state migrants, one individual was unemployed before and after migration. One individual retired and two gained full-time employment after migration, whereas they were employed only part-time before migration. There was only a slight increase in employment after migration among the out-of-state migrants.

TABLE 6

EMPLOYMENT STATUS OF WITHIN-STATE MIGRANTS AND OUT-OF STATE MIGRANTS BEFORE AND AFTER MIGRATION FROM WALSH COUNTY

	WITHIN-STATE MIGRANTS		OUT-OF-STATE MIGRANTS	
	Before Migrating (N = 28)	After Migrating (N = 27)	Before Migrating (N = 18)	After Migrating (N = 18)
Unemployed	14.3 (4)	0	5.6 (1)	5.6 (1)
Retired	0	3.7 (1)	0	5.6 (1)
Part-Time Employed	7.1 (2)	7.4 (2)	27.8 (5)	11.1 (2)
Full-Time Employed	78.6 (22)	88.9 (24)	66.6 (12)	77.7 (14)

Table 7 indicates the type of work engaged in by the stables and by the migrants before and after migration. A significant increase in Group I, professional, technical and kindred work, is noted for both samples of migrants after migration and a significant decrease in Group II, farmers and farm managers, for both samples. It appears that the migrants changed jobs after migration and obtained better jobs. This

TABLE 7

TYPES OF EMPLOYMENT HELD BY THE STABLES AND BY THE MIGRANTS
BEFORE AND AFTER MIGRATING FROM WALSH COUNTY

		STABLES	WITHIN-STATE MIGRANTS		OUT-OF-STATE MIGRANTS	
		Present (N = 40)	Before (N = 24)	After (N = 26)	Before (N = 17)	After (N = 17)
Group I	Professional, Technical and Kindred Workers	7.7 (4)	8.7 (2)	28 (7)	23.5 (4)	35.3 (6)
Group II	Farmers and Farm Managers	38.5 (12)	34.8 (8)	12 (3)	23.5 (4)	0
Group III	Managers, Officials, and Proprietors	3.8 (3)	4.3 (1)	12 (3)	0	5.9 (1)
Group IV	Clerks, Sales, and Kindred Workers	7.7 (5)	17.4 (4)	20 (5)	17.6 (3)	11.8 (2)
Group V	Skilled Workers and Foremen	15.4 (6)	13 (3)	20 (5)	5.9 (1)	23.5 (4)
Group VI	Semi-skilled Workers	11.5 (5)	8.7 (2)	0	5.9 (1)	11.8 (2)
Group VII	Unskilled Laborers	15.4 (4)	13 (3)	8 (2)	23.5 (4)	11.8 (2)

may have been a factor in the migrants' decision to move.

This increase of occupational prestige is apparent in Table 8 using the North-Hatt Prestige rating for each reported occupation. The occupational prestige of the stables is comparable to the prestige of the within-state migrants before they moved. The occupational prestige of within-state migrants increased to a large degree after they moved. The out-of-state migrants, already in higher prestige occupations before they migrated, increased their occupational prestige considerably after migration. The prospects for increased occupational prestige may have been a factor in the decision to migrate.

TABLE 8

MEAN PRESTIGE RATING OF OCCUPATIONS HELD BY STABLES AND BY MIGRANTS BEFORE AND AFTER MIGRATION FROM WALSH COUNTY

	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
Before migrating	59.38	59.68	63.00
After migrating	-	66.92	69.24
Increase	-	7.24	6.24

The average family income for stables and for migrants before and after migration is presented in Table 9. A significant increase in the average family income of the migrants is quite apparent. Of the within-state migrants 37 per cent had incomes of less than $4,500 before migration and only 11.1 per cent had incomes of less than $4,500 after migration. There were 43.7 per cent of the out-of-state migrants with incomes of under $4,500 before migration and only 5.9 per cent after migration.

TABLE 9

AVERAGE FAMILY INCOME OF STABLES AND OF MIGRANTS
BEFORE AND AFTER MIGRATION FROM WALSH COUNTY

	STABLES	WITHIN-STATE MIGRANTS		OUT-OF-STATE MIGRANTS	
	(N = 30)	Before Migrating (N = 27)	After Migrating (N = 27)	Before Migrating (N = 16)	After Migrating (N = 17)
Under $1,500	0	3.7 (1)	0	6.2 (1)	5.9 (1)
$1,501-$3,000	3.3 (1)	25.9 (7)	3.7 (1)	12.5 (2)	0
$3,001-$4,500	10 (3)	7.4 (2)	7.4 (2)	25 (4)	0
$4,501-$6,000	20 (6)	25.9 (7)	29.6 (8)	37.5 (6)	11.8 (2)
$6,001-$7,500	20 (6)	22.2 (6)	18.5 (5)	6.2 (1)	29.4 (5)
$7,501-$9,000	23.3 (7)	7.4 (2)	18.5 (5)	0	23.5 (4)
Above $9,000	23.3 (7)	7.4 (2)	22.2 (6)	12.5 (2)	29.4 (5)

A significant increase is also evident in the $7,501 to above $9,000 categories for both migrant groups. Before migration only 14.8 per cent of the within-state migrants had an income above $7,500 and after migration there were 40.7 per cent in the above $7,501 range. Of the out-of-state migrants there were also 52.9 per cent earning over $7,500 after migration as compared to 12.5 per cent before migration.

This increase in income as seen in Table 10 may have been a significant factor in the decision to migrate.

TABLE 10

RESPONSES TO WHETHER THE MIGRANTS INCREASED THEIR PERSONAL INCOME AFTER MIGRATING

	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
Yes	78.6 (22)	83.3 (15)
No	21.4 (6)	16.7 (3)

According to Table 11, 69.2 per cent of the within-state migrants and 64.7 per cent of the out-of-state migrants would have moved farther to gain larger personal income.

TABLE 11

RESPONSES TO WHETHER THE MIGRANTS WOULD HAVE MOVED FARTHER TO GAIN A LARGER PERSONAL INCOME

	WITHIN-STATE MIGRANTS (N = 26)	OUT-OF-STATE MIGRANTS (N = 17)
Yes	69.2 (18)	64.7 (11)
No	30.8 (8)	35.3 (6)

Table 12 lists the states in which the out-of-state migrants are now living. The west coast is the area to which the majority of out-of-state migrants moved. Minnesota drew the next largest group of migrants.

TABLE 12

STATE OF RESIDENCE FOR OUT-OF-STATE MIGRANTS

California	5
Minnesota	5
Oregon	3
Washington	3
Wisconsin	1
Florida	1
Alabama	1
Colorado	1

Two of the five out-of-state migrants moved to Minneapolis, the area which was shown by previous studies to be the largest drawing area (Sjaastad 1962 and Adams 1964). The migrants from Walsh County tended to move to western and southern states; none moved to the eastern states.

Data concerning the reasons for migrants leaving Walsh County and factors which might prompt stables to migrate are presented in Table 13. Better wages was the most frequently reported reason by all three groups, followed by the factors of more avenues of success, and the greater availability of good jobs in the community of relocation. These findings tend to agree with those previously reported.

A comparison of the responses of the stable group with the responses of the migrant group suggests that the stables would be most apt to move for the same reasons indicated by the migrants. Climate is the next factor of importance. The fact that only one of the stables responding was not married may explain why reasons g and h in Table 13 were not selected.

TABLE 13

REASONS FOR LEAVING WALSH COUNTY AND FACTORS WHICH MIGHT PROMPT STABLES TO MIGRATE

	FREQUENCY OF RESPONSE		
	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
a. Because parents moved	1	0	0
b. Going to school there	3	4	1
c. Because of military service	3	0	1
d. Had relatives there	2	2	1
e. Had friends there	0	3	1
f. Accompanied spouse	8	11	9
g. Your fiance lived there and you went to be married	0	0	0
h. Better marriage prospects there	0	0	0
i. Community has a better climate	11	0	12
j. Community is the size you like	6	6	9
k. Community has more good jobs open	13	4	7
l. Wages are better there	13	11	13
m. More freedom of behavior there	1	0	1
n. Community offered "change of scenery," more excitement	3	2	6
o. Community has more avenues to success	13	9	12
p. Wanted social and cultural betterment	8	5	4
q. Family conflict at home	0	2	1
r. Improved position with the same firm or organization	5	6	0

It is interesting to note that the within-state migrants did not select "better climate" as a response since these migrants are still in North Dakota, it may be presumed that they did not move because of the climate. The data also suggested that the spouse has considerable influence upon decisions to migrate.

The only observable difference between within-state migrants and out-of-state migrants, other than the response concerning climate, is the reason of moving for an improved position with the firm or organization currently employing the respondent. None of the out-of-state migrants indicated an improved position with the same firm or organization as a reason for leaving Walsh County while six of the within-state migrants indicated this as a reason for moving.

It will be noted that many respondents listed more than one reason for migration, accomplished or contemplated. Asked to rank these reasons in order of importance, the respondents gave answers which were not predicted by their answers to preceding questions. Table 14 shows most of the stables naming social and cultural betterment as the most important factor, with economic factors also listed but not as frequently as might have been expected from the foregoing tables. For within-state migrants, the most important factors were wages and improved positions with the same firm or organization. Most of the out-of-state migrants were influenced primarily by wages, but almost as many were influenced by their spouses.

Some possible reasons for migration drew no response; the sample included no age group of under twenty years which might have been affected by parents' migration. Reasons g and h were not factors, because few

TABLE 14

IMPORTANCE OF REASONS FOR LEAVING WALSH COUNTY

	1ST CHOICE			2ND CHOICE		
	STABLES (N = 29)	WITHIN-STATE MIGRANTS (N = 21)	OUT-OF-STATE MIGRANTS (N = 16)	STABLES (N = 28)	WITHIN-STATE MIGRANTS (N = 22)	OUT-OF-STATE MIGRANTS (N = 16)
a. Because parents moved	0	0	0	0	4.2 (1)	0
b. Going to school there	3.4 (1)	14.3 (3)	6.3 (1)	3.6 (1)	4.2 (1)	0
c. Because of military service	0	0	0	0	0	6.3 (1)
d. Had relatives there	3.4 (1)	0	6.3 (1)	0	4.2 (1)	0
e. Had friends there	0	0	0	0	0	0
f. Accompanied spouse	6.9 (2)	9.5 (2)	25.0 (4)	7.1 (2)	4.2 (1)	0
g. Went to be married	0	0	0	0	0	0
h. Better marriage prospects there	0	0	0	0	0	6.3 (1)
i. Community has a better climate	13.8 (4)	0	12.5 (2)	10.8 (3)	4.2 (1)	18.8 (3)
j. Community is the size you like	0	4.8 (1)	0	7.1 (2)	16.7 (4)	0
k. Community has more good jobs open	20.7 (6)	4.8 (1)	0	21.4 (6)	25 (6)	12.5 (2)
l. Wages are better there	13.8 (4)	23.8 (5)	31.2 (5)	14.3 (4)	20.8 (5)	31.2 (5)
m. More freedom of behavior there	3.4 (1)	0	0	0	0	0
n. Community offered "change of scenery;" more excitement	0	0	0	3.6 (1)	4.2 (1)	0
o. Community has more avenues to success	6.9 (2)	14.3 (3)	12.5 (2)	7.1 (2)	8.3 (2)	25 (4)
p. Wanted social and cultural betterment	27.7 (8)	0	0	7.1 (2)	0	0
q. Family conflict at home	0	9.5 (2)	0	10.8 (3)	0	0
r. Improved position with the same firm or organization	0	19.0 (4)	6.3 (1)	7.1 (2)	0	0

respondents were unmarried. Of the entire sample, only one stable and no within-state or out-of-state migrant named freedom of behavior as a factor in migration.

Table 15 indicates the extent to which the migrants had obtained the things they were looking for when they left Walsh County. 85.7 per cent of the within-state migrants and 94.4 per cent of the out-of-state migrants did realize their ambitions, to some degree. Virtually none of the out-of-state migrants failed to obtain the things they were looking for and none preferred living in Walsh County. It would appear that both migrant samples are satisfied with their decisions.

TABLE 15

RESPONSES TO WHETHER THE MIGRANTS HAD OBTAINED THE THINGS THEY WERE LOOKING FOR WHEN THEY LEFT WALSH COUNTY

	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
a. Yes, completely	35.7 (10)	33.3 (6)
b. Yes, partly	50.0 (14)	61.1 (11)
c. No, but things are improving	3.6 (1)	0
d. No, don't think things will improve	0	0
e. No, like living in Walsh County better	3.6 (1)	0
f. Other	7.1 (2)	5.6 (1)

Table 16 indicates the migrants' expressed views about returning to Walsh County. Half of the within-state migrants wouldn't mind returning to Walsh County to live; one individual, the same one who preferred life in Walsh County (Table 15), actually intends to return. The out-of-state migrants were less positive; 66.5 per cent would not return under any circumstances, or had never seriously considered returning. 27.7 per cent of the out-of-state migrants wouldn't mind returning to Walsh County to live.

TABLE 16

MIGRANTS' EXPRESSED VIEWS ABOUT RETURNING TO WALSH COUNTY

	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
a. Thought never seriously entered my mind	42.8 (12)	38.8 (7)
b. Under no circumstances would I again live in Walsh County	0	27.7 (5)
c. I wouldn't mind returning to Walsh County to live	50.0 (14)	27.7 (5)
d. I definitely intend to return to Walsh County to live sometime	3.6 (1)	0
e. Other	3.6 (1)	5.8 (1)

Table 17 shows that a large majority of both migrants samples indicated that their future would not be as promising, had they remained in Walsh County. No less than 72.2 per cent of out-of-state migrants and 70.4 per cent of within-state migrants moved in response to a definite job offer.

TABLE 17

MIGRANTS' REPORTED PERCEPTION OF THEIR FUTURE IF THEY HAD REMAINED IN WALSH COUNTY

	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
Not as good	92.9 (26)	94.4 (17)
As good	7.1 (2)	5.6 (1)
Better than now	0	0

Table 18 reports the stables' reported perception of their future if they were to move from Walsh County. Only 22.8 per cent of the stables feel that their future would look better in another state. It may be concluded that the stable group appear satisfied with their prospects in Walsh County

TABLE 18

STABLES' PERCEPTION OF THEIR FUTURE IF THEY WERE TO MOVE FROM WALSH COUNTY

	STABLES (N = 35)
Better in Walsh County	42.9 (15)
Same	34.3 (12)
Better in other state	22.8 (8)

The respondents' plans as to future moves are presented in Table 19 for the three samples. Of the stable group, 18.5 per cent are going to move in the future; the majority, however, have no present intention to move. The majority of within-state migrants and out-of-state migrants also have no immediate intention to move, but 33.9 per cent of the out-of-state migrants do plan to move eventually. It may be that an individual who has moved once is not deterred by problems and difficulties entailed in moving.

TABLE 19

MIGRATION ASPIRATION
(Thoughts about moving)

	STABLES (N = 38)	WITHIN-STATE MIGRANTS (N = 28)	OUT-OF-STATE MIGRANTS (N = 18)
No present intention to move	76.3 (29)	71.4 (20)	61.1 (11)
Considering moving	5.3 (2)	10.7 (3)	0
I am going to move but plans are not definite	13.2 (5)	7.1 (2)	27.8 (5)
I have definite plans to move	5.3 (2)	10.7 (3)	11.1 (2)

In an attempt to determine the importance of income, the migrants were asked if they would be willing to return to Walsh County if assured of an adequate income. As reported in Table 20, the majority of within-state migrants would return; the majority of out-of-state migrants would not. It would appear that income is more frequently important to within-state migrants than to out-of-state migrants and that the groups place different degrees of importance on other factors.

TABLE 20

RESPONSE TO WHETHER THE MIGRANTS WOULD BE WILLING TO RETURN TO WALSH COUNTY IF THEY HAD AN OPPORTUNITY TO OBTAIN EMPLOYMENT WITH AN ADEQUATE INCOME

	WITHIN-STATE MIGRANTS (N = 26)	OUT-OF-STATE MIGRANTS (N = 18)
Yes	76.9 (20)	38.8 (7)
No	23.1 (6)	61.2 (11)

Table 21 represents the respondent's suggestions for ways to improve Walsh County. The responses were placed in seven categories. Jobs, income, and occupationally related factors were most important to the migrants. From the point of view of the stables, shopping, and medical facilities and public utilities were most in need of improvement.

TABLE 21

SUGGESTED WAYS TO IMPROVE WALSH COUNTY

	STABLES (N = 31)	WITHIN-STATE MIGRANTS (N = 26)	OUT-OF-STATE MIGRANTS (N = 15)
Jobs, income, occupationally related responses	25.8 (8)	38.5 (10)	53.3 (8)
Living conditions, home, taxes, etc.	19.4 (6)	11.5 (3)	6.7 (1)
Friends and social life	3.2 (1)	15.4 (4)	0
Schools and educational opportunities	3.2 (1)	7.7 (2)	13.3 (2)
Recreation, scenery, esthetic values	16.1 (5)	7.7 (2)	20.0 (3)
Shopping and medical facilities, public utilities	32.2 (10)	19.2 (5)	0
Other	0	0	6.7 (1)

Table 22 indicates the social participation of the stables of Walsh County and of the migrants before and after migration. The data indicate that most of the migrants were active socially both before and after migration.

TABLE 22

RESPONSES CONCERNING MEMBERSHIP IN ORGANIZATIONS

	MEMBERSHIPS WHILE IN WALSH COUNTY			MEMBERSHIPS OF MIGRANTS AFTER MIGRATING	
	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
	(N = 33)	(N = 28)	(N = 18)	(N = 28)	(N = 17)
Yes	78.8 (26)	82.1 (23)	100 (18)	67.9 (19)	94.1 (16)
No	21.2 (7)	17.9 (5)	0	32.1 (9)	5.9 (1)

Table 23 indicates the types of organizations to which the stables belong, and the types of organizations in which the migrants have held membership before and after migration. The stables seem to belong exclusively to religious and occupational organizations while the migrants were active in many other types of organizations.

The number and variety of memberships held by the migrants is also significant. While in Walsh County, the 18 out-of-state migrants had a total of 45 memberships in six types of organizations; the 28 within-state migrants held a total of 40 memberships in five types of organizations. Both migrant groups continued to be active in social organizations after migration.

TABLE 23

ORGANIZATION MEMBERSHIPS HELD BY STABLES AND BY MIGRANTS BEFORE AND AFTER MIGRATION FROM WALSH COUNTY

	STABLES	WITHIN-STATE MIGRANTS		OUT-OF-STATE MIGRANTS	
		BEFORE MIGRATING	AFTER MIGRATING	BEFORE MIGRATING	AFTER MIGRATING
	(N = 32)	(N = 27)		(N = 17)	
Religious	84 (21)	45 (18)	39.5 (15)	35.6 (16)	43.4 (13)
Educational	0	7.5 (3)	5.3 (2)	13.3 (6)	6.7 (2)
Occupational	16 (4)	12.5 (5)	13.2 (5)	11.1 (5)	6.7 (2)
Civic Service	0	15 (6)	23.7 (9)	15.6 (7)	13.3 (4)
Social-Recreational	0	20 (8)	18.4 (7)	20 (9)	23.3 (7)
Political	0	0	0	4.4 (2)	6.7 (2)
Total Memberships	25	40	38	45	30

Table 24 contains the factors liked best about the present community. The stables and the within-state migrants indicated that friends and social life were the factors liked best. The out-of-state migrants like the jobs, income, and occupationally related factors.

TABLE 24

FACTORS LIKED BEST ABOUT PRESENT COMMUNITY

	WALSH COUNTY	PRESENT COMMUNITY	
	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
	(N = 33)	(N = 24)	(N = 14)
Jobs, income and occupationally related responses	12.1 (4)	12.5 (3)	35.8 (5)
Living conditions, homes, taxes, etc.	15.2 (5)	0	21.4 (3)
Friends and social life	60.6 (20)	41.7 (10)	7.1 (1)
Schools and educational opportunities	0	12.5 (3)	7.1 (1)
Recreation, scenery, esthetic values	3.0 (1)	8.3 (2)	21.4 (3)
Shopping and medical facilities, public utilities	9.1 (3)	25.0 (6)	7.1 (1)

Table 25 indicates that the out-of-state migrants dislike the scarcity of friends and social life in their present communities. The within-state migrants dislike the shopping and medical facilities and public utilities most while the stables most dislike the living conditions, homes, and taxes.

The out-of-state migrants' dissatisfaction with social life is not related to the degree of satisfaction with the decision to migrate (Tables 15 and 16.) It is presumed, therefore, that they must have expected some difficulty in making friends in their new communities.

TABLE 25

FACTORS DISLIKED MOST ABOUT PRESENT COMMUNITY

	WALSH COUNTY	PRESENT COMMUNITY	
	STABLES	WITHIN-STATE MIGRANTS	OUT-OF-STATE MIGRANTS
	(N = 24)	(N = 13)	(N = 8)
Jobs, income and occupationally related responses	20.8 (5)	23.1 (3)	0
Living conditions, homes, taxes, etc.	45.8 (11)	7.7 (1)	0
Friends and social life	8.3 (2)	7.7 (1)	87.5 (7)
Schools and educational opportunities	0	0	0
Recreation, scenery, esthetic values	4.2 (1)	15.4 (2)	0
Shopping and medical facilities, public utilities	20.8 (5)	46.2 (6)	12.5 (1)

Table 26 reports the apprehensions of stables as to difficulties they would expect in migration, and the actual experiences of migrants. The data indicate that the out-of-state migrants did in fact encounter some difficulty in getting to know their neighbors. The within-state migrants

had difficulty in finding housing. The migrants report fewer difficulties encountered in migration than the stables anticipated in migration. The stables see all categories as presenting difficulties in migration, with transportation giving the least concern. Migrants reported no difficulty in finding jobs or transportation, and only slight difficulty in making family adjustments.

TABLE 26

STABLES' PERCEPTION OF DIFFICULTIES ENCOUNTERED IN MIGRATION AND MIGRANTS' ACTUAL DIFFICULTIES IN MIGRATION

	STABLES (N = 35)	WITHIN-STATE MIGRANTS (N = 27)	OUT-OF-STATE MIGRANTS (N = 17)
Finding housing	34.4 (11)	42.3 (11)	17.7 (3)
Finding a job	25.7 (9)	0	0
Getting transportation	3 (1)	0	0
Getting to know neighbors	15.6 (5)	8 (2)	22.2 (4)
Making family adjustment	19.2 (5)	3.8 (1)	0

SUMMARY AND CONCLUSIONS

The limitations of this study must be kept in mind when interpreting this data. The size and characteristics of the samples limit certain comparisons of the three sample groups. This study suggests certain characteristics of each sample group and supports the following generalizations.

Age and Residence

The mean age of the stables was higher (50.2 years) than the mean age of the within-state migrants (34.6 years) and the out-of-state migrants (37.3 years). The stables as a group had lived longer in Walsh County than the migrant groups.

The majority of the out-of-state migrants lived in Walsh County for 20-29 years, the greater part of their lives; 88.9 per cent of this group was born in North Dakota. Approximately equal proportions of all three groups were born in North Dakota: 87.5 per cent for stables and 88.9 per cent for within-state and out-of-state migrants.

The out-of-state migration was chiefly to the West Coast and to Minnesota. More than half of the out-of-state migrants moved to either California, Oregon, or Washington.

Education and Employment

The migrant groups had received more formal education than the stable group. Fifty per cent of the out-of-state migrants and 39.2 per cent of the within-state migrants had had some college courses or had graduated from college, as compared with 22.2 per cent for the stables. The age distribution of the groups may account for these differences, yet the better educated individuals are in the migrant groups.

There was only a slight increase in employment of the migrant groups after migration; the majority were employed full-time both before and after migration. Changes appeared in the types of employment and the corresponding prestige of the new occupations. The largest increase appeared in the professional, technical, and kindred occupations for both migrant groups after migration. The largest decrease was in the farmer and farm-manager employment.

The mean prestige rating of occupations of the out-of-state and within-state migrants both before and after migration was higher than that of the stables. Both migrant groups raised their mean occupational prestige rating with the out-of-state migrants having the higher mean prestige rating.

The average family income increased significantly for both migrant groups. The largest increase was in the over $7,500 range for the out-of-state migrants. The stables appear to have much higher incomes than either migrant group had before migration. The majority of the migrants in both groups would have moved farther to gain a larger personal income; this finding emphasizes the influence of economic factors in decisions to migrate.

Factors Involved in the Decision to Migrate

The reasons for migration most frequently named by both groups are: higher wages; the new community has more avenues to success; and the new community is the size they like. The out-of-state migrants indicated a preference for the climate of the new community; understandably, no within-state migrants mentioned this as a contributing factor.

The stables frequently named the following as factors which might influence them to migrate: more and better jobs, better wages, more

avenues to success, a better climate, and social and cultural betterment. The majority of both migration groups indicated that they had obtained the things they were looking for when they left Walsh County.

The majority in all three groups have no present intentions to move, but there are more out-of-state migrants planning to move again than within-state migrants and stables. On the subject of returning to Walsh County, the majority (66.5 per cent) of the out-of-state migrants indicated they either have not thought of returning or would definitely not return to Walsh County. Half of the within-state migrants indicated that they wouldn't mind returning to Walsh County to live.

In response to whether the migrants would be willing to return to Walsh County with an adequate income, the majority of the within-state migrants (76.9 per cent) stated they would move back; the majority of the out-of-state migrants (61.2 per cent) would not return to Walsh County.

Approximately 93 per cent of the within-state migrants and 94.4 per cent of the out-of-state migrants indicated that their future would not look as good had they remained in Walsh County. The majority of the stables indicated that their future will be better in Walsh County than elsewhere.

The majority of the migrants suggested that jobs, income, and occupationally related factors in Walsh County are in need of improvement. From the point of view of the stables, shopping and medical facilities and public utilities are most in need of improvement.

The migrant groups were more socially active before and after migration than the stable group. Both migrant groups reduced their degree of social participation after migration but were still quite active. The groups also differ in the types of organizations to which they belong.

The stables affiliate only with religious and occupationally related organizations, while migrants' group-memberships represent almost all types of organizations both before and after migration.

Friends and social life were named by stables and within-state migrants as the best-liked factors in their present community; the out-of-state migrants indicated job, income, and occupationally related factors as best liked about their present community.

The factors which the stables most dislike about their present community are living conditions, homes, and taxes; the within-state migrants disliked most the shopping and medical facilities, and public utilities. The out-of-state migrants disliked most the separation from friends and social life in their present communities.

The stables regarded the finding of housing and a job as an obstacle to migration. The within-state migrants did have difficulty in obtaining housing, and the out-of-state migrants had difficulty in getting to know their neighbors.

This study consititutes the first phase of state-wide migration research. As a pilot study, one of its purpose was to test selected measurement instruments to be used in a larger study of stables and within-state and out-of-state migrants.

The general objective of the state-wide project will be to determine the overall causes and effects of migration in relation to the individual, the sender community and the receiver community. To achieve its purpose, the study must answer questions similar to those examined in this pilot project.

The answers to these questions are necessary to aid the migrant in his adjustment to his new community and to aid the receiver community

in its adjustment to the effects of in-migration. They may also be of use to sender communities which are faced with economic and social losses as a result of out-migration. The results of the state-wide study will be disseminated to all agencies in North Dakota which may share responsibilities in planning social, economic and educational changes as suggested by the patterns of migration.

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APPENDIX

STABLE QUESTIONNAIRE
UNIVERSITY OF NORTH DAKOTA

Confidential

The information obtained in this questionnaire will be treated as Confidential.

1. Please check: _____ Male _____ Female

	Yourself	If married, Husband or Wife
2. a. How old were you on your last birthday?	___ years	___ years
b. How many years have you lived in North Dakota?	___ years	___ years
c. How long have you lived at your present address?	___ years	___ years

3. a. Were you born in North Dakota? _____ Yes _____ No
   b. If married, was your wife or husband born in North Dakota? ___ Yes ___ No

4. a. What was the highest grade of school you completed? (Circle highest number)

Grade	High School	College	Graduate
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7

   b. Write the number of years, name of, and location of all schools attended after high school.

Business _____ (Years) _____ (Name) _____ (Location)

Trade Schools _____ (Years) _____ (Name) _____ (Location)

College _____ (Years) _____ (Name) _____ (Location)

Other (specify) _____ (Years) _____ (Name) _____ (Location)

c. Have you been enrolled in any school or college since 1960?

_____ Yes _____ No

d. If yes, specify where enrolled _____ (Name) _____ (Location)

Nature of schooling: Major _____

5. a. What is your present employment status?

_____ Unemployed _____ Employed part-time _____ Employed full-time
_____ Retired _____ Student _____ Housewife _____ Military

b. If employed full or part-time, what kind(s) of work do you do? (Please be specific as to type of work done)

_____

6. Present average <u>family</u> income?

_____ Under $1,500
_____ $1,501 - $3,000
_____ $3,001 - $4,500
_____ $4,501 - $6,000
_____ $6,001 - $7,500
_____ $7,501 - $9,000
_____ Above $9,000

7. Is your present home:

_____ A farm or ranch
_____ In country, but not a farm or ranch
_____ In a community under 2,500 population
_____ In a city of 2,500 or more

_____
(Name of city and county)

8. Would you move from North Dakota <u>IF</u>: (Check as many as apply to you.)

a. _____ Parents moved
b. _____ You were going to school
c. _____ You entered military service
d. _____ Relatives were in a new community
e. _____ You had friends in a new community
f. _____ Your spouse wanted to move
g. _____ Your fiance lived out of state
h. _____ You had a better chance to find someone to marry
i. _____ The new community had a better climate
j. _____ The new community was the size you like
k. _____ The new community had many good jobs available
l. _____ Wages were better in a new community
m. _____ You would have greater freedom of behavior there
n. _____ The new community was a "change of scenery;" a new and exciting place
o. _____ The new community had more avenues to success and achievement
p. _____ You could better yourself socially and culturally
q. _____ You had a family conflict at home
r. _____ You could have an improved position with the same employer
s. _____ Other (explain) _____

9. Which of the items in No. 8 do you consider most important? _____
Second in importance? _____ Third in importance? _____

10. Do you feel if you left North Dakota that you would increase your personal income? Yes _____ No _____

11. Would you move within North Dakota if you could gain a larger personal income?
Yes _____ No _____

12. How do you view your future in North Dakota, as compared to your future in another state.

Better in North Dakota _____
About the same _____
Better in another State _____ (If so, which state?) _____

13. If you were to move from North Dakota, would it be necessary to have a definite job offer? Yes _____ No _____

14. What are your thoughts about moving from your present location?

a. _____ No present intentions to move
b. _____ Considered moving
c. _____ I am going to move but plans are not definite
d. _____ I have definite plans to move
If so, where? _____
when? _____
why? _____

15. If you (or your husband) had an opportunity to obtain employment with an adequate income, would you be willing to leave North Dakota?

Yes _____ No _____

Why or why not? _____

_____

16. Do you now belong to any organization of a social, or religious nature?
Yes _____ No _____

If yes, please name them _____

_____

17. What do you like most about your present community? _____

_____

18. What do you dislike most about it? _____

_____

19. If you were asked to name the most important improvement that would make North Dakota a better place in which to live, what would it be?

_____

20. Now, considering all your friends, in what general areas do they live?

_____

_____

21. Please check the phrase to the right that most nearly represents <u>your</u> personal belief or attitude about your community in North Dakota. In each statement, think in terms of the majority rather than any single exception.

Please respond to all the statements:

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
a. Anything of a progressive nature is generally approved	____	____	____	____	____
b. With a few exceptions the leaders are capable and ambitious	____	____	____	____	____
c. It is difficult for people to get together on anything	____	____	____	____	____
d. People generally agree on how things are to be run	____	____	____	____	____
e. The future of the state looks bright	____	____	____	____	____
f. The school teachers are equal to teachers anywhere	____	____	____	____	____
g. Persons with real ability are usually given recognition	____	____	____	____	____
h. The state is not located in a very desirable area	____	____	____	____	____
i. A person has to leave the state in order to have a good time	____	____	____	____	____
j. There were not many families you would care to marry into	____	____	____	____	____
k. People have to do without adequate shopping facilities	____	____	____	____	____
1. The medical facilities are good and adequate	____	____	____	____	____
m. Employment opportunities are practically nonexistent	____	____	____	____	____
n. Recreation facilities are abundant and varied	____	____	____	____	____
o. Not much can be said in favor of this community	____	____	____	____	____
p. The climate is as good as any other place in the U.S.	____	____	____	____	____
q. Few, if any of the communities in neighboring states are able to surpass ours	____	____	____	____	____
r. Salaries are usually fair and adequate in Walsh County	____	____	____	____	____

22. Any personal reaction or comments: _____

_____

_____

23. If you moved to another community, do you think you would have a hard time in:

	Yes	No
1. Finding housing	___	___
2. Finding a job	___	___
3. Getting transportation	___	___
4. Getting to know friends and neighbors	___	___
5. Making family adjustments	___	___

Other (specify) _____

_____

Number ___
TS ___

MIGRATION QUESTIONNAIRE - OUT-OF-STATE
UNIVERSITY OF NORTH DAKOTA

Confidential

The information obtained in this questionnaire will be treated as Confidential.

1. Please check: ____ Male ____ Female

		Yourself	If married, Husband or Wife
2. a.	How old were you on your last birthday?	___ years	____ years
b.	How many years did you live in North Dakota?	___ years	____ years
c.	How long have you lived at your present address?	___ years	____ years

3. a. Were you born in North Dakota? ___ Yes ___ No
   b. If married, was your wife or husband born in North Dakota? ___Yes ___No

4. a. What was the highest grade of school you completed? (circle highest number)

GRADE	HIGH SCHOOL	COLLEGE	GRADUATE
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7

   b. What was the highest grade completed in North Dakota? (circle highest number)

GRADE	HIGH SCHOOL	COLLEGE	GRADUATE
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7

5. a. What was your employment status before moving from North Dakota?

____Unemployed ___ Part-time employed ___ Full-time employed

____Retired

   b. If employed full or part-time, what kind(s) of work did you do? (Please be specific as to type of work done)

_____

6. a. What is your present employment status?

____Unemployed ___ Part-time employed ___ Full-time employed

____Retired

   b. If employed full or part-time, what kind(s) of work do you do? (Please be specific as to type of work done)

_____

7. Average family income at the time you left North Dakota?

____ Under $1,500
____ $1,501 - 3,000
____ $3,001 - 4,500
____ $4,501 - 6,000
____ $6,001 - 7,500
____ $7,501 - 9,000
___ above $9,000

8. Present average <u>family</u> income?

____ Under $1,500	____ $4,501 - 6,000	____ above $9,000
____ $1,501 - 3,000	____ $6,001 - 7,500	
____ $3,001 - 4,500	____ $7,501 - 9,000	

9. When did you leave North Dakota on a permanent basis? Month ___ Year ___

10. Please give the information below about your first permanent move from North Dakota.

a. Where did you go? _____
(county) (city) (state)

b. With whom did you live?
____ Alone
____ With friends
____ With relatives _____
(Give relationship)

c. Was this new community (check appropriate space)

____ A farm or ranch	____ In a community under 2,500 population
____ In country, but not a farm or ranch	____ In a city of 2,500 or more

_____
(Name of city, county, and state)

11. Why did you move from North Dakota to the place mentioned above? (Check as many as apply.)

a. ____ Because parents moved
b. ____ Going to school there
c. ____ Because of military service
d. ____ Had relatives there
e. ____ Had friends there
f. ____ You left with your spouse
g. ____ Your fiance lived there and you went to be married
h. ____ Better chance to find someone to marry there
i. ____ Community has a better climate
j. ____ Community was the size you like
k. ____ Community had many good jobs available
l. ____ Wages were better there
m. ____ You would have freedom of behavior there
n. ____ Community was a "change of scenery;" a new and exciting place
o. ____ Community had more avenues to success and achievement
p. ____ Wanted to better yourself socially and culturally
q. ____ Family conflict at home
r. ____ Improved position with the same firm or organization
s. ____ Other (explain) _____

12. Which of the items in No. 11 do you consider most important? _____, Second in importance _____, Third in importance _____.

13. Have you obtained the things you were looking for when you left North Dakota?

a. ____ Yes, completely
b. ____ Yes, partly
c. ____ No, but things are improving
d. ____ No, don't think things will improve
e. ____ No, like living in North Dakota better
f. ____ Other (specify) _____

14. Which of the following statements seems to best describe your thoughts (feelings) about the possibility of someday returning to North Dakota to live?

a. ____ The thought never seriously entered my mind
b. ____ Under no circumstances would I again live in North Dakota
c. ____ I wouldn't mind returning to North Dakota to live
d. ____ I definitely intend to return to North Dakota to live sometime in the future.
e. ____ Other (specify) _____

15. Did you, as a result of your leaving North Dakota, increase your personal income? Yes _____ No _____

16. Would you have moved a greater distance from North Dakota than you did, if you could have gained a larger personal income? Yes _____ No _____

17. If you had remained in North Dakota, would your future look:
Not as good _____, As good _____, Better than it does now? _____

18. Did your move from North Dakota take place in response to a definite job offer or did you simply trust that you would find suitable employment in your new location?

Definite job offer _____, Other (specify) _____

19. If your move took place in response to a definite job offer, how was the offer obtained?

____ Past employer
____ Family
____ Government employment service
____ Present employer
____ Friends
____ Newspaper advertisement
____ Private employment service
____ Other (specify)

20. What are your thoughts about moving from your present location?

a. _____ No present intentions to move
b. _____ Considered moving
c. _____ I am going to move but plans are not definite
d. _____ I have definite plans to move
If so, where? _____
when? _____
why? _____

21. If you (or your husband) had an opportunity to obtain employment with an adequate income, would you be willing to return to North Dakota?

_____ Yes _____ No

b. Why, or why not? _____

_____

22. If you were asked to name the most important improvement that would make North Dakota a better place in which to live, what would it be?

_____

23. Did you belong to any organizations, social, or religious, etc., while living in North Dakota? _____ Yes _____ No

b. If yes, please name them _____

_____

24. Do you now belong to any organization of a social, religious nature?
_____ Yes _____ No

b. If yes, please name them _____

_____

25. What do you like most about your present community? _____

_____

26. What do you dislike most about it? _____

_____

27. Now, considering all your friends, in what general areas do they live?

_____

_____

28. Please check the phrase to the right that most nearly represents your personal belief or attitude about North Dakota. In each statement, think in terms of the majority rather than any single exception.

Please respond to all the statements:

	Strongly agree	Agree	Unde-cided	Dis-agree	Strongly disagree
a. Anything of a progressive nature is generally approved	_____	_____	_____	_____	_____
b. With a few exceptions the leaders are capable and ambitious	_____	_____	_____	_____	_____
c. It is difficult for people to get together on anything	_____	_____	_____	_____	_____
d. People generally agree on how things are to be run	_____	_____	_____	_____	_____

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
e. The future of the state looks bright	____	____	____	____	____
f. The school teachers are equal to teachers anywhere	____	____	____	____	____
g. Persons with real ability are usually given recognition	____	____	____	____	____
h. The state is not located in a very desirable area	____	____	____	____	____
i. A person has to leave the state in order to have a good time	____	____	____	____	____
j. There were not many families you would care to marry into	____	____	____	____	____
k. People have to do without adequate shopping facilities	____	____	____	____	____
l. The medical facilities are good and adequate	____	____	____	____	____
m. Employment opportunities are practically nonexistant	____	____	____	____	____
n. Recreation facilities are abundant and varied	____	____	____	____	____
o. Not much can be said in favor of North Dakota	____	____	____	____	____
p. The climate is as good as any other place in the U.S.	____	____	____	____	____
q. Few, if any, of the neighboring states are able to surpass North Dakota	____	____	____	____	____
r. Salaries are usually fair and adequate in North Dakota	____	____	____	____	____

29. Any personal reaction or comments. _____

_____

30. When you moved to your present community, did you have a hard time:

	Yes	No
1. Finding housing	____	____
2. Finding a job	____	____
3. Getting transportation	____	____
4. Getting to know friends and neighbors	____	____
5. Making family adjustment	____	____

Other _____

Number _____
TS _____

MIGRATION QUESTIONNAIRE - WITHIN-STATE
UNIVERSITY OF NORTH DAKOTA

Confidential

The information obtained in this questionnaire will be treated as Confidential.

1. Please check: _____ Male _____ Female

	Yourself	If married, Husband, or Wife
2. a. How old were you on your last birthday?	___ years	___ years
b. How many years did you live in Walsh County?	___ years	___ years
c. How long have you lived at your present address?	___ years	___ years

3. a. Were you born in North Dakota? _____ Yes _____ No
   b. If married, was your wife or husband born in North Dakota? ___ Yes ___ No

4. a. What was the highest grade of school you completed? (Circle highest number)

GRADE	HIGH SCHOOL	COLLEGE	GRADUATE
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7

   b. What was the highest grade completed in North Dakota? (Circle highest number)

GRADE	HIGH SCHOOL	COLLEGE	GRADUATE
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7

5. a. What was your employment status before moving from Walsh County?

_____ Unemployed
_____ Retired
_____ Part-time employed
_____ Full-time employed

   b. If employed full or part-time, what kind(s) of work did you do? (Please be specific as to type of work done.)

_____

6. a. What is your present employment status?

_____ Unemployed
_____ Retired
_____ Part-time employed
_____ Full-time employed

   b. If employed full or part-time, what kind(s) of work do you do? (Please be specific as to type of work done.)

_____

7. Average <u>family</u> income at the time you left Walsh County?

____ Under $1,500	____ $4,501 - 6,000	____ Above $9,000
____ $1,501 - 3,000	____ $6,001 - 7,500	
____ $3,001 - 4,500	____ $7,501 - 9,000	

8. Present average <u>family</u> income?

____ Under $1,500	____ $4,501 - 6,000	____ Above $9,000
____ $1,501 - 3,000	____ $6,001 - 7,500	
____ $3,001 - 4,500	____ $7,501 - 9,000	

9. When did you leave Walsh County on a permanent basis? Month _____ Year _____

10. Please give the information below about your first permanent move from Walsh County?

a. Where did you go? _____
(County) (City) (State)

b. With whom did you live? _____ Alone, _____ With friends
_____ With relatives _____
(Give relationship)

c. Was this new community: (Check appropriate space)

_____ A farm or ranch
_____ In country, but not a farm or ranch
_____ In a community under 2,500 population
_____ In a city of 2,500 or more

11. Why did you move from Walsh County to the place mentioned above? (Check as many as apply.)

a. ____ Because parents moved
b. ____ Going to school there
c. ____ Because of military service
d. ____ Had relatives there
e. ____ Had friends there
f. ____ You left with your spouse
g. ____ Your fiance lived there and you went to be married
h. ____ Better chance to find someone to marry there
i. ____ Community has a better climate
j. ____ Community was the size you like
k. ____ Community had many good jobs available
l. ____ Wages were better there
m. ____ You would have freedom of behavior there
n. ____ Community was a "change of scenery;" a new and exciting place
o. ____ Community had more avenues to success and achievement
p. ____ Wanted to better yourself socially and culturally
q. ____ Family conflict at home
r. ____ Improved position with the same firm or organization
s. ____ Other (explain) _____ _____

12. Which of the items in No. 11 do you consider most important? _____, Second in importance _____, Third in importance _____.

13. Have you obtained the things you were looking for when you left Walsh County?

a. _____ Yes, completely
b. _____ Yes, partly
c. _____ No, but things are improving
d. _____ No, don't think things will improve
e. _____ No, like living in Walsh County better
f. _____ Other (specify) _____

14. Which of the following statements seems to best describe your thoughts (feelings) about the possibility of someday returning to Walsh County to live?

a. _____ The thought never seriously entered my mind
b. _____ Under no circumstances would I again live in Walsh County
c. _____ I wouldn't mind returning to Walsh County to live
d. _____ I definitely intend to return to Walsh County to live sometime in the future.
e. _____ Other (specify) _____

15. Did you, as a result of your leaving Walsh County, increase your personal income? Yes _____ No _____

16. Would you have moved a greater distance from Walsh County than you did, if you could have gained a larger personal income? Yes _____ No _____

17. If you had remained in Walsh County, would your future look:

Not as good _____, As good _____, Better than it does now? _____

18. Did your move from Walsh County take place in response to a definite job offer or did you simply trust that you would find suitable employment in your new location?

Definite job offer _____, Other (specify) _____

19. If your move took place in response to a definite job offer, how was the offer obtained?

____ Past employer
____ Family
____ Government employment service
____ Present employer
____ Friends
____ Newspaper advertisement
____ Private employment service
____ Other (specify) _____ _____

20. What are your thoughts about moving from your present location?

a. _____ No present intentions to move
b. _____ Considered moving
c. _____ I am going to move but plans are not definite
d. _____ I have definite plans to move
If so, where? _____
when? _____
why? _____

21. If you (or your husband) had an opportunity to obtain employment with an adequate income, would you be willing to return to Walsh County?

_____ Yes _____ No

b. Why, or why not? _____

_____

22. If you were asked to name the most important improvement that would make Walsh County a better place in which to live, what would it be?

_____

23. Did you belong to any organizations, social, or religious, etc. while living in Walsh County? _____ Yes _____ No

b. If yes, please name them: _____

_____

24. Do you now belong to any organization of a social, religious nature?

_____ Yes _____ No

b. If yes, please name them: _____

_____

25. What do you like most about your present community? _____

_____

26. What do you dislike most about it? _____

_____

27. Now, considering all your friends, in what general areas do they live?

_____

_____

28. Please check the phrase to the right that most nearly represents your personal belief or attitude about Walsh County. In each statement, think in terms of the majority rather than any single exception.

Please respond to all the statements:

	Strongly agree	Agree	Unde-cided	Dis-agree	Strongly disagree
a. Anything of a progressive nature is generally approved	_____	_____	_____	_____	_____
b. With a few exceptions the leaders are capable and ambitious	_____	_____	_____	_____	_____
c. It is difficult for people to get together on anything	_____	_____	_____	_____	_____
d. People generally agree on how things are to be run	_____	_____	_____	_____	_____
e. The future of the county looks bright	_____	_____	_____	_____	_____
f. The school teachers are equal to teachers anywhere	_____	_____	_____	_____	_____

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
g. Persons with real ability are usually given recognition	____	____	____	____	____
h. The county is not located in a very desirable area	____	____	____	____	____
i. A person has to leave the county in order to have a good time	____	____	____	____	____
j. There were not many families you would care to marry into	____	____	____	____	____
k. People have to do without adequate shopping facilities	____	____	____	____	____
l. The medical facilities are good and adequate	____	____	____	____	____
m. Employment opportunities are practically nonexistant	____	____	____	____	____
n. Recreation facilities are abundant and varied	____	____	____	____	____
o. Not much can be said in favor of Walsh County	____	____	____	____	____
p. The climate is as good as any other place in the U.S.	____	____	____	____	____
q. Few, if any, of the neighboring counties are able to surpass Walsh County	____	____	____	____	____
r. Salaries are usually fair and adequate in Walsh County	____	____	____	____	____

29. Any personal reaction or comments: _____

_____

30. When you moved to your present community did you have a hard time:

	Yes	No
1. Finding housing	____	____
2. Finding a job	____	____
3. Getting transportation	____	____
4. Getting to know friends and neighbors	____	____
5. Making family adjustment	____	____

Other _____

VT 001 470

VT 001 470
Completion Report on Guidance Counselors Workshops in Health Careers; Development and Trial Phases.

Health Careers Council of Illinois, Chicago
Illinois State Office Superintendent of Public Instruction, Chicago. Dept. of Guidance Services
Sears-Roebuck Foundation, Chicago, Ill.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 14Dec66 62p.

*HEALTH OCCUPATIONS; *WORKSHOPS; GUIDANCE COUNSELING; CAREER PLANNING; *OCCUPATIONAL GUIDANCE
ILLINOIS

Five workshop sessions were held in each of the six state districts of Illinois to convey operational guidance information and tools on health careers to school counselors to improve the effectiveness of school counselor guidance and counseling activities on health careers. In Sessions 1, students in health occupations training presented their views on their chosen fields, education, and high school preparation and guidance (views not included in this report). Session 2 presented descriptions of 50 health occupations by means of a case study. Session 3 included a hospital tour. The fourth session included a presentation by a university guidance professor on new and expanded materials from both theory and practice (presentation not included in this report). The final session reviewed the resources that exist in schools and community for guidance in health occupations. Both counselors and teaching staff concluded that the workshops were successful. Suggested changes and general comments of counselors from workshop evaluations are listed. (PS)

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(c)
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Completion Report On

GUIDANCE COUNSELORS WORKSHOPS IN HEALTH CAREERS

Development and Trial Phases

PROJECT IV - Fiscal Year 1966-67

Funded by a Development Grant
From
The Sears-Roebuck Foundation

December 14, 1966

Health Careers Council of Illinois
400 North Michigan Avenue
Chicago, Illinois 60611

VT 01470

INTRODUCTION

This report covers the development and trial phases of the School Guidance Counselors Workshops, funded by the current grant from The Sears-Roebuck Foundation, and produced in cooperation with the Illinois State Office of Public Instruction, Department of Guidance Services.

An outline of the project and its development is as follows:

TITLE OF PROJECT

School Guidance Counselor Workshops in Health Careers

BASIC PURPOSE

To provide a means of conveying operational guidance information and tools on health careers to school counselors as a means of increasing the frequency and effectiveness of school counselor guidance and counseling activities on health careers with students.

PROBLEM DEFINED

Conferences with health careers representatives, counselor educators and health careers school officials pinpoint lack of information on health careers by the school counselors as a major widespread problem. Observations of the Council's staff at a Counselors Conference in Chicago affirm this opinion. Recent studies revealing the counselor as a significant influence on career choice support the evaluation of the problem's importance as related to the Council's purpose.

BASIC PLAN

Provide a workshop session in which counselors are exposed to the health careers work environment, receive guidance materials on health careers and discuss their use, and are made aware of the vast range of employment opportunities that exist in the health field. Workshop discussion will reveal and enforce application of information to career guidance and counseling with students.

BASIC PLAN OF PROCEDURES

1. Development of workshop content and outline by health careers personnel experts and school guidance counseling authorities.
2. Provisional approval of content and outline by a college and the Illinois Office of Public Instruction for conformance to academic standards.
3. Six trial workshops for evaluation and revision of project's content by December 1, 1966.

BUDGET

Salaries	$1,100	
Travel	600	
Materials	300	
Total		$2,000

The balance of this report discusses the development and execution of the program.

The description of the project is presented under the following headings:

Laying the foundation.

Securing the resources.

Contacting the counselors.

Evaluating the workshop sessions.

Suggesting revisions for future workshops.

Reviewing the project to date.

December 14, 1966

Joseph C. Rhea
Executive Director

LAYING THE FOUNDATION

The basic purpose of the trial workshops was to develop a program which would find the maximum degree of acceptance by the school counselors and officials. Therefore, the Council decided at the outset to work through the State Office of Public Instruction, Department of Guidance Services.

Early discussions with their representatives indicated that the project should be introduced in five sessions, similar to previous workshop programs conducted by the State Department of Guidance Services in four sessions. They also suggested that the six trial programs be distributed equitably among the six educational regions of the state. Communities were selected and the dates determined after contacting the school districts in each region. The final schedule was established:

Locations		Dates	Times
I	Park Ridge for Region 1	October 17, 24, 31, Nov. 7, 14	4 - 6 P.M.
II	Rockford for Region 2	October 18, 25, Nov. 1, 8, 15	4 - 6 P.M.
III	Quincy for Region 3	October 27, Nov. 3, 10, 17, Dec. 1	4 - 6 P.M.
IV	Decatur for Region 4	October 20, 27, Nov. 3, 10, 17	4 - 6 P.M.
V	Alton for Region 5	October 24, 31, Nov. 7, 14, 21	4 - 6 P.M.
VI	Centralia for Region 6	October 25, Nov. 1, 8, 15, 22	4 - 6 P.M.

Time Requirements

Four sessions, 2 hours each with one 3 hour session at a hospital.

Physical Facilities

The State Department of Guidance Services assumed responsibility for arranging facilities in school buildings in each of the communities selected. Requirements for these facilities were: a chalk board, motion picture projector, screen, and a meeting room to accommodate a maximum of sixty people.

The Illinois Hospital Association, a member organization of the Health Careers Council of Illinois, invited a given hospital in each community to participate in the project by acting as host for one of the sessions. The Council staff followed up by working with each hospital as it planned its program. Physical requirements included dining facilities for the counselors and adequate departmental facilities to provide tours and demonstrations in various hospital areas.

Teaching Resources

In four of the five meetings it was considered essential that the teaching staff have a thorough knowledge of health occupations and educational requirements. Under the workshop format, the counselors themselves would be providing counseling and guidance expertise and practicum. Two members of the Council's staff were selected for the teaching staff: Mrs. Sandra H. Rossin, R.N., B.S.N. and Joseph C. Rhea, M.A.

In planning the sessions it was felt that one meeting should be devoted almost wholly to enrichment in guidance theory and practice. To this end, the State Department of Guidance Services was asked to provide a university professor in guidance education. Additional resources were used and are described more fully in individual session reports.

CONTACTING THE COUNSELORS

Working with the State Department of Guidance Services, school counselors in the State of Illinois were contacted through a mailing list, numbering 3000, which was provided by the State Office of Public Instruction. Two communications were sent: the first on the official letterhead of the Office of the Superintendent of Public Instruction and the second on the letterhead of the Health Careers Council of Illinois. These mailings were initiated fifteen days prior to the first session. Exhibits "A" and "B" are samples of these announcements.

EXHIBIT A

STATE OF ILLINOIS
OFFICE OF THE SUPERINTENDENT OF PUBLIC INSTRUCTION
SPRINGFIELD 62706

October 5, 1966

To: Superintendents
Principals
Department Heads
School Counselors

From: Doctor Glenn E. Waterloo
Director
Department of Guidance Services
316 South Second Street
Springfield, Illinois 62701

The Department of Guidance Services, Office of the Superintendent of Public Instruction, is pleased to announce a series of five workshop sessions on health careers which will be held in each of the six State districts. These workshops are designed to be real work sessions, maximizing your participation and to help you provide adequate guidance information on the more than 200 occupations in the health field.

The workshops will be staffed by knowledgeable workshop leaders provided from the professional staff of the Health Careers Council of Illinois and the counseling education programs of our colleges and universities.

Carefully authenticated materials will be provided free to school representatives. A dinner is planned in connection with the third workshop session, hosted by your local community hospital.

Certificates of completion from the Office of the Superintendent of Public Instruction will be provided to each counselor who attends at least four of the five sessions. This will be your opportunity to learn more about the health occupations which represent the nation's third largest industry, and one in which employment opportunities are expected to double in the next five years.

We are enclosing a list of Workshop locations with dates and times of Workshop meetings.

mc

HEALTH CAREERS COUNCIL OF ILLINOIS

SCHOOL GUIDANCE COUNSELORS WORKSHOPS

	LOCATION	DATES	TIME
1.	ALTON Alton Senior High School 2200 College Avenue East Building (Central Section of Alton)	Monday, October 24 Monday, October 31 Monday, November 7 Monday, November 14 Monday, November 21	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.
2.	CENTRALIA Field School 1100 Locust Street (South Section of Centralia)	Tuesday, October 25 Tuesday, November 1 Tuesday, November 8 Tuesday, November 15 Tuesday, November 22	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.
3.	DECATUR Stephen Decatur High School 400 North Franklin Street (Downtown Section of Decatur)	Thursday, October 20 Thursday, October 27 Thursday, November 3 Thursday, November 10 Thursday, November 17	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.
4.	DES PLAINES Maine West High School 1755 South Wolf Road (Southwest Section of Des Plaines)	Monday, October 17 Monday, October 24 Monday, October 31 Monday, November 7 Monday, November 14	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.
5.	QUINCY Quincy Senior High School 30th and Maine Streets (East Section of Quincy)	Thursday, October 27 Thursday, November 3 Thursday, November 10 Thursday, November 17 Thursday, December 1	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.
6.	ROCKFORD Harlem High School 735 Windsor Road (Northeast Section of Rockford)	Tuesday, October 18 Tuesday, October 25 Tuesday, November 1 Tuesday, November 8 Tuesday, November 15	4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 7:00 p.m. 4:00 p.m. - 6:00 p.m. 4:00 p.m. - 6:00 p.m.

JCO:em

EXHIBIT B

HEALTH CAREERS COUNCIL OF ILLINOIS

WRIGLEY BUILDING, 400 N. MICHIGAN AVENUE, CHICAGO, ILLINOIS 60611 PHONE AC 312 467-0900
EXECUTIVE DIRECTOR / JOSEPH C. RHEA

October 10, 1966

To: Superintendents
Principals
Department Heads
School Counselors

From: Joseph C. Rhea
Executive Director
Health Careers Council of Illinois
Wrigley Building
400 North Michigan Avenue
Chicago, Illinois 60611

You have already received notice from the Office of the Superintendent of Public Instruction regarding the School Counselor Workshops on Health Careers, scheduled in your area. In working with the Department of Guidance Services of this Office, it has been our goal to create for you five workshop sessions which will be of most benefit to you and your needs. Health leaders in your area are making every effort locally to insure the success of this program.

These opportunities have been made possible through a grant by the Sears-Roebuck Foundation, and all materials used in the workshop sessions have been carefully authenticated with the professional societies and health employers concerned.

We hope that you will decide to give us a try, for it is our hope that these sessions will be well deserving of your time and effort.

We are enclosing a list of Workshop locations with dates and times of Workshop meetings.

em

OFFICERS: Chairman of the Board, William R. Williams; President, Maynard I. Shapiro, M.D.; Treasurer, Mary Ellen Hughes, R.T.; **PUBLIC MEMBERS:** Hon. Michael J. Howlett, Auditor, State of Illinois; George R. Koons, Vice-President, Industrial Relations, Brunswick Corporation, Chicago; Turner H. Trimble, M.A., Dean, Amundsen-Mayfair Branch, Chicago City Junior College; Hon. William Sylvester White, Judge, Cook County Circuit Court; Samuel H. Young, Danville; **SPONSORING ORGANIZATIONS:** Council of Illinois Chapters, National Association of Social Workers; Hospital Auxiliaries of the Illinois Hospital Association; Illinois Association of Medical Record Librarians; Illinois Association of Sanitarians; Illinois Chapter, American Physical Therapy Association; Illinois Department of Public Health; Illinois Dietetic Association; Illinois Health Improvement Association; Illinois Hospital Association; Illinois League for Nursing; Illinois Medical Technologists Association; Illinois Nurses' Association; Illinois Nursing Home Association; Illinois Occupational Therapy Association; Illinois Optometric Association; Illinois Pharmaceutical Association; Illinois Podiatry Society; Illinois Public Health Association; Illinois State Dental Society; Illinois State Medical Society; Illinois State Society of Radiologic Technologists; Illinois State Veterinary Medical Association; Women's Auxiliary to the Illinois State Medical Society.

EVALUATING THE WORKSHOP SESSIONS

I OPERATION FEEDBACK

II OPERATION WORKUP

III OPERATION EYEWITNESS

IV OPERATION MEASURE UP

V OPERATION OUTPUT



FIRST SESSION

Time period: 2 hours 4:00-6:00 p.m.

In developing the first session, the objectives of the teaching staff were to devise in format and content a presentation which would introduce counselors immediately to health occupations, their education programs and the problems and experiences of students of health careers. The staff was also concerned that this initial program develop a spirit of informal, frank participation on the part of the counselors; i.e. true workshop environment in which the participants contribute at least as much to the learning experience as do the teaching resources.

To accomplish these objectives the staff decided to use a panel of at least five students currently in health occupations education and training programs who would present their views on their chosen fields, education and high school preparation and guidance. Counselors would then be able to ask questions and develop discussions regarding the presentations. The following outline develops the principle points covered in this session:

A. Phase One -- 60 Minutes

1. Students in health occupations training present their views on their chosen fields, education, and high school preparation and guidance.

2. Counselors ask questions and discussion develops regarding the student presentations.

B. Break

C. Phase Two -- 45 Minutes

1. Counselors express their expectations for the balance of the sessions. (25 minutes)

2. Staff feeds back the structure for the balance of the sessions and how their expectations will be handled under the structure. (5 minutes)

3. Staff leader distributes workshop materials and briefly reviews their use. (10 minutes)

In order to insure the quality of the student presentations and thereby the success of the session, it was necessary that each of the students be contacted in advance of the program with an outline of what they would be expected to do. In addition, it was necessary to contact the schools and hospitals in the community in order to seek the aid of the administrators and educators in selecting students who were articulate and who came from high schools within the same general area as the counselors attending the workshops.

Exhibit C outlines the information provided to each student for the first session.

OPERATION FEEDBACK

First Session

Phase One

Fields represented:

Dentistry
Nursing (Practical)
Medical Technology
Physical Therapy
X-Ray Technology

A. Presentation by each student (3-5 minutes)
Points to cover:

1. Name
2. School and year in training
3. Home town and high school
4. High school subjects
5. How this occupational choice was made (influence of guidance counselor)
   Spend some time elaborating on this and how you feel about your process of selection. And -- if you had it to do over again, how might you change it.
6. What your present educational program consists of, and your feelings about it. This is not meant to reflect on the school, but on your personal reaction to the reality of your "dream."
   Elaborate on the courses that are included and how your high school program might have been changed to prepare you more adequately for your current undertakings.
7. Would you encourage high school students to enter this field?
   If so, what would you tell them? If not, how would you advise them?

B. Questions to expect from the counselor group:

1. Why didn't you seek more help from your counselor?
2. What was the size of your school, and the approximate ratio of students/counselors?
3. If this career was a premeditated choice, as opposed to happen-stance, at what age did you begin considering the field, and when did you make your final commitment?
4. When did you apply to this school, and how many others did you make application to?
5. What resources did you use besides your high school counselor?
6. Did you seek scholarship assistance of financial aid? If so, how?
7. What influence did your parents have in this choice?

EXHIBIT C

In selecting students, the staff discovered that it was not possible to maintain the desired balance for each presentation. The original plan called for students drawn from all levels of post high school education. It was hoped that students could be obtained who represented training and education programs requiring from one to eight years post high school education. In practice, it was found that many of the communities did not have students available representing all of these levels. It was particularly difficult to obtain student representation from the traditional professions, such as dentistry and medicine. In other areas, student participation was limited by the absence of training programs at even the two or three year post high school education levels. In these instances alternate panel members were chosen who had recently graduated from their educational programs.

Enthusiasm and interest for the student panel presentation was the hallmark for this session in all of the workshops. There was no difficulty in obtaining participation on the part of the counselors. In fact, they consistently wanted to spend more time on this part of the session and it was the decision of the staff in each case to permit them to do so. It would appear that future workshops could benefit by allotting at least 70 minutes to this part of the session.

So enthusiastic was the response that the counselors, when asked about taking a break at the end of the session hour, elected to continue the session with the student panel. Much of the success of this session falls on the ability of the instructor to ask appropriate, probing questions to fill in areas which the counselors may tend to ignore in the progress of the discussion. It should be noted however that these gaps appear only occasionally.

The instructor should resist the temptation as long as possible to break in with one of these questions. Another indication of the success of this session can be seen in the tendency of the counselors to linger after the close of the formal workshop session and continue questioning panel members and the instructor on the sessions.

Visual aids for this first session are of two types. The student panel itself is an excellent visual demonstration for the session. Also used to good effect were keynote signs announcing the title of each of the sessions. These signs were used in presenting the organization and structure for the workshop sessions to follow. Photographic reproductions of these signs appear as the headings for each session evaluation. A description of all of the visual aids used in the workshop sessions is presented in the appendix of this report.



OPERATION WORK-UP



SECOND SESSION

Time period: 2 hours 4:00-6:00 p.m.

The primary objective of the teaching staff at this session was to develop a basic description of a large number of health occupations. This description would exhibit the wide variety of occupations required in the health field and their inter-relationship in the total context of community health services. To obtain and hold the attention of the guidance counselors a case study approach to the description of the occupations was selected. A motion picture describing the hospital's handling of Senator Edward Kennedy after his airplane accident was selected to aid the counselors in applying the fictitious case history to an actual event.

The following is an outline description of the major points covered in the second session.

A. Phase One -- 50 Minutes

1. Patient is followed from the time Mr. Chase calls the ambulance through acute and convalescent stages. Provides a basic description of 50 health occupations with the emphasis placed on inter-relationships in the total context of community health services and the variety of occupations required.

B. Break

C. Phase Two -- 35 Minutes

1. Patient progresses through rehabilitation, outpatient, home health services and into regular private care settings.

2. Discussion and film "Blueprint for Communication" -- 20 Minutes

The presentation of the 50 health occupations is developed with the aid of a flannelgraph layout. This visual composition builds a "road map" of the patient's progress with flag signs denoting the various occupations at the point of their encounter.

Exhibit D consists of a photographic print of the completed layout. The flannelboard is constructed of masonite and aluminum framing with a flannel cover. Small swatches of Velcro hook were used as the adhesive material.

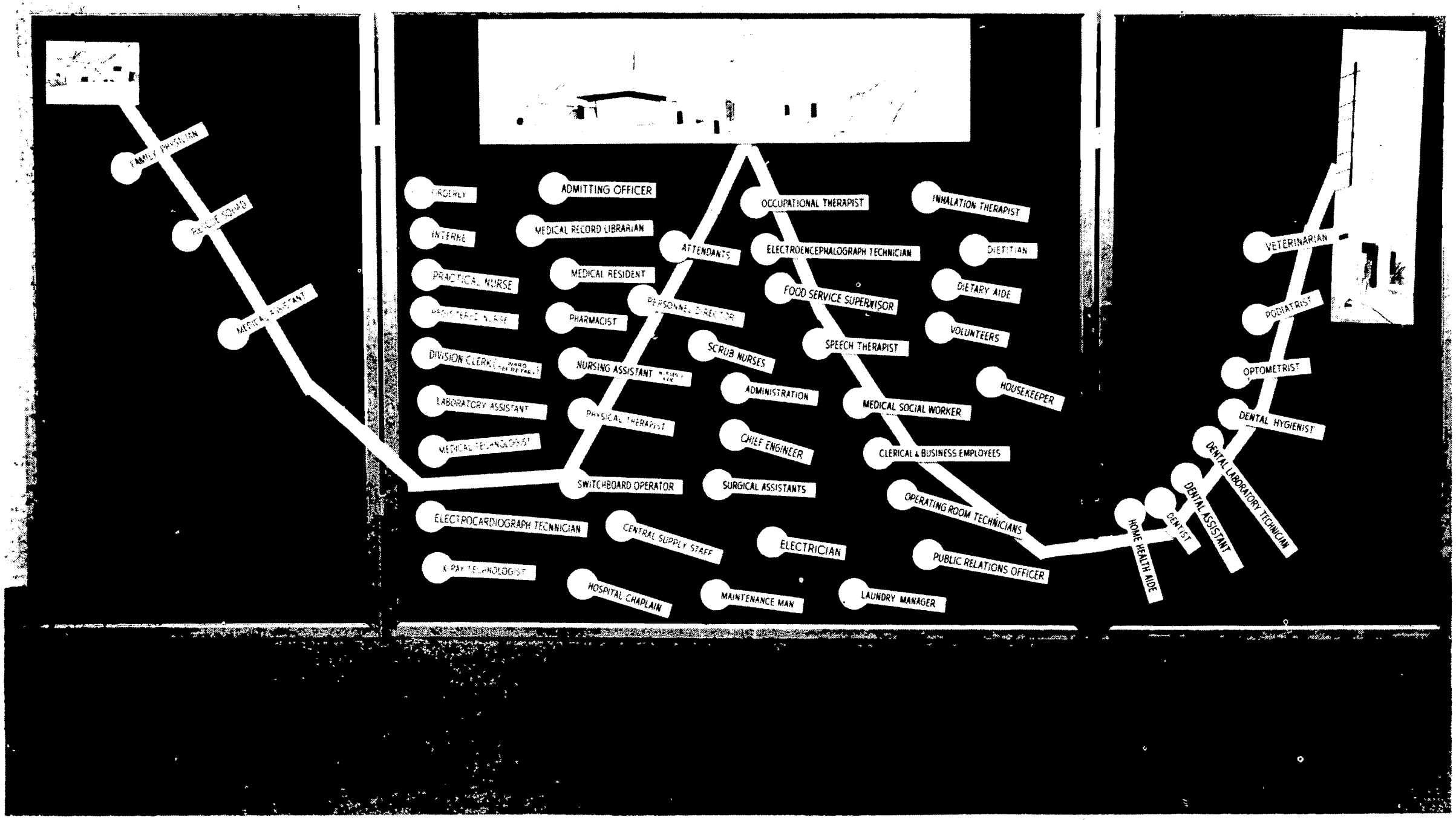

FAMILY PHYSICIAN
RESIDENT
MEDICAL ASSISTANT
SURGERY
INTERNE
PRACTICAL NURSE
DIVISION CLERK
LABORATORY ASSISTANT
MEDICAL TECHNOLOGIST
ELECTROCARDIOGRAPH TECHNICIAN
X-RAY TECHNOLOGIST
ADMITTING OFFICER
MEDICAL RECORD LIBRARIAN
MEDICAL RESIDENT
PHARMACIST
NURSING ASSISTANT
PHYSICAL THERAPIST
SWITCHBOARD OPERATOR
CENTRAL SUPPLY STAFF
HOSPITAL CHAPLAIN
ATTENDANTS
PERSONNEL DIRECTOR
SCRUB NURSES
ADMINISTRATION
CHIEF ENGINEER
SURGICAL ASSISTANTS
ELECTRICIAN
MAINTENANCE MAN
OCCUPATIONAL THERAPIST
ELECTROENCEPHALOGRAPH TECHNICIAN
FOOD SERVICE SUPERVISOR
SPEECH THERAPIST
MEDICAL SOCIAL WORKER
CLERICAL & BUSINESS EMPLOYEES
OPERATING ROOM TECHNICIANS
PUBLIC RELATIONS OFFICER
LAUNDRY MANAGER
INHALATION THERAPIST
DIETITIAN
DIETARY AIDE
VOLUNTEERS
HOUSEKEEPER
VETERINARIAN
PODIATRIST
OPTOMETRIST
DENTAL HYGIENIST
DENTAL LABORATORY TECHNICIAN
DENTAL ASSISTANT
DENTIST
HOME HEALTH AIDE

EXHIBIT D

Exhibit E is the instructor's script for the fictitious case history.

Enthusiasm and interest in this session is very much a product of the instructor's ability to create a good blend between narration of the case and introducing succeeding discussion. One instructor, experienced in the basic script previously, had far greater success than the other. Previous experience with the content of the session and a strong background in the occupational context of the hospital are key factors in maximizing the success of this session. Comments from the counselors indicate that both instructors were well received on this session, but that the experience and background of the one instructor produced sessions equivalent in enthusiasm and interest to the first session. The experiences of the other instructor and comment from the counselors indicate that this second session did not reach the same levels of enthusiasm and interest as the first session.

However, counselors in the sessions presented by both instructors requested copies of the script for their use. The informal participation by the counselors was maintained, and the more structured format of this session tended to introduce an element of better organization which is of assistance in preparing the counselors for future sessions.

A large number of visual aids were used to help create and maintain interest in the session, and to aid the instructor in clarifying the extensive amount of information covered. The visual aids also served to emphasize the relationships between health services found in the hospital, in private offices, and in community service agencies.

Patient:

Mrs. Elsie Chase
Age 61 years old
Female, married, no children

Mr. Chase comes home from work to find his wife lying on the living room floor, in a semi-conscious state. He knows she is diabetic and his first impulse is to call the family physician. The medical assistant stays on the phone as the doctor receives the emergency call. She quickly locates Mrs. Chase's record and gives it to the doctor. The doctor instructs Mr. Chase to call the Rescue Squad at once and have her taken to the Community Hospital's Emergency Room. The doctor notifies the hospital that Mrs. Chase is on her way and that she is a known diabetic. When she arrives, two orderlies rush to the ambulance to assist in transferring her from the vehicle to the hospital stretcher. She is moved into a treatment room at once where a registered nurse, a practical nurse, and an intern initiate treatment. Meanwhile, Mr. Chase takes a seat at the admitting desk where the Division Clerk (Ward Secretary) obtains the necessary information.

In the treatment room, the nurses have made Mrs. Chase comfortable. The doctor who is with her knows she is diabetic. However, he has also noticed symptoms of a cardiovascular accident (stroke) and feels that this is the cause of her lack of consciousness. In order to make the differential diagnosis, he calls other members of the health team. The certified laboratory assistant comes to the emergency room to draw blood. It will be tested for sugar content. The work of the lab assistant will be supervised by the medical technologist who is ready to handle any other lab tests that may be ordered

on a more complex level. The electrocardiograph technician arrives to test her with specialized equipment which will record the electrical impulses sent out by the cardiac muscle as it beats. Abnormalities will appear in the tracings when the doctors view it. Mrs. Chase has been a patient here before, so the Emergency Room clerk calls the Medical Record Librarian for the old charts. The doctors review it for her previous history and treatment.

Mrs. Chase has regained consciousness and is having dyspnea (difficult breathing). The inhalation therapist arrives to administer oxygen. The intern orders medication and the RN administers it. He has also called the medical resident down to see Mrs. Chase and substantiate his findings. The resident advised that an x-ray of the chest should be obtained at once. Since Mrs. Chase should not leave the ER yet, the x-ray or radiologic technologist hurries to the Emergency Room with portable equipment.

The Chase's family doctor has arrived. He confers with the RN, the intern, and the medical resident. He is given the results of the EKG, the blood sugar, and the chest x-ray, along with a picture of her symptoms. The diagnosis is made. Mrs. Chase is a controlled diabetic who has just suffered a stroke with accompanying pulmonary congestion. She is aphasic (cannot speak) and her right side is paralyzed. Mr. Chase is apprised of her condition and that she must be admitted to the hospital.

The admitting officer is called to the Emergency Room to process the admission. She locates a female bed on a medical floor in a private room. Mrs. Chase has insurance for a semi-private room, but her condition warrants a single room and

this will be provided for. The nurse aide has not left her side and has been taking her vital signs (blood pressure, pulse, and respirations) every five minutes. She will accompany Mrs. Chase to her room. The orderly secures the safety rails and pushes Mrs. Chase's stretcher to her room. The doctor goes to the floor also and writes the orders for Mrs. Chase's care. One order requests that a special medication be given the patient every four hours. He calls the pharmacist to be sure it is stocked in the hospital pharmacy. The pharmacist advises him that it is not, but that he will immediately take steps to get a supply in for Mrs. Chase.

On the ward the floor nurses, aides, and ward clerk have been notified that Mrs. Chase is on her way up. The bed is ready, an oxygen tent has been brought to the room, long side rails have been attached to the bed, and her name and diagnosis have been posted in the chart room, the nurses station, and at the patient's bedside. When Mrs. Chase is moved into her bed, the head is rolled up for ease in breathing, and the inhalation therapist adjusts the oxygen tent for comfortable temperature and humidity. The nurses aide from the floor relieves the Emergency Room aide and stays with Mrs. Chase. Since this is a patient that cannot speak, the switchboard operator must be notified, and all of her calls will ring into the nurses' station.

As the days go by, Mrs. Chase feels better and better. The doctor has ordered a full liquid diet for her. The dietitian calculates her diabetic needs and considers the added restriction of no added salt which has been ordered. Supplementary insulin must be given according to her needs. The Food Service Supervisor must check her tray

before it is taken to the room and after it has been completed. The dietary aide must be sure this tray is held before it is returned to the main kitchen. Because Mrs. Chase's dietary intake affects her diabetic status so critically, a urinalysis is done every four hours to insure that no sugar appears in it. The lab sends down the report at once.

Mrs. Chase is progressing beautifully. The doctor has ordered an electroencephalogram. The patient goes to the EEG department and the technician does the test there. The results of this show that there is hardly any brain damage as a result of the stroke. The speech therapist begins to work with her. In actuality, Mrs. Chase must be taught to speak again. It is a slow frustrating process for the patient and the therapist.

The pysical therapist sees her every day also, in his department. Her muscles must be taught to function again. Through various PT treatments and exercises, Mrs. Chase makes progress. She learns to move her arms and legs and does many exercises on her own. Soon she is able to ambulate slowly with the help of a walker. She speaks with hesitation, but can be understood, as a result of her work with the speech therapist. Now the days go slowly. The occupational therapist is called in. She plans activities for Mrs. Chase. They make the time pass, but they are purposeful diversions, pastimes that supplement the speech and physical therapist's plan of action.

Mrs. Chase is anxious to go home. She is feeling almost like her old self again. X-rays have been taken again and show no pathology. The dietitian has been working with Mrs. Chase and her husband, in planning for a diabetic, low sodium, reducing diet. Mr. Chase is quite concerned about caring for Mrs. Chase at home. He works

and must leave her alone all day. And he feels that the dietary problem and the physical therapy regimen will be too much for him to cope with. The medical social worker drops in at the doctor's request. He plans with the Chase family for their homegoing. The family doctor will follow her very carefully. A home health aide will visit in the home twice a week to help carry on the exercises and the diet, and to show Mr. Chase how to arrange things so that Mrs. Chase can move about the house more easily.

Finally, the big day arrives. Mrs. Chase is to be discharged. She has made many friends during her stay. Every day she has had a chat with the housekeeper who cleaned her room. The maintenance man came up to repair her over-bed table and the electrician was there one afternoon to fix her night light.

The volunteers and candy-stripers had come around regularly to deliver mail and flowers. The hospital chaplain had visited daily and done her many favors.

There were many unseen friends who worked for Mrs. Chase's recovery. The administrative staff of the hospital, the personnel director, the public relations officer, the laundry manager and his staff, the chief engineer and his assistants, the clerical and business employees who served in so many areas, and the central supply room, that provided clean and sterile equipment to be used in Mrs. Chase's treatment and care. And those whose services Mrs. Chase might have needed at any moment, but luckily did not - the operating room technicians, the surgical assistants, the scrub nurses and attendants.

But the story of Mrs. Chase's health care services goes far beyond the walls of the hospital and our concern for her care in time of critical need. With her recovery now a matter of fact, the regular health care services of her normal existence takes over. Shortly after returning home Mrs. Chase began to experience trouble with her dentures. An examination by her dentist revealed that her new patterns of jaw movement as a result of the stroke were causing irritation to the gums. With the help of his dental assistant, who prepared the medication and handed him the correct instruments, the dentist applied a special salve for temporary relief. It was determined that a slight modification in the dentures would be necessary for a better fit, and the dentist wrote out a prescription for the work which would be done by a dental laboratory technician. In the meantime, Mrs. Chase returned to the dentist's office for an appointment with the dental hygienist, who performed dental prophylaxis on the balance of Mrs. Chase's teeth.

Next on our list of regular visits is Mrs. Chase's optometrist --- who performed an eye examination, recommended and instructed Mrs. Chase in some vision training exercises, and prescribed some new glasses. With the effects of the stroke, Mrs. Chase began to complain of sore and painful feet. Her podiatrist, a specialist in medical problems of the feet and ankles, explained that her new patterns of leg movement were causing pressure and pain. He prescribed some medication and prepared a special ankle support to correct the problem.

Through all of this, Mr. Chase had become lax in his care of Arsfeldt, their seven year-old dachshund. Arsfeldt went out a couple of nights without a sweater and

came down with a fever --- and so we add a call to the veterinarian at his small animal hospital. Even Arsfeldt recovered, so we have a happy ending all the way around.

And by the way, when you think of the over 200 health occupations and professions, we must also make reference to the work environments of public health, mental health and the nursing home --- as well as to the hospital and private practice.

This presentation has covered only a few of the responsibilities of a very few of the jobs in the health field. Perhaps your questions will now bring out a few more.



THIRD SESSION

Time period: ~3 hours 4:00-7:00 p.m.

The basic objectives of this session were to provide counselors with an opportunity to observe first-hand the work environment of health careers, and to provide counselors with current information on employment practices in their community for health occupations requiring a minimum amount of post-high school education. The teaching staff selected the community hospital as the location for this session because of its physical facilities and the wide range of health occupations utilized in its services.

The staff requested each hospital to act as official host for this session, to furnish counselors and guests with a dinner for the evening, and to supply necessary personnel and facilities for a tour of selected hospital services. The hospitals were given a maximum amount of freedom in planning, publicity and attendance for the session within the limitations set by the basic requirements for the program. The following outline sketches the main components of the session:

A. Phase One -- Hospital Tour (60 Minutes)

- Including three brief demonstrations to illustrate the work that is done, where it comes from, and what happens next.

B. Phase Two -- Dinner and Speaker (90 Minutes)

- Community leader will be invited as speaker by hospital. Representatives of private practice to be invited to sit at head table to be introduced as part of panel. Later to be used as resources -

  Medical doctor, dentist, podiatrist, optometrist, veterinarian, nursing home administrator, pharmacist, and representatives from mental health and public health.

C. Phase Three - 30 Minutes

- Open forum on employment opportunities, in-service education, and on-the-job training.

Each hospital was requested to prepare three brief demonstrations illustrating the work done in each of three departments. In each case, the hospital administrators were requested to emphasize the work performed by the hospital personnel (emphasizing people at work), and to slight the role of physical plant facilities and equipment in the hospital's services. This was decidedly not to be just another tour of the hospital.

Wherever possible, it was requested that the demonstrations actually show the people at work, and that actual or simulated examples of the work be included in the

demonstrations. It was also stressed that the demonstrations should include a description of how and when the work comes to the department and what happens (who goes to work next) as a result of the work accomplished. This would demonstrate the relationships between members of the health team. The hospitals were cautioned to maintain a strict schedule in order that counselors would be released from the session on time.

The hospital was also requested to secure panel members for the open forum on employment opportunities which would emphasize opportunities for young people with no education beyond high school graduation. Representation on the panel was requested for private office work settings (physician, dentist, podiatrist, veterinarian, etc.), nursing homes, mental health centers or hospitals, public health, pharmacies and clinics. Each of the representatives (one selected for each field) was requested to participate in the open forum in their role as employers of health personnel. They were asked to comment on their hiring preferences, job qualifications, and job outlook in the nearby geographic area. The counselors were requested in the previous session to come prepared to ask their questions of the panel members.

This session was well received by the counselors, and rated by the majority as the most rewarding of the five sessions. They appreciated the on-the-scene work demonstrations and felt they came away with a better understanding of the technical requirements of health occupations. They enjoyed seeing former students who were now working in health occupations, and they were pleased to have the opportunity to question young people again concerning their education, training, and career decisions.

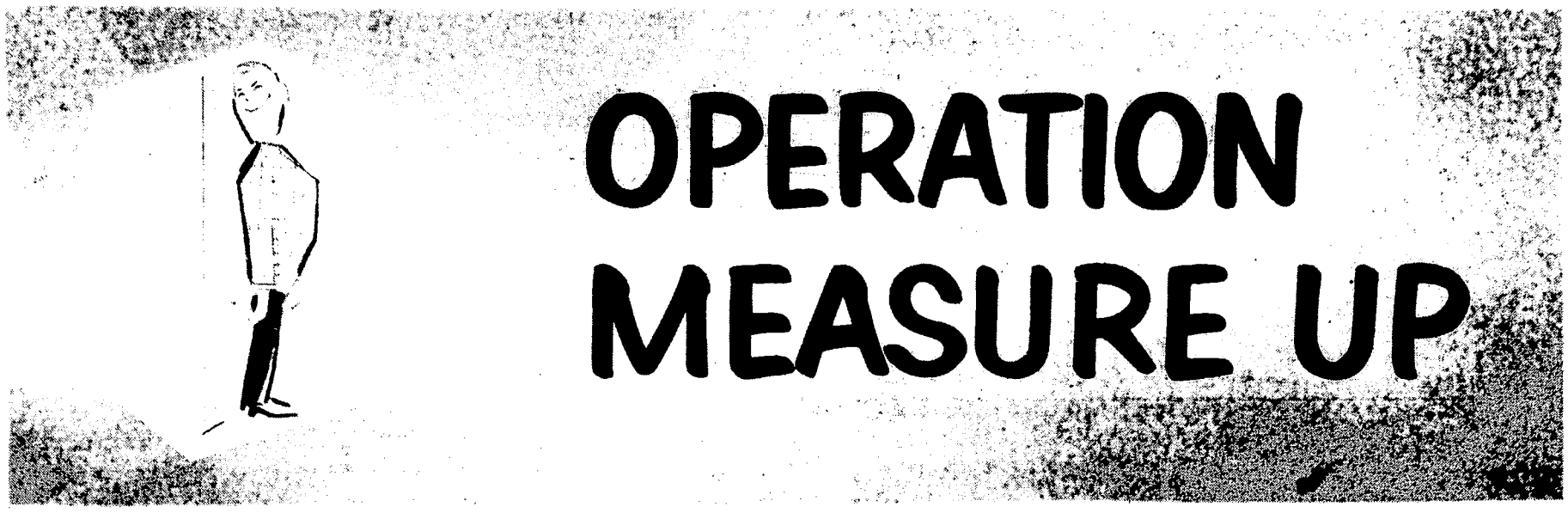
A majority of the hospitals did not do a wholly adequate job in planning the hospital tour -- particularly, in terms of the request to emphasize the work functions of people rather than of the departments and the equipment. Despite the cautions of the teaching staff, most of the tours were too similar to the ordinary facilities tour. The staff will need to take extra time in future workshops to explain in specific detail exactly what kind of information should be presented. Perhaps sample presentations can be constructed as aids in planning the demonstrations.

The open forum panels were very well received. In future workshops a brief orientation outline should be developed and presented to each panel participant well in advance of the session. This should help insure that each participant is well prepared for the session.

The outline should not indicate more than some suggestions for major points to be developed during the discussion, and an explanation of the general purpose of the open forum. If more than this is presented, panel members may tend to monopolize discussion time with prepared speeches.

The informal workshop atmosphere continues to be maintained at a high level. The session has proved valuable to both the guidance counselor and the health employers. It is most essential that this session operates within the stated time limitations.

Visual aids used in the session consisted of the personnel and physical resources used in the tour demonstrations. No attempt was made to "gild the lily."



FOURTH SESSION

Time period: 2 hours 4:00-6:00 p.m.

As has been indicated, this session was reserved for the presentation of new and expanded materials from the realm of guidance theory and practice. A university professor was obtained for this session through the State Department of Guidance Services. With one professor for each of the areas, six different professors were used. He was requested to speak to the major elements contained in the following outline.

A. Phase One -- 60 Minutes

1. University guidance professor talks about guidance services for the non-college bound student. His talk may include special reference to actual and potential dropouts. (40 minutes)

2. Discussion -- 20 Minutes

B. Break -- 15 Minutes

C. Phase Two -- 45 Minutes

1. University guidance professor discusses the use of screening tests in guidance for the health occupations (30 minute lecture -- 15 minute discussion)

The participating professors are listed in Exhibit F.

For the second part of the session, the counselors' attention was particularly directed to new occupational interest inventories and their use. The professors were also requested to comment on the value of pre-professional screening tests.

With one exception, each of the professors failed to analyze the needs and interests of his audience in preparing for the session. One-third of them failed to make more than a meager attempt at preparing their presentations. One-third of them prepared well, but failed to follow the session outline and did not give effective presentations.

The remaining third prepared well and presented their materials well, although only one of them was regarded by the counselors as having prepared thoroughly on the session outline with information which they regarded as wholly helpful. It is evident that only one of the professors had firmly in mind the distinctions between the college student audience (which endures ivy and cobwebs) and the extension or practitioner audience (which expects nuts and bolts).

Again, with the one exception, visual aids were not employed by the university professors in this session. Two-thirds of them did bring a few samples of tests and

EXHIBIT F

1966 HEALTH CAREERS COUNCIL WORKSHOPS

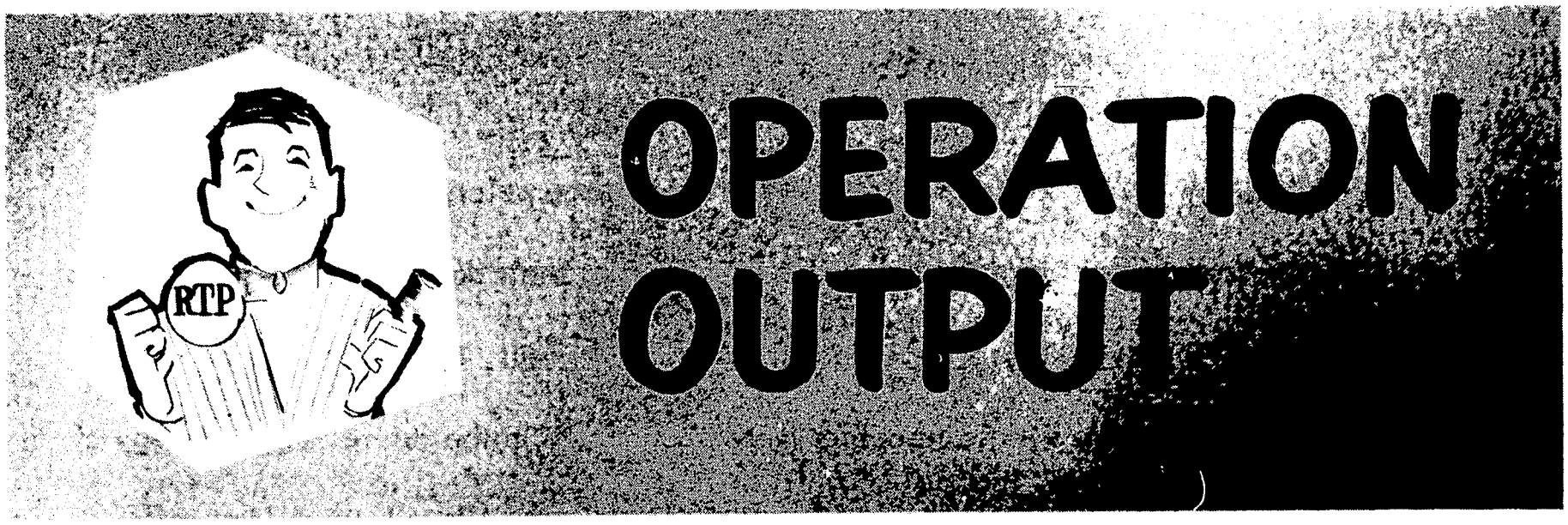
Participating Professors

Dr. Robert Tomlinson College of Education University of Illinois Urbana, Illinois	Decatur -- Thursday, November 10
Dr. William Gorman, Chairman Guidance Department DePaul University 25 East Jackson Boulevard Chicago, Illinois	DesPlaines -- Monday, November 7
Dr. George Holden Department of Secondary Education Northern Illinois University Graham Hall DeKalb, Illinois	Rockford -- Tuesday, November 8
Dr. John Cody Department of Guidance Southern Illinois University Wham Hall -- Room 223 Carbondale, Illinois	Centralia -- Tuesday, November 15
Dr. Melvin Stebins, Director Office of Special Services Bradley University Peoria, Illinois	Quincy -- Thursday, November 10
Dr. Lawrence Taliana Coordinator Academic Student Counseling Southern Illinois University Edwardsville, Illinois	Alton -- Monday, November 14

forms with them. Two of the professors did use "descriptive" language in the sessions, although the comments of the counselors indicated that they did not appreciate the language in mixed company.

It would appear that future workshops should utilize university professors only if the permanent teaching staff thoroughly orients them to the strategy and philosophy of the workshops, as well as to their specific responsibilities and role. Again, the preparation of a suggested presentation outline, in detail, with suggested material resources and visual aids could improve this session.

There is little doubt that in five of the workshops this session did not contribute constructively to group morale. However, the previous sessions had established a level of group cohesiveness which enabled the groups to bounce back for the fifth session.



FIFTH SESSION

Time period: 2 hours 4:00-6:00 p.m.

The purpose of this workshop session was to develop and review with the counselors the resources that exist in their schools and community for guidance in health occupations. Special emphasis was given to the use of volunteers in aiding the counselor to provide guidance activities for students. Educational resources for health occupations were also discussed.

A. Phase One -- 60 Minutes

   1. Guidance counselors interacting with staff leader map out how they can work with and provide leadership to voluntary resources for guidance in the health occupations.

B. Break -- 15 Minutes

C. Phase Two -- 45 Minutes

1. Educational resources for health occupations discussed, emphasizing those nearest to the students.

2. Film "For the Love of Life."

The strategy of this session focuses on getting the counselors to discuss and accept (recognize) the use of people and resources beyond their daily materials and personal resources to provide effective guidance activities. Thus, they place the burden on themselves to utilize these resources more abundantly in the future. The strategy of the session appears to work well, even though this session is somewhat less well received than sessions one, two or three. Group participation continues to be good. As in the second session, this session was more successful with one instructor than with the other. This time, there seems to be some advantage to the instructor with the greater experience and knowledge of community organization and action.

The discussion of educational resources suffered from the lack of printed materials listing the schools in the area. These materials are now available and will be included in future workshops.

Visual aids employed include a flannelgraph presentation as pictured in Exhibit G. This outline of the structure of resources proved valuable in encouraging discussion. The counselors would first suggest resources, and then the instructor would place on the flannelgraph the category most closely affiliated with the discussion. The composition of the materials were the same as those employed in the second session.

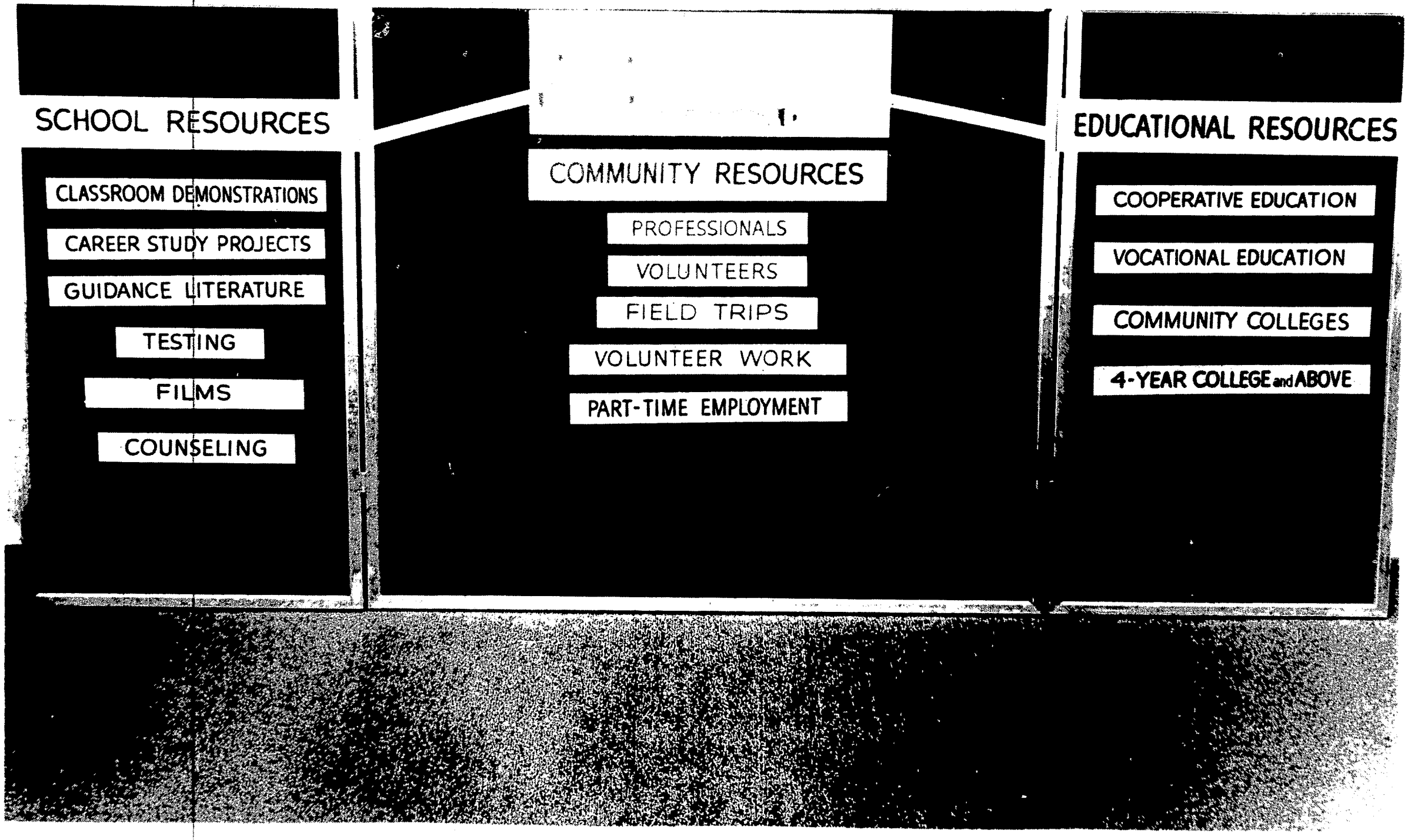

SCHOOL RESOURCES
CLASSROOM DEMONSTRATIONS
CAREER STUDY PROJECTS
GUIDANCE LITERATURE
TESTING
FILMS
COUNSELING
COMMUNITY RESOURCES
PROFESSIONALS
VOLUNTEERS
FIELD TRIPS
VOLUNTEER WORK
PART-TIME EMPLOYMENT
EDUCATIONAL RESOURCES
COOPERATIVE EDUCATION
VOCATIONAL EDUCATION
COMMUNITY COLLEGES
4-YEAR COLLEGE and ABOVE

EXHIBIT G

The motion picture, "For the Love of Life", was shown as an example of guidance materials available. This film was well received and served as a climax to the fifth session. This session could profit from added emphasis on current guidance materials on health careers, and a discussion of their merits.

It would also appear that there is a need to strengthen the preparation for the discussion of resources for expanded guidance activity. This is an extremely important topic and should not be slighted because of an initial mixed response to the information presented.

Final evaluation forms (see Exhibit H) were completed by the Counselors at the close of the fifth session. The results of these evaluations are reported in the section of the report immediately following Exhibit H.

GUIDANCE COUNSELORS WORKSHOP

EVALUATION BY PARTICIPANTS

1. How many sessions did you attend?

2. Which session did you find most valuable?
   Why?

3. Which session did you find least valuable?
   Why?

4. What changes would you suggest if such a program were to be offered again?

5. General comment and reaction:

EXHIBIT H

COUNSELORS' EVALUATIONS OF THE WORKSHOPS

	# of Sessions Attended	Liked Most	Liked Least	Suggested Changes	General Comments
DesPlaines					
1	3	-	-	Less discussion. Give credit thru IGA.	Impressed.
2	5	2&3	-	More discussion.	Well planned.
3	5	2	4	Control outside speakers.	Valuable and stimulating.
4	3-1/2	2	4	Coffee, more professionals.	Practical; well presented.
5	4	2	5	More thorough hospital tours.	Valuable, stimulating, informative.
6	5	2&4	-	--	Time well spent; most worthwhile.
7	4	3	-	More centers; closer.	Excellent; do it again.
8	5	4	3	More group discussion.	Thank you for the experience.
9	5	1&2	4	More demonstrations in 3.	Great; a wonderful experience.
10	4	2	4	Skip hospital tour.	Thanks; very helpful.
11	4	4	-	More inter-participation.	Enjoyed the course.
12	5	3	4	Name tags.	Enjoyed the workshop.
13	4	1	4	Program outline at start.	Helpful.
14	4	4	-	Fewer, longer meetings.	Interesting and worthwhile.
15	4	5	1	More publicity.	Interesting, add school lists.
16	5	1&5	4	An agenda at start.	Coffee, name tags, time to visit.
17	5	4	1	Prepare guest speaker.	Valuable, well planned & presented.
18	5	2	4	Name tags, details on jobs.	Good idea.
19	5	2	5	Entry requirements.	Warm, friendly, beneficial.
20	4	3	5	More exchange of information.	Very worthwhile.
21	4	all	none	Buzz sessions.	Most interesting & stimulating.
22	5	4	-	Introduce selves.	Offer again -- publicize.
23	5	1	2	Compress and add more.	Coffee breaks.
24	3	3	5	More specifics.	Like more meat.
25	5	4	3	Introduce selves.	More publicity.
26	5	4	5	Coffee, name tags.	Very good, informative.
Rockford					
1	5	3	4	More people from field.	Needed program
2	5	1&3	4	Eliminate professor.	Well organized; successful.
3	4	3	4	More hospital tours.	Forget the professor.
4	5	1&3	5	Emphasize school requirements.	Appreciate effort; too long.
5	5	3	5	More films, more technicians.	Well worth the time.
6	5	3	-	Coffee.	Very informative.

EXHIBIT I (1)

	# of Sessions Attended	Liked Most	Liked Least	Suggested Changes	General Comments
Rockford (continued)					
7	5	3	4	Describe jobs in Session 1.	Worthwhile and profitable.
8	5	3	4	Rates A+ without professors.	Well organized and presented.
9	5	3	4	More resource people.	Helpful; please continue.
10	5	1&3	4	Replace #4 with another #1.	Grateful; good presentation.
11	5	1&3	4	-	Excellent; informative.
12	5	3	4	More exchange of ideas.	Tremendous contribution.
13	5	2&3	4	Coffee; more testing.	Truly enriching.
14	4	1	4	Another student panel.	Interesting and informative.
Decatur					
1	5	1	2&5	Buzz sessions and hospitals.	Helpful; bad time of the day.
2	3	3	none	Better preparation for tour.	Bravo; good job.
3	4	3	none	Better preparation for tour.	One of best planned workshops, etc
4	5	1&3	none	More exchange of ideas.	Very helpful; thanks.
5	5	3&1	4	More occupations.	Coffee!!!
6	4	2&3	4	More time at hospital.	Good; informative.
7	4	1	5	Hospital tour more organized.	Worthwhile.
8	5	all	-	Printed agenda and information.	Job well done.
9	4	1	4	Outline of course.	Enjoyable; valuable.
10	5	1	5	1-1/2 hour sessions.	Appreciate health careers more.
11	4	3	4	Back up for coordinator.	Useful and worthwhile.
12	1	-	-	Offer earlier in year.	Well prepared and presented.
13	4	1	none	More resource people.	Profitable.
14	3	3	none	More panels.	Appreciated this.
Centralia					
1	4	3	4	Time, organization uneven.	Very valuable.
2	4	2	4	More guests, activity & discussion.	Informative, but not as helpful.
3	4	-	4	More guests.	Informative.
4	4	3	4	Material for good school counseling.	Excellent content & instruction.
5	4	1	2	None.	Helpful, but don't repeat for time.
6	5	-	-	Clinic? Include our students.	Worthwhile, my students will profit.
7	5	3	4	Time of meeting & place.	--
Alton					
1	5	3&1	4	Demonstrations (include)	Real source of education.
2	5	1&3	4	None.	Very fine.
3	5	3	-	None.	Very enlightening.
4	5	3	4	More discussion.	Excellent information, interesting.
5	5	1	-	More first hand observations.	Very worthwhile.
6	5	3	4	Another student panel.	Very valuable.
7	4	3	2	Closer locations.	Enjoyed it.

EXHIBIT I (2)

	# of Sessions Attended	Liked Most	Liked Least	Suggested Changes	General Comments
Alton (continued)					
8	3	3	-	Speakers with guidance experience.	Good.
9	5	1&3	4	Fewer sessions.	Very helpful.
10	5	3	-	None.	Worthwhile; current.
11	5	1&3	-	None.	Most valuable.
12	5	1	4	More field trips.	Opened my mind.
13	5	5	4	Better publicity, more literature.	Good --- coffee?
14	4	3	4	Better publicity, more literature.	Excellent organization & information
15	5	-	4	Better publicity, more literature.	Time well spent.
16	4	3	4	Don't know.	Worthwhile.
17	-	-	-	-	Very valuable.
18	5	3	4	Announce sessions in advance.	Very good.
Quincy					
1	5	3	2	Offer Session 3 earlier.	Very good; helpful.
2	5	-	1	None	Worthwhile.
3	4	3	-	None	Very informative.
4	4	2&3	5	Set up into 2 half-day sessions; one lecture, one tour and demonstrations.	Worth time and effort.
5	5	2	3	None.	Informative.
6	5	4	2	Shorten student discussion.	Good
7	5	-	1&3	More discussion by health personnel.	Information useful.

EXHIBIT I (3)

Exhibit I indicates that, in general, most of the counselors felt the third session (Operation Eyewitness) was most valuable to them. The first session (Operation Feedback) runs a close second. Operation Eyewitness appeared to be rated at the top largely because of the impact of actually seeing the occupations at work in their place of business and having the opportunity to meet the people who have chosen to pursue one of the health careers. Operation Feedback was regarded as meritorious for much the same reason. The counselors are particularly interested in actually hearing from and talking with people who are active in the field and directly involved in the particular career. They, like their students, prefer to hear it "from the horse's mouth."

Operation Measure Up (fourth session) was ranked last in order of value due to the presentation of some of the professors, but more importantly because the material presented was simply a review and included no new or original information. The counselors expressed varying degrees of enthusiasm for session two, Operation Work Up. They were, with the exception of three participants, very much in favor of retaining such a presentation because of the wealth of occupational information which is included.

Suggestions for changes in the Workshop format centered on the counselors' desire to have more of the first-hand reports and demonstrations provided by the panelists in the first session and in the hospital tour. Better publicity for the sessions and a request that future workshops include classroom teachers also appeared frequently in the list of recommended changes. The request for better publicity appears to manifest the desire of the counselors that greater support and approval be sought from local school administrators, who in turn would encourage, and make possible, workshop attendance.

The counselors seem anxious that many more of their colleagues attend health career workshops in the future, and to this end suggest that more workshops be conducted nearer to other communities so that more can attend. Many indicated that the time for the workshops should be changed and that future workshops should be held as an all day event, covering all five sessions in perhaps an eight or nine hour day.

The general comments are particularly noteworthy in their use of such adjectives as worthwhile, valuable, informative, helpful, enlightening, and current. There was a remarkable recurrence of such phrases as "keep it up", "worth repeating", and "there should be more of these". It is important to note that the counselors were impressed not only with the workshop materials and content, but also with the organization and manner of presentation.

SUGGESTING REVISIONS FOR FUTURE WORKSHOPS

The key improvements for future workshops would appear to be of two types. The first is better preparation in terms of model presentations, and outlines for outside participants should be developed in considerable number and detail. These will serve to correct weaknesses noted in preparation and presentation by the outside teaching resources (including the panels).

The second type of improvement centers on the organization and announcement of the workshops. Both the counselors and the teaching staff feel that future workshops will achieve optimum results if the sessions are presented in one full day. The dinner could continue to be held in an afternoon and evening workshop, or could be changed to a luncheon with the workshop conducted in the morning and afternoon. Certain economies in the length of time required for presenting the materials can be achieved.

The use of one or more volunteers in the community to act as a local arrangements and publicity committee should be considered for future workshops. Better publicity can be achieved by working directly with the school district or county superintendent's office --- explaining the program and presenting the results of the trial workshops.

The use of the one day workshop format would permit the Council's staff to conduct more workshops, and to conduct them in more convenient locations for the Counselors. Five areas should receive top priority; Peoria, Quad-Cities, Springfield, Chicago, and Southern Illinois.

Other changes and additions are not as major, but are not to be overlooked as petty or unimportant, since their inclusion has great bearing on the counselor's state of mind and his ability to gain as much as possible from the time invested. After a long school day, many of the attendants felt that it would have been pleasant to have coffee and a short recess. They also desired name tags, or at least an opportunity to have all the participants introduce themselves and their schools to the group. The congenial rapport which existed would certainly have been greatly enhanced by the above measures, and is worth considering.

REVIEWING THE PROJECT TO DATE

Many people and organizations have contributed to the success of these trial workshops. In planning for the sessions, the teaching staff drew heavily on the workshop experiences of the Kentucky Mental Health Manpower Commission, the United Hospital Fund of Greater New York Health Careers Program, and the Cleveland Hospital Council. The many suggestions by staff members of the State Department of Guidance Services, the hospital administrators and the counselors were invaluable as the planning moved into its final stages.

An important by-product of the trial workshops has been the shared ideas and suggestions offered by all concerned. Particularly noteworthy are those which passed between the counselors and employers, the hospitals and other health employers, and the students and counselors.

Because of the cooperation of the Illinois Office of Public Instruction, Department of Guidance Services, it has been possible for the Council to conduct the development and trial phases of this project under the initial development grant by The Sears-Roebuck Foundation. Both of these organizations share the limelight for the support which made the workshops possible.

The evaluations of both the counselors and the teaching staff conclude that the trial workshops have been a success. The attendance by 169 counselors from 74 Illinois cities represented 90 schools with a total enrollment of 92,500 students. Exhibit J presents a breakdown of these figures.

ATTENDANCE STATISTICS

ROCKFORD

Total registration	18
Average attendance	16.4
Representing: schools	10
cities	7

DECATUR

Total registration	18
Average attendance	13.6
Representing: schools	12
cities	11

DES PLAINES-PARK RIDGE

Total registration	68
Average attendance	40
Representing: schools	34
cities	30

QUINCY

Total registration	15
Average attendance	9
Representing: schools	8
cities	7

CENTRALIA

Total registration	22
Average attendance	12
Representing: schools	12
cities	9

ALTON

Total registration	28
Average attendance	19.6
Representing: schools	14
cities	10

TOTAL REGISTRATION	169
TOTAL CITIES REPRESENTED	74
TOTAL SCHOOLS REPRESENTED	90
TOTAL ENROLLMENT OF SCHOOLS REPRESENTED	92,500

EXHIBIT J

It is recommended that the Council undertake fifteen workshops in the coming year; one of these to be a spin-off program in the form of a clinic for students, parents, and teachers; two to be spin-off programs in the form of institutes for volunteers working in health careers guidance activities; and thirteen to be one day workshops for guidance counselors and classroom teachers to be held in communities other than those used in the trial workshops. At least four of these should be held on a community or city-wide basis only. Another four should be county-wide, and the remaining five should be combinations of counties and/or communities.

APPENDIX

1. Photographs of workshops in progress.
2. Procedural report letter; ref., contacting the counselors.
3. Description of visual aids.
4. Selected comments by the counselors.

State of Illinois
Office of the Superintendent of Public Instruction

Room 1800
160 North LaSalle Street
Chicago, Illinois 60601

October 6, 1966

Mr. Joseph C. Rhea, Exec. Dir.
Health Careers Council of Illinois
400 North Michigan Avenue
Chicago, Illinois 60611

Dear Joe:

This is to inform you that all arrangements have been completed for the series of Workshops on Health Careers being co-sponsored by your organization and the Office of the Superintendent of Public Instruction.

I am enclosing copies of the following:

1) Letters of correspondence with District Superintendents regarding arrangements for use of facilities

2) Letters of correspondence with Professors who will give presentations at the fourth session of each Workshop

3) A list of names and addresses of Participating Professors

4) Enclosures of October 5 mailing to all Superintendents, Principals, Department Heads and School Counselors

5) Enclosures of October 10 mailing to same parties

The October 5 and 10 mailings from our Springfield office are to a total of 3127 people each mailing. This includes all members of the 1965-66 I.G.P.A. mailing list; all County Superintendents; all Unit District, High School, and Elementary School Superintendents; Principals of all High Schools including Chicago High Schools and all Non-Public High Schools; and all Diocesan and Lutheran Superintendents.

The October 5 mailing left on time and arrangements have been completed so that the October 10 mailing will leave by evening of that date.

Under separate cover we are returning surplus copies of your pamphlet, Discover A Bonanza of Opportunities in Health Careers. The October 5 mailing included this pamphlet.

Will you please have representatives of the Health Careers Council make initial contact at the time of the first meetings with representatives of each of the six districts?

I have enjoyed working with you in this coordinated effort to disseminate educational infomation. Thank you for your cooperation.

Very truly yours,

/s/ John C. Orr
Assistant Supervisor
Department of Guidance Services

JCO:vh
enc.

DESCRIPTION OF VISUAL AIDS

FIRST SESSION

Signs: Copy and simple line art suggestive of titles.

#1 -- OPERATION FEEDBACK	(line art --- stick figures (2) to right of title and (2) to left of title. On right side the right hand figure has big mouth going with torrent of words with the other figure holding an old fashioned hearing horn to his ear. The left side is a mirror image.)
#2 -- OPERATION WORK-UP	(line art --- stick figure on each side of title of a worker swinging a pick axe.)
#3 -- OPERATION EYE WITNESS	(line art --- spy glass with big end toward us and receding rapidly into background as if we were seeing it almost head-on. Centered in the circle and closest to us is a big eye wide open as if surprised.) One only.
#4 -- OPERATION MEASURE UP	(line art of a stick figure next to a ruler slightly taller than he is. The stick figure is stretching his neck or is up on his toes trying to measure up.) One only.
#5 -- OPERATION OUTPUT	(line art of a stick figure with big button identifying him as a R.P.T.; he has a proud, beaming look.)

Signs are approximately 12" high and 48-54" long, made of very heavy poster board in light pastel shades. They should be pretty bright and modern looking --- perhaps through use of darker, contrasting pastels for copy and figures.

SECOND SESSION

1. Line art sketch of Mr. Chase's home --- 6" wide by 4" high.

2. Line art sketch of the hospital --- 24" wide by 6" high.

3. Line art sketch of right hand corner of medical center building and entrance with "Medical Center" sign --- 4" wide by 14" high.

4. 20 1/2" wide yellow Velcro hook strips, each 6" long.

5. Flag signs, one for each occupation or profession mentioned in the script --- each sign in the shape of a merged over-sized dot (left side), 3/4" radius, and a rectangle 3/4" high. Overall length will vary with length of title. Letters to be 3/8" high. Vary color in pastels of show card background.

6. Motion Pictu e: "Crisis: Blueprint for Communication."

FIFTH SESSION (Flannelgraph)

1. Line art sketch of public school --- 18" wide by 6" high

2. Signs: (vary colors of poster board used)

   Community Resources -- 18" wide by 2-1/2" high

   School Resources -- 18" wide by 2-1/2" high

   Educational Resources -- 18" wide by 2-1/2" high

   Volunteers -- 10" wide by 1-1/2" high

   Professionals -- 10" wide by 1-1/2" high

   Guidance Literature -- 14" wide by 1-1/2" high

   Films -- 14" wide by 1-1/2" high

   Classroom Demonstrations -- 14" wide by 1-1/2" high

   Field Trips -- 14" wide by 1-1/2" high

   Career Study Projects -- 14" wide by 1-1/2" high

   Volunteer Work -- 14" wide by 1-1/2" high

   Part-time Employment -- 14" wide by 1-1/2" high

   Cooperative Education -- 14" wide by 1-1/2" high

   Counseling -- 10" wide by 1-1/2" high

   Testing -- 10" wide by 1-1/2" high

   Vocational Education -- 14" wide by 1-1/2" high

   Community Colleges -- 14" wide by 1-1/2" high

   4-Year College and above -- 14" wide by 1-1/2" high

3. Use 1/2" wide Velcro strips from Second Session

4. Motion Picture: "For the Love of Life"

SELECTED COMMENTS FROM WRITTEN EVALUATIONS BY THE SCHOOL COUNSELORS

For their "homework" the counselors were asked to write a brief evaluation paragraph after each session. The following comments were selected as being representative or helpful in planning future workshops:

1. FIRST SESSION

1. The girls representing five different occupations that could be pursued in the health field brought very much to life the kind of things they were doing. It was much more convincing after seeing a sweet young LPN in person than just to be told that middle-aged women are not the only ones who become LPN's.

2. Seeing ourselves, as we think we know ourselves is quite different from seeing ourselves as others know us. To be sitting on the other side of the desk, being diagnosed as a counselor through observations of the counselee, was quite revealing. This panel has made me aware of the fact that we must take a full view of the counselee's needs.

3. A personal introduction by each of the individuals participating in the workshop would have helped to get the group acquainted with one another and possibly made for a more informal atmosphere.

4. The introduction and summarization by each of the participating students on why they entered the health occupations fields was very helpful, but a better introduction as to why they were here, and what they were going to discuss would have helped to set the stage for the evening discussion.

5. I believe it made more of an impression on me because the students were doing the talking instead of a professor or doctor.

6. There was a noticeable lack of defensiveness on the part of panelists and counselors. The free-wheeling discussions which centered about the formation of the career patterns of the panelists provided much of use to practicing counselors. This information could well serve as a basis for comparison to students currently struggling with the choice of career opportunities which are open to them.

7. The thing that probably made the meeting such a success was the interest displayed by the people in their work, their obvious enthusiasm for what they were doing.

8. We were given a paperback edition of "Horizons Unlimited" -- which was inspirational. Holding a degree in public health and having taught public health for 4 years at the Secondary school level I felt I knew something about the possibilities in this field but I had a whole new concept opened up for me.

FIRST SESSION (continued)

9. I was particularly interested in the fact that none of these students were influenced or guided by counseling. The student had decided upon a goal and then determined the means by which to reach her goal. Do capable students function in this way? Do students view the counselors role as (1) adjusting schedules or conflicts in courses (2) to deal with behavior problems not serious enough to be sent to the Dean.

10. The idea is good but we need more structure for the students to follow. Also it would help if we had beginning students as well as experienced senior ones.

II SECOND SESSION

1. It is almost unbelievable that so many persons are involved in carrying out services for one patient. The method used in presenting this was good because one not only heard the various persons mentioned but also saw the name put down before you.

2. The second half of the program was the worst of any of the sessions. I think the whole program is excellent except for this film which to me is a big waste of time - not informative at all. The hospital tour we took should more than suffice for the film.

3. Many of the occupations might appeal to students because they do not require so much training before earning starts.

4. The first half delimiting the 52 occupations was good - especially where the education required was given. I feel several of the occupations could be skipped due to shortage of the time. The skit was good but took quite a lot of time that might have been used in discussing the 52 occupations.

5. In my opinion the second session was not as useful as the first had been. Facts about the different health ocupations were delivered too fast for me to absorb. It would have helped to have had at least part of the information in written form.

6. The way it was presented was unique and this helped to make it more interesting. Since I had spent six weeks in the hospital this past summer, this session made me realize all that had been done by so many people to make my stay there rather pleasant. The movie added to the information and the interest.

x

III THIRD SESSION

1. It is difficult to realize all the activities that go on and how important it is to have them done accurately and quickly. One also realizes the need for intelligent, capable people in these jobs even though the training period can be short.

2. This is the first time a plea has been made for aides who have less than a college education. Heretofore, stress has always been placed on the need of higher education. Only isolated requests have ever been made to our school for clerical help as receptionists or bookkeepers.

3. The members of the panel kept stressing that they wanted the best of our students. To me this was just a little disconcerting, for I am sure that there are jobs for the average or a little below average person in a hospital.

4. This part of the program was beyond description or out of this world. The tour could have been a little longer but yet the meal and the discussion afterwards was also out of this world. I think the men chosen to represent the different clinics really added to my knowledge of occupational openings in the health careers area. I wouldn't change a thing in this session.

5. The meeting with the administrative heads gave me information that was most helpful. I have spoken to our teachers in the Business department about giving our girls some additional training to make them capable of filling the place of a Medical Secretary and they are very willing to do so, even glad to try it out on this year's seniors.

IV FOURTH SESSION

1. The university professor pointed out the ways in which counseling might not be the only answer to the dropouts. This was quite interesting as we counselors were reminded of our weaknesses. His comments on the five-county project of helping dropouts were most informative.

2. Operation Measure Up was sort of unusual in regards to the presentation by the university professor. His choice of words was sort of questionable in my opinion especially to a mixed group as was. His information was most interesting as it made us realize that perhaps we fail in holding the student's interest enough to make him want to remain in school.

3. It seems that he left the impression that counseling was over-rated.

4. The university professor had some good points about the different levels and types of jobs in the same job area. He stressed Anne Roe's theory of idea, person, or thing in job choice. I felt the meeting was quite useful.

5. The session was interesting enough but the problems in guidance which were discussed were not actually pertinent to the school in which I teach.

V FIFTH SESSION

No homework, last session.

VI GENERAL COMMENTS

1. This year our students will find more material available as I have already written letters to all national association suggested in booklet, Horizons Unlimited, distributed at our first meeting. Already, I have received a wealth of material that I have filed - ready for the unit to begin in January. I believe a workshop like this is valuable for librarians as well as counselors - to help us learn firsthand about health careers.

2. I was deeply impressed with the variety and value of the informal reports. Much of this information is not commonly known to counselors, yet it is highly significant for discussions.

3. Your audio-visual aids are excellent. The best audio-visual aids were the young men and women in the health careers.

4. Thank you for dismissing the sessions on time. I have several other commitments which must be taken care of every Tuesday evening.

5. Coffee should be served at the midway point of each individual session.

6. This was the most usable guidance workshop that I have ever attended. Thank you for aiding my guidance years work.

7. I was quite disappointed, however, to note that no Workshop is being held in either the Quad Cities area or in the Peoria area. This means that in order for me to attend a Workshop, or for any counselor in this area to attend a Workshop, we would have to make a 180 mile round trip to Rockford. Is there any possibility that a Health Careers Workshop will be set up later in the year at either Peoria or the Quad Cities? If not, I am afraid many counselors in the state, particularly in western and central Illinois, will be completely left out of the picture.

8. We circulated the announcement of the workshop sessions on health careers among our counseling staff. There was much interest but there was concern regarding the location of the workshops. It was suggested that perhaps at some later time similar workshops might be held in or very close to Chicago.

9. I'm sorry I won't be able to attend one of the Guidance Health Workshops because of the driving distance. Centralia is 75 miles from my home. I am a member of Area 19 Guidance Roundtable which is composed of seven counties in southern Illinois. This is an active group which has been meeting once a month for the past four years. I'm sure the counselors in this group will have this same difficulty as well as those in the areas south of ours.

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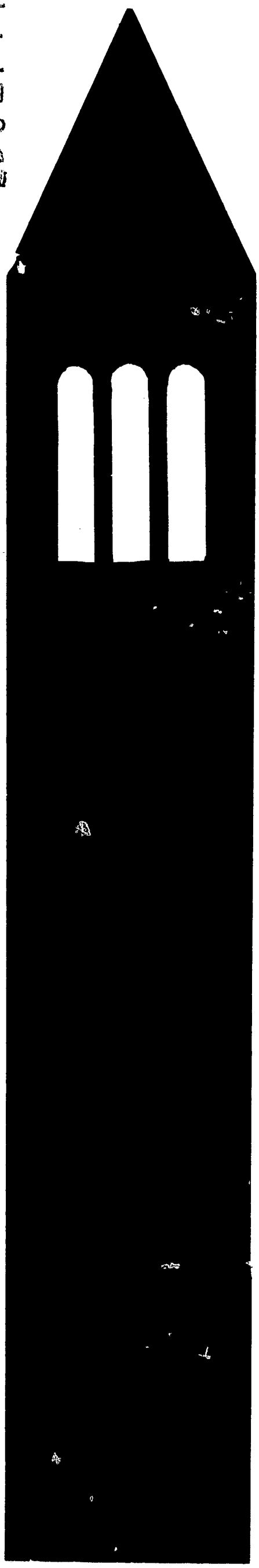
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Information from interviews with 28 administrators and a questionnaire administered to 31 schools determined what adult vocational education was available in the public schools of Alameda and Contra Costa Counties and identified possible research problems for improving the capability of public schools in meeting their future responsibilities for educating adults. The total enrollment of adult vocational education open to the general public, apprentice school training, and federally connected programs was 21,763, which was about one-third of the total public school adult education enrollment. The adult education administrators ranked 12 administrative problems, concerning adult education in the following order of importance: (1) program development, (2) teacher availability, (3) intrafaculty communication, (4) adequate resources, (5) inservice education, (6) policy formulation, (7) public relations, (8) counseling services, (9) coordination among levels, (10) record keeping, (11) library services, and (12) registration. Responses and comments concerning these problems were analyzed. The most important considerations facing adult vocational education in the two-county area were ascertaining needs, involving a broader social spectrum, acquiring flexibility for adapting to changing social circumstances, and providing some specialized facilities to meet adult needs. Research might profitably be conducted in the areas of clientele characteristics, organizational structure, and training to develop specialist adult education administrators. (PS)

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RESEARCH AND DEVELOPMENT

IN

VOCATIONAL - TECHNICAL EDUCATION

VOCATIONAL EDUCATION AVAILABLE TO ADULTS IN THE PUBLIC SCHOOLS OF ALAMEDA AND CONTRA COSTA COUNTIES

REPORT NO. 1966-4

UNIVERSITY OF CALIFORNIA
BERKELEY

VOCATIONAL EDUCATION

AVAILABLE TO ADULTS IN THE PUBLIC SCHOOLS OF

ALAMEDA AND CONTRA COSTA COUNTIES

Report No. 1966-4

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This study was made by Ernest R. Neasham as a graduate student and research assistant in a series of studies in vocational-technical education of Alameda and Contra Costa Counties. The study was financed by a grant from the Vocational Education Section of the California State Department of Education.

School of Education, University of California
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August 1966

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VOCATIONAL EDUCATION

AVAILABLE TO ADULTS IN THE PUBLIC SCHOOLS OF

ALAMEDA AND CONTRA COSTA COUNTIES

FOREWORD

This report, one of a series describing the vocational education offerings of the schools of Alameda and Contra Costa Counties, is concerned with the programs available to adults. In a society that is described as both technologically complex and subject to rapid change, provisions that have been made to assist individuals in adjusting to the social situation are of unusual interest. Adult educators today have come to accept the concept of continuing education. In effect, they recognize that many adults will continue in education throughout most of their lives. The knowledge explosion coupled with the population explosion creates a situation that makes frequent training and retraining in technical skills desirable. These conditions create a prospective clientele for adult education that is likely to necessitate an almost incredible expansion of programs and facilities. In a recent national study of adult education, Johnston and Rivera[1] note that a 70 percent growth in the adult population under 35 is expected in the next two decades. In 1962 there were some 33 million people in this particular age group; in 1982, we may expect 57 million. This study indicates that less than half of this population (44 percent) could be seriously considered as prospective clients for adult education but changing social conditions and changing cultural values might well affect the ratio.

In California the prospective educational task is further complicated by the necessity of planning for possible future migration from other states as well as for natural growth increases. It is estimated that the population in California in 1980 will reach 28 million, a 10-million increase over 1964.[2]

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[1]Johnston, John W. C. and Ramon J. Rivera, Volunteers for Learning. Chicago, Aldine Publishing Company, 1965, pp. 15-19.

[2]Coordinating Council for Higher Education, Status Report on Continuing Education Programs in California Higher Education, A Report to the State Committee on Continuing Education. Sacramento, California, September 27-28, 1965. Mimeo. p. 3.

Dimensions of the Study

This study of adult education in two urban counties in California does not attempt to describe the clientele of adult education. It is a description of the vocational portion of adult education that is found in the public schools of those counties. Fortunately it is possible to discuss the omitted dimensions in general terms, thus giving some additional perspective to the descriptive material that constitutes the bulk of this report.

Public school adult education is defined, for the purpose of this report, as that education which is available for adults, either by convenience of schedule or by specification, in the public secondary schools and junior colleges in Alameda and Contra Costa Counties. The main distinguishing characteristics of these schools are their dependence on local taxes for a portion of their financial support and their governance by locally elected boards of trustees. No attempt is made to include extension programs provided by the publicly financed California State Colleges and the University of California.

A recent national survey has shown that only about one-third of the adults engaged in learning activities obtain their education in the formal classroom setting.[3] Since the study population makes up the enrollment of only a portion of the public sector engaged in adult education and does not attempt to examine the private sector at all, it is reasonable to say that this study describes only a small part of the total adult education activities of the two-county area.

Some facts may be inferred about the students who participate in public school adult education. As far as age is concerned, certain admission conventions practiced by the schools would fix the lower age limit at about 17. The upper age limit is not fixed but based on Johnston and Rivera's experience, most of the students would be under 40. About an equal number of men and women were found to participate in adult education nationally. They had a better than average education and most of them were from the middle class.[4] London and his associates in a detailed analysis

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[3] Johnston and Rivera, op. cit., p. 5. Johnston and Rivera indicate that more people study in churches and synagogues than in schools. See also Jack London, Robert Wenkert, and Warren O. Hagstrom, Adult Education and Social Class, Berkeley, California: Survey Research Center, University of California, Cooperative Research Project No. 1017, December, 1963, p. 141. " . . . educational institutions are in the minority among the organizations which sponsor adult education."

[4] Johnston and Rivera, op. cit., pp. 6-21. The Johnston-Rivera survey indicated that over half of the students in adult education were under 40 and that four-fifths were under 50.

of a sample of men in Oakland, California concluded, "Clearly, formal educational institutions recruit adult education students from those whose educational level is about the same level of their regular daytime students."[5]

An additional factor of some importance to the current study is the motivation of participants in adult education. In the Oakland study more than half of the sample said they took courses to help them in their present jobs or in obtaining future jobs.[6]

Purpose of the Study

This study is both descriptive and exploratory. Its primary purpose is to determine what vocational education is available to the clients of public school adult education in Alameda and Contra Costa Counties. A secondary purpose is to identify possible research problems, the investigation of which might result in improving the capability of public schools in meeting their future responsibilities for educating adults.

Organization of the Report

The first section of the report describes (1) the structural context within which public school adult education operates, (2) the method of gathering information, and (3) the specific purposes toward which the inquiry was directed.

The second section describes adult vocational education which is open to the general public in the public schools of the two counties. The third section is devoted to adult vocational education that is available only to groups with special qualifications. The final section discusses administrative problems that might inhibit the operation of the adult public schools. These are thought to be some of the bases upon which further research should be initiated.

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[5]London, op. cit., p. 83. London presents an interesting comparison based on socio-economic status. In his analysis it was found that almost a fourth of men classified as professionals participated in adult education as contrasted with a twentieth of the unskilled workers and laborers. (p. 40)

[6]Ibid., p. 106.

Acknowledgments

Gratitude is expressed to all of the people who helped gather the material for this study. Miss Ruby Walker took a major responsibility in helping with data collection, analysis, and in producing the final report. Mr. Lawrence Reinecke and Mr. J. Wilson Bilyeu, County Coordinators of Adult Education in Alameda and Contra Costa County, respectively, gave valuable help in serving as communication links with the respondents as well as serving on the Advisory Committee for the research. Other Advisory Committee members who helped refine the research design were: Dr. Lee D. Bodkin, Regional Supervisor, Trade and Industrial Education, California State Department of Education; Mr. Henning Edlund, Director of Adult Education, Oakland Public Schools; Mr. William J. J. Smith, Consultant, Bureau of Adult Education, California State Department of Education; and Dr. Carl G. Winter, Consultant, Junior College Education, California State Department of Education.

Special thanks are expressed to Mr. Tholbert M. Honea, Principal of the Pittsburg Evening High School; Mr. Richard Hooker, Dean of Extended Day and Community Services, Laney College; and Dr. Kent Friel, Principal of three of the Oakland Adult Schools, for their patient understanding and excellent suggestions during the process of refining the final data collection instrument.

This study was financed by the Bureau of Vocational Education of the California State Department of Education. Without the support of this agency important information about vocational education in the San Francisco Bay Area could not have been made available.

To the unnamed respondents and others who contributed to this study we express our gratitude. Their cooperation and help made it possible.

Ernest R. Neasham

J. Chester Swanson

INSTITUTIONAL CONTEXT AND PROBLEM

Alameda County and Contra Costa County are located on the east shore of San Francisco Bay. The combined population of the two counties was about one and one-third million in 1960. Alameda, the most populous, had 69 percent of the combined population, 908,209, in that year. Only a tenth of one percent of the land in Alameda County and just one percent of the land in Contra Costa County was classified as rural farm land. In addition to the greatest population, Alameda County has the largest city in the two-county area, Oakland. Over 26 percent of Oakland's population of almost 400,000 is non-white. Non-white population accounts for 15 percent of the total Alameda County population while accounting for only 7 percent of Contra Costa's.[7]

The two counties are an urbanized portion of the San Francisco Bay Area metropolitan complex. Public school adult education activities were identified in thirty-one schools in the area. The following table identifies the three types of institutions and the county of location in October of 1965.

TABLE 1

Public Schools Engaging in Adult Education Activities, October 1965
Alameda County and Contra Costa County

Type of School	Total Number of Schools	Number of Public Schools with Adult Education Activities: Alameda County	Contra Costa County	Total
Secondary Schools	54			
Secondary Adult Schools		15	5	20
Secondary Classes for Adults		3	3	6
Junior Colleges	5			
Junior College Classes for Adults	—	3	2	5
Totals	59	21	10	31

[7] Population characteristics and composition were computed from U. S. Bureau of the Census, U. S. Census of Population: 1960. General Social and Economic Characteristics, California. Final Report PC (1) - 6c. U. S. Government Printing Office, Washington, D. C., 1962.

Organization of Public School Adult Education in the Two Counties

Local public schools with adult education programs are governed by boards of trustees. Financial support for their operation is obtained from both state and local sources. Usually these schools operate in the evening hours using day school facilities and equipment. Although a few operate during the day with their own plants and equipment, it is a rarity to find adult programs with facilities planned for and exclusively used by adults.

Adult education programs are operated in conjunction with either high schools or junior colleges in the two-county area. The separate secondary adult schools comprise the largest category in the group. These schools exist independently in high school or unified districts, each with its own principal as administrative head. Some of the day high schools in smaller communities operate evening classes for adults. These programs are administratively a part of the day high school, receiving immediate direction from a member of the high school principal's staff. Programs available to adults in the junior colleges are extended-day programs and junior college classes for adults. These programs are usually under the direction of a designated dean or assistant dean who has the direction of this program as his primary responsibility. Administratively the junior college programs are a part of the regular college program.

Beyond the local district, public school adult education involves administrative agencies at both the county and state level. The superintendent of schools in each of the two counties has assigned a member of his staff to coordinate adult education activities within his county. In practice this coordination involves the public schools described above, the extension activities of the University of California, and the extension activities of the State College system as well. The county adult education coordinator serves as a communications link among the various educational entities and with the State Department of Education. He has provided the means through which voluntary coordination is accomplished among the public educational entities offering services to adults.

Two bureaus of the State Department of Education are directly concerned with public school adult education. The Bureau of Adult Education approves high school classes for adults and classes for adults in the junior college. It also has responsibility for enforcement of provisions of the Education Code relating to adult education and it requires reports from all adult public school entities. The Bureau of Junior College Education approves all junior college courses except classes for adults. This includes many extended-day classes open to adults because of scheduling convenience.

Superimposed on the formal structure of public school adult education is the State Committee on Continuing Education. It has a full time executive secretary who is a staff member of the Coordinating Council for Higher Education. The Committee, whose membership includes representatives from the state university, the state colleges, the junior colleges, high school adult education, and the general public is charged with five principal responsibilities:

1. To establish local and regional committees for coordination of adult or continuing education

2. To act upon jurisdictional disputes referred by the local committees

3. To establish uniformity in school reports from the various levels and collect statewide data about continuing education

4. To evaluate local programs and report to both local and state bodies

5. To make policy recommendations at both local and state levels.

The executive secretary of this body, in addition to maintaining records and preparing reports, makes personal investigations to see that agreements among entities are carried out and is encouraged to mediate local disputes wherever possible. The State Committee has not operated long enough for its full effect on adult education to be accurately assessed, but there is no mistaking its potential ability to have great influence on the future coordination of the publicly supported adult education effort.

At this writing, preliminary plans have been made at the suggestion of the State Committee for forming a regional committee which will include Alameda County and Contra Costa County.

In sum, public school adult education, as the concept is used in this study, is found in three types of institutions: secondary adult schools, secondary classes for adults, and junior college classes for adults. The junior college designation includes junior college extended-day classes available to adults. These designations are used as major categories in reporting the descriptive data. Public school adult education is administratively related to the total state educational function through county administrative units, state bureaus within the California State Department of Education, and the State Committee on Continuing Education.

The organization of public school adult education indicates that there is great concern over coordinating educational services to adults among the various publicly financed educational entities. The regional coordination activities of the State Committee on Continuing Education is the first effort at more than county-wide coordination and for the first time, Alameda County and Contra Costa County are both included in a single coordinating unit.

Procedure

This study was conducted during the fiscal year 1965-66. The following activities constituted the major phases of the development of this research:

1. Preliminary Phase. During the preliminary phase an exploration was made of the literature concerning adult vocational education. In addition, preliminary interviews were conducted with representatives of the various publicly financed entities existing within the two counties. This included University of California Extension Service, California State College at Hayward, the State Committee on Continuing Education, and various representatives of the junior colleges and secondary schools of the two-county area.

2. The Proposal. Developing and refining a feasible research proposal was the major activity during the fall of 1965. It was decided to limit the study to public school adult education open to the general public in Alameda and Contra Costa Counties. In addition, it was decided to collect separate data concerning other educational activities conducted by the public schools for adults with special qualifications. Together, these data would give a realistic estimate of the total education program available to adults in the public schools of the designated area. An advisory committee was formed to help refine the proposal. This committee met on February 8, 1966.

3. Data Collection. A preliminary questionnaire was drawn up and tested in five of the subject institutions. This resulted in a final interview schedule and questionnaire which was administered to the thirty-one schools. Three research assistants were employed and the data collection was accomplished in four weeks.

During the entire study the researchers maintained informal contacts with the subject institutions through the county coordinators and by attending various regional and local meetings of adult educators. A preliminary report was issued to participating agencies on April 27, 1966.

The following major questions guided the researchers:

1. What vocational education is available to the clients of public school adult education in Alameda and Contra Costa Counties?

2. What proportion of the total adult education program is this?

3. What portion of the adult education program is open to the general public?

4. What portion of the program is open only to those adults with special qualifications?

5. What obstacles exist that might inhibit the operation and expansion of public school adult education in Alameda and Contra Costa Counties?

One of the principal problems encountered by the investigators was determining what portion of the adult education program could be considered vocational. Probably the best source of data would have been to determine the motives of all the students involved in public school adult education. Since this was not possible with the staff and time allotted to the present study, it was decided to use the intent of the school, as indicated by the opinion of the chief administrator of each educational unit, to determine those courses which were primarily vocational in nature. It is probable that many more vocationally motivated enrollments occur in the total program than is reported for the classes administrators identify as vocational.[8]

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[8]London, op. cit., p. 106. In London's sample of participants in adult education, over half stated that they took courses to help them in their present jobs or to get other jobs.

ADULT VOCATIONAL EDUCATION OPEN TO THE GENERAL PUBLIC

Determining what vocational education was available to the general public through the adult public schools involved asking the respondent administrators to share our concept of vocational education. Various traditional meanings associated with the term made it necessary to secure agreement on a common understanding of the concept before the respondents made their individual judgments. There was some indication that universal acceptance of the definition used in the study was not immediately successful. The respondents were instructed, however, to ask questions if they had doubts about procedures, and explanations were furnished when necessary by telephone or personal visit.

A course was reported as vocational if it met the following criteria:

1. It was open to the general public.

2. The school intended to accomplish any of the following by offering to:

   a. Prepare a person for gainful employment.

   b. Make a person more skillful while engaging in gainful employment.

   c. Prepare a person for advancement in gainful employment.

Gainful employment was specified in order to distinguish between working for pay and performing useful work. Many courses offered in adult schools could be considered as preparation for useful work activity. It was stressed, however, that only courses related to gainful employment which was further defined as "working for pay" were to be identified.

It was necessary in the study design to identify one individual in each school to accept responsibility for reporting enrollment, to determine which courses were to be classified as vocational education, and to respond to the interview about administrative problems of adult education. In the secondary adult schools respondents were the principals of the schools. Respondents for the institutions conducting secondary classes for adults had various titles, but the designation was usually director of evening activities or the equivalent. These persons reported directly to the day high school principal. The junior college respondents were at the dean or associate dean level, reporting either to the dean of instruction or to the college president.

All measurements are in terms of enrollments. The enrollment unit is commonly used in reporting adult participation to the California State Department of Education. One enrollment represents one person in one class. It is obvious that a person might well take several classes. It is important to remember that the quantitative numbers in the descriptive material which follows do not represent persons, but only units of enrollment.

Total Enrollments Reported by Adult Public Schools

The following tables and figures describe the thirty-one schools in terms of total enrollments recorded for all adult education classes that were open to the general public in October 1965. The respondents were asked to exclude any apprentice programs, or programs conducted for adults with special qualifications. These are given special treatment in a separate part of the schedule.

TABLE 2

Total Adult Enrollment by Type of Institution and County
October 1965

Type of School	Number of Schools Reporting	Total Adult Enrollment	%
Alameda County			
Secondary Adult Schools	15	27,422	66
Secondary Classes for Adults	3	970	2
Junior College Classes for Adults*	3	13,580	32
Total, Alameda County	21	41,972	100
Contra Costa County			
Secondary Adult Schools	5	10,429	52
Secondary Classes for Adults	3	1,358	7
Junior College Classes for Adults*	2	8,237	41
Total, Contra Costa County	10	20,024	100
The Two Counties			
Total for Alameda County	21	41,972	68
Total for Contra Costa County	10	20,024	32
Total, Two Counties	31	61,996	100

*Includes extended-day classes available to adults by convenience of scheduling

It will be noted that percentage of adult education enrollment for each county approximates the population proportions in a two-county comparison.[9] The secondary adult schools in Contra Costa County provide approximately half of the total adult enrollment in that county, while in Alameda County these schools account for almost two-thirds of the total adult education enrollment.

Table 3 reports enrollments in classes judged by administrators to be vocational education.

TABLE 3

Total Adult Vocational Education Enrollment by Type of Institution and County, October 1965

Type of School	Number of Schools Reporting	Total Adult Vocational Education	%
Alameda County			
Secondary Adult Schools	15	6,186	53
Secondary Classes for Adults	3	297	3
Junior College Classes for Adults*	3	5,095	44
Total, Alameda County	21	11,578	100
Contra Costa County			
Secondary Adult Schools	5	3,200	53
Secondary Classes for Adults	3	226	4
Junior College Classes for Adults*	2	2,620	43
Total, Contra Costa County	10	6,046	100
The Two Counties			
Total for Alameda County	21	11,578	66
Total for Contra Costa County	10	6,046	34
Totals, Two Counties	31	17,624	100

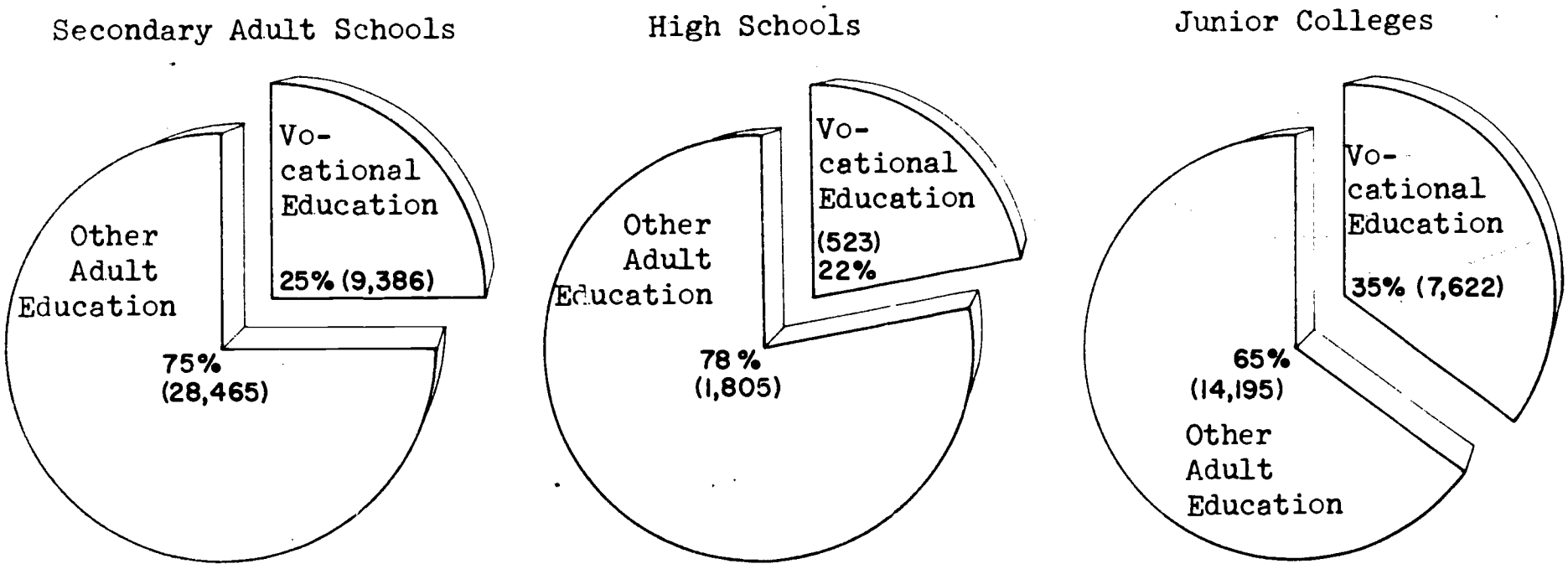
*Includes extended-day classes available to adults by convenience of scheduling

[9]Bureau of the Census, op. cit. p. 6. Population proportions are 69% for Alameda County and 31% for Contra Costa County.

In considering public school educational opportunities for adults that were open to the general public in the fall of 1965, 28% was judged to be vocational education by the responding administrators.

The following figures indicate proportions of vocational education available to the general public in each type of institution in the designated area.

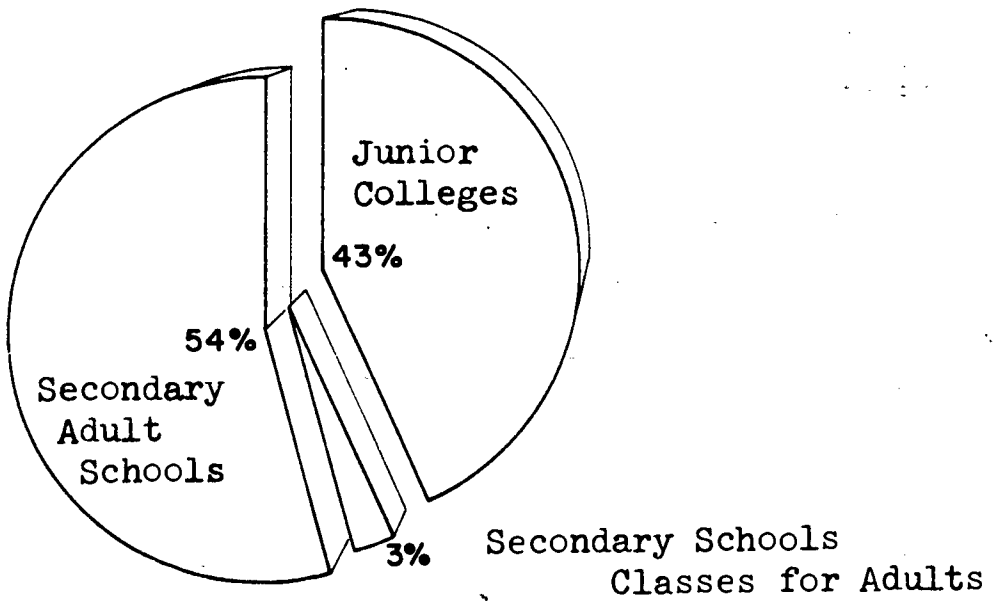
Figure 1



Turning for a moment from considering the proportion of each total program that is vocational, we see how total vocational education, as measured in enrollments, is shared among the three types of institutions.

Figure 2

Adult Vocational Education Enrollment
Public Schools Alameda and Contra Costa Counties



Composition of Adult Vocational Education in the Two Counties

The cooperating schools in Alameda and Contra Costa Counties furnished lists of courses judged to be vocational, showing enrollment for each course. These courses have been classified into major categories and subcategories using the Jacobsen[10] taxonomy. The Jacobsen system classifies occupation centered curricula found in California junior colleges and schools for adults.

In the analysis each course reported as vocational by the respondent administrators was placed in the Jacobsen category to which it related best. It is important to realize that Jacobsen's categories are a classification of curricula, that is, complete training programs designed to prepare individuals for entry jobs in various occupational areas. It would be a mistake to assume, on the basis of present data, that any major proportion of the schools offered complete curricula in the training areas represented by individual courses.

Enrollments by major category and selected subcategories are reported in Tables 4 and 5.

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[10] Brokenshire, John R., Directory of Occupation Centered Curriculums in California Junior Colleges and Schools for Adults. Sacramento, California: California State Department of Education, 1964. Brokenshire was author of the 1964 edition which was based on the earlier work of Dr. Joseph W. Jacobsen.

TABLE 4

Adult Vocational Education Enrollment for Alameda County

Category and Selected Subcategories*	Type of School: Secondary Adult Classes No.	%	Secondary Classes No.	%	Junior College Classes No.	%
Agriculture and Forestry**	47	1	0	0	26	1
Applied and Graphic Arts						
Commercial Art	130		0		16	
Photography	20				30	
Technical Writing	0				16	
Other	0				158	
Total for Category	150	2	0	0	220	4
Business and Management						
Accounting and Bookkeeping	415		12		238	
Business Machines	611		0		25	
Data Processing	97		0		311	
Real Estate	351		0		444	
Secretarial and Stenography	2,378		85		336	
Other	445		33		866	
Total for Category	4,297	69	130	44	2,220	44
Trade and Technical						
Apparel Construction	440		65		0	
Auto Mechanics	99		0		137	
Drafting	49		0		198	
Electronic Technology	258		0		454	
Furniture Upholstery	44		19		0	
Welding	138		0		229	
Other	310		83		827	
Total for Category	1,338	22	167	56	1,845	36
Health Services**	30	1	0	0	123	2
Other						
Civil Service	213				0	
Fire Science	33				246	
Police Science	0				379	
Other	78				36	
Total for Category	324	5	0	0	661	13
Total for County	6,186	100	297	100	5,095	100

*Selected subcategories were reported for some of the major categories in order to add perspective to the table

**No subcategories were reported for Agriculture and Forestry and Health Services since they accounted for such a small proportion of the total.

TABLE 5

Adult Vocational Education Enrollment for Contra Costa County

Category and Selected Subcategories*	Type of School: Secondary Adult Classes No.	%	Secondary Classes No.	%	Junior College Classes No.	%
Agriculture and Forestry**	48	2	0	0	0	0
Applied and Graphic Arts						
Commercial Art	0		0		21	
Photography	29		0		0	
Technical Writing	0		0		18	
Other	0		0		0	
Total for Category	29	1	0	0	39	1
Business and Management						
Accounting and Bookkeeping	236		0		130	
Business Machines	155		0		36	
Data Processing	0		0		224	
Real Estate	70		0		237	
Secretarial and Stenographic	1,149		143		153	
Other	312		0		598	
Total for Category	1,922	60	143	63	1,378	53
Trade and Technical						
Apparel Construction	0		0		0	
Auto Mechanics	146		0		50	
Drafting	30		0		24	
Electronic Technology	44		0		217	
Furniture Upholstery	105		0		0	
Welding	86		0		267	
Other	197		0		316	
Total for Category	608	19	0	0	874	33
Health Services**	38	1	0	0	129	5
Other						
Civil Service	0		0		126	
Fire Science	0		83		74	
Police Science	45		0		0	
Other	510					
Total for Category	555	17	83	37	200	8
Total for County	3,200	100	226	100	2,620	100

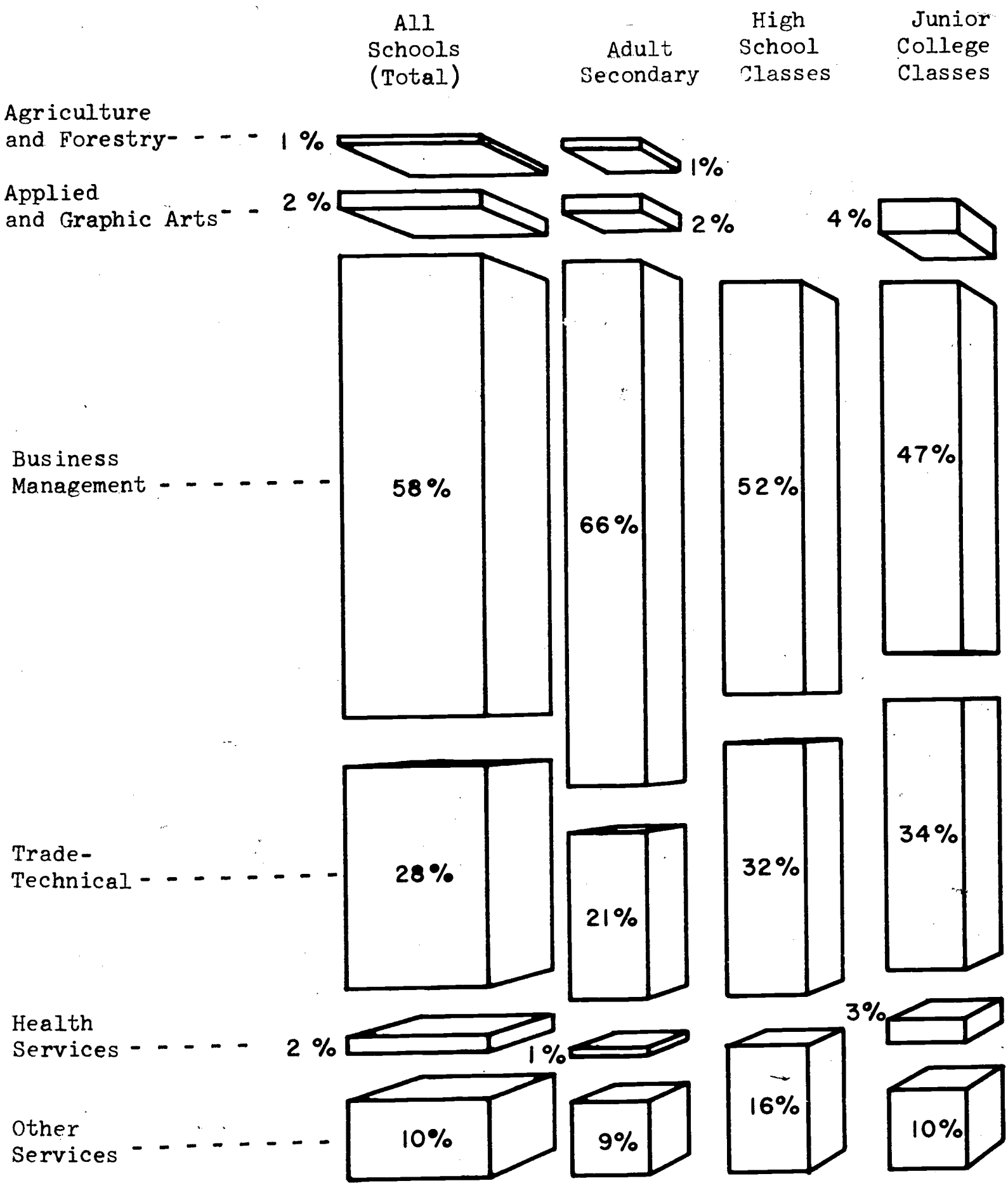
*Selected subcategories were reported for some of the major categories in order to add perspective to the table.

**No subcategories were reported for Agriculture and Forestry and Health Services since they accounted for such a small proportion of the total.

Figure 3 gives the category proportions of the total adult vocational education program in the two counties as well as proportions by type of institution.

Figure 3

Major Vocational Education Category Proportions*
Alameda and Contra Costa Counties



*Rounding the percentages and eliminating proportions less than one-half percent affects totals.

It will be noted that the secondary schools have a greater commitment to courses related to business and management while the junior colleges tend to place greater emphasis on the trade-technical area. This is primarily true because of the larger number of clerical-secretarial offerings in the secondary schools and the large diversification of offerings under the trade-technical designation in the junior colleges.

At this point further curricular detail is introduced by identifying some of the important subcategories within the major areas. Since Agriculture and Forestry constitutes only one percent of the total two-county adult vocational education program, no attempt was made to determine proportions of the various areas within it. Most of the program is centered around classes in gardening and ornamental horticulture.

Applied and Graphic Arts, the proportions of which are represented in Figure 4, constitutes two percent of the two-county total. Courses related to commercial art, photography, and technical writing account for 64% of the Applied and Graphic Arts category.

Business and Management courses (Figure 5) constitute over half of the two-county adult vocational program. Forty-two percent of this area is composed of courses related to secretarial and stenographic training.

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Figure 4

Selected Subcategories within Applied and Graphic Arts

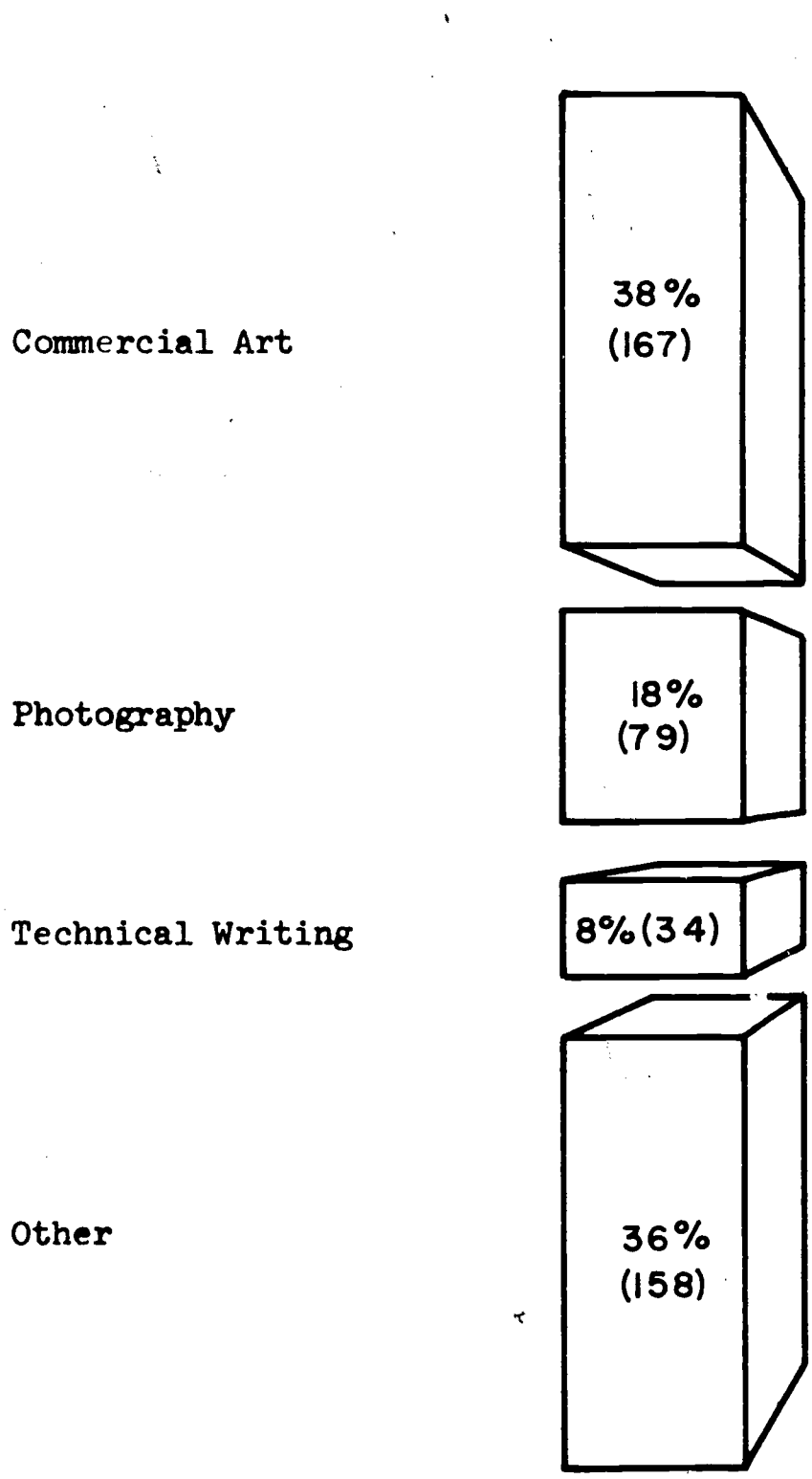
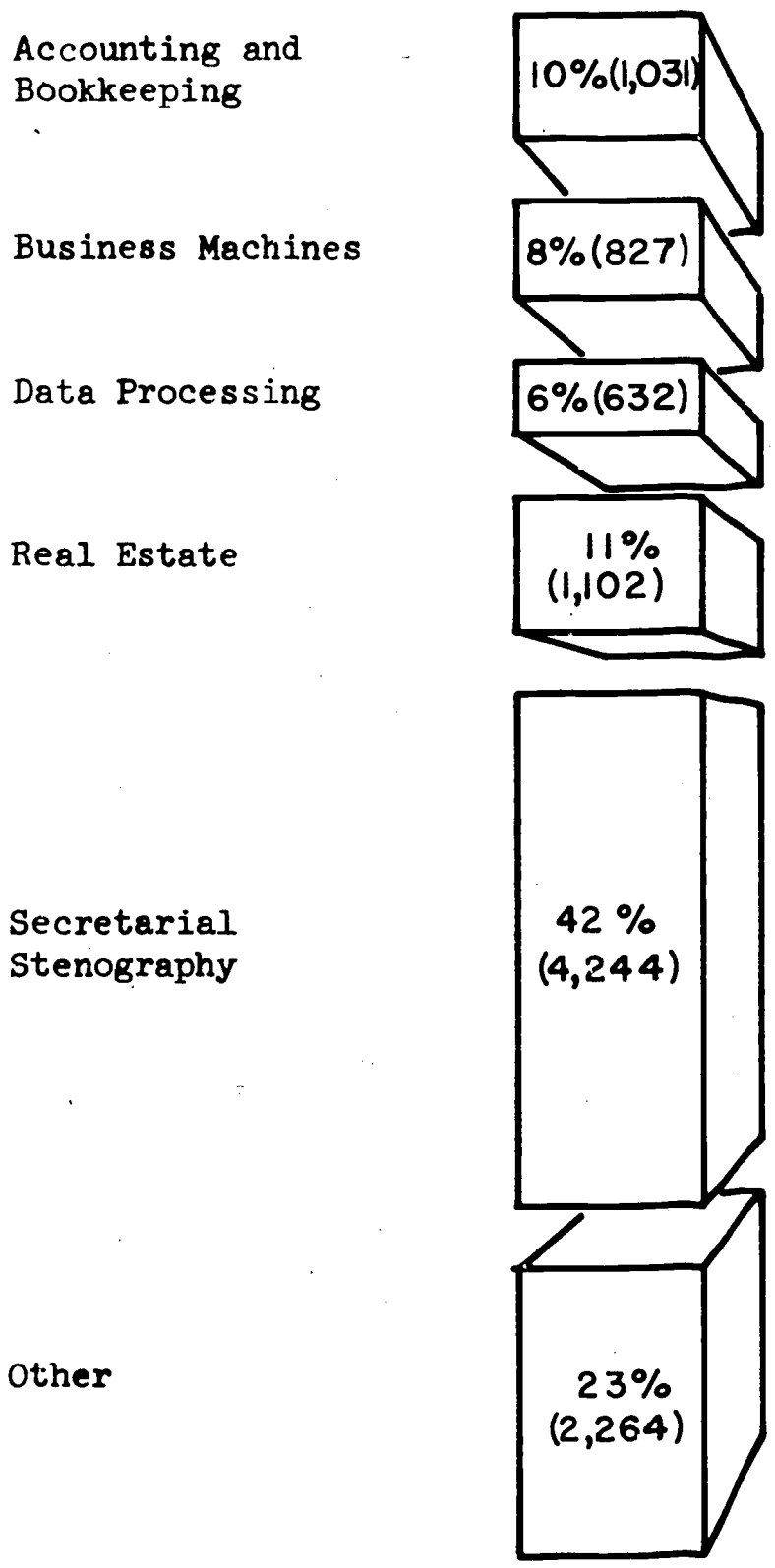


Figure 5

Selected Subcategories within Business and Management



Important areas within the Trade and Technical classification are noted in Figure 6.

Figure 6

Selected Subcategories within Trade and Technical

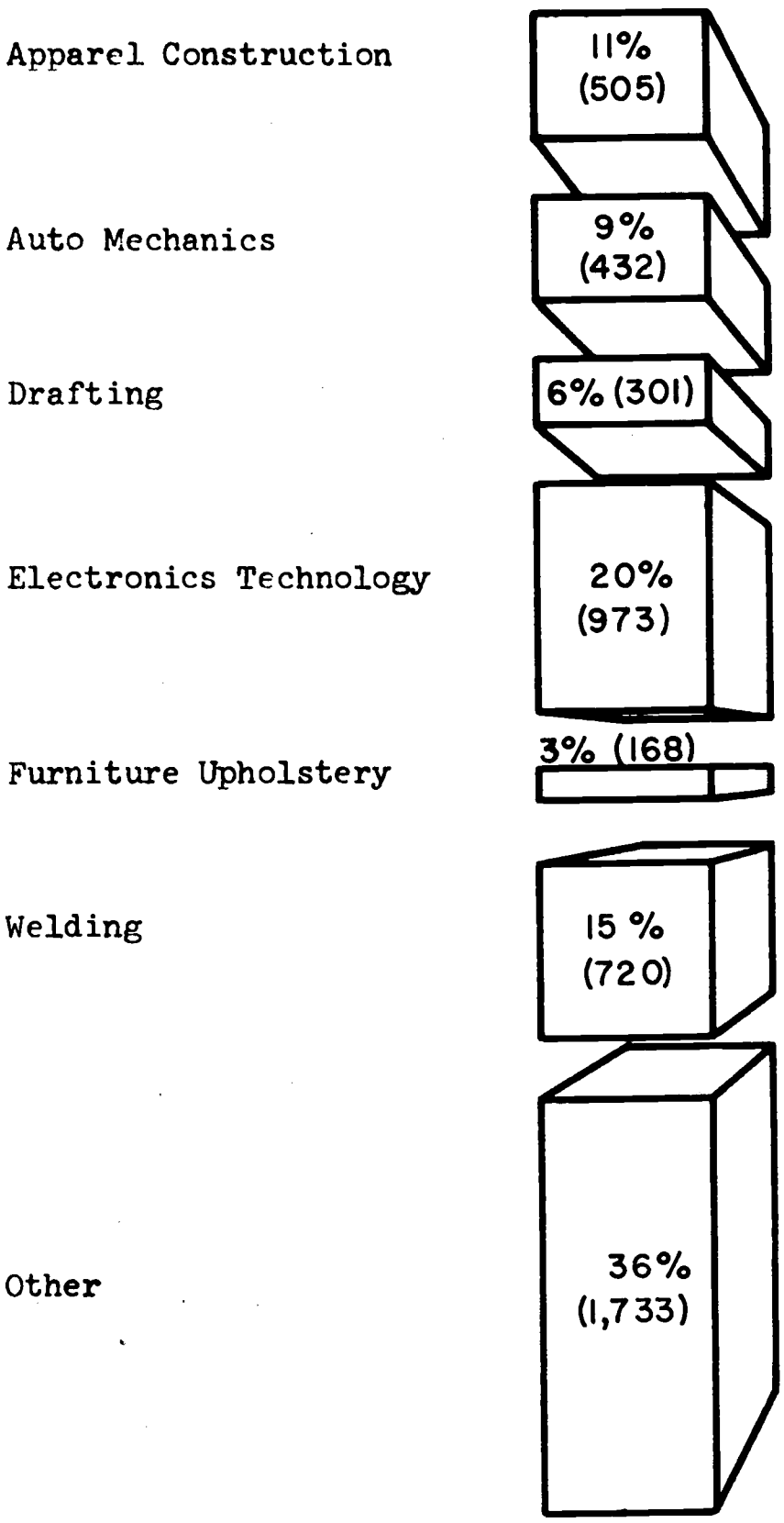
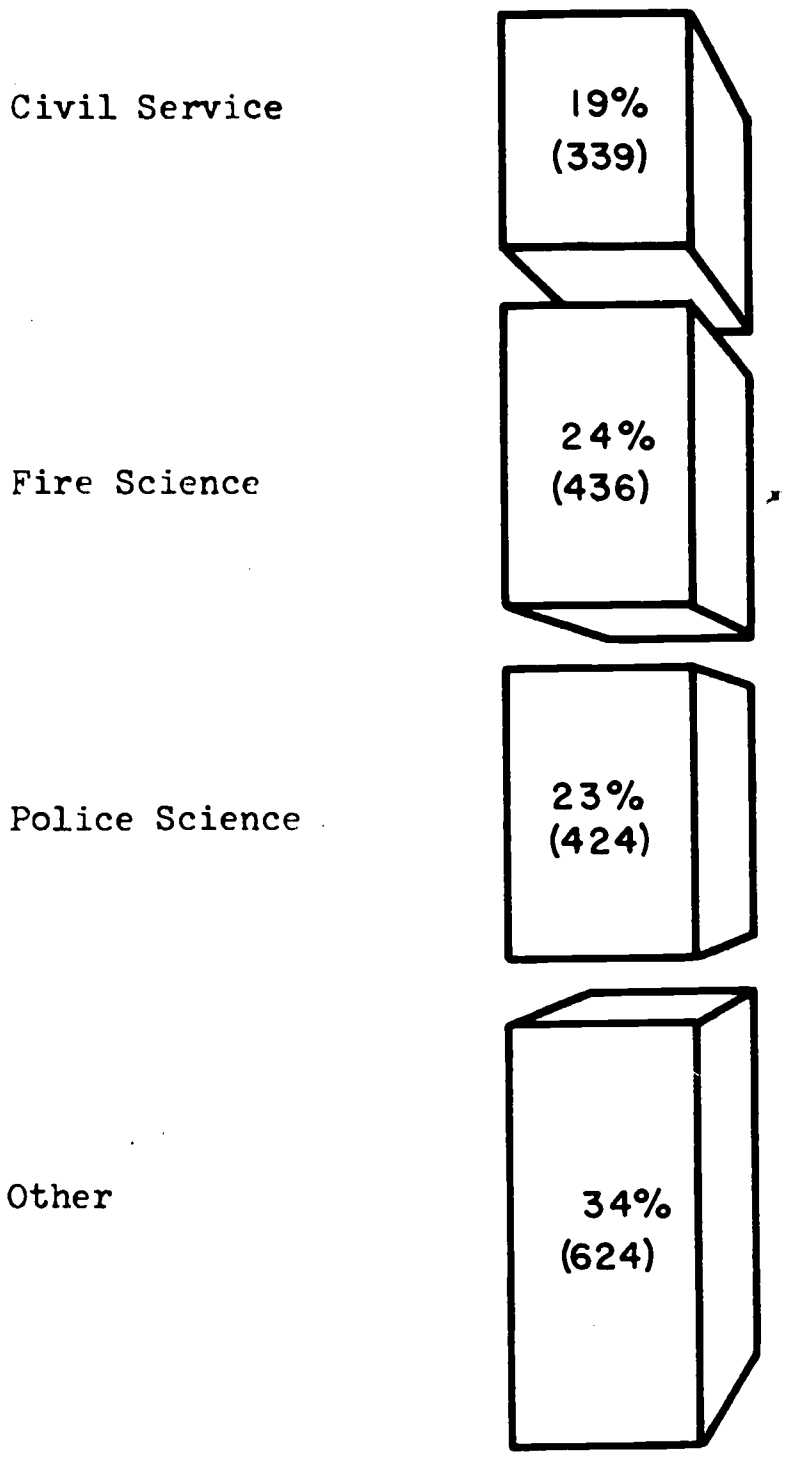


Figure 7

Selected Subcategories within the Major Category, Other Services



Since Health Services accounted for only two percent of the total programs, it was decided to identify just that proportion of the program that was related to nursing. Courses related to nursing education accounted for twenty-six percent of the total Health Services program. Other courses included Biology, Medical Assisting, Medical Terminology, Dental Roentgenology, etc.

For the subcategory analysis of "Other Services" some deviation of procedure was necessary. The Jacobsen taxonomy was not sufficient to identify some of the important areas that are necessary for understanding the nature of adult vocational education. Courses that could not be classified under any of the previous categories were assigned to "Other Services." Sixty-six percent of "Other Services" is made up of courses related to governmental service. Almost half of the category is composed of training programs relating directly to municipal government, as seen in Figure 7, preceding page.

Summary

The administrators of public school education identified a wide variety of courses, open to the general public, as vocational education. Vocational education open to the general public constituted one-fourth of the total adult education program as measured by enrollments.

Vocational education courses were classified according to major categories, revealing that courses relating to Business and Management and the Trade and Technical area constituted 86 percent of the program. Institutional comparisons were made, revealing the secondary school emphasis on the Business and Management area. The junior colleges devoted a comparatively greater part of their available resources to the Trade-Technical area.

Further detail was supplied by identifying some selected areas within the major categories.

RESTRICTED PROGRAMS OF ADULT VOCATIONAL EDUCATION

A description of public school adult education would not be complete without considering programs available to groups with special qualifications. The preceding section was devoted to describing programs open to the general public; this section is devoted to those programs provided by the public schools for especially defined groups.

For the purpose of this study, especially defined groups were distinguished as apprentices and people who were being trained under Federal anti-poverty or unemployment programs.

Apprentice School Training

Respondents were asked to report enrollment for the school training portion of apprentice education as of October 1965. Apprentice programs were found in all three types of public adult schools.

Apprenticeship training consists of on-the-job training combined with school training. In Alameda and Contra Costa Counties the school training ranged from 3 to 6 hours per week.

No attempt was made to list the various trades to which the school training related. Such data is available for the two-county area in a joint report issued by the Division of Apprenticeship Standards and the California State Department of Education, Bureau of Industrial Education.[11]

There was no difficulty in justifying apprentice programs as a part of adult vocational education within the study concept. They were treated separately because entry into the programs depends on acquiring the status of apprentice and on being registered with the Division of Apprenticeship Standards.

According to the Bureau of Industrial Education, "School training and on-the-job training complement each other. The school teaches the 'why' of jobs, operations, and processes, in addition to some 'how'."[12]

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[11] Report issued January 19, 1966, available from Lee D. Bodkin, Regional Supervisor, Trade-Technical Education, State of California, Department of Education, 1111 Jackson Street, Oakland, California 94607.

[12] Rosecrans, George, Apprenticeship Handbook for Educators. Sacramento, California: California State Department of Education, 1964, p. 27.

Table 6 gives the apprentice enrollment for the two-county area.

TABLE 6

Apprentice Enrollment by School Type and County
October 1965

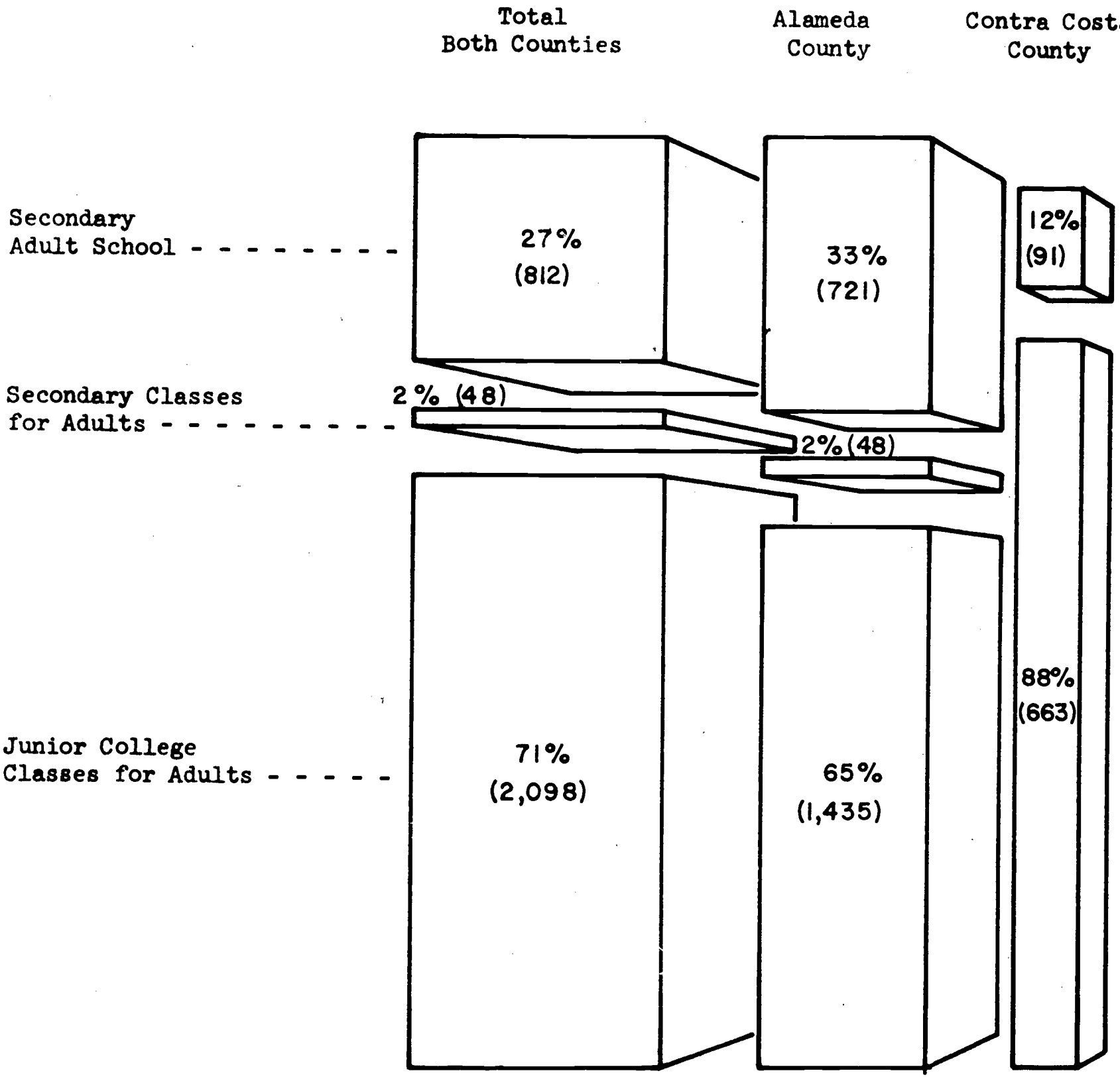
Type of School	Number of Schools Reporting	Enrollment	%
Alameda County			
Secondary Adult School	3	721	33
Secondary Classes for Adults	1	48	2
Junior College Classes for Adults	3	1,435	65
Totals	7	2,204	100
Contra Costa County			
Secondary Adult School	3	91	12
Secondary Classes for Adults	0	0	0
Junior College Classes for Adults	2	663	88
Totals	5	754	100

How apprentice enrollment is shared among the three types of institutions in the two-county area is shown below.

It will be noted that over seventy percent of the apprentice enrollment is in the junior college. The individual county enrollment pattern, however, is quite unique.

Figure 8

Apprentice Enrollment in Alameda and Contra Costa Counties by Institutional Type



Federally Connected Programs

Federally connected programs were defined for the respondents as classes conducted for adults with special qualifications. These programs are not open to the general public and they are financed either directly or indirectly by the Federal Government. Enrollment was reported in four categories, each distinguished by the Federal law which furnished its financial support. They are as follows: The Area Redevelopment Act of 1962 (ARA), the Manpower Development Training Act of 1962 (MDTA), the Vocational Education Act of 1963 (VEA), and the Economic Opportunity Act of 1964 (EOA).

Table 7 shows the enrollment reported in the two counties.

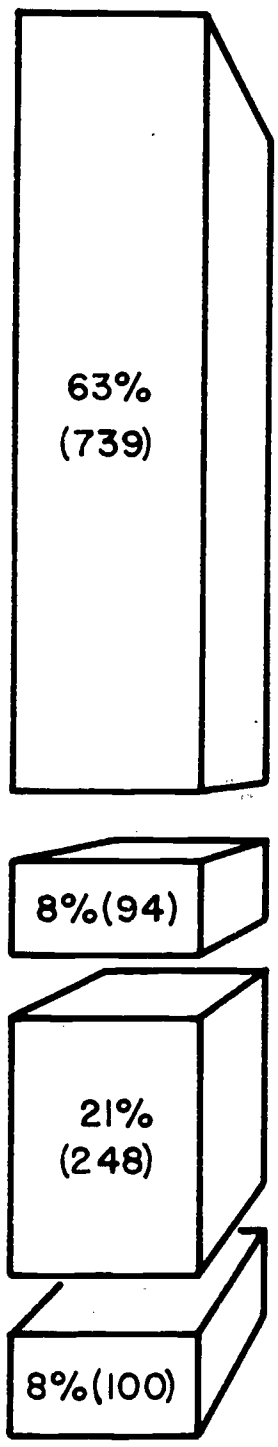
TABLE 7

Federally Connected Programs in Public Adult Schools of Alameda and Contra Costa Counties, October 1965 Enrollment

Type of School	Number of Schools Reporting	Enrollment	%
Alameda County			
Secondary Adult Schools	3	303	37
Junior College Classes for Adults	3	515	63
Totals	6	818	100
Contra Costa County			
Secondary Adult Schools	2	271	75
Junior College Classes for Adults	1	92	25
Totals	3	363	100

Figure 9

Federally Connected Enrollment
in Alameda and Contra Costa Counties by Supporting Legislation
October 1965



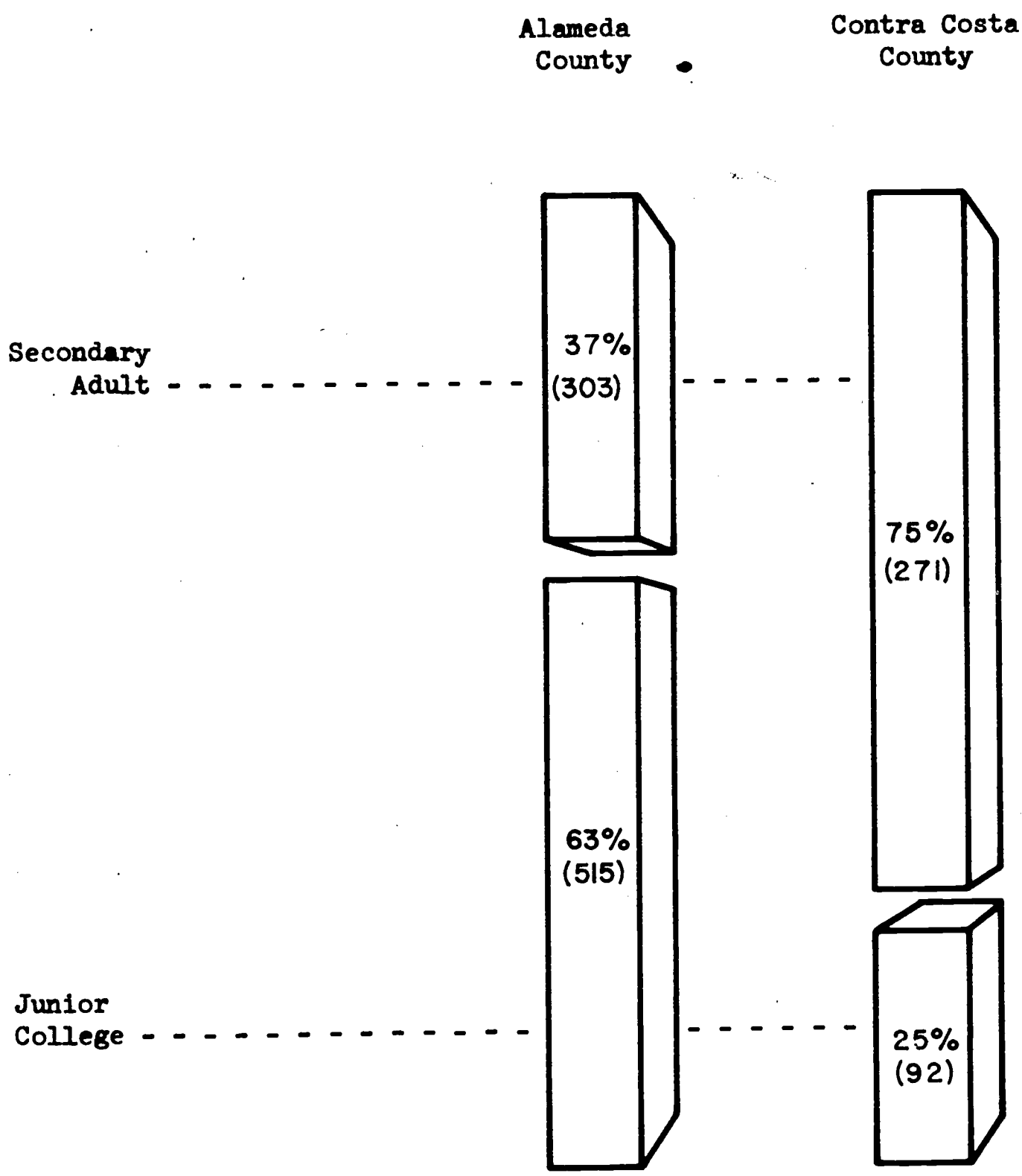
Manpower Development Training Act of 1962	
Vocational Education Act of 1963	
Economic Opportunity Act of 1964	
Area Redevelopment Act of 1962	
Total Enrollment	1,181

The MDTA supports sixty-three percent of the Federally connected enrollment in the two counties. MDTA programs are full time training programs for individuals referred by the U. S. Labor Department through the California State Employment Service.

How Federally connected enrollment is shared among types of institutions in each county is shown in the following figure.

Figure 10

Federally Connected Enrollment
by Institutional Type and County, October 1965



Total Enrollment 1,181

Federally connected programs were assumed to be a part of adult vocational education. Certainly the aim of most of the Federal programs (as measured by enrollments) is making the individuals employable. Since economic rehabilitation and upward social mobility are often accomplished by vocational improvement, it seems reasonable to consider the entire Federally connected program as vocational.

Summary

Restricted programs of adult vocational education were defined as apprentice school training programs and Federally connected programs. The junior colleges conducted most of the apprentice school training: 71 percent of the program as measured by enrollments in the two-county area. Federally connected programs were classified under the four Federal laws from which they gained support. Some 63 percent of the enrollments were reported under the Manpower Development Training Act of 1963, and 21 percent under the Economic Opportunity Act of 1964. Most of the Federally connected programs (63 percent) were found in the junior colleges in Alameda County, while most of the programs in Contra Costa County (75 percent) were conducted in connection with the secondary adult schools.

THE TOTAL ADULT PUBLIC SCHOOL VOCATIONAL EDUCATION PROGRAM

It is now possible to establish comparative proportions among the three categories of adult vocational education that have been described.

TABLE 8

Major Category Proportions of Public School Education in Alameda and Contra Costa Counties, October 1965

Category	Total Enrollment	%
Vocational Education Open to the General Public	17,624	81
Apprentice School Training	2,958	14
Federally Connected Programs	1,181	5
Totals	21,763	100

The following table gives the total adult vocational education program, as indicated by administrative judgment and special program designation, of all public school adult education in the two-county area.

TABLE 9

Total Adult Vocational Education as a Part of Total Adult Education Enrollment, Alameda and Contra Costa Counties, October 1965

Major Classification	Total Enrollment	%
The Three Categories of Adult Vocational Education	21,763	33
All Other Public School Adult Education	44,372	67
Totals	66,135	100

In considering the total public school program that is available to adults in Alameda County and Contra Costa County, it is found that about one-third is considered to be Vocational Education.

Measurement using the enrollment unit causes some distortion of the reported proportions. Comparing public school adult vocational education open to the general public with apprentice school training and Federally connected programs tends to neglect the actual weight of the latter two programs as measured by actual use of school facilities. Fortunately, it was possible to determine average hours per week represented by an enrollment unit in each category.

TABLE 10

Mean Hours per Week Represented
by a Unit of Enrollment in Each Major Category

Category	Enrollment	Total Hours per week All Classes	Mean Hours per Week
Adult Vocational Education Open to the General Public	17,624	66,006	3.75
Apprentice School Training	2,958	13,759	4.65
Federally Connected Programs	1,181	32,628	27.63

An average enrollment in a Federally connected program amounted to more than seven times as much actual time in school as an average enrollment in the program open to the general public. This is explained by the fact that most of the Federally connected programs are full-time student programs while the others are in general part-time programs.

Summary

Approximately one-third of all adult education, as measured by enrollments, available in the public schools was vocational education when apprentice, Federally connected, and programs open to the general public were considered together.

It was pointed out that the enrollment unit differed among the major categories of adult programs, the Federally connected enrollment unit standing for about seven times the amount of time spent in school when compared to the "open to the general public" unit.

ADMINISTRATIVE PROBLEMS AS SEEN BY THE ADULT SCHOOL ADMINISTRATORS

One of the objectives of the research design was to discover directions for future research in public school adult vocational education. It was decided that the school administrators in charge of operations in the various schools could furnish some suggestions. There were at least two additional reasons for questioning the administrators. The first was to gain some estimate of the flexibility of the established schools in meeting the needs of adults in a rapidly changing society. The other was to establish whether or not the administrators were aware that a large segment of the social-economic spectrum was not involved in their present program.

Procedure

For several months the research staff was involved in a series of informal contacts with a large number of adult school administrators in the two-county area. During the informal conversations with them the staff gained some insights into the various operational problems of adult schools. The following is a report of the exploratory investigations which developed from the informal contacts.

As indicated above, most of the problems used as a basis for the administrator interviews came from informal conversations with the administrators themselves. A few were gleaned from the literature of adult education and some were suggested by the Advisory Committee for the research. The Advisory Committee evaluated the list that had been compiled by the investigators and suggested adding several items, one of which proved to be the problem that was rated as most important by the total group of respondents.

It was decided to present a list of twelve problems to the respondent administrators and ask that they rate them according to their importance in the particular situation in which the respondent was operating. In addition, the respondent administrators were invited to comment on their reasons for assigning importance to the problems. Each problem was stated briefly and then was expanded in a short paragraph. The paragraph was designed to reveal some of the dimensions of the problem, and, most of all, to stimulate the thinking of the respondent. The twelve problems were as follows:

1. Involving adult education teaching staff in policy formulation. This problem was presented from the viewpoint that staff participation is generally considered to be good educational practice.

2. Securing teachers. The descriptive paragraph mentioned both the difficulty of finding people with the unique

requirements necessary to teach unconventional subject matter, and the difficulty in securing credentials for these people.

3. Program development. The descriptive paragraph stressed the difficulty in meeting the needs of society and the needs of students. It also mentioned the need for research to gather evidence upon which to base curricular decisions.

4. Public relations. The description mentioned involving the public in school activities and the dissemination of information about adult school educational opportunities.

5. Intrafaculty communication. The description accompanying this item concerned ways to combat the fragmentation of adult school faculties. Should they be brought closer together and operate in a group on occasion?

6. Adequate resources. Stressed here was the marginal status of the adult program in competing for resources with the day program.

7. Coordination among levels and schools. The descriptive paragraph suggested that competition existed between secondary schools and junior colleges, and sometimes between schools at the same level.

8. In-service education of teachers. Suggested in the description was the special need for understanding adult learning problems, and the provisions the school had made to help the individual teacher.

9. Counseling services. The description suggested that counselors who have had special training in the problems of adult students might be in short supply.

10. Library services. The description suggested that school libraries are sometimes closed in the evening, and that book collections are often not suited to the needs of adults.

11. Record keeping. It was suggested that resources are not always available for maintaining adequate records for adult students.

12. Registration. The description suggested that complicated registration procedure might discourage adults from attending.

The twelve problems were submitted to the respondent administrators in advance so that they would be prepared for discussion with the

interviewer when he called. Appointments were made for the interviews; twenty-eight adult education administrators participated in the process.

The procedure of the interviews was simple. The respondent was handed a set of twelve cards. Upon each had been written one of the problem designations together with the descriptive paragraph. He was asked to sort the cards and place them in the order of their importance to his situation. The order of the cards was then recorded. After this the administrator was encouraged to explain his choices and make any comments he wished regarding the problems. In most cases the interviews consumed at least one hour, and in some cases, additional time was required. Most of the respondent administrators were very cooperative and quite willing to discuss all of the problems at some length.

The data obtained in the interviews were analyzed and the problems were arranged in the order of importance, based on the combined rating of the twenty-eight respondent adult education administrators. In addition, a more detailed examination of selected problems was conducted.

The following table shows the priority assigned to twelve administrative problems concerning adult education.

TABLE 11

Administrative Problems of Adult Education Programs in Order of Importance

Order of Importance	Problem Designation	Number of Choices in the Top 6 Priorities*
1	Program Development	23
2	Securing Teachers	21
3	Intrafaculty Communication	21
4	Adequate Resources	18
5	In-service Education	19
6	Policy Formulation	16
7	Public Relations	16
8	Counseling Services	10
9	Coordination Among Levels	7
10	Record Keeping	7
11	Library Services	5
12	Registration	5

*In addition to choice in the upper half of priorities, placement of the mode and number in the mode were used to establish order of importance. This worked well except for order 9 and 10; these were identical and a fourth, arbitrary, criterion was used for final placement.

It should be explained in reference to Table 11, above, that the respondents numbered 28. There were actually 31 schools furnishing information. One administrator represented **three** schools and one administrator declined to rate the problems.

The importance assigned to several of the items was somewhat of a surprise. It was thought that the problem of adequate resources would get top priority. It actually ranked fourth. It was thought that coordination among levels in schools would be near the top. It actually ranked near the bottom. It was anticipated that record keeping and library services would be considered more important than they turned out to be.

It was decided to take a more detailed look at the top three problems. As an example of one of the low-ranking priorities, Library Services was selected to receive more detailed treatment also.

High Priority Problems

Program Development

The respondents were divided into three categories based on the comments they made on this problem. The first group was characterized as the dynamic administrators, that is, they were aware of the necessity of developing programs that would reflect the needs of their communities. They showed a concern for determining community needs and they accepted the responsibility for initiating surveys and other inquiries. The second group was called the conventionals. These administrators were satisfied with the existing programs and, for them, no particular problem existed in program development. They tended to rely on the trial and error method of introducing new courses, that is, they would try out a course; if it proved popular, they kept it; if not, it was dropped. In effect, these administrators were basing their curricular decisions on what they as professional educators thought was best for the community. The last group, the defensives, tried to avoid responsibility for program development by transferring responsibility to others.

Table 12 summarizes the results of this analysis:

TABLE 12

Administrator-Respondent Comments on Program Development

Category	Secondary Adult No.	%	Secondary Classes No.	%	Junior College Classes No.	%
Dynamic Aware of importance of determining community need.	5	28	3	60	3	60
Conventional No problem. Satisfied with status quo.	9	50	1	20	1	20
Defensive Evasion of the problem.	4	18	1	20	1	20
Totals	18	100	5	100	5	100

Total Respondents: 28

Half of the respondent secondary adult school administrators were classified as conventional, while 60 percent of the administrators in charge of Secondary Schools Offering Classes for Adults were classified as dynamic. In the junior college area 60 percent of the administrators were also considered dynamic.

Some of the comments of the dynamic group as recorded by the interviewers included:

> "This is one of the most serious problems in adult education. How are needs determined? Many people have never given much thought to their needs . . . The adult administrator could put research results in this area to effective use."

> "It is a problem to measure interests of the public; to do an adequate job and keep up to date."

> "There is not enough time to work out long range planning and at the same time respond to immediate pressures. What do we do for the mass that we are not responding to?"

"This is a real problem, anticipating the needs for classes people want. We use interest surveys through the PTA."

Several of the dynamic group indicated concern for finding research methods to determine needs. Some of them indicated that resources and personnel were needed to determine needs. They were hampered by lack of resources.

The comments of the conventional group were different:

"Not much difficulty in this area. This is a very active community and as a result, there is much interest in adult education. Representatives for the various active groups are in touch and discuss and suggest courses."

"We attempt to satisfy all needs of educational value expressed by the community. We seem to be able to fulfill most requests . . . ."

"No real problem, no financial restrictions. We experiment freely with a variety of classes."

"No real problem. We manage to develop a program which meets community needs without researching. Plan, however, to find out if there are needs of which we are unaware."

Most of the conventional group thought program development consisted of trying to meet the needs of vocal segments of their communities. Some of them could not think beyond the conventional day curriculum. One respondent indicated that the problem was one of popularizing the existing program which was made up mainly of selections from the day high school curriculum. He deplored the fact that so many of his students lost interest and dropped out.

Again, the defensive group was different. Comments included:

"We are willing, no demand is the problem."

"The curriculum is decided on the basis of trial and error and suggestions. Requests from the interested public are very few."

"This problem is closely related to the problem of lack of space. We do not have room to expand our program."

"There is no policy decision from the local board. The principal is hampered by other areas."

The defensives were passive. If the board did not direct them, or if the public failed to beat a path to their door, it was trial and error or status quo.

Securing Teachers

The categories established for analyzing adult education administrator comments on securing teachers with special qualifications for their adult programs were as follows: need centered, need conscious, and unaware of any special need. The need centered group emphasized the importance of securing teachers with special qualities for their programs. They were likely to look outside of the regular school staff for part-time people with unusual talents. This group showed a tendency to establish courses based on their conception of community need, and then try and find a teacher rather than formulating their curricula around whatever teachers were easily available. The need conscious group depended heavily on teachers available in the school system they represented. However, they did recognize the necessity of securing some teachers with special qualifications for programs requested by community groups. The unaware group did not see a responsibility beyond what the school offered in the conventional curriculum. They had no problem in obtaining teachers since they could be easily recruited from the conventional day programs. One exceptional circumstance should be mentioned in connection with the latter group, however. Those schools near the University found an ample supply of talented individuals from this source. Whether or not this indicated that curriculum was being developed on the basis of community need could not be determined.

Distribution of the various categories among the three classes of schools is indicated in the following table.

TABLE 13

Administrator-respondent Comments on Securing Teachers

Category	Secondary Adult		Secondary Classes		Junior College Classes	
	No.	%	No.	%	No.	%
Need Centered Emphasis on importance of securing adult teachers with special qualities	6	33	2	40	2	40
Need Conscious Special qualifications necessary in only a few areas	4	22	1	20	1	20
Unaware of any Problem Securing teachers not an important problem	8	44	2	40	2	40
Totals	18	100	5	100	5	100

The need conscious and the unaware group constitute more than half of the administrators in any type of institution. These two groups tend to favor the conventional curriculum and thus must be considered as relatively inflexible and only slightly aware of the importance of any special qualifications necessary for adult teaching.

The following comments are samples of those recorded for the need centered group.

> "Vocational people are difficult to find. Inadequate number from which to choose. Tends to make for mediocre instructor quality. Business teachers are mostly inexperienced in teaching, or lack adequate backgrounds. The heart of the program is teaching."
>
> "It is difficult to secure teachers in special areas: language, metals, securities. Proper credentialing is a problem."
>
> "Many teachers seeking employment come to our office . . . There is dire need to develop techniques for finding talented potential teachers in the community who are not aware of the opportunities to share their talents as teachers in adult schools. Teachers, in my opinion, are leaders in program development, as well as dispensers of knowledge."
>
> "Securing teachers with talent is a problem. Salaries are not competitive with the junior colleges or extension. With no compulsory attendance, good teaching is essential."

The need centered respondent administrators placed great importance on securing talented teachers. The fact that they were inhibited by inability to pay competitive salaries, and by credentialing requirements, indicated that they were looking outside the conventionally trained day school group for special qualifications to meet the needs of their adult students.

Comments from the need conscious group included:

> "Finding teachers is not generally a problem. It is sometimes a problem in technical areas. The regular staff is used in the other areas."
>
> "On the whole, we have more applicants than positions. At times it is difficult to find qualified people to fill specialized needs, for example, reading teachers."
>
> "It is sometimes difficult to secure teachers in areas like French, millinery, and upholstery. Filling most of the positions is no problem. Out of 69 teachers, 20 are regular daytime staff members."

The need conscious group depend heavily on regular daytime secondary teachers. Their concept of special needs for adult students is limited to the special areas that have been requested.

Some of the unaware group comments were recorded as follows:

> "Our city seems to be an area that is attractive to many teachers . . . . Keeping up with credential requirements and the ability to assist teachers in completing the forms eliminated much of the difficulty in this area."
>
> "No difficulty at all. More applicants than positions."
>
> "Credentialing requirements somewhat complicated but not restrictive. Most applicants qualify, at least for a short term credential . . . If vocational courses offered more extensively, a problem might arise."
>
> "No problem to secure teachers. Most of our teachers are day teachers."

To the unaware administrator, teacher procurement is no problem. They are in a "buyer's market" and they just select from those who are beating on the door looking for positions. Such procurement procedures would seem to reflect an educational program that was less than dynamic.

Intrafaculty Communication

Among the most profound and theoretical problems presented to the instructors was the one of intrafaculty communication. It has had a fundamental influence on the character of the public adult school. Clark found, in his study of adult education in the Los Angeles Public Schools, that isolation of the adult education teachers from one another resulted in the absence of an informal social structure that would ordinarily have supported the organization. In such a situation codes of conduct that are enforced by peer groups and traditions have little chance to develop. There will be no common definitions of proper teacher behavior. Control of the organization will tend to rest in the hands of administrators and students. Perhaps most important of all, when it becomes necessary to defend the organization, as might be necessary when competing for resources to provide an adequate educational program, the administrator is deprived of the organized support of the teaching personnel.

When presented to the respondents, the problem was described in this way,

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[13] Clark, Burton R., Adult Education in Transition. Berkeley and Los Angeles, California: University of California Press, 1958. See pages 104 and 105 for discussion of faculty influence on the adult school.

> Is group identity desirable in your situation? It is thought that teachers can increase their effectiveness and decrease their feeling of isolation if they can identify with a work group. Exchange of ideas and teaching techniques are thought to be beneficial. The presentation of policy and operational procedures can be more economically accomplished in group situations. Socializing can enhance morale. Is intrafaculty communication a problem in your school?

Recorded comments were placed in four categories. The acceptors who accepted the idea that intrafaculty communication was desirable; rejectors who thought that intrafaculty communication was unnecessary; centralizers who saw themselves as the source of information for the faculty; and neutrals who did not see this problem as applying to their situation.

TABLE 14

Administrator-respondent Comments on Intrafaculty Communications

Category	Secondary Adult		Secondary Classes		Junior College Classes	
	No.	%	No.	%	No.	%
Acceptors "It's a good idea but . . ."	5	28	2	40	3	60
Rejectors "Not necessary."	5	28	1	20	1	20
Centralizers "We use a bulletin."	6	33	1	20	0	0
Neutrals "Not a problem."	2	11	1	20	1	20
Totals	18	100	5	100	5	100

Acceptors are certainly not among the majority as far as the total group of respondents is concerned. There is no question that a number of obstacles stand in the way of effective faculty interaction in public school adult education as it is now structured. The significant point of

this analysis is, however, that the acceptors indicate that they are aware of the problem. They are more likely to seek a solution than are the rejectors who seem dedicated to the status quo or the centralizers who try to substitute bureaucratic procedures for interaction.

Sample reactions from the acceptors:

> "This is an on-going problem. Most of the faculty have more than their share of meetings and because of the secondary responsibility they have for the adult level are reluctant to do more than socialize and meet occasionally in group situations."

> "The part-time nature of the evening adult teacher position makes socializing rather difficult. It is, however, desirable for maximum effectiveness on the part of a teacher because he would thus gain a knowledge of the total program and personalities involved. It would make him better able to organize his course within the overall framework of the school."

> "Group identity of the night school staff is almost impossible. Most of the staff identify with their regular day staff affiliations. Those who are employed only in adult teaching show more interest in the night program."

> "We are licking this problem. A faculty council was the beginning. We need, now, to tie in a faculty in-service training program."

The acceptors recognize the problem but most of them are hampered by the structure of the program. Many of the teachers are paid by the hour and the school feels obligated to pay them for meetings. In most cases this means no meetings. In some cases acceptors had planned informal coffee breaks to make it convenient for the faculty to experience some informal interaction.

Sample reactions from the rejectors:

> "School and faculty spread out. There is not much opportunity for teachers to generate group feeling. Need for intrafaculty communication not as great as it is in the day school."

> "Faculty meetings are impractical. These teachers are not paid to meet and they have little incentive for it. Communication is accomplished through written correspondence and individual interviews."

> "Group identity is desirable but not necessary. We have a common break, all students and faculty in the cafeteria . . ."

> "Many teachers are connected with the day school. Little socializing is promoted. The faculty lounge is available; departmental areas do meet; we rarely have a general meeting. General meetings are not felt to be important."

The rejectors do not feel that intrafaculty communication is necessary. At best, it is tolerated; it is not promoted.

The centralizers saw themselves as the main agency of communication. Some samples of their recorded comments:

> "No pay is available for a faculty meeting and, in any case, the class schedules are different. We use bulletins and direct visits to the classes."

> "We have a teachers' handbook which is effective. We don't have regular faculty meetings due to wide dispersion."

> "We have a monthly bulletin and two faculty meetings, one at the beginning and one at the end of the year."

> "Our communications consist mainly of faculty bulletins. We have one faculty meeting a year."

Although an occasional faculty meeting is indicated by the centralizers, the information seems to flow from the administrative level to the operational level without horizontal intercommunication.

The neutrals took no particular position on interfaculty communications. Two did not comment; one, an adult day school administrator, indicated that he did not experience the same difficulty that the evening administrators had; and one indicated that intrafaculty communication went on but he did not participate in it.

A Low Priority Problem: Library Services

No detailed analysis was made of problems ranking under the third priority except for Library Services. Some of the comments recorded by the interviewers in this area were of sufficient interest to prompt a more detailed examination.

Of the 28 respondents, 9 reported that library services of some kind were furnished for adults by their schools. The 5 junior colleges reported full library services available in the evening though one respondent indicated that the adult students made little use of them. Limited services were reported from 4 Secondary Adult School administrators. One of the limited services respondents commented:

> "We use our library as a study hall under the supervision of a counselor. The reference books may be used. Books in the regular collection cannot be checked out. The collection is inadequate for adults. It would be desirable to use the library and add additional books to the collection suitable for adults. This would require a librarian to be on duty."

No school library services for adults were reported by 19 of the respondents. Four of them (3 Secondary Adult and 1 Secondary Classes) indicated that library facilities were desirable but unavailable. Typical comments:

> "We have no library facilities at all. Library service would be very desirable."

> "No library facilities. Students would take advantage of the service if it were available."

Four respondents, two from each of the secondary institutional types, indicated that city or county libraries served their purposes. Three indicated that library service could be furnished if the students wanted it. Two Secondary Adult School respondents indicated that administrative difficulties prevented them from furnishing library services. One Secondary Adult School respondent indicated that library services were not a problem at his school because he did not furnish any. The five remaining respondents indicated that library services were unnecessary to their programs. Two of the comments:

> "School library services are not essential to adult education. High school books would not reflect the needs of the students. Good public libraries are available."

> "Courses offered do not lend themselves to library services."

In general, Library Services, as previously reported in Table 11, were not considered an important problem. There is some evidence in the comments of respondent administrators that adult schools at the secondary level are hampered by collections that are unsuitable for adults.

Additional Problems Suggested by the Respondents

In the final portion of the interview respondent administrators were invited to suggest problems that had not been included in the list provided by the investigators. Twenty-five additional problems were submitted. Some respondents submitted as many as three, but most of those participating suggested one. Six of the problems had to do with the

importance of communicating with the public. Concern was expressed about making the school program known to the potential clientele. Most of these respondents also mentioned the necessity of continual promotion so that enrollment levels could be maintained. Four of them suggested problems that were concerned with the marginal status of the adult program. These respondents were mainly concerned with competition with the day schools over space and the allocation of district resources. One respondent suggested the following:

> "We need to establish adult education parks: separate centralized facilities for the use of adults, equipped with suitable libraries and health centers."

There were two comments concerning adult school administrators. One respondent deplored the tendency for a high rate of administrative turnover:

> "There is a widespread tendency to put fledgling administrators in evening positions as a training experience. This happens in high schools as well as in college. Unless adult education is the primary concern of the administrator in charge, the program may suffer."

The other administrative suggestion was for the establishment of a recommended pattern of training and experience for preparing adult school administrators.

Space prevents a detailed analysis of the remaining suggestions. Some of the areas mentioned included gaining approval for Federal projects, program evaluation, establishing "school spirit", promoting cooperation with industry, additional financial support, teacher quality, and establishing goals.

Although many of the suggested problems were included in the list of twelve, the responding administrators did suggest several areas of concern that had not been anticipated. The heterogeneity of their suggestions indicated that they had given much serious thought and consideration to improving their operations.

General Conclusions and Recommendations

Although the conditions under which public school adult education in the two-county area is forced to operate are less than optimal, there is ample evidence that valuable service is being rendered. Adult administrators reflect some of the limitations imposed upon them by the marginal status of their programs but in spite of traditional and structural inhibitions, many of them show a remarkable sensitivity toward their responsibilities. There is evidence that many of them are giving serious thought to ways of improving their operations. Since providing educational services for adults poses many problems that are different from those encountered in providing for the

younger student, it seems unfortunate that special training programs for adult public school administrators are not more readily available in the colleges and universities.

Most of the programs that have been described in this study seem to be oriented toward the middle social classes. It is also interesting to note that the two-county public school adult vocational education proportion coincided with the proportion that Johnston and Rivera had discovered for vocational education in all adult learning activities at the national level.[14]

It is felt that the following four issues have been identified as the most important considerations facing adult vocational education in the two-county area:

1. Ascertaining needs. The schools must discover methods and provide resources for evaluating present programs in terms of community needs. This must be a continuing process and it should form the basis for future program development.

2. Involving a broader social spectrum. Both the Johnston and Rivera study, and London's Oakland study have indicated that the lower social classes are not being involved in adult education. No evidence was discovered in this study to refute their conclusions. The schools must establish communication with all social classes in their service area. They must be prepared to make the operational modifications necessary to accomplish this. There is evidence that a substantial number of the institutions are either unaware of, or unwilling to accept this responsibility.

3. Flexibility. There are many indications that the ability of public school adult education in the two-county area to adapt to changing social circumstances is inhibited by tradition and lack of understanding. Structural alterations will be necessary in order to strengthen existing organizations. Participation of faculty members in the solution of these problems seems essential. Faculty involvement may involve radical changes in working conditions. It is quite possible that further decentralization of educational services might be necessary in order to reach those whose needs are greatest.

4. Resources. Resource limitations can prevent schools from developing optimal programs. Separate facilities and full-time teachers might be necessary to accomplish the educational task that is foreshadowed by present trends in population and in technological change. At least, some specialized facilities must be provided to meet the needs of adults.

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[14]Johnston and Rivera, op. cit., p. 2.

Research might profitably be conducted into the following areas:

1. Characteristics of the clientele of public school adult education in the two-county area.

2. A study of the organizational structure of adult education, with the aim of suggesting a more effective structure.

3. A study of adult education administrators, with the purpose of suggesting a training program for developing specialists in this area.

One of the most optimistic trends toward broadening the social spectrum in the two-county area is that revealed by the Federally connected programs. A more detailed examination of these programs might well indicate that lower social class involvement can be accomplished in this way. The public school adult institutions are to be commended for their enthusiastic participation in developing these programs, in spite of their increasing responsibilities in operating the conventional adult school.

Adult administrators tend to inherit ever increasing responsibilities without corresponding increases in staff assistance or physical facilities. It is remarkable that they are able to devote the time that they do to operational improvement and program development.

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VT 001 648
Vocational Agriculture in the Next Five Years 1963-1968, Staff Plans.

Ohio State Univ., Columbus. Dept. of Agricultural Education
Ohio State Dept. of Education, Columbus. Vocational Agriculture Service
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*VOCATIONAL AGRICULTURE; STATE SUPERVISORS; HIGH SCHOOLS; TEACHER EDUCATORS; *EDUCATIONAL OBJECTIVES; *PROGRAM EVALUATION; EVALUATION CRITERIA; CURRICULUM; SUPERVISED FARM PRACTICE; YOUTH CLUBS; OCCUPATIONAL GUIDANCE; YOUNG FARMER EDUCATION; ADULT FARMER EDUCATION; PROGRAM DEVELOPMENT; PHYSICAL FACILITIES

Goals, ways, and means for improving major aspects of vocational agriculture are provided as a guide to supervisors and teacher educators in working with local teachers. Guiding statements, objectives, staff responsibilities, and procedures are listed, and space for describing their 1968 status is provided for each of the program facets: planning and developing local programs, local school relationships, high school teaching and curriculum, supervising occupational experience in agriculture, advising the Future Farmers of America, guidance, young and adult farmer programs, physical facilities, public relations, and professional improvement. The document was developed by University Staff and State teachers as part of a 5-year vocational education improvement plan. Committees of supervisors and teacher educators were formed to provide continuing replanning in the areas of administration, high school instruction, and public relations. Staff committees made recommendations for additional staff action in the areas of administration, curriculum, technical training at the post-high school level, manpower training, high school programs, and interstaff communications. (JM)

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VOCATIONAL AGRICULTURE IN

THE NEXT FIVE YEARS

1963—1968

STAFF PLANS

Issued by

The Department of Agricultural Education
The Ohio State University

and

The Vocational Agriculture Service
The Ohio Department of Education

July, 1963

01648

SUGGESTIONS FOR STAFF ON VOCATIONAL AGRICULTURE IN THE NEXT FIVE YEARS IN OHIO

This publication is by, for, and of concern to all members of the supervisory and teacher education staffs in agricultural education in Ohio. It represents the second time that all members of the staff as well as nearly all teachers of Ohio have given consideration to the direction in which the program should move during the next five years. Contained herein are goals and ways and means for improving major aspects of the program of vocational agriculture. It is hoped that this publication will serve as a guide to supervisors, teacher educators in working with local teachers and that it will result in common perception of the direction in which this program should move.

Meeting These Goals:

Although we have agreed upon these goals listed the more important step becomes that of carrying out the many and varied means which have been suggested. Certain responsibilities must be delegated to various individuals, groups and committees. As this is done it is important that we maintain effective communication with each other as well as with all teachers.

The implementation of this program should become an important aspect of all joint staff meetings and such activity should be integrated with the regular business of such staff meetings rather than as a separate activity.

Committee Organization:

It seemed desirable that the following committees be named which would include all members of the staff. The committees and in the areas of the program which they considered were as follows:

Committees	Areas of Responsibility
Administration	Program Planning
W. G. Weiler, Chm.	Professional Improvement
F. J. Ruble	Research
R. E. Bender	Office Management
H. D. Brum	Promotion
R. J. Woodin	
R. E. Taylor	

Improvement of Instruction in High School	
D. R. Purkey, Chm.	Teaching and Curriculum
J. T. Starling - H. S. Chm.	Occupational Experience
H. E. Ridenour	Guidance
G. S. Guiler	Teaching Materials
C. E. Johnson	Physical Facilities
D. R. Parks	Teacher in Service Training
W. H. Wolf	General Agriculture
	Vocational Horticulture
J. E. Dougan, Chm. Post High School	Young and Adult Farmers
P. F. Pulse	Technical Schools
H. B. Drake	O.S.U. Young Farmers
R. H. Wilson	YFA
K. E. Brum	ARA
	Man Power
	County Vocational Schools
	Area Vocational Schools
Public Relations	
L. F. Crabbe, Chm.	Local School Relations
E. Kantner	FFA
L. W. Boucher	Promotion
	State and County Fairs

In order to provide for systematic rotation of staff members on these committees it is suggested that each staff member serve two years on a committee and that half of each committee be rotated each year.

One final word should be added regarding the evaluation of accomplishments during the next five years. It will be important that we evaluate continuously rather than waiting until 1968 to determine what progress has been made. Such continuous evaluation should be a responsibility of each of the committees as well as the entire staff.

R. J. W.
7/1/63 300

ADDITIONAL STAFF PLANS

After the joint staff of vocational agriculture had considered a revision of the five year plan in January of 1963, further consideration was given to staff plans which might not have been included in the previous five year program. This section of the plan was termed the "New Frontiers" section. In developing this section, the staff members were organized into committees to explore additional possibilities for staff action during the next five years. The following recommendations were made and approved by the staff.

Administration:

1. The supervisory staff should be reorganized in terms of various aspects of the program and the interests and abilities of staff members. It was recommended that one supervisor serve as FFA Executive Secretary, have charge of camp facilities, camp program, FFA association activities, FFA Foundation, serve as editor of The Ohio Future Farmer and be in charge of State Fair activities.

2. One State Supervisor should have primary responsibilities for post high school education and one should be responsible for adult and young farmer education, The Ohio State University Short Course, technical schools, farm management teaching, Ohio Young Farmer and Man-Power training classes.

3. A teaching materials coordinater should be responsible for the development of teaching materials and teaching aids.

4. A three quarter time curriculum coordinator should be responsible for the improvement of instruction, land laboratories, the high school program, judging contest, and farm management instruction in high school.

5. One-fourth time of one person should be spent on public relations, communication and in coordinating staff activities.

6. One half time of one person should be spent on research. This would involve the study of state records and reports, and the study on the Biological Principles approach to teaching vocational agriculture.

7. One half of the time of another person should be spent on in-service education for teachers.

8. Five people should work at administration and supervision.

Curriculum Committee: This committee made the following recommendations. The staff should:

1. Cooperate with the State Department of Education, Research Division and establish research to identify study and curriculum.

2. Select specialized committees in subject matter areas and evaluate present curriculum.

3. Make a job analysis of graduates and base the vocational agriculture curriculum on these results.

4. Name a staff committee to be given responsibilities for carrying out recommendations for curriculum improvement.

5. Study possible program of general agriculture in non-vocational high school and develop needed services.

Committee on Technical Training at the Post High School Level.

1. A pilot program on technician training be carefully evaluated.

2. Additional offerings of agricultural technical training be made in other centers as soon as possible.

3. One staff member should be designated as the coordinator of technical education in agriculture.

4. A functioning state advisory committee on post high school technical education in agriculture should be established.

5. Local advisory committee should be established in planning and developing additional technical programs in agriculture.

6. Additional study of employment possibilities and needs for technical education and agriculture should be made in farm credit, soil conservation, highway landscape and park and forestry management.

Man-Power Training:

1. Agricultural training possibilities under the Man-Power Training Act should be thoroughly explored.

2. This staff should explore possibilities of our clientele for man-power training particularly those persons now on farms whose income is less than $1200 a year.

3. Two counties, one in southeastern Ohio and one in western Ohio should be indentified as pilot counties for man-power training.

4. In the pilot counties potential employers for those trained in Man Power Training should be contacted as well as those eligible for such training.

5. State staff personnel in vocational education who are working with man-power training should be used in an advisory compacity in developing programs in agriculture.

Improvement of High School Programs. The staff should do the following:

1. Continue study of the Biological Principles approach.

2. Increase teaching in farm mechanics by including "why" and developing more understanding of mechanical principles.

3. "Agricultural in the World of Work" units should be as a vocational exploratory experience developed and taught in the freshman year.

4. Vocational agriculture be taught as an entry to the business of agriculture and as such a personal account of business transactions be kept.

5. Use students agricultural experience as a basis for business accounting experience.

6. Develop a teaching unit on principles of economics as applied to the business of agriculture.

Recommendations of the Administrative Committee on Inter-Staff Communications.

1. A staff chart of individual responsibilities should be developed giving specific and detailed job descriptions and defining working relationships between staff members.

2. The coordinator of major areas should be responsible in keeping the total staff informed of all activities.

3. Periodic reports should be made of each on-going activity to all staff members.

4. Staff meetings should be improved through use of a more professional approach and through the inclusion of more research information.

5. Written staff policies should be developed.

6. Staff time should be spent on the improvement of communication.

PLANNING AND DEVELOPING LOCAL PROGRAMS

Guiding Statement: The local program of vocational agriculture should meet educational needs in agriculture and should be based upon, and evaluated in terms of, clearly stated objectives. Continuing community study and involvement of those affected by the programs, under the leadership of the teacher, are essential and should result in a written long-term department program.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Conduct annual systematic evaluation of the departmental program. Involve a state staff member at least once every five years.	100	____
2. Utilize lay committees in planning and carrying out the program	75	____
3. Study and analyze "Facts on Farming" supplemented by local surveys and other similar information as a means of identifying agricultural education needs.	100	____
4. Maintain an up-to-date written long-time departmental program.	100	____
5. Coordinate the local program with those of other departments and agricultural and educational agencies in the area.	100	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Revise "Appraising Your Vo-Ag Program" in terms of the present five year program.	_____
2. Conduct pilot evaluations of several local programs as a means of identifying procedures and techniques for the evaluation and of further refining for the instrument.	_____
3. Provide leadership in making a comprehensive evaluation of each vo-ag department by 1966. Such evaluation should be made at least once each five years thereafter.	_____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
4. Provide an instrument and assist teachers in making self-evaluations of selected aspects of their programs each year.	
5. Summarize and analyze completed evaluations in a state summary to be used as a basis for further staff assistance of schools.	
6. Provide assistance to teachers in developing long-time written departmental programs.	
7. Assist teachers in assembling and studying information such as "Facts on Farming" for use in the program planning process.	
8. Develop a new graduate course on Program Planning.	

Notes on Additional Developments in This Area

LOCAL SCHOOL RELATIONSHIPS

Guiding Statement: Teachers of vocational agriculture should be effective members of their faculties in developing local school programs which offer maximum educational opportunities for the community.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Assume appropriate responsibilities which contribute to the development of the total school program.	100	____
2. Share in the development of written school policies including those for the vocational agriculture department.	100	____
3. Participate actively in professional organizations.	100	____
4. Contribute to effective relationships among the faculty, school administration and state staff.	100	____
5. Involve specialized professional personnel such as county supervisors, guidance personnel, and curriculum specialists in local programs.	100	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Initiate and assist in conducting administrator dinner meetings which include county supervisors and guidance personnel.	_____
2. Involve local and county administrators in evaluating and supervising departmental programs.	_____
3. Continue to use and expand the responsibilities of the State Advisory Committee, as well as the teacher's advisory committee.	_____
4. Involve local and county supervisors in district activities.	_____
5. Involve representatives of related educational groups in state meeting and activities.	_____
6. Participate in state meetings of other educational groups.	_____

HIGH SCHOOL TEACHING AND CURRICULUM

Guiding Statement: The department should provide high quality teaching and a curriculum which offers maximum educational opportunity for each student to develop competencies in farming and other agricultural occupations. The agricultural curriculum refers to the total educational experience under the direction of the teacher including classroom and shop work, FFA activities, and supervised occupational experiences.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Teach in a challenging and enthusiastic manner and make practical application of the information taught.	100	____
2. Prepare appropriate written daily lesson plans for each class.	100	____
3. Have students use class notebooks to record important information and plans of practice not included in the record book.	100	____
4. Develop and maintain an adequate and comprehensive departmental library including current books, bulletins, reports, sample specimens, and other teaching aids.	100	____
5. Provide opportunity for students to become self-directing individuals.	100	____
6. Use a formal testing procedure following each unit of instruction.	90	____
7. Plan and continually revise a course of study for each class on the form, "Curriculum for Vocational Agriculture."	100	____
8. Segment the planned course of study for each class on the form, "Daily Teaching Schedule for Vocational Agriculture."	85	____
9. Teach a unit on career opportunities in agriculture.	____	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Conduct research and discuss trends in revision of high school curriculum.	_____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
2. Assist in the evaluation of the high school courses of study during supervisory visits.	
3. Conduct experimental and pilot programs to give direction for curriculum improvement.	
4. Provide both credit and non-credit in-service training programs on vocational agriculture curriculum.	
5. Supervisors identify in-service training needs of teachers so improvement programs may be planned and conducted.	
6. Conduct research on need for agricultural occupations training program.	
a. Identify occupations for which training in agriculture is essential.	
b. Determine what should be taught.	
c. Determine level or levels at which agriculture should be taught.	

Additional Notes:

SUPERVISING OCCUPATIONAL EXPERIENCE IN AGRICULTURE

Guiding Statement: Supervised occupational experience for students in vocational agriculture should provide purposeful individualized and group experience in farming and in other agricultural occupations. The nature and extent of experience should progress with the ability of the student, providing for both occupational exploration and proficiency. Effective experience necessitates continuous, cooperative effort on the part of students, parents, employees, and teacher.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Guide students with farming programs to have an average of at least two production projects per year with a minimum of 20 man work units.	80	____
2. Have students broaden their occupational experience by including appropriate improvement projects and supplementary practices.	100	____
3. Encourage students to conduct continuation projects when desirable.	100	____
4. Visit each high school student at least six times per year.	95	____
5. Arrange for an average of at least 25 on-farm instructional visits per month.	100	____
6. Assist students on placement to secure at least 400 hours of actual supervised work experience. The total hours of experience should extend over at least a 6 month period.	75	____
7. Utilize records of supervised occupational experience in classroom teaching and individual counseling.	85	____
8. Have all students complete the occupational experience selected.	90	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Supervisors prepare an analysis of teacher's farm visitation and discuss it at district meetings.	_____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
2. Supervisors assemble factual information and present to teachers, administrators guidance personal, and local supervisors, the opportunities for supervised agricultural occupational experience.	
3. The supervisory staff should prepare, distribute, and discuss a brochure pertaining to the principles underlying occupational experience and including selection planning and conducting and evaluation of such programs.	
4. Conduct workshops with teachers to develop improved procedures in keeping records.	
5. Hold special sessions with co-operating teachers on developing teacher competence in conducting supervised occupational experience.	
6. Conduct research on occupational experience and present the findings to teachers.	
7. Prepare appropriate teaching aids.	
8. Cooperate with other teachers in the use of school land laboratories.	

Additional Notes:

ADVISING THE FFA

Guiding Statement: The teacher should advise and guide an active FFA Chapter which provides members with experience necessary for effective leadership and citizenship and develops interest and pride in agriculture.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Provide opportunity for every member to participate in at least one FFA leadership activity.	100	____
2. Have a written program of activities, including a budget.	100	____
3. Participate in the State Chapter Contest.	100	____
4. Conduct programs which receive Superior ratings in the State Chapter Contest.	75	____
5. Provide a continuous training program for chapter officers and members.	100	____
6. Have chapter officer participation in a county, district, or state officer training program.	100	____
7. Secure a minimum of one donor per chapter to the Ohio FFA Foundation.	70	____
8. Have a State Officer visit each chapter once every three years.	100	____
9. Secure attendance of all FFA members and their parents at the parent and son meeting or banquet each year.	90	____
10. Have the chapter represented and participating in the FFA Camp program each year.	100	____
11. Cooperate with other chapters in at least one altruistic activity each year.	90	____
12. Have delegates at State FFA Convention each year.	100	____
13. Have each chapter participate in three awards activities.	100	____
14. Chapter complete all applications for National Chapter Contest.	50	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Use the National Chapter Contest Report as a means of evaluating local chapter programs.	
2. Assist teachers to analyze the activities of chapters at the Spring Evaluation Meeting.	
3. Emphasize the value of particpation in state chapter contests as a means of evaluating local programs.	
4. Make recommendations to the National FFA Board of Directors for the revision of National Contests.	
5. Develop a proficiency award for supervised agricultural work experience.	
6. Assist in the planning and conducting of district officers awards meeting.	
7. Conduct a statewide leadership workshop for local officers.	
8. Conduct in-service training workshops for local advisors for training chapter officers.	
9. Assist in carrying out the program of activities developed by the Ohio FFA Association.	
10. Assist in conducting a state FFA Camp for Future Farmers in which 25% of the camp program aimed at developing FFA members as future leaders and the FFA member's responsibility to the local chapter's program of activities.	
11. Each supervisor spend some time during a district meeting in developing a procedure and plan for evaluating a local chapter program of activities.	

Additional Notes:

GUIDANCE

Guiding Statement: The teacher should actively participate in the school guidance program. This includes counseling with students individually to help them define problems and secure information needed to make wise decisions.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Work closely with local and county guidance counselors in developing an effective program of guidance in agriculture.	100	____
2. Hold at least two planned individual conference sessions in the classroom with each vocational agriculture student.	100	____
3. Conduct an effective cousneling program with students, parents, and others concerned.	100	____
4. Attend at least one workshop or class on guidance and counseling techniques over this five year period.	100	____
5. Assist students in locating appropriate jobs and further training opportunities in the field of agriculture.	100	____
6. Provide continuing assistance to former students through the development and use of follow-up records.	75	____
7. Provide prospective students with information concerning vocational agriculture and career opportunities in the field.	100	____
8. Collect an adequate library of occupational information to aid in serving students.	100	____
9. Have an average of 15% of graduates attend the College of Agriculture.	75	____
10. Develop a pre-vo-ag counseling system with 8th grade.	100	____
11. Check cumulative reoords of all students.	100	____
12. Provide a folder on courses in agriculture for guidance counselors.	100	____
13. Arrange for parents and/or cooperative farmers to attend an agricultural occupation experience meeting.	60	____

14. Develop a file of information on agricultural occupations. 100 ____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Conduct guidance and counseling workshops, with the assistance of the guidance personnel of the State Department of Education, for teachers of vocational agriculture.	
2. Recommend to teachers doing graduate work that they schedule at least one course in guidance.	
3. Include guidance and counseling in the pre-service training of prospective teachers of vocational agriculture.	
4. Provide special in-service training to cooperating teachers in techniques and procedures of guidance and counseling.	
5. Provide teachers regularly with instruments and materials useful in guidance and counseling.	
6. Appoint one member of the State Staff to coordinate the vocational agriculture guidance program with that of the State Department of Education.	
7. Conduct a statewide study to determine the occupational opportunities in agriculture.	
8. Cooperate with the State Department of Education staff in conducting area and state workshops for guidance personnel.	
9. Inform college staffs that train guidance counsellors of the occupational opportunities in agriculture.	
10. Assist teachers in developing a file of information on occupational opportunities in agriculture.	

Additional Notes:

YOUNG AND ADULT FARMER PROGRAM

Guiding Statement: Every vocational agriculture teacher should provide programs of education in agriculture for post high school persons, and should encourage rural people to further their education by participating in existing agricultural education programs at the local, county or state level. The instruction be based upon the needs of the enrollees, and should contribute to their efficiency in agriculture or provide a better understanding and appreciation of rural life.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Provide both adult and young farmer programs in departments of vocational agriculture		
a. single teacher departments	50	____
b. multiple teacher departments	80	____
2. Have a chartered young farmer association in every department which offers a young farmer instructional program.	100	____
3. Conduct an organized, coordinated series of instructional meetings dealing with the agricultural education needs of those enrolled.	100	____
4. Provide individual, special interest groups, and class instruction on a year-round basis.	100	____
5. Visit all young and adult enrollees at least once each three months.	100	____
6. Identify scholarships and promote attendance in continuing educational programs in agriculture in Ohio.	100	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Provide for a young farmer couples' camp each year.	
2. Provide opportunity for an adult farmer camp or conference on a district or state level.	
3. Cooperate with other agricultural agencies in meeting the needs of agricultural people.	
4. Provide a staff member to coordinate and promote post-high school education	

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
in agriculture.	
5. Promote area young farmer meetings to develop statements of understanding on	
role of the association	
role of the teacher	
role of the young farmer	

Additional Notes:

PHYSICAL FACILITIES

Guiding Statement: Facilities for vocational agriculture should be carefully planned, maintained, and properly utilized to adequately provide the needed instruction in agriculture.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Provide in every school adequate classroom and shop facilities in accordance with the bulletin "Facilities for Vocational Agriculture."	100	____
2. Have a planned procedure for maintaining classroom and shop facilities.	100	____
3. Provide an adequate annual budget for supplies, books, equipment, tools, visual aids, etc., as suggested on the recommended lists.	100	____
4. Maintain the standard Agdex filing system.	100	____
5. Develop land laboratories (including greenhouses and related adjuncts) in departments as needed.	100	____
6. Use the safety color code on shop facilities and equipment.	100	____
7. Develop in students and teachers pride in their school facilities and a desire to improve them.	100	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Revise the annual report so that the teacher will report the approximate amount of money expended for replacement and maintenance of vocational agriculture facilities.	
2. Request that all teachers use recommended lists to maintain an annual inventory of all department tools, equipment, and teaching aids (including books) and file a copy of same with supervisors. Teachers and supervisors should use this list for recommendations to local boards as needed.	
3. Request that teachers submit to school administrators and supervisors a list of needs for vocational agricul-	

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
tural department by March 1 of each year. This list should include an annual budget of at least $500 or $15 per vo-ag student for supplies, books, tools, equipment, visual aids, etc. with priorities suggested for future additions.	
4. Supervisors request local adoptions of the AGDEX filing system in all departments.	
5. Physical facilities committee or other staff provide: a. Checklist for building facilities	
b. Suggested tools and equipment guides	
c. Recommend book list, and supervisors review them during supervisory visit.	
6. Physical facilities committee revise the facilities bulletin including greenhouse, land laboratory and supply all school administrators with new bulletins.	
7. Provide staff consultant service to architects and school administrators to help them understand the building and facilities needs of a vocational agriculture department.	
8. Staff consultants work with OSU Bureau of Educational Research on Educational Plant Planning.	
9. Supervisors hold district meetings in schools with above average facilities, including the use of safety color coding and emphasize the good features and indicate needs for improvement. Hold a similar meeting in a poorer school where teacher has not accomplished as much as he could have done.	

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
10. Supervisors rate housekeeping in the classroom and shop and make appropriate recommendations to teacher and school administrator.	

Additional Notes:

PUBLIC RELATIONS

Guiding Statement: Public understanding and desirable attitudes toward the program of vocational agriculture should be achieved through cooperative efforts of teachers, administrators and the state staff.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Provide farm and civic organizations with programs which explain vocational agriculture purpose and programs.	60	____
2. Exhibit at local and county fairs.	100	____
3. Exhibit at Ohio State Fair.	65	____
4. Present six or more radio programs of public interest.	80	____
5. Publish 36 or more news articles each year.	60	____
6. Present at least four television programs annually.	25	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Staff encourage teachers to keep local and county superintendent informed of vo-ag and FFA activities. Submit summer plans - program of instruction.	_____
2. Use staff time and facilities to do a more effective job of informing the public.	_____
3. Accept "Public Information" as a high priority item in use of staff, as well as teachers, time.	_____
4. Assist teachers to plan and report programs of public relations to the state office one year in advance.	_____
5. Prepare "fill-in" type news articles for the use of teachers.	_____
6. Evaluate the nature and scope of public relations of both state staff and teachers.	_____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
7. Coordinate efforts and plans of staff and teachers through a public relations committee.	
8. Prepare and distribute an up-to-date handbook on skills and procedures for using mass media.	
9. Prepare and distribute brochures and bulletins which tell the story of vocational agriculture.	
10. Develop an in-service education program in public relations including a communications workshop.	

Additional Notes:

PROFESSIONAL IMPROVEMENT

Guiding Statement: Teachers of vocational agriculture should continue to grow professionally through participation in individual and group programs of professional improvement, exemplification of high ethical standards and leadership in professional organizations.

Objectives:	State Goals % of Teachers or Departments	Status 1968
1. Assume appropriate responsibilities for the improvement of co-workers and the profession.	100	____
2. Develop a personal program for professional improvement.	100	____
3. Participate regularly in selected non-credit technical and professional offerings.	100	____
4. Attain a Master's Degree or its equivalent with ten years of service.	60	____
5. Enroll in college credit courses at least once in five years.	90	____
6. Recruit an adequate supply of high caliber prospective teachers by having each department enroll an average of one student in Agricultural Education.	100	____

Staff Responsibilities and Procedures	Describe Briefly What Was Done and When
1. Develop a certification program requiring additional professional and technical college training beyond the Bachelor's Degree.	_____
2. Offer off-campus seminars in technical agriculture.	_____
3. Continue the development of a comprehensive non-credit program of in-service education.	_____
4. Assist officers of O.V.A.T.A. to maintain 100% teacher membership in professional organizations.	_____

Additional Notes:

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VT 001 661
A Manual of Operation for Occupational Programs in Vocational Home Economics Education.

Tennessee State Dept. of Education, Nashville. Div. of Vocational Education
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*OCCUPATIONAL HOME ECONOMICS; PROGRAM DEVELOPMENT; *PROGRAM GUIDES; HOME ECONOMICS SKILLS; HIGH SCHOOLS; POST SECONDARY EDUCATION; ADULT VOCATIONAL EDUCATION; EDUCATIONAL NEEDS; *OCCUPATIONAL INFORMATION; EMPLOYMENT OPPORTUNITIES; DISADVANTAGED GROUPS

Information needed in developing occupational programs in home economics is provided. Training is described for occupations in the areas of food service, care and guidance of children, institutional and home management, and clothing service. Many of the occupations offer employment at semiskilled, skilled, and more advanced levels. Major sections include (1) occupations using home economics knowledge and skills, (2) responsibilities and opportunities for employment in occupational home economics, (3) general characteristics of all programs for gainful employment, (4) specific characteristics of the programs for secondary, post-secondary, out-of-school youth and adults, and persons with special needs including organization, students and teacher qualifications, teacher schedule, and teacher salary, (5) general information pertaining to facilities, travel, advisory committees, class size, trainee qualifications, work experiences, job placement evaluation, and followup, and (6) guidelines for developing occupational programs which list criteria for determining the feasibility of establishing a program in occupational home economics and steps for starting such a program. An application blank for establishing the program is included. (MS)

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A Manual of Operation for Occupational Programs in Vocational Home Economics Education

TENNESSEE
VOCATIONAL TECHNICAL
EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE OF TENNESSEE
DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION

A TENTATIVE MANUAL OF OPERATION

FOR

VOCATIONAL HOME ECONOMICS EDUCATION

OCCUPATIONAL PROGRAMS

Until recently, the purpose of Home Economics Education in Tennessee has been stated: "To prepare individuals for the vocation of homemaking."

Recent developments which affect home and family living call for broadening this objective as an increasing number of women are assuming two roles: The role of homemaking and family rearing, and the role of wage earner for at least part of the time. They need preparation for both roles since the proficiency with which a woman can carry both will determine the quality of her home and family life and her effectiveness as a wage-earner. Thus, the purposes of Home Economics Education become:

1. to prepare young people, particularly young women, for making a home--for the vocation of homemaking;

2. to prepare persons--male and female--for gainful employment in occupations which use home economics knowledge and skills;

3. to motivate and recruit college-bound students for professional careers in the field of home economics.

The Vocational Education Act of 1963 provides the opportunity of education for gainful employment in occupations involving knowledge and skills in home economics. This Act provides for the development of programs which meet the needs of all persons. Groups to be served are:

1. Persons attending high schools;

2. Persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market;

3. Persons who need training or retraining to achieve stability or advancement in employment;

4. Persons who have academic, socio-economic, or other handicaps which prevent them from succeeding in the regular vocational programs.

These classes are designed to give more extensive preparation for specific occupations, such as food service worker, child care worker, and others. It includes orientation to the nature of the occupation, desirable personal qualities for occupational success, extensive training in occupational functions, development of basic skills in the occupation, and the essential elements in the employment situation.

Occupations which use home economics knowledge and skills have been identified and are shown in Chart I.

CHART I*

SOME EXAMPLES OF OCCUPATIONS USING HOME ECONOMICS KNOWLEDGE AND SKILLS

Occupations	Grades 11 & 12	Grades 13 & 14	School Dropouts or Special Groups	Adults
AREA OF FOOD MANAGEMENT PRODUCTION & SERVICE				
Food Service Worker	x		x	x
Food Service Assistant		x	x	x
Food Service Supervisor		x		x
School Lunch Manager		x		x
Food Demonstrator		x		
Food Service Technician		x		
AREA OF CARE AND GUIDANCE OF CHILDREN				
Child Care Aide or Worker	x		x	x
Assistant in Nursery School or Day-Care Center		x		x
Child Care Supervisor		x		
AREA OF INSTITUTIONAL AND HOME MANAGEMENT				
Homemaker Service (Visiting Homemaker)				x
Homemaker's Assistant	x		x	x
Management Aide in Low-rent Housing				x
Institutional Housekeeper			x	x
Hotel and Motel Housekeeping Aide			x	x
AREA OF CLOTHING MANAGEMENT PRODUCTION AND SERVICE				
Assistant Seamstress	x		x	x
Seamstress				x
Clothing Alterer	x		x	x
Dry Cleaning & Laundry Aide	x		x	x
Home Furnishings and/or Clothing Technician		x		

The above chart indicates the broad scope of occupations, which utilize home economics knowledge and skills, and it also suggests occupations appropriate for upper secondary students, youth studying at 13 and 14 grade levels, and for out-of-school youth and adults.

A description of responsibilities usually carried by employees in these occupations and some possible places of employment are included in Chart II.

CHART II*

RESPONSIBILITIES AND OPPORTUNITIES FOR EMPLOYMENT IN SOME OCCUPATIONS UTILIZING HOME ECONOMICS KNOWLEDGE AND SKILLS

OCCUPATIONS	RESPONSIBILITIES	POSSIBLE PLACES OF EMPLOYMENT
AREA OF FOOD MANAGEMENT PRODUCTION & SERVICE		
Food Service Worker	Prepares and serves food, under direction of food service supervisor.	Hotels, restaurants, lunch-rooms, children's homes, nursing homes, child day care centers, private clubs, catering services, school cafeterias, hospitals, and individual family homes.
Food Service Supervisor	Assistant to Dietitian or manager of food establishment.	
AREA OF CARE AND GUIDANCE OF CHILDREN		
Child Care Worker	Assists the director or mother helping with the various activities of the children.	Day care centers, nursery schools, recreational centers, children's hospitals or pediatric wards and individual family homes.
Child Care Supervisor	Assistant Director. Assists in management of center, in guidance of children, and development of planned program for center.	
AREA OF CLOTHING MANAGEMENT PRODUCTION AND SERVICE		
Assistant Seamstress	Assists a professional dressmaker in fitting, altering, styling, and constructing garments.	Speciality stores, cleaning establishments, department stores, private business (as a dressmaker) individual family homes.
Seamstress	Constructs, styles, fits, and alters clothing.	
Home Furnishings and/or Clothing Technician	Makes custom home furnishings as draperies and slip covers.	Furnishings, decorating, gift departments or speciality shops; decorators studios.

Chart II, (continued)

OCCUPATIONS	RESPONSIBILITIES	POSSIBLE PLACES OF EMPLOYMENT
AREA OF INSTITUTIONAL AND HOME MANAGEMENT		
Homemaker's Assistant Housekeeping Assistant	Maintains clean and orderly home or institution, working under supervision of homemaker or housekeeping supervisor.	Public and private housing developments; hotels and motels; individual family homes, family service agencies.
Homemaker Service (Visiting Homemaker)	Performs duties of the homemaker when there is illness or emergency in the family.	

It is important to note that these occupations range in scope from semi-skilled or or entry-level jobs to those requiring more technical competencies. They are classified into three skill level categories in Chart III.

CHART III*

CLASSIFICATION OF SOME OCCUPATIONS AT THREE SKILL LEVELS

SEMI-SKILLED OR ENTRY LEVEL	SKILLED LEVEL	MORE ADVANCED LEVEL
Child Care Worker	Child Care Assistant	Child Care Supervisor
Food Service Worker	Food Service Assistant School Lunch Manager	Food Service Supervisor Food Demonstrator
Assistant Seamstress	Seamstress	
Clothing Alterer	Home Furnishings Assistant	Clothing Technician
Hotel & Motel Housekeeping Aide	Homemakers Service	Management Assistant in multi-housing project
Homemaker's Assistant	Management Aide in Low-rent Housing	

The organization of the above chart implies that occupations listed at the semi-skilled or entry-level are not dead-end jobs. For example, with successful performance on the job and with additional preparation, a person may advance from a child care worker into a child care assistant and then to a child care supervisor. It is important that prospective trainees be helped to see all avenues of promotion and/or advancement as a basis for making occupational choices.

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*State Department of Education, "A Guide For Developing Occupational Programs in Home Economics Education", Columbia, South Carolina, 1966, pp 3-5.

GENERAL CHARACTERISTICS OF ALL PROGRAMS FOR GAINFUL EMPLOYMENT

1. The purpose is to prepare persons for gainful employment in an occupation which uses home economics knowledge and skills.

2. Types of programs are determined by available job opportunities, needs, and abilities of persons to be trained.

3. The program combines and coordinates instruction with field, laboratory, and work experience.

4. Training for an occupation is carried to the point of developing marketable skills, abilities, understandings, attitudes, and work habits sufficient to enable the trainee to get and hold a job in that occupation.

5. Continuous study, evaluation, and follow-up of trainees are integral parts of the program and will be conducted by local and state personnel.

SECONDARY PROGRAMS

Organization

Programs are usually offered in the eleventh and/or twelfth grade. At least one year of instruction in homemaking is recommended to precede entry into an occupational program. Upon completion of a training program, the enrollee should have attained the age to enter the occupation for which instruction was provided.

The training program is an integral part of the total school program, thus, allowing students enrolled to complete requirements for graduation.

Two types of programs may be offered.

(a) Preparatory Programs

When offered, a specialized class shall be scheduled for at least one school period for one school year or a minimum of 250 minutes per week for 36 weeks, for which one unit of credit may be earned for graduation. If two consecutive periods, or a minimum of 500 minutes per week for 36 weeks, can be scheduled, two units of credit may be earned.

(b) Cooperative Programs

A two-year cooperative program may be offered. The first year of this program, involves a minimum of one school period daily, or 250 minutes per week for 36 weeks, and carries one unit of credit, is preparatory in nature; the second year requires one hour daily of instruction, or 250 minutes per week for 36 weeks; and, in addition, requires a minimum average of 15 hours of supervised work experience for 30 weeks. At least one-half of the work experience must be during the regularly scheduled school day and during added time when the qualified coordinating teacher is assigned the responsibility for supervision.

A monetary wage shall be paid each student-learner in the cooperative program. Employment must meet standards established by child labor laws.

Any variation from the organizational pattern described above must be approved by the State Supervisor of Occupational Home Economics Education prior to beginning the class.

Student Qualifications

For each student enrolled there must be, as a matter of record, an occupational objective for which the course is designed. This objective may either be a recognized occupation or a cluster of closely related occupations in an occupational field.

Each student must meet employment age requirements established by federal, state, and local laws for the occupation in which they are training.

Students shall be selected on the basis of interest, aptitudes, personal traits, and other evidences of their potential in relation to the occupational objective.

At least one year of previous training in home economics is recommended at either junior high or senior high school level.

Teacher Qualifications

The teacher shall hold a valid Tennessee Teacher's Certificate which carries endorsement in Vocational Home Economics. The teacher must have demonstrated evidence of competencies and experiences necessary to teach, supervise, evaluate, make surveys, and coordinate work experiences. She shall demonstrate knowledge of employer-employee relationships, legal aspects of the world of work, and skill in personal relationships. Work experience related to the occupation or occupations for which training is provided is regarded as contributing to the competencies of the teacher. In order to achieve certain competencies, the teacher may be required to acquire additional training and/or work experiences. Instruction in cooperative supervision shall be required for all cooperative teachers.

Teacher Schedule

In addition to time for class instruction, a minimum of one hour daily in the teacher's schedule must be provided for working with advisory councils, school administrators, and local employment personnel; developing curriculum, teaching procedures and materials; selecting and supervising work experiences; determining qualifications needed by trainees; and assisting in job placement, evaluation, and follow-up of trainees.

A full-time teacher for occupational programs in a secondary program devotes at least four class periods daily to classroom or laboratory instruction in occupational home economics and the remainder of the school day to coordinating and supervising work experience.

A teacher may qualify as a full-time vocational home economics teacher by devoting the full day to a combination of homemaking and occupational classes. Any combination of these classes must include scheduled time for coordination and supervision of both aspects of the program and must have prior approval by the State Supervisor of Home Economics Education.

Teacher Salary

Salaries for full-time vocational home economics teachers in occupational programs in secondary schools or for other groups of persons will be based on the State Salary Schedule for Vocational Home Economics Teachers as published in the current RULES, REGULATIONS, AND MINIMUM STANDARDS, TENNESSEE STATE BOARD OF EDUCATION. For a teacher in a new position or program who is not in the state minimum program the first year of such a program, state and federal funds may be used for 90% of the teacher's salary, with the local board of education paying 10%. The rate of state and federal support will decrease 10% annually and the rate of local support will increase 10% annually until a ratio of 50%-50% is reached, at which level the 50%-50% ratio will continue.

If an existing program in homemaking in a secondary school should change partially or wholly to an occupational program to the extent that it should become outside the state minimum program, state and federal vocational educational funds may pay 50% of the teacher's salary with the local board of education providing 50% of the total salary based on the State Schedule for Vocational Home Economics Teachers. This will be possible only if the teacher is full-time in vocational home economics. At least one-half of the day must be devoted to occupational programs.

If a teacher is within the State Minimum Program, teaching occupational programs in whole or in part, the rate of state and federal vocational supplement will be the same as that used for homemaking teachers.

A teacher employed by a local board of education for occupational programs shall receive general local salary supplements on the same basis as other teachers in the school system.

Programs for Persons Who Have Completed or Left High School and Who Are Available for Full-Time Study in Preparation For Entering The Labor Market.

Organization

These classes are generally classified as post high school classes, or classes of 13th and 14th grade levels. They may be offered in area vocational-technical schools, technical institutes, community colleges, or under carefully selected conditions, they may be taught in the facilities used by secondary teachers, such as high school home economics department and the school lunch room facilities.

These classes will require one or two years in order to achieve sub-professional or technical levels of skills and knowledge.

Teacher Qualifications

A teacher for a program at this level must be an approved vocational instructor. She shall have had sufficient occupational experience as an employed or volunteer worker or in a supervised work program to have demonstrated occupational competence, knowledge, and skill in the subject to be taught. In addition to meeting the above requirements teachers in community colleges must meet the requirements of the college for certification.

Programs for Persons Who Need Training or Retraining to Achieve Stability or Advancement in Employment

These are commonly referred to as programs for adults and out-of-school youth.

Organization

These programs may be offered as extension classes in high schools, in area vocational-technical schools, and in other appropriate places. They may be preparatory or supplementary in nature.

Instruction may be of any duration needed to achieve specific goals.

Teacher Qualifications

An instructor for a training program for these persons must be a high school graduate and have occupational competence as demonstrated through experience and training, as well as knowledge and skill in the area to be taught. The teacher must be capable of adapting occupational materials to the needs of trainees and employers.

Teacher's Salary

A teacher for adults, and out-of-school youth shall be considered a full-time teacher and eligible for pay on a monthly basis if she devotes a minimum of 30 hours per week for four consecutive weeks to occupational home economics programs.

Teachers for occupational programs in home economics for adults and out-of-school youth who are employed on an hourly basis will be paid on an hourly rate as established by the local board of education. In locations where permanent adult preparatory and supplementary classes are conducted, reimbursement may be made at 75% of the cost of the instructor with 25% being furnished by the local school system. Student fees to pay for the local system's share of instruction is not permitted. The local system is to furnish instructional supplies.

In locations where there is little demand for such programs and where one or two classes will supply the need, in order to provide the necessary instruction, reimbursement may be 100% of the cost of the instructor with the local system providing instructional supplies. In the event the program becomes permanent, arrangements will be made to reduce reimbursement at a rate of 5% annually until 75%-25% ratio is reached.

A teacher who is employed on an hourly basis may be paid for time for preparation, coordinating, and supervising work experience, and contacting employers and potential employers at the same rate as for actual instruction. The amount of time to be reimbursed for these purposes shall be not more than one hour for every four hours of actual teaching time.

The salary for a teacher employed full-time in an area vocational school will be based on the salary schedule of the area vocational school. The salary for a teacher employed to teach in a community college will be determined by the institution.

Persons with Special Needs

Organization

Classes may be organized for individuals with academic, socio-economic, or other handicaps to prepare them for entrance into occupations in keeping with their interests and abilities. Programs will vary in duration and intensity according to the needs of the group to be served and the objectives of the program.

Teacher Qualifications

A teacher for persons with special needs enrolled in high school:

(a) must hold a valid Tennessee Teacher's Certificate which carries endorsement in vocational home economics;

(b) should be a successful career teacher; or if a beginning teacher, have special training in order to establish ability to work with these persons;

(c) must have demonstrated an understanding of the cultural background of disadvantaged youth and ability to respect and accept such handicaps;

(d) have a genuine commitment to teaching, believing that disadvantaged youth are educable;

(e) work experience outside of teaching is desirable.

Teacher Salary

Salary for a teacher of persons with special needs will be based on the salary schedule applicable to the type of school in which the course is taught.

GENERAL INFORMATION

Facilities

Space, supplies, and equipment shall be provided by the local agency conducting the training. Specialized equipment shall be provided to implement any proposed training program.

Travel

Travel funds are allowed on the same basis as for homemaking teachers.

Advisory Councils

An advisory council for occupational programs requiring home economics knowledge and skills is needed as the success of a program depends upon a close working relationship between the school and the community. The personnel of the council may include school administrators, home economics teachers, guidance director, prospective employers from business, health and welfare agencies, a representative from Employment Security, and professional women, including a home economist. Such a council is invited by the school superintendent to serve in an advisory capacity. This council has no administrative function.

An advisory council may be asked to help a teacher plan a specific course. Members will be asked to serve on this council because of the unique contribution they can make to the program as a result of their specialized training and/or work experience.

Size of Classes

Classes for secondary school youth and for persons with special needs should not exceed twenty enrollees. Sizes of classes for adults shall be determined by the occupation for which the class is planned and by the facilities which are available. A desirable minimum for most classes is ten enrollees.

Trainee Qualifications

A person who enrolls in a training program must:

- have an occupational objective in the occupation for which the course is designed. This objective may either be a recognized occupation or a cluster of closely related occupations in an occupational field;
- have ability for and interest in the job for which the training is offered;
- have physical and mental health adequate to succeed in the occupation being trained for;
- be able to work under supervision and to follow directions, both oral and written.

Observation and Work Experiences

To supplement experiences provided students in the classroom, arrangements for supervised observation, participation, and work experiences in institutions, businesses, or establishments similar to those in which they may be employed must be included in program planning.

(a) Observation and participation--Some supervised observation and participation in actual work situations early in the training program will

help trainees become familiar with the job, facilities, equipment, and work conditions. Trainees receive no pay during the observation and participation period.

(b) Cooperative work experience--Cooperative work experience means a paid job outside the school, specifically related to the occupation being studied in the school. This is work experience under the supervision of both the employer and the teacher of the course. There must be a signed agreement between the employer, student, and supervising teacher.

Job Placement, Evaluation, and Follow-up

It is important that a student be placed in a job situation where he can best use his abilities and his training, as well as progress in the job.

Evaluation

Evaluation is an essential part of the Occupational Program. Some means of evaluating which might be effective are teacher opinion, student appraisal, written evaluation instruments, pretests and retests, daily progress charts, and employer ratings.

Follow-up

If evaluation is to be meaningful toward the improvement of the program, a follow-up study is essential. Records must be maintained which will reflect whether students trained enter and follow the occupation for which they have been trained.

GUIDELINES FOR DEVELOPING OCCUPATIONAL PROGRAMS

Some Criteria for Determining the Feasibility of Establishing Programs for Occupations Which Use Home Economics Knowledge and Skills

1. Availability of a sufficient number of persons who are interested in specific occupations.

2. Established evidence of opportunities for employment in occupations for which training programs are proposed.

3. Teachers who are qualified or who can become qualified, are available.

4. Work experience situations can be provided.

5. A plan is provided for placement and follow-up of trainees.

6. Needed facilities for training programs can be provided.

7. School and community are able, interested, and also willing, to help support the program.

Steps in Starting a Home Economics Occupational Program

1. Become informed about the occupational program and consider the feasibility of starting such a program locally.

2. Plan steps in initiating a program.
   a. Appoint and work with an advisory council
      (1) to inform them of the program and their role as an advisory group, and
      (2) to get their ideas on making plans for and interpreting the program to others.
   b. Secure and analyze information concerning opportunities for employment in home-economics-related occupations.
   c. Survey potential trainees to determine interest in and possibility of taking the training course.

3. Select specific courses to be offered.

4. Submit application for approval of the class.
   The local school administrator will contact the Regional Supervisor of Home Economics requesting help in planning and organizing an occupational class. Three copies of the form "Application for Establishing Occupational Programs" must be submitted to the Regional Office of Vocational Education. (Copy found in the back.)

5. Submit to the Supervisor of Occupational Programs, prior to the beginning of the class, written plans for the program.
   a. Identify the job by title
   b. Prepare a job analysis

c. Develop curriculum
--give a statement of the purpose, need for training, the specific objectives of the program based on the performance requirements of the job as defined in job analysis.

--plan course content, teaching procedures, teaching materials, references, field trips, and work experiences.

d. Determine qualifications needed for the trainees
e. Determine qualifications needed by the teacher
f. Determine needed facilities and equipment
g. Organize plan for supervision, job placement, evaluation, and follow-up

6. Determine local policies for administering the program.

7. When plans are approved, proceed with implementing the program.

Vocational programs must expand and change if all our citizens are to have access to education and training that is of high quality and realistic in terms of opportunities for gainful employment. The effectiveness of a program training for gainful employment will be determined by the number of graduates employed and whether they stay employed.

Quality programs sell themselves and promote requests for new ones. When trained workers perform on the job to the satisfaction of employers, a program is on its way to success.

Appreciation is expressed to Alabama, California, Kentucky, Ohio, Oklahoma, South Carolina, and the United States Office of Education for permission to adapt and use some of their materials.

STATE OF TENNESSEE
DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
205 CORDELL HULL BUILDING
NASHVILLE, TENNESSEE 37219

APPLICATION

FOR ESTABLISHING OCCUPATIONAL EDUCATION PROGRAMS IN HOME ECONOMICS IN TENNESSEE

School_____ County_____ Date_____

1. Check the employment field(s) where there is justification for training programs.

   ( ) Food Service ( ) Clothing and Textiles

   ( ) Child Care ( ) Home Management

2. Justification for the class or classes based on information secured by surveys.

3. Basis for selecting students.

4. Number of students enrolled--probable enrollment_____.

5. Grade placement of probable enrollees

   a. High School Students Grade 11_____ Grade 12_____.

   b. Post-high school youth and adults_____.

   c. Special needs_____.

6. Time class will meet

   daily_____ length of class_____

   weekly_____ length of class_____

7. Work experience (time and place).

8. **Facilities and equipment - plan for providing necessary facilities and equipment.**

9. Teacher: Name_____

Certificate_____

Years of Teaching Experience_____

Types of work experience or special training in the occupation to be taught:

10. Schedule of Teacher

a. High School Classes - Give the daily schedule of the teacher including teaching and conference periods.

b. Out-of-school youth and adult classes
Number of classes to be taught_____.

Period of employment_____.

c. Special needs
Daily schedule of the teacher.

Signed:_____ _____

(School Superintendent) (Principal)

4 Copies
File 1 Copy
Send 3 Copies to the Regional Supervisor of Home Economics Education

VT 001 664

VT 001 664
Policy and Procedure for Technical Education Under the State Plan for the Vocational Education Act of 1963.

Colorado State Board for Vocational Education, Denver
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 13p.

*PROGRAM GUIDES; TRADE AND INDUSTRIAL EDUCATION; *TECHNICAL EDUCATION; ADMINISTRATIVE POLICY; STATE STANDARDS; *STATE PROGRAMS

The objective of vocational-technical instruction under the Colorado State Plan is to fit individuals for employment in a recognized occupation necessary to national defense. This instruction includes training or retraining for persons preparing to enter a recognized occupation upon the completion of instruction and for persons who have already entered an occupation who desire to upgrade or update their occupational skills and knowledge to achieve stability and advancement in employment. The policies and procedures are outlined under the headings: (1) Objective of Instruction, (2) Occupations to be Served, (3) Vocational Guidance and Counseling, (4) Specific Standards and Requirements which includes secondary school programs, out-of-school youth, adults, and special classes, (5) Procedure for Program Approval, (6) Duties and Qualifications of Local Supervisory Personnel, (7) Vocational Teacher Training, (8) Research, Demonstration, and Experimental Programs, (9) Reimbursement, and (10) Evaluation. (HC)

ED027441

CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION
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COLUMBUS, OHIO, 43212

C.I
311 13

FOR DISCUSSION
PURPOSES ONLY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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POLICY AND PROCEDURE
FOR
TECHNICAL EDUCATION
UNDER
THE STATE PLAN
FOR
THE VOCATIONAL EDUCATION ACT OF 1963

VT001664

THE STATE BOARD FOR VOCATIONAL EDUCATION
ROOM 510 STATE OFFICE BUILDING
DENVER, COLORADO
80203

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I. Objective of instruction

Vocational-technical instruction will be designed to fit individuals for employment in a recognized occupation necessary to the national defense. Such instruction will include vocational-technical training or retraining for:

1. Those preparing to enter a recognized occupation upon the completion of instruction.
2. Those who have already entered an occupation, or desire to upgrade or update their occupational skills and knowledge in order to achieve stability and advancement in employment.

II. Occupation to be served

The following criteria shall be used to determine occupations that are considered necessary to the national defense:

A. The occupation will have a significant number employed or an overall shortage exists or is developing:
   1. In the design, development, testing, manufacture, processing, construction, installation, operation, maintenance, repair or servicing of plant facilities, equipment or products (or parts or accessories thereof) which are of importance for military or other defense activity.
   2. In providing technical services.

B. The industry or activity in which the occupation occurs is necessary to the defense program, such as:
   1. The military.
   2. Suppliers of products or services to the military.
   3. Suppliers of products or services directly connected with defense.
   4. Scientific research.

III. Vocational guidance and counseling

The local educational institution shall provide vocational guidance and counseling personnel and service adequate to:

A. Provide individual students with information necessary for realistic vocational planning;

B. Assist students in carrying out their vocational plans;*

C. Aid students in vocational placement;

D. Conduct follow-up procedures to determine the effectiveness of the vocational instruction and guidance and counseling programs.

The State board staff will provide or cause to be provided pre-service and in-service training programs for local vocational guidance and counseling personnel. The State staff will also make or cause to be made periodic evaluations of local guidance and counseling programs for the purpose of maintaining and improving their effectiveness.

IV. Specific standards and requirements for:

A. Secondary school programs

1. Advisory committees

All programs of instruction shall be developed and operated in consultation with a representative advisory committee.

*All students receiving vocational instruction in preparatory classes under the State plan will have an occupational objective which is a matter of record. This objective may either be a specific recognized occupation or a cluster of closely related occupations in an occupational field.

2. Curriculum will be:

   a. Designed to fit individuals for gainful employment with the instruction related to the occupation for which the student is being trained.

   b. Organized on a systematic class basis and when applicable shall include classroom, field, shop, laboratory or work experience.

   c. For occupations not generally considered to be professional or requiring a baccalaureate degree.

   d. A program of instruction whereby consideration has been given to need and opportunity in the employment market.

   e. Supplementary (extension) curriculum shall be designed specifically for those fields identified by the State Board for Vocational Education short and intensive in nature, consisting of classroom, field, shop or laboratory experience for students who are full time wage earners in a technical occupation needing to upgrade their skills to remain employed or for unemployed persons needing to upgrade outdated skills to become employable.

   f. Preparatory (pre-employment) curriculum shall be designed specifically for those fields identified as technical by the State board and may consist of classroom, field, shop, laboratory or work experience for in-school youth and adults and out-of-school youth and adults available for full time study, who, upon completion of training may enter the job labor market with job entry level skills.

B. Out-of-school youth (same as "a" above)

C. Adults (same as "a" above)

D. Special classes (same as "a" above)

3. Facilities

Classroom, libraries, shop, laboratories and other facilities (including instructional equipment, supplies, teaching aids and other materials) will be adequate in supply and quality to enable those who are to be trained to meet the occupational objective for which the education is intended. Since there is such a wide variety of technical occupations for which training may be given, the facility and instructional material requirements of each program will be judged on individual merit prior to approval for reimbursement.

4. Time requirements

All courses of instruction will be designed to meet the occupational objective of the student within the framework of "not considered professional and of less than baccalaureate degree."

At least 60% of the time involved in preparing a student to meet an occupational objective will be directly associated with the occupational field.

5. Student qualifications

Students enrolling in a technical preparatory program of instruction shall have completed junior high school, or regardless of their school credits, are at least 16 years of age.

Appropriate testing, guidance and counseling shall be utilized by institutions conducting technical preparatory programs to determine student selection for entry into a technical education program in order to establish that the student can reasonably be expected to profit by the instruction offered.

During the conduct of a technical education program, an institution shall provide guidance and counseling services to the students enrolled. Cumulative information gathered on individual students shall include a statement of occupational objective for each and shall become a part of the student record.

6. Qualifications of teachers and conditions of employment

Preparatory and/or supplementary instructors

a. Field, shop or laboratory instructors

(1) Experience

Shall have a minimum of three years' experience in the technical occupation for which the training is being offered, or three years' experience in a combination of occupations directly related to the technical occupation for which training is being offered, or one year experience in the occupation and organized schooling requisite for the occupation as determined by the State board.

(2) Education

Shall have graduated from an accredited high school or have the equivalent of a high school education.

Shall, after three years of teaching, have acquired fifteen quarter hours of college credit in vocational education subject matter as prescribed by the State board.

b. Related instructors

(1) Experience

Shall meet the qualifications for field, shop and laboratory teachers or shall have a minimum of fifteen quarter hours of recognized college credit in each related subject he is to teach.

(2) Education

Shall, after three years of teaching, have acquired a minimum of nine quarter hours of college credit in vocational education subject matter as prescribed by the State board.

c. Special instructors

(1) Experience

Shall have had recent experience in the assigned area or field of work of sufficient quality and duration to assure the successful performance of duties as determined by the State board.

(2) Education

Shall have a background of education adequate to enable the person to carry out the objectives of the training program as determined by the State board.

7. Travel

Travel of local personnel shall be reimbursed when prior approval has been granted by the executive director.

8. Reports

The approval of funds for reimbursement will be based upon submission of the following reports:

a. Project approval or annual renewal

b. Formal contract

c. Follow-up of student placement

d. Financial and statistical report

e. Satisfactory audit

V. Procedure for program approval

The following steps should be taken in securing approval of programs for reimbursement:

A. Following determination by local school authorities that a given program is desireable, a project proposal (Form VE-100, 101 and 101 Supplement) will be submitted to the State Board for Vocational Education. These forms must be submitted prior to the start of classes. One proposal shall be submitted for each project. (See Form VE-100 for a definition of a project.) Expenditures made prior to written State board approval will not be reimbursed. Although the same form will be used to submit all project proposals, it should be noted when completing the form that all items need not be completed for adult classes for employed workers.

B. Projects will be approved for a fiscal year (July 1 to June 30) or for the length of the project whichever is the shorter period of time.

C. Projects which continue beyond the end of any fiscal year may be renewed by submitting a project renewal form (VE-102)

indicating only those conditions which will be changed from those set forth in the original proposal.

D. All vocational teachers, supervisors and administrators upon whose salary reimbursement is requested must hold a valid vocational credential. The following steps should be taken in securing vocational credentials:

1. The local school administrator will submit to the State Board for Vocational Education two copies of the form, "Application for Vocational Credential" along with 1 copy of Form A-2. (See Appendix ____ for samples of these two forms.)
2. The first credential will be issued for one year or fractional part of a year. The year shall be from July 1 to June 30.
3. All other credentials are to be issued for a period of three years, or for two years and a fractional part of a year, depending on the date of issuance.
4. Credentials are to be issued to individuals for a particular school district and not for general use either within the State or outside Colorado. It will, therefore, be necessary for credentials to be issued only on the request of a local school administrator and on the recommendation of a State supervisor.

VI. Duties and qualifications of local supervisory personnel

A. Local director

1. Duties

To have charge under the local school administrator of

all reimbursable phases of vocational education organized in the local district, including the promotion, coordination and supervision of all vocational education programs.

2. Qualifications

Experience - teaching and occupational

A minimum of three years of full time successful experience as a teacher of an approved class or classes in one or more of the recognized vocational fields, and a minimum of three years of successful experience as a wage earner in one or more of the vocational fields meeting the standards of the State plan.

3. Education

A minimum of a bachelor of science degree in one of the vocational fields meeting the standards of the State plan from an approved teacher education institution.

B. Local supervisor

1. Duties

Shall be responsible to the local school administration for the promotion, supervision, development and improvement of the vocational service or phase of vocational education to which assigned.

2. Qualifications

Experience

Three years of successful teaching experience in the vocational field in which he is to serve as a supervisor.

3. Education

Shall meet the minimum qualifications of a vocationally credentialed teacher of his or her particular vocational field.

C. Department heads and coordinators

1. Duties

Teachers and coordinators of vocational programs shall be responsible for planning and conducting classes in vocational subjects and coordinating the instruction with field, shop, laboratory, or cooperative work experience of the students.

2. Qualification and education

See section on qualifications of preparatory/supplementary instructors.

VII. Vocational teacher training

Vocational education under the State plan will include the teacher training program(s) (both pre-employment and in-service) which are adequate to provide for a sufficient supply of teachers, supervisors, and other vocational education personnel in the State. The State board shall be responsible for all such programs in the State.

Teacher training programs shall be maintained for all occupations and occupational fields recognized in the State plan.

Teacher training programs shall include but not be limited to training at both the pre-service and in-service levels for the following positions in vocational education: teachers, coordinators, supervisors, directors, administrators and counselors.

Teacher training programs shall be designed to prepare teachers and other personnel to work with students of all age groups at the pre-employment and in-service levels.

Teacher training shall be provided which trains teachers and other vocational personnel for employment in public high schools, technical and vocational schools, junior colleges and four-year colleges.

VIII. Research, demonstration and experimental programs

Research, demonstration and experimental programs will be conducted as needed for such purpose as trying out new curriculum design, educational techniques, instructional materials, organization methods and other innovations which give promise of producing findings useful in the further development and strengthening of technical education programs. To be reimbursable, such programs must receive written prior approval of the State board before being implemented.

IX. Reimbursement

A. Salaries -- not to exceed 50%

B. Travel -- reimbursable when approved by executive director

C. Equipment-- not to exceed 50%

D. Audit -- see instructions -- appendix

X. Evaluation

The State supervisory staff of technical education shall be responsible for reviewing local programs to determine that they meet the regulations and standards of the State plan and through written reports from school districts and periodic visits shall verify that local educational agencies are carrying out their responsibilities.

VT 001 677

VT 001 677
The Ohio Manual of Operation for Vocational Agriculture Education, A Manual of Operating Policies, Practices, and Standards To Be Used in Organization and Administration of Vocational Agriculture Programs.

Ohio State Department of Education, Columbus. Vocational Education Div.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jul66 37p.

*VOCATIONAL AGRICULTURE; PROGRAM ADMINISTRATION; PROGRAM DEVELOPMENT; *PROGRAM GUIDES; EDUCATIONAL OBJECTIVES; EDUCATIONAL POLICY; ADULT FARMER EDUCATION; HIGH SCHOOLS; YOUTH CLUBS; TECHNICAL EDUCATION; TEACHER EDUCATION; EDUCATIONAL FACILITIES; YOUNG FARMER EDUCATION
*FUTURE FARMERS OF AMERICA

Changes authorized by the Vocational Education Act of 1963 were incorporated into this manual prepared by supervisors and teacher-educators to assist local administrators and teachers in conducting vocational agriculture programs. Included are the specific operating policies, practices, and standards for the broad areas: (1) objectives and scope, (2) nature of the program, (3) department establishment, (4) physical facilities, (5) in-school youth program which includes objectives, enrollment, curriculum, content and nature of instruction, field trips, curriculum, experience programs, recordkeeping, supervision, and credit for satisfactory work, (6) Future Farmers of America, (7) out-of-school program which includes young and adult farmers, and technical courses such as Agri-Business, Agricultural Equipment, Food Processing, Horticulture, and Food Industry Middle Management Technology, (8) teacher education which includes training institution, preservice program, certification, placement, inservice education, graduate program, and research, and (9) local administration, (10) state administration, and (11) use of travel funds. (JM)

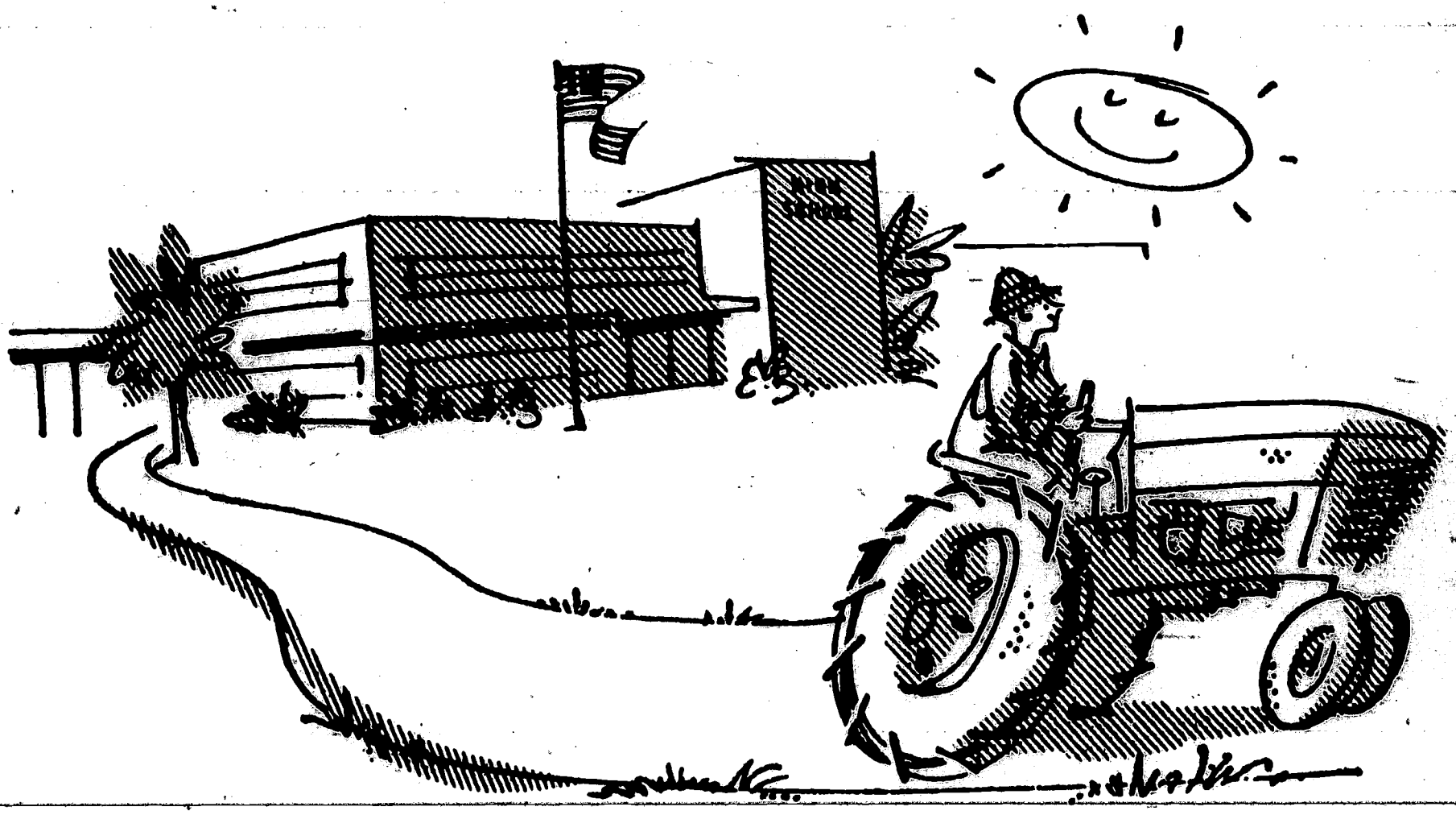
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The Ohio Manual of Operation for Vocational Agriculture Education

Revised July, 1966

A MANUAL
OF OPERATING POLICIES, PRACTICES, AND STANDARDS
TO BE USED IN
ORGANIZATION AND ADMINISTRATION
OF
VOCATIONAL AGRICULTURE PROGRAMS



STATE DEPARTMENT OF EDUCATION

VOCATIONAL EDUCATION DIVISION

COLUMBUS, OHIO 43215

VT 014 977

FOREWORD

This is the third revision of the Vocational Agriculture Manual, first prepared in 1951. Please destroy the Manual you now have as this is a complete revision. This issue includes the changes authorized by the Vocational Education Act of 1963. These changes pertain largely to programs in Horticulture, Agricultural Businesses and Services, Agricultural Equipment, and programs for Disadvantaged Youth.

The Manual has been prepared by members of the Teacher Training and Supervisory Staffs. The staff has endeavored to keep the Manual as brief as possible and yet include the information which will be of most help to administrators and teachers in conducting the program.

Copies have been sent to City and Exempted Village Superintendents and Principals, and to County Superintendents and Local Executive Heads, as well as all Vocational Agriculture Teachers. If additional copies are needed for gudiance personnel and others, please request them from the State Office.

Please file this Manual for reference. Your suggestions and criticisms will be noted for future revisions.

Respectfully submitted,

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1.0 OBJECTIVES AND SCOPE

The major objective of Vocational Agriculture is to train for an employable occupation involving knowledge and skills in agricultural subjects, whether or not such occupation involves work of the farm. Agricultural occupations include any occupation on a farm or in another business, agency or organization which performs one or more of the agricultural functions of production, processing, distribution and servicing. The student in the training program will need to develop competencies in one or more of the primary areas of plant, soil or animal science, farm management, agricultural mechanization and agricultural leadership.

Agriculture is the leading industry in Ohio. It is a growth industry in every way except number of people in production agriculture. However, a recent Ohio Survey shows 1.5 non-farm employees who need agricultural education for each production farmer. An adequate supply of good food is a "must." To guarantee this, we need an adequate educational program to serve all of the agricultural industry, farm and non-farm, at the semi-skilled, skilled, technical and professional levels. Approximately 15% of these will need training at the professional and technical levels.

To meet this need at the "less than professional" levels, Vocational Agriculture is developing a broadened program which should educate for both farm and non-farm occupations where knowledge, skills and abilities in Agriculture are essential. For convenience these occupations have been clustered into the following areas:

Area 1.	Agricultural Production (Preparation for Farming)	a. Plant and Animal Science b. Farm Equipment c. Farm Management
Area 2.	Horticulture	a. Greenhouse and Nursery Production b. Landscaping and Park Service c. Floriculture
Area 3.	Non-Farm Agricultural Occupations	a. Agricultural Business and Service b. Agricultural Equipment and Mechanics c. Agricultural Services
Area 4.	Natural Resources Conservation	a. Forestry b. Soil and Water Management c. Game Management and Recreation

~~Many workers in agricultural occupations need competencies in one~~ or more of the primary areas of plant, soil or animal science, farm management, agricultural mechanization and agricultural leadership.

For a majority of these occupations, a two-year program in basic agriculture is essential. In the third and fourth year a student may specialize in production agriculture, horticulture, or non-farm agricultural occupations.

Vocational Agriculture is a definite part of the program of public secondary education in Ohio. A four-year program in Vocational Agriculture, when properly planned and completed, should qualify a student to pursue courses in higher education, or provide him an excellent background for farming or related agricultural occupations.

The scope of a Vocational Agriculture program also provides for the instruction of the Young Farmer becoming established in farming, the part-time farmer, and the established full-time farmer. Courses may also be organized for youth and adults employed or seeking employment in non-farm agricultural occupations.

2.0 HOW IT OPERATES

Vocational education in agriculture offers training that is practical, personal and challenging. Students are taught fundamental principles and their application and adaptation to agricultural occupations. Objectives of students may vary from farming to farm machinery repair or sales, automation, processing or distribution of farm products, landscaping or conservation. At the local level it involves schools, students, instructors, parents, farms, local business enterprises and business men in developing a program. Schools furnish facilities, guidance and administration. School, farm, business and community facilities provide the frame work for organized class programs and individual instruction.

Any public secondary school is eligible to apply for a program. Approval will be given where the potential exists for a sufficient number of qualified students and where the necessary facilities will be provided. The course is usually offered for all four years of high school. Senior high schools may offer three years of instruction. Students enrolled in non-farm agricultural occupations or in the underachiever group may be enrolled for a two-year period depending on time needed to reach a desirable vocational objective. However, a four-year program is to be preferred as it offers more opportunity for experience and breadth of instruction.

Effective instruction must be practical and closely related to problems which the students actually meet in farming programs and in their training program for non-farm agricultural businesses. Such a program involves careful planning, organized class presentation, effective on-the-job instruction with accurate records and reports of students' accomplishments outside class periods. A supervised occupational experience program of the student may be arranged on a farm, school land laboratory or through a cooperative project in a non-farm agricultural occupation. This is an integral part of the educational program.

The nature of the program requires that a vocational agriculture teacher be employed on a year-'round basis and that farming programs and other occupational experience programs be given careful supervision during

the summer months. In addition, both Future Farmers of America and Young Farmer Chapters conduct summer programs. These include educational and recreational tours and trips, evening classes, camp and other community activities.

Vocational agriculture is an integral part of the total educational program of the high school. It should contribute to the educational objectives of the school. The vocational agriculture teacher is in an excellent position to serve in a liaison capacity between the farm, local business establishments and the school, thereby contributing to the total program of the school.

The Future Farmers of America organization is an integral part of the high school vocational agriculture program. Its general purpose is to motivate students to develop special interests, skills and abilities in special field of endeavor, promote scholarship, provide activities to develop leadership abilities and to encourage them to cooperate in worthy civic and community activities.

3.0 PROCEDURES IN ESTABLISHING A DEPARTMENT

The steps in establishing a department, or the order in which they are taken may vary depending on the local situation and previous contacts with the program. Assuming that there is local interest in a program, the following steps are suggested to the local administrator and board of education:

3.1 Acquaint the community further with the program by inviting a nearby teacher of vocational agriculture and a group of his Future Farmers to present a brief program on Vocational Agriculture and the FFA. Also, a local superintendent with a department or a member of the state supervisory staff could be invited to explain the program, facilities and financing. If a building program is contemplated prior to action requesting a department, secure the facilities bulletin from the state office. Recommended tool and equipment and reference material lists are also available.

3.2 Request an application for pre-approval of a department of vocational agriculture from the State Supervisor of Vocational Agriculture.

3.3 The board of education should take formal action by passing a resolution requesting a department, complete the application and mail to State Supervisor of Vocational Agriculture. Since approvals are made as of July 1, applications should be submitted during the previous school year.

3.4 Upon receipt of the application in the state office, a supervisor will visit the school, survey the proposed facilities and discuss the establishment and operation of the program. The need for rearranging, remodeling or the building of a classroom and shop will also be discussed. Recommendations regarding equipment, tools and reference materials will be made by him.

3.5 If the facilities and probable enrollment appear adequate to meet the criteria for the approval of units under the School Foundation Law, a letter of pre-approval will be sent to the local board with information regarding classroom and shop facilities, equipment and reference materials that will be needed before the appropriate Foundation Unit or Units can be approved.

3.6 Pre-approval carries with it authorization to employ a qualified and approved teacher for the fiscal year July 1 to June 30. It is recommended that an experienced teacher be employed to organize a new department. Recommendations for these men are made by the state supervisory staff. It is necessary that teachers be on the job by July 1 so that equipment and teaching materials may be secured and the rooms arranged. The teacher should also visit prospective students and their parents to explain the program. If it is necessary to employ a teacher after July 1, the contract should terminate on the following June 30. (For further information on employment of teachers, see item 9.2.)

3.7 A supervisor will visit the school in late September to determine whether the conditions set forth in the letter of pre-approval have been met. If they have, the appropriate Foundation Unit or Units will be approved. (Continued approval from year to year is contingent upon the conditions as outlined in paragraph two of the Criteria for the Approval of Units.)

4.0 PHYSICAL FACILITIES

4.1 Classroom - one classroom containing at least 750 square feet equipped with teacher's desk, tables, chairs, blackboard, bulletin board and other equipment and supplies. Provision should be made for daytime darkening of the room for use of projection equipment. Artifical lighting should provide a maximum of 50 foot candles on student work area. Adequate storage space should be provided for apparatus, equipment, supplies, charts and models. If a multiple teacher department is anticipated, a second room of 400 to 500 square foot of floor space should be provided. This room can serve as a second classroom, special conference or committee room, and as a library or reference room. It is desirable that the agricultural rooms be heated independently of the remainder of the building or else

have supplemental heating units so they will be comfortable for evening meetings.

4.11 Classroom Equipment

The classroom should be equipped with tables, chairs, a teacher's desk, a bulletin file, a four-drawer filing case, magazine rack, bulletin board, blackboards, and a cabinet furnishing both display and storage space. Wood, asphalt, vinyl, or some comparable material is recommended for the floor.

4.12 Office and Storage

An office and storage room for books, bulletins, and reference material is highly desirable. It need not be larger than 12' x 12'. It should be adjacent to shop or classroom.

4.13 Shop

The size of the shop should depend on the enrollment and type of program. Approximately 100 square feet of floor space per student in the largest class should be provided. This ordinarily gives a range of 2000 to 2400 square feet of floor space in the shop. This should be increased to 5000 square feet when training for employment in the agricultural equipment field is anticipated. Economical additional space can often be added by enclosing an area 400 to 600 square feet adjacent to the shop door with a chain link fence. This area may be roofed and have electrical and water outlets. It is valuable for storage and provides valuable additional work space in mild weather.

Separate shops should be provided for Industrial Arts and Vocational Agriculture classes in schools with larger enrollments. In smaller schools, shops may be used jointly but this requires thorough planning and highly cooperative attitude on the part of both instructors. It is suggested that the local school administration and the two instructors work as a committee during the summer in setting up a schedule for the use of the shop during the school year. It is not desirable for both instructors to use it at the same time. Separate hand tools with separate storage is recommended for schools in which both industrial arts and vocational agriculture departments share a joint shop. Responsibility for maintenance and security of equipment is determined by this plan.

The farm shop should not only be ample in size, but it should be equipped for farm mechanics and engineering. These installations are shown in the booklet, "Facilities for Vocational Agriculture."

4.14 Greenhouse

Schools planning to offer vocational horticulture should provide a small greenhouse adjacent to or near the classroom. Approximately 40 to 50 square feet of work bench space should be available for each student enrolled in the class. Additional space will be needed for soils work area, hot beds and cold frames. Classroom will be needed for discussion, demonstration and work incident to greenhouse instruction.

4.2 Equipment and Apparatus

The equipment and apparatus in the shop and classroom will vary with the type of agriculture in the community. When a department is approved, the district supervisor and the local instructor will collaborate in making recommendations from the apparatus, equipment and tool lists, selecting those items needed. Additional items will be needed in subsequent years as new types of equipment become available or as the original equipment becomes worn or obsolete. A list of recommended tools, equipment, and apparatus is available from the state office. Legislation enacted in 1963 provided a limited amount of federal money each year on a matching basis for equipment and tools. Request forms for funds are submitted to schools late in the fall that they may make application for special assistance.

4.3 Reference Materials

Since many textbooks are too general to be of help in solving specific farm problems, most teachers rely on reference books, bulletins and farm publications for technical agricultural information. The number and kinds of books and bulletins needed will depend on the number of students enrolled and the agricultural enterprises common in the community. Recommendations will be made by the local instructor, based upon the list of recommended reference books and bulletins, available from the state office, with the aid of the local administrator and the vocational agriculture supervisor. Subscriptions to appropriate farm publications are a necessary supplement to the library of the vocational agriculture department.

Each department will be expected to follow the AGDEX system of filing materials. Uniform filing in all departments is highly desirable considering the large amount of reference materials

needed and changes in teachers. Material and information for setting up AGDEX is available through the Iowa State University Press, Ames, Iowa.

4.4 Vocational Agriculture Instructional Materials Service

The Ohio Vocational Agriculture Instructional Materials Service is in position to supply appropriate curricula materials for teachers of vocational agriculture at a nominal cost. These materials include printed matter and other audio-visual media that may be employed by the teacher to make the communication process between teacher and student more meaningful.

The curriculum materials provided by the service is based on the curricular needs of vocational agriculture in Ohio as determined by teachers and staff members.

The service will locate, review, and select instructional materials that best meet local and state needs. The service will edit and prepare materials in areas where needed if not available to teachers.

The availability of materials will be announced to teachers by means of an Instructional Materials Service News Letter and Catalogue. Schools may order materials from the Ohio Vocational Agricultural Instructional Materials Service, Department of Agricultural Education, 2120 Fyffe Road, Columbus, Ohio 43210.

4.5 Other Facilities

A school bus should be at the disposal of the vocational agriculture teacher so that classes may take field trips to farms, processing plants, and marketing facilities. The entire community becomes a laboratory for the classes, and trips to class members' farms add interest and make the teaching situation realistic. The use of a school bus is conducive to supervision and safety.

4.6 Annual Equipment Budget

The cost of equipping and maintaining a department varies from year to year and with the size of the department. It is suggested that $300 to $500 be budgeted annually for replacements, repairs and consummable supplies. New equipment should be added as needed.

5.0 PROGRAM FOR IN-SCHOOL YOUTH

5.1 Objectives

The major objective of the program in Vocational Agriculture is to aid students in gaining a proficiency in farming and assist those preparing for other occupations requiring knowledge, skills and abilities in agriculture. Preparation for agricultural occupations is the primary objective of the program. However, the program also provides experience and training designed to develop capable and useful citizens.

5.2 Enrollment

The program in Vocational Agriculture is designed for students of the ninth grade level or above. Any student with an opportunity to develop a farming or horticulture program, or interested in participating in an agricultural work experience program, or in a non-farm agricultural work experience program, is eligible to enroll. Where the student lives is immaterial as long as there is a special interest and desire in becoming established in some phase of agriculture or work closely related to agriculture. The sincerity of the student, his enthusiasm and desire are important factors in determining enrollment. The final decision regarding enrollment should be the result of careful guidance and counseling between teacher, guidance counselor, local administrative head, parent and student.

Each student enrolled in the program will conduct a supervised occupational experience program on a farm or in a school land laboratory or greenhouse, on the farm placement with a farmer, or on on-the-job training on a non-farm agriculturally related job as a part of his training program.

5.3 Curriculum

Vocational Agriculture is an integral part of the total school program. The optional time plans for Vocational Agriculture curricula are flexible enough to allow the student to enroll in the academic course offerings, including math and science, required and/or needed for college entrance. (See Criteria for Approval of Units in Vocational Agriculture, Appendix.)

5.4 Content and Nature of Instruction

The program of vocational agriculture is based upon the premise of learning by doing. This premise is applicable in the classroom, shop, land laboratory, farm, or on the job in non-farm agricultural related occupations. Technical information supplemented by practical experience develops confidence on the part of the student in his ability to do.

5.41 The breadth and scope of Vocational Agriculture program has been broadened by federal legislation enacted in 1963. In addition to the regular program of production agriculture or horticulture, agricultural training can be offered to students interested in non-farm related agricultural occupations and to underachievers who are interested in agricultural fields. (See Criteria for Approval of Units in Vocational Agriculture in Appendix.)

5.411 The Vocational Agriculture curriculum should be made up of broad basic units in plant and animal science in the ninth and tenth grade. Basic shop skills and abilities are integrated in the curriculum. The eleventh and twelfth grades may be more specialized depending on interests and needs of the students. Areas of specialization include Agricultural Production, Farm Business Planning and Analysis, Horticulture, Agricultural Equipment and Mechanics, Natural Resources and Conservation, Agricultural Business and Service.

Area 1. Agricultural Production - This program would develop the competencies necessary for the student to enter farming or other agricultural production occupations. The course of study will include areas of advanced plant and animal science, farm management and farm equipment. The occupational experience program of the student will be conducted on the home farm, through placement experience on another farm, or in the school land laboratory.

Area 2. Horticulture - The purpose of this program would be to provide instruction and experience programs for students who are interested in becoming employed in horticultural occupations. The major area of instruction would include greenhouse management and operation, ornamental and nursery stock production, landscaping and turf management, production of greenhouse vegetables, floriculture, fruit production including small and stone fruit, and vegetable production. The occupational experience program of the students can be conducted at the school provided that greenhouse, land laboratory, and other facilities are available. Otherwise, the student would be placed in horticulture establishments for on-the-job training. In addition to the occupational experience program of the student, there would be related classroom instruction.

Area 3. (a) Agricultural Business and Service - The purpose of this program is to prepare students to display and sell agricultural products and supplies and to provide agricultural services needed by people in both rural and urban communities. This program is accomplished by establishing a cooperative arrangement between the school and agri-businesses and industries in the community. It is designed to enable the student to receive specific on-the-job training for their chosen occupations while completing requirements for a high school diploma. The students should be enrolled in a class consisting of related instruction which supplements the on-the-job training. This program is designed to help prepare students for direct entry into occupations similar to the following:

Feed Sales and Service
Fertilizer Sales and Service
Farm and Garden Seed Supply Service
Sales and Service of Agricultural Supplies and Equipment
Sales and Service of Agricultural Chemicals
Grain Marketing
Petroleum Sales and Service in Agriculture

The related instruction will include agricultural merchandising, agricultural salesmanship, business procedures, organization and operation of agricultural businesses and business management and principles.

(b) Agricultural Equipment and Mechanics - The purpose of this program is to develop the degree of competencies needed for agricultural entry and advancement in the service occupations in agricultural machinery manufacturers and dealerships. The instructional and training program would consist of the operation requirements in the maintenance of tractor engines, field machinery, and other agricultural equipment, and the sales and distribution of agricultural machinery equipment and parts. This instructional and training program would provide the necessary skills and abilities for entry into the following occupations:

Agricultural Machinery Mechanics
Set-Up and Delivery Man
Agricultural Machinery Parts Man

If facilities and equipment are available at the local school, the majority of this program should be conducted in the local school. However, if facilities are limited, then the student should receive the occupational experience in an agricultural machinery dealership.

Area 4. Natural Resources Conservation - This program would develop the competencies necessary for the student to enter some phase of conservation--Soil and Water Management, Forestry, Game Management and Recreation. Employment might be on the home farm or with a company or service which serves in some area of conservation. The course would be designed to meet the vocational objectives of the students. Some of the occupations in this area follow:

Farm Manager
Forester
Game Management Helper
Soil and Water Assistant
Recreation Area Manager
Tree Farm Employee - Nursery

Area 5. Farm Business Planning and Analysis - This program presents a business-like approach in Young and Adult Farmer education as it relates to the operation and management of modern-day farms. This approach provides a realistic and logical procedure to help farm operators learn the pertinent facts about their farm business. The Farm Business approach necessitates keeping farm records, making a record summary and analysis, and then planning and organizing the business in light of the records.

High school students using this approach to farm management have a basic approach to farming that will serve as a guide in helping them make decisions in planning, operating, and managing a commercial farm business.

5.412 A special program can be established for students of limited ability. Students with an IQ of 75 to 90 who have an interest in developing skills and abilities in agriculture or horticulture may enroll for training. Facilities of shop, school ground, and land laboratory may be utilized in developing a training program. Special unit approval can be given when this program is offered in connection with regular Vocational Agriculture or Horticulture program. (See Appendix.)

5.413 The curricula should include a study of basic principles necessary for learning by relating them to specific problems likely to be encountered by the student. Basic principles of agricultural science including farm mechanics and management related to production problems.

5.414 The curricula should provide activities designed to develop capable citizens.

5.415 Provide counsel and guidance which will enable students of vocational agriculture to become familiar with the many opportunities in agriculture and related fields.

5.5 Field Trips

Training in the classroom, shop, greenhouse and school land laboratory needs to be supplemented by field trips to local farms, lumber yards or business firms related to agriculture in order to observe and practice skills and to observe practices and procedures being followed by successful farmers and business men. Most field trips are of a local nature and are taken during the regular class period. If a longer period is needed, the trip should be cleared through the school office well in advance, and work missed in other classes should also be made up in advance. All field trips should be carefully planned and closely related to classroom instruction. Since field trips are an essential part of the teaching programs, local boards of education are asked to provide transportation as a requisite to approval of the program. Provision for transportation should be made prior to the first day of school in the fall. School busses are most frequently used for transportation. Teachers may qualify as bus drivers.

5.6 Development of Supervised Occupational Experience Programs

Occupational experience programs provide an opportunity for students to get worthwhile agricultural experiences in connection with the high school program in Vocational Agriculture. They provide students with an opportunity to become established in farming or gain experience in an agricultural related occupation. They should be realistic and conducted in a business-like manner. They should be large enough to be challenging and should increase in size and quality from year to year. Experiences should be planned so the student gains the competencies needed to attain his vocational objective.

Students are encouraged to enter into a partnership with the parents on the entire farm business or a major enterprise of the business where the family situation permits and students have shown maturity. The partnership arrangement provides an excellent opportunity for training in decision making, record keeping and analysis, risk sharing, insurance, financing, tax study and sound business agreements.

Students who have a limited opportunity at home may arrange to work for a commercial farmer. Commercial farmers often need additional help and welcome the opportunity to help a student develop farm skills and abilities. Where possible, arrangements should be made for a student to share financially in an enterprise in addition to receiving an hourly wage.

Students with limited farming opportunities at home may also develop programs in connection with school land laboratories. Boards of education are encouraged to provide land and equipment for this purpose. Knowledge, skills and abilities needed in both farm and non-farm agricultural occupations may be gained through this arrangement

Other students may pool their capital and energy in a cooperative project. The operation of a major cooperative project may be more realistic and challenging than if each individual conducted a minor project. Not only do they learn agricultural experiences in connection with their project, but they learn to work together and accept responsibilities. A cooperative project may be conducted in connection with a school land laboratory or on rented land easily accessible to the school.

Students preparing for a non-farm agricultural occupation should arrange for supervised occupational training in an agricultural related business. A training program is developed by teacher and employer for a minimum of 540 hours, except for semi-skilled occupations where this amount is not needed. A minimum of 5 hours of related training per week is given during the school day.

Supervised occupational experience may be gained during the school day, or during the summer months and/or on week ends and evenings. Most agricultural occupations require a broad knowledge of agricultural subjects as well as a variety of manual skills and abilities. This will necessitate a well planned, comprehensive program of practical experience and related training. This may require a minimum of three years enrollment in vocational agriculture if the graduate is to be adequately prepared for an agricultural occupation.

5.7 Recordkeeping

Recordkeeping and analysis of records can be one of the most valuable phases of the vocational agriculture program. Recordkeeping includes:

a. Working out a satisfactory business arrangement between students and other party.

b. Establishment of worthwhile, realistic, challenging goals.

c. Development of plan to accomplish goals.

d. Keeping records of experiences in agricultural occupations.

e. Keeping accurate financial records.

f. Summarizing and analyzing records at the termination of the project or work period. An evaluation can be a valuable guide in pointing the way to improving the students' work experience program the following year.

5.8 Supervision

Supervision of the student's occupational experience program or on-the-job training is essential in helping the student accomplish goals and develop the necessary skills and abilities needed to handle the job successfully. The teacher needs to make frequent visits through year-'round supervision to the home farm of the student or place of employment. Special assistance can be given at this time which correlates class room instruction with real life situations. The teacher is in an excellent position to supplement home and on-the-job training. He can counsel with the parents, employer, and students regarding the development of the program.

5.9 Credit for Satisfactory Work

The amount of credit to be given for Vocational Agriculture is determined by the local school. Most schools give one and one-fourth units for successful completion of school work and occupational experience programs. More credit may be earned if more than 450 minutes of classwork is scheduled per week. No credit is earned unless both class work and occupational experience training is carried to successful completion. The final grade is not given until the occupational experience is completed because it is an integral part of the Vocational Agriculture course.

A student in non-farm agricultural occupations can earn four units of high school credit. This may be divided on the following basis--one unit, civics and government; one unit, related training; and two units for on-the-job training if during class time. Credit for on-the-job training is given at the conclusion of a satisfactory training program.

6.0 THE FUTURE FARMERS OF AMERICA (FFA)

6.1 The Future Farmers of America is a national organization of students studying Vocational Agriculture in the public secondary schools. It is an integral part of the total program, serving as an intra-curricular activity. It is under the supervision of the teacher of Vocational Agriculture who serves as the chapter

advisor. The FFA supplements the program of Vocational Agriculture. When properly organized and conducted, it provides a program of activities to give students experience which will enable them to serve as capable citizens.

A well-planned FFA program provides incentives for the development of better occupational experiences and for better work in school. It will also provide activities to develop leadership, cooperation and thrift, and enable students to serve their communities in recreational and social areas. A clear line of demarcation between Vocational Agriculture and the Future Farmer program does not exist as both contribute to the same objectives and supplement each other.

6.2 Use of School Time

Since the FFA program is intra-curricular, it is entirely proper that some in-school time be devoted to its development. This is especially necessary in training members to work in committees; in developing abilities needed in speaking, conduct of meetings, arranging banquets, radio and other types of programs; and to prepare exhibits for fairs and other community activities.

6.3 Establishing an FFA Chapter

Regularly established departments of Vocational Agriculture have FFA chapters which have been chartered by the Ohio FFA Association. Newly established departments desiring a chapter can secure a charter by the following procedure:

a. Effect a temporary organization of interested students enrolled in Vocational Agriculture or Horticulture and elect temporary officers.

b. Take official action authorizing the secretary to request a charter from the Ohio FFA Association.

c. Select a name for the proposed chapter.

d. Send the request for a charter (in common letter form) including the proposed chapter name and a charter fee of $1 to the State FFA Association, State Office Building, Room G-16, Columbus, Ohio 43215.

6.4 Membership

National FFA membership is open only to boys. Ohio has received permission, however, to accept membership from any student of Vocational Agriculture, including girls and non-farm youth. These students may participate in any chapter, district, or state activity that the regular on-farm boy may participate in.

6.5 Planning the Program

The FFA year is from March 1 to March 1. Most of the chapters elect new officers in February to permit them to attend district award and officer training meetings, arranged by the State Association.

During the months of March and April the new officers build the chapter program for the coming year. The activities are usually grouped in the following areas:

Supervised Farming	Community Service	Recreation
Leadership	Conduct of Meetings	Thrift
Scholarship	Cooperation	Public Relations
State and National Activities		

A committee of members is usually appointed to be in charge of the planning for a particular area and this same committee may be assigned the responsibility for carrying out the activities. The reports of these committees are compiled to form the complete program. These committees work under the direction of the teacher and the tentative program is given to the supervising principal for his suggestions and approval. Finally, the tentative program is presented to the entire chapter for approval and adoption.

6.6 The Chapter Program Content

The content of the chapter program of activities will vary to meet community needs. It will also vary with the size and interests of the chapter. It should be of ample size to challenge the abilities of the members and yet not be impossible to accomplish. It should fit into the total school program. Such a program provides a series of activities which extend throughout the year. Chapter meetings are held once each month and more often during certain times of the year. In most chapters the majority of the meetings are held in the evening although during winter months some meetings are held during school time. The chapter program should be developed with the counsel and approval of the local administrator. FFA membership is not required of all Vocational Agriculture students although it is encouraged.

6.7 The District Program

Many FFA activities are scheduled on a district basis. These are arranged by the teachers and officers within the district in cooperation with the state officers. District programs vary considerably, but usually include speaking, parliamentary procedure, livestock judging, in addition to meetings for training officers. The schedule of activities should be planned with the knowledge and approval of local and county school administrators. Activities should be planned so as not to interfere with regular school activities.

6.8 The State Program

The chapter is considered active when dues are paid to the State Association. Members of active chapters are eligible to participate in all FFA District, State and National activities and awards. A State Convention is held and each chapter is represented by two official delegates, although all members of the chapter may attend. During the year the State Association sponsors many activities and awards, designed to encourage FFA members to participate in a maximum number of desirable activities. These are all financed through the State and National FFA Foundations. The Foundations receive funds from contributions by individuals, organizations, agencies, and business concerns. The state program of activities is developed with the knowledge and approval of advisory committees of chapter advisors and administrators.

6.9 Ohio FFA Camp

Ohio Future Farmers lease and operate FFA Camp Muskingum. These facilities provide an excellent environment for conservation education, leadership training and recreation.

The camp program is so designed that Vocational Agriculture teachers who attend will develop additional abilities which will enable them to become more effective FFA advisors in their local chapters. The local advisors are members of the camp staff and teach in the many areas of instruction.

The camp facilities and camp program are administered by a Board of Trustees composed of five Vocational Agriculture teachers (FFA Advisory Committee), and twelve Ohio Future Farmers (State Officers), in cooperation with the State Staff.

At camp, FFA members live in a true laboratory where they help plan, through democratic processes, for their own leadership, health, religious living, work and recreation. The training that they receive supplements the instruction they get in the classroom and on the farm. Any Future Farmer may attend. A number of camp scholarships are available to worthy students. General camp periods are provided in addition to specialized leadership camps.

7.0 OUT-OF-SCHOOL EDUCATIONAL PROGRAM

The out-of-school program for young and adult farmers and for employees where knowledge and skills of agriculture are essential is considered as an integral part of the Vocational Agriculture program. This service can be given through classroom instruction, shop work, and through individual and small group instruction on the farm. As young farmers

advance in farming, they have special problems in finance, credit, insurance and production problems. As adult farmers, they must be constantly alert to new practices and procedures.

Teachers have found it advantageous to arrange separate classes for young farmers, usually 18 to 35 years of age, as their problems and social interests are different from those of older farmers. Many younger groups are taking a special interest in learning more about their home farm business through an organized program of farm business records and analysis. This phase of instruction is often followed by classes in enterprises common to the community. Operational shop skills are of frequent interest to the young farmer group.

Many young farmer groups have organized young farmer chapters which affiliate with the Ohio Young Farmer Association. Locally this group helps determine the instructional program and arranges for social and recreational activities. On a statewide basis, they help plan and conduct an Annual Conference, weekend camp and a young farmer awards program and regional tours.

The organized adult farmer program usually extends during the winter season. It is generally more technical than the young farmer program. Extensive use is made of experienced members of the group and other well-informed resource leaders. This group has less social and recreational activities than the young farmer group.

Enrollees are usually persons who are engaged in or plan to engage in farming on a full- or part-time basis. Other persons who have a special interest in agriculture may enroll. Nearly all enrollees find some special practice or improvements to be made on the home farm as a result of the instructional program. Many enrollees are keeping complete farm records under the direction of the Vocational Agriculture teacher. At the end of the year records are summarized and analyzed. They are used later as a basis for instruction and possible adjustment of the farm business.

An enrollment fee to bear part of the cost of instruction is permissable. It is very essential in a shop course using a large amount of consummable supplies. On-the-farm instruction is a fundamental part of all Vocational Agriculture instruction. The basis of this is the farming program with improvement practices which the student elects to carry out on his farm as a result of his participation in an adult course. The teacher should schedule on-the-farm visits to each enrollee. If possible, plans should be made in advance for problems to be considered at the time of the visit. On-farm teaching visits should be conducted with particular reference to individual needs and should be seasonal for problem or project involved.

Vocational adult instruction is not considered as an integral part of the Ohio School Foundation Unit for reimbursement from state funds. However, it can be integrated with fractional unit approvals for

partial reimbursement from vocational funds if the time beyond the fractional unit approval is made available for the development of an out-of-school program for young and adult farmers.

When an adult program is conducted, the teacher of Vocational Agriculture can be paid a standard rate per hour from local funds for classroom instruction and planned, scheduled, on-the-farm visits to regularly enrolled young and adult farmers. The local board of education in turn will be reimbursed from vocational funds for a part of the expenditures for this program. However, a budget must be approved by the assistant supervisor prior to starting adult instruction.

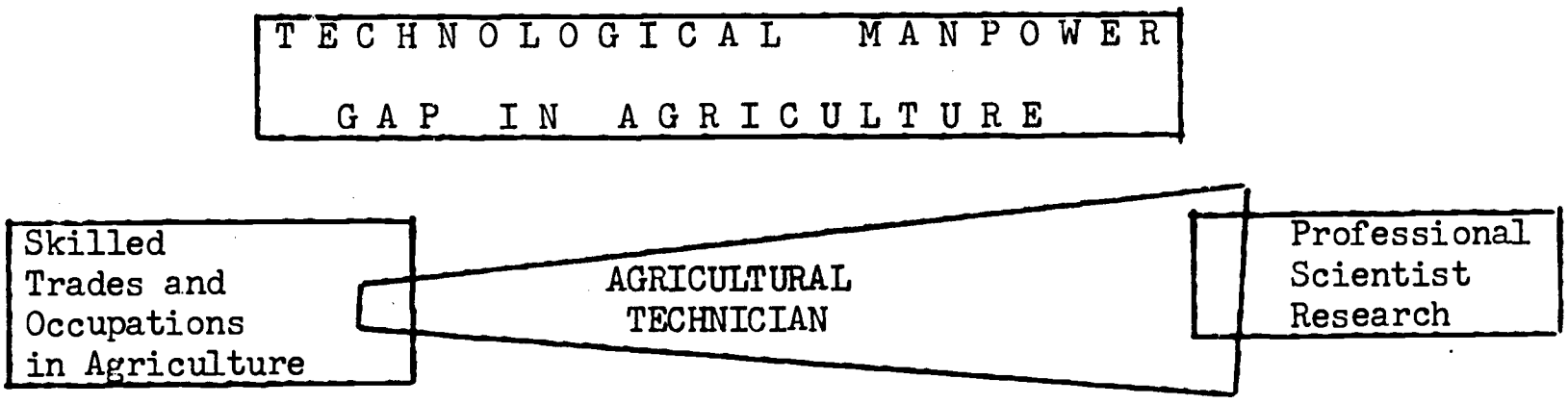
The local instructor of Vocational Agriculture is usually the best qualified person to conduct young and adult farmer classes because he is a trained teacher and knows the enrollees and the community. If the course is highly technical or if the instructor has a heavy teaching load, a specialist may be used or a special instructor may be employed. Prior approval by the Assistant State Supervisor of Vocational Agriculture is required in order for the local board of education to be reimbursed for the special teacher's salary from vocational funds.

7.1 Technical Education in Agriculture

The continuing agricultural revolution and the impact of new and powerful economic forces on agricultural production, processing and marketing is the basic cause of today's need for technically-trained individuals in agriculture.

Vocational technician training in agriculture should be a two-year, post-high school program of preparatory instruction in technical agriculture and related sciences, business and management principles, communication and leadership abilities, and manipulative skills which qualifies the individual to pursue careers in technical or semi-professional fields in agriculture.

The agricultural technician is a para-professional person who understands the technological principles used by the profession. His detailed knowledge enables him to effectively organize and direct the activities of the operation in which he is involved. He possesses the knowledge as to why and the skills and abilities as to how.



Courses of instruction shall be two years in length when conducted on a full-time basis. Such programs may be operated for a longer period of time when on a part-time basis. A minimum of twenty-five class and/or laboratory hours per week for a period of thirty-six weeks shall be considered an academic year.

The curriculum for each technology program is developed with a minimum of 50% of the total instructional time being devoted to specialized laboratory experiences and related technical subjects; a minimum of 20% of the total instructional time being devoted to the development of skills in oral expression, written forms of communication and graphic forms of expression, and other leadership development skills; a minimum of 15% of the instructional time being devoted to basic laboratory or manipulative experiences.

7.11 Agri-Business Technology

The instructional program consists of feed and farm supply sales and purchase; the marketing of farm produce, including grain and livestock; the selection, use, and application of farm chemicals, including fertilizers, insecticides, and herbicides; and seed selection and use.

The students are prepared to enter technical positions in farm and grain elevators; feed, seed, and fertilizer establishments; and federal and state inspection service.

7.12 Agricultural Equipment Technology

The curriculum is designed to help students acquire new skills and abilities needed in the agricultural equipment area. The students will develop the ability to select, demonstrate, install, and maintain agricultural equipment. They will understand the importance of the ability to utilize technical bulletins and manuals relative to the industry and be able to communicate effectively.

The students will be instructed in the general principles of business organization, management, and procedures relative to the agricultural equipment industry and selected areas of agricultural economics.

The technician will be employed in the manufacturing, sales and distribution of agricultural equipment.

7.13 Food Processing Technology

The program is designed to train individuals to assist in quality control, inspection, research and development, and plant management in the food processing industry.

The technician will be heavily oriented along laboratory lines with emphasis on quality measurement, assurance, and analysis. Over one-third of the instruction will deal with the analytical area concerned with production control.

7.14 Horticultural Technology

The curriculum gives major emphasis to greenhouse production and produce merchandising, ornamentals, landscaping, turf and park management, and floral and nursery plant culture and sales.

Students will be trained to assume technician positions in commercial establishments, city and county park systems, and wholesale and retail garden centers. Technicians are needed to supervise the production of landscape plans, construction of landscape designs, and maintaining the finished landscape plans.

7.15 Food Industry Middle Management Technology Program

This program is designed to train technicians primarily as middle management personnel to supervise specific unit operations in processing; to serve as foreman or production group leaders; to assist and to supervise maintenance, plant safety, sanitation, and process control. These graduates will concentrate their training heavily with factory operations, equipment operations, personnel management and process control. They should be well trained in the day-to-day operations of the specific segments of the food industry.

8.0 TEACHER EDUCATION IN OHIO

8.1 Purpose

The purpose of the teacher education program in Ohio is to prepare competent teachers of Vocational Agriculture. The program includes in-service as well as pre-service functions.

8.2 Training Institution

The Ohio State University has been designated as the training institution to prepare teachers. It has in the College of Agriculture a very complete program and adequate facilities to accommodate as many as need preparation in this field.

8.3 Pre-Service Program

8.31 Selection and Guidance

The Department of Agricultural Education makes an effort to select students who have a strong potential for becoming successful teachers. This involves the selection and guidance of young men with agricultural experience, who are able to get along with people, and who possess the necessary mental and physical health and scholastic capacity.

Teachers of Vocational Agriculture, school administrators, guidance counselors and others are asked to counsel with good college prospects concerning the possibilities of teaching Vocational Agriculture as an occupation.

During the course of the four-year pre-service program, standards of performance and academic proficiency are used as the basis for the continuous selection of men. Guidance is provided the individual on the basis of his interests and aptitudes. Student teaching becomes an excellent device for helping to determine those students who may not possess desirable qualities or competencies for teaching.

8.32 Curriculum

The curriculum for the preparation of teachers consist of preparation in the basic arts and science to provide for a broad training in general education. In addition, technical and professional courses are included in 210 quarter hours that are required for a Bachelor of Science Degree in Agriculture, with a major in Agricultural Education. The department is committed to the policy of providing participating experiences as a basic part of the professional program. Most of the participation experience is provided in selected cooperating schools. The curriculum is regularly studied to determine that it provides the best training program possible.

8.4 Certification

Students satisfactorily completing the four-year curriculum are qualified to receive a four-year provisional certificate.

8.5 Placement of Beginning Teachers

The Department of Agricultural Education assists local boards of education in securing the services of qualified beginning teachers. The state supervisors of Vocational Agriculture provide the department with a list of approved vacancies. Graduating seniors

are advised of these vacancies and an effort is made to place students in positions in which they will be able to best serve. The department provides a confidential statement based on the student's experience as a guide to administrators in making their selections.

8.6 In-Service Education of Beginning Teachers

Even though the prospective teacher is well trained, continuous professional growth is necessary in order to develop the best program in local communities. Therefore, new teachers are very closely supervised by the Teacher Education Department during the first year of teaching. Much staff time is used in planning and conducting individual visits, and evening group meetings that are held on an area and a statewide basis. The amount of time required from a teacher's classes or school program is kept to a minimum. The work of the Teacher Education Staff is supplemented by the cooperating teachers distributed throughout the state who likewise visit the beginning teachers. It is the policy of the Department to keep the school administrators and supervisors informed concerning this program and to cooperate in every possible manner with them to develop a strong program of in-service education.

8.7 Graduate Program

The Department of Agricultural Education offers a program of graduate work that leads to both the Masters and Ph.D. Degrees. One of the major purposes of this program is to strengthen the competency of teachers. Much of this work is offered during the first term of the Summer Quarter in the form of three-week workshops as well as courses for five weeks. In addition, several courses are offered on an off-campus basis. This makes it possible for a group of teachers located in a given area to receive instruction during the school year. By taking advantage of these offerings and developing a plan, a teacher can easily secure his Masters Degree within the normal six-year limitation rule of the Graduate School.

8.8 Research

The staff of the Department of Agricultural Education is committed to a policy of devoting time and effort to research. This program needs to be coordinated with other educational agencies and organizations for the purpose of providing direction toward the development of a more effective program in agricultural education at the local as well as state level. In this program the staff will provide assistance in evaluation and field service studies on a group or individual basis. This program is under the direction of a joint staff of teacher trainers and supervisors.

9.0 ADMINISTRATION ON THE LOCAL LEVEL

9.1 Place of Vocational Agriculture in the Total School Program

The local school administrators and the board of education have definite responsibilities for the success of the Department of Vocational Agriculture. The nature of the program is such that it requires interpretation to other members of the faculty so that the program may be better understood and coordinated with the other departments in the school. It should be regarded as a part of the total school program, the same as any other department, and the local supervision should be on that basis.

9.2 Employment of the Teacher

It is the responsibility of the local school administration to select the teacher and determine the salary, granting that the teacher is properly qualified and approved by the State Department of Education. Recommendations for beginning teachers are made by the Department of Agricultural Education, College of Agriculture, The Ohio State University. Recommendations for experienced teachers are made by the supervisory staff. The nature of the Vocational Agriculture program makes it necessary that teachers be employed and on the job on a twelve-month basis, starting July 1.

Teacher time-travel reports, submitted monthly, provide the basis for approval of extended service beyond regular school year.

Since the Vocational Agriculture teacher serves 12, four-week periods during the year, it is customary to arrive at his salary by multiplying the school schedule by 12/9 when the regular school term is 36 weeks.

9.3 Vacation

Vacation shall not exceed 20 working days, excluding legal holidays. The vacation may be taken during vacation periods during the school year or during the summer at the approval of the local administrator. It is recommended that not more than two weeks of vacation be taken at a time except for in-service education. Vacation time can be carried over for this purpose from the preceding year. Three days of vacation shall be charged for each quarter hour of graduate credit earned through summer classes.

9.4 Travel

Boards of education must budget adequate funds for travel to carry on a complete program of Vocational Agriculture for Future Farmers,

Young Farmers and Adult Farmers, and for related community activities. This should be a minimum of $400 per year, with larger amounts in a larger school district. The amount should be sufficient to meet anticipated needs; but if demands for travel exhaust the fund before the end of the year, advise the state office as early as possible so that an additional grant can be made if funds permit and the situation warrants. It is also the responsibility of the local school administrators to examine and approve the time-travel reports before the teacher is reimbursed. (See "Use of Travel Funds" in Appendix for further details.)

9.5 Reports to the State Office

It is the responsibility of the state office to work with the local school to develop the best possible program of Vocational Agriculture in accordance with the acts and criteria under which vocational funds are made available. The approval of funds for reimbursement is based on certain information such as enrollment, facilities, and a satisfactory program, which are to be certified in the following reports:

Time Travel Report	Due the fifth of each month
Preliminary Enrollment Report	Due at end of first week of school
Preliminary Farming Program Report	Due January 15
Complete Farming Program Report	Due February 15
Report of Adult Education	Due July 1 or end of course; in no case later than July 5
Annual Report of the Teacher	Due June 20

The following reports are required to participate in the FFA program:

FFA Membership and Dues	Due October 15 (This provides subscription list for National Future Farmer)
FFA Report of Activities	Due June 20

9.6 Vocational Agriculture in Schools Participating in Joint Vocational School Districts

Joint Vocational Schools are designed to provide a broader program of Vocational Education in rural and urban communities by combining the tax base and student enrollments of the participating schools. This plan of organization can give more depth and scope to the Vocational Agriculture program. Students from cooperating schools will have an opportunity to pursue an intensive training

program in a chosen field during the eleventh and twelfth grades. They will have an opportunity to develop skills and abilities which are essential for employment. Also teachers are able to specialize in areas of special interest and ability.

A two-year basic agricultural program on the ninth and tenth grade level is recommended for students in their home school. This would include basic principles of plant and animal science as well as fundamentals in farm mechanics and agricultural leadership. The basic program could be offered in local schools with minimum classroom and shop facilities. Where the enrollment is small, both ninth and tenth grades in agriculture could be grouped in one class. Basic instruction could also be offered in the Joint Vocational School for schools not offering Vocational Agriculture.

Specialization in Vocational Education is generally limited to a two-year program. Specialized training in Vocational Agriculture is organized to train students for employment in a cluster of occupations in a given field. Interest of students as well as employment opportunities, locally and statewide, should be taken into consideration in selecting programs. An Agricultural Advisory Committee should be in position to give invaluable assistance in deciding upon the programs to be offered. It is suggested that representatives of USES, school personnel, and agricultural leaders of the area be on this committee. Their recommendations will be needed prior to drawing building plans and budgeting funds for equipment.

Examples of specialized programs--

1. Agricultural Production - preparation for full- or part-time farming.

2. Horticulture - for greenhouse, floriculture, landscaping and grounds service, nursery, fruit or vegetable production.

3. Non-farm Agricultural Occupations - agricultural business and service and agricultural equipment and mechanics.

4. Conservation - forestry, soil and water management, game management, recreation.

5. Food Processing - basic production and harvesting, preservation, packaging and distribution

The amount of time necessary for classroom, laboratory, and shop work varies in these courses. Also the amount of time for supervised work experience and when and how it best be gained varies. Class schedule for Vocational Agriculture will be dependent on other vocational class schedules and local transportation facilities.

10.0 ADMINISTRATION ON THE STATE LEVEL

10.1 Authority for the Program

The Smith-Hughes Law, passed by Congress in 1917, the George Barden Act of 1946, and the Vocational Act of 1963 provide federal funds to support Vocational Agriculture in the states. Within the framework of the provisions of these acts, the Ohio State Plan for Vocational Education has been prepared and approved by the State Board of Education and the U.S. Office of Education. The administration of the program in Ohio must be in accordance with this plan. Local school units budget funds to pay a part of the costs and, in addition, provide housing, equipment and supplies for the vocational department. Thus a department is supported by three governmental units--the local school unit, the State and Federal Government. Nationally, the program is administered by the U.S. Office of Education and in the state it is a part of the State Department of Education.

10.2 State Board of Education

Within the state, the State Board of Education is charged with the responsibility of administering the state program of Vocational Agriculture in accordance with the State Plan. Details of administration are delegated to the State Superintendent of Public Instruction, the State Director of Vocational Education and the State Supervisor of Vocational Agriculture.

10.3 Advisory Committees

The counsel of advisory committees is sought in determining policies and procedures. One general committee includes school administrators, local board members and representatives of farm organizations, all recommended by their respective organizations. Another general committee includes teachers of Vocational Agriculture, selected by their fellow teachers. In addition, special committees serve in special areas such as technical schools, visual aids, camp, FFA, safety, etc.

10.4 Supervision

The Vocational Agriculture Department is a part of the local school system, and local administrators are responsible for the administration and supervision of the program. Visits by members of the state staff are supplementary to local supervision. For administrative purposes, the state is divided into districts. Several meetings of teachers are held during the year in each district to discuss matters of policy and for conducting in-service training courses. Teachers are expected to attend these meetings as well as the Annual State Conference, which is usually held in July. A minimum of one supervisory visit is usually made to each department annually, with more visits as needed or requested.

The work of new and returning teachers is supervised by members of the Teacher Education Staff, although matters of administration are handled by the supervisors.

10.5 Placement of Experienced Teachers

Members of the supervisory staff will assist local administrators to locate and make recommendations on experienced teachers. When a vacancy exists, either the district or state supervisor should be notified promptly to prevent a lapse in the supervision of the occupational experience program. This is important since the total program in Vocational Agriculture is based largely on the occupational experience of those enrolled. It is imperative, therefore, that an instructor serve throughout the twelve-month period since without provision for such a program, Vocational Agriculture units cannot be approved.

Before employing a teacher, boards of education should be sure that applicants are fully qualified and approved by a member of the state supervisory staff.

10.6 In-Service Training

If teachers of Vocational Agriculture are to be effective, they must keep up-to-date technically and advance professionally. Teachers must utilize many methods for keeping pace with new developments. Vocational Agriculture programs must be adjusted to changes in the technological aspects of agriculture. To help make this possible, short, non-credit workshops and graduate course work is provided throughout the year.

Non-credit workshops are arranged by the state office as the needs become apparent. Teachers should study the offerings provided at the request of teachers and select those for which they have most need. When approved by the supervisor, subsistence may be paid by the local board to be reimbursed 100% from vocational funds; and travel may be paid through the local vocational travel budget.

Teachers are encouraged to advance professionally through a well-planned graduate program. When this is done and vacation time is kept to a minimum, a teacher may earn a Masters Degree without exceeding the vacation allowance. Under this plan the teacher enrolls for five-week courses and three-week courses on alternate summers. They may also take advantage of off-campus courses and special problem assignments. When engaging in graduate work during the summer months, a teacher shall charge himself with three days of vacation for each quarter hour credit of graduate work when enrolled in day courses.

10.7 Reimbursement

Reimbursement to local schools will be in accordance with the provisions of the Ohio School Foundation Law and the Critiera for the Approval of Units as approved by the Ohio State Board of Education. Additional vocational units or fractions thereof will be certified to the Division of School Finance. In addition, reimbursement will be made from vocational funds for travel, workshops and conferences, and for the out-of-school program.

As an illustration, a school approved for a Vocational Agriculture unit in an additional aid district having a teacher who has a Bachelor of Science Degree in Agriculture may be reimbursed as follows:

Allowable salary - $4700 for regular school year
Salary 12 weeks extended service, if requested - $1566.67
Plus 12% of total salary for retirement and sick leave costs
Plus $1910 times number of approved classroom units for current expenses
Plus 75% of mileage costs
Plus 100% of subsistence for approved conference and workshops
Plus $2.50 per hour or other approved rate for hours spent conducting an out-of-school program having prior approval from the State Department of Education, Division of Vocational Agriculture.

A copy of the criteria will be found at the end of this section.

The procedure for securing reimbursement on the in-school program is as follows:

a. Include on Form S.F. 12 "the number of Vocational Agriculture instructors, approved teacher units, and additional salary allowance for extended service." (Extended service may be approved for 12 weeks, if the teacher's contract extends from July 1 to June 30.)

b. Complete VE Form 1 by September 15, showing the amount budgeted for travel and data concerning in-school vocational programs.

The procedure for securing reimbursement for out-of-school programs follows:

File Request for Approval Form with State Department of Education, Division of Vocational Agriculture, prior to November 1. Schools will be informed of amount budgeted for this program. Following completion of the course and filing of report of same to State Department by

teacher, the local board of education will be notified of the amount for which they can be reimbursed.

10.8 Non-Vocational Assignments

When a unit of Vocational Agriculture is requested, it indicates that the full-time services of a teacher of Vocational Agriculture are needed, and it means that his time will be used for that purpose. Therefore, non-vocational teaching assignments and study halls cannot be approved. However, homeroom responsibilities are permissible.

10.9 Qualifications of Teachers

A Vocational Agriculture teacher shall be a graduate in agriculture from a four-year course in a state agricultural college and shall have completed a course of study designed to train teachers of Vocational Agriculture. This should include at least 30 quarter hours of professional education, and he shall have had courses in Agricultural Economics, Agricultural Engineering, Agronomy and Crop Production and Animal Science. Preferably, he shall have been farm-reared. Vocational Agriculture teachers trained in other states will be given one-year temporary certificates. After successful teaching experience in Ohio and additional training if necessary such teachers will be granted four-year provisional certificates. Temporary certificates for partially qualified teachers can be approved only when the supply of qualified and approved teachers is exhausted.

Ohio Vocational Agriculture Service
July 1, 1966

SUGGESTIONS FOR PREPARATION OF MONTHLY TIME-TRAVEL REPORT BY VOCATIONAL AGRICULTURE INSTRUCTOR

1. Time-travel reports are to be made out monthly, in triplicate, on forms supplied by the state office. The teacher will give one copy to the Clerk of the Board of Education, keep one copy in his department file, and send the third copy to the State Supervisor, State Office Building, Room G-16, Columbus, Ohio 43215, by the fifth of the following month. Read and follow instructions on time-travel report carefully. (Teachers may use carbon paper. Reports need not be typed, but should be legible.)

2. Activities column report how time is spent each day in addition to class teaching; e.g., filing bulletins, organization of courses, farm visitation, and appropriate community activities. Do not merely say, "worked at school." Detail activities on a day-by-day basis in order to justify the day as one of work, not vacation.

3. Report mileage driven on point-to-point basis, continuous from the school building to farm or point of activity and return to school. For trips outside the district, map mileage by most district route is to be used. Additional mileage should be reported as a separate entry; e.g., instructor at Delaware takes judging team to Columbus, returns to Delaware and takes boys home. Entry should read: "Delaware to Columbus to Delaware--48 miles. Delaware and specified points in vicinity--12 miles." (Give boys' names.)

4. Double check addition, use machine where possible.

5. For travel report purposes, there are six legal holidays; January 1, May 30, July 4, Labor Day, Thanksgiving Day, and December 25. Other holidays may include February 12, February 22, October 12, and November 11, if so designated by the local board of education. Only legal holidays, or those above designated by school boards, do not count against vacation time.

6. The teacher employed for 12 calendar months accumulates 20 days vacation per year. Vacation may be carried over from one year to the next for summer school attendance. Vacation need not be taken during school year earned if teacher continues in employ of same board of education.

USE OF TRAVEL FUNDS

The following interpretations regarding the proper use of travel funds were agreed upon with the Bureau of Inspection, responsible for auditing public school records.

Mileage can be approved for:

a. Visitation. (Includes all visits to supervise and develop agricultural occupational experience programs, to enroll, and advise young and adult farmers.) List names of individuals visited.

b. Trips to County Superintendent of Schools office, County Extension office, Soil Conservation Service and other agricultural agencies.

c. Activities considered a regular part of the vocational agriculture program, such as chapter business demonstrations, public speaking, officer training, district FFA meetings, district meetings of teachers, young and adult farmer meetings if not held at local high school, conferences, workshops, or other meetings called in connection with the program of vocational agriculture within the state.

d. One round trip, only, on a given day for a group activity, such as business procedure demonstration, or field trip. (Not more than one round trip per class.)

Teachers should secure pre-approval of the administrator for trips outside the school district or community, other than those called for by participation in the state vocational agriculture program.

Limited mileage will be approved for the following activities where teacher's car is driven:

a. One round trip to the State FFA Camp, State FFA Convention, and State Judging Contest.

b. Two round trips to State Fair, if students participate in vocational agriculture activities.

c. One round trip to Annual Teachers' Conference and workshops, when daily subsistence is received. Daily mileage up to 80 miles, if driven, will be approved for those teachers who commute in lieu of daily subsistence, in addition to one round trip.

d. A round trip to National FFA Convention once in four years for single teacher school, an additional trip will be approved when special award is to be received. Trip must be approved by local school administrator and district supervisor. Additional mileage should be budgeted for the year of Kansas City trip.

e. Mileage to Kansas City and Waterloo, Iowa, will be approved for teachers who have won state judging contests and who take teams to National Contest.

f. Trips to machinery, livestock, and crop field days, other than those held in connection with the College of Agriculture and the Ohio Experiment Station shall be limited to a distance of not more than 100 miles each way.

g. School farms or land laboratories.

Multiple Teacher Departments--

In multiple teacher departments only one trip can be approved to State Teachers Convention, FFA Camp, YFA activities, district meetings and workshops.

Non-Approved Mileage--Mileage cannot be paid for driving in the following situations:

a. Driving from home to school.

b. Out-of-state trips, other than National FFA Convention and National Judging Contests.

c. Non-vocational trips and social activities.

d. Travel to attend Summer School or graduate courses.

e. Frequent trips to state office for purpose which could be handled by phone or correspondence.

f. General school meetings which other teachers attend without mileage.

g. General school business, such as trips to Columbus for surplus property.

h. Unreasonable number of trips to town for supplies.

i. Trips to Career Days and other non-vocational trips.

j. Trips on day declared as vacation.

Special Mileage will be paid direct to teachers from state and federal funds for:

a. Teacher training visits to supervise beginning teachers.

b. Trips for special committee meetings called by a member of the state staff.

A reasonable amount of driving is essential for the proper conduct of the vocational agriculture program. Judgment needs to be exercised to assure that time and mileage are used effectively.

Teachers are asked to plan trips so travel money will be wisely used for approved purposes. If emergencies require special trips, explanation should be made on the report form. Reimbursement for trips may be questioned when mail or telephone service would have sufficed.

Boards of education are requested to budget adequate funds for travel to carry on a full program of Vocational Agriculture, including Future Farmer, Young Farmer, and Adult Farmer activities. This department will sanction the use of travel funds for approved purposes.

Special Subsistence Approval

Subsistence can be paid to teachers by local boards of education for attendance at Annual Teachers' Conference and workshops. Expenses for these meetings must be approved by teacher trainers or supervisors in charge, on special form, VE Form 2b. Local boards of education will be reimbursed 100 per cent for approved subsistence expenses reported on VE Form 2a.

Ohio Standards for Continuing
Education in Vocational Agriculture
Division of Vocational Agriculture
State Department of Education
July 1966

DEFINITIONS

1. Young Farmer Classes
   Are designed to meet the needs of a group of out-of-school persons usually 18 to 35 years of age. Systematic instruction will be offered for five or more sessions.

2. Adult Farmer Classes
   Are designed to meet the needs of a group of adults who are enrolled for systematic instruction in agriculture for five or more sessions.

3. Combination Classes
   Are a group of young and adult students enrolled for systematic instruction in agriculture for five or more sessions.

4. A "class" is meeting a group of eight (average) or more individuals with a definite educational objective, for a minimum of two hours.

5. An "enrollee" is a person who attends one or more class "sessions."

6. "Supervised on-the-job farm instruction" is a pre-scheduled instructional meeting of one to four enrollees or potential enrollees.

PROGRAM

1. The program of instruction is to be based upon the individual needs and interests of the persons enrolled.

2. The program involves both organized class and individual on job/farm instruction.

3. Instruction may be given by the vocational agriculture teacher, resource people or guest instructors.

4. The program may include sessions of a social or recreational nature; however, such sessions will not be approved for reimbursement.

5. The program should cover a twelve-month period.

6. The number of on-the-farm/job instructional visits must be pre-determined with an equitable ratio between class sessions and on-the-farm/job or agricultural business.

7. The "instructional program" should consist of a series of organized educational meetings for out-of-school individuals where knowledge, skills, and abilities in agriculture will be of benefit to the individuals enrolled.

8. Any and all adult education program activities, for which the teacher vouchers for reimbursement, must be performed outside of, or beyond, the hours of the regular school day of the local school district.

9. In cases of tours or field trips, hours spent in travel during regular school day cannot be vouchered.

10. If tours or field trips are scheduled on days declared as vacation time by the teacher, travel mileage cannot be vouchered for such trips.

11. The regular school day throughout the year (including summer months) is construed to be the hours that all teachers are required to be at the building or on the job during the regular school term. Example: 8:00 a.m. - 4:00 p.m.

12. A minimum of 35 hours per week shall constitute the work load during the period of extended service employment. Adult reimbursement can only be allowed for class or on-the-farm/job instruction beyond this minimum.

13. One visit to farms of prospective enrollees prior to the beginning of class sessions is permitted to enable the teacher to become familiar with the farm and the management organization of same.

14. Dual visits to all day and adult students can only be credited in one category group. If reimbursement is to be approved, adult visits must be made after school hours, during vacation time, or on Saturdays.

15. Adult visits for instruction must be pre-scheduled with definite objective or purpose to assist the member in solving a definite problem related to his operation.

REPORTS

1. *Teachers will report preliminary plans before the course starts for programs on the pre-approval report submitted not later than November 1 if they are to be included in the fiscal year's budget.

2. Final reports are to be completed and returned to the state office on all courses conducted, even though they may not meet the standards for reimbursement. This includes those courses conducted by adult instructors and courses conducted in departments with fractional units.

3. *The final report should be submitted on or before July 5. Reimbursement cannot be given reports postmarked after July 5.

4. File copies of all final reports should be made a part of the permanent record of the local school.

5. Mail all reports to: State Supervisor of Vocational Agriculture, Room G-16, State Office Building, Columbus, Ohio 43215.

6. Sessions or on-the-farm/job instructional visits conducted during the "school day" hours should be reported but not included on the voucher for teacher reimbursement unless they were conducted on legal holidays, Saturdays, or days designated as "vacation."

7. All reports must be approved by the state supervisory staff before submitting them to the local board.

8. Submit all reports in triplicate. (one for our file - one for board of education - one for your file.)

9. Sign all three copies. Original signature (not carbons).

10. Be sure to give the starting and closing dates of your course.

*Report forms attached. (Preliminary only to teachers.)

REIMBURSEMENT

1. All reimbursements will be made through your local board of education.

2. Be careful to correctly calculate the amount due.

3. Teachers are reminded that adult education is a part of the total program of Vocational Education in Agriculture. A job to be done. We are in a strategic position to offer such service. We can budget the time, outside all-day teaching duties, to accomplish the job. Since there is no provision for adult education in the school foundation program, adult education in agriculture is in the same position as other types of adult education. That is: Instructors are paid at hourly rates, averaging $4 to $6 per hour in the state of Ohio. The State Department of Education, Vocational Division, Vocational Agriculture Service, will reimburse a local Board of Education for such instruction up to a maximum of $2.50 per hour when such amount has been paid the instructor for a program that meets the standard criteria for such programs.

4. To safeguard the high school program, a maximum, 175 hours of classroom and/or on-the-farm/job instruction per teacher per fiscal year, constitutes the maximum reimbursement for a full-time high school teacher.

USE OF SPECIAL INSTRUCTORS

In cases where it seems advisable to employ and use special instructors, the situation should be discussed with your supervisor before any definite steps are taken or commitments made. Pre-approvals are necessary so money can be budgeted accordingly.

VT 001 691

VT 001 691
Essentials and Requirements of a Vocational Agriculture Program.

Illinois State Board of Vocational Education and Rehabilitation, Springfield
MF AVAILABLE IN VT-ERIC SET.
ISBVER-Ser-B-Bull-197
Pub Date - Jan65 13p.

*VOCATIONAL AGRICULTURE; EDUCATIONAL OBJECTIVES; PROGRAM DEVELOPMENT; *PROGRAM GUIDES; CURRICULUM; HIGH SCHOOLS; ADULT FARMER EDUCATION; COOPERATIVE EDUCATION

State policies and regulations for operating a vocational agriculture program are described. Contents include (1) a diagram of the organizational pattern, (2) opportunities for preparatory and supplemental training in farming and agricultural occupations, (3) purpose and objectives of the state program, (4) requirements for approval of local programs which cover physical facilities and equipment, course organization, time requirements, advisory groups, instructional methods, supervised farm experience, and student followup, (5) programs for off-farm agricultural occupations, (6) youth organization supervision, (7) REQUIREMENTS for adult classes, and (8) minimum state requirements for teachers of farming, off-farm agricultural occupations, and special classes. (JM)

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AGRICULTURAL EDUCATION

ESSENTIALS AND REQUIREMENTS of a VOCATIONAL AGRICULTURE PROGRAM

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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January, 1965

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Springfield

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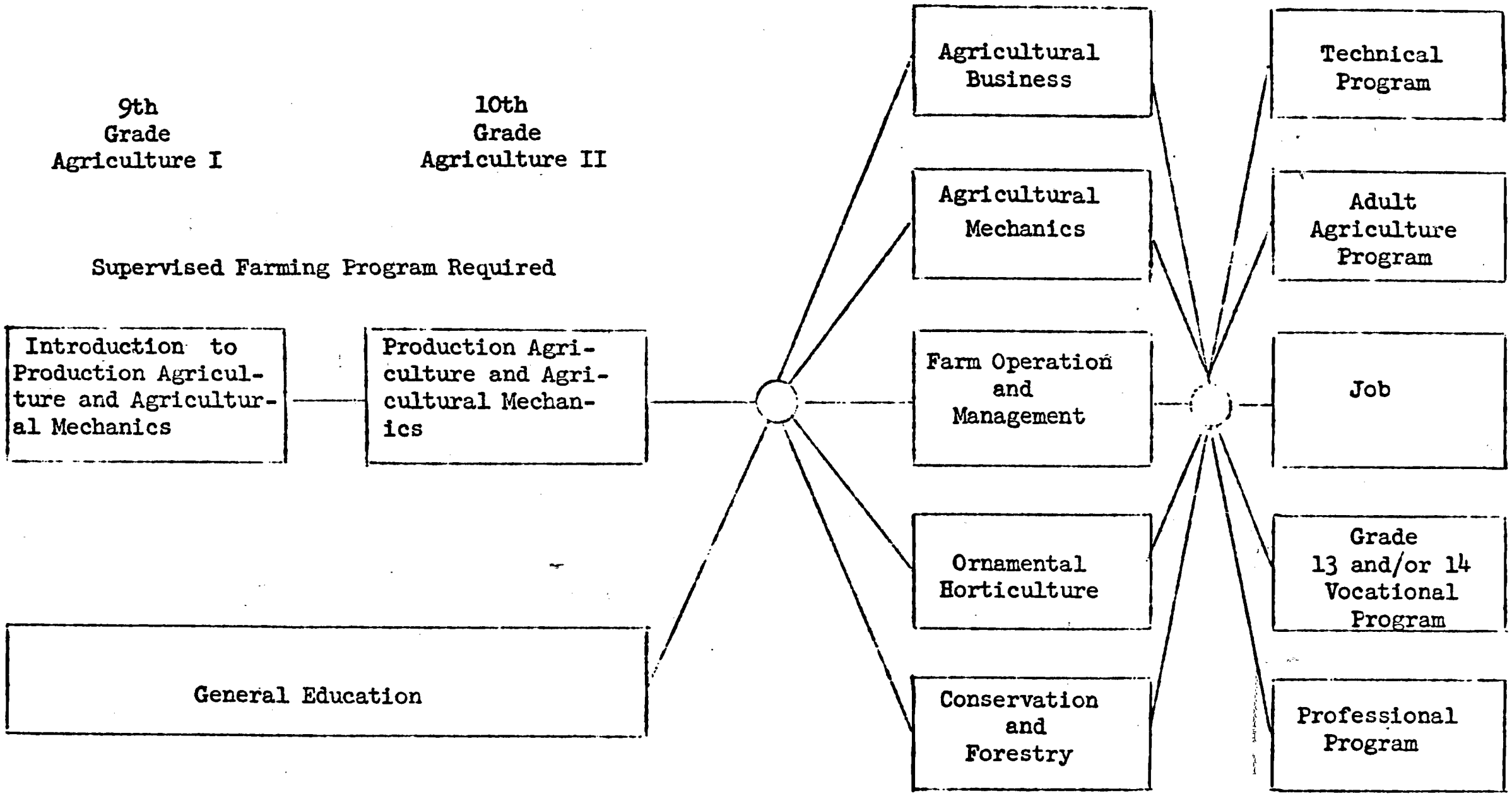
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Organizational Pattern for Vocational Agriculture



Program Opportunities in Vocational Education
for
Preparatory and/or Supplemental Training
in
Farming and Agricultural Occupations

1. Training for Farming - Secondary
   Includes training in production agriculture for regular 9th through 12th grade secondary students. Classroom instruction should be combined with practical laboratory, shop, and on-farm instruction to prepare students for the occupation of farming.

2. Non-Cooperative Training
   In-class vocational instruction of a preparatory nature only for regular 11th and/or 12th grade secondary students, or for persons who have academic, socio-economic or other handicaps.

3. Cooperative Work Experience
   Includes supervised and coordinated practical experience programs for regular 11th and/or 12th grade secondary students, or for persons who have academic, socio-economic or other handicaps.

4. Interrelated
   Two or more vocational subject-matter fields may be combined in one class under certain conditions.

5. Adult - Preparatory and/or Supplemental
   For persons who have entered the labor market, either employed or self-employed, who need training or retraining for stability or advancement.

6. Preparatory Post-Secondary
   For those who have completed or left high school and are available for full-time study.

VOCATIONAL AGRICULTURE

Purpose

A vocational agriculture department in a public high school should offer organized instruction in agriculture for:

1. Those who plan to enter the vocation of farming and/or an occupation which requires the knowledge and skills involved in agriculture. (Preparatory)
   (a) High School students
   (b) Out-of-school persons.

2. Those who have entered the vocation of farming and/or an occupation which requires the knowledge and skills involved in agriculture. (Supplementary)
   (a) Adult class members.

3. Those who are available for full time study.
   (a) Post-high school students.

Objectives

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.
3. To develop an understanding and appreciation of career opportunities in agriculture and of the preparation needed to enter and progress in agricultural occupations.
4. To develop the ability to secure satisfactory placement and advancement in an agricultural occupation.
5. To develop those human relations, skills, and attitudes required for success in an agricultural occupation.
6. To further develop leadership abilities and civic responsibilities.

Schools Which May Be Approved

Any recognized public high school may be approved to organize a vocational agriculture department and be eligible for reimbursement provided the school meets the requirements of the State Plan.

Requirements for Approval (Courses for High School Students)

1. Physical Facilities and Equipment.

The physical facilities and equipment shall be adequate to carry out the purpose for which the program is established. In general, the following conditions should prevail:

a. Physical facilities primarily used to provide the kind of instructional program needed that will allow for instruction in the classroom, in the laboratory and in the agriculture shop.

b. Sufficient equipment and apparatus to demonstrate and study the ordinary approved scientific methods and principles involved in farming or other agricultural occupations.

c. Suitable storage room for the classroom to properly store apparatus and materials needed for class and laboratory work.

d. Up-to-date reference books, bulletins, agricultural papers, magazines, and other materials relating to the courses offered.

e. A suitable agricultural shop and equipment used primarily to offer practical instruction in agricultural mechanics. New vocational agriculture departments will not be approved unless the school has an agricultural shop or shows that they have definite plans for an agricultural shop.

f. An adequate storage room for the agricultural shop for supplies and special equipment.

2. Organization of the Courses of Study

9th Grade - Course or courses in vocational agriculture should emphasize basic agricultural subject matter, including agricultural mechanics, soils, crops, and livestock. Students must conduct supervised farming programs.

10th Grade - Course or courses in vocational agriculture should emphasize basic agricultural subject matter of an advanced nature or more difficult level, including agricultural mechanics, soils, crops, livestock, and related subject matter. Students must conduct supervised farming programs.

11th Grade - Courses in vocational agriculture should emphasize the specialized agricultural subject matter needed for farming or for other occupations involving knowledge and skills in agriculture. A partial list of the types of specialized courses that may be offered is as follows:

1. Vocational Agriculture (specialized) for Farming - Supervised Farming Programs Required.
2. Vocational Agriculture for Agricultural Occupations (Non-cooperative program).
3. Cooperative Program in Agriculture with Work Experience.

Students in courses designed to prepare for agricultural occupations other than farming shall have at least a six months' supervised farming program and/or a comparable supervised agricultural experience program which relates to their occupational objective.

12th Grade - Courses in vocational agriculture should emphasize the specialized agricultural subject matter at an advanced or more difficult level necessary for preparation for farming or for other occupations involving skill and knowledge in agriculture. Courses similar to those

offered at the 11th grade, except at an advanced level, may be offered at the 12th grade. Supervised farming and supervised agriculture experience requirements would be the same as for 11th grade courses.

The above outline based on organized instruction is typical for schools offering an agricultural program. Course outlines should be prepared by the agriculture teacher and revised annually. Copies should be submitted to the school administrator prior to the beginning of each school year.

3. High School Classes.

Minimum time for vocational agriculture classes.

A. Classes for Those Preparing for Farming.

The class program designed for secondary school students preparing for farming shall provide for not less than 275 minutes per week of class time. It shall provide for not less than 2 years of course work and not less than 2 classes shall be taught during any one year. Each class member shall have at least a six months' supervised farming program.

B. Classes for Those Preparing for Agricultural Occupations other than Farming.

The program for secondary school students preparing for agricultural occupations will be designed for 11th and 12th grade students. Each class member shall have at least a six months' supervised farming program or he shall have a comparable supervised agricultural experience program which relates to his occupational objective. Classes shall be organized according to the following time minimums:

1. Program of two or more years
   275 minutes per week.
2. Program of less than two years
   a. 550 minutes per week of class instruction, or
   b. 275 minutes per week if students have had previous experience in the occupational field or class instruction related to the occupational field, or
   c. 550 minutes of instruction per week of which 275 minutes may be in a concurrent class related to the occupational field.

C. Cooperative Classes for Those Preparing for Agricultural Occupations other than Farming.

1. Minimum requirements
   Enrollees shall be of legal age for employment. The employment shall comply with State and Federal employment regulations and shall consist of a minimum of 15 hours per week of on-job training.
2. Two-year program
   200 minutes per week of group instruction by teacher-coordinator.
3. One-year program
   a. 200 minutes per week of group instruction by teacher-coordin-

ator and

b. Previous experience in occupational field or previous class instruction related to the occupational field or 200 minutes in a concurrent class, related to the occupational field.

Schools are encouraged to provide time during the school day for on-farm or training station supervision and/or the organizing and teaching of adult farming classes.

4. Advisory Council or Employers Group.

An advisory committee, appointed and approved by the local board of education, should be organized to assist in the development of vocational programs in the broad field of agriculture. Some of the activities of the advisory committee may be as follows:

a. Determine the possible job opportunities.
b. Determine the training and skills needed by trainees.
c. Assist with the planning of the work experience programs and the procurement of training stations.

5. Methods of Instruction.

Practical instruction including work in the classroom, in the laboratory, in the agricultural shop, on the farm or related job will be required, and the methods of instruction in any case will be such as to prepare the students for the occupation of farming or other occupations involving knowledge and skills in agriculture. The abundant use of bulletins, illustrative material, films, filmstrips, charts and actual agricultural situations is recommended.

6. Individual Supervised Farming or Supervised Agriculture Experience Program.

a. Each student enrolled in a vocational agriculture class will be required to conduct a practice program under the supervision of the teacher of agriculture. In all cases the supervised program should be supplemented and enlarged with increased proficiency as the student advances in his high school work with the idea of aiding the student to become established in farming or other agricultural occupation.

b. Classroom, laboratory, agricultural shop and/or on-farm or on-the-job instruction should be based upon the problems connected with the supervised program. The standard supervised agricultural experience record books authorized by the State Board of Vocational Education and Rehabilitation should be used.

c. Follow-up of former students - Surveys and studies will be made to determine the occupations and status of former students of vocational agriculture. Information obtained will be used to strengthen the vocational agriculture program in the local community and in the state.

7. Suggested Steps in the Development of Training Programs for Off-Farm Agricultural Occupations.

1. Vocational agriculture teacher enroll in Votec 474, University of Illinois, Urbana (Supervised Agriculture Experience Programs) prior to or concurrent with OFAO Training Program.

2. Obtain approval for, organize, and, get into operation--Employers Group and/or Citizens Advisory Council. (Agriculture business must be represented.)

3. Determine the agricultural industry occupational opportunities in the local service area. Survey the anticipated needs for the next five years--entry level jobs.

4. From the prospective employers, determine the knowledge and skills which can be properly taught in the pre-entry vocational training program.

5. Establish the objectives of the training program for OFAO.

6. Develop complete course of study including teaching calendar and provisions for providing adequate training in the knowledge and skills which are considered necessary for entry into and continued employment in OFAO.

7. In cooperation with other school officials, provide vocational and occupational guidance within the field of agriculture.

8. Contact employers in agricultural firms and determine the supervised agricultural experiences which will be available to students. Discuss all aspects such as wages, liability, insurance, responsibilities of both trainee and trainer, etc.

9. Attempt to provide proper scheduling and placement of trainees.

10. Give proper pre-placement instruction to both employer and trainee. Step by step procedures given to group and individually.

11. Provide concurrent group and individual instruction to trainees and where necessary, to the employers.

12. Cooperatively supervise students during training. This includes the keeping of records or a diary which includes what they are doing, what they are learning, any expenses or receipts which occur, and any information which may seem pertinent. Keep in mind that it may be necessary to have the trainees submit a financial statement at the end of each year.

13. The instructor and employer should evaluate the training and performance of the students. The entire program should be reviewed by all participants including the advisory group. Continuing evaluation is most important.

14. Aid in placement after training. Maintain follow-up records and reappraise the program regularly.

15. An information form, approval form, or contract must be completed for each vocational program as an agreement with the State Board which will indicate how each program is to be conducted before it can be approved for reimbursement.

8. Supervision of The Youth Organization.

The Future Farmers of America organization is an integral part of the program of instruction in vocational agriculture and shall be directed and supervised by the teachers of vocational agriculture.

9. Minimum Requirements for Approval of a Teacher of Vocational Agriculture in Illinois.

A. Teacher of Vocational Agriculture Classes for Farming.

1. Graduate of a 4 year recognized college or university.
2. Subject matter courses--48 semester hours of technical agriculture work, 24 semester hours of which shall have been from an institution approved by the State Board to offer such training or from a land grant college of agriculture, including:
   a. Eight semester hours in crop and/or soil sciences.
   b. Eight semester hours in animal and/or dairy sciences.
   c. Eight semester hours in agricultural engineering.
   d. Eight semester hours in agricultural economics.
3. Professional education--five semester hours of work in agricultural education methods and five semester hours in student teaching of agriculture from an approved institution.

B. Teacher of Vocational Agriculture Classes for Off-Farm Agricultural Occupations Other Than Farming.

A regularly certified vocational agriculture instructor; or a certified teacher who has special qualifications in processing, distributing or servicing fields in agriculture and who is approved by the State Board for such instruction.

C. Teacher of Classes for Out-of-school Persons.

Approval of special teachers for out-of-school classes may be made by the head state supervisor based on the recommendation of the local school with the advice of the local advisory council or employer's group.

D. Conditional Approval of Instructional Personnel.

Conditional approval of qualifications may be granted for instructional personnel of new programs who indicate a definite plan for meeting requirements for full approval during the first three years of employment.

E. Term of Employment.

Teachers of vocational agriculture classes for farming shall be employed on a 12-month basis with not more than 30 days for vacation

or professional improvement. Teachers of classes for those preparing for non-farm agricultural occupations shall be employed for a sufficient period to adequately provide the training program.

Requirements for Approval (Courses for Adults)

1. Purpose of Classes.

   Adult classes shall be organized for the purpose of offering instruction in certain phases of farming and other agricultural occupations which meet the needs of the particular group of adults enrolled in the course.

2. Enrollment.

   The enrollment in these classes shall be confined to those who are presently engaged in or preparing to engage in farming or other agricultural occupations.

3. Course of Study.

   The adult courses shall be adapted to local conditions and to the special needs of members of the class.

4. Time Requirements.

   Each class unit shall cover a minimum of 20 clock hours of group instruction exclusive of organization and social meetings. These sessions shall be held at such intervals and at a time of day or evening as will be convenient to the class members and each session shall be two hours or more in length.

5. Methods of Instruction.

   The method of instruction (except for a laboratory or agriculture shop course) is group discussion, based upon a series of problems organized under the supervision of the instructor prior to the opening of the course. The adult members are encouraged to relate their own experiences. The instructor should serve as a discussion leader and contribute such of his own information and such experimental data as seems advisable.

6. Individual Farming Programs and/or Supervised Agriculture Experience Programs.

   The class members should initiate new or improved agriculture practices relating to the subject material discussed in the classes. Provisions must be made for (a) directed or supervised practice in agriculture for all persons enrolled, and (b) supervision by the vocational agriculture instructor or special teacher.

Qualifications of Special Teachers (for adults)

Qualifications of special teachers.

1. Education.

He shall have the ability to express himself clearly and logically. He shall be recognized in his community as a person well informed on the subject matter to be covered in the course. His teaching will be under the direct supervision of the local agriculture teacher.

2. Experience in Farming or in Non-farm Agriculture Occupations.

   He shall be recognized in his community as a person who has outstanding success in the particular field in which he is to teach.

3. Special Teacher Approval.

   Approval of special teachers for adult classes may be made by the head state supervisor based on the recommendation of the local school with the advice of the local advisory council.

VT 001 701

VT 001 701
Manual of Operation for Vocational Education Programs in Missouri.

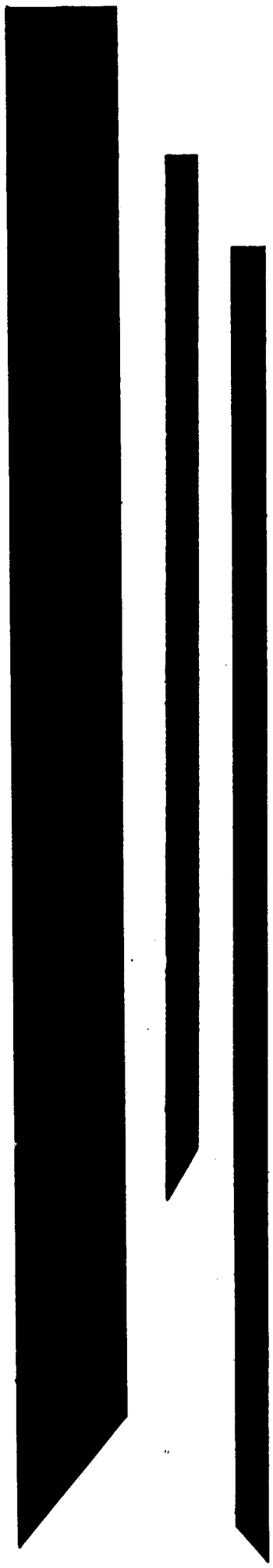
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*VOCATIONAL EDUCATION; PROGRAM PLANNING; *PROGRAM ADMINISTRATION; COOPERATIVE EDUCATION; *PROGRAM GUIDES

The purpose of this manual is to furnish information needed by local school personnel to organize and operate programs of vocational education in Missouri. Conditions of the Vocational Education Act of 1963 are summarized. The section, Outline for Local Program Planning, lists procedures for preparing requests for approval by a local school, proposals for supplemental training programs, and a proposal for an area vocational school. Related information to Program Operation discusses funds, reporting and evaluation, supervision, physical facilities and instructional materials, youth organizations, and qualifications for local personnel. Work-Study Program covers state and local administration, regulations governing employment, administrative procedures, criteria for determining project approvals, and allocation of funds to educational agencies. State administrative responsibilities are listed. (BS)

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MANUAL OF OPERATION



for

VOCATIONAL EDUCATION PROGRAMS

in

MISSOURI

JANUARY 1965

VT 004 764

MANUAL OF OPERATION

FOR

VOCATIONAL EDUCATION PROGRAMS

IN

MISSOURI

JANUARY 1965

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE DEPARTMENT OF EDUCATION
HUBERT WHEELER, Commissioner

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The State Board of Education is the sole agency responsible for the administration and supervision of vocational education in the State of Missouri. It is composed of eight members as follows:

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ERIC

MISSOURI ADVISORY COUNCIL FOR VOCATIONAL EDUCATION

In the legislation creating the Vocational Education Act of 1963, provision was made for an advisory council for vocational education to be named. Council members are recommended by the State Commissioner of Education and approved by members of the State Board. The advisory council is available for consultation by the State Board of Education when it deems necessary in carrying out the State Plan. Members of the Missouri Advisory Council for Vocational Education are as follows:

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INTRODUCTION AND OVERVIEW OF THE VOCATIONAL ACTS

The material in this Manual has been prepared to furnish information needed to effectively organize and efficiently operate programs of vocational education. It is being furnished to school administrators, local vocational directors and supervisors, and teachers of all vocational programs.

Vocational programs are operated in the various states under written agreements, referred to as State Plans, between the U. S. Office of Education and State Departments of Education. These plans outline the State's proposal for developing and conducting programs of vocational education and describing the procedure for meeting the provisions of the Act. The information presented here relative to the establishment and development of vocational education programs is directed to local school personnel. The material necessarily is largely of a procedural nature.

Vocational education under the Smith-Hughes and George-Barden Acts in Missouri over the years has included programs in vocational agriculture, distributive education, vocational home economics, practical nurse training, technical education, trade and industrial education, and guidance services. Instructional programs have made provision for secondary school youth, post-secondary school youth, dropouts, and adult groups.

The purpose of the Vocational Education Act of 1963 is to authorize Federal grants to States to assist them in maintaining, extending, and improving existing programs of vocational education and in developing new programs of vocational education. Provisions are also made to provide part-time employment for youth who need the the earnings from such employment to continue their vocational training on a full-time basis. The Act encourages establishment of programs to meet the vocational needs of secondary school youth, post-secondary school youth, dropouts, individuals who have lost positions through automation, individuals who are currently employed but have competencies that can be further developed through training, and individuals who have academic, socio economic or other handicaps. Individuals should have ready access to vocational training or re-training of high quality, realistic in consideration of actual or anticipated opportunities for gainful employment and suited to their needs, interests and abilities to benefit from such training.

The Vocational Education Act of 1963 also makes provision for the addition of business and office education to the vocational program. Educational programs in this field must be structured so that enrollees are prepared to enter the labor market immediately following completion of the curriculum.

Another section of the 1963 Act makes provision for assistance in construction of area vocational schools. The term "area vocational school" means:

1. A specialized high school used exclusively or principally for the provision of vocational education to persons who are available for full-time study in preparation for entering the labor market.
2. The department of a high school used exclusively or principally for providing education in no less than five different occupational fields to persons who are available for full-time study in preparation for entering the labor market.
3. A technical or vocational school used exclusively or principally for the provision of vocational education to persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.
4. The department or division of a junior college or other college or university which provides education in no less than five different occupational fields, under the supervision of the State Board of Education, leading to immediate employment but not leading to a baccalaureate degree.

The facilities must be made available to all residents of the area of the State designated and approved by the State Board of Education as an area school unit, and as in the case of a school department or division described in (3) or (4), the program offered must be available to persons who have completed high school or left high school.

Any school district or other administrative unit which anticipates that it can provide the necessary vocational education service and can meet the criteria as established by the Act and the State Plan may make application to be designated as an area vocational school. Upon receipt of such application, the State Director of Vocational Education with the assistance of appropriate section directors will study and make recommendations concerning the application. It will then be submitted to the State Board of Education for final action.

In designating a local educational agency as an area vocational school to establish eligibility for funds for construction and to establish priorities of projects, the following factors will be given consideration:

1. The number of individuals to be served by the unit.
2. The characteristics of the geographical area to be served.
3. The relative need for this type of school.

4. The employment opportunities in the occupation or occupational areas represented in the planned facility.
5. The functional construction of the facility to meet the needs of the persons and communities to be served.
6. The assurance that the building project will not be elaborate or extravagant in design or materials.
7. The assurance that sufficient funds will be available to meet the state and local share of the cost of constructing the facility.
8. The availability of sufficient state and local funds for effective use of the facility for the purposes for which it is constructed.
9. The assurance that the building and site will be available for the expected usable life of such facility.

The appropriation under the Vocational Education Act of 1963 provides for funds to be expended and matched for vocational education for various "people" groups rather than in occupational areas. The Act calls for the funds to be used for:

1. Vocational education for persons attending high school.
2. Vocational education for persons who have completed or left high school and who are available for full-time study in preparation for the labor market.
3. Vocational education for adults who need training or re-training to achieve advancement or stability in employment.
4. Vocational education for persons who have academic, socio economic or other handicaps that prevent them from succeeding in regular vocational education programs.
5. Construction of area vocational school facilities.
6. Ancillary services and activities to assure quality in all vocational education programs.

OUTLINE FOR LOCAL PROGRAM PLANNING

I. Preparation of request for approval by a local school

The establishment of sound and effective programs of vocational education is based upon certain appraisals and planning which must be done at the local level. Therefore, as an initial step, the local administering unit will gather certain information and develop tentative plans for the training program which will be submitted to the State Director of Vocational Education for consideration and appropriate action. To assist in this activity, the following outline is provided. All requests for approval must provide substantially the following information on the appropriate form.

1. Plan for the total program

In establishing vocational education programs, attention should be given to meeting the needs of all persons at all levels – secondary, post-secondary, adult, and individuals with special needs who desire and can profit from vocational training. A plan will be required to include programs currently in operation, those planned for future expansion, and those proposed for approval.

2. Identification of the occupation or occupational areas for which training is proposed

These should be expressed in terms of a title or job classification or, in some cases, as job families. (For example: stenographer, farm manager, child care aid, salesperson, electronic technician, nurse aid, automotive mechanic and repairman.) The Dictionary of Occupational Titles will be helpful in developing titles.

3. Program of instruction

This portion of the request for approval will be narrative in form. Information which will be requested will be the major units of instruction as well as the method of instruction, or combination of methods, to be used, such as classroom, laboratory or shop experience, supervised employment or similar experience provided by the school or in industry, business or on a farm.

4. *Availability of individuals to be trained*

In completing the request for approval, the local school will be required to:

a. Determine those individuals who desire training and will be available for training.

b. Determine the occupational goal of each individual to be trained and maintain such information as a matter of record at the local level.

c. List the objective appraisal and assessment devices and procedures used to assist the individuals in making occupational choices in line with interests, aptitudes, abilities, and occupational opportunities.

d. Explain the basis for providing programs to meet the needs of those identified as special enrollees and indicate the special characteristics of such enrollees in terms of their socio economic status, ability, rural or urban environment, and similar information.

5. *Services related to instruction*

a. Administration and supervision

The local district must provide for adequate administration and supervision of the vocational program. Information will be required on the request for approval concerning the individuals providing the administration and supervision, their qualifications, titles, and schedule of time devoted to the program.

b. Vocational guidance

Provision is made for vocational guidance services under the 1963 Act. School officials will be permitted to make application for approval of their guidance program and to receive reimbursement. It will be necessary to provide the information requested on the appropriate form for approval of a guidance program.

c. Research

Local schools are encouraged to engage in research at the local level and complete applications for approval for funds.

d. Supporting or related programs

The local school is requested to indicate programs or classes that provide individual enrollees with suitable background information and supportive knowledge for maximum development toward occupational competency.

6. *Instructional personnel*

The school must indicate the provision or potential for an instructor or instructors who meet the applicable standards for certification.

7. *Duration and intensity of instruction*

In order for the State Department of Education to determine approval and reimbursement amounts, the local school is requested to report the number of periods classes will meet per day and the duration of the classes in weeks.

8. *Enrollment*

Each request for approval should provide an estimate of the enrollment in the program for each of the first three years of operation.

9. *Evaluation*

The request for approval must provide a description of the procedures to be used in evaluating the effectiveness of the program, such as placement records, student follow-up, or competency examination.

10. *Placement and follow-up*

The school is required to provide a narrative explanation of the procedures to be used in placement and follow-up of the trainees. If the school has an agreement for placement with an outside agency, such as the Employment Security, a copy of the written agreement should be provided.

11. Advisory groups

The operation of effective vocational programs require the utilization of suitable advisory groups. Requests for approval will provide for the submission of the nature, composition and utilization to be made of local advisory committees.

12. Physical facilities

The local school must provide a description of the laboratory and classrooms to be used, giving the approximate size of each. Also list the major instructional equipment available and the identity of additional equipment needed to provide an adequate program.

13. Fiscal information

In order for a budget approval amount to be determined, the local school must complete the proposed budget form giving an estimate of the cost of the program for the fiscal year, or fraction thereof, under each of the headings as requested.

II. Preparation of proposals for supplemental training programs

Vocational education for persons who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment is one of the purposes for which funds may be expended under all of the vocational education acts. Such programs may be established with funds provided for the purpose of training in agriculture, distributive, health, home economics, and technical and industrial occupations by the Smith-Hughes and George-Barden Acts. In addition, the 1963 Act provides for the expenditure of funds for such training in business and office occupations. Since there are a number of types of programs under each of the aforementioned occupational areas, local schools should request additional information from the State Director of Vocational Education or the appropriate section director.

III. Preparation of proposal for an area vocational school

Eligibility for funds allocated to the State under the provisions of the Vocational Education Act of 1963 for construction purposes is dependent upon meeting certain criteria in the Act, the Regulations, and the State Plan. The following is presented to serve as a guide to local schools in preparing a proposal for designation as an area vocational school as defined in the Act and to establish eligibility for use of funds for construction purposes.

1. Organization

a. Give the name of the administrative unit preparing the proposal and indicate the type of unit, such as high school district, junior college, or other.

b. Give a brief description of the geographical area to be served, including significant information on population distribution, location of industry and business, and transportation routes within the area. (A map showing such essential features may be used.)

c. List other administrative units whose territory is involved in the proposed area to be served.

d. Indicate the nature of agreements, if any, with other administrative units.

e. Describe how transportation of trainees to the facility is to be accomplished.

2. Proposed facility

a. Indicate the location of proposed facility.

b. Give information indicating characteristic of proposed facility such as addition to existing facility, all new facility, or remodeling of existing facility. Include a brief description including kind of construction, number of shops, classrooms, etc. (School districts designated as eligible for funds for this purpose will submit detailed plans for approval prior to receiving authorization to make expenditures.)

3. Nature and scope of vocational program planned for the facility

a. Indicate plan for serving the entire geographical area as heretofore described at each of the following levels: secondary, post-secondary, adult, and individuals with specialized needs.

b. Estimate the number of individuals in each of the foregoing categories who need and desire vocational training.

c. List occupations or occupational areas to be included in the instructional program. (New preparatory program should have a separate proposal for each occupation or occupational area.)

d. Indicate plan for administration and supervision of the proposed program.

4. *Fiscal information*

a. A major requirement for use of funds for construction is that sufficient funds are available at the local level to meet the local share of the cost of construction and to provide the local share of the cost of a vocational education program that can make effective use of the facility on a continuing basis. Give information to support such fiscal ability.

b. Estimate the total cost of the proposed facility and indicate the percent of such expenditure that can be made by June 30 of the current fiscal year.

RELATED INFORMATION TO PROGRAM OPERATION

I. Funds

1. Purposes

The purposes for which funds made available by the vocational education acts may be expended by local schools are determined by the Acts, the Regulations, and the State Plan. The following identifies some of these purposes for which funds may be used which are of major concern to local schools in planning and operating vocational education programs.

a. Instructional services

Funds may be used for salaries of professional vocational education personnel for time spent on approved vocational education activities. This includes administration, supervision, vocational counseling and guidance, and instruction. The activities may be concerned with training or re-training for employment or further training of those already employed.

Travel expenses for professional vocational education personnel may be reimbursed when such travel is necessary for proper performance of service and is included on the approved budget.

b. Acquisition of instructional equipment, supplies and teaching aids

Funds may be used for acquisition of instructional equipment, supplies, and teaching aids. All expenditures for this purpose that amount to $100 or more, and in which Federal funds are utilized for the acquisition, require prior approval. Inventories and records for these items are to be kept by the State Department of Education as the United States Government has a continuing interest in them. Such authorization request, when approved by the State Director of Vocational Education, constitutes authority to the local school to initiate the purchase. Basically, equipment purchases will be limited to items required for an expanded instructional program and will not be used for normal replacement.

c. Employer's contributions to employee benefits

Employer's contributions to retirement, workmen's compensation, and other welfare funds maintained for the instructional staff and non-instructional staff whose salaries are supported with vocational education funds constitute a purpose for which funds may be approved.

d. Repair and maintenance of equipment

Repair and servicing of vocational education equipment may be budgeted. Service agreements are included in this category when approved by the State Director of Vocational Education.

e. Other related expenses

Other expenditures for vocational programs include items such as utilities, custodial or janitorial salaries, trainee transportation, and rental of non-public space. If the local school desires to utilize Federal funds for any expenditures in this category, prior approval must be secured from the State Director of Vocational Education.

2. Payment to schools

All programs of vocational education and all expenditure of funds will be in accordance with an agreement, budget or contract executed in advance of expenditures. This agreement, budget or contract will set forth the conditions of operation and will contain such information as the total anticipated expenditure for each purpose and the amount of reimbursement to be provided from state and federal funds. The rate or amount of reimbursement will be determined by state policy which will give consideration to such factors as availability of funds, number of programs participating, availability of funds from local sources, quality of the program, type of administrative unit, and the size and scope of the program. Special reimbursement consideration may be given to new programs. Local units making expenditures in accordance with approved budgets, contracts or agreements will file a request for payment at a designated time. Such request will contain supporting information as is necessary to substantiate the expenditure. Such application will be reviewed and the appropriate amount will be authorized for payment through the usual fiscal channels.

II. Reporting and Evaluation

Information pertaining to the local operation of programs will be submitted to the State Department of Education through periodic reports. These reports will contain such information as names of enrollees, ages, daily schedules, occupational objectives, and places of employment for cooperative or other employed individuals enrolled in the training program. This report will also include the specific assignment of the personnel, salary, certification status, and other pertinent information.

Local schools will be expected to keep records of students which enable school officials to make effective follow-up studies for evaluation of the program. Specific evaluation reports will be required and these will be supplemented by periodic visits by State staff.

An annual follow-up of graduates of preparatory programs will be reported to the State office.

Reimbursable programs will need to show value by the extent of placement and success of the enrollees in gainful employment in the occupational field for which they were trained. Failure to show satisfactory evidence of achieving the vocational objective will serve as the basis of withdrawing approval of the program.

III. Supervision

When the size of a local program of vocational education justifies, a local school may be approved for use of funds for local supervision. Individuals assigned to this activity will meet the appropriate certification requirements.

IV. Physical facilities and instructional materials

A physical environment suitable to the vocational education activity is essential to effective performance of that activity. It is imperative that adequate and appropriate classrooms, shops, laboratories, offices, libraries, and instructional materials be provided. There is a great diversity in the types of vocational education activities and each has its own unique requirements for physical facilities and instructional material. Local units are urged to seek assistance in planning or improving programs from appropriate State staff members.

V. Youth Organizations

Local schools are encouraged to establish and develop youth organizations as a part of the total program of instruction in the several vocational education areas when such organizations are approved by the U. S. Office of Education and the State Director of Vocational Education. The time devoted by qualified local personnel to youth club activities will be considered as an approved vocational education activity for purpose of reimbursement.

VI. Qualifications of local personnel

1. Supervisor

The supervisor shall be a fully qualified teacher, hold a Master's degree, and have had at least two years of teaching experience in the vocational area in which supervision is to be provided. Special service supervisors may be approved by the State Director of Vocational Education with less than the foregoing on the basis of specialized experience or training for their work.

2. Instructional personnel

The instructional program of vocational education will be carried out by individuals approved by the State Board for such instruction on the basis of competency in the occupation, or occupational area to be taught as indicated by the experience and technical training and appropriate professional training for teaching.

a. Occupational experience

Three or more years of employment or other experience that contributes directly to the competency is required in the occupations or occupational area to be taught. Such experience shall have been of such nature and quality as to give a recognized status in the occupation represented. Graduation from a four-year college with a major in the vocational area to be taught or completion of a two-year preparatory vocational or technical program in the occupational area to be taught may be considered as meeting one year of the above experience requirement.

b. Professional training for teaching

A minimum of 20 semester hours of professional training for teaching, eight of which must be approved vocational teacher preparation, is required. The foregoing must be appropriate to the level of instruction and to the occupation or occupational area to be taught. Instructors in specialized vocational areas who teach on a part-time basis may be approved without the above professional preparation. Such instructors will be provided short intensive training for teaching when practical. Except as hereinafter provided, instructors may be approved with less than the foregoing amounts of professional training on condition that such preparation must be completed within a six-year period. Instructors in certain areas will have additional qualifications as follows:

(1) Vocational Agriculture – Individuals approved to teach regular vocational agriculture programs must hold a B.S. degree in Agriculture from a Land Grant College and must have completed 45 semester hours of technical agriculture and 15 semester hours of agricultural education.

(2) Vocational Home Economics Education – Individuals approved for teaching regular Home Economics under the provisions of the Smith-Hughes and George-Barden Acts must hold a B.S. degree from an institution approved for training vocational home economics teachers with a major or comparable amount of appropriate credit in Home Economics Education.

(3) Coordinators of Distributive and Trade and Industrial Education and Instructors of Distributive, Business and Office Education – Individuals approved to teach vocational classes and/or coordinate vocational programs in these areas will be required to have a baccalaureate degree with a major appropriate to the vocational area to be taught.

STATE ADMINISTRATIVE RESPONSIBILITIES

For the purpose of administration and supervision of the Smith-Hughes and George-Barden Acts and the Vocational Education Act of 1963, certain responsibilities are assigned to sections within the Vocational Division of the State Department of Education. These sections are based on broad occupational or service areas and headed by a director who is responsible for programs in a particular occupational or service area. They should be consulted for specific information on training programs that are in their occupational or service areas. A brief description of these areas follows:

1. The Director of Agricultural Education is responsible for vocational reimbursable programs for gainful employment in occupations having the following characteristics:

   a. The occupation is practiced on a farm, or in another business, agency, or organization which performs one or more of the agricultural functions of producing, processing, distributing, and servicing.

   b. The occupation employs workers who need competencies in one or more of the primary areas of plant science, soil science, animal science, farm management, agricultural mechanization, and agricultural leadership.

2. The Director of Business and Office Education is responsible for vocational reimbursable programs for gainful employment in occupations performed by individuals in public or private enterprises to include managing, planning, organizing, recording, communicating, interpreting, storing, and retrieving data. The occupational clusters or fields of concentration are suggested by the following grouping of occupational objectives:

   a. Stenographers or secretaries

   b. Clerk-typist or general office clerks

   c. Bookkeepers or accounting clerks

   d. Office machine or computer operators

3. Two directors have responsibilities for Distributive Education and Cooperative programs in Trade and Industrial Education. One is Director of Adult Distributive Education and is responsible for adult programs in Distributive occupations as defined below. The other is Director of Cooperative Industrial and Distributive Education and is responsible for combination programs called Cooperative Occupational Education. Distributive occupations are those followed by proprietors, managers, or employees engaged primarily in the marketing of goods and services in establishments engaged in retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing. Cooperative Occupational Education indicates a method of learning which uses supervised occupational experiences in a distributive, trade or industrial occupation. Trade and industrial occupations are defined in paragraph 5a.

4. The Director of Home Economics Education is responsible for two types of vocational reimbursable programs. One is designed to help students improve personal and family life. The other provides instruction related to employment in occupations involving knowledge and skills in child development, family relationships, clothing and textiles, foods and nutrition, institutional management, family finance, shelter and home furnishings, home nursing and family health. These occupations provide services to individuals and families in the home and similar services to others in group situations. They provide assistance to professional home economists and other professional fields related to one or more home economics subject matter areas.

5. The Director of Industrial Education is responsible for vocational reimbursable programs for gainful employment in trade and industrial occupations, health occupations, and technical occupations of industrial nature. These are defined as follows:

   a. Trade and industrial occupations are those crafts, skilled trades, or semi-skilled occupations concerned with the designing, producing, processing, fabricating, assembling, testing, modifying, maintaining, servicing, or repairing of any product or commodity.

   b. Health occupations are those which render supportive services to the health professions such as nursing, medical, and dental practices, all of which are concerned with providing diagnostic, therapeutic, preventive, restorative and rehabilitative services to people. Included are practical nursing and other health occupations requiring basic understandings and skills for giving nursing care or other health services to people.

   c. Technical occupations are those involving the design, development, testing, manufacture, processing, construction, installation, operation, maintenance, repair or servicing of plant facilities, equipment or products, and those encompassing technical services.

6. The Director of Guidance Services has the responsibility of determining program approval for guidance and counseling services as they relate to the local vocational programs. He shall also develop, secure, and distribute occupational information; provide consultative services concerning the vocational aspect of guidance; and give leadership to the promotion and supervision of better vocational guidance and counseling services at the local level. Guidance services should provide continuing assistance to the individual as he progresses toward his educational and vocational goals.

Work-Study Program

STATE AND LOCAL ADMINISTRATION

The State Director of Vocational Education shall designate appropriate State staff members to administer the work-study program. Projects shall be approved on the basis of evidence that criteria have been met. Reports providing required information shall be submitted by the local agencies to the State Board. Upon the basis of these reports and periodic supervisory visits by State staff members, an evaluation of local agencies' programs will provide assurance that requirements have been met and payments are authorized.

The work-study program will be administered by the local educational agency and made available (to the extent of available funds) to all qualified youth in the area served by such agency, who are able to meet the requirements for eligibility.

REGULATIONS GOVERNING EMPLOYMENT

Employment under the work-study program will be furnished only to a student who:

1. Has been accepted for enrollment or, if already enrolled, is in good standing and in full-time attendance as a full-time student in a program which meets the standards prescribed by the State Board and the local educational agency for vocational education programs under the 1963 Act.
2. Is in need of the earnings from such employment to commence or continue his vocational education program.
3. Is at least fifteen years of age and less than twenty-one years of age at the date of the beginning of employment and is capable in the opinion of the appropriate school authorities of maintaining good standing in his school program while employed under the work-study program.

No student will be employed more than fifteen hours in any week during which classes in which he is enrolled are in session, or for compensation exceeding $45 per month or $350 per academic year or its equivalent, unless the student is attending school not within reasonable commuting distance from his residence, in which case his compensation may not exceed $60 per month or $500 per academic year or its equivalent.

Employment under work-study programs will be for the local educational agency or for some other public agency or institution (Federal, State or local) pursuant to a written arrangement between the local educational agency and such other agency or institution. Work so performed will be adequately supervised and coordinated and will not supplant present employees of such agency or institution who ordinarily perform such work. In those instances where employment under work-study programs is for a Federal agency or institution, the written arrangement between the local educational agency and the Federal agency or institution will state that students so employed are not Federal employees for any purpose.

In each fiscal year during which the work-study program remains in effect, the local educational agency will expend for employment of its students an amount in State or local funds (in addition to those required for matching Federal funds) at least equal to the average annual expenditure for work-study programs of a similar nature during the three fiscal years preceding that in which the plan provisions for its work-study program are approved.

ADMINISTRATIVE PROCEDURES

The policies and procedures to be followed by the State Board in approving work-study programs shall be as follows:

1. The approval of a work-study program shall be based upon a written application initiated by the local educational agency and submitted prior to a specified date which is set by the State Director of Vocational Education.
2. Applications shall assure compliance with provisions of the State Plan and provide the necessary information to determine compliance with the criteria for approval.

The State staff member assigned to process the applications shall:

1. Provide directions to local educational agencies for preparing applications.
2. Check applications to determine their compliance with established criteria and provisions of the State Plan.
3. Recommend the approval or disapproval of applications by the State Director of Vocational Education.
4. Determine the amount of financial assistance for each approved educational agency.
5. Enter into such agreements with local educational agencies as are necessary for implementation of the program.

CRITERIA FOR DETERMINING PROJECT APPROVALS

Local educational agencies shall provide evidence that the following minimum criteria have been met:

1. A record of dropouts by grade level has been prepared verifying a substantial number of dropouts eligible to receive priority consideration for a work-study program.
2. A procedure is used for identifying, selecting, and giving priority to potential dropouts with ability to succeed in the available vocational programs.
3. Employment Security figures have been secured on unemployed youth in the community to justify creating work-study jobs.
4. Sound guidance procedures have been followed to assist students in the choice of an occupational objective.
5. A qualified staff member has been designated for supervision of work-study students. The time allotted and qualifications meet the approval of the State Board. No provision exists for the use of any federal funds for paying for local supervision and administration. Local resources will be necessary if the program is larger than an extra curricular sort of assignment.
6. An evaluative report of the previous year for a work-study program shows it was effective in keeping the students in school.

ALLOCATION OF FUNDS TO EDUCATIONAL AGENCIES

All projects showing evidence of meeting the above criteria before an announced date shall be allotted a share of Missouri's allocation for work-study programs. The amount a project receives shall be based upon the relationship of the schools enrollment to the total enrollment of all schools with approved projects.

The local agencies are then expected to use the allotted amount to serve as many youth as possible by giving priority to:

1. Youth with the greatest financial need.
2. Youth between the ages of 16 to 19.
3. Youth enrolled in the most extensive vocational training schedule. Students in Home Economics courses are not eligible unless the course is designed to prepare for gainful employment in a designated occupation or occupational field.

Periodic payments shall be made to local agencies and periodic reports or evaluation visits shall determine compliance with the regulations and justification for the use of funds.

VT 001 705

VT 001 705
Woodin, Ralph J., And Others
A Five Year Plan for a Department of Vocational Agriculture.

Ohio State Univ., Columbus. Dept. of Agricultural Education
Ohio State Dept. of Education, Columbus. Vocational Agriculture Service
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jul64 19p.

*VOCATIONAL AGRICULTURE; EDUCATIONAL NEEDS; *PROGRAM PLANNING; SCHOOL COMMUNITY RELATIONSHIP; RECORDS (FORMS)

Teachers may use this form in planning a 5-year program in vocational agriculture based on relevant information about (1) the community, its agriculture, and its school, and (2) the strengths and weaknesses of the present program. The teacher should use community representatives, get approval from authorities, and develop a plan which is (1) based on needed changes, objectives, and available resources, (2) consistent with administrative policy, (3) stated in meaningful terms, (4) inclusive of challenging, attainable goals which reflect community thinking, and (5) presented in workable and concise form. Forms are included for recording selected information on (1) the school, community, and agricultural situations, (2) problems, and (3) clientele. Plan sheets with space for guiding statements and goals are included for professional relationships, program planning, teaching and curriculum, occupational experience, the Future Farmers of America, guidance, young and adult farmer groups, physical facilities, public relations, and professional improvements. (JM)

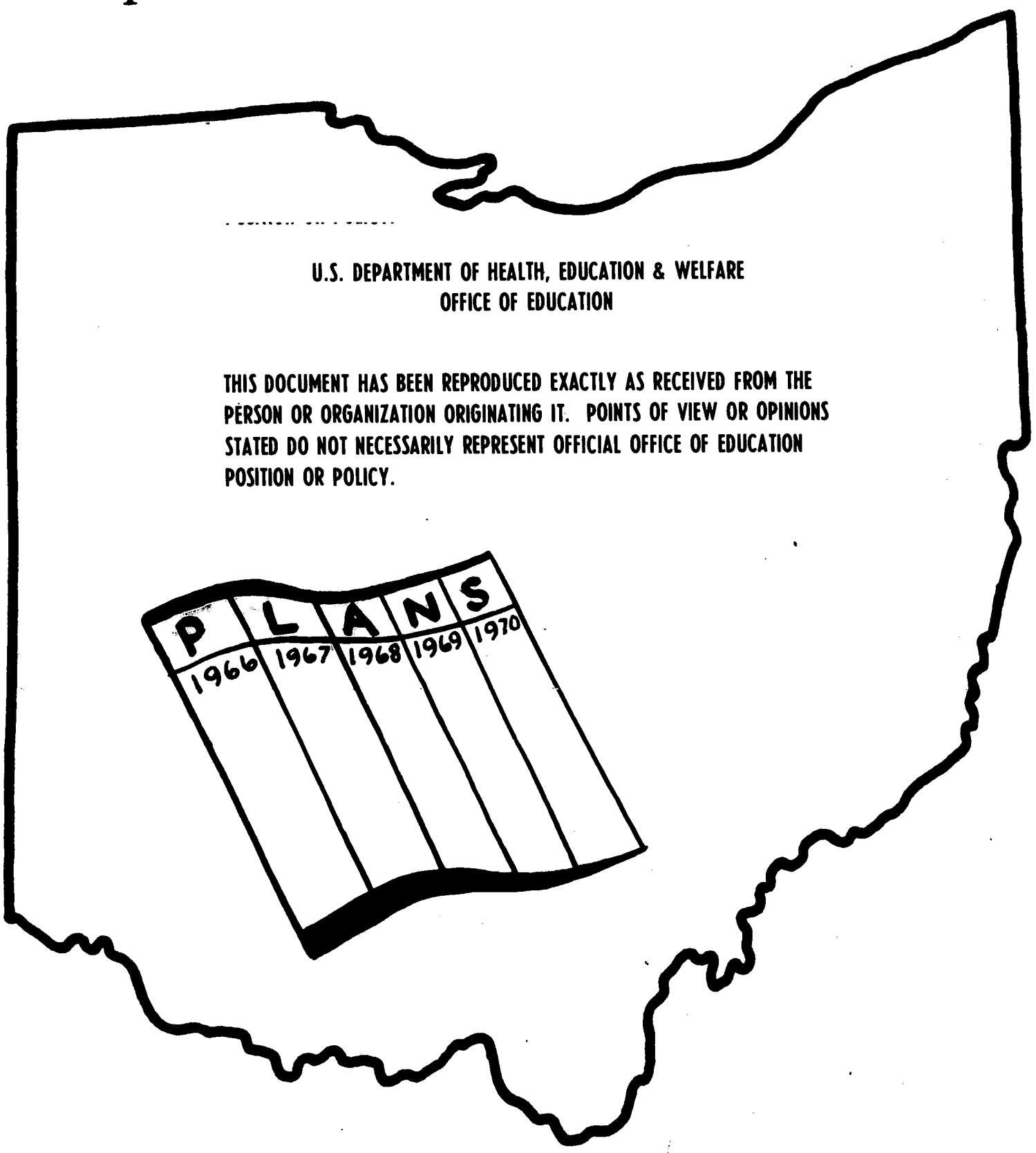
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A Five Year Plan For

A Department of Vocational Agriculture



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VT 004 505

Issued by
The Department of Agricultural Education
The Ohio State University
and
The Vocational Agriculture Service
The Ohio Department of Education
July, 1964

DEVELOPING YOUR FIVE YEAR PLAN

Long time programs for vocational agriculture are an important means of preparing teachers to meet the many changes confronting them. Such plans are useful at state and district levels but especially for local departments. The following are some reasons for a written long time program for every department of vocational agriculture in Ohio:

1. Helps the teacher of vocational agriculture find his place in the community.
2. Outlines the job of the teacher of vocational agriculture.
3. Makes it possible to put "first things first."
4. Provides for continuity of a program even with a change of teachers.
5. Makes it easier to "sell the program to the community."
6. Leads to better community support.
7. Develops the concept of "our program and our responsibility" instead of "my program and my sole responsibility."

This form is intended to assist teachers of vocational agriculture in planning five year programs adapted to their own school and community situation. Before the teacher starts planning such a program, it is assumed that the situation is known; some evaluation of the current program of vocational agriculture has been made, and that important strengths and weaknesses of the program have been determined. Information on the

community, its agriculture, and its school will be helpful in understanding the situation and in preparing a tentative plan. Reference to "Vocational Agriculture In The Next Five Years" and to "The Ohio Plan For Vocational Agriculture" should also prove helpful.

If we believe that representatives of a community should assist in planning the agricultural education program, then the teacher should be prepared to utilize his abilities effectively. This, then, calls upon the teacher to develop a tentative plan. Such a plan then is a first step toward the development of the long time plan that is to be followed. Of course, this five year plan should have the approval of the school administrators, the board of education, and the vocational agriculture advisory committee. It is only after representatives of the school and community have studied and have given their suggestions that an accepted and finalized five year plan can be most effectively developed.

A good long time plan has certain characteristics and you should consider the following when developing your plan. Such a plan should:

1. Be based on needed changes and improvements in the community.
2. Take into consideration the objectives and resources available.
3. Be consistent with administrative policy at both local and state levels.
4. Be stated in terms which are meaningful, not only to the teachers, but to all others who need to understand them.
5. Include goals related to all of the major areas of the program of the department.
6. Include goals which are stated in such a way that they are challenging but at the same time attainable and

measurable in terms of quality and time of completion.

7. Present goals which include the thinking of interested and representative people in the community.
8. Be presented in a workable and concise form.

This guide was issued by the Department of Agricultural Education at The Ohio State University in co-operation with the Vocational Agriculture Service of the State Department of Education. This particular plan was developed by the writer with the assistance of Dr. Willard H. Wolf and John T. Starling representing the joint staff. We hope that you find this to be a useful tool in planning your departmental program and that you give us your ideas for its improvement. We recognize that this first edition can be improved when we incorporate the suggestions of the teachers who use it.

Ralph J. Woodin, Professor
Agricultural Education
July, 1964

THE SCHOOL SITUATION

Include on this page selected information on your school which will influence the program of agricultural education. Include your own observations supplemented by selected facts. Much of this information can be obtained from your school administrator. Include such items as trends in enrollment, school costs, and major problems.

THE COMMUNITY SITUATION

Include on this page selected information on the social organization of the community. Important social changes and trends affecting both farm and non-farm people should be included.

THE AGRICULTURAL SITUATION

Include on this page selected information which will influence the kind of agricultural education desired and needed. Include your own observations as well as any objective information which is appropriate. Seleoted information from "Facts on Farming" and other useful publications.

PROBLEMS FACING A PROGRAM OF VOCATIONAL AGRICULTURE IN THIS COMMUNITY AND APPROPRIATE OBJECTIVES FOR THE DEPARTMENT

These problems and objectives should be identified partly as a result of study of the preceding page and partly as a result of discussion and observation.

Important Problems in Agricultural Education in This Community	Selected Objectives for this Vocational Agriculture Program During the Next Five Years

THE CLIENTELE FOR WHOM THIS PROGRAM SHOULD BE PLANNED

List on this page the various classifications of persons who should be served by the program of agricultural education.

Age Group	Year	Approximate Number	Characteristics
High School	64-65		
	65-66		
	66-67		
	67-68		
	68-69		
Young Farmers	64-65		
	65-66		
	66-67		
	67-68		
	68-69		
Adult Farmers	64-65		
	65-66		
	66-67		
	67-68		
	68-69		
Others	64-65		
	65-66		
	66-67		
	67-68		
	68-69		

FIVE YEAR PLAN

This plan should be based upon the previously recorded information including the community situation, problems and objectives of the agricultural education program and the clientele to be served. Reference to the Ohio Five Year Program for vocational agriculture should also be made. In developing plans for each area of the program an appropriate guiding statement should be developed after which items should be listed.

Relationships With Faculty and Administrators

Guiding Statement_____

Goals or Objectives Satisfactorily Met to Date	Further Improvements to be Made - List and Give Dates

PLANNING AND DEVELOPING LOCAL PROGRAMS

Guiding Statement _____

_____

_____

_____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

use back of page as needed

HIGH SCHOOL TEACHING AND CURRICULUM

Guiding Statement _____

_____

_____

_____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

use back of page as needed

SUPERVISED AGRICULTURAL OCCUPATIONAL EXPERIENCE

Guiding Statement _____

_____

_____

_____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

use back of page as needed

ADVISING THE FFA

Guiding Statements _____

_____

_____

_____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

use back of page as needed

GUIDANCE

Guiding Statement _____

Goals or Objectives Satisfactorily Met as of Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

use back of page as needed

YOUNG AND ADULT FARMER PROGRAM

Guiding Statement _____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

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PHYSICAL FACILITIES

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PUBLIC RELATIONS

Guiding Statement _____

Goals or Objectives Satisfactorily Met to Date	Further Improvement to be Made - List and Give Target Dates	Date of Completion

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PROFESSIONAL IMPROVEMENT

Guiding Statement _____

Goals or Objectives Satisfactorily Met to Date	Further Improvements to be Made - List and Give Target Dates	Date of Completion

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Sherman, G. Allen
A Guide for Curriculum Development for Educating Agricultural Technicians.

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The development of a course of study for agricultural technicians is described. A two-part survey is made to establish the community's educational needs. Employers describe employment trends and employee characteristics. Employees list the actual mental and manual skills required in their jobs. Analysis of this data is the basis for defining objectives. Curriculum content is selected to meet the educational and training needs reflected by a job analysis of identified occupations. The wide variety of jobs precludes setting up a separate curriculum for each type of technician. Establishing a core curriculum including content common to several types is recommended. Subjects that are new to many, agricultural programs such as agrastology, forestry, and wildlife management need to be offered. After content is selected, agricultural courses sequence is determined, and general education courses such as English, history, political science, psychology, and physical education are distributed throughout the 2-year technical program. Specific subject matter and methods are to relate to the student's realistic occupational goals. Although educational needs may vary with geography, they are to be identified, and met, in the various communities. Suggested curriculums for plant science, animal science, and agricultural engineering technicians are included. The report of a National Seminar on Agricultural Education is available as ED 011 918. (EM)

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REPORT

OF

A NATIONAL SEMINAR ON AGRICULTURAL EDUCATION

"PREPARING AGRICULTURAL TECHNICIANS"

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Ohio State University

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VT 01781

A GUIDE FOR CURRICULUM DEVELOPMENT FOR EDUCATING AGRICULTURAL TECHNICIANS,

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Statement of Purpose

The purpose of this paper is to develop a guide for curriculum development for agricultural technicians. This is a rather timely subject because there is much national interest in this type of curriculum. The author has been concerned with the development of such a curriculum at Mt. San Antonio College, Walnut, California, for the past two years. Since it is a new program, there is a definite lack of specific information on the subject. It is hoped that the guide suggested in this paper may be of use to others in agricultural education or in other areas of vocational education.

Limitation of Problem

Curriculum may be defined in many ways. It may be defined as "The total effort of the school to produce desired outcomes" or "A sequence of experiences which have been set up to discipline children and youth in group ways of thinking and acting."[1]

The curriculum proposed in this paper will not cover such problems as staffing, financing, and counseling. They will be mentioned only occasionally, but this does not mean that they are not important. Time and space do not permit their inclusion at this time.

This paper is intended to show the development of the course of study, resource units, and teaching units. It does not include the final step in curriculum development, which is the preparation of individual course outlines and lesson plans by the teaching staff. These can be developed by the teachers who actually use this as a guide or framework.

In the paper, suggestions will be made for determining needs and objectives, and selection and organization of content for technical and general education. Some emphasis will be placed on selection and organization of learning experiences, as the author feels that this is one of the main areas where new thinking is needed by those involved in vocational education. The suggestions on evaluation will tie in with objectives and learning experiences. However, since the technical programs are new, the methods will necessarily be based on theory rather than practice.

What Is a Technician?

Prior to 1963, considerable confusion existed regarding the correct definition of a technician. The term has been used very loosely for many years, and people who were called technicians had a wide range of educational background. This was especially true in the engineering field where men doing technical jobs, but having less than four years of college, were called engineers. Actually, these people were not professional engineers, but were technicians. In other jobs, there are workers with Ph.D.'s who are called technicians.

Some confusion exists in industry because of job titles. Some jobs are given prestige titles which seem to far exceed the educational preparation for the job. For example, a janitor might be called a "sanitary engineer". It appears that one of the jobs of the educator is to help convince society that all work is honorable, no matter how menial the task. The prestige of a job should come from the education needed and the pride of doing the job well, rather than in the title. Some implications for counseling exist here and will be discussed later in the paper.

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[1]Hilda Taba, Curriculum Development (New York: Harcourt, Brace, and World, Inc., 1962), p. 9.

The agricultural technician has been related to technicians in other areas of the labor force. One of the first attempts to define him was done in a study made by Jerry Halterman at Modesto College in California. In his study, he defines the technician as "an individual who through an extended period of specialized training beyond high school, but less than that required for a B.S. degree, in the field of agricultural science and those areas of instruction which support it (training may include, but not be limited to, courses in business education, language arts, mathematics, engineering, physical science, and social science) has acquired the skill and ability to make practical applications of theoretical knowledge in performing specific tasks in the production of goods and services in agriculture."[2]

The agricultural technician must be educated to be able to perform mental (cognitive) skills in such activities as servicing, repairing, maintaining, reporting, building, controlling, supervising, operating, testing, diagnosing, and investigating. He should be able to exercise good judgement and discrimination in making decisions on predetermined standards, do limited organizing and planning, be able to collect, examine, and interpret plans, designs, and data, and determine actions to be taken on the basis of analysis.

In addition, he must be able to perform the manual skills involved in the trade or profession. This involves the use of tools, instruments, and/or special devices to design, illustrate, fabricate, maintain, operate, and test objects, materials, and equipment. This means that he must in reality be able to do the manual skills of the skilled worker in addition to the mental skills mentioned.

The place of the technician in industry, then, is above the skilled worker and below the professional worker. The technician will usually work under the supervision of a professionally trained worker. The need for this type of worker has been pointed out by the National Association of Manufacturers. In their publication on technicians, they point out that "an industry needs an average of between five and seven technicians for every one professional engineer."[3]

Diagnosis of Needs

If the junior college is to be a true community college, the faculty and administration should use all means in an attempt to anticipate, recognize, and serve the educational needs of that community. This may be done in several ways, but one of the best ways to do this in the area of vocational education, is to use a lay advisory committee. The advisory committee for agricultural education should be composed of lay leaders from the various fields of farming and agribusiness represented in the community. The California State Department of Education has published a guide for the establishment and conduct for local advisory committees. They point out that "the committee is only advisory in character, and that its advice is for the board of trustees to accept or reject."[4] Other recommendations for the formation and function of the committees are found in the publication. Perhaps the main thing to remember is that these are lay people and are not professional educators. Therefore, the part the committee should play in curriculum development should be primarily to help determine needs in the community. These leaders, who are working in the various fields of agriculture, can be of great assistance in telling where shortages of labor exist, and the type of education needed for those who are to fill these jobs. If necessary, temporary subcommittees can be formed and other people from industry can be brought in for meetings as the need arises.

After as many meetings as are necessary are held with the advisory committee, a broad idea of needs should be apparent. The committee should have helped determine the areas of occupations that need further study. A plan should then be

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[2]Jerry J. Halterman, "Three Curricula for Training Agricultural Technicians at Modesto Junior College," Agricultural Education Magazine, Vol. XXVI, No. 5, November, 1963), pp. 20-24.

[3]National Association of Manufacturers, Your Opportunities in Industry as a Technician, An Education Aid (New York: National Association of Manufacturers, January, 1957), pp. 7-8.

[4]California State Department of Education, A Guide for Establishment and Conduct of Local Advisory Committees for Vocational Agricultural Departments (Sacramento: State of California, October, 1963), p. 5.

formulated to survey these areas to gain additional detailed information. Several decisions must be made concerning the way in which the survey is to be conducted, such as who will do the work, whether it will be a personal survey, or done by mail, which companies are to be surveyed, and to whom the survey should be addressed. Usually, school personnel do not have time to conduct surveys in addition to their other duties. In some cases, if the survey is not too extensive, it can be done by school personnel with the aid of the advisory committee members. School administrators should be prepared to give released time for faculty and staff to do this type of work. There is much value to the school when these surveys are done properly. Since research by other agencies is lacking, it almost becomes a necessity for the school to complete such surveys on its own. Fortunately, funds will be available to schools to help with this procedure under the new Vocational Education Act.

The author recommends that when a local survey is conducted, that it be done in two parts. The first part should be completed by talking to prospective employers in the selected industries. The employers can furnish valuable information on future trends in employment needs and on the type of individual they wish to employ. Unfortunately, the author has found by personal experience, that employers sometimes tend to be over idealistic in their educational requirements and job analysis. In such a survey, conducted in 1962-63[5], it was found that some employers listed certain jobs as requiring a B.S. degree. Upon further investigation of these jobs, it was found that the actual work performed was not at a level requiring four years of college. In a society where we are short of highly trained professional people, it is unfortunate that people with college degrees are used to perform menial tasks that could be done by a technician.

The second part of the survey should be performed by talking to the employees who are actually doing the jobs which have been defined by employers in the first part. This part of the survey should consist of actual interviews with as many of these people as possible, in order to get an objective analysis of their various duties. An attempt should be made to find out what actual mental and manual skills are used in the daily performance of their jobs. Whenever possible, it is also desirable to list the various equipment used in the performance of these duties. This becomes very helpful in deciding what equipment is needed in the laboratories to train these future employees. The personal interview is recommended rather than a mail survey. In a mail survey, it would be necessary to define "technicians" as used in the study. This is more easily done in a personal interview. By this method, it is easier to get to the proper people to interview. Also, a greater return can be expected from a personal interview than by mail. Finally, the interview helps eliminate preconceived notions or terms by the person preparing the survey. For example, a new term, "agricultural mechanization" resulted from the information gained during a survey by the author. Prior to the survey, the farm equipment mechanics part of the educational program was usually referred to as farm mechanics. It was found that those interviewed considered that the term farm mechanics included food processing machines, and others used off of the farm. Had the term farm mechanics been listed on a mail survey form to be checked by employers, it is doubtful that his interpretation and that of the educator would have been the same. Therefore, the real needs of the industry might not have been reflected in the final curriculum.

Formulation of Objectives

After the completion of the survey, a close analysis of the findings should be made to determine what course of action to follow. Some decisions on objectives will be necessary before the curriculum is established. At this stage of curriculum development, every effort should be made to include the actual teaching faculty in the discussions and planning. If the people who are to do the teaching help develop the objectives, the possibility of them being more realistic and actually accomplished will be enhanced. Also, without well defined objectives, it becomes more difficult to evaluate the results.

On the statement of objectives, one of the first decisions to be made is how broad the program is to be. In the study made at Mt. San Antonio College, over

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[5]G. Allen Sherman, Technicians in Agriculture (Walnut, California: Mt. San Antonio College, 1963), p. 6.

fifty kinds of technicians were identified in the public service alone. The question arises then whether you are going to attempt to develop a curriculum to educate for all of these occupations or for the few that may seem to be in greatest demand. The analysis of the data from the survey may show that there are common areas of knowledge that can be used for several kinds of technicians. If the decision is made to plan a narrow curriculum for certain types of technicians, then will some adjustment by students be possible if plans change or occupational opportunities change?

At Mt. San Antonio College, the broader philosophy has been adopted for the initial program. Perhaps some job competence at the beginning of a career will be sacrificed to give the student a broader base to help him advance on the job later. The broad objective then should clearly spell out what type of behavior is expected. As we recall from the definition of a technician, he will need to know mental and manual skills. The objectives should clearly state whether we are talking about an understanding, competence, knowledge, or appreciation. At Mt. San Antonio College, one of the objectives for the plant science technician was to teach the skill of operating seed separation equipment. Rather than select only one type of machine, we selected four types, each of which operates on a different principle. Students are expected to learn how to use each machine and then are presented with a mixed sample of seed to separate as they decide. The objective here is not just to teach the operation of machines per se, but also to teach principles of seed separation. With the rapid advance of technology, the machines will change and the theory of transfer should operate so that the student can adapt to new situations or machines without requiring retraining in school. The previous example illustrates a second principle of formulating objectives so that the learning experience necessary to achieve them are defined. For many years, we have been primarily concerned with teaching manual skills. The learning experiences here are not necessarily conducive to conceptual thinking or problem solving.

A third principle to consider in formulating objectives is in terms of continuity of growth over a period of time rather than terminal points for a specific grade or activity. By starting with the more general and proceeding to the more specific, the work can become more difficult and education can be given in depth in certain areas. If some natural selection is to take place in the program, all students who attempt it will not succeed. As students advance through the program, the mastery of simple skills should be replaced by the more abstract problems involving critical thinking.

A fourth principle to be considered is that of making the objectives realistic and obtainable. In a two year program in junior college, we cannot expect to have all graduates arrive at the same level of competence. Individual differences will be apparent and students entering the college will come with a wide variety of backgrounds and experiences. Some will have farm backgrounds and some not; some will have had vocational agriculture in high school, and some not. The open door policy in California junior colleges means that anyone can enter who has graduated from high school or is eighteen years of age. This brings up the matter of standards for the program and what type of selection will take place. At Mt. San Antonio College, the staff has been considering the development of some kind of testing program to use as a counseling device. If this is done, then this procedure will have an effect on the objectives that we can expect to attain.

In summarizing the attainment of objectives, the first consideration is the breadth of the program. At Mt. San Antonio College, the decision was made to start with three general types of technician training. These were Plant Science, Animal Science, and Agricultural Engineering. The staff felt that there were common areas of objectives for all three programs and that some core curriculum could be developed which would be common to all three. From this core curriculum, the student can then advance into the area of specific training for the type of occupation that he chooses. Another advantage of this broad approach is that it allows the student some time to make a choice. Most students do not know enough about what jobs are available or what program to follow when they enter as freshmen. The curriculum is being planned to allow students to do project work in the laboratories just as the production majors do on the farm. This will help give individual instruction in depth to those who wish or need it. Our main overall objective of the technician program is to teach the student enough skills (mental and manual) to be able to begin on a job and advance on the job. So far, the objectives of the general education part of the curriculum have not been mentioned. These have purposely been omitted here, as a

section on general education will be covered later in the paper. Once these ultimate general objectives have been established with the help of the teaching staff, then more specific goals can be established by the staff for individual courses as they are planned.

Part of the evaluation process would then be to determine if the individual goals for each course in the curriculum are contributing to the overall objectives of the program.

Selection of Content

After the survey has been completed, then any necessary follow-up should be made by calling in additional people from industry or making calls to the various plants. The results should then be a rather comprehensive list of mental and manual skills which should be included in the curriculum. In addition, there should be some information on concepts and types of problem solving that need to be covered. Course content in this section will deal only with technical education. General education will be discussed under a later section, as will learning experiences.

Some variation will exist in the stages of curriculum development, depending upon whether a whole new program is being established in a new school, or whether the technician program is being added to an existing program. Decisions will have to be made to determine whether existing courses will meet the needs for the technician, and, if not, what changes will be necessary.

Perhaps the best way to demonstrate the selection of course content is to show how it was developed at Mt. San Antonio College following the survey for public service technicians. The procedure shown here will be offered as a guide only, and is not necessarily considered to be the best or only way. The survey showed that in the public service area, there were many types of technicians which could be classified under the general heading of plant science. The following list shows the types of jobs identified and is not necessarily meant to be a complete list:

Agricultural Research Technicians
Biological Laboratory Aide
Soil Conservation Aide
Forestry Aide
Junior Shipping Point Inspector
Laboratory Technician
Gardener
Agricultural Biological Technician
Pest Control Technician
Park Ranger
Park Naturalist
Plant Quarantine Inspector
Plant Pest Control Inspector
Inspector's Aide (raisins)
Processed Fruit and Vegetable Inspector's Aide
Inspector of Economic Poisons and Fertilizer
Seed Inspector
Agricultural Standardization Inspector
Seed Potato Certification Inspector
Sampler - Grain and Commodities
Nursery Inspector
Rodent and Weed Control Assistant
Field Crop Inspector
Field and Orchard Inspector
Standardization Inspector
Rodent and Pest Animal Control
Weed Control
Apiary Inspector
Turf Grass Technician
Quality Control Technician
Agricultural Sales Technician
Agricultural Landscape and Nursery Technician

As you can see, there are thirty-two types of jobs listed here and the list has been enlarged some since the survey. It should become very obvious that a separate curriculum cannot be set up to educate each type of technician. This is why the staff took as its objective the attempt to establish a core curriculum which would include the content which would be similar for several types of technicians.

The next step was to list the various subjects, ideas, skills, concepts, etc. that were suggested during the survey by both employers and employees. These are included in the following list:

Conservation - Soil and Natural Resources
Forestry - Fire Control
Wildlife Management
Agrostology
Agricultural Occupations - job descriptions, opportunities, education required, job interviews
Fruit and Vegetable - variety, identification
Entomology
Pest Control - vertebrate, invertebrate, use of insecticides
Biology
Agricultural Economics
Plant Propagation
Plant Identification - trees, shrubs, groundcovers
Irrigation and Drainage - sprinkler systems, friction losses
Plant Diseases
Weeds and Weed Control
Soil Science
Landscaping
Business Management - human relations, personnel management, record keeping, budgets, labor laws, social security, workman's compensation
Agriculture Inspection - grades, standards
Agricultural Mechanization - two and four cycle engines, turf equipment, value of equipment - costs, food machinery, hydraulics, electric motors, welding, surveying, drafting, blueprint reading, material handling
Bacteriology - sterilization, slide making, identification, staining
Chemistry - manipulative skills, measurement of weights and volume, concentration, density, titrations, acids, bases, ph, specific gravity, use of hydrometer and refractometer and other instruments
Farm Management
Agronomy
Geology
Poultry Husbandry
Agriculture Sales and Service
Fertilizers - costs, rates, proper use, methods of application

Other recommendations were made concerning general education and types of learning experiences. These will be covered later.

As can be seen from the list, the suggestions were many and varied. Some were very specific and some were more general in nature. The next step then is to evaluate the data to see what to include in the curriculum and where to include it. The example shown here only covers the plant science technician program. It should be pointed out, however, that some of the same content is common to the animal science and agricultural engineering curricula, also.

Our first step at Mt. San Antonio College was to hold a staff meeting of the instructors who would be teaching the existing and any new classes. At this meeting, any content suggested in the survey that was already included in an existing course was eliminated, but a note was made as to which technicians would need this course. This step eliminated such suggestions as entomology, agricultural economics, plant propagation, plant identification, irrigation and drainage, plant diseases, weeds, soil science, landscaping, farm management, agronomy, geology, poultry husbandry, agricultural sales and service. These courses were already in the curriculum, but some changes were indicated. Irrigation and drainage, for example, was treated more

from the farm standpoint. The turf grass technician needs to know about sprinkler systems (regular and automatic), and installation of systems, including friction losses in pipe, and the use of clocks and tensiometers. The decision to be made was whether to add a new course or incorporate this material into the existing course by eliminating something. The final decision has not been made by the staff. This will be determined, probably by enrollment. If sufficient enrollment in the turf grass program warrants a new course, it probably will be added. There are other problems in courses such as entomology. The present entomology course has been primarily one in taxonomy. This was deemed inadequate to accomplish the desired objective. A new course has been planned to cover both vertebrate and invertebrate pests and their control. This new course in pest control will deal more with the practical aspect of controlling pests than with mere identification. This course will be offered in addition to entomology.

It should be noted that the list of needed subjects includes some biology, bacteriology, and chemistry. The emphasis here was upon manipulative skills, use of scientific instruments, relationships, and applied science. The transfer student would need the regular courses in these subjects, but the technician does not need the full course. He does not need the theoretical as much as the practical or applied science. For this reason, a two semester course was added, called agricultural science. This course is designed to cover the needs suggested by the survey, and will be one of the core courses for most technician majors.

The survey revealed many areas in agricultural mechanization that are not commonly covered in the traditional courses in farm mechanics. The data indicated that the mechanics part of the curriculum for the technician needed a new approach toward machines used in processing as well as new types of machines used on the farm and in agricultural industry. As a result, a one semester course in farm machinery was dropped, and a new one, titled agricultural mechanization, was added.

The survey indicated a need for some business management. Since Mt. San Antonio College already has a curriculum in agribusiness, it was not necessary to add new courses in this area. Perhaps in some schools these suggested topics could be taught in the business education department, where this seems desirable.

In the past, few junior colleges have offered curricula which included courses in forestry, conservation, and wildlife management. The survey revealed that a need has evolved in this area of work for the two year graduate. This has been brought about by the greatly expanded use of our national forests for recreation purposes, and by the increased use of farms and ranches for recreational purposes. Those interviewed during the survey indicated a definite trend for increases in personnel in these jobs. It was necessary for us to add courses in conservation, forestry and wildlife management.

Some courses had to be dropped in order to add the new ones suggested in this paper. The courses dropped were primarily those in the art of agriculture. These have been replaced with courses which stress applied science in agriculture and, to a lesser degree, the business of agriculture. This approach seems justified in view of the decreasing farm population and the increasing number of jobs in agricultural science and business.

Once the content of the curriculum has been determined, then some thought should be given to sequence of content. This is necessarily tied very closely with the learning experiences planned. There are some problems involved in scheduling that may affect the desired sequence. In a small department, it may be impossible, due to staff limitations, to offer every course each year. Therefore, a curriculum that is established to offer a given sequence for two years will work for students who take it in that sequence. In most junior colleges, however, the new class of freshmen each year outnumbers the sophomores and those entering during the fall of the second year would be coming into the program in reverse order.

In order to make the sequence as desirable as possible, it may therefore be desirable to offer at least the core courses each year and others on alternate years. As will be pointed out later, a balance will be needed between technical and general education work each year. The courses recommended to be offered each year are: agricultural science, soil science, agricultural mathematics, agricultural mechanization, and agricultural sales and service. These were found to be basic to all three technical programs. By offering these courses in the first year, the skills

and principles should be taught also in other classes and in individual project work.

General Education Courses

To this point, the curriculum development can be done primarily by the agricultural staff. However, this does not imply that the counseling and other departments should not be informed of what has been taking place. Other departments and the administration should be kept informed of the planning procedure from the beginning. Their advice and counsel should be sought whenever needed. However, the agricultural staff is qualified and should do the majority of planning of the curriculum which deals with technical education.

At this stage of curriculum development, a curriculum committee representing the college should be called together. The composition of this committee might vary from school to school but a suggested committee might consist of representatives of the following: office of instruction, evening division, library and audio-visual, admissions, registrar, student personnel and counseling. In addition, the chairman of the English, history, psychology, and math departments should be included. At this meeting, problems concerning budgets and new equipment for the addition of new courses should be presented. The librarian is included, as new books and possibly audio-visual equipment will need to be purchased. Evening division personnel will be interested in any short courese, evening or summer courses that may be proposed.

After developing the technical content of the curriculum, the next step is to develop the general education content. In the survey at Mt. San Antonio College, several recommendations were made by both employees and employers regarding general education. One of the most common comments concerned communications. Employers especially want employees who can write and speak effectively. Many of the technicians expressed the need to know how to write a clear, concise report. Mathematics also was mentioned frequently.

Under the discussion of objective, it was stated that the overall objective of the technical program was to educate the student to begin and advance on the job. As we think of additional objectives under general education, we should consider the individual as a member of society. If a good job of technical education is done, the graduate should be able to find employment and perform the necessary skills to be competent. He also needs to be able to get along with his fellow workers and others in our society. He needs to know about our form of government and how it was evolved. Since the work week is continually getting shorter, he needs to learn to employ his leisure time in an intelligent and satisfying manner. These, then, are our objectives of general education. The courses can be planned with these in mind.

Considerable variation exists in the amount of general education required by states or local school boards, and these requirements will undoubtedly have some effect upon curriculum planning. Fifteen units are required by the state and local board at Mt. San Antonio College. These include English 3, History and Political Science 6, Health Education 2, Psychology 2, and Physical Education 2. These are minimum requirements and will vary up to thirty-five units in other schools.

In addition to the courses mentioned, at least one course in mathematics should be required. The successful completion of a math achievement test might be accepted in lieu of this requirement. Some training in speech was definitely indicated in the survey. This can be given in a separate course or could be included in an English course along with written communications. Other courses might be recommended as electives, such as geology, fine arts, geography, marriage and family, or other courses of the student's own choice.

At this point, the curriculum committee needs to do considerable work on selection of course content and teaching personnel. If the teachers of the general education courses do not have a philosophy which is sympathetic toward the terminal student, they can be a real detriment to the program. These teachers should be able to accept realistic objectives with these students and put the emphasis on good teaching. The technical and general education areas are both important to the curriculum, and a good program cannot result unless there is cooperative effort between the two groups.

The general education courses should be distributed throughout the two year program with the technical education. If the general education requirements are fifteen to eighteen units, this would mean about two courses per semester. Satisfaction of the general and technical education requirements would then lead to the Associate in Arts degree.

Selection and Organization of Learning Experiences

In general, the top thirty to forty percent of the students in the junior college will be in the transfer program. Some of this group who do not desire to transfer to a four year college for some reason, will be in the technical classes. However, it is only realistic to plan on having a majority of students in the program who are not the top students in the school as measured by present standards. This fact should not be disheartening. Rather, it presents one of the greatest opportunities in the entire technician program. As educators, we are faced with the challenge of offering these students a more comprehensive technical program than has even been offered in the past. We must be aware that new knowledge and technology is advancing at an ever rapid pace, and our job is to help the students use this knowledge to find their place in society. We are faced with what Benjamin Franklin referred to as dualism in education, when he said, "It would be well if they could be taught everything that is useful, and everything that is ornamental; but art is long and their time is short."[6] We have to teach each student to be a thinking, skilled craftsman and a useful member of society.

We hear a great deal about the gifted student today, but very little about the vocationally talented student. As a result of recent studies, we are starting to hear more about creativity in students and its relationship to I.Q. In one study by Torrance, it was found that "If we were to identify children as gifted on the basis of intelligence tests, we would eliminate from consideration approximately seventy percent of the most creative."[7] We have been influenced by the measurement of I.Q. because we had the tests. We still do not have good tests to identify the vocationally talented student.

In spite of the extensive use of I.Q. tests, "Ideas regarding what intelligence or mental ability is, how it functions, and how it develops are not nearly so clear and precise as one would assume."[8] "Controversies still exist regarding the nature of intelligence on three issues. These are: (1) whether differences of intelligence are hereditary or caused by environmental factors, (2) whether intelligence is constant or modifiable, and (3) whether it is a unitary characteristic or composed of a series of specific abilities."[9] Recent research indicates that intelligence is modifiable and that new patterns of ability can emerge through control and modification of learning experiences and the educative process. New concepts also suggest that intelligence is not a unitary characteristic, but consists of a series of specific functional abilities.

It is not the purpose here to review the research on intelligence, but to suggest that many vocational educators have found students with low I.Q. in class whom they called "overachievers". These students were very vocationally talented in spite of their low I.Q. The author believes it is a vital challenge to vocational educators to stimulate new paths through the brain in an effort to fully utilize these latent abilities which we have failed to recognize for so long.

One of the first considerations in this task is to take a new look at motivation. No matter how fine the laboratory or the equipment, the desire to learn must be present. For this reason, good vocational counseling is important. Students must be kept informed on current occupational information. The sooner the student accepts a goal to work toward, the more he will be motivated. The instructor should endeavor to know the goals for each of his students and should continually relate the subject matter to their goals. Teachers also can motivate students by their

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[6] Jerome S. Bruner, The Process of Education (Cambridge, Mass.: Harvard University Press, 1962), p. 4.

[7] Paul E. Torrance, Guiding Creative Talent (New York: Prentice-Hall, 1961), p. 5.

[8] Taba, op. cit., p. 100.

[9] Ibid.

non-verbal communications. A good teacher motivates his students by his actions as well as his presentation of subject matter. We should not forget that effective motivation is intrinsic.

In the technician program, we are concerned with the teaching of skills and understanding. By doing a good job of teaching skills, we can expect some specific transfer of training where learning one skill helps the learner master a new one which may be similar. An example of this was given previously, concerning the seed separation equipment. By teaching ideas, we can expect some nonspecific transfer to take place where subsequent problems are recognized as special cases of the original idea. By helping students recognize basic fundamental ideas, we can give them greater breadth in applying them to new problems. These ideas need to be found in agriculture and presented to the students so they can learn them. Many of these basic concepts in science can be taught in agricultural science. This should be done in a practical and meaningful way. For example, the principle of specific gravity can be explained and the students taught how to use a hydrometer to determine the density of a liquid. Then the students can be allowed to work on unknowns to determine specific gravity. This knowledge should then be related to its use in industry. This might be done in a juice plant for the determination of sugar content. More study needs to be done to aid teachers in identifying the basic ideas in agriculture.

In his book on learning, Bruner shows four claims for teaching basic structure:

1. Understanding fundamentals makes a subject more comprehensible.
2. Memory is short - unless detail is placed in a structural pattern, it is rapidly forgotten.
3. Understanding of fundamental principles and ideas appears to be the main road to transfer.
4. Fundamental material taught previously should be reexamined periodically and brought up to date.[10]

Spence has classified learning and behavioral situations into six groups:

1. conditioning
2. selective learning
3. verbal or serial learning, which includes rote learning
4. learning of skills, both perceptual and motor
5. symbolic learning, including reasoning and thinking
6. social learning which involves the learning of attitudes, interests, and feelings.[11]

He points out that precise laws are available on only the first three, and only low level theories on the last three. As educators, we give much lip service to objectives in education that involve all of these types of learning. We now need new thinking on how to use all of these types to accomplish our desired objectives.

In summary, it must be remembered that there is much to cover in a short time. Students should be helped to select realistic occupational goals and subject matter should be related to these goals. The students must be taught "how to figure it" or "how to look it up". Skills should not be taught in isolation, but related to the job experience wherever possible. The subject must be made worth knowing and facts taught in a structured or connected manner that will be remembered best. Varied teaching methods, such as demonstrations, field trips to industry, guest speakers, and audio visual aids help reach these goals. The use of equipment that is currently used in industry helps the student see the value of learning how to use it. Systematic procedure should be taught with unknowns to key out or identify. When the student has completed his work, he must be expected to write a lab report in clear, concise language and then correct any mistakes.

In the laboratories, extra individual work in depth should be encouraged. Here again, motivation is important, a strong motivation such as there is with animal projects for the production students. A point of view is expressed by Taba when she says, "The most immediate and pressing demands of our age, when analyzed, will turn out to be not those for narrow vocational skills, or for easy 'social adjustment',

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[10]Bruner, op. cit., pp. 23-26.
[11]Taba, op. cit., p. 85.

but for a depth of understanding which will make it possible to apply the accumulated wisdom of the race to new conditions as they arise."[12] This educational task will not be easy--but yet, will not be impossible.

Evaluation of Results

It has been pointed out that some means of evaluation are needed to determine if basic objectives are being met. Several criteria for an evaluation program will be mentioned here and suggestions made for their implementation.

Naturally, the first criteria is that the evaluation should be consistent with the objectives. Those broad objectives stated for the programs at Mt. San Antonio College were to enable the graduates to begin and advance in the occupation of their choice. Perhaps the best way to evaluate such an objective is to keep follow-up records on all graduates to see how many are successful in finding employment in the area for which they were trained. The follow-up should also be continuous in that subsequent studies are conducted in six months, one year, and five years. These later follow-up studies would be to determine if graduates did stay and advance on the job. By talking to employers, the evaluator can gain valuable information about the strong and weak points of the graduates. This information may have practical implications for curriculum improvement. These implications may fall in either the technical or the general education areas.

Another important criteria is to make every effort to assure that the evaluation is comprehensive. Surveying the employers for evaluations will provide the information just mentioned. In addition, the graduates themselves should be surveyed. These former students, if surveyed in a manner that induces a friendly and informal situation, will usually be very frank in their comments and criticisms. This type of information provides a good supplement to what the employer may have stated about the employee.

If a questionnaire is used, more graduates or employers can be reached in less time and with less cost. The main disadvantage of this method may be the percent of returns received, however. Care must be taken when using a questionnaire to see that the questions asked have the proper diagnostic value. Problems arise also from the use of a mere checklist. The checklist may not accomplish the desired results.

Another major criteria for evaluation of the program is to make sure that any testing done is dependable and valid. Effort should be made to use a pre-test, if possible, to determine these factors. If tests are administered and are not fair measurements of the objectives or learning processes used, then they are of little value.

Some of the objectives in citizenship and use of leisure time may be difficult to evaluate in a formal manner. However, when the evaluator knows his community and his graduates, he can encourage them to visit the college from time to time for a social or sports event. These personal contacts will do much to furnish this type of information on a perhaps unscientific basis, but, nevertheless, the knowledge gained is a helpful aid to curriculum improvement.

Summary and Conclusions

In this paper, the author has offered a guide that others might use for curriculum development for educating agricultural technicians. It cannot be a complete job, as curriculum development involves more than could be covered here.

The development of the need for this type of program in the junior college has been shown. These needs may vary in the different areas of the country, or even in schools within the same state. If agricultural education is to keep pace with our changing economy, these needs should be identified and met, in the various communities.

The technician has been defined as a skilled craftsman who also needs to make decisions and judgements on the job, even though he may be working under the

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[12] Ibid., p. 41.

supervision of a professional person. As has been pointed out, the agriculture industry will need from five to seven of these technicians for each professional worker.

The importance of a lay agricultural advisory committee has been shown. Such a committee can be of great value in curriculum planning, if used properly. Suggestions were made on the effective use of such a committee for this purpose.

The survey was discussed as a means of determining educational needs. It was recommended that the survey be done in two parts to gain more accurate information. Employers and employees do not always agree, and good information can be gained from both sources.

The importance of selection of objectives and how to select them has been pointed out. Objectives should not be static, and are subject to change as the program progresses. In order to keep objectives realistic, they should not be too high, nor too numerous at first. The objectives will have to be consistent with the teaching staff, facilities, and needs, as each of these has a bearing on the final accomplishments.

Selection of content is, perhaps, the most important step in curriculum development. It has been shown that new types of courses will need to be offered, and some former content dropped from present courses. With the rapid increase in new knowledge, there will have to be less fragmentation of courses than has been practiced in vocational education. Much thought must be given to common areas of education and development of core curriculum. Subjects that are new to many agricultural programs will need to be offered, such as agrostology, forestry, and wildlife management. If workers need education in these subjects, it seems that the agriculture department is best suited to offer such subjects.

More stress must be placed on the science and business of agriculture in these new programs. Many implications can be drawn by the teacher training institutions as it is decided who will teach these courses and how these teachers should be educated. It is questionable whether any of the four year institutions are now training the type of teachers that are needed. This new curriculum also has implications for programs involving other departments, such as life and physical science, business education, and trade and industrial education.

The importance of the teaching staff having a definite part in curriculum planning cannot be stressed enough. The final step of course outlines and lesson plans are the job of the individual teacher. He can do a much better job in this area if he has been in on the preliminary planning.

The curriculum development discussed was for a full program, including general education, and leading to an Associate in Arts degree. The general education requirements vary from school to school and state to state and may be determined by other people than the agricultural staff. The general education courses should be checked to make sure they also meet the objectives of the curriculum. This can be a problem when other departments have the responsibility for teaching these courses. Here again, it is a definite help if these departments are brought into the planning phase through a curriculum committee. This committee should discuss objectives, course content, and, especially, learning experiences. The agriculture staff must take into consideration that teachers in the area of general education may not have the same philosophy as the vocational educators toward the terminal student.

In the area of selection and organization of learning experiences, there is ch to be done. Tests are needed to help identify the vocationally talented student and to find the most effective ways to teach him. The emerging ideas in education concerning the nature of intelligence and the nature of creativity, certainly seem to have implications for these new curricula. The whole area of motivation and keeping the curriculum current and meaningful are important. Vocational educators need to do much research to determine which facts and skills can be eliminated from the curriculum, or how they can be combined and structured to gain maximum transfer of training, both specific and non-specific. To gain education in depth and to teach application, new kinds of work experience programs should be developed for these technicians. Part time job placement during schooling may be desirable.

Finally, some methods of evaluation of the program must be used to determine its effectiveness and to aid in curriculum change and improvement. This evaluation should be consistent with the objectives, comprehensive enough to obtain the desired results, and yet dependable and valid.

It is hoped, then, that the ideas suggested in this paper will be of value to others who are interested in developing a curriculum for agricultural technicians. There is much to be done in the future. The need is real, and the challenge to vocational education today is great.

* * * * *

APPENDIX

Plant Science Technician

Freshman Year

Fall	Units	Spring	Units
Agricultural Mathematics AG91	3	Farm Surveying AE55	3
Soil Science SS50	3	Agricultural Mechanization AE63	3
*Truck Crops CP50	3	Agronomy CP51	3
Introduction to Agricultural Economics AB50	3	Agricultural Sales and Service AB63	3
Applied Psychology 2	2	Agricultural Science AG93B	3
Agricultural Science AG93A	3	Health Education	2
Physical Education	½	Physical Education	½
	17½		17½

Sophomore Year

Fall	Units	Spring	Units
Entomology AG51	4	Weeds and Poisonous Plants PS51	3
Plant Pathology PS50	3	Speech 1A	3
English 50	3	American Institutions 10	3
United States History 27	3	Pest Control AG94	2
*Fruit Crops	2	*Plant Science Elective	3
Agricultural Elective	3	General Education Elective	3
Physical Education	½	Physical Education	½
	18½		17½

*Turf Grass Management, Wildlife Management, Forestry, Irrigation and Drainage or Conservation of Natural Resources may be substituted.

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Animal Science Technician

Freshman Year

Fall	Units	Spring	Units
Feed and Feeding AG51	3	English 50	3
*Swine Production AG54	3	United States History 27	3
Applied Psychology 2	2	Animal Hygiene and Sanitation AH96	2
Soil Science SS50	3	Livestock Judging and Selection AH52	2
Agricultural Science AG93A	3	Agricultural Science AG93B	3
Agricultural Mathematics AG91	3	Agricultural Mechanization AE63	3
Physical Education	½	Physical Education	½
	17½		16½

Sophomore Year

Fall	Units	Spring	Units
*Beef Production AG54	3	Marketing Agricultural Products AB60	3
Livestock Breeding AG94	2	Forage Crops CP52	3
American Institutions 10	3	*Weeds and Poisonous Plants AG51	3
Agricultural Mechanics AE50	2	Health Education 1	2
Ranch Management AG50A	2	Agronomy CP51	3
Introduction to Agricultural Economics AB50	3	Agricultural Mechanics AE51	2
Elective	3	Physical Education	½
Physical Education	½		16½
	18½		

*Entomology, Poultry, Wildlife Management or Pest Control may be substituted.

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Agricultural Engineering Technician

Freshman Year

Fall	Units	Spring	Units
Applied Psychology 2	2	Irrigation and Drainage SS51	3
Ranch Management AG90A	3	Ranch Management AG90B	3
Farm Machinery AE53	2	Agricultural Sales and Service AB63	3
Farm Tractors AE54	2	Agronomy CP51	3
Agricultural Mathematics AG91	3	Agricultural Mechanization AE63	3
Soil Science SS50	3	United States History 27	3
Conference and Project	1	Physical Education	½
Physical Education	½		18½
	16½		

Agricultural Engineering Technician (Continued)

Sophomore Year

Fall	Units	Spring	Units
Ranch Management AG90C	3	Weeds and Poisonous Plants PS51	3
Introduction to Agribusiness AB51	3	Ranch Management AG90D	3
Agricultural Mechanics AS50	2	Agricultural Mechanics AE51	2
English 50	3	Pest Control AG94	2
American Institutions 10	3	Health Education 1	2
Elective	3	Conference and Project	1
Physical Education	½	Elective	3
	17½	Physical Education	½
			16½

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HOME ECONOMICS EDUCATION; *TEACHER ATTITUDES; TEACHER SUPERVISION; TEACHER EDUCATION; *TEACHER EXPERIENCES; FEMALES; COLLEGE STUDENTS; STUDENT ATTITUDES; LONGITUDINAL STUDIES; *HOME ECONOMICS TEACHERS; *CHILDREN; *TEACHER CHARACTERISTICS; SURVEYS; BEGINNING TEACHERS; ATTITUDE TESTS
*MINNESOTA TEACHER ATTITUDE INVENTORY

To determine home economics teacher attitudes toward children, the hypotheses were examined: (1) Changes in attitude take place during the college period, and (2) Factors of student and teacher background and experience are associated with such changes. In the first phase of the study, data were derived from a data sheet and the Minnesota Teacher Attitude Inventory (MTAI) administered to a stratified random sample of 1,939 experienced homemaking teachers from six states. There were statistically significant differences in the attitudes toward children shown by teachers in the several states, by graduates of the different institutions, and by teachers in school systems of different sizes: teachers in the middle-sized schools (16 to 75 faculty) earned the highest mean scores. Although the results were not statistically significant, a trend was evident that teachers who found teaching loads satisfactory, had more recently enrolled in college credit courses, had engaged in youth activities, taught in a vocational home economics department, and found supervision helpful had more accepting attitudes toward children. In the second phase, a longitudinal study used similarly derived data from 1,326 freshmen from seven institutions and nine teachers colleges and the same students remaining as juniors, seniors, and first-year teachers. Subjects from these institutions showed a gain in MTAI mean scores between the freshman and senior years but a drop for the first-year teachers. Positive statements based on findings from the very small number remaining in the study (68 freshmen, 85 seniors, and 90 first-year teachers) could be made. Four substudies showed that (1) Teachers with 20 or more years of experience had lower MTAI mean scores than those in other experience groupings, (2) The low mean Ohio scores, compared to those in the five other states, might be accounted for by a higher proportion of older teachers in the sample, a higher proportion of the sample drawn from large cities, and a more heterogeneous school sample, (3) In Iowa, no significant relationship existed between the MTAI and the Johnson Home Economics Interest Inventory scores, and (4) In Minnesota, the vocational teachers made higher MTAI scores than nonvocational, and supervisors of student teachers scored almost twice as high as others. Implications for teacher education and preservice education are presented. This is Chapter 2 of "Home Economics Teachers, Preservice and Inservice Levels, Their Interest in Teaching, Their Attitudes Toward Children and Families" (VT 001 255). Other chapters are VT 001 831 and VT 001 832. (MS)

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HOME ECONOMICS TEACHERS - PRESERVICE AND INSERVICE LEVELS THEIR INTEREST IN TEACHING - THEIR ATTITUDES TOWARD CHILDREN AND FAMILIES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Chapter II

ATTITUDES OF HOME ECONOMICS TEACHERS TOWARD CHILDREN

Roxana R. Ford

This chapter will present three aspects of that phase of the cooperative study dealing with attitudes toward children: the experienced teacher study, the longitudinal study, and a series of sub-studies.

It is commonly assumed that one who chooses teaching as a profession has some liking for children, and further, that those who have an "accepting" attitude are likely to be more effective teachers than are others. This assumption is of particular concern when home economics teachers are the locus of discussion for they not only direct the learning of adolescent or preadolescent youth but also include in their courses units of study involving learning experiences about children and their development.

Curriculums in home economics include courses to help prospective teachers learn more about homes, families, and individuals with the implicit expectation that increased knowledge will result in greater understanding and acceptance of persons who differ from themselves. Thus advisers--with goals of increased understanding in mind--encourage home economics majors to engage in summer activities with groups of children or adults and college teachers and often arrange for student contact with families or individual pupils. If such expectations are unrealistic in terms of the specific course objectives or indefensible in light of research findings, they may reflect an aspect of curriculum planning that warrants increased attention.

Hypotheses

Two major hypotheses were examined: (1) that changes in attitude toward children take place during the college period, and (2) that factors of background and experience of students and teachers are associated with such changes.

The following sub-hypotheses were explored in the experienced teacher phase of the study:[1]

Differences in attitude toward children (as measured by the Minnesota Teacher Attitude Inventory) will be found among:

(1) teachers of the six states studied

(2) graduates of the various institutions

(3) teachers employed in schools of different size

(4) teachers employed in schools which have a vocational, nonvocational, or combination program

(5) teachers who believe their loads to be excessive and those who do not

(6) teachers who believe supervisory assistance to be helpful and those who do not

Further, these differences will be related to:

(1) recency of enrollment in college credit courses

(2) amount of time spent in the supervision of youth groups

(3) amount of time spent in home visits and the guiding of home experiences

(4) amount of time spent in counseling

(5) amount of time spent in study hall duty

Data Collecting Devices

The major instrument for the collection of data was the Minnesota Teacher Attitude Inventory (MTAI).[2] The research committee preferred to use existing devices if appropriate and available. The MTAI seemed to meet the requirements.

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[1] These hypotheses and those in subsequent chapters were tested as null hypotheses.

[2] Cook, Walter W., et al. Minnesota Teacher Attitude Inventory, Form A (New York: Psychological Corporation, 1951).

It was designed to measure "those attitudes of a teacher which will predict how well he will get along with pupils in interpersonal relationships."[3] Although the instrument had been used extensively with elementary school teachers and secondary teachers in the academic subjects, few data were available for home economics teachers. There was a question at the time of choosing the inventory as to whether the content of the MTAI was appropriate for home economics, since the inventory had been developed and standardized with elementary shcool teachers; many items appeared to be oriented to a somewhat formally structured classroom situation in contrast to the informal class or laboratory commonly used by home economics teachers. The context in which the latter would respond was believed to have a considerable bearing on scores. For instance, "more freedom" to one accustomed to maintaining a rather formal classroom might seem to be desirable while the same term to one accustomed to a more permissive situation would connote a state of virtual anarchy. Further questions were raised when the relative position of home economics teachers and teachers of other subjects, both academic and "special," was examined. In this small group, nonvocational home conomics teachers were decidedly lower in scores than others and vocational home economics teachers next lowest!

In a subsequent study,[4] the question of the appropriateness of the MTAI for home economics teachers was examined briefly. Seventy-five items selected from the MTAI were incorporated into another inventory. The statements were chosen on the basis of responses by a group of teachers believed to be

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[3] Cook, Walter W., et al. The Minnesota Teacher Attitude Inventory Manual (New York: Psychological Corporation, 1951), p. 1.

[4] Ford, Roxana R. and Cyril J. Hoyt. The Identification and Measurement of Secondary School Homemaking Teachers' Attitudes and Other Characteristics Associated With Their Ability to Maintain Desirable Learning Situations (University of Minnesota, 1963).

especially adept in maintaining a desirable classroom learning situation. The correlation between the resulting part-score and the MTAI was such (.90) that the use of the original instrument was believed to be justified.

Biographical data sheets were used to collect other relevant information. Separate forms were developed for use with freshmen, juniors, seniors, and teachers-in-service.[5] The form used for freshmen sought information in the following general categories: size of family, high school attended, years of home economics studied, size of home community, organizational affiliation, work experience, and source of school support. Junior and senior data sheets asked questions relating to marital status, sources of support funds, college experience, activities associated with children, and breadth of interests. The inservice teacher data sheet asked about the nature of the teachers' school responsibilities, size of classes, space and facilities of home economics instruction, amount and continuity of teaching experience, educational background, participation in inservice professional activities, marital and family status, personal interests, and feelings about the teaching load as well as about the relationships with those in supervisory positions.

Experienced Teacher Group

Teachers-in-service received the MTAI, data sheet, and covering letter of explanation through the mail. Students were contacted directly, either in classes or by individual appointment.

A stratified random sample of 1,939 homemaking instructors from 6 states comprised the experienced teacher group. In the selection of the sample, all of the home economics teachers in the specified state were listed. Deleted from the list were those (1) who were graduates of the class of 1954 of any of the cooperating institutions, (2) who held emergency teaching certificates, or

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[5] Copies of data sheets may be found in Appendix A, p. 141.

(3) who taught in a demonstration, laboratory, or trade school. Graduates of 1954 were to be used in a pilot study.[6] Those who held emergency certificates were considered atypical, and those teaching in a school other than a comprehensive high school were believed to be teaching in an atypical situation insofar as home economics is concerned. Remaining names were stratified on the basis of the number of faculty members employed in the school with which each was associated: that is, stratum 1, 15 or fewer; stratum 2, 16 to 75; and stratum 3, 76 or more full-time secondary school teachers. By use of a table of random numbers, 125 names were drawn from each stratum, a maximum figure since participating states differed in the number of teachers. In the event that any group had fewer than the specified number, all names were used. For this reason, all secondary school home economics teachers in one state were included.

Information was coded and transferred to IBM cards. Sums and means of designated groups were obtained. Throughout significance was determined by Chi square and analysis of variance as appropriate.[7] For the small numbers involved in the longitudinal study, the t-test was used.[8] An arbitrary level of significance was set: .01 level for support, the .05 level for weak support.

The MTAI means for the experienced teachers were categorized by state (Table 1). The range in the states was from 8.36 to 25.07 with the mean of the total 17.17. This reflects a difference in the six states (Illinois, Iowa, Michigan, Minnesota, Missouri and Ohio), which is statistically significant.

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[6] Information about the 1954 freshmen is presented in Appendix A, p. 155-156.

[7] Johnson, Palmer O. Statistical Method in Research (New York: Prentice-Hall, Inc., 1949).

[8] McNemar, Quinn. Psychological Statistics (New York: John Wiley & Sons, Inc., 1955).

Table 1: MTAI MEANS AND STANDARD DEVIATION OF EXPERIENCED HOME ECONOMICS TEACHERS

State	Responses	Mean	SD
I	329	25.07	37.64
II	349	20.82	38.43
III	330	18.10	35.06
IV	276	16.10	34.02
V	344	13.92	36.29
VI	311	8.36	37.10
Total	1,939	17.17	

Significant at the .01 level.

Since teachers are mobile, those employed in any given state may have been educated in a place far removed from the teaching locale. It was desirable to discover whether graduates of different institutions differed in attitudes toward children. The cooperating institutions involved land-grant colleges, land-grant universities, and teachers colleges.[9] In each state, however, there were teachers who were graduates of land-grant institutions (both colleges and universities) and of teachers colleges not in the study as well as graduates of institutes of technology, nonland-grant universities, and liberal art colleges (Table 2). The institutional MTAI means varied from 8.84 to 28.97 with cooperating institutions representing the highest and lowest scores. Differences among institutions were significant statistically; graduates of different institutions do differ in their attitudes toward children as these attitudes are measured by the MTAI.

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[9] At the time the study was initiated, a distinction was made between land-grant colleges and land-grant universities. The latter were those institutions in a state which served both the university and land-grant functions. The former served the land-grant function. In the interim, the colleges have been designated universities.

Table 2: MTAI MEAN SCORES OF TEACHERS FROM SIX STATES CLASSIFIED BY INSTITUTIONS FROM WHICH THE BACCALAUREATE DEGREE WAS RECEIVED

Institution	Number	Mean
A (cooperating institution)	136	28.97
E (" ")	93	22.72
C (" ")	57	22.68
F (" ")	178	21.74
D (" ")	16	18.12
Land-grant institutions not in study	199	17.70
Teachers colleges not in study	498	17.45
Institutes of technology	19	15.95
Universities, not land-grant	244	14.30
Liberal arts colleges	373	11.93
G (cooperating institution)	35	11.83
B (" ")	80	8.84

The hypothesis that differences would exist in attitudes toward children among teachers in schools of different size was supported since there is a difference significant at .01 level among the three groups (Table 3). In every state, teachers employed in the middle-sized schools with from 16 to 75 full-time secondary school teachers earned higher mean scores than did those in the other groups. Although teachers from the smallest sized schools tended to make the lowest scores, the difference between the mean scores of those in the smallest and those in the largest schools was not significant. This finding is not in complete agreement with results of a study of teachers in 26 states by Ford and Hoyt.[10] In that investigation size was determined by the population of the school district. Teachers employed in the smallest districts also earned the lowest MTAI scores, but those employed in cities of 100,000 or more scored highest. However, all of the teachers in the latter study were selected from reimbursed home economics departments.

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[10] Ford and Hoyt, Op. Cit., 54.

Table 3: MTAI MEANS OF TEACHERS EMPLOYED IN SCHOOLS OF DIFFERENT SIZE

State		Number of Secondary School Teachers		
		Fewer than 16	16 to 75	More than 75
I	N	110	112	107
	MTAI mean	18.30	31.00	25.83
II	N	122	117	110
	MTAI mean	14.19	27.14	21.44
III	N	115	116	99
	MTAI mean	12.92	26.83	13.88
V	N	120	121	103
	MTAI mean	12.22	15.16	14.46
VI	N	102	108	101
	MTAI mean	8.98	11.03	4.88
IV	N	107	112	57
	MTAI mean	8.13	23.08	16.37
Total	MTAI mean	12.55	22.41	16.37

The mean scores of teachers in vocational, combination, and nonvocational programs did not differ significantly in four states but did in two. With the exception of one teacher in a combination group, the MTAI mean scores were higher for teachers in vocational programs, however, than for those in either of the other two categories. (Table 4).

That a person's feelings may be expressed differently when one believes herself to be overburdened and harassed with details than when one is serene seems obvious. But is the feeling about the teaching load associated with attitude toward children as reflected by the MTAI score? Approximately one-fifth of the respondents believed their teaching loads to be too heavy. In all states the MTAI mean scores were lower for such teachers than for those who felt that they had a satisfactory load, although the difference was significant in only one state (Table 5).

Table 4: MTAI MEAN SCORES OF TEACHERS IN VOCATIONAL, NONVOCATIONAL, AND COMBINATION TYPES OF HOME ECONOMICS DEPARTMENTS

State		Type Department: Vocational	Nonvocational	Combination
I	N	72	209	48
	MTAI mean	32.32	22.64	24.77
II*	N	123	226	-
	MTAI mean	29.52	16.08	
III*	N	105	199	25
	MTAI mean	27.45	12.08	25.20
IV	N	139	137	-
	MTAI mean	20.47	11.48	
V	N	166	137	41
	MTAI mean	16.79	12.09	8.44
VI	N	74	235	1
	MTAI mean	9.84	7.65	27.00
Total	MTAI mean	22.39	13.82	19.06

*Significant at the .01 level

Table 5: MTAI MEAN SCORES RELATED TO TEACHING LOAD

State		Satisfactory	Too Heavy
I	N	270	58
	MTAI mean	25.39	23.98
II	N	275	73
	MTAI mean	22.50	13.93
III	N	252	73
	MTAI mean	19.38	14.11
IV	N	218	56
	MTAI mean	15.86	14.75
V	N	274	69
	MTAI mean	15.63	8.22
VI*	N	235	72
	MTAI mean	11.13	-0.64
Total	MTAI mean	15.63	8.22

*Significant (.05 > P > .01)

In some schools the principal serves in a supervisory capacity. In many schools, home economics teachers also have supervision from both a local and a state supervisor (the latter may be known as a supervisor, coordinator, or itinerant teacher-trainer). In larger communities, they may have closer contact with the local supervisor but scarcely be aware of those associated with the state department of education. Likewise, teachers in very small nonvocational schools may have little contact with a supervisor. The work of those in supervisory capacities may be viewed by the supervised on a continuum from the provision of helpful assistance to meddling inspection. Is the way a teacher perceives the supervision given her related to her score on the MTAI?

The data concerning supervision by principals were analyzed using two categories as a result of the small number of responses to one statement. (Table 6) The first grouping, undesirable assistance, was composed of the responses as "leaves me alone" and "tells me what to do"; the second, desirable assistance, was composed of statements of positive help. There was no statistically significant difference between the means of the two groups although the mean scores made by those who saw supervision as helpful were uniformly higher.

There was a statistically significant difference in three states (II,III, IV) between the MTAI mean scores and the way in which assistance given by home economics supervisors, state or local, was viewed. (Table 7) A surprisingly large number of teachers were unaware of any supervision by a home economist. Although state policies with reference to supervisory help for teachers in different kinds of programs may be reflected by this response, the selection of the sample would appear to minimize the possibility that no supervision existed in fact. The question arises as to whether respondents recognized help given by personal letter, newsletter or comparable organ, or through state and local conferences as being supervisory aid. Some teachers may believe it necessary that the supervisor by physically present to give assistance.

Table 6: MTAI MEAN SCORES RELATED TO TEACHER ATTITUDE TOWARD SUPERVISION BY THE SCHOOL PRINCIPAL

State		Undesirable	Desirable
I	N	103	225
	MTAI mean	19.51	27.51
II	N	88	260
	MTAI mean	18.48	22.64
IV	N	67	204
	MTAI mean	14.54	16.24
V	N	96	247
	MTAI mean	10.82	15.26
III	N	90	238
	MTAI mean	10.02	21.05
VI	N	77	226
	MTAI mean	5.04	8.97
Total	MTAI mean	13.32	18.53

Table 7: MTAI MEAN SCORES RELATED TO ATTITUDES TOWARD SUPERVISION BY HOME ECONOMICS SUPERVISOR

State		Indicates how and what	Helps find way	Makes aware	Encourages assistance	Little or no help	No Super-visor
V	N	19	107	49	8	25	118
	MTAI mean	8.95	16.48	15.33	13.75	4.80	13.09
I	N	2	51	32	11	25	206
	MTAI mean	8.00	25.37	23.09	40.09	25.32	24.06
VI	N	16	54	52	3	13	159
	MTAI mean	6.63	3.19	11.77	8.33	4.77	11.21
IV*	N	15	84	55	20	11	85
	MTAI mean	3.80	17.35	24.82	27.80	2.18	11.72
II*	N	5	70	39	11	24	187
	MTAI mean	4.00	22.37	36.54	48.36	20.46	17.05
III*	N	2	49	30	8	10	214
	MTAI mean	27.50	10.06	33.27	28.38	28.30	17.32

*Significant at the .01 level.

The largest proportion of those who reported that they had supervision believed it to be of a positive or desirable nature. In each state, the statement, "helps me find ways to solve problems," reflected most frequently the contribution of the supervisor. In three states, those who reported that their supervisors encouraged them to assist on conference programs (appearing on panels, serving as discussion leaders, etc.) earned the highest MTAI mean scores. The converse was true in one state, although there were very few in that group.

The relationship between MTAI mean scores and recency of enrollment in college classes was explored. Respondents were asked to indicate the length of time which had elapsed since they had last engaged in formal study. A strong trend was observable for the higher attitude scores to be associated with recency of study. The difference was statistically significant in two states, I and IV. An aberration was noted in one state, IV, where teachers at the extreme of time lapse made similar scores. Only three teachers were in the 20-year grouping. (Table 8)

Table 8: MTAI MEAN SCORES RELATED TO YEARS ELAPSED SINCE EARNING COLLEGE CREDIT

State		Elapsed years: Less than 1	1-2	3-4	5-9	10-19	20 or more
	N	106	74	41	47	42	19
I*	MTAI mean	37.96	19.51	26.66	17.91	15.00	11.37
	N	89	73	54	28	28	3
IV*	MTAI mean	25.97	13.22	11.68	9.00	6.04	25.67
	N	97	105	61	32	28	4
III	MTAI mean	23.31	17.68	17.18	14.50	10.96	9.50
	N	122	107	52	36	15	15
II	MTAI mean	20.06	28.36	20.52	10.69	14.40	9.53
	N	122	92	54	31	38	7
V	MTAI mean	19.38	11.70	11.87	13.58	3.58	21.57
	N	65	56	47	50	63	24
VI	MTAI mean	10.08	15.89	9.04	8.06	4.37	2.75

*Significant at the .01 level.

It seems reasonable that teachers whose scores indicate ability to establish rapport with youth might spend more time than others in activities involving children. However, MTAI scores showed no statistically significant differences in relation to time spent in such activities (Tables 9, 10, 11, 12). With the exception of State V, the lowest scores were made by those who spent no time in directing home experiences or in the home visits related to this work. In two states (I and III), those who spent least time in counseling had the lowest MTAI means and those who spent the most time, the highest. Significant differences were observed between MTAI scores made by teachers in two states (III and IV) who had study hall duty and those who did not with the latter having the higher means. Although not statistically significant, there is a discernible trend for higher mean scores to be associated with those activities with youth usually considered to be of an informal extra class nature insofar as a home economics program is concerned.

Table 9: MTAI MEAN SCORES RELATED TO TIME SPENT PER WEEK ON FHA OR NHA

State		Time per week: None	Less than one hour	One to two hours	More than two hours
	N	215	29	52	33
I	MTAI	21.12	32.24	29.73	37.18
	N	224	36	45	40
II	MTAI	18.53	25.94	20.31	31.22
	N	213	17	36	30
III	MTAI	15.68	24.06	25.78	23.30
	N	119	65	83	77
V	MTAI	13.13	19.66	10.99	13.13
	N	122	48	61	41
IV	MTAI	12.34	15.56	24.56	17.28
	N	149	33	54	46
VI	MTAI	5.50	15.61	6.94	14.59
Total	MTAI	15.28	20.84	18.65	20.91

Table 10: MTAI SCORES RELATED TO TIME SPENT IN HOME VISITS AND GUIDANCE OF HOME EXPERIENCES

State		Time per week: None	Less than one hour	One to two hours	More than two hours
I	N	209	52	39	29
	MTAI	20.32	35.33	28.56	36.22
II	N	219	43	39	44
	MTAI	17.38	15.44	33.72	33.00
III	N	200	39	34	26
	MTAI	15.15	20.00	24.44	34.00
IV	N	143	41	39	50
	MTAI	11.00	17.41	24.36	23.88
V	N	169	65	64	45
	MTAI	10.22	21.11	10.83	21.67
VI	N	175	32	29	37
	MTAI	5.63	11.28	11.45	16.51

Table 11: MTAI SCORES RELATED TO TIME SPENT IN COUNSELING ACTIVITIES, EXCLUDING HOME EXPERIENCES

State		Time per week: None	Less than one hour	One to two hours	More than two hours
II	N	192	78	48	27
	MTAI	20.26	22.79	24.79	14.07
I	N	152	75	54	47
	MTAI	18.35	30.08	28.42	34.23
V	N	137	91	63	53
	MTAI	10.90	14.32	12.84	12.34
III	N	128	75	51	46
	MTAI	10.41	21.44	26.61	27.57
IV	N	128	52	54	39
	MTAI	10.40	21.79	22.09	20.26
VI	N	118	69	47	42
	MTAI	4.87	13.70	6.70	17.24

Table 12: MTAI SCORES RELATED TO TIME SPENT IN STUDY HALLS

State		Time per week: None	Less than one hour	One to two hours	More than two hours
I	N	248	8	14	59
	MTAI	24.53	53.75	20.71	24.51
II	N	242	13	17	72
	MTAI	23.52	33.54	14.82	11.24
III	N	156	18	19	114
	MTAI	22.86	14.83	11.90	15.00
IV	N	191	6	17	58
	MTAI	20.02	13.67	6.59	6.74
V	N	200	16	14	114
	MTAI	15.58	2.69	7.50	13.39
VI	N	153	25	23	79
	MTAI	7.15	13.56	3.65	10.40

In summary, there were statistically significant differences in the attitudes toward children shown by teachers in the several states, by graduates of the different institutions, and by teachers employed in school systems of different sizes. Further, although not of a magnitude to be called statistically significant at the level chosen (.01 level of confidence), a decided trend was evident that individuals with more accepting attitudes toward children were those who found their teaching loads satisfactory, who had recently enrolled in college-credit courses, who engaged in youth activities of a constructive nature, who taught in a vocational home economics department, and who saw supervision as helpful.

What do these findings suggest? First, in view of constant change, one may question whether the data reported are truly descriptive of the present condition. Each of us may find it beneficial to study and think further in reference to our own institution and state.

As our individual study progresses, this complex may be worthy of attention. If the MTAI is a reasonably good measure of attitude toward children (and there is evidence that it is), home economics teachers as a group appear to have a less accepting attitude than academic teachers. Is there something in our teacher education curriculums which foster this attitude? Are we more concerned with content to be learned than with the learner?

Further, there is evidence that teachers in the smallest sized schools and nonvocational departments are less accepting of children than are others. Does this suggest that administrators might well study placement practices with the aim of assigning the more "accepting" teachers to the grade level(s) at which home economics is required?

Since MTAI scores and attitude toward helpful supervision were related (either statistically or with a strong trend in some states), one might hypothesize that a general attitude of acceptance of others may be reflected. The question was not pursued in this aspect of the study. However, the finding suggests that state and local supervisors or others concerned with inservice education might well give attention to ways of involving teachers to an even greater extent in the planning and carrying on of institutes, conferences, or workshops.

The fact that large numbers of teachers were unaware of state supervisors suggests the need for their increased visibility. Clarification should be attempted at both preservice and inservice levels of the meaning of helpful supervision and the leadership responsibilities of state supervisors.

The Longitudinal Study

The longitudinal study included freshmen from the seven cooperating institutions and these same students as they became juniors in home economics education, seniors, and first-year teachers. For purposes of comparison, additional

subjects were chosen and will be referred to from time to time. This section reports data from

... The entire home economics freshman class of 1954 of the seven cooperating schools (N=1,100)

... All freshmen in home economics of the class of 1955 for nine teachers colleges (N=226)

... That segment of the 1954 freshman class (for which data were available) of the cooperating institutions who completed college work and taught on year (N=68)

The great difference in the number of entering freshmen and the number at the end of one year of teaching reflects the dropout problem and the great number of career choices open to women with a degree in home economics. It reflects also the hazard in cooperative research--the inability of all original participants to complete the project. Complete data were available for only three institutions. Changes in staff, immediate problems of individual colleges, and state or institutional demands contributed to the difficulties.

Because of the small number (68), a decision was made with the advice of the statistical consultant to increase the sample size. This increase was accomplished by incorporating data for individuals who had transferred into the three institutions remaining in the study, completed college work, and taught one year. Thus, data were available for 68 freshmen, 85 seniors, and 90 first-year teachers (the latter figure results from those with odd classifications for the last year). This decision, while making analyses possible, limits the interpretations which can be made. Because findings from senior groups have implications for teacher education, they are included.

The following hypotheses were explored in the longitudinal phase: The freshman MTAI score will be related to

... degree of responsibility assumed with children before attending college

... experience with children as a baby sitter before attending college

... experience with children as care of brothers and sisters

... experience with children as playground supervisor before attending college

... experience with children as a club sponsor before attending college

... experience with children as a camp counselor before attending college

... experience as a teacher of young children before attending college

... membership in 4-H

... membership in Future Homemakers of America (FHA)

... years of home economics studied in high school

Senior[11] MTAI scores are related to

... experience as a baby sitter after entering college

... experience as a playground supervisor after entering college

... experience as a club sponsor after entering college

... experience as a teacher of young children after entering college

... experience as a camp counselor after entering college

... number of credits earned in college courses in child psychology

... number of credits earned in college courses in education

... number of college credits earned in courses in personal and family living

Inservice teacher MTAI scores are related to

... expressed attitude toward home economics conferences of less than one week

... expressed attitude toward home economics conferences of one week

... expressed attitude toward teaching load

... expressed attitude toward conferences with teachers of other subjects

... expressed attitude toward local faculty conferences

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[11] Preliminary analyses revealed no difference approaching significance between junior and senior scores, therefore, only the latter were used.

... expressed attitude toward professional improvement through college courses

... expressed attitude toward professional improvement through reading of a professional nature

The freshmen and senior hypotheses relate directly to activities in which many students have been encouraged to engage in order that they might understand children better and, hopefully, develop an accepting attitude toward them. The teacher activities selected are among those frequently recommended in the central states as a means of professional improvement. A previous study[12] suggested the existence of a relationship between teaching load and satisfaction.

Home Economics Freshmen, 1954

In the fall quarter of 1954, the home economics freshmen of the seven cooperating institutions responded to the MTAI and the freshman data sheet. Only first-quarter freshmen were included in the sample. This number was not limited to those with specific interest in home economics education but included students with interests in all areas of home economics, in all professional fields. The mean MTAI score for students in all institutions was 16.46. The mean for those in the land grant institutions was 15.86. Means in the land grant universities were higher than those in land grant colleges, 18.59 and 14.03, respectively, a difference significant at the .05 level of confidence. Differences significant at the .05 level of confidence were found also between MTAI means of students in the teachers colleges (24.39) and a combination of all land grant institutions. In this sample, freshmen who entered the teachers colleges made a higher mean score than did those who entered the land grant institutions and those who enrolled in land grant universities made higher mean scores than did those in land grant colleges.

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[12] Committee on Research and Publications. Factors Affecting the Satisfactions of Home Economics Teachers (Washington, D. C.: American Vocational Association, 1948).

Table 13: MTAI SCORES OF THE HOME ECONOMICS FRESHMEN OF SEVEN INSTITUTIONS: 1954

Institution	N	MTAI mean	SD
G	56	24.84	26.80
D	21	23.19	15.49
C	151	23.12	29.74
A	112	22.56	30.37
F	436	18.86	29.07
B	148	10.95	29.98
E	176	2.05	26.59
Total	1100	16.46	

Significant at .05 level.

Additional teachers colleges were asked to participate in 1955 because the number of freshmen enrolled in the original sample of that category was small. This group was of particular interest since it may be argued that students who enroll in an institution of this type may be highly motivated toward teaching as a profession and may reasonably be expected to have a more favorable attitude toward the MTAI than would a group containing a high proportion of students who were not interested in becoming teachers. However, it may also be argued that factors other than interest in teaching may influence choice of school; for example, nearness to home, lower tuition rates, or preference for a smaller campus. An examination of Tables 14 and 15 shows the mean and range among institutions. The mean of the cooperating institutions is somewhat higher than the teachers colleges with the range on the groups comparable.

Table 14: MTAI SCORES OF THE HOME ECONOMICS FRESHMEN IN SEVEN COOPERATING INSTITUTIONS: 1954

Institution	N	Mean
G	56	24.84
D	21	23.19
C	151	23.12
A	112	22.56
F	436	18.86
B	148	10.95
E	176	2.05
Total	1100	16.46

Table 15: MTAI SCORES OF FRESHMEN ENROLLED IN NINE TEACHERS COLLEGES

Institution	N	MTAI mean
5	22	26.68
1	56	24.84
8	28	24.14
6	21	23.19
7	16	18.69
9	17	18.24
2	27	11.93
4	9	10.78
3	30	10.40
Total	226	11.83

Measures of ability, ACE[13] or OSPE[14], were recorded for students when available. Correlations between those scores ranged from .02 to .33. Those for land grant institutions, with a single exception, were all significantly different from zero; that is, students with greater measured ability tended to score higher on attitudes toward children.

For the total freshman group, scores on the MTAI showed no statistically significant relationship with any item of the biographical data sheet.

Home Economics Education Seniors, Spring 1954

Seniors in spring 1954, responded to a biographical data sheet and to the MTAI. Information concerning ability as measured by the ACE or the OSPE and academic performance as measured by the grade point average was also obtained. Some institutions used a three point and others a four point base for calculating grade point averages. There was no standardized base. The students in the land grant universities scored highest on the MTAI (Table 16). Means for the students in teachers colleges and land grant colleges were not significantly different from each other. They were significantly lower than for the land grant universities. There was negligible correlation between scores on ability measures and attitude toward children. In only two institutions were honor point ratios and MTAI scores significantly related.

Graduating seniors of 1954 who entered the teaching field were retested after they had one semester of experience. The mean score for this group decreased from 55.50 to 30.04. The MTAI mean of those who graduated and taught was essentially the same as that of the entire group of seniors (See Tables 16 and 17). A test of differences between the means on the MTAI test and retest showed a significant difference in all institutions (Table 17).

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[13] American Council on Education Psychological Examination for College Freshmen (Washington, D. C.: American Council on Education).

[14] Ohio State Psychological Test (Columbus, Ohio: The Ohio State University).

Table 16: SCORES OF 251 SENIORS, HOME ECONOMICS EDUCATION, 1954

Institution	N	MTAI mean	SD	GPA mean	ACE or OSPE mean	r between MTAI and ACE or OSPE	r between MTAI and GPA
A	27	67.78**	21.67	1.70	114.25	.016	.336
B	47	63.19**	22.29	2.89	69.87	-.147	.007
C	28	62.57**	22.23	3.95	107.68	.018	.020
D	7	51.29	19.89	2.08	114.33	.446	.625
E	35	50.37	26.93	2.69	110.57	.008	.469*
F	81	50.28	25.70	2.68	109.01	.168	.344*
G	26	45.54	30.44	2.80	90.76	.243	.133
Total	251	55.50					

* Significant at .05 level.
**Significant at .01 level.

Table 17: MTAI SCORES OF SPRING SENIORS, 1954, BEFORE AND AFTER ONE SEMESTER OF TEACHING

Institution	N	Before Teaching MTAI mean	After Teaching MTAI mean	Difference
A	22	67.78	52.05	-15.73
B	27	63.19	42.22	-20.97
C	17	62.57	24.47	-38.10
D	7	51.29	31.43	-19.86
E	26	50.37	20.08	-30.29
F	60	50.28	28.77	-21.51
G	19	45.54	28.16	-17.38
Total	178	55.50	32.04	-23.46

Significant at .01 level.

Home Economics Education Seniors, 1954-55 Academic Year

An MTAI mean score of 53.44 was made by 290 graduating seniors in home economics education in the 7 cooperating institutions during 1954-55 (Table 18). An analysis of variance shows a difference significant at the 01 level among institutions. In only one institution was the relationship between attitude toward children and the measure of ability pronounced (Institution D). This, however, was based on such a small number, 11, that little credence can be given it. A somewhat greater relationship was shown between the attitude toward children and the honor point ratio in institutions B, C, and F.

Table 18: SCORES OF 290 SENIORS, HOME ECONOMICS EDUCATION, ACADEMIC YEAR, 1954-1955

Institution	N	MTAI mean	SD	HPR mean	ACE or OSPE mean	r between MTAI and ACE or OSPE	r between MTAI and HPR
A	43	72.47	23.84	1.65	112.03	-.14	.08
B	55	55.40	27.87	2.93	72.15	.27	.34
E	46	51.89	26.64	2.76	103.85	.21	.08
G	22	51.68	33.22	2.73	104.27	.07	-.08
C	30	49.60	29.04	3.89	102.05	.11	.36
F	83	47.42	23.04	2.75	116.90	.21	.22
D	11	35.09	19.55	1.68	68.82	.63	.45
Total	290	53.44					

The mean scores of 55.50 earned by seniors of 1954 and 53.44 of the 1954-55 academic year reflect the commonality of the two groups. In only one institution, D, in which a small number of students were involved was there a decided difference. In neither year was there a significant relationship between the measures of intellectual ability and attitude toward children.

An examination of the MTAI scores of 1954 freshmen and seniors (Tables 14 and 16) may be useful. These represent two distinct groups, the first

including students of various subject matter and professional interests in home economics and the second, those majoring in home economics education. The difference in the means suggests that there may indeed be greater diversity among students in relation to the attitude in question than might have been anticipated.

Findings From Three Institutions in Longitudinal Study

The mean MTAI scores of subjects from each of the three institutions showed a gain between the freshman and senior years (Table 19) and, in each instance, a drop in score was shown for first-year teachers.

Table 19: COMPARISON OF MTAI MEAN SCORES BY LEVEL AND RANGE: THREE INSTITUTIONS

Level		Institution A	Institution B	Institution F
Freshman	N	11	21	36
	Range	15-84	68-86	50-7
	MTAI mean	37.75	14.05	11.28
Senior	N	10	21	54
	Range	20-80	2-107	15-107
	MTAI mean	45.70	49.76	67.26
First-Year Teacher	N	12	21	57
	Range	50-89	39-77	62-95
	MTAI mean	18.17	9.33	27.21

Of the ten relationships explored at the freshman level, only two were of statistical significance: experience as a baby sitter prior to entering college and membership in the Future Homemakers of America (Tables 20,21). An examination of the mean scores indicates a difference in favor of those with extensive experience in baby sitting. No cause and effect relationship may be assumed. Whether the activity resulted in increased accpetance of children as measured by the MTAI or whether the activity was pursued because of an existing liking for and acceptance of them is not known.

Table 20: FRESHMAN MTAI MEAN SCORES AS RELATED TO EXPERIENCE AS BABY SITTER PRIOR TO ENTERING COLLEGE: THREE INSTITUTIONS

Institution	Little Experience N	Little Experience Mean	Extensive Experience N	Extensive Experience Mean
A	4	35.25	7	39.15
B	13	7.07	8	26.00
F	20	-2.13	15	23.66
All Institutions	37	7.29	30	28.20

Significant at .01 level.

Table 21: FRESHMAN MTAI MEAN SCORE AS RELATED TO MEMBERSHIP IN THE FUTURE HOMEMAKERS OF AMERICA: THREE INSTITUTIONS

Institution	Membership in FHA: None N	None Mean	One year or more N	One year or more Mean
A	9	37.55	2	16.50
B	15	18.90	6	9.92
F	22	17.04	14	2.21
All Institutions	46	22.85	22	2.80

Significant at the .01 level of confidence.

In each institution, these freshmen with no experience with the Future Homemakers earned higher mean scores than did those with one or more years of membership. Approximately one-third of the group had taken part in FHA work. Whether the others had chosen not to participate or whether the organization was not available to them in their communities is not known. Again, cause and effect may not be inferred from the data. One may, however, raise questions as to whether those who engaged in FHA activities may have become more accepting, as reflected by scores on the instrument used, than they would

otherwise have been. A study by Pinkerton[15] of students in selected California schools indicated that those girls enrolled in home economics classes made greater progress on certain attitudinal measures than did nonenrollees, although the latter made consistently higher scores on the inventories administered.

Of the eight relationships explored at the senior level, only one was of statistical significance: experience as a camp counselor (Table 22). This also was a negative relationship. In each institution, those with some experience as a camp counselor earned lower MTAI mean scores than did those with no experience. There is no evidence that these--or the other--experiences were planned for in terms of learning to know and appreciate children. Indeed, some of the activities might well have been pursued solely for the purpose of satisfying curricular requirements, the others as a means of gainful employment. Despite the fact that no cause and effect relationship may be assumed, these data serve to remind the educator that mere participation in an activity does not necessarily result in a positive relationship to the learning sought.

Of the seven relationships explored with reference to experienced teachers, none approached significance.

Positive statements based on findings from the very small number remaining in the longitudinal study cannot be made. Not all responses were complete. The inclusion of transfer students further decreases confidence in findings. Nevertheless, there are certain findings which warrant careful consideration and which give direction to home economics teachers in secondary and higher education, city and state supervisors, and administrators.

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15 Pinkerton, Jean Fackler. Relation Between Ninth-Grade Home Economics Instruction and Change in Pupils' Attitudes Toward Family Relationships, Unpublished doctoral thesis (University of Minnesota, 1962).

Table 22: SENIOR MTAI MEAN SCORES RELATED TO EXPERIENCE WITH CHILDREN AS A CAMP COUNSELOR IN THREE INSTITUTIONS

Institution	Little Experience N	Little Experience Mean	Extensive Experience N	Extensive Experience Mean
A	8	48.38	2	35.00
B	10	66.50	11	35.36
F	38	72.18	16	62.08
All institutions	56	57.75	29	45.10

Significant at .05 level.

The most obvious finding, perhaps, is the necessity for recruitment. The loss in numbers between entry and graduation, as well as the competition for home economics education graduates by employers who do not expect to assign them to work in a teaching capacity, make necessary a larger pool of able undergraduate students.

The failure to find a discernable relationship between MTAI scores and a variety of experiences believed to be important in sensitizing students to children suggests that teacher educators, with help of administrators, might well examine the conditions under which the supposed learnings take place. Are many of these simply activities rather than learning experiences? Do courses required of the prospective teacher, especially those relating to children (child psychology or development, family relationships, marriage and the family, and the like) actually have the objective assumed? Is there a common understanding of course objectives on the part of the curriculum makers, the current instructor, and the students? Are the teaching procedures consistent with the objective? Or are we expecting certain kinds of learning from courses which are not intended by the department concerned? Are we, at the precollegiate, collegiate, and postcollegiate levels helping prospective teachers and teachers in service to see the learning possibilities inherent in the out-of-class activities in which they may engage?

Sub-studies

As the investigation progressed, certain findings precipitated sub-studies. Only a few of the more extensive will be reported here.

Change in MTAI Means

One such study resulted from the evidence of great variation in the MTAI means of seniors and of these seniors as first-year teachers. Two senior samples were tested both as seniors and as first-year teachers. An examination of the score changes for the two test periods showed a general drop in score with some differences as much as 100 points. A further study was made of those whose scores had changed as much as 50 points during the period from graduating senior to one semester of teaching experience to explore possible relationships to the teaching situation. Each was asked to retake the MTAI and to respond to the experienced-teacher questionnaire which elicited descriptive and judgmental information.

In the senior sample (541) 48, or 8.9 per cent, had a score change of 50 or more points. Of the 48, one showed an increase while 47 decreased in MTAI score. The latter had mean scores of 65.33 as seniors, 3.50 as first-year teachers, and 4.22 on the retest. One questions whether the student teaching situation had prepared the prospective teacher adequately for the subsequent teaching experience.

Nearly two-thirds of the group were employed in towns of 5,000 or fewer, none in large cities. It is, therefore, not surprising that classes were smaller than average with over two-thirds having 20 or fewer per class and none more than 30. Equal numbers considered this load to be satisfactory (49 per cent) and too heavy (49 per cent). The majority, 85 per cent, were teaching only home economics with four-fifths having classes at both junior and senior high school levels. Over three-fourths (77 per cent) preferred

this age level, although preference was expressed by 9 per cent for working with older (18 years and up) and only by 14 per cent for younger (under 12 years) students. However, despite these figures, more than two-thirds wanted a change (Table 23).

Table 23: RETEST GROUP: CHANGE DESIRED IN TEACHING LEVEL

Direction of Change	N	Per Cent
Higher than now teaching	13	27
Lower than now teaching	20	43
None	14	30

A previous study[16] showed satsifaction on the job to be related to the teachers' assessment of the adequacy of facilities for instruction. Almost half of the retested group reported space and facilities adequate for all or part of the program.

Communities were judged to be deficient in cultural aspects. Few had art collections, museums, musical groups or concerts and less than half had libraries. Most teachers believed that opportunities for participation in social organizations were open to them. Recreational opportunities were rated as fair by half the teachers with equal numbers of the rest giving poor and excellent ratings. A surprisingly large proportion expressed satisfaction with living conditions (47 per cent) although a fourth considered them to be undesirable.

Most of the sample (88 per cent) indicated that there was a pleasant relationship existing among co-workers although considerably fewer (68 per cent) saw this as a cooperative one. A small proportion (11 per cent) believed the

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16 Committee on Research and Publications. Factors Affecting the Satisfactions of Home Economics Teachers (Washington, D. C.: American Vocational Association, 1948).

school atmosphere to be cold and impersonal. Only a few reported any restriction of the teachers private life by administrators; however, just over a fourth believed the community attitude to be restrictive.

Responses relating to supervision were inconsistent. Thirty-six per cent reported that supervisors left them strictly alone. But in a subsequent item, two-thirds indicated that supervisors helped them work out problems and an additional 21 per cent reported that the supervisors gave them help equally in the form of directions and suggestions.

Despite the decrease in MTAI mean scores, 30 per cent expressed the belief that teaching was either the best or by far the best of the professions.

Years of Experience of Inservice Teachers[17]

Considerable interest was shown regarding the effect of age of teachers on the results of the inservice teacher study. The teachers who had 20 or more years of home economics teaching experience composed almost one-fourth (22 per cent) of the total inservice teacher sample and had the lowest MTAI mean.

Fourteen items on the teacher data sheet were selected for further analysis. Those items were compared by state and by length of teaching experience. Teaching experience was analyzed in three categories: less than 5 years, 5 to less than 20 years, and 20 years or more. The MTAI means decreased significantly with increased experience (Table 24).

The length of teaching experience was significantly related by MTAI means to the sex of pupils in their classes but not to the breadth of the teaching program. Those teachers of 20 or more years of experience who were teaching only home economics classes to girls had a significantly lower MTAI mean than others (Table 25). Since 65 per cent of the teachers (69 per cent of

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[17] Detailed tables appear in Appendix A, p. 159-163.

the most experienced group) taught only home economics to girls, this figure becomes more meaningful. The small number who taught both home economics and some other subject to girls only had a higher MTAI mean.

Table 24: YEARS OF EXPERIENCE RELATED TO THE MTAI SCORES

Years of Experience	N	Per Cent	MTAI mean	SD
0-4	670	35	19.66	35.79
5-19	837	43	18.49	36.64
20 or more	429	22	11.45	39.29
Total	1936		17.17	

*Significant at the .01 level.

Table 25: MTAI MEANS, YEARS OF EXPERIENCE, TEACHING ASSIGNMENT, AND COMPOSITION OF CLASSES

	Home Economics and Other Classes for						Home Economics Only for					
	Boys and Girls			Girls Only			Boys and Girls			Girls Only		
Years of Experience	N	%	Mean	N	%	Mean	N	%	Mean	N	%	Mean
0-4	136	19	11.59	45	7	19.16*	56	8	24.52	434	66	21.99*
5-19	201	23	16.32	44	5	10.02*	85	10	17.66	504	62	19.28*
20-over	59	13	10.47	12	3	31.33*	61	15	23.77	296	69	8.11*

*Significant at the .01 level.

The MTAI means were significantly different among the experience groups only when enrollments were above 100. As shown in Table 26, those with 20 or more years of experience had significantly lower MTAI mean scores than others.

Teachers in the junior high schools made lower mean scores than did those in senior high school or combination programs. Among the teachers at the junior high school level, those with 20 or more years of experience had a significantly lower MTAI mean than did other exprience groups (Table 27).

Table 26: TOTAL ENROLLMENT RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

	Combined Enrollment of:											
	49 or less			50-74			75-99			100 or more		
Years of Experience	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean
0-4	150	20	12.82	147	22	20.74	165	27	25.63	206	30	19.77*
5-19	164	18	12.18	167	20	14.66	179	23	24.13	322	38	19.64*
20-more	45	11	10.98	63	15	15.08	93	22	17.00	223	51	8.29*

*Significant at the .01 level.

Table 27: LEVEL OF HOME ECONOMICS CLASSES RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

	Junior High			Senior High			Both		
Years of Experience	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean
0-4	111	17	21.15*	278	37	19.10	275	45	19.01
5-19	184	21	20.29*	360	39	19.16	283	38	15.36
20-more	103	24	1.99*	205	47	13.88	115	27	15.72

*Significant at the .01 level.

Amount of teaching experience was significantly related to the teacher's judgment as to the adequacy of space and facilities in the home economics department (Table 28).

Table 28: ADEQUACY OF SPACE AND FACILITIES IN HOME ECONOMICS DEPARTMENT RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

	Adequate for all phases			Adequate for some phases			Inadequate but plans			Inadequate: no plans		
Years of Experience	N	%	Mean	N	%	Mean	N	%	Mean	N	%	Mean
0-4	212	31	24.40*	255	37	16.64*	160	25	18.21	40	6	24.70
5-19	294	35	19.82*	258	30	18.99*	218	27	15.54	62	7	12.61
20-more	178	41	12.04*	108	25	8.31*	108	26	13.29	34	8	13.59

*Significant at the .01 level.

Assessment of the nature of supervisory assistance was studied (Tables 29,30). Because of its low frequency, the first response, "tells me what to do", was not analyzed. The MTAI for the three experience groups were not significantly related to assistance from the principal except when the teachers reported that the principal left them alone. In the latter case, the teachers who had taught 20 or more years received a significantly lower MTAI mean than did others.

Table 29: ASSISTANCE FROM MY PRINCIPAL AS RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	Helps me with Problems			Leaves me Alone			Suggestions When I Ask		
	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean
0-4	114	17	22.32	155	24	18.61*	394	58	19.86
5-19	169	20	21.09	216	26	13.84*	437	52	18.31
20-more	60	14	18.50	137	32	5.51*	224	52	12.86

*Significant at the .01 level.

Over half of the teachers reported that they did not have a home economics supervisor. Since 35 per cent were vocational teachers and since in some states all teachers, whether in vocational or nonvocational departments, are given the benefit of supervisory help, it is probable that this question was misinterpreted. It was believed to be appropriate, therefore, for two categories to be combined: "do not work under supervisor", "gives little or no help".

The mean for the most experienced teachers who indicated that the supervisor helped them find ways to solve problems they presented themselves was significantly lower than that of other teachers who reported the same attitude (Table 30). For each experience group, the highest MTAI mean was obtained by teachers who believed that the supervisor provided democratic guidance and the lowest by teachers who characterized the supervisor as indicating "how and what she thinks I should do".

Table 30: ASSISTANCE FROM HOME ECONOMICS SUPERVISOR RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

	Indicates How and What			Helps See Ways to Solve Problems			Makes Me Aware of Problems			Encourages Responsibility on Programs			Little or No Help		
Years of Experience	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean
0-4	25	4	4.88	154	21	19.99*	91	12	24.11	5	1	30.00	372	58	20.49
5-19	27	3	6.78	166	19	21.16*	98	11	27.10	39	5	24.90	479	59	14.92
20-more	7	2	-4.43	93	22	1.29*	68	15	15.29	19	5	33.00	224	51	13.25

*Significant at the .01 level.

The credits earned beyond the bachelor's degree seemed to be more closely related to performance on the MTAI by the three teaching experience groups than did some of the other items analyzed (Table 31).

Table 31: CREDITS EARNED BEYOND THE BACHELOR'S DEGREE RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

	None			Less Than Masters			Masters or Equivalent			More Than Masters		
Years of Experience	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean	N	%	MTAI mean
0-4	391	60	17.92*	264	38	23.31*	9	1	6.33	5	1	23.60*
5-19	152	18	10.03*	468	58	16.36*	111	12	23.95	102	12	30.90*
20-more	24	6	2.25*	193	45	7.29*	84	19	13.63	127	30	18.04*

*Significant at the .05 level.

Except for those teachers with the masters degree or equivalent, the means of the teachers in the most experienced group were the lowest. The MTAI means increased with increased credits for the two most experienced groups; however, the mean of the least experienced group was lowest at this level of education.

For single teachers only did the MTAI relate significantly to the amount of teaching experience (Table 32). The means decreased with increased experience.

Table 32: MARITAL STATUS RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	Single			Married			Widowed or Divorced		
	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean
0-4	335	50	23.45*	308	46	15.70	27	4	29.12
5-19	259	31	18.15*	477	57	16.80	100	12	22.88
20-more	296	69	11.09*	94	22	14.27	39	9	7.40

*Significant at the .01 level.

Fourteen items in the inservice teacher data sheet were related to the amount of time spent on nonclass activities during the past week (Table 33). A total score of 14 indicated that a teacher might have spent one hour on each of the 14 activities during the previous week. The total score for these items was obtained for 3 time categories: 0-10, little time; 11-17, considerable time; 18 or more, a great deal of time.

Table 33: TIME SPENT ON NONCLASS ACTIVITIES DURING PREVIOUS WEEK RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	Little			Considerable			Great Deal		
	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean
0-4	163	24	18.91*	306	46	20.19*	201	30	19.64
5-19	208	25	15.60*	382	45	20.42*	246	29	18.21
20-more	147	34	8.10*	176	41	12.46*	106	25	18.18

*Significant at the .01 level.

MTAI means were not significantly different among the experience groups for those who spent a great deal of time on nonclass activities. They were, however, significantly different among experience groups for the other two categories of "little" and "considerable" time spent. In each of the categories, the teacher with 20 or more years of experience had the lowest MTAI mean.

Length of teaching experience was significantly related to the MTAI mean for teachers who had attended conferences or institutes for home economics teachers but not if they had shared on the program (Tables 34, 35). The MTAI means for those who attended decreased with increased experience. The MTAI means for those who shared on the program were higher than the rest of the groups regardless of experience. Only if they had had no experience with workshops for home economics teachers, did teachers who had taught 20 or more years receive a significantly lower MTAI mean than the other experience groups. Again, the highest MTAI mean for each experience group occurs in the category "shared on the program".

Table 34: EXPERIENCE WITH CONFERENCES OR INSTITUTES FOR HOME ECONOMICS TEACHERS RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	No Opportunity N	No Opportunity Per Cent	No Opportunity MTAI mean	Attended N	Attended Per Cent	Attended MTAI mean	Shared on Program N	Shared on Program Per Cent	Shared on Program MTAI mean
0-4	188	27	16.98	374	55	20.29*	84	13	25.76
5-19	174	20	17.00	472	56	16.48*	146	18	27.23
20-more	81	19	10.05	248	57	10.11*	70	17	25.40

*Significant at the .01 level.

Table 35: EXPERIENCES WITH WORKSHOPS FOR HOME ECONOMICS TEACHERS RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	No Opportunity N	No Opportunity Per Cent	No Opportunity MTAI mean	Attended N	Attended Per Cent	Attended MTAI mean	Shared on Program N	Shared on Program Per Cent	Shared on Program MTAI mean
0-4	537	78	18.45*	72	11	28.54	31	5	30.00
5-19	638	73	18.42*	105	14	16.06	44	6	22.66
20-more	299	68	11.18*	66	17	14.64	30	7	21.57

*Significant at the .01 level.

Similarly, MTAI means were significantly lower for the most experienced group of teachers among those who had no opportunity for experiences with conferences or institutes for teachers in several fields (Table 36).

Table 36: EXPERIENCE WITH CONFERENCES OR INSTITUTES FOR TEACHERS IN SEVERAL FIELDS RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	No Opportunity			Attended			Shared on Program		
	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean
0-4	183	27	14.71*	415	61	21.41	41	6	32.39
5-19	200	24	21.16*	514	61	16.41	73	9	25.29
20-more	133	31	5.68*	225	52	14.57	40	9	23.60

*Significant at the .01 level.

The teachers of all experience groups who received their highest MTAI means were those who shared on the program. Comparatively few had this privilege. Teachers of all experience levels received their highest means when they shared on programs for conferences or institutes for their local school faculty. For the other two categories the MTAI means for the teachers with 20 or more years of experience were significantly lower than the other teachers in the same categories (Table 37).

Table 37: EXPERIENCES WITH CONFERENCES OR INSTITUTES FOR YOUR LOCAL SCHOOL FACULTY RELATED TO LENGTH OF TEACHING EXPERIENCE AND MTAI

Years of Experience	No Opportunity			Attended			Shared on Program		
	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean	N	Per Cent	MTAI mean
0-4	174	26	17.27*	364	54	19.49*	102	15	27.76
5-19	167	20	18.90*	452	53	15.37*	170	21	26.74
20-more	92	22	7.59*	216	50	9.02*	91	21	25.09

*Significant at the .01 level.

In summary, teachers with 20 or more years of experience had lower MTAI means than did those in other experience groupings on the majority of items with many of the differences statistically significant. If the MTAI does measure what it purports to measure, this finding is indeed a matter of concern.

City and state supervisors of home economics, as well as administrators of school systems, may appropriately direct attention to this situation. With the least accepting teachers, as reflected by the MTAI mean scores, teaching at the junior high school level--a difficult period for many children--what is the result in terms of pupil development and learning? Satisfaction with school? Enrollment in subsequent work in home economics? Is the lack of acceptance of children associated with a lack of acceptance of others, regardless of age? With a changing self-concept?

The older teacher has many excellent contributions to make. She is essential to the continuance of the homemaking program in the secondary school. It is imperative that ways be found to help her become an even more effective worker.

The Ohio Study[18]

The report on MTAI scores of the large number of home economics teachers in the six states of the study was surprising in some ways. Particularly disappointing to Ohio were its low mean scores in comparison with those of other states. Hence, an attempt was made to explore some possible reasons for these findings. The 311 Ohio teachers who had participated in the 1954-55 study were sent a one-sheet questionnaire concerning their status of the previous year. Of this number, 255 (or 82 per cent) participated. (See Table XIX)[19]

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[18] Contributed by Ruth T. Lehman, Professor, Home Economics Education, The Ohio State University, Columbus.

[19] All tables for this study are in Appendix B, p. 173-181.

Five main questions were studied for this group:

1. Were many of the Ohio teachers persons who should not have been drawn in the first place? (Ohio was the one state permitting minors in the field to teach, and these were supposed to be eliminated.)

2. Were a high proportion of the teachers old? (On the assumption that age might be a reason for less acceptance of the child in the schoolroom situation, and/or for less acceptance of the educational philosophy represented in the MTAI.)

3. Had a high proportion of teachers not taught continuously since graduation, and did this make a difference in scores? (On the assumption that lack of contact with the schools might make them less acceptant of children as found then in the classroom.)

4. Were there factors in the school situation itself which might tend to make the teacher a less acceptant person? The following factors were studied:

   a. Discipline a problem

   b. Attitude of school faculty and administration toward home economics

   c. Teacher's estimate of mental ability of her pupils

   d. Teacher's attitude toward working with young people

   e. Type of homes from which most of the pupils come

5. Were a high proportion of the schools which were drawn located in cities? (On the assumption that city teachers in a highly industrialized state such as Ohio might be less acceptant persons on the MTAI because of their heterogeneous group of pupils.)

The first question was quickly disposed of. Only six teachers had a temporary certificate and so should not have been drawn; only two were found not be home economics majors. Therefore, the group drawn was not biased in these respects.

The second question of age was checked in relation to the year a bachelor's degree (or certificate) was received. Date of master's degree--if held--was disregarded. That the group had a high proportion of older teachers is evident in Table XX (Of 245 teachers for whom there were data on this point, 117 [or 48 per cent] had been out of school for 20 or more years). Only 15.5 per cent had graduated less than five years earlier.

Was age related to scores on the MTAI? In Table XXI, mean scores are given at five-year intervals--with the exception of the oldest group who had been out 20 years or longer--and for each of three school sizes. No consistent pattern is evident. However, when data are grouped at ten-year intervals, as in Table XXII, we discover a regular drop in scores by these intervals for faculty in the smallest and largest schools, and in the total group as well. The middle schools--with the wide range of 16 to 75 teachers--shows little difference in scores at these experience levels. It is of interest, too, to see that in general the mean score by size of school is highest for the small school, lower in the middle school, and lowest in the very large school. This is true for the periods of less than 10 years and 10-19 year groups; the progression fails with the middle schools at the period of 20 years or over.

In general, we can say that the oldest teachers scored lowest on the MTAI. Since Ohio had almost half (48 per cent) of its teachers in this oldest group, this factor may well have been important in the low mean scores found for that state. This factor of age also might result in less acceptance of the educational philosophy represented in the MTAI.

The third question asked whether or not having taught continuously since graduation made a difference in MTAI scores. According to data given in Table XXIII, it did in the case of teachers in the small school. Those who had not taught continuously made a much lower score.

The fourth question dealt with certain factors in the school situation which might influence a teacher's attitude scores. Relevant data are given in Table XXIV:

a. It is evident in the table that those teachers who said discipline was difficult for them or often a problem made low scores on the MTAI, no matter what the size of the school. However, the number of teachers who admitted this problem was small. On the other hand, teachers in large systems who said discipline was not a problem with them also made low scores. Could this be due to the type of discipline they enforced?

b. It is also evident in Table XXIV that teachers who said that the attitude of administration and other faculty members toward home economics was favorable were much more likely to have higher scores than those who said the attitude was neutral. The picture for the "unfavorable" group is based on so few cases, it is not relevant.

c. For the group as a whole, mean scores of teachers varied directly with the extent to which they said their students were of high mental ability. Teachers from both the small and large schools had low means if they believed their pupils were low in ability.

d. Finally, the teacher's own attitude toward working with young people would seem to bear some relationship to MTAI scores. Although there were few who indicated either a neutral or antagonistic attitude, these attitudes were associated with low scores (except in the case of neutral for small schools).

In Table XXV, it is clear that pupils in the small schools were largely from farm and rural nonfarm, middle-class homes, with a smaller number classified as lower class. Pupils from the other extreme--large schools--on the other hand, were from urban and suburban homes and largely middle class. However, there was a significant number from lower class, Negro, and foreign families, with some also from upper class and Jewish homes. The middle group of schools (16-75 teachers) again shows its lack of homogeneity through the types of homes represented. All types of homes reported for the small schools and the very large ones (with the exception of Jewish) are also reported. It is true that urban and suburban and middle-class homes stand out. But farm and and rural nonfarm and lower class are represented in significant numbers; foreign, Negro, and upper class are also found. One would expect such differences in school population to be associated with scores on attitude toward children and youth.

That this association does exist is suggested by the MTAI mean scores of the teachers and were reported above. (See Table XXVI.) However, the striking thing about these scores is that they vary indirectly with size of school. Invariably, the scores of teachers in the large schools are the lowest, those of the middle schools next, and when scores are given for teachers in the small schools, they stand highest. Is this because more of the groups exist together in the large schools? The classes more complex and crowded?

The final question considered in the sub-study of Ohio teachers was whether, in the original sample of 311 teachers:

1. a higher proportion of teachers from very large cities in the top group (76 and more faculty) might have been drawn than was probable in at least some of the other states.

2. an undue proportion of teachers from larger schools might have been drawn in the middle group (16-75 teachers).

Data in Table XXVII suggests that the first point was definitely possible. In 1950, Ohio had more cities over 100,000 in population than any of the other states. Ohio and Michigan had about the same number in the 50,000 range, as did Illinois when cities in Cook County are omitted. This omission was also made in drawing the Illinois sample. Illinois, Michigan, and Ohio had a similar pool of cities of 25,000 and over. Iowa, Minnesota, and Missouri had a much less urban population than the other states from which to draw their teacher sample.

In other words, Ohio had a larger pool of cities on which to draw and, as shown in Table XXVIII, drew two-thirds of its large school sample (76 and more faculty) from cities over 100,000 in population. It is doubtful if any other state had this record with its attendant problems.

The second point--that an undue proportion of teachers from larger schools might have been drawn in securing the sample of schools ranging from 16 to 75 teachers---is not supported by the data in Table XXVIII. Instead, over half of the cases were drawn from school communities of less than 10,000; a fourth, from 10,000 up to 25,000; and the rest, 25,000 and over. The fact that very large cities appear at all in this group is due to the presence of county or exempted village districts which had these cities as their post office address.

A breakdown for the middle schools in Table XXIII by actual number of faculty in the schools studied shows the sample definitely skewed in the

direction of small schools. (See Table XXIX). On the other hand, the sample is as clearly skewed in the direction of city districts (Table XXX). Again the city assumes importance in Ohio's sample.

Conclusions

Three factors stand out in this sub-study, which might well account for differences in Ohio scores and those in the other five states. These are: teacher's age, proportion of cities in the sample, and composition of the student body in schools of varying size.

First, the sample of teachers drawn had a higher proportion of older teachers in it than would normally be expected in a teacher population: 48 per cent had been out of college 20 or more years. Age made a difference in scores; mean scores of these older teachers were in general lower than for teachers who had finished less than 10, or 10-19 years earlier. Those in the largest schools had the lowest mean.

Second, Ohio had a larger pool of very large cities (eight) from which to draw its sample than did the other states. In its random sampling of the largest school systems, it drew two-thirds of its number from these eight cities. Accordingly, its sample of the largest systems was biased in the direction of the very large city. Even the schools of the middle group of teachers were city-oriented.

Third, the student groups--in the three classifications of school by size--varied greatly in composition. Small schools represented the most homogeneous pupil population; very large schools, the most heterogeneous--not what is often considered the "typical American school". The middle-sized school, while having as many groups represented, had the problem groups in smaller number, and doubtless as a result had fewer problem schools.

The Iowa Study[20]

Would a relationship exist between scores on the MTAI and the reaching section of the JHEI? To answer, a sample composed of 93 home economics education majors at Iowa State University, approximately all of the seniors of 1954, was studied. The data were collected, after the students had completed their student teaching, by administering the Minnesota Teacher Attitude Inventory, the Johnson Home Economics Interest Inventory, and a data sheet to determine relationships of the MTAI and JHEI scores and certain other factors.

The correlation between the scores of the two inventories was .16 which is not significant at the five per cent level of confidence. When the scores on the MTAI were analyzed in relation to whether the students had taken home economics in high school or whether these courses were required or elective, the variance was not significant at the five per cent level. Likewise, the amount of 4-H Club experience which students had and the extent to which they had not when there was an opportunity revealed no significant relationship to MTAI scores.

The Minnesota Study

During 1954-55 each full-time home economics teacher in a secondary school program was asked to complete the MTAI and a data sheet designed for teachers in service. Of the 653 persons contacted, 617 (94 per cent) responded. Five hundred and seventy responses were complete and useable. Vocational teachers comprised 40 per cent of the total group. Those who chose not to take part were distributed among the three school-sized strata as follows: from large schools (with 75 or more secondary school teachers), 39 per cent; from medium-sized schools (16 to 75 secondary school teachers), 33 per cent; from small

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[20] Abstract of unpublished M. S. Thesis of Gladys M. Grabe, Iowa State University, Ames, Iowa.

schools (with fewer than 16 teachers in the secondary school), 28 per cent. Two-thirds of the nonparticipants were in nonvocational programs. The distribution of respondents is shown in Table 38.

Table 38: COMPARISON BY SCHOOL SIZE AND PROGRAM TYPE

Program	N	Per Cent	MTAI mean	SD
Vocational				
small	73	32	22.40	
medium	105	46	29.55	
large	51	22	34.96	
Total	229	100	28.48	37.74
Nonvocational				
small	131	38	8.11	
medium	128	38	22.46	
large	82	24	17.96	
Total	341	100	15.87	37.78

Comparisons were made in terms of type of program (vocational or nonvocational), size of school, and service as a supervising teacher. Vocational teachers made a significantly higher mean score than did the nonvocational, 28.48 and 15.87 respectively ($.01 < P < .05$). Teachers from small schools received a significantly lower mean than those in other school-size strata. Further examination in terms of the type program indicated, however, that it was the teacher in the small nonvocational department whose mean was lowest. Although means for vocational teachers from all three sizes of schools were not significantly different, those for nonvocational teachers *were*.

The attitude of supervising teachers toward children was a matter of interest. For this study, supervising teachers were defined as those who had supervised two or more student teachers during the two preceding years. Six per cent of the sample had served in this capacity. The MTAI mean for supervising teachers was 35.89, as contrasted to 18.05 for others (Table 39).

Differences significant at the one per cent level of confidence were shown between those supervisors used only by the University of Minnesota and

by other teacher-education institutions in the state. This difference was not surprising since the supervisory teachers working with University of Minnesota students are selected by the home economics education staff in accordance with carefully stipulated criteria, while the home economics teacher-educators in some of the schools had no control over either student teaching centers or faculty used. No relationship was found between MTAI means and the number of students the teachers supervised.

Table 39: COMPARISON OF INSERVICE TEACHERS AS TO SUPERVISORY RESPONSIBILITIES

Status	N	Per Cent	MTAI mean	SD
Supervising teachers	92	6	35.89	
University of Minnesota	29		48.86	32.80
Used only by U of M	(21)		51.33	
Shared with others	(8)		42.33	
Other teacher-education institutions	63		29.92	30.49
Nonsupervising teachers	473	94	18.05	38.63

Significant at the .01 level.

Analyses were made to identify possible relationships between University of Minnesota students' and supervising teachers' MTAI scores. Seniors in this group were those of spring and summer session, 1954, and of the 1954-55 academic year. The scores of the former as first-year teachers were also used. The range of students assigned supervising teachers was from 1 to 8 with a mean of 3.7. Since each supervisory had more than one student teacher, some repetition of scores occurs in Table 40. The data suggest that a relationship does indeed exist between scores of the senior students and their supervising teachers, that the one causes the other, however, cannot be assumed. There was no relationship between the scores of seniors as first-year teachers and those of the supervising teacher.

Table 40: RELATIONSHIP BETWEEN SUPERVISING TEACHER AND STUDENT TEACHER MTAI SCORES

Comparison	N		MTAI		r
	Senior	Sup. Tch.	Senior	Sup. Tch.	
Seniors and Supervisors	59	16	70.88	52.12	.38*
Seniors as First-Year Teachers and Supervisors	41	15	41.63	57.95	.18

*Significant at the .01 level.

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HOME ECONOMICS EDUCATION; TEACHER EXPERIENCE; INTEREST RESEARCH; CAREER CHOICE; SURVEYS; COLLEGE STUDENTS; BEGINNING TEACHERS; ECONOMICS TEACHERS; *VOCATIONAL INTERESTS; TEACHER EDUCATION; *TEACHER BACKGROUND; LONGITUDINAL STUDIES; FEMALES
*JOHNSON HOME ECONOMICS INTEREST INVENTORY

Because it is assumed that teachers with a high interest in teaching are more effective than those with a low interest, the characteristic of professional interest was studied by exploring the hypotheses: (1) Interest in teaching home economics changes during the college period and in the first year of teaching, and (2) Certain factors in the experiences of students and teachers are associated with interest in teaching. Results were based on data derived by administering the Johnson Home Economics Interest Inventory to 165 subjects at 13 institutions during their freshman and senior years and at the end of the first year of teaching. Interest in teaching did not change significantly from the freshman year until the end of the first year of teaching. The interest scores of freshmen and seniors were not related to the amount of precollege experience in homemaking education or with children, or to the 13 reasons for choosing home economics teaching, although about 91 percent indicated that one of the five practical reasons had influenced their choice of a major. The interest scores of the first-year teachers were not related to (1) satisfaction with teaching generally, with teaching load, with the space and facilities in the department, or with the help given by the principal or supervisor, or to (2) participation in experiences leading to professional improvement. Results indicated that interest in teaching home economics is sufficiently stable to use freshman scores, supplemented with other data, in predicting the scores of seniors and teachers. Recommendations for further study concerned administering the interest inventory after the freshman year and after the first year of teaching, exploring other factors of precollege experience, studying motivation and bases for selection of students in teacher education, and obtaining a better measure of teacher satisfaction. This is chapter 3 of "Home Economics Teachers, Preservice and Inservice Levels, Their Interest in Teaching, Their Attitudes Toward Children and Families" (VT 001 255). Other chapters are VT 001 830 and VT 001 832. (MS)

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HOME ECONOMICS TEACHERS - PRESERVICE AND INSERVICE LEVELS THEIR INTEREST IN TEACHING - THEIR ATTITUDES TOWARD CHILDREN AND FAMILIES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Chapter III

INTEREST IN TEACHING HOME ECONOMICS[1]

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Hypotheses and Design for the Study

The characteristic of professional interest was studied on the assumption that teachers with a high interest in teaching are more effective than those with a low interest. Two main hypotheses were explored:

1. interest in teaching home economics at the secondary level changes during the college period and in the first year of teaching.

2. certain factors in the experiences of students and teachers and students' reasons for preparing to teach are associated with interest in teaching.

Factors explored concerning experience previous to college were (1) membership in 4-H Clubs and high school home economics classes and (2) responsibilities for children. The factors which relate to teaching were satisfaction with teaching loads and facilities in departments, types of help obtained from principal and supervisor, satisfaction with teaching, and professional improvement activities during the first year of teaching. In addition, 13 reasons for preparing to teach were investigated.

The Johnson Home Economics Interest Inventory[2], JHEII, was used to obtain an estimate of interest in teaching home economics. This instrument was developed to measure the interests of college students in 14 occupations in the field of home economics: clothing merchandising, county extension work, designing, food product promotion, food service directing, home service, hospital dietetics,

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[1] This study was carried out as part of Project 1216 of the Iowa Agricultural and Home Economics Experiment Station. Certain of the findings were reported in the Journal of Home Economics, Vol. 54, No. 5, May, 1962, p. 363-365.

[2] Examiner Manual for the Johnson Home Economics Interest Inventory. Ames: Iowa State University Press, 1955, 15 pp.

interior decorating, journalism or radio, restaurant or tearoom managing, secondary school teaching, social welfare and public health work, textile testing, and work with young children. The key for each occupation was based on an analysis of the responses of criterion groups; i.e., persons employed in an occupation. The secondary school teaching key was employed in the present investigation. The assumption was made that the scores are valid estimates of interest in teaching since the key was developed from the responses of home economics teachers and a reliability coefficient of 0.80 was obtained on the odd-even scores of 300 freshmen students.

The Inventory was administered early in the fall of the freshman year, toward the end of the last term of the senior year, and again near the end of the first year of teaching. At each of these times, the subjects filled out a data sheet[3] relating to the factors to be investigated. The sample of subjects differed somewhat from those in the other studies in this cooperative research project. In order to increase the number of subjects who would be available for the third testing and to broaden the study, institutions throughout the United States were invited to participate. Although a large number did indicate an interest, only 13, in addition to 4 in the original cooperative group, collected sufficient data to be included in the investigation of interests.

To determine whether type of institution was related to professional interest, the schools were classified into three types:

I. Those which were separate land-grant colleges previous to 1950 (now Iowa State University, Kansas State University, Montana State University, Oklahoma State University, and Pennsylvania State University)

II. Other state universities (Mississippi Southern University, Ohio State University, Universities of Illinois, Maine, Minnesota, Nebraska, and Wyoming).

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[3] Copies of the three data sheets are to be found in Appendix C.

III. Others (Carnegie Institute of Technology, Central Missouri State College, Muskingum College, Southeast Missouri State College and Tennessee Polytechnic Institute)

The subjects by institutions and types are shown in Table 41.

Table 41: NUMBER OF SUBJECTS BY INSTITUTION AND TYPE OF INSTITUTION

Type and Name of Institution	Subjects: Freshman and Senior Students	Subjects: Freshman and Senior Students and First-Year Teachers
I		
Iowa State University	128	64
Oklahoma State University	15	--
Kansas State University	31	15
Montana State University	27	9
Pennsylvania State University	20	--
Total	221	88
II		
Mississippi Southern University	5	--
Ohio State University	72	31
University of Illinois	16	9
University of Maine	15	10
University of Minnesota	16	16
University of Nebraska	19	12
University of Wyoming	5	--
Total	148	78
III		
Carnegie Institute of Technology	15	
Central Missouri State College	4	
Southeast Missouri State College	6	
Muskingum College	3	
Tennessee Polytechnic Institute	6	
Total	34	
Total	403	166

To facilitate analyses of variance the raw scores on the inventory were divided into three levels: The lowest one-third, the middle one-third, and the highest one-third. This arrangement allowed the study of four interrelationships: type of institution, freshman score, senior score, and a given

factor. The data for each factor were quantified either by assigning numerical values where a continuum was involved or by determining the frequency of occurrence.

The hypotheses were tested employing a triple classification analysis of variance, correlations, and tests of significance between means. The five per cent level of significance was used as the base for accepting an hypothesis. The number of cases from Type III institutions was too small to use in the analyses of variance.

Findings

Changes in Interest in Teaching

To test the hypothesis that interest in teaching home economics changes during college and the first year of teaching, correlations between the scores on the JHEII were obtained using 166 cases. Correlations of 0.36 and 0.45 were found between the scores of freshmen and seniors and between seniors and teachers respectively. Although these are both significant, neither is high enough to be used alone as a satisfactory basis for prediction of interest at the senior or teaching levels. The mean scores and standard deviations for the three levels were 316.0 $\pm$ 13.19; 321.6 $\pm$ 13.59; 322.3 $\pm$ 11.47 when the scores for the 166 cases were considered. The mean scores for the 403 cases were somewhat lower. freshmen 314.6 and seniors 319.1. Although there was a tendency for the scores of these students to rise during the college years, the differences between the scores were not statistically significant. Thus the evidence does not support the hypothesis that the interest in teaching changes from the freshman year until the end of the first year of teaching.

A profile chart was developed by Johnson based on the scores of 460 freshmen home economics students. The mean score of 316.0 in this study is at the 75th percentile for secondary teaching. Using the profile chart based on the responses of 100 home economics teachers, the mean scores of 321.6 for

seniors and 322.3 for first-year teachers fall approximately on the 16th percentile.[4] This suggests either that the interest of seniors and first-year teachers is lower than the interest of teachers with more experience or that teachers with less interest tend to leave the field after a short period of experience.

Earlier studies of home economics students at Iowa State University produced somewhat different findings. Both Rachut[5] and Scholl[6] obtained higher correlations between freshman and senior scores for students preparing to teach: 0.51 and 0.40 respectively. Rachut found a somewhat higher correlation for senior and on-the-job scores: .48 compared with .45 in the present study.

The permanence of vocational interests has been the subject of many studies using Strong's Vocational Interest Blanks, but unfortunately none has been reported in the literature which gave statistics for college women and the field of teaching. Strong[7] has found evidence, however, that interest scores of men are quite stable among most professional groups.

Factors Associated with Students' Interest in Teaching

Before making the analyses to determine the relation of certain factors to interest in teaching, it appeared desirable to explore the possible relation of type of institution to the factors under study. When the analyses of variance were computed using subjects from Type I and II institutions, there was

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[4] Examiner Manual for the Johnson Home Economics Interest Inventory, Op. Cit.

[5] Rachut, Stella. Stability of Johnson Home Economics Interest Inventory Scores on Three Levels: Freshman, Senior, On-the-job. Unpublished M. S. thesis (Ames: Iowa State University, 1958), p. 50.

[6] Scholl, Phyllis C. Stability of Johnson Home Economics Interest Inventory Scores for Freshman to Senior Year. Unpublished M. S. thesis (Ames: Iowa State University, 1955), p. 36.

[7] Strong, Edward K., Jr. Vocational Interest 18 Years After College (Minneapolis: University of Minnesota Press, 1955), p. 207.

no evidence to support the hypothesis that type of institution was a source of variance in any of the relationships studied using an F-value of five per cent as a base. Hence this source of variation was eliminated in subsequent analyses.

Educational experience previous to college was one of the factors studied. On the Freshman Data Sheet, the students indicated the number of years they had been enrolled in home economics classes in junior and senior high school and also the number of years they had been a member of a 4-H club. The following values were assigned for the amount of experience:

0 - no enrollment or membership

1 - 1 year or less in both or either (classes or 4-H clubs)

2 - 2 years in one; less in the other

3 - 2 years in both

4 - more than 2 years in one

5 - more than 2 years in both

Use of the triple classification analysis of variance to determine relationship of freshman and senior mean scores to amount of experience of this type revealed no significant differences. The hypothesis that the interest scores of the freshmen and those of the seniors were related to amount of previous experience in homemaking education (home economics classes or 4-H club) was rejected.

Grabe [8] obtained somewhat different results when she related freshmen scores on the JHEII to experience in high school home economics classes alone. She obtained an F-value that approached significance at the 5 per cent level with 92 Iowa State University students. The data she collected concerning this experience, however, differed from those in the present study, since she

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[8] Grabe, Gladys. Relationships Among Interest in Teaching Home Economics, Attitude Toward Teaching, and Personal Background Factors. Unpublished M. S. thesis (Ames: Iowa State University, 1956).

asked the students to indicate whether they took home economics courses because they were required or elective. The mean JHEII score for those who took only required courses was 319.0 and for those who elected some courses was 327.0. When Grabe analyzed these interest scores in terms of participation in 4-H clubs, she obtained an F-value significant at the 1 per cent level. Her classification of this experience differed in that she used these four groupings: no opportunity to belong, did not choose to join, less than two years of membership, and two or more years of membership. The mean interest scores for those reporting no opportunity to belong was 317.7 and for those with more than two years or experience was 329.10.

Another type of experience previous to college, that relating to children, was explored. The data concerning the amount of experience with children were summarized by assigning numerical values to six experiences, such as babysitting and superivision of playground, in terms of amount of experience and responsibility assumed. A value of one was given each response of "helped someone else," two "had responsibility on a few occasions," and three "had extensive responsibility." The highest possible score was 18. When these scores were analyzed in relation to the JHEII scores of freshmen and seniors using the triple classification analysis, there was no evidence to support the hypothesis that the interest scores were related to amount of experience with children previous to entering college. Most of the students had experience scores between 3 and 11, a total of 91.1 per cent.

In her study of Iowa State University students, Grabe likewise found no statistically significant differences between experience with children and the JHEII scores. She derived an experience score in much the same manner as in the present investigation. The mean interest scores were almost identical, 321.5 and 321.6 for those with experience scores of 0 to 4 and 12 or more.

Reasons for Interest in Teaching

The question of what motivates students to select teaching as an occupation has been explored in recent years by many educators, both on the theoretical and

research levels. After reviewing the literature in 1957, Lloyd-Jones and Holman[9] questioned the frequent assumption that the decision to teach is made rationally and that prospective teachers are aware of their own motives. They examined the theory that the individual's basic needs are the motivational force but suggested it would be unrealistic to assume that this is the entire answer since there is not complete freedom of choice. Economic and social factors, they say, may supercede needs. For women who are interested in marriage, these factors may be particularly influential. The investigation by Lang[10] suggests that the motives of prospective teachers vary with the level at which they plan to teach. When the Lang Scale of Motives for Teaching was used with women students, 101 preparing to teach at the elementary level and 87 at the secondary level, the former tended to select reasons relating to the "mothering" role and the latter to the "director of learning" role.

One illustration of an attempt to explore the need theory and the choice of teaching as a career is the study made by Merwin and DiVesta.[11] They compared 67 freshmen college students at Syracuse University who indicated preference for a teaching career with 151 who indicated another career choice using four scales they had developed: need for achievement, for affiliation, for dominance, and for exhibition. In addition they administered an instrument to measure the concept of the potential which teaching has for satisfying these four needs and a scale to measure attitude toward teaching as a career. They found that the teaching group had a significantly higher mean

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9 Lloyd-Jones, Esther, and Mary V. Holman. "Why People Become Teachers," in Lindley J. Stiles (Ed.) The Teacher's Role in American Society, Fourteenth Yearbook of the John Dewey Society (New York: Harper and Bros., 1957), p. 235-246 and p. 298.

10 Lang, Gerhard. "Motives in Selecting Elementary and Secondary School Teaching," Journal of Experimental Education, Vol. 29, No. 1 (September, 1960), p. 101-4.

11 Merwin, Jack C. and Francis J. DiVesta. "A Study of Need Theory and Career Choice," Journal of Counseling Psychology, Vol. 6, No. 4 (Winter, 1959), p. 302-8.

score than the nonteaching group on the scale relating to need for affiliation, and the latter group had higher mean scores on the other three scales. The teaching group scored higher on the scale concerned with the extent to which teaching was perceived as satisfying the four needs. The attitude scale differentiated at the one per cent level; those preferring a teaching career had higher scores than the nonteaching group.

Holland[12] criticized previous theories of vocational choice as either too broad or too specialized and proposed a theory that "at the time of vocational choice the person is the product of the interaction of his particular heredity with a variety of cultural and personal forces including peers, parents, and significant adults, his social class, American culture, and the physical environment." He classified occupations by environments: the motoric, the intellectual, the supportive, the conforming, the persuasive, and the esthetic. Teachers he places in the supportive environment along with social workers, interviewers, vocational counselors, and therapists.

In the present study, an attempt was made to secure some indication of the motivations of students by asking seniors to check no more than 3 of 13 reasons as important in their selection of teaching and to double check the one of greatest importance. For the purposes of analyses, these reasons were classified thus:

Practical reasons

1 - Availability of jobs

2 - In emergency can return to field after marriage

3 - Salary

4 - This career combines well with marriage

5 - Vacations and hours are desirable

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12 Holland, John L. "A Theory of Vocational Choice," Journal of Counseling Psychology, Vol. 5, No. 1 (Spring, 1958), p. 44-49.

Desire to work with people

6 - Strong desire to work with young people

7 - Work with people rather than alone

Breadth of curriculum in home economics education

8 - Broad education in home economics

9 - Interest in more than one area of home economics

10 - More opportunities to take courses in areas other than home economics

Persons advised this preparation

11 - Family or others strongly urged that they prepare for this occupation

12 - Adviser or counselor advised them to prepare for this occupation

The thirteenth reason was: have been interested in this occupation for a long time.

The method used to weight their responses is illustrated by that used for the three reasons concerning breadth of curriculum:

0 - no reason checked

1 - 1 reason single checked

2 - 2 or 3 reasons single checked or 1 double checked

When the scores derived from the weighted responses for each group of reasons and for the single reason were analyzed with reference to the JHEII scores of freshmen and seniors, no significant relationships were found. Hence there was no evidence that the scores of either freshmen or seniors on the Interest Inventory were related to the reasons for choosing home economics teaching studied. Only one analysis approached significance at the five per cent level, that of freshmen interest scores and reasons related to breadth of curriculum. One-third of the students failed to check any of the 3 reasons classified under this heading, but 34.0 per cent indicated that 1 of these reasons had been among the 3 most important in their selection of teaching, and 28.7 per cent selected 1 of the 3 as the single most important reason.

The choice of a profession by college women is complicated by the fact that in American society today, a woman is expected to assume the role of homemaker. She may choose to combine this role with paid employment. If she does, her occupational choice probably will be made, in part at least, by practical considerations such as hours of work and availability of jobs. Since men are not faced with this problem of combining two roles, studies relating to motivation need to analyze data by sex. Unfortunately many reports in the literature fail to indicate sex differences.

In this study of home economics students preparing to teach, all but 28.2 per cent disclosed that at least 1 of the 5 practical reasons had influenced their choice of a major in college. Only 21.5, however, double checked this type of reason.

Several other studies have involved practical considerations. In one, 16 statements relating to choice of teaching as an occupation were presented to college students in 3 California colleges.[13] Two of the practical reasons in the present investigation Jantzen also found to be high in frequency for the women: reasonable assurance of adequate income and summer for study, travel, and relaxation.

The question of marriage and career was raised by two of the practical reasons in the present study: "This career combines well with marriage", and "In emergency can return to the field after marriage". Vetter's[14] study of senior home economics students is pertinent since she obtained an estimate of their degree of career vs. marriage orientation. Her sample included a large proportion of students preparing to teach. Using the Strong Vocational

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[13] Jantzen, J. M. "Opinionaire on Why College Students Choose to Teach," Journal of Educational Research, Vol. 53, No. 1 (September, 1959), p. 13-17.

[14] Vetter, Louise B. C. Some Correlates of Homemaking vs. Career Preference Among Senior College Women. Unpublished M. S. thesis (Ames: Iowa State University, 1962), p. 55.

Interest Blank for Women, Form W, she found that the lower scores on the Home Economics Teacher Scale tended to be associated with the preference for a career. The two Strong scales that correlated highest with career orientation were Lawyer and Life Insurance Saleswoman, +0.27 and +0.26 respectively. The career vs. marriage orientation of college freshmen was also investigated at Kansas State University.[15] Scores on 28 scales of the Strong Vocational Interest Blanks and 16 scales of the Edwards Personal Preference Schedule were compared. Tests indicated statistically significant differences at the 5 or 1 per cent level between the career and the homemaking oriented groups on 16 of the former scales and 5 of the latter. On the Home Economics Teacher Scale, the homemaking group mean was significantly higher than that for the career-oriented group whereas for several scales the career group had the higher mean scores; for example, artist, physician, and lawyer.

Five hundred and thirty students enrolled in the first course in education at the Ohio State University, when asked to rank eight job considerations in order of importance, most frequently listed salary as third in rank; security, second; excellence of working conditions, sixth; and possibilities of advancement, eighth. Richards[16] did not analyze her data by sex or by level of teaching. Almost all of the students agreed that one of the advantages of teaching as a career was that it was "good preparation for family life". Eighty per cent saw "summer free" as an advantage but only 12.7 per cent indicated that the shorter hours were an asset.

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15 Hoyt, Donald P. and Carroll E. Kennedy. "Interest and Personality Correlates of Career-Motivated and Homemaking-Motivated College Women," Journal of Counseling Psychology, Vol. 5, No. 1 (Spring, 1958), p. 44-49.

16 Richards, Rachel. "Prospective Students' Attitudes Toward Teaching," Journal of Teacher Education, Vol. 11, No. 3 (September, 1960), p. 375-380.

Another study concerned with practical consideration in the decision to prepare for teaching was carried out at the University of Utah.[17] Thirty per cent of the students enrolled in the College of Education indicated that they saw teaching as "something to fall back on". Homemaking was the major or second role choice of many of the students.

Since teaching involves working with people, two reasons relating to this were included in the present study. Close to one-half, 43.4 per cent, failed to indicate either of these as a factor in her decision to prepare for teaching. Perhaps the word "strong" in one reason, "Strong desire to work with young people", was so forceful that some students were reluctant to react positively. Almost one-fourth, 24.9 per cent, however, either single checked both reasons or double checked one.

Tomlinson[18] investigated some of the factors associated with high and low scores on the JHEII of freshmen home economics students at Iowa State University. She interviewed 26 students who scored on or above the sixtieth percentile on at least one occupational key and 26 who scored below the shaded area on the Interest Chart on each of the 14 keys. Only two in the high interest group chose teaching whereas seven in the latter had made this choice. Six of these seven gave as their reason for choice of teaching "like to work with people" or "opportunity to help other people", and one of the two in the high group gave a reason indicating a desire to work with people.

The women in the ten-year study by Jantzen[19] more frequently checked a reason indicating a desire to work with people than any of the other 15 reasons.

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17 Haubrich, Vernon F. "The Motives of Prospective Teachers", Journal of Teacher Education, Vol. 11, No. 3 (September, 1960), p. 381-386.

18 Tomlinson, Lillie B. Factors Related to High and Low Scores on the Johnson Home Economics Interest Inventory. Unpublished M. S. thesis (Ames: Iowa State University, 1951), p. 81.

19 Jantzen, J. M. Op. Cit.

The percentages varied during the period from 80 per cent in 1948 to 93 per cent in 1956. To discover factors believed to have influenced the decisions of 48 men and 182 women in an introductory education course at the University of California, Fielstra[20] had them rate a list of 14 statements as to importance. One of the three which was considered most important was the opportunity "to work with children and adolescents and to be an inspiration to them". The group included sophomores, juniors, seniors, and graduate students. In Richards' study[21] 98 per cent of the students indicated the belief that two of the assests of a teaching career were the "chance to help others" and "helping children learn".

Two of the reasons for selection of a major related to the persons who had advised them to prepare to teach: family or others strongly urged that they prepare for this occupation, and adviser or counselor gave them similar advice. Only 11.8 per cent of the 403 students indicated that anyone had influenced their choice.

In a study of freshmen at Oklahoma State University, Lehrling[22] found little indication that home economics students had been influenced by others in their choice of a major. In contrast, when freshmen and transfer students at 6 Nebraska colleges[23] were asked who had influenced them to select home economics as a major, 75 per cent referred to their mothers and 25 per cent to their fathers. Other relatives were less frequently checked but home economics

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20 Fielstra, Clarence. "An Analysis of Factors Influencing the Decision to Become a Teacher," Journal of Educational Research, Vol. 48, No. 9 (May, 1955), p. 659-667.

21 Richards, Rachel. Op. Cit.

22 Lehrling, Leona M. Factors Influencing the Selection of Home Economics as a Field of Study . Unpublished M. S. thesis (Stillwater: Oklahoma State University, 1947), p. 42.

23 Wright, Elizabeth H. A Survey of Persons and Activities Influencing Girls to Enroll in Home Economics in Nebraska Colleges. Unpublished M. S. thesis (Lincoln: University of Nebraska, 1951), p. 73.

teachers were second to mothers, 33 per cent. Only six per cent indicated that a counselor had so advised them. When freshmen students who had scored either very high on at least one key or low on all keys of the JHEII were interviewed by Tomlinson,[24] the low group more frequently said they believe they were influenced by the advice of others, significant at the five per cent level and were influenced to a greater extent, significant at the one per cent level. All reported, however, that this type of influence was directed more commonly toward the general field of home economics rather than for a specific area. The career-oriented home economics seniors in Vetter's[25] investigation more often reported that their parents were neutral or mildly disapproving of their occupational choices whereas the parents of the homemaking-oriented daughters were usually enthusiastic. A comparison of the responses of freshmen and senior college students may not be valid particularly when the former include students interested in several areas of home economics rather than in only education. Also it is possible that seniors have forgotten these earlier influences.

The statement on the Senior Data Sheet relating to a long-time interest in teaching, "have been interested in this occupation for a long time", was checked by 38.5 per cent as one of the 3 most important factors. More than one-fifth, 21.0 per cent, indicated that this was the most important factor, which may help to explain why seniors did not more frequently check some of the other reasons; their decision may have been made so long ago that they were not aware of the effect of specific reasons on their choice.

The factor of time was also investigated by Grabe[26] who asked 93 seniors at what age they had decided to prepare for a teaching career. Nine were

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[24] Tomlinson, Lillie B. Op. Cit.

[25] Vetter, Louise B. C. Op. Cit.

[26] Grabe, Gladys. Op. Cit., p. 63.

unable to pinpoint a specific age but more than one-half, 55.9 per cent, said they had made the decision when or before they were 17 years of age. Vetter[27] discovered a difference, significant at the one per cent level, between the extent to which two groups of home economics seniors had chosen a college major before graduation from high school. The career-oriented students more frequently than the homemaking-oriented had decided on a college major at this time; the latter tended to have selected home economics as a field but had not decided upon the area.

In her comparison of freshmen whose scores on the JHEII were either very high or very low, Tomlinson[28] found little difference in the time at which they said they had selected home economics as a field of study; more than three-fourths of both groups had made the decision during high school. They were not asked, however, when or if they had decided on an occupation within the field. More than half, 54 per cent, of the prospective women teachers in Jantzen's[29] study revealed that they had reached their decision before high school graduation and 36 per cent during the first 2 years in college. The other 10 per cent were upper-division or graduate students at the decision-making time.

The 403 seniors in this study, in addition to indicating their reason for choice of their major, were asked to record their first and second choices of 14 home economics occupations they would prefer to enter if entirely free to make a choice. The purpose of this was to discover the extent to which they were satisfied with their choice. Since county extension work is a type of teaching and since in some institutions the curriculum is the same or very similar to that for prospective teachers, reactions to both occupations were analyzed. There was evidence beyond the one per cent level of significance to support the hypothesis

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[27] Vetter, Louise B. C. Op. Cit.

[28] Tomlinson, Lillie B. Op. Cit.

[29] Jantzen, J. M. Op. Cit.

that freshmen interest scores on teaching are related to their desire as seniors to do county extension work. The hypothesis that senior interest scores are positively related to their desire to become teachers was also supported; the differences approached significance at the one per cent level between the interest scores of those who desired to enter teaching and the scores of those wishing they could enter another occupation. Teaching was a first choice for 56.7 per cent and a second choice for 24.6 per cent of the students in the sample. Extension work was a first choice for 9.6 per cent and a second choice for 14.2 per cent. Approximately one-fifth, 19.5 per cent, indicated an interest in both types of positions but 58, 14.4 per cent, failed to check either as a first or second choice. These students probably were preparing to teach for practical reasons rather than because they were greatly interested in becoming teachers.

When French[30] explored the satisfactions of seniors in three colleges with their choice of major, he found a larger proportion than in the present study were dissatisfied, approximately one-fourth. His sample included 107 home economics students and more than three-fourths of them, 76.6 per cent, indicated satisfaction with their major.

Factors Associated with Teachers' Interest in Teaching

To test the hypothesis that certain conditions and experiences during the first year of teaching were related to the interest scores of the 166 teachers, several analyses of variance were made but none of the F-values even appraoched significance. Hence there was no evidence that their satisfaction with teaching generally, with their teaching load, with the space and facilities in their department, with the help given them by their principal or home economics supervisor were related to their scores on the JHEII administered toward the end of their first year of teaching.

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30 French, John W. "Aptitude and Interest Score Patterns Related to Satisfaction with College Major Field," Educational and Psychological Measurement, Vol. 21, No. 2 (Summer, 1961), p. 287-294.

A large proportion, 82.3 per cent, indicated that they liked many aspects of teaching and 17.1 per cent that they liked some aspects. The failure to find that these responses were related significantly to their JHEII scores may be due to the crudeness of the measure of their feeling about teaching.

In a national study[31] of home economics teachers in 1947, a similar type of measure was employed as one means of determining satisfaction with the job. The proportion who said they liked their job was only slightly higher, 86 per cent, than in the present study. Almost 63 per cent indicated that they liked teaching about as well as most people like their jobs and 34 per cent that they liked it better than most people like their jobs. In addition an inventory consisting of 86 items relating to various aspects of teaching was administered to obtain a more extensive estimate of job satisfaction and to determine some of the factors associated with it. Significant differences were found between the scores on the satisfaction inventory and years of teaching experience. Those who had taught less than one year had lower scores than those with three or more years of experience.

When the 166 first-year teachers were asked whether their load was satisfactory, fairly satisfactory, or too heavy, a large majority, 69.0 per cent, responded "Satisfactory" and 8.5 characterized their load as "Too heavy". In the national study the actual teaching load was determined using the Douglass formula. This correlated -0.10 with the score on the satisfaction inventory.

In the present study only 40.0 per cent judged their space and equipment as adequate for all of the groups they were teaching, 14 per cent indicated that plans had been made for improvement, 6.0 per cent no plans. Although the JHEII scores did not vary significantly with the judgment concerning space

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[31] Home Economics Research Committee, Home Economics Education Section. Factors Affecting the Satisfactions of Home Economics Teachers, AVA Research Bulletin No. 3 (Washington, D. C.: American Vocational Association, May, 1948), p. 96.

and equipment by 166 first-year teachers, in the national study[32] the teachers who reported that plans had been made for improvement scored higher on the satisfaction inventory than those reporting no such plan being made or soon to be carried out.

When the type of help given them by their high school principal and their home economics supervisor (local, city, district, state, or itinerant teacher trainer) was explored, the most frequent response for principals was, "Gives me suggestions when I ask for them", 53.7 per cent, and for home economics supervisors, "Helps me find ways to solve problems I ask about", 60.0 per cent. More than one-fourth, 27.4 per cent, however, indicated that their principal "Leaves me alone" and almost one-fourth, 24.7 per cent, that the supervisor "Gives me little or no help".

These first-year teachers were asked about their experience which had led to professional improvement. They listed activities such as these: conferences, courses, and reading, incidated whether they had participated in them and whether they had used the ideas gained. Scores were derived by assigning a weight of one to participation and two to use of ideas. The JHEII scores did not vary significantly with the scores obtained from the teachers' responses.

Implications

The fact that the mean scores of freshmen, seniors, and first-year teachers did not increase significantly indicates interest is sufficiently stable that the freshmen scores can be of value in predicting the scores of seniors and teachers. The scores would need, however, to be supplemented with other data to make satisfactory predictions of interest. A further investigation might well be made to determine whether scores obtained after

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[32] Ibid.

a year of college would give a better prediction than those secured early in the freshman year. The higher correlations found by Grabe[33] and Scholl[34] in studies involving only students at Iowa State University suggest that the predictive value of the scores may vary by institution. No significant differences were found, however, between the scores on the JHEII, secondary teaching key, in two types of universities, state universities and universities which had been separate land-grant state colleges previous to 1950. It would appear, therefore, that in further investigations involving students in several institutions of these two types, there would be no need to stratify the sample on this basis. A study needs to be undertaken to determine whether students from other types of institutions would differ from students in these two types.

In future studies in which an attempt is made to discover what pre-college experiences tend to be related to interest in teaching home economics, other factors should be explored. Neither the two factors involved in this study, amount of experience in the home economics education (class and 4-H club) or experience with children previous to college, proved to be related to their freshman or senior scores. Also Grabe's findings indicate that extent of election of high school home economics courses is a more fruitful approach than the number of years courses were taken. Studying the factor of courses and of 4-H club membership separately is also recommended for future investigations. The reason for failure to find a relation between interest scores and previous experience with children is not clear. Perhaps the element of enjoyment rather than amount and type of experience and responsibility needs to be explored.

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[33] Grabe, Gladys. Op. Cit.

[34] Scholl, Phyllis. Op. Cit.

The question of what motivates students to choose teaching as an occupation is certainly an open one. As institutions attempt to find sound bases for selecting students for entrance into the profession, the need for answering this question becomes increasingly important. Haubrich[35] believes that "Teaching as a sidelight to the major purposes of life seems to be one of the overriding problems that face colleges of education". In a field that is dependent almost entirely on women, many of whom are more marriage- than career-oriented, this poses a real problem. If a sound means could be found to determine their motivation for teaching, the prediction of teaching success could no doubt be improved. Also better guidance could be given students whose motives for teaching are not consistent with their choice to the end that better teaching and better satisfied teachers would result. Perhaps additional exploratory experiences could be used to help these students see the possibilities in the teaching field for achieving their goals or see the need for changing their career choice. The finding that neither teaching nor extension work was the first choice of one-third of the seniors in the study points up the need for studies of motivation and bases for selection of students in teacher education.

The inability to establish a relation between the interest scores of teachers and their satisfaction with teaching generally suggests the need to obtain a better measure of satisfaction. It is possible that many other factors than interest in teaching enter into satisfaction. The ones explored here did not reveal the answer for first-year teachers. In the national study of teacher satisfaction[36] it was found that teachers with three or more years of experience tended to have higher satisfaction scores than those with less than one year. Whether this resulted from those teachers remaining in the

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[35] Haubrich, Vernon F. Op. Cit.

[36] Home Economics Research Committee, Home Economics Education Section Op. Cit.

field who were better satisfied or from their obtaining more satisfaction after they had additional experience is not clear. A study of the JHEII scores of the teachers in the present study who remain in teaching a second year might give some clues to the relation of the scores to satisfaction.

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HOME ECONOMICS EDUCATION; TEACHER EDUCATION; *TEACHER ATTITUDES; TEACHER EXPERIENCE; *HOME ECONOMICS TEACHERS; *TEACHER CHARACTERISTICS; *GROUPS; FAMILIES; STUDENTS; LONGITUDINAL STUDIES; BEGINNING TEACHERS; STUDENT ATTITUDES; COLLEGE STUDENTS; ATTITUDE TESTS; TEST CONSTRUCTION

A total of 1,076 home economics majors in six universities responded to an attitude inventory in their junior and senior years and at the close of their first year of teaching to determine the degree to which they accepted persons and groups like and unlike themselves. The study was based on the assumptions that teachers who accept persons different from themselves are more effective, their experience increases their acceptance of others, and the college has a responsibility for helping students in this area. It was hypothesized that attitudes toward certain groups would change during the time of the study and attitude scores would be associated with socioeconomic background, experience, and the school situation. The findings showed: (1) A change in attitudes occurred, but in general it was reflected by a loss instead of a gain in scores, (2) Teachers scored lower than they did as juniors and seniors on the groups parents today, foreigners, adults with less education, slum families, a problem school, another race, and youth, (3) Total mean scores were not significantly associated with selected factors of socioeconomic background at the junior level, nor were they significantly related to certain differences between their home and significantly associated with experience. Implications were that: (1) Criteria other than the socioeconomic should be considered in any attitude study, (2) Preservice education should include knowing many groups, deriving satisfaction from experience with them, and relating that experience to teaching, and (3) The teacher needs to know her community. This is Chapter 4 of "Home Economics Teachers, Preservice and Inservice Levels, Their Interest in Teaching, Their Attitudes Toward Children and Families" (VT 001 255). Other chapters are VT 001 830 and VT 001 831. (MS)

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HOME ECONOMICS TEACHERS - PRESERVICE AND INSERVICE LEVELS THEIR INTEREST IN TEACHING - THEIR ATTITUDES TOWARD CHILDREN AND FAMILIES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Chapter IV

ATTITUDES TOWARD GROUPS AND FAMILIES

Ruth T. Lehman

A third characteristic believed to be important for home economics teachers and those preparing to teach in this area is acceptance of individuals unlike oneself and of groups different from one's own.

Several assumptions were basic to a study of this characteristic. The first was that those who accept persons different from themselves are more effective as teachers than those who do not. Can a teacher seriously lacking in this respect establish and maintain optimum rapport with pupils and with parents, or in fact, with his colleagues or administrative staff? Is one truly interested in teaching, unless he has an interest in and a concern for his pupils without reference to who they are or what they are like?

A second assumption was that something can be done about one's attitudes toward others; that experience can increase understanding, and that with understanding may come an increase in acceptance. A third assumption then logically follows: that the college has a responsibility for helping students to assess their own attitudes and broaden their experience with other groups, particularly with those of whom they have little first-hand knowledge and toward whom they have strong prejudice.

These assumptions reflect Prescott's emphasis on the importance of teachers understanding children in their social setting.[1] They also--in-so-far

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[1] Staff of the Division on Child Development and Teacher Personnel. Helping Teachers Understand Children (Washington, D. C.: American Council on Education, 1945).

as attitudes may be said to reflect values--are consistent with the position taken by Hullfish that in fact values should be the concern of education.[2]

The two main hypotheses which were tested in this aspect of the study dealt with change and related factors.[3] These together with their subhypotheses follow.

1. Attitudes toward certain groups change during the time represented in this longitudinal study.

   a. They change in the two years between the beginning of the students' professional program and graduation.

   b. They change in the time between graduation and the close of the first year as a professional person--in this instance, as a teacher.

2. Certain factors of socioeconomic background, of experience, and of the school situation are significantly related to attitudes held.

   a. Background factors which are related to attitudes held are: size of home community, level of parents' education, and father's occupation.

   b. Aspects of experience significantly related to attitudes held are:

      (1) Acquaintance with different groups

      (2) Pleasantness of experience with groups

      (3) Variety of experience

      (4) Specific kinds of experience

   c. Factors in the school situation significantly related to attitudes held are:

      (1) The degree to which the teacher has found discipline to be a problem

      (2) The general attitude of the administration and faculty toward home economics

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[2] Hullfish, H. Gordon. "The Job Ahead in General Education," Journal of Home Economics, XXXVIII (November, 1946), p. 573-74.

[3] D. Ransom Whitney, Director of the Statistics Laboratory, and a member of his staff, Mrs. Lydia Kinser, Ohio State University, served as consultants on the statistical aspects of this part of the study.

(3) The mental ability of the students enrolled in home economics

(4) The teacher's attitude toward teaching and toward working with young people.

The sample included students attending and teachers prepared by six institutions: the Universities of Illinois, Minnesota and Missouri, and Iowa, Michigan and Ohio State Universities Data regarding these students and teachers were obtained in three stages: at the beginning of the junior year as majors in home economics education, later near the close of the senior year, and finally toward the end of the first year of teaching home economics. The numbers involved were 513, 366 and 197, respectively. The collection of data began in the autumn of 1959 and closed in 1962-63.

No instrument was available which would sample attitudes toward all the groups desired. The Cooperative Committee for this study assumed that it is often the degree to which a teacher accepts a variety of groups--not only certain specific groups or persons--which determines how effective he will be in working with students. What was needed was an instrument which would sample attitudes toward: parents today, people in different size communities, divorced persons, working mothers, foreigners, persons with different degrees of education, persons of different religious faiths, families of different socioeconomics classes, persons involved in a school with many disadvantaged pupils, factory workers, persons of another race, and youth and old age. Previous scales and inventories had tended to deal with only one of these categories, and often with only a minority group.[4] For the purpose of the study, therefore, an instrument was developed at The Ohio State University. It was called "Just Suppose: A Teacher Opinion Inventory". When revised at the close of the study, it was renamed "The Teacher and the Community".

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[4] Such types for example as Thurstone's Attitude Scales on the church, Negroes, Jews, war, Chinese, and so on; Bogardus' four Social Distance Scales on ethnic, religious, occupational, and political groups; and Scale of Beliefs on Social Issues developed by Tyler and his evaluation staff in the eight-year study for the Progressive Education Association.

Development of the Inventory

Obtaining Attitude Statements

Three methods of obtaining attitude statements were explored: free writing, interviews, and an incomplete sentence form.

In the first case, students in a home economics education course were asked to react in writing to these questions:

1. What type of student do you hope you will have in your classes when you go out as a teacher?
2. What type of student do you hope you will never have in your class?
3. What kinds of homes and families would you like to work with?
4. What kinds of homes and families do you hope you will never have to work with?

The questions elicited a number of attitudes, but some students had difficulty in expressing themselves. Many wrote too briefly; for example, one said "It would be awfully hard for me to teach some of the children I observed at _____High School."

Therefore, interviews were held with a sample of the students to obtain reasons for choice or rejection of certain types of pupils and homes. Familiarity with the problems of pupils and families of the middle socioeconomics class and from rural homes is an illustration of one reason which frequently was given for preferring to work with those groups. Uncertainty as to what she as a prospective teacher might be able to do for pupils from the upper class is another. A preference for pupils who were interested in learning and willing to work is still another. Even in interview, however, some students had difficulty in verbalizing their feelings.

The next method considered for securing attitude statements was some type of projective technique.[5] The technique used by Rotter in his Incomplete

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[5] Anderson, Harold H. and Gladys L. Anderson. An Introduction to Projective Techniques (New York: Prentice-Hall, Inc., 1951).

Sentence Blank[6] appeared promising. Hence, a list of stems, each including a stimulus word, was developed to evoke expression of attitudes toward minority groups, different socioeconomic levels, community differences and certain differences within families. The resulting form was tested with a home economics education class enrolling juniors, and with a class studying the family which enrolled freshmen and sophomores who were either majors in home economics or nonmajors.

When a sample of their responses was examined by the Cooperative Committee, the decision was reached to use this technique to secure attitude statements from a larger number of students. The Incomplete Sentence Form (shown in Appendix D, p. 192) was administered in 5 colleges to approximately 400 students, including both men and women, and home economics and other majors. The classes enrolled freshmen mainly and provided more than 10,000 statements.

These statements were sorted and duplicates and neutral statements discarded. The committee members then individually classified them as favorable, or unfavorable, or not classifiable with reference to the group under consideration. Later the committee judged the statements again relative to whether they described an acceptant or a nonacceptant person. Statements on which there was high agreement by the jury were selected for trial.

Developing the Inventory

Twelve problems were described, each involving a situation in which a teacher might conceivably find himself and a group (or several related subgroups) to which he might have to relate himself as a teacher. For example,

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[6] Rotter, Julian B. and Janet E. Rafferty. Manual: The Rotter Incomplete Sentence Blank (New York: The Psychological Corporation, 1950).

one problem dealt with "parents today", while another relating to community size had three subgroups--farm, small town, and city people.[7]

For the trial instrument, the plan was to use at least twice as many of the statements secured through the Incomplete Sentence Form as might appear in the final inventory. Accordingly, Form A of the inventory included the 12 problems, each followed by 20 statements representing different viewpoints or degrees of acceptance. Form B repeated the problems, but used 20 other statements. This made responding less monotonous because it could be done in two sittings.

In selecting statements, an attempt was made to have an equal number of favorable and unfavorable ones for each problem. Also, in cases where two or three subgroups were included within a problem, the statements referring to each subgroup were balanced in number.

The test was administered to two criterion groups of teachers in order to identify the best statements to use. These teachers had been previously identified by city and state supervisors by checking possible evidences of a teacher's acceptance or nonacceptance of different kinds of persons or groups. (See Appendix D, p. 196 for the rating sheet used.) Admittedly this plan had certain weaknesses, but it seemed the only feasible method.

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[7] For the sake of clarity here and on later pages, the problems and subproblems in both trial and experimental forms are listed here:

Parents today	Catholics
City people	Jews
Small town people	Protestants
Farm people	Upper class people
Divorced persons	Middle class people
Working mothers	A problem school
Foreigners	Factory workers
Adults with little education	Persons of another race
Adults with college education	Youth
Slum families	The aged

A total of 240 teachers were rated in this manner. A value of +1 was assigned to each checked evidence of acceptance, and a -1 to each evidence of nonacceptance. The algebraic sum of the plus and minus checks then became a teacher's acceptance rating. All teachers (222 in all) who rated from 0 to -15, or +10 to +23 were asked to react to the trial inventory. The 166 who participated were distributed over 16 states and the 4 regions of the United States: 103 came from the acceptant group and 63 the non- or less-acceptant group. (See Appendix D, Tables XXI, p. 175 and XXXII, p. 198.) The first table gives the proportion of both the acceptant and nonacceptant teachers who had been rated on each positive evidence of acceptance. The second table gives the same data for each evidence of nonacceptance. The contrast is marked.)

When the inventory was administered to these teachers, they were asked to indicate in the appropriate column on the answer sheet the extent to which they agreed with each statement, using a give-point scale from "strongly agree" to "strongly disagree". The items were then scored by the Likert scoring method. In other words, the response "strongly agree" on unfavorable statements was scored one and "strongly disagree" five. The values of all favorable statements, on the other hand, were in the reverse order.

Mean scores on each statement were calculated for the acceptant and nonacceptant teachers. Statements for which the mean scores of the two groups differed most were used in the revised inventory. Because unfavorable statements in general discriminated better than favorable ones, the resulting inventory lost the balance which had existed in the trial instrument.

This shorter form was then tested with 132 home economics freshmen and 50 home economics education seniors in one of the universities. Approximately 50 of these students were also interviewed as a rough check on the validity of

test scores. In the light of testing and interviews, final revision was made. Problem X from this form is given as an illustration.[8]

X. JUST SUPPOSE: You are teaching in a manufacturing section of the city zoned for light and medium industry. In a recent meeting, your principal said that he wished some of the faculty would live in the community instead of commuting from a distance. You and several other teachers are having a lively discussion on the matter, some threatening to resign, some being interested in doing as the principal suggests. How do you feel about the families in this community?

136. Families of the laboring class are usually good-hearted, "down-to-earth" people.

137. Factory workers don't appreciate what the schools do for them.

138. They have a very dull, uninteresting life.

139. There would be too many problem children in such a school for me to enjoy teaching there.

140. The laboring class is necessary, I suppose, but I would not want to be one of that group.

141. Many of the people in this community would be just as interesting as those who work in the professions.

142. A teacher could be more effective in the schoolroom if she lived in the same community as her pupils.

143. Families of the laboring class are hard to work with because they have so many prejudices.

144. They are distressingly lacking in the niceties of social living.

145. Families of the laboring class spend their money so foolishly.

146. I'd like to have a chance to know families in this community as neighbors.

147. I would be unhappy living in this community.

148. It is unreasonable for the principal to expect teachers to live among factory workers.

149. The parents here won't be interested in the school.

150. Factory workers are just as fine as people of the white collar class.

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[8] Quoted by permission from the Journal of Home Economics, LIV (June, 1962), p. 471.

Validity and Reliability of the Inventory

Certain steps already described in the construction of the inventory were taken to promote face validity. These were:

1. the collection of statements from college students, on the assumption that a sample of attitudes typical of students would be obtained;

2. the jury classification of the statements as representing acceptant or nonacceptant positions; and

3. the use of criterion groups of teachers to identify discriminating statements.

Validity of scores was studied in several ways involving the home economics juniors in the first stage of the project. Two sections of a Junior Data Form, filled out by students after checking the inventory, provided information for two methods used. (Appendix D, Sections C and E, p. 202.)

In one section, a forced-choice verbalization of attitude was requested. All groups or types of persons included in the inventory were listed and respondents rated their feelings toward each, using a rating code which ranged from zero (for "strongly dislike people in this group") to four ("very much like them"). A sum of these ratings gave a total self-estimate of attitude. Scores on the individual problems (or subproblems) in the inventory were found to be significantly associated with the related self-rating, except in the case of working mothers. The chi-square values were significant at or above the one per cent level of confidence on all but attitude toward the aged, where it was the five per cent level. The association of total score with the total self-estimate of attitude was significant at well beyond the one per cent level.

Another section of the Junior Data Form provided for free writing about one's feelings. Respondents were asked to name one or two groups whom they had strong feelings against and describe their feelings and name one or two groups toward whom they had strong favorable feelings.

This free writing gave the best evidence of validity. Of the 513 junior students, 201 wrote that there were no groups against whom they felt strongly; in effect, they accepted all. But there were 230 who named at least 1 group toward whom they were prejudiced. The mean total attitude score of the prejudiced group (662.2) was lower than that of the acceptant (687.6), and the difference was well beyond the 1 per cent level of significance. On the other hand, the difference in mean scores of those (396) who named one or more groups especially liked and of those (62) who claimed to have no preferences (again in effect, accepting all) was negligible.

Moreover, students who expressed <u>prejudice</u> toward a given group differed significantly in mean total scores from those who indicated a <u>special liking</u> for the same group. There were only four categories in the inventory on which this could be tested, however, because of small numbers of students for comparison. These categories were: members of another race, Catholics, Jews, and upper-class people. In each case, the mean score of those expressing prejudice was the lower and well beyond the one per cent level of significance.

The third method of checking validity was that of interviewing students some weeks after they responded to the inventory. This was done in only 1 institution and with 20 students. Interviews were recorded, transcribed, and analyzed by 2 raters who--using independently a 17-point scale ranging from high acceptance to high rejection--rated each student on her attitude to each group toward whom she had seemed to indicate her feelings. The combined ratings of the two judges were used as a measure of her expressed acceptance of a given group. The individual's placement as above or below the median <u>rating</u> and the median <u>score</u> of all interviewees on each problem group was then used as a rough method of showing correlation. In the chart below, for example, may be seen the distribution of the 16 persons for whom there were ratings on attitude toward persons of a different race. Of those whose attitude

ratings were low, six also had low scores, and only two were above the median. On the other hand, those whose ratings were high were equally distributed among low and high attitude scores. While the method did not give a one-to-one relationship of ratings to scores, the direction in general was one of agreement. The number used is too small to give dependable evidence of validity.

	RATING	
Score	Number Below Md	Number Above Md
Above Md	2	4
Below Md	6	4

Reliability of the inventory was tested by the split-half method, using the responses of the 513 juniors. This was found to be .912. Corrected for length by the Spearman-Brown formula, it was .954, which warrants interpretation of total scores for individual students.

The reliability of certain individual problems in the inventory was also determined. They were the six which involved only single categories; the other six had each included two or three subgroups. The split-half method was applied to the first 14 of the 15 statements in each problem. The Spearman-Brown corrected coefficients for these problems were quite satisfactory, though--as expected for short tests--not as high as for the total inventory. None were below .75. The respective coefficients were:

	Problem	r
I	Parents today	.754
IV	Foreign families	.783
VI	Slum families	.796
IX	A problem school	.878
X	Factory workers	.827
XI	Another race	.786

To check on the stability of scores, the test-retest method was used with a sample of 44 home economics education seniors in 1 institution. A space of two weeks separated the two administrations. The test-retest correlation of total scores was .873. The correlation for each of the 20 problems or sub-problems is shown in Table 42. For over half of the categories, reliability was at least .70. In three others it was considerably lower--attitudes toward city people and toward those with either little education or with college education. Scores were most highly stable in attitudes toward the divorced, another race, and the groups involved in the problem school described in the inventory.

Evidences of validity and reliability which have been here reported, supported the use of the instrument in the longitudinal study as originally planned.

Changes in Attitudes

In the cooperative study, for 2 consecutive years (1959-1960), students beginning their junior year (7th quarter or 5th semester) as majors in home economics education in the 6 universities were tested early in the autumn. All of these students who were graduated at any time during the following year were retested in their final quarter or semester of residence which was always after their student teaching experience. Seniors who taught home economics in their first year after graduation were again retested toward the close of that school year. At each time respondents also filled out a data form. (See Appendix D for copies of Junior, Senior, and First-year Teacher Data Forms, p. 200, 209, 215.)

The data were complete for all institutions except two. In one university the second group of juniors was not tested until the middle of the year, and so had to be omitted. In another, the data for one group of teachers were lost in the mail and could not be replaced.

Table 42: TEST-RETEST RELIABILITY COEFFICIENTS FOR 44 SENIOR STUDENTS

	Problem	r
IX	A problem school	.912
III-1	Divorced persons	.838
XI	Another race	.832
IV	Foreigners	.802
X	Factory workers	.786
XII-2	The aged	.783
III-2	Working mothers	.777
VII-1	Catholics	.771
VIII-2	Middle-class people	.743
I	Parents today	.726
II-3	Farm people	.716
VII-2	Jews	.699
II-2	Small town people	.696
VI	Slum families	.694
XII-1	Youth	.682
VIII-1	Upper-class people	.665
VII-3	Protestants	.627
V-1	Adults with little education	.590
V-2	Adults with college education	.486
II-1	City people	.428
	TOTAL	.873

Junior students were eligible to be retested as seniors; the range by institutions was from 61.1 to 89.0 per cent. Similarly, between 51.5 per cent and 69.2 per cent of the graduates in 5 of the universities were eligible to be tested also as first-year teachers of home economics.

Attitudes of the 513 Juniors

The juniors in the sample were largely from rural, middle-class, white and Protestant homes. Their highest mean problem score--indicating a favorable attitude--was that on attitude toward foreigners; the lowest, on attitude toward parents today, the divorced and/or working mothers, and the three-generation household. (Table 43) The range of scores in all 12 problems was wide (from 33 to 47 points), especially on attitudes toward those of another race (Problem XI), the problem school (X), and slum families (VI). The standard deviations indicate, however, that the juniors were quite a homogeneous group.

For six of the problems, subscores were obtained. For example, Problem II on communities of different sizes included statements of attitude toward families living on farms, in small towns, and in cities. The data in Table 44 and the profiles of 3 students in Figure 1 indicate that for guidance purposes it would be well to obtain attitude subscores for this problem.

The score of Student No. 8 on people of different size communities (Problem II), for example, places her slightly below the junior mean on that problem, but compared with other juniors her subscore on attitude toward city people was very low--below the 10th percentile. Similarly, Student No. 10 who was scored slightly above the junior mean on Problem II, in comparison with juniors generally, had extremely high scores on city and farm people and very low scores on those in small towns.

The three profiles, incidently, also serve to suggest the usefulness of such charts in helping students to interpret their own scores and to plan for broadening or deepening their experience with some groups. The profile of Student No. 8 (Figure 1) illustrates an inconsistent pattern; that is, one of favorable attitudes toward a problem school situation (Problem IX) where low ability, high delinquency, and disinterested parents prevail but less

Table 43: PROBLEM SCORES OF JUNIORS: MEAN, STANDARD DEVIATION, LOW AND HIGH SCORES (GIVEN IN RANK ORDER OF MEANS) (75 = HIGHEST POSSIBLE SCORE ON EACH PROBLEM)

	Subproblem	Mean	SD	Low and High Scores
IV	Foreigners	61.4	6.378	39 - 75
II	Different size communities	58.8	6.078	38 - 73
IX	A problem school	58.1	7.387	30 - 75
X	Factory workers	57.9	6.521	33 - 75
VII	Different religious groups	57.6	6.605	36 - 74
XI	Another race	57.4	6.578	28 - 75
V	Educational levels	57.3	6.070	39 - 74
VIII	Upper and middle class	55.4	6.062	40 - 73
VI	Slum families	54.8	6.633	28 - 73
XII	Three-generation household	52.6	6.187	32 - 72
III	Divorced and/or working mothers	52.2	6.392	30 - 69
I	Parents today	51.8	7.756	31 - 69
	TOTAL	675.1	51.013	504 - 826

favorable attitudes toward the persons of that community--parents today, city people, working mothers, people with little education, all religious groups, another race, and young people today.

Table 44: SUBPROBLEM SCORES OF JUNIORS: MEAN STANDARD DEVIATION, AND LOW AND HIGH SCORES

	Subproblem	Highest Score Possible	Mean	SD	Low and High Scores
II-1	City families	25	18.4	2.821	11 - 25
II-2	Town families	25	19.1	3.220	8 - 25
II-3	Farm families	25	21.3	2.623	11 - 25
III-1	Divorced persons	40	28.0	4.169	15 - 38
III-2	Working mothers	35	24.1	3.901	11 - 33
V-1	Adults with little education	45	35.3	4.483	19 - 45
V-2	Adults with college education	30	22.0	2.991	11 - 30
VII-1	Catholics	25	17.3	3.908	5 - 25
VII-2	Jews	25	20.2	2.818	11 - 25
VII-3	Protestants	25	20.1	2.330	13 - 25
VIII-1	Upper-class people	50	35.5	5.043	24 - 49
VIII-2	Middle-class people	25	19.9	2.147	15 - 25
XII-1	Youth	35	24.8	3.372	15 - 34
XII-2	The aged	40	27.8	4.296	11 - 40

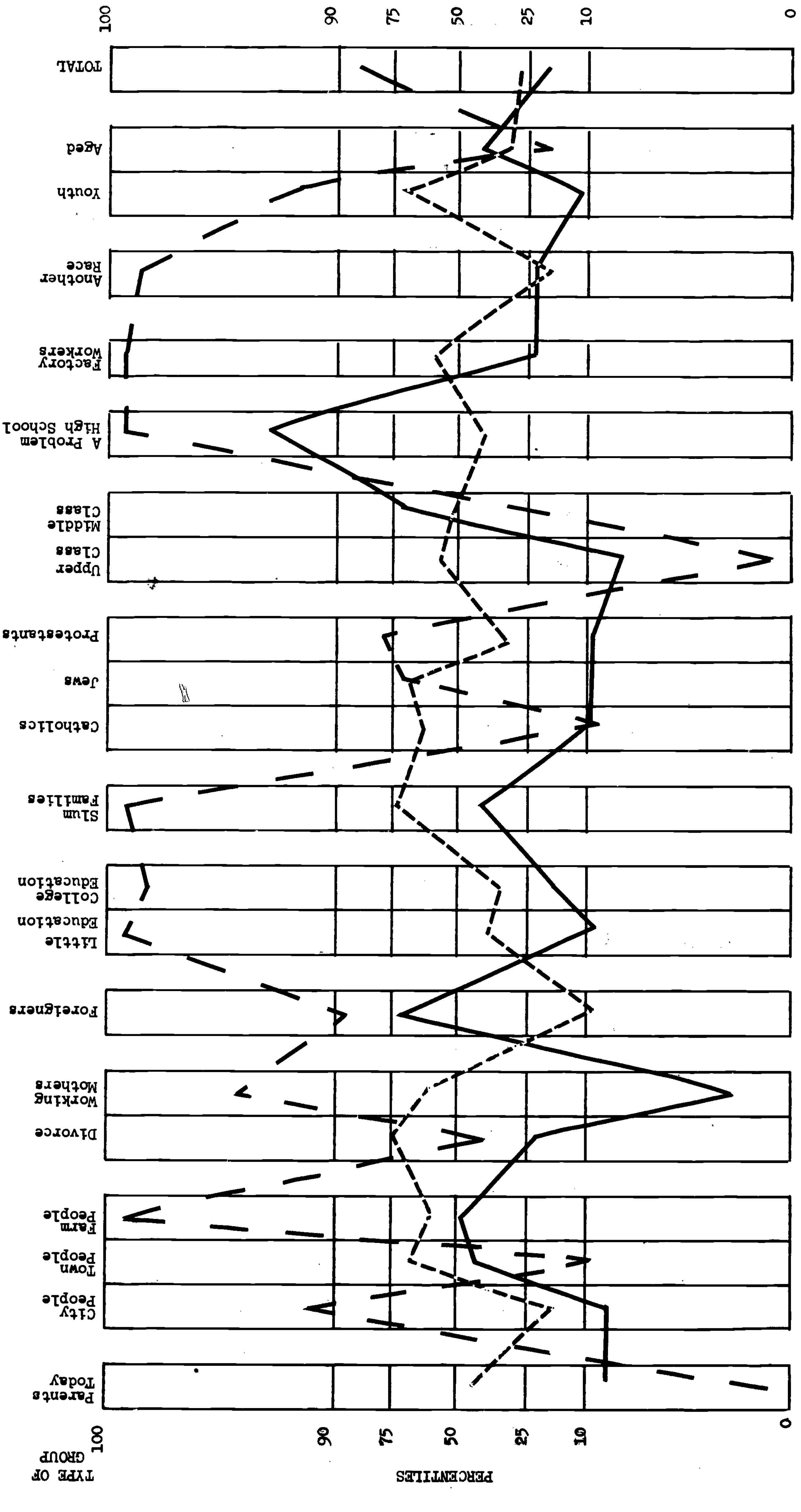


Figure 1: SCORES OF THREE JUNIORS AS PLOTTED ON A PROFILE CHART BASED ON 513 JUNIORS

The profile of Student No. 10 (Figure 1) is a picture of attitudes clustering around the mean; that of Student No. 15, (Figure 1) on the other hand, reveals high scores in general with low scores in only a few areas; such as, parents today, people in small towns, Catholics and upper-class families.

Because the subscores revealed important aspects of acceptance, the study from this point on involved the subscores in Problems II, III, V, VII, VIII, and XII, the whole scores for the other six problems and the total score.

The mean scores of juniors by institutions are given in Appendix D, Table XXXIII, p. 206, and indicate the need for a sample of 2 consecutive years of students and of several universities in the region. The mean scores varied in the two years. Moreover, in the composite of data for 1959 and 1960, the mean attitude scores of institutions differed significantly at either the 1 or 5 per cent levels on 9 of the 20 problems and subproblems. The sample was thus more heterogeneous than if one year or one institution had been taken.

Changes in Attitudes During the Last Two Years in College and the First Year of Teaching

Hypothesis No. 1 was that attitudes toward certain groups change during the last two years of the professional program in college and during the first year of teaching. That this happened to some extent--at least as these changes were reflected in inventory scores--is evident in Table 45.

The mean scores of seniors were higher than the junior means on 10 of the 20 problems and subproblems (5 of these at the 1 per cent level of significance). They were lower, however, than the junior means on the other 10 problems; on 3 of these, significantly so.

As teachers, on the other hand, respondents in general made lower scores than they did as either juniors or seniors. The cases in which this was true at both the junior and senior levels were on the total inventory, and on eight of the problems and subproblems: parents today, foreigners, adults with little education, slum families, a problem school, factory workers, another race, and youth.

Table 45: "t" VALUES OF THE DIFFERENCE IN MEAN SCORES: SENIOR AND JUNIOR, TEACHER AND JUNIOR, TEACHER AND SENIOR

Problem		"t" Value of Difference in Mean Scores: Senior and Junior (366)	Teacher and Junior (197)	Teacher and Senior (197)
I	Parents today	-0.58	-4.67**	-4.60**
II-1	City people	3.00**	0.07	-0.81
II-2	Town people	-2.30*	-2.41**	-1.52
II-3	Farm people	-1.50	-2.40**	-1.28
III-1	Divorced persons	4.67**	1.70	-0.92
III-2	Working mothers	7.84**	1.74	-2.60**
IV	Foreigners	-3.66**	-4.42**	-3.45**
V-1	Persons with little education	-0.41	-5.31**	-4.03**
V-2	Persons with college education	1.23	0.99	1.29
VI	Slum families	-0.19	-6.28**	-6.99**
VII-1	Catholics	0.73	-1.47	-2.03*
VII-2	Jews	0.08	0.70	1.18
VII-3	Protestants	-0.71	-1.32	-0.78
VIII-1	Upper class	4.28**	2.28*	-1.41
VIII-2	Middle class	-3.74**	-4.06**	-0.95
IX	A problem school	-0.06	-7.22**	-8.39**
X	Factory workers	-2.94**	-7.29**	-5.87**
XI	Another race	0.33	-5.13**	-3.30**
XII-1	Youth	1.86	-4.57**	-6.07**
XII-2	Old age	4.04**	2.78**	-0.48
	Total	1.29	-5.38**	-4.87**

* Significant at 5 per cent level
** Significant at 1 per cent level

Interestingly enough, however, respondents' estimates of their change in attitudes were not borne out by a corresponding change in scores. Graduating seniors had been asked to indicate on their data form whether their feelings toward any group(s) had changed since the beginning of their junior year. Teachers had been asked the same question relative to their year as a teacher. (Appendix D, Senior Data Form, p. 209, Teacher Form, P. 215.) A negligible difference was found between the mean total scores of those who said they had changed and those who indicated they had not; "t" value of the difference was only 0.62 for seniors, and 0.42 for the first-year teachers.

Even more important was the respondents' estimate of the direction of their felt change toward specific groups (Table 46). In no case was a report of favorable change supported by a significant gain in scores. In fact, teachers who said they felt more favorably toward Catholics, or toward the child who had a low IQ and/or was delinquent showed a significant loss in scores on these groups. On the other hand, when respondents said they felt less favorably toward a group, their scores did reflect this change. Seniors who said this about their attitude toward Jews, showed a loss in score approaching the five per cent level of significance; teachers who made the same statement with regard to children who were of low IQ and/or were delinquent, a loss well beyond the one per cent level.

These findings concerning respondents' estimates of change and their actual scores on the inventory--at first glance apparently inconsistent--can be logically supported, and incidentally thus give further evidence of the validity of the inventory. Thus, on the one hand, it seems reasonable that students on a liberal college campus today, trying to understand others who are different in some way from themselves, would hope that they had improved in their interpersonal attitudes, when actually no such change

had taken place. In other words, it would be consistent for students, after living twenty years or so, to have some deeply rooted likes and dislikes, and in the comparatively short interval between the junior year and graduation and first-year teaching therefore not to change greatly in attitude, even though desiring to be more acceptant. On the other hand, it also seems reasonable for persons whose dislike for a group has actually increased to be much aware of this fact.

Table 46: "t" VALUES OF THE DIFFERENCE IN MEAN SCORES OF RESPONDENTS WHO STATED THAT THEY HAD BECOME MORE FAVORABLE, OR LESS FAVORABLE, TOWARD A SPECIFIC GROUP

Problem		Reported they had become more favorable toward a group				Reported they had become less favorable toward a group			
		Senior Respondents		Teacher Respondents		Senior Respondents		Teacher Respondents	
		No.	"t"	No.	"t"	No.	"t"	No.	"t"
IV	Foreigners	42	-1.20	...	...	...	...	...	...
VII-1	Catholics	30	1.69	10	-2.12	...	...	...	...
VII-2	Jews	46	-0.07	11	-0.45	11	-2.20#	...	...
VI	Slum families	19	-0.82	13	-1.31	...	...	...	...
IX	Low IQ and/or delinquent children	28	0.52	34	-4.12**	...	...	22	-4.77**
XI	Another race	70	0.70	19	-0.76	...	...	...	...
XII-1	Youth	10	-0.90	...	...	...	...	...	...
XII-2	Aged	10	0.85	...	...	...	...	...	...
VII	Religious groups other than own	12	-0.13	...	...	...	...	...	...

...Not enough cases to analyze.
#Approaches the 5 per cent level of significance.
**Significant at the 1 per cent level.

As a final check on the factor of change in attitudes, mean scores of the six universities were compared. At each of the three testing periods, differences were found among them (Table 47). At the junior level, mean scores of the schools varied significantly on eight problems. By graduation the variation was more marked, being significant on 11 of the 20 problems and also on

the total score. The greatest homogeneity was found among the first-year teachers. Here on only five of the problems was there a significant variance.

Table 47: VARIATION IN MEAN SCORES AMONG THE SIX UNIVERSITIES: F-VALUE OF THE VARIANCE COMPUTED AT JUNIOR, SENIOR, AND FIRST-YEAR TEACHER LEVELS

	Problem	F-Value at Three Levels		
		Junior (513)	Senior (366)	First-year teacher (197)
I	Parents today	2.98*	3.37**	3.51**
II-1	City people	4.17**	2.59*	4.25**
II-2	Town people	4.18**	1.46	0.33
II-3	Farm people	4.84**	0.82	1.60
III-1	Divorced persons	1.55	2.75*	1.26
III-2	Working mothers	3.22	3.35**	0.60
IV	Foreigners	1.17	1.71	1.63
V-1	Persons with little education	1.87	6.15**	1.53
V-2	Persons with college education	3.11*	7.64**	2.49*
VI	Slum families	1.72	1.49	1.48
VII-1	Catholics	2.82*	4.55**	1.35
VII-2	Jews	6.32**	5.53**	1.02
VII-3	Protestants	2.13	0.93	0.88
VIII-1	Upper class	6.62**	3.64**	2.92*
VIII-2	Middle class	1.41	1.18	1.97
IX	A problem school	1.78	1.01	0.81
X	Factory workers	0.17	0.83	0.49
XI	Another race	0.88	3.24**	0.79
XII-1	Youth	1.72	0.33	3.78**
XII-2	Old age	1.97	3.18**	1.23
	TOTAL	1.05	2.33*	1.64

*Significant at 5 per cent level
**Significant at 1 per cent level

In summary then, Hypothesis 1 was supported in that change in attitude scores was found at the different testing periods. However, these changes were not consistently in the direction of greater acceptance, nor did they always correspond with seniors' and teachers' beliefs regarding change in their attitudes. Differences in means among the several universities increased while students were in school, but lessened during the first year of teaching.

Factors Associated With Attitudes

The second major hypothesis was that attitude scores would be associated with certain factors:

1. The socioeconomic background of students
2. Different aspects of experience with the groups involved in the inventory
3. Certain elements in the school situation where the teacher was employed.

Socioeconomic Background as a Factor

Certain socioeconomic data--size of respondent's home community, the mean educational level of parents, and the father's occupation--were used in testing the first subhypothesis. Their relationship to scores was studied by means of analysis of variance using data for the 513 juniors in the study.

None of these factors was found to be significantly related to the total score, thus refuting the hypothesis to this extent. On the other hand, the hypothesis was partially supported by the significant association of: (a) size of respondent's home community with mean scores on 8 of the 20 problems and subproblems; (b) parents' education, with scores on 4 problems; and (c) father's occupation, with scores on 3. (See Table 48)

Inspection of working tables not given, however, shows that these significant associations are to be expected. For example, students who came from a community of a certain size had a higher mean score on the inventory problem dealing with that type of community than did those from other communities. The association of mean scores by community size is summarized here, since it is not shown in the table.

Students from farms scored:

Lower than others in attitude toward:	Higher than others in attitude toward:
- city people	- farm people
- college educated and professional persons	- people of small towns (as did the town girls, also)
- Catholics	
- the aged	

Students from very large cities scored:

Lower than others in their attitude toward:	Higher than others in their attitude toward:
- people of small towns	- city people
- farm people	- Jews
	- upper-class people

Students from small towns had the higher attitude scores toward:

- Catholics
- college educated and professional people

Similarly, the association of some mean scores with the factor of parents' education was rather obvious. Students whose parents were college graduates had higher mean scores on attitude toward persons living in cities, persons of the upper class, and the aged. Lower mean scores on attitude toward city people, the divorced and the aged were made by those whose parents had attended high school but had not graduated. Students whose parents had attended or graduated from high school had the lower mean score on the statements relating to the upper class. High school graduation by parents was associated with the more liberal mean score on divorce.

The father's occupation as a factor also seems consistently related to certain mean scores. Students whose fathers were professional men had less favorable attitudes toward small town and farm people; those involved in

farming, the higher scores. Daughters of farmers scored lower than those of skilled and unskilled workers on statements relating to Catholics.

Table 48: JUNIOR SCORES WHICH WERE SIGNIFICANTLY RELATED TO CERTAIN FACTORS OF SOCIOECONOMICS BACKGROUND: SIZE OF HOME COMMUNITY, PARENTS' EDUCATION, FATHER'S OCCUPATION

		Significant F-Values for Certain Factors		
	Problem	Size of home community	Parents' education	Father's occupation
II-1	City people	4.321**	2.952*	...
II-2	Town people	15.942**	...	2.882**
II-3	Farm people	7.909	...	4.536**
III-1	Divorced persons	...	3.130*	...
V-2	Adults with college education	2.579*	...	...
VII-1	Catholics	3.061*	...	2.071*
VII-2	Jews	3.934**	...	...
VIII-1	Upper class	2.981*	3.140**	...
XII-2	The aged	2.672*	3.134*	...

...F-Value not significant, and so not reported
*Significant at 5 per cent level
**Significant at 1 per cent level

Possibly the lack of a clear-cut picture of association between socio-economic factors and scores is related to the students tested as juniors. In two years on a college campus they might have overcome to some extent the effects of home background on attitudes.

The realtionship of socioeconomic factors to scores was tested also at the first-year teacher level. On the assumption that differences between the teacher's home community and that where she is teaching may well affect the degree to which she accepts other groups, the first-year teacher was asked on the Teacher Data Form to give information about these two places.

She indicated for each community:

1. data on population
2. information on seven other characteristics; such as, socioeconomic classes, occupations, races, religious groups outstanding in the community.
3. her estimate of the discipline of children in the homes of the community, and her estimate of the interest shown by parents in the school.

The total score on the inventory was not found to be significantly associated with any of these three factors on which the home and school communities were compared. However, there was a strong tendency in the case of parental discipline and interest in the school which cannot be ignored. Mean total scores tended to be lowest for the group of teachers who estimated this factor to be lower where they were teaching than in the home community; and highest, for those who estimated it to be higher in the school community. This trend was noted for the problem scores as well as for the total. Incidentally, the loss in mean total score between the senior and teacher years was significantly greater for those teachers who said that parental discipline and interest in the school were lower in the teaching community than at home. There was the least loss in mean scores when communities were reported as being the same on this factor.

To summarize then, the hypothesis that mean scores would be significantly associated with selected factors of socioeconomic background was refuted for total scores at the junior level, but partially supported for certain problem and subproblem scores. Similarly, the added hypothesis that total mean scores of first-year teachers would be significantly related to certain differences between their home and school communities was refuted. However, there was strong evidence that teachers' estimate of the school community as inferior to the home community in parental discipline and interest in the school was related to a loss in teacher scores as compared with senior scores on both the total inventory and on individual problems.

Experience as a Factor

If it is true that experience plays a major part in establishing and in changing one's values and attitudes, then the college needs to learn what aspects of experience are especially important for these purposes. In the case of acceptance of groups unlike one's own; for example, is it a matter of knowing such groups? Is it the degree of acquaintance? Is it the pleasantness of experience, or is it the variety of experiences which one has had with them? Is it the type of experience which is associated with attitude scores? The second subhypothesis was that scores would be associated with these five aspects of experience with the groups represented in the inventory.

Most of these questions were studied at all three stages of the longitudinal study. The juniors were asked to indicate on their Data Form any experiences previous to their junior year, which they believed had helped them understand some group or groups different from their own. As seniors, on the other hand, they were to consider only experiences of their last two years in college; and as teachers, only those which they had had during their first year of teaching home economics.

The extent to which persons at each stage reported that they knew one or more groups unlike their own, and how this was related to total scores on the inventory is shown in Table 49. There was a highly significant difference between scores of juniors who had known such groups and those who had not, knowledge of groups being associated with the higher mean score. In the case of seniors and first-year teachers, however, there was no such association. These findings might well be due to differences in time span in the three data forms. Thus, juniors had responded in terms of the previous 15 or 20 years. Seniors and first-year teachers, on the other hand, had not had enough time to extend their knowledge of different groups (unless the University or supervisors had deliberately directed their attention to the question), nor was there enough time for great changes in attitudes to occur.

Table 49: MEAN SCORES OF JUNIORS, SENIORS, AND FIRST-YEAR TEACHERS WHO KNEW AND WHO DID NOT KNOW GROUPS DIFFERENT FROM THEIR OWN

Students and Teachers	Knew Other Groups		Did Not Know Other Groups		"t"
	No.	Mean Score	No.	Mean Score	
Juniors	431	678.6	82	656.7	3.587**
Seniors	309	678.71	51	671.76	0.89
First-year teachers	135	658.45	61	654.56	0.43

**Significant at 1 per cent level

The degree of acquaintance with the groups involved in the inventory was secured only for seniors. On the Senior Data Form, the groups were listed and the respondent asked to indicate how well she knew each of them. She used a code which ranged from zero ("know no one in the group") to a rating of four ("have more than three friends in the group"). The sum of these figures was her total "acquaintance rating".

There was a positive association of the acquaintance rating with attitude scores on only four groups: working mothers, slum families, a problem school (all at the one per cent level of significance), and persons with little education (at the five per cent level). A negative association was found with scores on parents today (at the five per cent level). The fact that greater acquaintance was not more generally associated with higher scores was rather disappointing, but might well be due to a fault in the rating instrument. It is possible that the highest rating of acquaintance permitted by the scale--"have more than three friends in that group"--was not high enough to identify those respondents who had broad acquaintance.

The relation of scores on the inventory to the degree of pleasantness of experience which juniors reported with the various groups was studied only in the 1959 sample of 283 students. A total "pleasantness rating" was secured from the Junior Data Form, where students indicated by code, for each group

which they knew, whether their experience had been pleasant or unpleasant. The association of inventory scores with pleasantness rating was studied by means of the chi-square test, using only the 50 high scoring and 50 low scoring students. (See Appendix D, Table XXXIV, p. 221.) A relationship significant at the 1 per cent level was found for the total inventory and for 11 of the 20 problems or subproblems; a relationship at the 5 per cent level of significance, for 3 others. In other words, experience which had been pleasant tended to be associated with high scores of these juniors.

In the case of seniors, inquiry concerning pleasantness of experience with the various groups involved in the inventory was similarly made relating to the last two years of college. Responses of the 366 seniors were studied, but no significant relationships were found.

The question of quality of experience was approached in a different manner with the first-year teachers. A list of types of pupils (those from upper-, middle-, and lower-class families, pupils with low IQ, high IQ, pupils whose mothers work, and so on.), incorporating most of the groups considered in the inventory, was presented. (Appendix D, Teacher Data Form, p. 215.) The respondent first indicated those with whom she had no contact during this first year of teaching. Then she rated the others in terms of the degree of satisfaction she had experienced in working with them. The sum of these ratings divided by the number with whom she had contact yielded her mean satisfaction rating.

This rating was associated with the total inventory score at well beyond the one per cent level of significance. In addition most of the problem scores were also significantly associated with this mean rating (Table 50). Apparently the teacher who found satisfaction in the day-to-day contacts with pupils tended also to be the one who scored higher on the various parts of the inventory.

Table 50: SCORES SIGNIFICANTLY ASSOCIATED WITH MEAN RATINGS ON SATISFACTION FOUND IN WORKING WITH DIFFERENT TYPES OF PUPILS

	Problem	"t"
I	Parents today	3.04**
II-1	City people	3.07**
III-1	Divorced persons	2.11*
III-2	Working mothers	2.59**
IV	Foreigners	3.12**
V-1	Adults with little education	3.69**
VI	Slum families	5.53**
VII-1	Catholics	2.12*
VII-2	Jews	2.47*
VIII-1	Upper-class people	2.93**
VIII-2	Middle-class people	3.64**
IX	A problem school	5.09**
X	Factory workers	3.79**
XI	Persons of another race	3.72**
XII-1	Youth	4.02**
XII-2	The aged	2.79**
	TOTAL SCORE	5.48**

*Significant at the 5 per cent level
**Significant at the 1 per cent level

An estimate of variety in experience was made by summing the number of different kinds of experience which the respondents indicated had helped them in understanding groups different from their own. The data form for juniors included a list of 20 kinds of experience; the senior form 21; and the teacher form 15. In each case opportunity was given for adding other experiences not named. In only the teacher group was there a significant relationship (and at the one per cent level) between number of experience types reported and the total inventory score.

Exploration of the relation of scores to the specific types of experience, which students on their Data Forms reported had been helpful in their understanding of groups unlike their own, was quite revealing, although for the inventory as a whole, only a few types stood out as associated with scores and these were at the five per cent level of significance. (Upper section of

Table 51.) In the case of juniors, church and/or Sunday School activities were associated with higher scores; in the case of seniors, it was the making of home visits. Field trips reported by seniors were, however, associated with lower scores on the total inventory. No experiences reported by first-year teachers were significantly related to scores at either the one or five per cent level.

More interesting and, in some cases, challenging patterns of association were revealed by making a composite of the data by problems and subproblems. This was done by counting the problem groups in which association of a given experience with a problem score was significant at either the 1, 5, 10 or 20 per cent levels. The resulting patterns are shown in the lower section of Table 51.

In the case of juniors, certain general experiences were related to high scores: these were day-to-day association with other students, church and/or Sunday School activities, studying about other groups in college classes, and observation in the schools. On the other hand, class-related outside experiences (except for observation), and work experiences--both of which are commonly considered to be of value in the preparation of teachers--were associated with the lower scores.

Certain experiences during the last two years in college were associated with higher senior scores. These were the making of home visits--an experience usually provided in the preparation of home economics teachers--and working in organizations. In contrast to juniors, most kinds of work experience also fell in this category. Working in another's home, however, as was the case with juniors, was associated with lower scores. This was true also of travel and most class-related outside experiences, especially student teaching and observation-participation. The latter finding is disappointing.

Table 51: EXPERIENCES AT DIFFERENT LEVELS: (1) WHICH WERE SIGNIFICANTLY ASSOCIATED WITH TOTAL SCORES OR (2) WHICH INDICATED TRENDS IN ASSOCIATION WITH INDIVIDUAL PROBLEM SCORES

Junior Students		Senior Students		First-Year Teachers	
High Score	Low Score	High Score	Low Score	High Score	Low Score
EXPERIENCES SIGNIFICANTLY ASSOCIATED WITH TOTAL SCORES					
Activities in church and/or Sunday School*	...	Class related outside experience - home visits*	Class related outside experience - field trips*	...	...
EXPERIENCES INDICATING TRENDS IN ASSOCIATION WITH PROBLEM SCORES					
Class related outside experience: -observation and participation Day-to-day association with other groups in college classes Church and/or Sunday School activities	All class related outside experiences (except observation) All work experiences, but especially: -in another's home -as a camp leader -in social service agencies -in store, office factory	Class related outside experience: -home visits Work experiences: -most kinds except work in another's home Studying about other groups in college classes Working in organizations Church and/or Sunday School activities	Class related outside experiences: -field trips -student teaching Work experience: -in another's home Travel	Working in organizations Dating someone from another group Entertaining parents in home economics department	Casual contacts with parents in community Seeing pupils in situations outside of school

*Significant at the 5 per cent level
...None were significant

It may be the result of the placement of students for their professional experience in schools where few of the groups represented in the inventory are found; or it may be due to lack of depth in experience with groups provided by the schools.

The first-year teachers showed fewer types of association between scores and experience than did the juniors and seniors. Only working in organizations, dating, and entertaining parents in the home economics department tended to be related to the higher attitude scores. However, casual contacts with parents in the community, and seeing pupils in situations outside of school--both of which if frequent would seem to be rich in opportunities for understanding people of the community--tended to be associated with lower scores. It may be that this absence of association with scores reflects a lack of opportunity in the community served by first-year teachers to know many different kinds of groups.

Such were the patterns of association of scores and experience. But there was some difference among the universities in the extent to which students reported certain experiences as promoting their understanding of groups different from their own.

In Table 52 are shown those experiences which at least half of the juniors, seniors, and teachers from the different universities reported as having helped them know such groups. In some cases, as shown in the table, this proportion was found in only four of the institutions; in other cases, in five or six. The greatest number of experiences was found at the junior and senior levels and many of them were common to both groups. The first-year teachers, however, reported only two kinds of activities which were experienced by as many as half of them and these were the two mentioned earlier as showing a trend toward negative association with test scores.

Table 52: EXPERIENCES WHICH AT LEAST HALF OF THE JUNIORS, SENIORS, OR TEACHERS FROM FOUR OR MORE OF THE DIFFERENT UNIVERSITIES REPORTED AS HAVING HELPED THEM KNOW GROUPS DIFFERENT FROM THEIR OWN

Juniors	Seniors	First-year Teachers
Visiting friends (5)*	Visiting friends (4)	Casual contacts with parents in stores, public transportation, meetings, etc. (4)
Knowing students in college classes (6)	Knowing students in college classes (6)	Seeing pupils in situations outside of school (4)
Working in organizations (6)	Working in organizations (5)	
Reading newspspers, magazines (4)	Reading newspapers, magazines (5)	
Experiences in dormitory or rooming house (6)	Experiences in dormitory or rooming house (6)	
Studying about other groups in college classes (4)	Studying about other groups in college classes (5)	
Activities in church and/or Sunday School (4)	Observation and participation in the schools (6)	
Club experiences in high school (4)	Student teaching (6)	
Seeing movies and television (4)		

*Number in parentheses indicates the number of universities in which at least half of the students checked a given experience as having helped them understand groups different from their own.

In summary then, the subhypothesis that attitude scores are significantly associated with experience was in general supported by the data. Knowing different groups represented in the inventory was associated with high scores of juniors, so also was pleasantness of experience associated with these groups. Satisfaction in working with pupils of different types was associated to a high degree with first-year teachers' scores. Specific types of experience, while significant at varying levels (from 1 to 20 per cent), did show important trends in association, and differed at the 3 stages of the study. Degree of acquaintance with groups--as tested with seniors--was not significantly associated with scores. The number of types of experience

checked as having been helpful in understanding groups other than one's own was significant at only the first-year teacher level.

Certain Elements in the School Situation as a Factor

The third subhypothesis was that inventory scores would be significantly associated with the teacher's attitude toward her school situation and toward teaching. The last page of the Teacher Data Form was designed to test this hypothesis. (Appendix D. p. 220 .) The teacher was presented with several five-point check-lists and asked to indicate certain characteristics of her school situation: whether discipline had been a problem for her, what the general attitude of the administration and faculty in her school had been toward home economics, and what her estimate was of the mental ability of students in her classes. She was to check also the statements which best described how she really felt about teaching most of the time as well as how she felt about working with young people. Values from one to five were assigned the responses to obtain a rating for each characteristic.

The association between each of these ratings and total score on the inventory was positive and significant (Table 53). In other words the higher the teacher's total score on the inventory, the more favorable were her attitude ratings toward teaching and toward working with young people, the more favorable she found the administration and faculty toward home economics, the more she believed she was getting the abler students in her home economics classes and the less frequently she reported discipline as a problem to her.

Summary and Implications

The Study

This chapter reports a longitudinal study of the degree to which students preparing to teach home economics, and later as first-year teachers, accept persons and groups like and unlike themselves. Data were collected

from six universities in the Central Region: the Universities of Illinois, Minnesota, Missouri, and Iowa, Michigan and Ohio State Universities.

Table 53: "t" VALUES OF THE RELATIONSHIP OF TOTAL INVENTORY SCORE TO CERTAIN ELEMENTS IN THE SCHOOL SITUATION

Elements in school situation	"t"
Degree to which discipline had been a problem	2.30*
Teacher's report of attitude of administration and faculty toward home economics	3.25**
Teacher's estimate of mental ability of pupils in her classes	4.19**
Teacher's attitude toward teaching most of the time	4.99**
Teacher's attitude toward working with young people	2.00*

Students were tested at the beginning of their junior year as home economics education majors, again in the last quarter or semester of their senior year, and finally near the close of their first year of teaching home economics. The numbers involved in these 3 testings were 513, 366, and 197 respectively.

The instrument used was an attitude inventory developed for the study and called in its present form, The Teacher and the Community. It consists of 12 problems, which sample attitudes toward 20 groups and subgroups, such as parents today, youth, socioeconomic groups, and minority groups.

The split-half reliability of the inventory was determined from the responses of the 513 juniors and found to be .954 when corrected for length by the Spearman-Brown formula. The test-retest reliability, using 44 seniors in 1 institution, was .873.

Face validity of the inventory was provided in its construction. This involved first the collection of attitude statements from a large number of college men and women, home economics and nonhome economics majors. Statements were then classified by the Cooperative Committee first as being favorable or unfavorable statements, and later as signifying an acceptant or nonacceptant person. Finally, statements for the experimental form were selected from those which discriminated best between criterion groups of acceptant and nonacceptant home economics teachers.

Validity of response was tested and established to some degree in the study of juniors by students' estimates of their feelings toward specific groups, by interviews with a sample of students in one institution, and by analysis of free writing concerning those groups toward whom students revealed strongly favorable or unfavorable attitudes.

The general hypotheses tested in the study were: 1. that attitudes toward groups will change in the time represented in a longitudinal study, specifically, during the last two years of college, and the first year of teaching; 2. that certain factors of socioeconomic background and of experience with groups and certain elements in the school situation will be significantly related to attitudes.

Change in Attitudes

The first hypothesis--that change in attitudes will occur--was borne out by the findings. This change, however, was not always in the direction one would expect to be associated with greater maturity; in general the change was a loss in scores. The seniors showed a significant gain over junior scores on five problem groups, but there was a loss on four others. The teachers made a significant gain over junior scores on only 2 groups; a loss, on 11 others and on the total score. The teachers changed significantly from senior scores on ten groups and on the total score, but all of these represented a loss.

Certain problem groups stand out as worthy of notice. Perhaps most important are those in which there was a consistently significant loss in first-year teacher scores as compared with scores at either the junior or the senior level. These groups were: parents today, foreigners, persons with little education, slum families, factory workers, another race, persons involved in the problem school described in the inventory, and youth. These would all seem to be groups which a teacher employed in today's schools should accept, if they are to be more effective teachers.

Interestingly enough, at both senior and first-year teacher levels, the respondent's belief that she had become more favorable in attitude toward a specific group was not borne out by scores on that group. On the other hand, a belief that she was less acceptant was corroborated by scores.

Finally, mean scores on the total inventory and the 20 problem groups varied by institutions. This was most noticeable at the senior level. The smallest differences in the scores by schools were obtained for first-year teachers.

What are the implications of these findings on change? They seem to fall into at least three categories: implications concerning the students who enter the teaching field, implications for the teacher education program, implications concerning the teacher in her first job.

Certain questions relate especially to the students who become teachers. The data suggest--as did the MTAI study reported earlier--that undergraduates may characteristically hold more idealistic attitudes than they will have after leaving college. They suggest also that it is difficult to estimate one's own change in attitudes, particularly if he is making a conscious effort to become more objective toward individuals and groups and more understanding of them.

As far as the teacher education program is concerned, the data suggest that home economics students in that program may not be given sufficient opportunities to know and understand the many groups involved in the inventory. In fact they suggest that current student experiences--as in observation and student teaching--may be carried on in situations too unlike those into which they will go later as teachers. Furthermore, one wonders whether there may not be a campus or state "climate" that accounts for differences in attitudes found among institutions.

At least one implication relates to the teacher in her first teaching position. When the new teacher comes up against the realities of the public school for the first time, the result may well be at least a temporary shift in attitudes. The question is: Has the school administrator or the supervisor some responsibility for promoting the development of the teacher in this respect?

Factors Associated With Attitudes

The socioeconomic factors of size of home community, level of parents' education, and father's occupation in general showed only the more obvious relationships to some of the junior problem scores.

On the other hand, there was a tendency for teachers' scores to be related to certain differences in their home and school communities, at least as they saw them. Teachers who believed that parental discipline and interest in the school community were lower than in their home town tended to have the lower problem and total scores. Conversely, if they considered these factors to be higher in the school community, their attitude scores were accordingly higher. If they considered the two communities similar, their scores fell between those of the other two groups.

The relation of experiences to attitude scores was considered in several ways. Those experience factors which showed most significant association with scores were:

1. At the junior level, the experience of knowing or not knowing groups different from one's own.

2. At the teacher level, the degree of satisfaction which teachers found in working with different types of pupils.

3. At all three levels, certain specific types of experience.

Particularly important for the teacher education program were these experiences:

a. At the junior level, observation and participation in the schools (associated with higher scores); and other class related outside experiences and most work experiences (both associated with lower scores).

b. At the senior level, home visits and most work experiences (higher scores); and student teaching and working in another's home (lower scores).

c. At the teacher level, casual contacts with parents in the community and seeing pupils in situations outside of school (both associated with lower scores).

The relation of certain elements in the school situation to teachers' attitude scores was the final type of association tested. This association was positive and significant. Teachers who had little trouble with discipline, who believed that the administration and faculty were favorable in their attitude toward home economics, and who said they tended to have the abler students in their classes scored higher than did other teachers. It is not surprising then that the higher the teacher's total score on the inventory, the more favorable were her attitude ratings toward teaching and toward working with young people.

What are the implications of all these findings on factors related to attitudes? One important question centers on a point of research technique. Community size, parents' educational level, and fathers's occupation are time-honored criteria for assessing socioeconomic background. Yet in this study they are disappointing in their lack of clear-cut association with attitudes. Another approach may be more fruitful. Interviews with students and comments made in a junior seminar not here reported both lend credence to the hypothesis

that instead it is evidence of the early "values-environment"--the home and community setting in which attitudes and values are nurtured--which is needed in any study of attitudes. By this is meant evidence of parents' own attitudes, rather than educational level; evidence of the acceptance-rejection "climate" of the church and school, rather than community size.

Other implications are more specifically related to the teacher education program. Since attitudes toward parents today--particularly in relation to discipline in the home and their interest in the school--proved to be important, the program might well give more emphasis to the understanding of parents and the problems they have in rearing children today in our urban society. The relation of certain experiences to attitudes and attitude formation would point toward enrichment of the entire preservice program in this respect. This would mean emphasis on knowing many groups, on discovering satisfactions in working with pupils from different backgrounds, on broadening and deepening student experience with groups, and on making that experience meaningful in relation to the role of the teacher.

It would mean also a new emphasis on the school-community. The findings point to the teacher's need for knowing the community. In the minds of some, there may even be a question as to whether a school-community actually exists in these days of large city schools and their rural counterpart, the large consolidated school. If it does not exist, how can the teacher really come to know her pupils and their families? If she cannot do this, what becomes of our concept of the teacher as one who greatly influences lives?

Many of these findings suggest additional studies which might well be made. They are considered in the final chapter.

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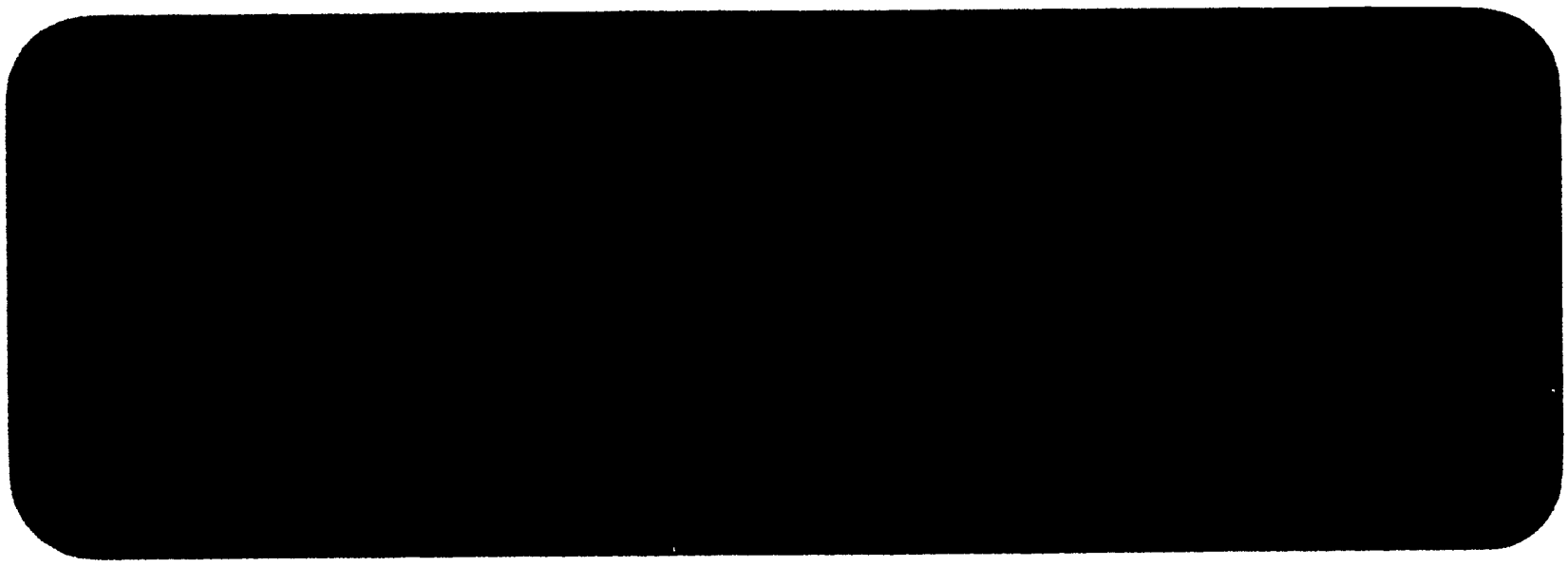
The purpose of this study was to identify the status of off-farm cooperative work experience programs, and the procedures and practices used by selected vocational agriculture teachers in conducting them. Questionnaires returned by 64 teachers and interviews of school personnel provided data for status identification. Questionnaire interviews of 13 teacher-coordinators, 12 school administrators, and 24 cooperating employers identified procedures and practices being used. Some findings were: (1) Of 31 off-farm cooperative programs, 25 were classified as agri-business and service programs and six as vocational horticulture, (2) 22 were in schools with fewer than three vocational programs, and (3) 415 or 29 percent of the students enrolled in vocational agriculture were enrolled in off-farm cooperative work experience programs, (4) 87 percent of the teachers involved the superintendent or principal and 39 percent utilized business or industrial leaders in planning the programs, (5) 75 percent of the cooperating employers preferred 1.6 years of basic course work in agriculture or horticulture for employers before placement, (6) In 55 percent of the schools students worked more than 21 hours per week, and 253 of 259 in on-the-job training received a wage for their work. Recommendations concerned developing and utilizing more standards and guidelines for conducting off-farm work experience programs. (WB)

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GRADUATE STUDY

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PROCEDURES EMPLOYED BY TEACHERS IN CONDUCTING OFF-FARM COOPERATIVE WORK EXPERIENCE PROGRAMS

URBAN T. CEN AND RALPH E. BENDER

ISSUED BY
THE DEPARTMENT OF AGRICULTURAL EDUCATION
COLLEGE OF AGRICULTURE AND HOME ECONOMICS
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FOREWORD

This report includes selected materials from a Master of Science degree study completed by Urban T. Oen who served previously as a teacher of vocational agriculture at New Riegel. Evidence of the importance of various guidelines in planning and conducting off-farm cooperative work experience programs is provided. The study includes an analysis of the status of thirty-one off-farm cooperative programs in Ohio and the recommendations of selected teachers of vocational agriculture, school administrators, and cooperating employers who were personally interviewed.

In addition to the summary, conclusions, and recommendations chapter of the thesis, one of the basic tables (Table 19) which provides a rating of guiding statements for planning and conducting cooperative work experience programs is included. These guiding statements were identified by Harold Anderson in a nation-wide survey[1] that he made. It is interesting and significant to note that there was a high degree of correlation between the ratings made in these two studies. Undoubtedly, these guiding statements would be of particular importance as guidelines in the development of off-farm programs in Ohio.

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[1] Anderson, Benard Harold, "Guidelines for Planning and Conducting Cooperative Work Experience Programs in Vocational Agriculture," Unpublished Ph. D. Dissertation, The Ohio State University, 1966.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Contained in this chapter is a review of the study, its purpose, objectives, method of investigation, and major findings. Also presented are the major conclusions and recommendations.

Purpose of the study

The purpose of this study was twofold. One was to identify the status of the off-farm cooperative work experience programs in the state. The other was to identify procedures used by selected teachers of vocational agriculture and to obtain suggestions from these teachers, administrators and cooperating employers in developing and conducting off-farm cooperative work experience programs.

Specific objectives

1. To identify the status of off-farm agricultural occupations programs in Ohio. This included agribusiness, agricultural mechanics and horticulture.

2. To identify the practices used by selected teachers in conducting off-farm cooperative work experience programs.

3. To secure suggestions from selected teacher coordinators, school administrators, and co-operating employers for conducting programs in off-farm agricultural occupations.

4. To identify some strengths and weaknesses of the off-farm cooperative work experience programs.

5. To identify some procedures and situational factors that attribute to success or failure of the off-farm cooperative work experience programs.

6. To compare the combined teacher ratings of Anderson's eighteen guiding statements with the combined ratings of administrators and co-operating employers by using Spearman's rank order correlation.

Method of investigation

To meet the specific objectives of the study, four questionnaires were developed and used by the writer. The Status Survey of Off-Farm Agricultural Occupations Programs was mailed to 70 teachers in Ohio who were named by assistant supervisors of vocational agriculture as conducting an off-farm program.

A total of 64 teachers completed and returned the status questionnaire. A compilation of the different programs as reported by the 64 teachers was made by the investigator. This compilation along with

the status questionnaires was presented to the district agriculture supervisors of the state. The supervisors selected a list of schools for personal interview and ranked the schools by districts. From the list, the investigator selected all the number one choices for personal interviews and as many of the second and third choices as possible.

The investigator developed three instruments to identify strengths and weaknesses of the off-farm agricultural occupations programs. The eighteen guiding statements developed by Anderson were included as a part of the administrator and cooperating employer questionnaire.

The instruments were critically reviewed by a committee of teacher educators and state supervisors of vocational agriculture. After minor revisions, the instruments were pre-tested by three agri-business teachers attending the state FFA judging contests.

The investigator had a personal interview with 13 teacher coordinators, 12 school administrators and 24 cooperating employers in an effort to determine the practices being used and to secure suggestions from these people to strengthen or improve the programs in Ohio. (The members of this group were the sample which made recommendations in the study)

A rank order correlation comparison of the combined ratings by cooperating employers and school administrators was made with the combined teacher ratings in Anderson's study.

Major Findings

The following are major findings of the study as they applied to off-farm agricultural occupations programs.

Type, number and location of programs

There were 31 off-farm cooperative programs located in Central, Western and Northern Ohio identified in the study. Of the 31, 25 were agri-business and service and six were vocational horticulture. Other off-farm programs identified but without cooperative experience were: agricultural equipment and mechanics - 11, horticulture - 12, and special needs - 1.

Thirteen or 42 per cent of the cooperative programs were in the first year of operation. Eight programs were in operation the second year and ten programs for three or more years.

Thirteen or 42 per cent of the cooperative programs were located in general high schools with less than 500 pupils. Twenty-two or 71 per cent of the programs were located in general high schools with less than three vocational programs. Forty per cent of the towns located near the high schools had less than 5000 residents. The smallness of the towns or cities was a limiting factor on the number and type of training stations available.

Student identification

There were 415 students, or 29 per cent of the students enrolled in vocational agriculture at the 31 schools, enrolled in off-farm

agricultural occupations training. Of this number, there were: 175 seniors, 161 juniors, 61 sophomores, and 18 freshmen. Seventy-six per cent of the off-farm students had work experience as the only project whereas 20 per cent had a production project in addition to the work experience.

The largest number of students were being trained on-the-job in farm mechanics where 47 students from 17 schools were enrolled. Thirty-two students were employed in a cluster of jobs in the greenhouse industry while 19 students were employed by nurseries.

Personnel assisting with the program

Eighty-seven per cent of the teachers involved the superintendent or principal with the planning of the cooperative program. Thirty-nine per cent of the teachers utilized business or industrial leaders to help plan the program.

Chief values of the program

The chief values of the program were:

1. The student received skills and abilities including job orientation training.

2. The on-the-job instruction provided the student with a practical application of his classroom training.

3. On-the-job training met the needs of the students, school, community and industry.

Chief difficulties of the program

The chief difficulties of the program were:

1. Lack of sufficient public relations.

2. Lack of understanding of the labor laws.

3. Lack of close coordination of the program between the school and the cooperating employers.

4. Lack of sufficient training programs for on-the-job skill development.

5. Lack of sufficient cooperating stations to meet student interests and needs.

6. Lack of sufficient instructional materials for the related class.

Major items to include in a cooperative program

The major items needed in a cooperative program include the following:

1. Good public relations.

2. Interested students.

3. An effective and resourceful teacher.

4. School released time for students and teachers.

5. Training outlines listing job skills to be acquired on the job.

6. An advisory committee.
7. Separate related class.
8. Involvement of industry in the program.
9. Sufficient instructional materials and facilities.

Should schools conduct co-operative programs

Twenty-four or 100 per cent of the cooperating employers indicated that the cooperative work experience program should be a part of the school program and that vocational agriculture should continue to develop and conduct such programs.

Eighteen of the 24 employers indicated that the cooperative training should be given at the high school level, four indicated that it should be given in high school and post high school and two indicated during post-high school only.

Guiding statements for planning and conducting cooperative work experience programs

The relationship between the ratings of school administrators and cooperating employers in the study and of the teachers in Anderson's study was found to be significant at the .01 level. The Spearman rank correlation coefficient (r_s) was found to equal .61. This positive correlation indicates that the administrators and cooperating employers believe the statements are important for conducting programs. The statements ranked as most important were:

(1) A concerted effort should be exerted by the teacher-coordinator to insure that the interest of both the student and the employer is considered when a student is placed for employment in a training station.

(2) The school should have a definite plan for screening and selecting students that conforms to local school policy, satisfies cooperating employers and meets student needs.

The importance of selected items for conducting programs

The teachers indicated that it was of extreme importance for the pupils on work experience to have instruction in a separate related class. The characteristic that programs should be located in an area where students can get actual on-the-job work experience was rated 4.00 or extremely important by the teachers. The teachers rated of considerable importance the use of advisory committees 3.46, development of a progress report for evaluation 3.46, a need and interest survey 3.31, training outline listing on-the-job skills 3.31, reviewing the progress report with employer and student 3.23.

Utilizing advisory committees

The following items pertaining to advisory committees were rated of considerable importance by the teachers interviewed.

The advisory committee should assist in:

1. Public relations work
2. Broadening the teacher's contacts
3. Determining on-job-training stations

4. Evaluating non-farm work experience programs

5. Determining the curricula for the classroom courses of study of technical and related information

6. Securing resource personnel to help instruct in related on-job-training

7. Determining training outlines or job descriptions. (course content)

The teachers interviewed indicated that many individuals should serve on the off-farm advisory committee. Thirteen or 100 per cent indicated that local agri-business people should serve on the committee. A majority of the teachers also indicated that local farmers, principals and/or superintendents and other teachers should also be on the committee. Several teachers included school board members, parents, guidance personnel, and former students.

The number of members which were suggested to serve on this committee ranged from five to 15 members with nine of the 13 teachers favoring from five to ten members on the committee.

Recommended enrollment per unit

The majority of teachers indicated that "time", the distance to travel to cooperating stations, the number of areas of training, time available for supervision, and the number of teachers in the department influenced the number of enrollees recommended per unit. Table

60 is a summary of the recommended enrollment per unit. The range in number for a full unit was 12 to 25 for agri-business and 15 to 28 for vocational horticulture.

TABLE 60

RECOMMENDED ENROLLMENT PER UNIT IN OFF-FARM PROGRAMS

Type of Program	Unit	Range in Number of Students Recommended
Agri-business	¼	4 - 8
	½	6 - 15
	1	12 - 25
Vocational Horticulture	1	15 - 28

Selection of students for the off-farm program

Seventy-five per cent of the cooperating employers preferred an average of 1.6 years of basic course work in agriculture or horticulture before placement. The employers indicated that student interest, eagerness and willingness to learn were the characteristics that contributed to student success on the job.

Forty-eight per cent of the teachers indicated that they selected students from those interested, while 45 per cent indicated that they

accepted all students who applied. Thirty-five per cent of the teachers used test scores and interest inventory tests to select students and determine student interest. In 55 per cent of the schools, guidance counselors personally interviewed students before they were accepted into the program. Thirty-three per cent of the teachers utilized a selection committee composed of the following members: vocational agriculture teacher, school guidance counselors, school principal or administrators, other vocational teachers and school board members.

Seven of the 12 administrators interviewed recommended that the principal, guidance counselor and teacher coordinator should select the students.

Related classroom instruction

The instruction in 66 per cent of the schools was provided in a special related class. Thirteen or 100 per cent of the teachers interviewed indicated that a separate related class was essential for the students in cooperative training. Many of the teachers with combined classes of juniors and seniors preferred that these be taught in separate classes.

The teachers interviewed recommended that the related classroom instruction be taught from the practical standpoint, i.e., cover actual job problems and "real" problems and make the instruction practical. The teachers rated the following items as extremely

important and absolutely necessary to be taught in the related class. They were: human relations problems 4.00, student problems and personal development 3.85, preparation for the world of work 3.69, and labor relations 3.62. The teachers with a separate related class tended to rate their effectiveness in teaching the selected items higher than those teachers who incorporated the instruction into the regular vocational agriculture program.

Hours of instruction

The number of hours of instruction per week ranged from one to ten hours. Fifty-nine per cent of the schools reported that the number of hours of instruction ranged from four to seven hours per week. Eleven or 100 per cent of the agri-business teachers interviewed recommended at least five hours of instruction per week while the vocational horticulture teachers recommended approximately 6.5 hours. These teachers indicated that the number of hours of instruction needed for the special related class varied with the type of program, the number of students, the number of work areas and student maturity.

On-the-job work experience

In 55 per cent of the schools, students worked more than 20 hours per week. Students in 48 per cent of the schools worked from 20 to 24 hours per week.

The number of hours of work per week recommended by the teachers interviewed ranged from 15 to 25 hours with an average of 18.7 hours

per week recommended. Twelve or 50 per cent of the cooperating employers recommended 24 hours of work per week as ideal while ten employers recommended 30 hours per week as ideal. The majority of the teachers interviewed indicated that students cannot work more than 25 hours per week, if this much, without violating the work laws.

Number of hours worked on school released time

Nineteen or 61 per cent of the schools released students from school for on-the-job work experience. The average number of school released hours per week ranged from four to 20. Twelve of the 19 schools allowed ten to 12.5 hours per week while seven schools arranged schedules so that students could be on-the-job for one-half day.

All of the teachers, administrators, and cooperating employers interviewed recommended released time from school for on-the-job training. Nine of the 13 teachers interviewed recommended one-half day of school released time. Three teachers recommended ten hours per week of released time and one recommended 7.5 hours per week. Eight teachers or 62 per cent indicated that they would not place juniors for work experience during school hours.

Time to obtain experiences

Twenty of the 24 cooperating employers indicated that during the school year and summers was the best time for students to obtain on-

the-job work experiences. The greenhouse and fertilizer cooperating employers indicated that mornings were better than afternoons for obtaining work experience. The teachers interviewed rated the item that experiences should be obtained during school months and summers as extremely important and absolutely necessary.

Twenty-two of the 24 cooperating employers indicated that students who were placed for cooperative work experience during the junior year should also be placed the senior year.

Thirteen of the 24 cooperating employers indicated that it would be desirable to have two students work the same position, one to work in the morning and one to work in the afternoon.

Student wages

Of the 259 students engaged in on-the-job training, 253 received a wage for their work. One school reported that their students were not paid during school released time. All schools reported that students were paid for work after school hours. The wages reported by 16 or 52 per cent of the schools ranged from one dollar to one dollar and nineteen cents per hour.

Twenty-two of the 24 cooperating employers interviewed indicated that students should be paid during school time and all indicated that students should be paid after school hours. Nineteen of the employers indicated that employers should meet before school begins in the fall and establish a minimum wage for the students on co-operative experience.

Supervisory visits

The range or frequency of visitation was from once every week to once every three months. Ten teachers or 33 per cent made one supervisory visit per month during the school year while nine teachers or 30 per cent made one visit every two weeks.

Eight of the 13 teachers and 14 of the 24 cooperating employers interviewed recommended that the teacher visit once every two weeks during the school year. The teachers and the employers did emphasize that the number of visits needed varies with students. They stated that some students need more supervision than others. Frequent visitation was recommended to maintain a close contact among the employer, the student, and the school.

Fifteen of the 24 cooperating employers indicated that the teacher should make more supervisory visits during the first several months that the students are on jobs.

Procedure for visitation

Sixteen of the 24 employers indicated that at times there was a definite value to prearranged conferences, especially during the busy seasons. Many of the teachers interviewed stated that there was no need for prearranged conferences because at most businesses, the student worked with more than one individual and, therefore, the teacher was able to talk to one of the fellow co-workers or foreman, if the cooperating employer was not available.

Time of supervision

Fifteen teachers or 54 per cent had no school released time for supervisory visits. All of the teachers, school administrators, and cooperating employers recommended that teachers be released during school time for on-the-job supervision. The majority of teachers indicated that a teacher on a full unit of agri-business should be released one-half day for supervision. The teachers and administrators emphasized that the number of hours of released time for the teacher depended upon: (1) The number of students in the program, (2) the number of areas of training, (3) the distance to travel to the co-operating stations, (4) the time school closes, and (5) the time the businesses close.

School credits recommended for the program

All of the teachers interviewed recommended one credit for the related class. Five recommended one for on-the-job training. Several schools used special formulations for determining credits. One credit was given for each 300 hours of work experience in one school and the other school gave one-half credit for each period of school released time the student was on-the-job.

Conclusions

These conclusions are a result of data fulfilling the objectives of the study.

1. A vast majority of the off-farm programs were located near towns with less than 8000 population and in general high schools with less than 500 enrollees. The small schools and towns affect the type and quality of program that can be conducted in the community.

2. Teachers should continue to develop and conduct programs for off-farm agriculture wherever the need exists. Less than one-third of the students enrolled in vocational agriculture in Ohio were enrolled in off-farm training.

3. Most of the teachers indicated that special laboratory and physical facilities were not available for the off-farm program. Guidelines recommending physical facilities and laboratory equipment are needed.

4. All teachers should have a definite plan to assist the graduates in finding a job. This may be organized on a county or district level and coordinated by one teacher.

5. The chief values of the program were: (1) The student received a practical application of his classroom training, (2) the needs of the student, school, community, and industry were being met

and, (3) the student received skills and abilities including job orientation training.

6. The problem or difficulty areas were: (1) Public relations, (2) understanding of labor laws, (3) coordination of the program between the school and the cooperating employer, (4) training programs, (5) insufficient training stations to meet student needs, and (6) insufficient instructional materials.

7. The major items to be included in a program as identified by teachers and employers were: public relations, school released time, training outlines, separate related class, involvement of industry with the program, interested students, an advisory committee, instructional materials, and a resourceful teacher who is willing to work to get the job done.

8. The guiding statements developed by Anderson are important and should serve as guidelines for planning and conducting cooperative work experience programs.

9. The present state standards for enrollment per unit should remain the same.

10. One or two years of basic agriculture or horticulture should be required before students are placed for cooperative work experience.

11. A selection committee should screen and select students for the program.

12. At least two years of work experience was considered necessary, therefore, both juniors and seniors should be placed for cooperative experience.

13. School released time should be provided to the students and the teachers participating in the program. The released time should not be limited to afternoons only as many employers preferred students in the mornings. The work experience time should be flexible to meet the needs of students.

14. Students should be paid for their work.

15. Generally, teachers do not maintain a standard requirement of work for students in the cooperative program, however, teachers and employers recommended at least 20 hours of work per week.

16. The amount of credit for students in the cooperative program ranged from 1½ to 2½ units, however, the amount of credit was not based upon the amount of school released time nor the hours of work.

17. Even though one-third of the schools provided instruction by incorporating it into the regular

vocational agriculture curriculum, all teachers interviewed recommended a separate related class for all students on cooperative experience.

18. Teacher perception of the frequency of supervisory visits and those of cooperating employers are not wholly in agreement. However, they did agree that more visits per year were needed than are now being made. More time is needed in supervision of this program than was normally required in the conventional program.

19. Teachers intending to conduct programs should attend the summer agri-business and other workshops before conducting the off-farm program. Also, more training in agri-business principles is needed to facilitate the teacher in conducting the program.

20. Teachers who are conducting these programs need workshops on technical information to assist them in keeping up to date.

21. The teacher should inform the parents, school board, teachers, and the community of the requirements of the program to facilitate understanding of the program.

Recommendations

As a result of the study, the following recommendations were made.

1. The state staff should give more leadership to the program by developing more standards and guidelines for the teachers and administrators in conducting the off-farm work experience program.

2. The eighteen guiding statements developed by Anderson should become the basis for developing guidelines for conducting programs.

3. A school conducting the program should provide adequate facilities and equipment to complement the on-the-job training.

4. The facilities recommended by the state staff should not be a duplication of the employer facilities. The equipment should be only that which is necessary to assist the students to obtain the maximum benefit from classroom and on-the-job training. A greenhouse is considered necessary for vocational horticulture students who are in pre-work experience training.

5. The teachers conducting these programs should keep the public informed about the program.

6. A separate related class should be provided for the students on cooperative experience. The instruction should be timed or coordinated with the on-the-job work experience whenever possible. A minimum of five hours of instruction per week in the related class is recommended for a fraction of a unit and up to ten hours per week is recommended for a full unit.

7. The program and classroom instruction should be based upon student needs. A student and community survey should be conducted before the program is established. A selection committee composed of the teacher, guidance counselor and principal should select and direct the students into the program and area of interest.

8. An advisory committee comprising cooperating employers, parents, and former students should be used in planning and conducting the program.

9. School released time should be provided for the students on work experience. The writer recommends:

Seniors - $\frac{1}{2}$ day of school released time

Juniors - $\frac{1}{4}$ day of school released time

10. School released time should be provided for the teachers to make supervisory visits. The writer recommends at least one visit to each student every two weeks which would necessitate:

½ day released - full unit

¼ day released - ½ unit

One period - ¼ unit*

*If necessary, the teacher could make supervisory visits during the two conference periods.

11. The hours of work experience required during the school year should vary with the year the student is in school. The writer recommends:

Seniors - 18-22 hours per week

Juniors - 15 hours per week

12. The school credits received by the students should be uniform throughout the state. The writer recommends that the number of credits be unified with distributive education and trade and industrial education if possible. One credit is recommended for the related class. The credits for the work experience should be based upon the hours of work or the periods of school released. The writer recommends that the supervisors determine which

alternative to use: either one credit for each 300 hours of training should be recommended or ½ credit for each period of released time from school.

13. Each student on work experience should have a definite training plan developed by the teacher and the cooperating employer.

14. Juniors should be placed full time during the summer preceding their senior year. They should be provided instruction concerning agri-business and working with people at least for one semester of their junior year.

15. The teacher, administrator, and cooperating employers should meet several times as a group before school begins to become acquainted with work laws, objectives of the program, their part in the program, and what they hope to accomplish.

16. A minimum beginning wage should be established by the cooperating employers.

17. A minimum of one year of basic agriculture or horticulture should be completed before students are placed for cooperative experience. A non-farm student should be required at least two years of instruction before placement.

18. Student teachers should be placed with teachers conducting cooperative programs. The students in the agricultural education curriculum need to be guided early into the different teaching tracts such as agri-business and service or vocational horticulture so that the vast technical knowledge needed for competent teaching can be obtained early.

19. Teachers wishing to conduct an off-farm program should attend the workshops for the different programs. These teachers should also be given a week of released time during the school year to work with teachers already conducting a good program. The teacher can observe and take part in the related instruction, assist with supervisory visits, and get to know first hand how to conduct the program.

20. Technical workshops should be provided for teachers presently conducting on-going programs. The writer recommends that a full time staff member be appointed to teach and coordinate the technical seminars, classes, and workshops for off-farm agriculture.

21. Evaluation by the cooperating employers and former students should be conducted by the local teacher each year.

22. An organized system of assisting graduates to obtain a job should be developed on a county or district level.

Recommendations for further research

There remain many unanswered questions in conducting off-farm work experience programs. As a result of the study, the writer became aware of the need for further research in the following areas:

1. To determine the importance of selected items to be taught in the related class as perceived by former students of the off-farm program.

2. To determine the methods of teaching the related classroom instruction when students are placed in many different occupational areas of training.

3. To develop a procedure for evaluating off-farm cooperative work experience.

TABLE 19

RATINGS OF GUIDING STATEMENTS FOR PLANNING AND CONDUCTING COOPERATIVE WORK EXPERIENCE PROGRAMS

Guiding Statement	Mean Rating and Rank					
	Administrators[a]	Cooperating Employers[b]	Combined Groups	Rank	Anderson's Study Combined Groups*	Rank
1. A concerted effort should be exerted by the teacher-coordinator to insure that the interest of both the student and the employer is considered when a student is placed for employment in a training station.	3.75	3.75	3.75	1	3.73	1
2. The school should have a definite plan for screening and selecting students that conforms to local school policy, satisfies cooperating employers, and meets student needs.	3.58	3.71	3.67	2	3.72	2
3. A survey of the appropriate businesses and firms in the community should be conducted before students are placed in training stations.	3.92	3.46	3.61	3	3.40	16

[a] N = 12 [b] N = 24

TABLE 19 (continued)

Guiding Statement	Mean Rating and Rank					
	Administrators[a]	Cooperating Employers[b]	Combined Groups	Rank	Anderson's Study Combined Groups*	Rank
4. The teacher-coordinator should have an organized and systematic plan for visiting students at their training stations so that related classroom instruction can be correlated with on-the-job training.	3.67	3.33	3.44	4.5	3.68	5
5. Employers should have the responsibility of providing adequate and timely instruction and supervision of the student while they are working in the training station.	3.83	3.25	3.44	4.5	3.47	13
6. Systematic and comprehensive efforts should be made to promote the program to students, school personnel and the public.	3.58	3.33	3.42	6.5	3.70	3
7. A well planned and systematic method of selecting training stations which considers definite standards and criteria should be employed to insure the best possible training environment for the student.	3.75	3.25	3.42	6.5	3.66	7.5
	$a_N = 12$	$b_N = 24$				

TABLE 19 (continued)

Guiding Statement	Mean Rating and Rank: Administrators[a]	Cooperating Employers[b]	Combined Groups	Rank	Anderson's Study: Combined Groups*	Rank
8. Achievement in both classroom related instruction and performance on the job should be considered in evaluating students.	3.67	3.13	3.31	8	3.69	4
9. The vocational cooperative work experience program should practice a continuous and planned program of evaluation.	3.58	3.08	3.25	9	3.62	10
10. Certain records and reports should be kept to help insure sound operation of a vocational cooperative work experience program.	3.42	3.08	3.19	11	3.66	7.5
11. The related classroom instruction should be organized and planned so as to provide the information and experience which is not taught on the job and is necessary for students to progress in the various occupations.	3.58	3.00	3.19	11	3.63	9
12. Adequate and appropriate facilities are essential and should be made available in schools conducting vocational cooperative work experience programs.	3.42	3.08	3.19	11	3.54	11.5

[a] $N = 12$ [b] $N = 24$

TABLE 19 (continued)

Guiding Statement	Mean Rating and Rank: Administrators[a]	Cooperating Employers[b]	Combined Groups	Rank	Anderson's Study: Combined Groups*	Rank
13. A written training plan which lists the learning activities the student should engage in at the training station should be developed to serve as a guide to the employer in offering on-the-job instruction and to the teacher-coordinator in planning and teaching related instruction.	3.42	2.88	3.06	13	3.42	14.5
14. The school should provide sufficient instructional materials to supplement the teaching of related classroom instruction and reference material related to the areas of work in which students are being trained.	3.42	2.83	3.03	14	3.67	6
15. A written local policy statement should be developed to help in administering cooperative work experience.	3.33	2.75	2.94	15	3.54	11.5
16. An advisory committee should be organized to give guidance and direction to the teacher-coordinator.	3.25	2.58	2.81	16	3.04	18

$a_N = 12$ $b_N = 24$

TABLE 19 (continued)

Guiding Statement	Mean Rating and Rank					
					Anderson's Study	
	Administrators[a]	Cooperating Employers[b]	Combined Groups	Rank	Combined Groups*	Rank
17. A written agreement between the school and the employer which lists specific responsibilities of the parties or individuals involved should be developed for students in cooperative work experience.	2.92	2.46	2.61	17.5	3.32	17
18. The school should maintain an organized system of "following-up" cooperative work experience students after graduation.	3.25	2.29	2.61	17.5	3.42	14.5

$a_N = 12$ $b_N = 24$

*Partial table-data secured from Table 19, pp. 137-143 Anderson's Study.

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A Pilot Study of Real Estate Education and Research Needs in the South Coast Region. Research Report-1.

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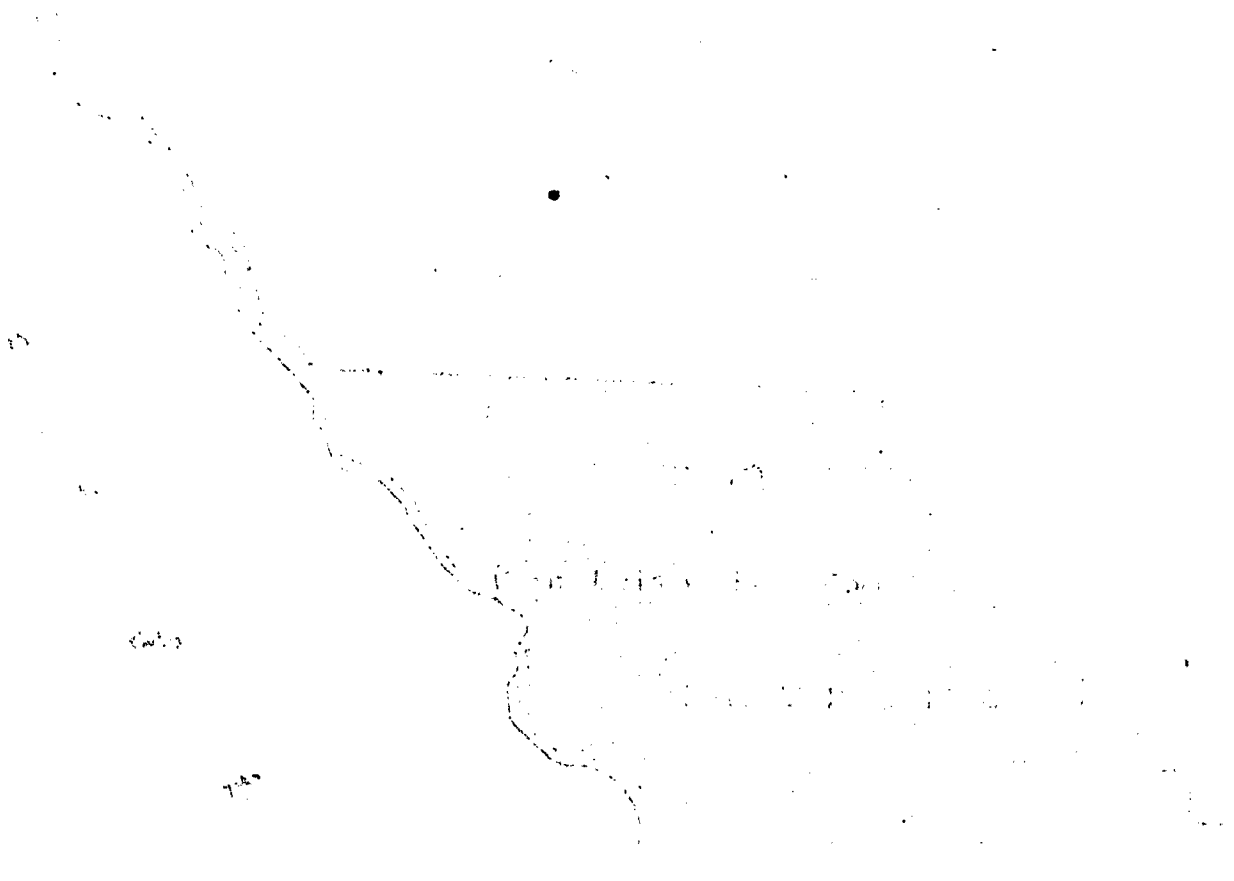
*REAL ESTATE OCCUPATIONS; ADULT VOCATIONAL EDUCATION; *RESEARCH NEEDS; *EDUCATIONAL NEEDS; INSERVICE EDUCATION; SURVEYS; LAND USE; BIBLIOGRAPHIES; CITY PLANNING; HOUSING
CALIFORNIA

The objective of this study was to determine the status and needs of the real estate industry in the region. Mailed questionnaires, personal interviews, and telephone surveys were used to collect information from 49 real estate practitioners, 25 teachers of real estate courses, and other individuals who were knowledgeable in the real estate field. Some of the conclusions were: (1) A high percentage of the industry members are in the higher age brackets, (2) Most took an original licensing course and have attended workshops, (3) Real estate is a very competitive business, and there is little cooperation between members, (4) Practitioners are reluctant to make long range academic plans, (5) Course work must be practical and usable immediately in business, (6) There are few qualified real estate teachers, (7) Educational activities must be arranged not to interfere with normal business hours, and (8) Research is generally unknown to the average broker or salesman. Recommendations concern courses, workshops, lectures, and research projects to be initiated. The appendix includes the questionnaires, detailed findings, and a bibliography on real estate. (MM)

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RESEARCH REPORT
Business Department
California State Polytechnic College
San Luis Obispo, California



A pilot study of

Real Estate Education And Research Needs in the South Coast Region.

By
Paul Kenyon

VT 01956

ERIC

AGRICULTURE
APPLIED ARTS

ENGINEERING
APPLIED SCIENCES

CALIFORNIA STATE POLYTECHNIC COLLEGE

San Luis Obispo, California

February 4, 1964

Milton G. Gordon, Commissioner
State of California
Division of Real Estate
1015 L. Street
Sacramento 14, California

Attention: Walter J. Miller, Assistant Commissioner

Gentlemen:

The California State Polytechnic College, Business Department Real Estate study entitled A Pilot Study of Real Estate Education and Research Needs in the South Coast Region, which was requested by Interagency Agreement Number 179 dated July 1, 1963, is herewith submitted.

This study was suggested as an initial step necessary to the introduction of the real estate program at California State Polytechnic College. Also it was undertaken as a further step in the direction of professionalization for the real estate industry as a whole and this particular area of California in particular.

These funds were made available by legislative appropriations from the Real Estate Education and Research Funds administered by your office, and initially obtained by the allocation of a fixed percentage of all license fees collected by the Real Estate Commissioner.

Please accept my thanks for the assistance provided by your Division and the various members of the Real Estate Industry.

Sincerely yours,

Paul Kenyon

Paul Kenyon
Intermediate Instructor of Business

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A PILOT STUDY

OF

REAL ESTATE EDUCATION AND RESEARCH NEEDS

IN THE SOUTH COAST REGION

Project #1

November, 1963

by

Paul Kenyon

Business Department

California State Polytechnic College

San Luis Obispo, California

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The views expressed in this study are those of the author. They do not necessarily represent the views of the State of Califorinia, Division of Real Estate, or of the California State Polytechnic College.

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PREFACE

The primary objective of this study as established by the original request for authorization (Appendix A) was:
"In order to determine exactly the present status of real estate education and research in the region, the desired status of region, the changing nature of the area and industry, the requirements of the industry relative to real estate education and research, the facilities and activities necessary to raise the industry and education to the desired level."

This objective made it possible to "recommend a program which will meet the specific needs of the industry either by utilizing the facilities of the extension service of the University, the adult program of the local schools, the in-service educational program of the real estate industry, cooperative or individual research efforts, and, finally, by determining the gap that should be filled by the local state college, California State Polytechnic College."

It is the writer's belief these objectives and goals were substantially achieved. As the study proceeded it became more and more apparent that the terms "feasible" and "opimum" were basic. The recommendations were developed with these considerations ever in mind.

The geographic area investigated consists of the region described in the Stanford Research Report on "The California Economy". The region consists of the counties of San Luis Obispo, Santa Barbara and Ventura, The main emphasis is directed toward San Luis Obispo and Santa Barbara counties.

This final report consists of the following main sub-divisions: Needs, Recommendations, Methods of Conducting Study, Summary of Findings, and Conclusions. All findings and tables are included in the Appendix. The needs suggest other possible recommendations, but the writer attempted to recommend a program that was immediately workable. These other possible answers to the needs were considered too difficult to implement at this time or within the foreseeable future, and are only briefly commented upon in this report.

The author is indebted to the members of the Business Department of California State Polytechnic College, the local Boards of Realtors, the Los Angeles Planning Commission, UCLA Real Estate Institute, Security First National Research Department, the San Luis Obispo Planning Commission, local newspapers, Chamber of Commerce, Title Insurance, Crocker Citizens Bank, and all the brokers and salesmen who took time from their busy schedules to answer questions and questionnaires.

Paul Kenyon

I. NEEDS

According to the research data accumulated, the real estate industry in the area has the following needs. Some of these needs can be met completely, some partially, and some not at all.

1. To provide a minimum real estate certificate program.

   This need for the basic five real estate courses was especially stressed in the findings of the Real Estate Workshop Questionnaire. It will be satisfied by Education recommendations #1 & #2.

2. To provide practical educational experiences to Real Estate Personnel.

   This emphasizes the practical aspect of the industry. They want a program in education which they can apply immediately or in the foreseeable future. These practical educational experiences will be partly provided by Education Recommendations #1 & #2, but more so by the Workshop and Lecture Series proposals.

3. To provide a Real Estate in-service training program.

   This problem is needed because of the basic nature of the real estate industry, i. e., that members do not wish to take time from their daily activities to attend purely educational endeavors. Also, the practical nature of the industry is stressed here, for a program in which the industry is interested must be of the type that is immediately usable. The nature of the industry that we are serving causes difficulties to arise that make other programs less feasible. It may be difficult to travel long distances necessary to attend classes or workshops over any period of time.

   The workshops and Lecture Series Recommendations attempt to solve this need insofar as practicable.

4. To distribute the findings of practical research projects.

Three problems are here presupposed: first, it suggested there is a need for research and extension of knowledge in the field of real estate; second, it requires that this research be of a practical type than can be used by real estate businessmen immediately; and third, it recommends that this practical information be made available to the members who can use it profitably.

Such a need can only partially be satisfied at this time and this is provided for by the Workshops and Lecture Series Recommendations. Attention is invited to the Research Recommendation for 1965-6-7, "Publication Program Study" which is a recommendation applicable for this third problem.

5. To provide a method of distributing information of current interest.

Somewhat related to #4 above. Such a need can only partly be satisfied, but the Workshops and especially the Lecture Series were developed to satisfy this need.

6. To obtain expert teachers of real estate.

Few expert teachers of real estate will be permanently available in this area within the forseeable future. This requirement can be achieved by bringing in experts to conduct the workshops and lectures recommended.

7. To receive careful consideration of time and hours in program planning. This is a need which arises because the members are in business and must keep normal business hours. Recommendations in order to be workable, must be made in consideration of this factor. The recommended courses are suggested for evening presentation generally. Both the workshops and lectures take this item into consideration.

8. To carefully select locations of offerings and methods of teaching because of widely separated centers of population. We have geographical problems in our area and the recommendations have been prepared in such a way as to provide maximum services to the largest possible number of industry members.

9. To provide short, immediately useful types of educational programs. Because of the nature of the industry and its members, and also due to the distances involved it was considered basic that the educational offerings be short, timely, and immediately useful.

10. To continue the program of professionalization. This is the long range educational objective which must ever be kept in the forefront of any endeavor. Some of the recommendations may be questionable in the short run, but for the long term view the industry must continue its program of professionalization.

II. RECOMMENDATIONS

Education

1. It is recommended that courses in Real Estate Finance, Real Estate Appraisal, and Trends and Factors Influencing Real Estate be offered by California State Polytechnic College, San Luis Obispo, California.

Such courses would complement the College's present real estate courses and provide partial support to the local real estate industry. Since students must matriculate in order to take these courses, they must also be offered in number 2 below for all the industry to benefit.

2. It is recommended that the following courses be offered by extension or Adult Education:

A. Real Estate Principles. A course covering the economic factors affecting real estate; urban land economics, city planning, urban development, regulations of land use; principles of value and real estate evaluation, ownership, nature and classification of land, management of property, law, market analysis.

B. Real Estate Practices. A course covering the techniques of operating a real estate business; emphasis on daily activities of brokers and salesmen; actual procedures involved. Working practices in listings and sales methods. Prospecting, legal factors, finance arrangement, effective advertising, escrows.

C. Legal aspects of Real Estate. A course covering the California real property law; method of ownership, acquisition and transfer; land descriptions; contracts; community property; encumbrances, mortgages, deeds of trust; leases, tenancy; escrows, title insurance, probate proceedings; restrictions; listings; legal instruments.

D. Real Estate Finance. A course covering the analysis of money, markets, rates, new regulations and procedures for financing real estate; policies, problems, rules, current trends. Tupes of lenders, methods of qualifying, uses of mortgages, trust deeds, leases, common stock, bonds; financial analysis of real properties. Conventional, FHA, Cal Vet and VA loans studied. Operation of mortgage companies, insurance companies and savings loan associations.

E. Real Estate Appraisal. A course covering the methods of determining real property values; purposes of appraisals; analysis of factors involved and their relationship to trend in property values; current appraisal theory.

F. Trends and Factors Influencing Real Estate. A Course coveri the forces affecting real estate values. Survey of real estate production, appraisal, finance and marketing. Land use and regulations; urban, rural, special purpose property.

Courses should be offered over a period of three years, one course per semester (except that Practices and Legal Aspects should be offered more frequently). They should be offered at some central location between the two major population centers, San Luis Obispo and Santa Maria. The Arroyo Grande Adult Education Supervisor has tentatively agreed to cooperate in the program. Programs should be considered at each of the major population centers on a staggered basis.

Workshops

It is recommended that three workshops per school year be offered. One workshop per quarter can be profitably offered on timely subjects with expert teachers. The workshops should be coordinated by a faculty member of the California State Polytechnic College in cooperation with the local Boards of Realtors, and offered at college locations.

The optimum workshop would last two days. Instructors in the workshops would be selected from the local area when possible, but also from Los Angeles, San Francisco, and Sacramento

There should be a minimum registration fee charged all participants. Several of the companies that engage in real estate activities have offered experts for the workshops at no charge to it. Advanced registration will be required.

The programs will be specifically directed toward the real estate industry and related activities.

For specific workshop proposals, see Appendix B.

Lecture Series

It is recommended that a series of lectures be made available to the industry.

This program would consist of two ten-week series per school year. Each ten-week series would be comprised of two or three selected topics of current interest to be presented by experts in the field. The topics would be narrow in scope and would be examined in depth.

There would be a tuition charge of about $25 per series, but allowances would be made for different persons to attend on the same tuition. This way if one member of a bank wished to attend three lectures, another could attend one or two of the other lectures in his particular interest on the same tuition. Advance registration would be required.

The selection of series titles and topics would be made by a coordinator in connection with the local Board of Realtors.

The lectures would be offered on a one night per week basis for two or three hours and would normally consist of two or three topics per series. They should be presented at California State Polytechnic in order that interested students might share in the experience.

Research

It is recommeded that selected persons be permitted to continue conducting research projects. These would be directly related to the needs of the industry, area, and college.

It is recommended that the following research studies be considered for the San Luis Obispo and South Coast areas, during the forthcoming years:

Housing Supply & Demand Study	1964-5
Land Use Study	1965-6
Preparation of a Real Estate Office Practice Manual (See Appendix C)	1965-6
Publication Program Study	1966-7
Growth Trends and Population Trends	1966-7
Area Industrial & Recreational Economics	1967-8
Future of Agriculture Needs	1967-8
Transition of Agriculture Land to Urban Uses and Its Effects on Land Values	1968-9

III. METHODS OF CONDUCTING STUDY

The study program was divided into three major stages: initial planning, interviewing and questioning, and the analysis and final report preparation.

Composition of Respondents

Persons in the industry and related activities were divided into two groups for the purpose of this study. The first group consisting of individuals who were not directly in the real estate field but knowledgeable in the many categories of the real estate field. Second group being the real estate practitioner.

The Data Collection Method

Questionnaire Check List

The questionnaire check-list (See Appendix D) was prepared for the first group and it was a detailed document. The form was not distributed to the parties until each was contacted personally. Because of the background of two groups of the professional men, personal interviews were arranged. These interviews were taped on a tape recorder, and a summary of those interviews is attached as Appendix E. The interviewees were very informative and provided valuable information for the study.

The remaining questionnaire check-lists were mailed or delivered personally after telephone conversations of approval had been received. Findings of that check-list are attached as Appendix F.

Telephone Survey

In order to validate the findings of the detailed check-list, a telephone survey (Appendix G) was conducted of the industry. It was considered the best and most effective method of reaching the respondents. Generally, selections of the persons called was made on the basis of the number of full time real estate people in the city or community. Findings of that survey are attached as Appendix H.

Workshop Questionnaire

During the early stages of the study, a real estate workshop was conducted on the California State Polytechnic College campus with teachers of real estate from all over the state in attendance. A special questionnaire (Appendix I) was prepared and distributed to that group for completion and return. A copy of the findings of that study is attached as Appendix J.

IV. SUMMARY OF FINDINGS OF STUDY

(For detailed findings see Appendixes E, F, H, and J)

The data accumulated appear to support the findings there is a shortage of real estate education and research in the San Luis Obispo area. (See Appendix K for educational course offerings and research conducted in recent years.)

Generally the members of the real estate industry have not taken formal courses in real estate and related business. There is interest in taking such courses. However, they will also consider brief workshop experiences if the choice of topics has been carefully made. It is entirely conceivable that they would be favorably impressed with a lecture series of specific topics to be considered in depth.

Although few brokers and salesmen have formal course experience, most of them have taken licensing and correspondence courses for the purpose of obtaining their real estate licenses. They have learned their job by doing their work and have accumulated

enough information of the job to make themselves a living, and sometimes a very good one. It may be that they do not have a broad background in their particular field, but they have the type of information that is useful and practical, and that results in sales. Undoubtedly this accounts for the interest in the practical type of workshop programs.

Also it must be kept in mind that for these men to take off from their daily duties involved a considerable financial loss. Therefore, there exists the possible interest in the lecture series recommendation and its offering at night.

As in-service type of training could theoretically be successful, except it would have to be a very practical, day-to-day type of training and there is probably no one qualified person or organization that would be able to, financially and timewise, assume the responsibility.

A minority of real estate brokers and salesmen are interested in a program of betterment. The lack of interest on the part of some is probably due to several reasons, among which are: there is little possibility that sufficient demand could be developed to authorize it; there are few teachers available

who are qualified to teach classes; many of the individuals have been in business a long time and either know the subject as well as they feel they need to know it, or they are approaching retirement and are no longer interested; and lastly many industry members, although capable in the practical aspects of their field, may feel reluctant to compete in a purely academic atmosphere.

A factor may also be that the people in the business of real estate prefer not to dedicate and set aside six months of time toward the achievement of a purely academic goal, i.e. the completion of a formal course in some area of real estate or business. But they do not mind and, in fact, will gladly assume the responsibility of attending a short workshop if the subject is worth-while, the teacher is knowledgeable, and the time is well chosen so as not to interfere with the day-to-day business operation.

Research in the field of real estate is generally unknown to the average broker or salesman. It just is not made available to them. As additional research is conducted some plans should be developed for this information to be distributed in a

usable form to the industry. It is understood than an effort is being made along this line but to date the impact of the endeavor has not reached the men in the field.

An item of side interest to the interviewer was uncovered during the research which concerned the previous business of the broker or salesman. These individuals are from all different fields. Few of the individuals had prepared themselves expressly for the purpose of entering the real estate business. They had not attended school with that goal in mind. This, no doubt, is due to the nature of the industry itself. It requires an aggressive, independent and competitively minded person in order to be successful in it. He must generally be trained on the job. In the normal brokerage, a formal real estate degree would not be a first requirement, and would not noticeably increase his chance of success. This conclusion might only be limited to this area and undoubtedly there are exceptions to it.

The data reveal little interest in research projects unless they have a direct immediate application to the business today.

There is a tendency in any competitife society to keep certain tricks of the trade to ones' self. This is especially so

in the real estate industry. They are not generally a cooperative group among themselves. However, considerable credit must be given to the Boards of Realtors in their achievements along this line. They are also doing a wonderful job in professionalizing the industry. The multiple listing and related listing programs have also contributed toward greater cooperation and mutual endeavor in real estate.

V. CONCLUSIONS

The research data appear to support the following conclusions:

Background of Respondents

1. The local real estate industry members are busy, practical and ambitious men.
2. The academic level achieved by industry members is slightly greater than the equivalent of high school graduation.
3. A high percentage of the industry members are in the higher age brackets.
4. There are several different segments of the real estate industry that must be ministered to, namely brokers, salesmen, title companies and bank employees, government and savings and loan personnel, the public, etc.
5. Some industry members have taken formal real estate classes.
6. Most of the respondents took an original licensing course and have attended real estate workshops.
7. The real estate industry is a very competitive business.
8. Members generally tend not to cooperate with each other.
9. There are areas within which the industry can agree and cooperate as revealed by the Realtors and Multiple-Listing services.

Education

1. Respondents are generally reluctant to make long range academic plans. Therefore the data appears to support the needs for short immediately useful types of education programs, methods of distributing information of current interest, to distribute the findings of practical research projects, and the need to provide an in-service training program.

2. Courses or offerings must be sufficiently practical as to be used immediately in business. Until the industry has become sufficiently professionalized there is little hope for success of offerings which are not practical and immediately useful.

3. There is little demand for formal academic classes in Real Estate. Based upon this limited demand it is concluded that the industry needs practical educational experiences, the in-service training program above referred to, a method of distributing current information, immediately useful types of educational experiences, and a continuing program of professionalization.

4. Few qualified real estate teachers are available. Good real estate teaching requires both practical experiences and education, a combination difficult to obtain even in the large metropolitan areas. The use of Real Estate Education Workshops is a positive step in the right direction.

5. Acceptable real estate classes would require teachers with considerable actual real estate experience. This is a further elaboration of #4 above pointing out the very important requirement of practical experience.

6. Educational activities must be arranged so as not to interfere with normal business hours.

Offerings which do not take into consideration this factor are doomed to failure.

7. Each of the different segments requires a different educational approach.

The goals, objectives and activities of the various segments of the industry require totally different educational approaches. Some of the segments are financing, title insurance, government offices engaging in real estate activities, construction industry, escrow, and, of course, the real estate industry.

8. No one segment would justify a total educational effort.

Although the approaches must be different according to the above conclusions, our population is so small and so arranged geographically that no one segment of the industry is large enough to permit a total educational effort. This means that the effort must be directed at more than one segment of the industry.

9. There are two geographical locations that can be serviced and that will permit some concerted effort in real estate education; namely, San Luis Obispo and Santa Maria.

10. All other geographical locations are so removed from each other, are so few in numbers of real estate personnel, that only a limited feasible program can be planned at this time.

11. A long range, carefully planned educational program has possibilitues of acceptance and success. This will permit a limited immediate effort, the cumulative effect of which will further the efforts toward professionalization.

NOTE: Your attention is especially directed to Appendix M which is a recent article from the Los Angeles Times which appears to support the views expressed herein although written from a state-wide viewpoint.

Appendix A

California State Polytechnic College
San Luis Obispo, California

INTRODUCTION

In accordance with the recommendation contained in your letter of May 16, 1962, that we revise our research proposal "To Develop and Demonstrate the Appropriate Methods for Obtaining and Using Local Market Real Estate Data" more in line with the project undertaken by Humboldt State College "An Exploratory Study of Real Estate Education & Research Needs in Humboldt County," we submit the attached request for your consideration.

We decided that an exploratory study would be preferable to your alternative suggestion that we prepare a study from a portion of the data sources listed on page 2 of our original proposal. The pilot study would be of especial value during this time to the College because of the initiation of our Real Estate program. In the light of the findings of this pilot study, we may wish to undertake a research program from those data sources later.

The references noted in Item III a. were again contacted and asked if such a revised study would be of value to the groups which they represent. The area is in such a need of additional information that they readily agreed that it would and that such a revised study should be made. Mr. H. H. Theiss, Vice President of Title Insurance Company, was also kind enough to add his name to the others.

As your committee knows the study to be attempted is a big one and in order to stretch the funds as far as possible it is requested that all student and staff funds be combined into one figure so that they may be used to obtain faculty, clerical or market research services as required. It is extremely difficult to determine in advance exactly the sum of money that will be required for the effective accomplishment of the functions represented by the faculty and student members, and this arrangement will assist to provide the needed flexibility.

WORKSHOP PROPOSALS

#1 Appraisal Techniques Workshop

Purpose of Workshop:

(1) To acquaint participants with appraisal techniques and methods

(2) To demonstrate these methods by actual visits to types of properties

(3) To guide participants in the preparation of forms and in the understanding of rules and procedures in appraising.

Appropriateness:

Many of the respondents contacted recommended that such a Workshop would be of value.

California State Polytechnic College is convenient to all parties and the cost can be kept to a minimum.

Cal Poly has conducted workshops in the past.

Cal Poly has the necessary facilities.

The area is located away from large population centers. Appraisal courses should be made readily available to the Real Estate industry.

Specific Staff:

Coordinator - Faculty member from Cal Poly

Instructor - Fred Croxon, Crocker-Citizens Bank, Santa Barbara, California (See Appendix B for detailed background on Mr. Croxon)

Cost to Student:

About $5 registration fee.

Estimated Cost:

$750.00

#2 Estate and Tax Planning

Purposes of Workshop:

(1) To acquaint the participants with methods of conserving estates.

(2) To demonstrate these methods by appropriate case studies.

(3) To obtain participation from the participants in applying methods to individual problems.

Appropriateness:

The expert teacher that such a workshop would require is available from the Title Insurance Company at its Los Angeles Branch.

There are many businessmen, not entirely limited to the real estate industry, who would be interested in such an offering.

Cal Poly has the facilities and staff to conduct a successful conference.

Such a workshop was recommended by the recent research conducted in the area.

Specific Staff:

Coordinator - Faculty member, California State Polytechnic College.

Specific Staff (cont'd):

Instructor - Bill Spenney, Title Insurance Co., Los Angeles, An expert in the field of estate planning, having published in the field.

Cost to Student:

About $5 registration fee.

Estimated Cost:

$300.

IV. To what segments of industr, governmental or educational institutions will the product be of significance? Covered under I above.

V. Co-ordinator: Paul Kenyon, intermediate instructor, California State Polytechnic College, San Luis Obispo, California.

VI. Estimated Cost. $2,000.

REAL ESTATE QUESTIONNAIRE CHECK-LIST

Introduction The California Division of Real Estate had authorized a pilot study of Real Estate education and research needs for the San Luis Obispo area. In order to truly determine these needs please give me your comments on the following items. Do not feel compelled to answer every statement, nor feel limited to this list. This is the first study authorized for this area and we sincerely hope it will be of value to all concerned.

PERSONAL INFORMATION

Your Background
Your Company
Your relation to the real estate industry

HISTORY OF EDUCATION AND RESEARCH IN REAL ESTATE

Courses offered in the past--approximate dates, teachers, if known
Educational units that offered classes
How courses were received
Advantages and disadvantages derived from courses

EDUCATIONAL NEEDS

Do we need additional real estate courses in the area? Which?
- Principles
- Practices
- Valuation or appraisal
- Law
- Financial
- Residential quality, design, structure
- Building industry development
- Government services to real estate
- Property insurance

Who can teach them?
Who may take them?
Who will give them?
- High School
- College
- University Extension
- Correspondence

Maximum charge possible
Are workshops of value--length, topics, when, who teach, who conduct
Local Newspaper--who publish, who conduct

RESEARCH NEEDS

Is there a need for research in this area--what type, who can perform, specific recommendations?

Please provide me names of other persons like yourself who are in the real estate industry or related activities that are knowledgeable in the real estate field. Especially, I could use references in Cambria, Paso Robles, Santa Maria, Morro Bay, Grover City, Lompoc, Pismo Beach, Atascadero, Etc.

Thank you for your courtesy in assisting in this study.

Appendix E

1. SUMMARY OF PERSONAL INTERVIEW WITH FREDERICK J. CROXON

Personal Information

Presently assistant Vice President Branch Real Estate Loan Administration with Crocker-Anglo National Bank. (Crocker-Citizens National Bank). Graduated from Pomona College, graduate work at Stanford. Has experience in real estate financing, title insurance, and savings and loan. Set up Crocker-Anglo Escrow Department in San Joaquin Valley. Taught courses at Orange Coast College, and adult educatinn in Fresno, U. C. Extension, and in-service training. Currently scheduled to teach Real Estate Appraising for U. C. Extension.

History of Education and Research in Real Estate

"American Banking Institute doesn't have any business course in this area. . . "

"Security First National does a fine job of research work . . . they put out a monthly Real Estate or economic letter. . ."

Educatinnal Needs

"The real estate profession is badly in need of education."

"As far as the real estate work is concerned, Principles would be very good, I would say that Evaluation and Appraisal would be very good."

"The need is great for trained people in real estate lending."

"Real Estate Law after they have had the Financing and Appraising would be very good."

"You need the background first, probably a good sequence in Principles. . . then Appraising and Finance then Real Estate Law makes for a well rounded background."

"Fellow from the Savings and Loan Industry would be good (finance teachers). They have a well rounded backgr ound."

"In the advanced area it (correspondence courses) would be fine."

"A Real Estate Law course should be taught either by a man who has academic training in it or a local attorney."

"The workshops so far as Appraising was concerned were Field Trips."

"A work shop in the practical aspects of escrow. . . you would have a houseful if it were properly publicized."

Research Needs

". . .a local information gathering and distribution center. . . I think the best two places would be the local Real Estate Board, and the Security First National Bank."

"Title Insurance has a very good monthly report on deeds. . . all which show trends over a period of time."

"Your building departments have data on types of buildings, costs and location."

"The Regional Planning Commission would be very good for zoning matters."

"The Federal Reserve puts out a monthly bulletin on economic conditions which is priceless."

"Telephone companies would give you projected developments."

"State Chamber of Commerce is quite general and they would not nearly be so specific as the utilities would be."

"Federal Reserve publications are pretty good on business."

"People do not know real estate values."

"Another field that is becoming new is Real Estate Finance, and it is going to be more and more so and what will be very interesting to students is the condominium."



"Audio visual material. . .the best existing on that is what T. I. has."

2. SUMMARY OF INTERVIEW WITH HERB H. THEISS AND RICHARD C. MOHLER

Personal Information

Herb H. Theiss--with Title Insurance 23 years, in Administration 8 years, taught classes for American Institute of Banking. Currently manager of Bakersfield office.

Richard C. Mohler--with Title Insurance 9 years, has participated in classes for American Institute of Banking. Currently manager of Title Insurrance in San Luis Obispo.

History of Education and Research in Real Estate

Adult Evening school offered general class in 1962--"Land, title and escrow practices." Sponsored by local realty board. Class started with 80 persons, 30 finished.

Education Needs

". . . there's a need for two types of classes. . .a class for people who are interested in taking real estate exams, and a another for the general public education. . ."

". . .(Escrow workshop) you might find a problem in getting sufficient numbers of people to attend this workshop."

". . .Appraising. . .there seems to be quite a bit of education in this area that people can get."

". . .Property Insurance is a field all its own."

". . .why isn't there some general course taught in high school."

"Those getting ready to buy, they would be interested in this course, but the ones who don't anticipate an immediate purchase would not probably. . ."

"Most of them culd be interested in workshops, I think."

"It's something our company would do (get a speaker up for a couple of days). . .we want to service the industry."

"We have an area here in which we have individuals, people, who have tremendous material wealth. . . . They need this type of counselling. (On property Management and Estate Planing.)"

"The most effective type of teaching at this point is the one in which the students participate, and that's workshops."

Research Needs

". . .Statistical analysis, this would fill the need, perhaps of an overall group, an economic group."

"Because San Luis County Area is a recreational type of facility . . .I would suggest perhaps some research study in the area of how to improve or provide facilities for these people."

". . .zoning and city planning is an interesting area especially in providing interest or information to the local people in real estate. . ."

Appendix F

SUMMARY OF QUESTIONNAIRE CHECK-LIST FINDINGS

The following respondents were considered especially knowledgeable in the field of real estate and were asked to complete the "Questionnaire Check-List":

William R. Broadbent, Realtor President of San Luis Obispo Board of Realtors. Member of the Society of Exchange Counselors. Experience: Real Estate Salesman and Broker 1959-to present. BS and MBA from Cornell University. President of Board of Realtors. Member of the National Institute of Real Estate Brokers, National Association of Real Estate Boards, California Real Estate Association (and Exchange Div.). National Institute of Farm and Land Brokers, and the International Traders Club of NIPPO

E. R. Foley, District Engineer, by Fred C. Moore, District Right of Way Agent, Division of Highways, San Luis Obispo.
Experience: The District V Right of Way Staff handles the right of way functions for the Division of Highways of the Counties of Santa Barbara, San Luis Obispo Monterey and San Benito. Employees with Right of Way Agent classifications handle the work loads directly related to real estate matter In District V there are 27 Right of Way Agents, 4 Utility Clearance Agents, 23 Right of Way Engineers, 9 clerical for a total of 63 employees We received many comments concerning future offerings from these employees.

A. Laundari, Assistant Manager, Bank of America San Luis Obispo (Comments not included in as much as specifically related to in-service bank training.)

J. C. Paddock, Assistant Vice-President, Security First National Bank, Santa Barbara.
Experience: 23 years as appraiser for Security Bank. Taught appraisal for U. C. and adult education, and under the Division of Highways.

Norman D. Rich, Chief Appraiser, County Assessor Office, San Luis Obispo.
Experience: 17 years appraising experience. Attended classes under aegis of DAS CBE or the Standards Committee of the State Association of County.

Ned A. Rogoway, Planning Director, County, San Luis Obispo.
Experience: Employed with City of Long Beach, Advance Planning Division, 1954-9. County Planning Director 1959 to present BA, Urban Planning, University of Washington 1951

Roger O. Williams, Vice President and Manager, First American Title Company, San Luis Obispo.
Experience: 7 years title insurance. BA in Business Administration. Held positions as Title searcher public relations assistant manager, and manager of title insurance company.

History of Education and Research in Real Estate

See Appendix K

Educational Needs and Research

Answers to the questions of whether or not we need real estate courses, and if so what kind. Whether we need workshops, or lecture series, or news gathering and distributing service.

"Recommend a course to prepare for licensing examination, and also for title insurance personnel."

". . . real educational needs can only be met in a program whereby a qualified instructor can be paid a sufficient fee to do a good job, where University credit is offered, and where actual practice work is done, with the course self-supporting through the members' fees. . ."

"It would almost seem that the best way to meet educational needs to real estate brokers and salesmen in the San Luis Obispo area, would be to offer a combination-seminar type of course on an annual or perhaps every other year whereby two sessions, for example, could be spent on each of the principle topics, bringing the 'country brokers' up-to-date on current city practices in the various phases of real estate. . . ."

". . . there is a need for formal courses in appraisal techniques . . . for fee appraiser and right of way agents. . . Many persons in real estate and legal professions. . need broader background in areas of law and practices. Response. . . may be questionable.

". . . there is a need for public education in the broad area of real estate practices and procedures, etc."

". . . Workshops can be of. . value. . with subjects such as an investment problem, a development problem, a transaction considered in the light of tax impact, a property exchange. . ."

". . . a general information bulletin could be of benefit. ."

"Research in the field of growth trends, population trends, public demand for housing and services. . . with projected needs. . ."

". . . Realtors operating in. . area. . lack. . essentials of government practice. . . . It is my belief that the following subjects. . are. . . most necessary. . . .Land use controls, Principles of Land Division, City Planning Principles, Principles of Building Construction, and Government Subsidies Related to Property Development."

"Workshops. . are. . valuable for practicing professions. . . . practical workday problems. . Typical subjects for workshops might include: Real Estate Practice, Realtors' Role in Property Division, The Real Estate Market and Discernable Trends, and Industrial Promotion."

Workshops. . should not last longer than two. . days.

"Teachers. . should be professional people. . local appraisers, title officers, planners, contractors, economics. . ."

"Research is the most important commodity. . study must continue in. . . economics. . . growth trends. . area wide industrial and recreational economics. . are sorely needed. . . . future of agriculture needs. . . population and housing growth. . housing demand. . . re-development and renewal. ."

". . . directors of the. . . Board of Realtors have felt that . . . real estate law and/or real estate finance would be. . . of interest.

". . . .Indications are that real estate people in . .area. . are unwilling to pay for. . .good workshops or seminars. . . . .doubt feasibility of. . .newspaper. . .

"Research needs: . . .transition of agricultural land to urban uses. . .its effect on land values. . ."

NOTE: The following are comments received from Division of Highways Agents.

". . valuation and appraisal course. .if more than indoctrination course."

". . . .workshops on. . .subdivision law, county codes, governmental financing, etc., would be welcome."

". . .finance would be of interest. . .at university level. ."

". . .be interested in a course in agricultural appraisal. . ."

". . .there is a need for. . . . principles, . . .then practices, appraisals. . . ."

". . .advanced appraisals. . . Also a course in development and subdivision. . ."

". . .Rural Appraising. . .be. . of value. ."

". . .financing. . .development (subdivision. . .). .building materials. . ."

". . .finance. . .residential quality, design, and structure."

". . .any real estate course. . would be of value. . . ."

". . .psychology of salesmanship. . . .agricultural appraising. . ."

". . .financing. . ."

". . .rural appraising. . . on transitional areas. . ."

". .interested. .in real estate principles. . .practices. . . appraisal. . .law. . .finance. . .residential quality, design and structure. . One or two day workshops. . ."

". . need. .workshop or adult school courses."

Recommended Personal Contacts

Arroyo Grande--Chet Williams
Atascadero--Ruth Murdock
Cambria--Pearl Marvel Martin
Lompoc--Billie Herrin
Morro Bay--Bill Boehm and G. L. (Bill) Morris
Paso Robles--Archie Hansen
Pismo--Jerry Osborne
Santa Maria--Billie Everett

Recommended References

Atascadero Real Estate Board
- Fred A. Butikofer, President and State Director
- G. Louise Schrader (Mrs.), Secretary
- Margaret A. Gee, State Director

Lompoc Valley Board of Realtors
- Billie E. Herrin, President and State Director
- Fern Green, Secretary

Paso Robles Board of Realtors
- J. W. Guffey, President and State Director
- Burr D. Webber, Secretary

San Luis Obispo Board of Realtors
- Bill Broadbent, President and State Director
- Ron McCargar, Secretary
- Louise C. White, State Director

Santa Maria Board of Realtors
- Billie Everett (Mrs.), President and State Director
- Mavis Evans, State Director
- Bea Valloza, State Director

Scenic Coast Board of Realtors
- John C. Morgan, President
- Myrth Boehm, Secretary
- Bill Boehm, State Director
- Vernon D. Crass, State Director

Appendix G

REAL ESTATE QUESTIONNAIRE

For Telephone Interv?

Name of Broker _____

Address of Broker _____

Name of person interviewed _____

Male ____ Female ____

Type of license held

Original salesman	____	Renewable salesman	____
Original broker	____	Renewable broker	____
Other	_____		

Works in Real Estate

Full Time	____	
Part Time	____	(About ____ hours per week)

Number of years in real estate business ____

Previous Occupation _____

Number of years in school ____

If college graduate, what degree ____

Real Estate Courses	Taken	Interested in Taking
Principles	____	____
Practices	____	____
Valuation (appraisal)	____	____
Law	____	____
Finance	____	____
Other _____	____	____

If you are interested in taking any of the courses listed above, when is the best time for you to attend such classes?

Day	____
Late Day	____
Evening	____
Short Workshop	____
Other _____	____

Additional Comments

Interviewer's Notes

TELEPHONE QUESTIONNAIRE - SUMMARY OF DATA

This data was provided by 49 real estate people in the San Luis Obispo area who were interviewed by telephone as part of the study.

City of Respondents

Cambria	2
Morro Bay	3
Paso Robles	5
San Luis Obispo	27
Santa Maria	8
Shell Beach	4

Part-time or full-time

Full-time	41
Part-time	8

Years in School

Less than 12	7
12 to 15	31
16 or more	7

Real Estate Courses Taken*

Principles	11
Practices	8
Appraisal	7
Law	8
Finance	7
Other	5

*Formal lecture courses only.

Sex of Respondents

Males	34
Females	15

Type of License

Brokers	28
Salesmen	21

Number of Years in Real Estate

Less than 5	12
5 to 10	17
More than 10	20

Previous Occupations

Management	12
Service	10
Sales	6
Other Real Estate	5
Agriculture	4
Professions	4
Miscellaneous	8

Real Estate Courses Interested in Taking

Principles	3
Practices	5
Appraisal	13
Law	10
Finance	11
Other (workshops)	35

Appendix I

REAL ESTATE QUESTIONNAIRE

Completed by those attending summer workshop

The Division of Real Estate has authorized a pilot study of Real Estate Education and research needs in the San Luis Obispo area. In order to determine what a community is capable of doing, and so that we may compare our activities, may we have your comments concerning your particular area's Real Estate education and research activities?

Personal Information

Home address _____

Type of real estate license held, if any _____

Number of years of real estate experience (include teaching) ____

Real Estate courses you have taken _____

_____

Real Estate courses you are interested in taking _____

_____

Real Estate Activities in Your Area

Real Estate courses offered in your community _____

_____

Real Estate workshops held in your community (include all facts)

_____

_____

Real Estate research undertaken in your community _____

_____

To what degree do local independent organizations participate in real estate activities in your community? _____

_____

Sources of real estate data in your community (types and uses of such data) _____

_____

Recommendations

If you were in the location that Cal Poly is, with only two courses, (Principles and Law) and only this research started, what would you recommend that we do in the area of education, research, workshops, etc.?

(Use backs of pages or attach additional sheets if necessary.)

Thank you for your cooperation.

WORKSHOP QUESTIONNAIRE - SUMMARY OF DATA

Twenty-five teachers of real estate attended the Summer Workshop conducted here at California State Polytechnic College and completed the questionnaire provided them. The following data was accumulated.

Respondents Home Area

Southern California	16
Central California	3
Northern California	6

Years of Experience (includes teaching)

5 and under	6
6 to 10	5
11 to 15	6
16 and over	3
None	5

Real Estate Courses offered in Participants' community

All Basic Courses	21
All Advanced Courses	10
Principles	4
Practices	1
Appraising I	1
Appraising II	1
Finance	2
Law	1
Sales Course	1

Sources of Local Data

Various findings. About same as ones listed in the Check-list findings.

Type of License Held

Salesman	3
Broker	14
Business Opportunity	4
None	8

Real Estate Courses Taken

Degree in R.E.	1
All basic courses	10
Principles	4
Practices	2
Law	2
Appraising I	2
Appraising II	1

Type of Course Interested in Taking

Various Findings. They consisted of basic and advanced courses. Seven were not interested in any course.

Research in Respondents' Communities.

Various Findings. Mostly governmental in nature. A few of the Colleges' research activities were mentioned.

Recommendations

"...expand to 5 basic courses. Cal Poly should offer the advanced courses..."

"...form an advisory committee consisting of a representative from: Local Realty Board, lending insfitions, local title company, larger real estate developers, planning departments, and building and engineering departments..."

"...expand program... so that all courses be cffered...of Junior College and University Certificate program..."
"...continue the how-to-teach workshops and expand the subjects offered...."

"...I would recommend that you get moving and use the resources that are available...CREA, Education Department of Real Estate Division, Junior Colleges, Local Realtors..."

"...continue the workshop program...encourage more people to take real estate courses...offer more courses...start a certificate program..."

"...first, research area as to needs and desires in industry. Then set up general real estate program beginning with Principles...following...Pasadena City College program..."

"...specialized courses for those transferring from Junior Colleges plus -house in Group I for those who have not had the undergraduate courses..."

"...have problems workshop for teachers...covering...methodology and lesson planning...factual situations in teaching between student and teacher with the...how..."

"...arrange for basic courses...set up a Cal Poly certificate program..."

"...include Practices in day course and include all in evening school..."

"...expand the courses to a certificate program..."

"...give all certificate courses..."

"...classes in practices and property management..."

"...set up a certificate program..."

Appendix K

HISTORY OF EDUCATION AND RESEARCH IN AREA

1. Education

Course	Year Offered	By	Teacher
Real Estate Appraisal	1960	U.C. Ext.	Mr. Jim Paddock VP, First Nat'l
Principals and Fund. of R.E.	1961	Adult Ed	Mr. Bill Broadbent Realtor
Legal Aspects of R. E. Trans.	1962	Adult Ed	Mr. Herb Theiss VP, Title Ins
Legal Aspects of R.E.	1963	Div. of Hwys.	Mr. Richard Wood Attorney, SLO
Real Estate Principles	1963	Cal Poly	Mr. Paul Kenyon Instructor, Business
Real Estate Law	1963	Cal Poly	"
Workshops	Yearly	Cal Poly	Various

2. Research

A. Master Plan Studies

Baywood-Los Osos Area, 1961
Cayucos Area, 1962
San Luis Obispo City, 1962
Pismo Beach, 1962
Arroyo Grande Valley (Incomplete)
Cambria (Incomplete)

B. Economic Studies

Morro Bay Harbor, 1962
Recreation Needs, 1958
Industrial Survey (Incomplete)

C. Other Studies

Survey of Trailer Subdivisions, 1963
Population Growth, 1958

PROSPECTIVE TEACHERS

Real Estate Appraising	Paddock, J. C. Assistant Vice President Security First National San Luis Obispo
	Croxon, Fred Crocker Anglo National Bank Santa Barbara
Real Estate Finance	Croxon, Fred Crocker Anglo National Bank Santa Barbara
	Landers, Russ Central Savings & Loan Association San Luis Obispo
	Wolcott, Victor Cal Poly
Escrow	Croxon, Fred Crocker Anglo National Bank Santa Barbara
Estate Planning	Spenney, Bill Title Insurance Los Angeles
General Title Practices	Moller, Dick Title Insurance San Luis Obispo
Home Finance	Croxon, Fred Crocker Anglo National Bank Santa Barbara
Law (Condemnation)	Johnson, Harold Deputy District Attorney San Luis Obispo
Legal Aspects of Real Estate	Wood, Richard Title Insurance San Luis Obispo
Urban Planning	Rogaway, Ned County Planning Director San Luis Obispo

Appendix L

DATA SOURCES

The University of California at Los Angeles was very kind in permitting us to include in our list of data sources the "Graduate School of Business Administration Reading List for Ph. D., and M.B.A. candidates in Real Estate."

Appraising

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*Reprint No. 3 The Use of Jr. Mortgages in Real Estate Financing by Fred E. Case, 1955

*Reprint No. 4 The Relationship of Housing Prices and Building Costs in Los Angeles 1900-1953 by Robert Williams, 1955

*Reprint No. 5 The Structure of Local Mortgage Markets and Government Housing Finance Programs by James Gillies and Clayton Curtis, 1955

Reprint No. 6 Management Problems and Practices of the Real Estate Firms by Fred E. Case and Frank G. Mittelbach, 1959

*Reprint No. 7 The Role of the University in Real Estate Research by Leo Grebler, 1959

Reprint No. 8 The Role of Residential Capital Formation in Postwar Business Cycles by Leo Grebler, 1959

Reprint No. 9 Industry's Role in Metropolitan Growth: A Public Management Problem by James Gillies, 1960

Reprint No. 10 Criteria For Appraising Governmental Housing Programs by Leo Grebler, 1960

Reprint No. 11 Comparative Real Estate Investment Experience by Fred E. Case, 1960

Reprint No. 12 Population Explosion--Its Implications for Business by James Gillies, 1961

Reprint No. 13 Capital Costs of Cal-Vet Housing by Edward L. Rada, 1962

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Reprint No. 15 National Programs for Urban Renewal in Western Europe by Leo Grebler, 1963

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Reprint No. 17 Ecological Characteristics of Consumer Behavior by David L. Huff, 1963

Reprint No. 18 Probabilistic Analysis of Consumer Spatial Behavior by David L. Huff, 1963

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Reprint No. 20 A Probabilistic Analysis of Shopping Center Trade Areas by David L. Huff, 1963

Reprint No. 21 Trends in Ratio of Assessed to Market Value of Residences by Robert Williams, 1963

Reprint No. 22 Land Reform in Urban Renewal Programs--A Comparative Analysis by Leo Grebler, 1963

Reprint No. 23 Concerning the Quality of Mortgage Credit by Leo Grebler, 1963

Reprint No. 24 Reflections on the "New Scale", by Leo Grebler, 1963

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Research Report No. 2	Junior Mortgage Financing in Los Angeles County, 1958-59, by Leo Grebler and James Gillies, 1960
Research Report No. 3	Profile of the Los Angeles Metropolis: Its People and Its Homes--Part I METROPOLITAN CONTRASTS by Leo Grebler, 1963 Price: $1.50
Research Report No. 4	Profile of the Los Angeles Metropolis: Its People and Its Homes--Part 2 THE CHANGING HOUSING INVENTORY: 1950-59, by Frank G. Mittelbach, 1963 Price: $1.50
Research Report No. 5	Real Estate Market Behavior in Los Angeles--A Study of Multiple Listing Systems Data by Fred E. Case, 1963 (In Press)

BOOKS

Industrial Location Bibliography by the Staff of the Real Estate Research Program, 1959 Price: $1.50

The Housing Status of Minority Families Los Angeles 1956, by Fred E. Case and Kirk, 1958 Price: $1.50

*Cash Outlays and the Economic Costs of Home Ownership by Fred E. Case, 1957 Price: $1.50

Institutional Residential Mortgage Lending in Los Angeles County 1946-1951 by James Gillies and Clayton Curtis, 1956 Price: $3.75

*Ventura Boulevard: A String-Type Shopping Street by Howard J. Nelson and Gerard J. Foster, 1958 Price: $1.50

Los Angeles Real Estate: A Study of Investment Experience by Fred E. Case, 1960 Price: $3.50

The Secondary Mortgage Market, Its Purpose, Performance and Potential by Oliver Jomes and Leo Grebler, 1961 Price: $6.50

The Cal-Vet Program: A Study of State Financed Housing in California by Edward L. Rada, 1962 Price: $4.50

Management in the Light Construction Industry: A Study of Contractors in Southern California by James Gillies and Frank G. Mittelbach, 1962 Price: $2.50

Determination of Intra-Urban Retail Trade Areas by David L. Huff Assisted by John Haggerty, 1962 Price: $2.25

PAMPHLETS

Pamphlet No. 1 The Cal-Vet Program by Edward L. Rada, 1962

Pamphlet No. 2 The Remote Subdivision--Economic and Legal Aspects of Land Sales Promotion, by Claude E. Elias, Jr., and William D. Warren, 1963

Pamphlet No. 3 Profile of the Los Angeles Metropolis--Census Chart Book by Leland S. Burns and Frank G. Mittelbach, 1963

*Out of Print

ADDITIONAL DATA SOURCES

Books

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Cherney, Appraisal and Assessment Dictionary. Prentice Hall

Hedges, Farm Management Decisions. Prentice Hall

MacMichael, MacMichael's Appraising Manual. Prentice Hall

Murray, Farm Appraisal. Iowa State College Press

Encycolopedia Dictionary of Real Estate Practices. Prentice Hall

Pamphlets

Marshall Stevens Building Cost Data

Manuals and Cost Data Schedules, State Board of Equalization

The Appraiser, American Institute of Real Estate Appraisers

The Appraisal Journal, American Institute of Real Estate Appraisers

Right of Way, American Right of Way Association

Oil and Gas Journal, Tulsa, Oklahoma

DATA SOURCES

U.S. Government:	
U.S. Census	Census Report (only for Metro. areas)
U.S. Dept. of Commerce	Home Building Reports (permit issuing)
State:	
State Board of Equalization	Several
State Chamber of Commerce, Research Dept.	Income "Economic Survey Series"
State Dept. of Finance	Current Population Projected Population Count
State Dept. of Employment	Commissioners Labor Market Survey
State Economic Development Agency Room 301-D, State 217 W. First St. Los Angeles	"Standard Industrial Survey Pattern for County Industrial Development"
Local:	
City Administrator San Luis Obispo	Various
County Assessor San Luis Obispo	Various
County Engineer	"Base Maps" "Beginning Land Use Study"
San Luis Obispo Chamber of Commerce	Economic Development
Building Department San Luis Obispo	Volume of Real Estate Loans and others

Private Sources:

Bank of America	Area Development Surveys
Brewster Mapping Service 5110 Huntington Dr., South Los Angeles 32, California	"Family Income" "Age of Population" "Spanish White Population"

Appendix M

Los Angeles Times, Sunday, December 1, 1963. Real Estate Homes and Industry, Section J.

"Realtors Yearn for Knowledge" by Tom Cameron, Times Real Estate Editor.

Just about the most significant aspect of the recent National Assn. of Real Estate Boards convention in New York City was the emphasis on education with extensive preparation for serving the public in one of the most important activities and wealth-producers in society, namely management of real property.

Speaker after speaker, seminar after seminar, panel discussion after panel discussion, the 8,000 convention delegates thirsted after knowledge and methods of becoming better realtors, or becoming more proficient and efficient in their business/profession. (We use the vertical symbol to stress that realtors more and more consider themselves professionals rather than mere fee-seekers)

With significance and pride, I noted how frequently it was a Californian who led discussions in the NAREB convention. It wasn't suprising, though, because realtor education has been a big thing in California for years.

CHALLENGING PROBLEM

And since we're involved in the biggest human migration in history, coupled with the problems and opportunities of accommodation of those multitudes, the problem of producing an efficient and adequate force of advisers and agents is a tremendous challenge.

Both the California Real Estate Assn., whose education chairman is Burt Smith of Bellflower, and the Los Angeles Realty Board, with Max L. Green Jr., as education chief, have been busy at the task. They've had the encouragement of Milton Gordon, the new state real estate commissioner, who is fully aware that the era of the poorly-educated and careless real estate broker is over.

There can be a difference between the term realtor and real estate broker. There are about 75,000 of the former in the nation. They are members of real estate boards affiliated with the NAREB. Estimates say about 500,000 real estate brokers are licensed by the states.

So CREA and LAREB have their work cut out for them. Part of the job is education of the public to the difference between realtor and real estate broker.

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*VOCATIONAL AGRICULTURE; *BUILDING DESIGN; *EQUIPMENT; *EDUCATIONAL FACILITIES; *EDUCATIONAL SPECIFICATIONS; HAND TOOLS

Buildings and facilities for vocational agriculture require special design to accomodate the program. This bulletin was prepared by U.S. Office of Education specialists for use by teachers, supervisors, teacher educators, architects, and school authorities in planning new or remodeling old facilities. The bulletin was based upon suggestions of state staffs, commercial organizations, and other specialists from many other states. Included are sections on (1) Planning and Locating the Department, (2) Determining Building Types and Design, (3) Selecting Construction Materials, (4) Developing Department Building Plans, (5) Tools and Equipment, and (6) Planning Guide for Buildings and Facilities. The latter section provides specifications for building features and essential equipment. The bulletin is illustrated with drawings and photographs. (JM)

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BUILDINGS, EQUIPMENT, *and* FACILITIES

for

VOCATIONAL AGRICULTURE EDUCATION



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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

OFFICE OF EDUCATION

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Vocational Division Bulletin No. 284
Agricultural Series No. 76

BUILDINGS, EQUIPMENT, *and* FACILITIES

for

VOCATIONAL AGRICULTURE EDUCATION

by

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

ARTHUR S. FLEMMING, *Secretary*

OFFICE OF EDUCATION

LAWRENCE G. DERTHICK, *Commissioner*

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FOREWORD

THE PROGRAM of vocational agriculture in public secondary schools requires buildings and facilities adapted for such training. Farm mechanics instruction and certain other aspects of the agricultural training program are of such a nature as to warrant space specifically designed for this type of activity.

This bulletin has been prepared for use by school administrators, teachers of vocational agriculture, State supervisory and teacher training staffs for vocational education in agriculture, architects, and State school planning authorities.

It is primarily for use when planning new construction. However, it is recognized that some schools may remodel existing facilities for use by the vocational agriculture department. In such cases, many of the ideas presented will be of value.

The manuscript was prepared under the direction of Dr. W. T. Spanton, Director of the Agricultural Education Branch.

JAMES H. PEARSON
Assistant Commissioner for Vocational Education

ACKNOWLEDGMENTS

GRATEFUL ACKNOWLEDGMENT is made to the vocational agricultural staffs in the several States for supplying materials upon which this publication is based. The staffs in the following States provided both written and printed material: California, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Missouri, Montana, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Texas, Utah, and Washington. Similar material was made available by Portland Cement Association, Structural Clay Products Institute, the Southern Association of Agricultural Engineering and Vocational Agriculture, and others.

Particular appreciation is expressed to the following individuals and representatives of organizations, associations, and companies that reviewed all or part of the text, making many valuable suggestions: Dr. Frank Anthony, Pennsylvania State University; Prof. V. J. Morford, Iowa State University; Dr. D. H. Hartzog, Washington State University; R. J. Kubas, Structural Clay Products Institute; Eric Pawley, AIA; Dr. Shirley Cooper, American Association of School Administrators; Wm. T. Gorman, Thor Research Center; H. E. Heldreth, National Safety Council; Walter Kelsey, Lord & Burnham; Portland Cement Association; Pittsburgh Plate Glass Co.; and Dr. N. E. Viles, Dr. Ray L. Hamon, and Mr. J. L. Taylor, all of the School Housing Section, U.S. Office of Education.

From the many illustrations submitted, those in this publication were selected because of their appropriateness and general value. Special thanks for illustrations used are due V. J. Morford, Iowa State University; E. M. Webb, Washington State University; Frank Anthony, Pennsylvania State University; Portland Cement Association; Lord & Burnham; Structural Clay Products Institute; and the State staffs for vocational agriculture in Arizona, California, Colorado, Florida, Connecticut, Georgia, Idaho, Iowa, Illinois, Kansas, Louisiana, Maryland, Massachusetts, Mississippi, Missouri, Montana, Nebraska, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Virginia, and Washington.

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I. PLANNING AND LOCATING THE DEPARTMENT

THE AIM of vocational education in agriculture is to train both present and prospective farmers for proficiency in farming. Instruction in vocational agriculture is provided for high school students and for out-of-school youth and adults. The basis of instruction is the farming program of the individual enrollees. These farming programs involve planning, operation, appraisal, the use of approved practices, recordkeeping, and record analysis. Skills and abilities complementing those gained through farm experience are developed by means of instruction in the classroom, the laboratory, and the farm mechanics shop; therefore, the rooms and equipment for a program of vocational agriculture differ considerably from those nedeed in other phases of secondary education.

In planning buildings and facilities, the educational needs of the community, as well as the number of students to be served, must be taken into consideration. Most schools with vocational education departments have only one teacher of vocational agriculture and provide training for 15 to 50 students. However, there are many departments employing two or more teachers where there are enrollments of more than 50 high school students. Two-teacher departments generally have two classrooms but only one farm mechanics shop. Departments with three or more teachers may need more than one shop. In addition to the regular high school students, the facilities of a department of vocational agriculture should be available for any training classes needed by out-of-school farm people.

When you develop plans, it is well to seek the assistance of various individuals and groups that can provide helpful ideas and suggestions. State staffs for vocational education in agriculture have had experience in planning programs of instruction in vocational agriculture, and therefore are in position to provide essential information to schools that contemplate construction of new buildings or the remodeling of existing facilities. Most States have a school building director who is also in position to render valuable assistance on the planning and construction of school buildings.

Prior to the approval of building plans, it is essential to be fully acquainted with local and State building codes, regulations, and stand-

ards.[1] Information on these subjects may be obtained from such sources as State, county, or city planning commissions, State school building authorities, State vocational education staffs, school building architects, insurance companies, educational organizations, or suppliers of equipment and facilities.

In any case, when a community has decided to construct a new building, it should obtain the services of a competent architect. Many States provide architectural assistance for schools. In the initial planning stage and prior to the completion of preliminary drawings, the proposed uses for the building and facilities should be discussed in detail with the architect. When you meet with the architect in this and other early planning conferences, include members from the State staff for vocational agriculture, the local advisory council, the vocational agriculture teacher, and other key persons.

Plan and design the facilities so that they are functional and will assure the best possible conditions for achieving the objectives of the program.[2] This means that adequate space with desirable built-in features, efficient and safe arrangement, sufficient storage rooms, essential lighting, proper ventilation, approved heating and air conditioning, and necessary special features to meet training needs for the local type of farming must be included. It is always well to consider that too much standardization in any school building planning and design is unrealistic—that flexibility must be provided.

Since many schools are now located beyond city limits where sufficient land is more readily available, space may not be a problem, and the matter of choosing the location for the vocational agriculture department largely resolves itself into a question as to whether the facility should be a part of the main school structure or be located in a separate building. In either case it should be located where it is easily accessible for students and with free access to roads by which farm machinery and equipment can readily be taken to and from the farm mechanics shop, but many other considerations are involved.

When the agriculture classroom and farm mechanics shop are to be a part of the main school structure, the movement of students to and from classes is facilitated, but it may be more difficult to provide for future instructional needs involving the expansion of the unit. Also students in other classes may be disturbed by the noises in the farm mechanics shop.

When the agriculture classroom is in the main school structure, but the farm mechanics shop is located separately, the problem of

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[1] The National Council on Schoolhouse Construction publish and have for sale a "Guide for Planning School Plants." W. D. McClurkin, Peabody College, Nashville 6, Tenn., is the secretary.

[2] "Educational Objectives in Vocational Agriculture," Monograph No. 21, Revised 1955, U.S. Department of Health, Education, and Welfare, Office of Education.

disturbing noises is largely eliminated. However, the separation of the shop from the classroom does not permit full and effective use of the teacher's time and prevents a teacher from supervising work in both areas simultaneously. Separate locations create problems in connection with the use of department facilities such as the library, visual-aids rooms, laboratories, washrooms, and supplies. A separate location of either the entire department or the farm mechanics shop usually provides more adequate space for handling farm machinery, construction of equipment, and storage. Where the department has more than one teacher, the problem of instruction and close supervision is less acute in a unit having a separate building for the shop than when only one teacher is responsible for all of the training.

There are many advantages to having the total department located in a separate building on the main school grounds. Fire hazards may be lessened and insurance costs lowered. Farmers are more likely to make use of the department when it is in a separate building. For evening classes at other than regular school hours, it will be necessary to have only this separate facility heated and lighted. Locating the separate unit too far from the main structure causes undue loss of time in passing between classes, but experience does not substantiate some reports that a separate structure for the department creates in the minds of the students and the teacher a feeling of not being a part of the total school program.

Many factors will affect the construction cost for a department. Some of these include materials used, size and design of structure, climate, labor and land costs, location, and equipment and other essential facilities in and out of the main structure. The costs often are affected by a desire to follow the architectural style of the main school plant. Sometimes economic conditions or other factors may demand a departure from the general architecture of the school in order to obtain sufficient floorspace with the funds available. On the other hand, the architect's plans should be flexible enough to meet this and other unusual situations. The basic plan may allow for the structure to be built in stages as funds become available. If there is a possibility that the structure may have to be enlarged in the future, it should be located and designed to permit these changes at a minimum cost.

In some schools there may be a need for making available special building features and other facilities to meet the farm training needs of adult patrons as well as high school students. But such features as lath houses, feedlots, barns and corrals, feed processing and mixing plants, school farms, observation plots, and forestry plots should be provided only when they involve the farming programs of an appreciable number of the rural persons in the community.

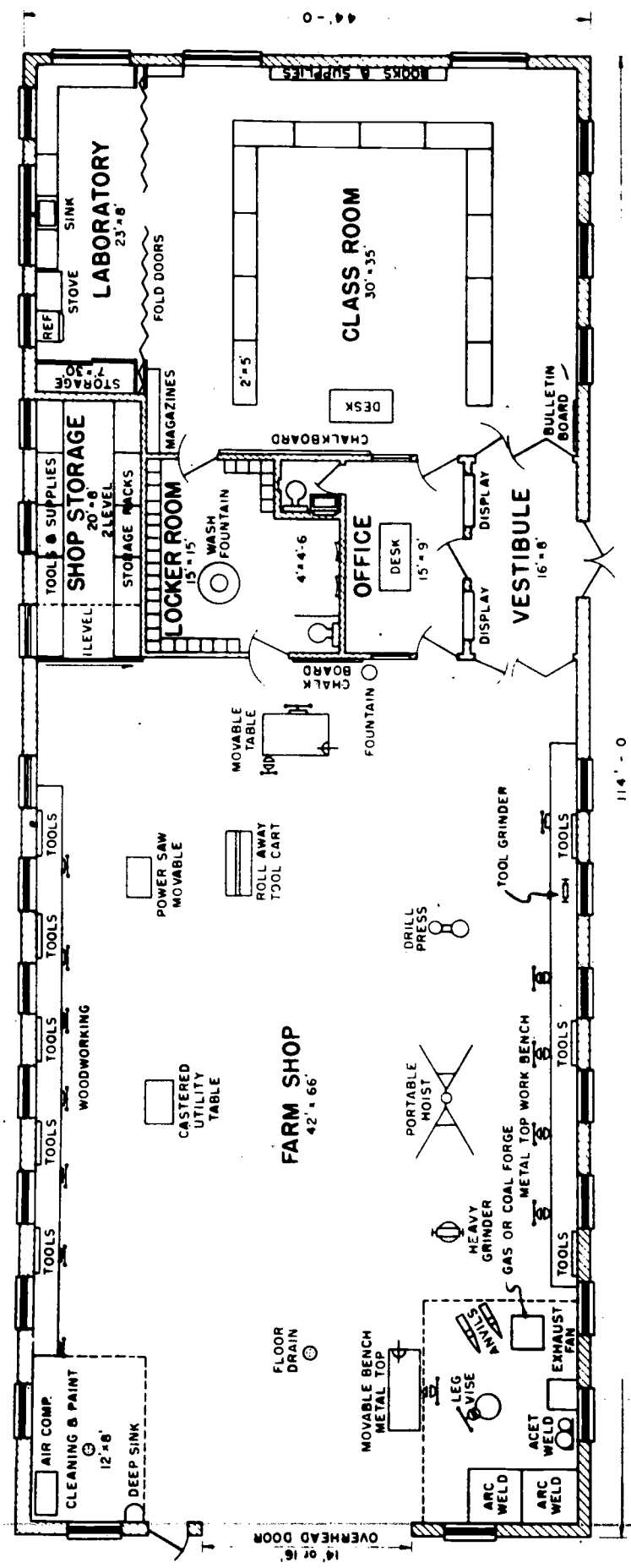


FIGURE 1.—*A floor plan of a building for a one-teacher department of vocational agriculture.*

II. DETERMINING BUILDING TYPE AND DESIGN

THERE are many different building types for vocational education in agriculture. The design of these structures usually reflects the expressed need of those well acquainted with the training programs to be offered. The forward-looking school administrators plan for buildings and facilities designed to fit the needs of the program, rather than planning a program to meet the facilities. Much can be said in favor of modular design and construction. Modular coordination as it applies to school buildings does not necessarily mean a structure standardized in dimensions but it does make possible economy through the use of standardized materials and installations. In March 1959, 14 percent of all school facilities under bid were on the basis of modular construction. But to date there has not been a complete adoption of such standards for all phases of construction by processors and suppliers, and the great variation which prevails in agriculture in different areas of the country necessitates that the building type and design selected meet local training needs.

The tentative floor plan for a department usually includes a classroom, laboratory, and farm mechanics shop. Detailed plans may include such features as a library, conference room, office, toilets for men and women, patio, farm machinery storage shed, and storage space for grain, seeds, fertilizer, and feeds. Separate, safe, and secure storage should be provided for volatile products and chemicals—such as fuels, solvents, lubricants, paint, and spray materials.

If you are considering remodeling, remember that in many cases where facilities have become obsolete or otherwise inadequate, it has proven more economical to design and build a completely new structure, rather than to attempt redesigning and enlarging the old. It is usually difficult, if not impossible, to redesign an old structure to adequately meet known training requirements.

Prior to making his plans, an architect will want full information as to the training needs so that the plans as prepared will meet training requirements. The school authorities have a responsibility for providing this information to those preparing the plans and designing the structure. Architectural specifications for construction that

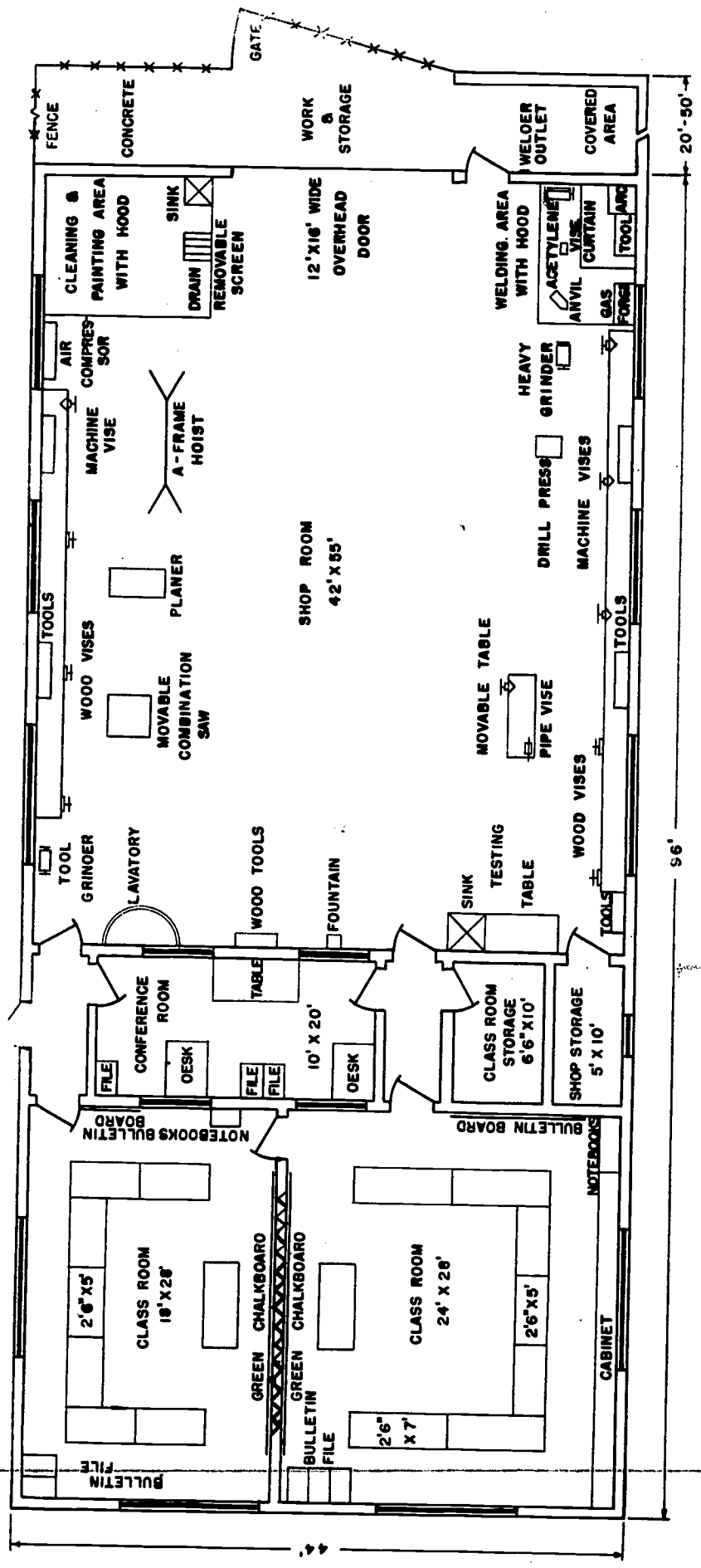


FIGURE 2.—*The floor plan for a two-teacher department with small classrooms and dividers that permit the combining of classrooms to handle large group meetings. Note 20 feet by 50 feet covered area in the 44-foot by 50-foot patio. Toilet facilities in adjacent rooms.*

include such clauses as "or equal" and "or similar" should be questioned seriously. It is well to remember that signed contracts are binding and any changes thereafter usually alter the costs.

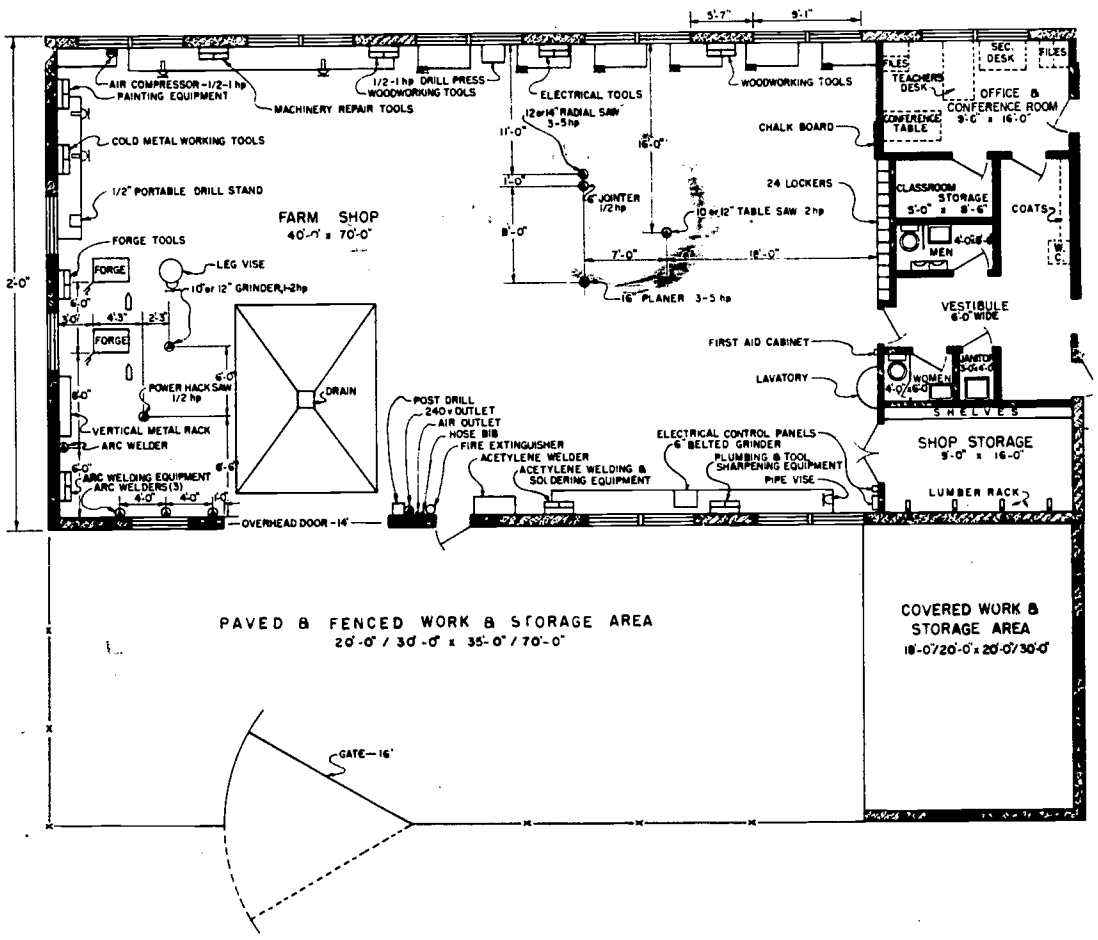


FIGURE 3.—*An enclosed paved patio with storage shed is included in this floor plan for a one-teacher department. Note slope to drain at shop entrance. Classroom to the right is omitted.*

III. SELECTING CONSTRUCTION MATERIALS

USUALLY, the construction materials in the vocational agriculture department should conform to those used in the main school building, especially if it is a part of that structure. If the department is housed in a separate building on the school grounds, it is not as important to use the same kind of materials, and particularly for inside finish. Where cost is a limiting factor, it may be necessary to accept materials and a design not in complete harmony or conformity with that of the main building.

Construction materials

Many different kinds of materials are used in school construction. The use of brick predominates as an outside facing material for school structures. It may be used for both the inside and outside courses, or as a veneer over cinder block, concrete block, structural clay tile, or frame construction. In all masonry construction, a cavity space for insulation and soundproofing is desirable between the courses or between the masonry and the inside finish.

An economy-type masonry building may be constructed with full walls of cinder or concrete blocks. Such units can be laid quickly. They are fire resistant, and can be treated with commercial products to make them water resistant also. Paint or stucco on the outside



FIGURE 4.—*This brick building provides complete facilities for a one-teacher department of vocational agriculture.*

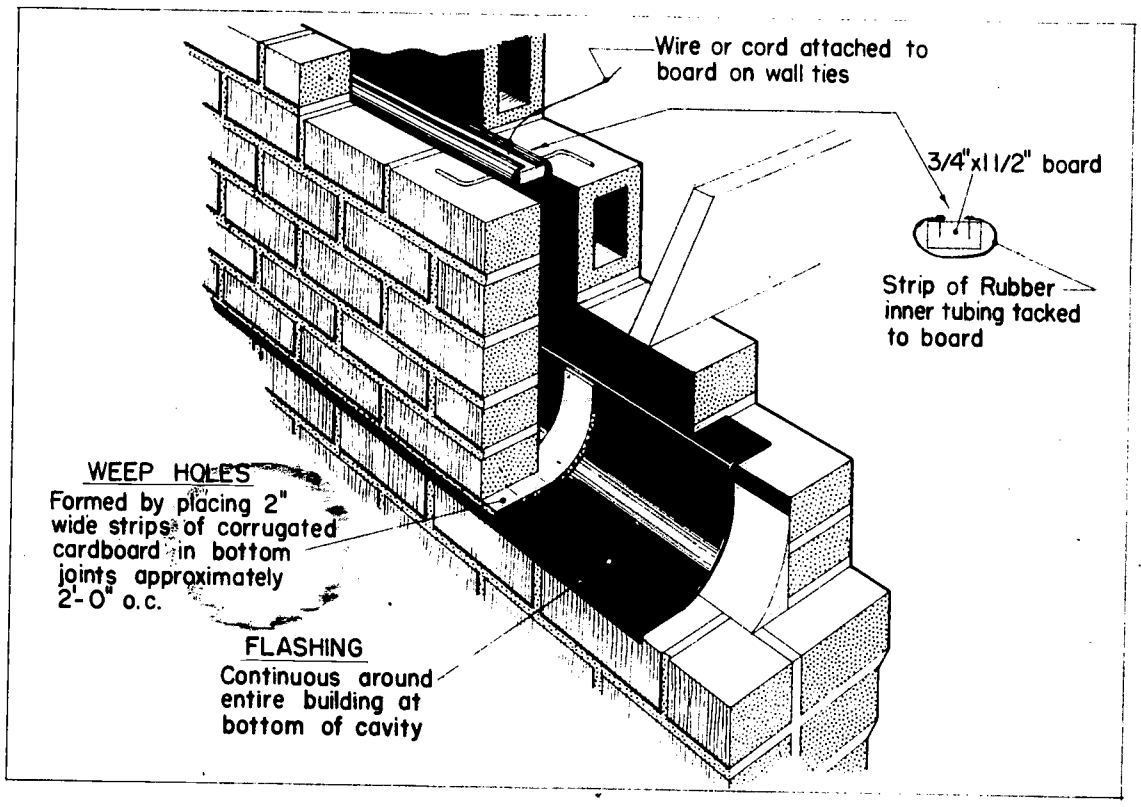


FIGURE 5.—*Showing cavity wall with corrosive resistant metal tie, and covered board that is elevated during construction to keep cavity clean. Note flashing and weep hole.*

surface frequently is applied to improve appearance, insulation, and water-resistant properties. It is not necessary to treat clay and clay-facing tile used in construction for water resistance or appearance.

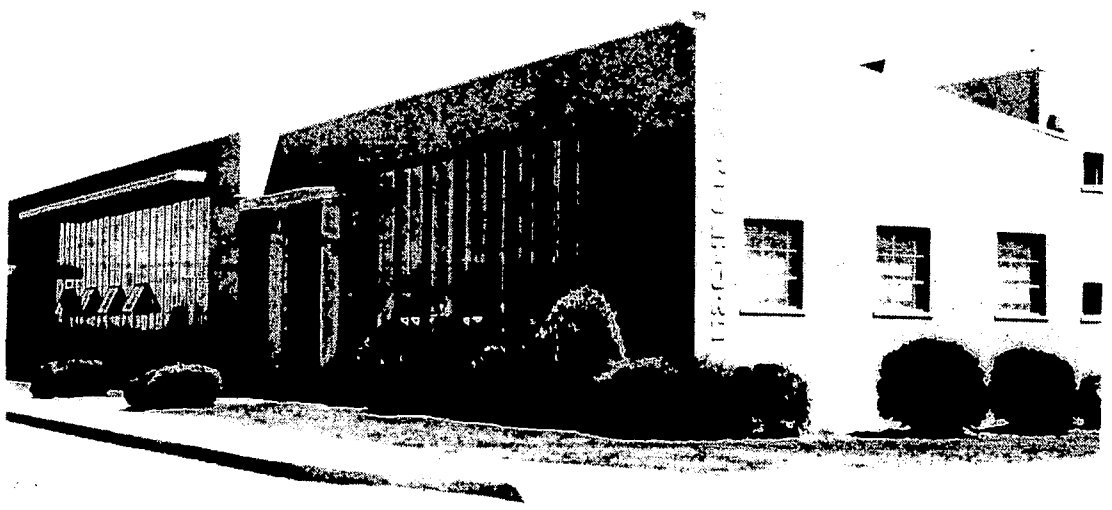


FIGURE 6.—*A two-teacher unit which has a stucco finish and which is attractively landscaped. Roadway at the right leads to the farm mechanics shop.*

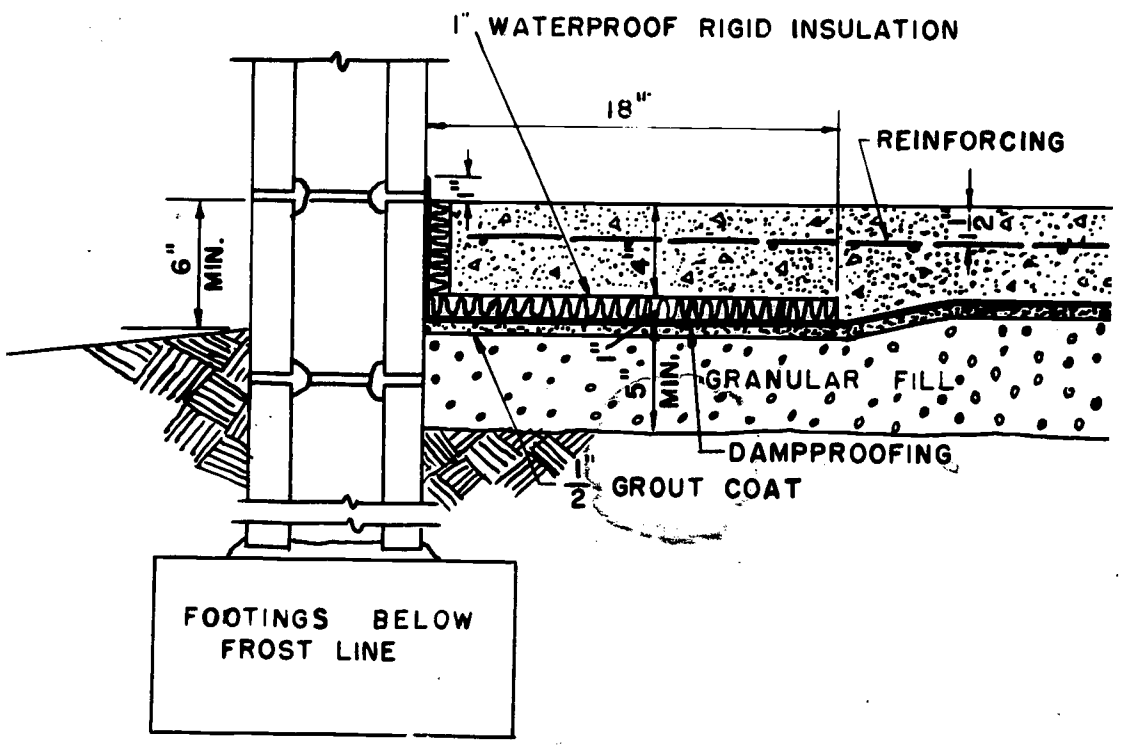


FIGURE 7.—*A cross-section view showing footings, floor, reinforcing, granular fill, insulation, and dampproofing. A drain tile under a granular fill may be placed along the outside of the footing.*

Where codes permit, the use of corrosive-resistant metal ties rather than headers, makes possible further construction economy and reduces danger of water penetration. The wall cavity should be kept clean and weep holes provided at wall base. The use of a marked guideline, and a corner pole to support this line eliminates the need for a leadman to build up corners, and a continuously adjustable scaffold with a materials platform increases the productivity of craftsmen, reduces fatigue, and lessens the cost of masonry construction.

Natural stone is sometimes used for veneering or for the entire wall. Stone construction usually is costly both as to material and labor. It most frequently is used when deemed necessary to conform to the architecture of the other school buildings. Like other masonry, stone is extremely durable. Thus, it contributes to fire resistance and may result in a more favorable insurance rate.

In communities where lumber is more economical than other materials, it often is used for the construction of the vocational agriculture department, particularly if that unit is separate from the main school building. A frame building usually can be enlarged easily, which can be a distinct advantage. Furthermore, labor to construct frame buildings normally can be obtained locally. However, frame construction may result in a higher insurance rate and the structure

is more subject to damage from wind, water, and fire than masonry. Also, maintenance costs are usually higher.

If frame construction is to be used, safety, rigidity, and essential strength may be added by the use of double joists under walls and anywhere else where there is an extra load. Firestops should be placed between studdings and bridging used between the joists. Wherever termites are a problem, metal shields should be installed and other necessary construction precautions taken to avoid damage from that source.

Sheet metal is an economical kind of construction under most conditions, partly due to the low labor costs for its erection. It is available in many styles, gages, sizes, and materials. Sheet metal is generally erected on metal framing, with turnbuckle adjustments to further assure rigidity. Through proper insulation the effects of heat and cold can be tempered.

Roofing

There are many kinds of roofing materials available, such as wood shingle, asphalt type (shingle and roll), asbestos cement, slate, tile, sheet metal, plastic, and a built-up roofing. The roofing may be a selected style and color to harmonize with the other school structures. No one of these roofing materials is best under all conditions. Natu-

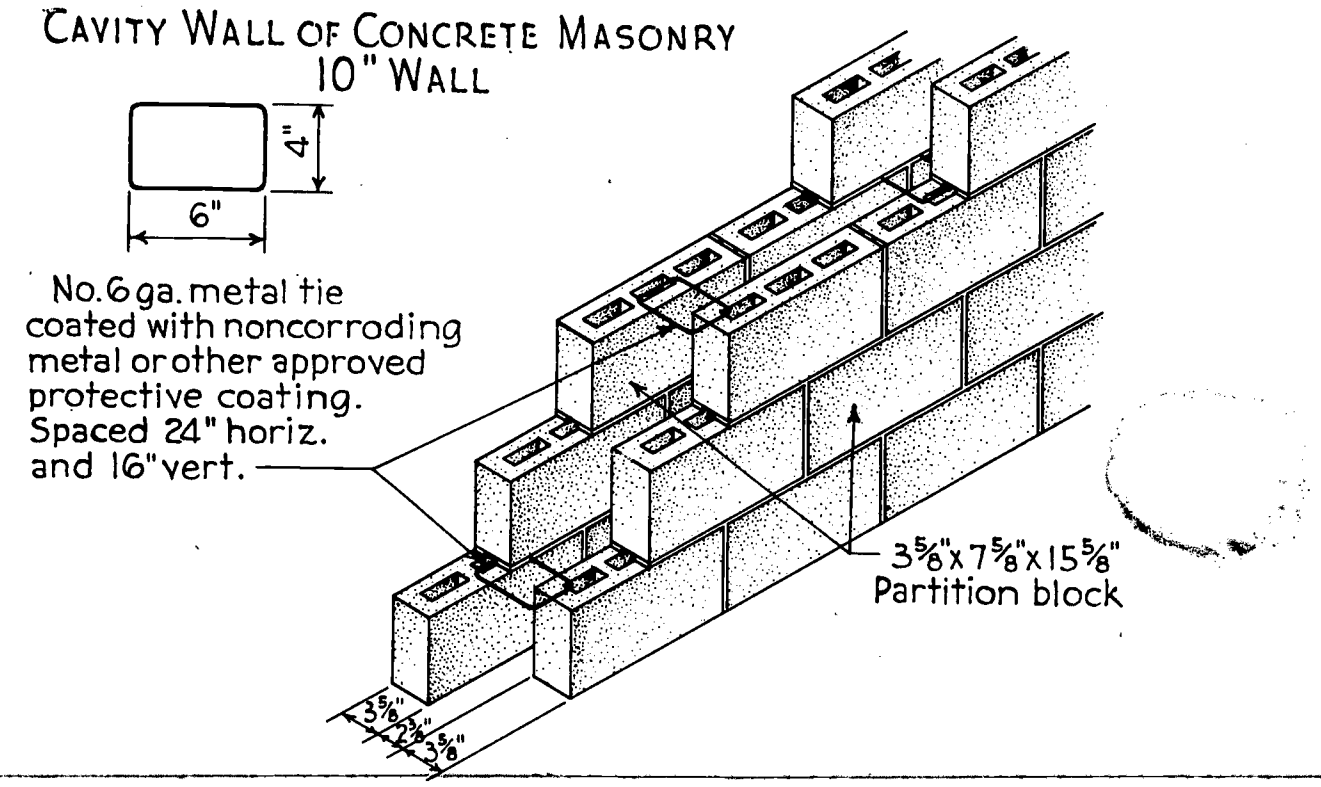


FIGURE 8.—*A double course wall of masonry with insulating airspace also increases sound resistance.*

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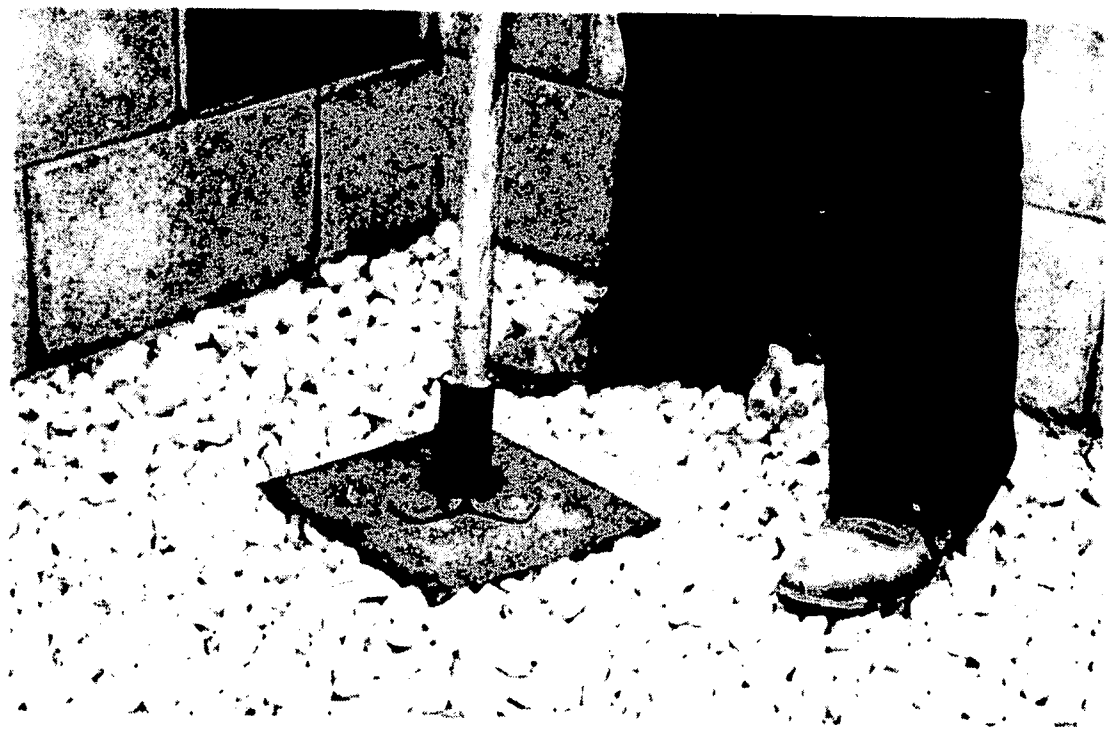


FIGURE 9A.—*Compacting the granular fill base to the cast-in-place concrete floor that is to be poured;*

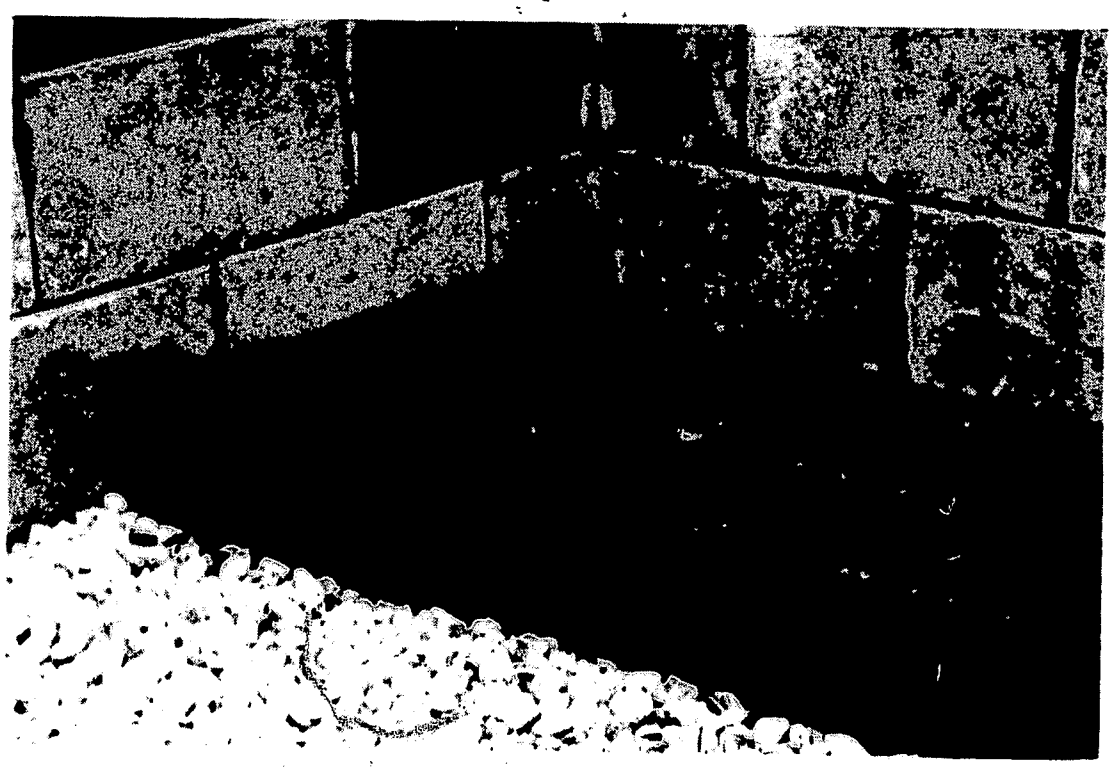


FIGURE 9B.—*Sealing with tar or asphalt compounds the waterproofing membrane placed on top of the granular fill;*

rally, there is considerable variance in cost between the different kinds. The trusses and the roof deck should be designed specifically for the snow and wind loads, as well as for the type, weight, or gage of roofing selected.



FIGURE 9C.—*Coating the membrane to add dampproofing qualities prior to placing the concrete slab; and*

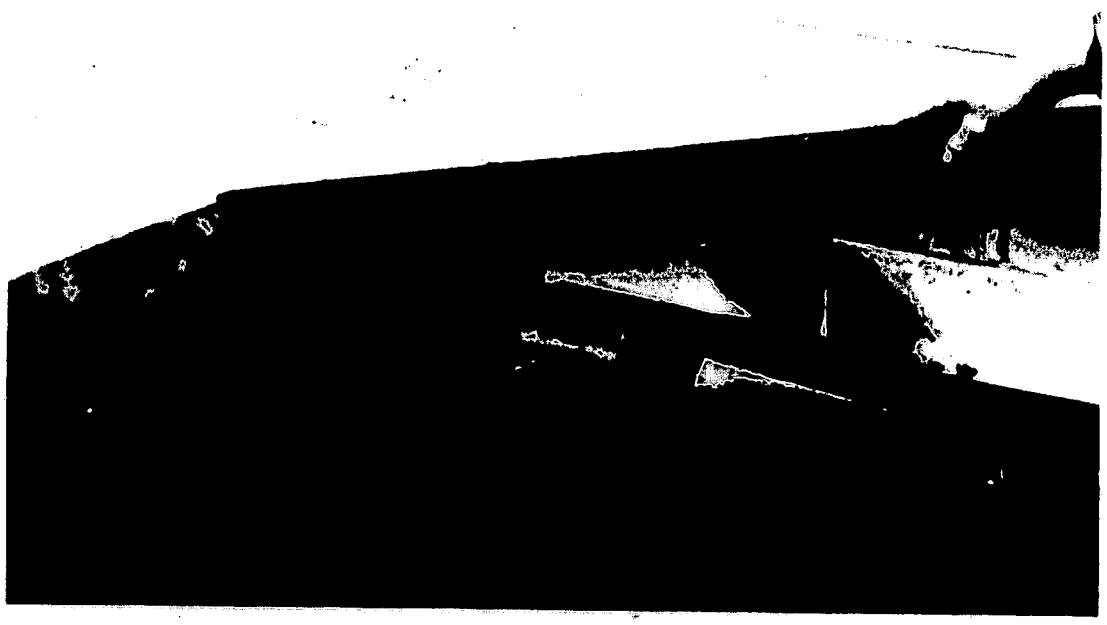


FIGURE 9D.—*Placing a nonbonding rigid insulation between floor slab and wall.*

Foundations and footings

The stability of a building is dependent mostly upon the foundation and footings upon which it rests. The footing as a part of the total under structure transmits the weight of a building to the soil. The wall

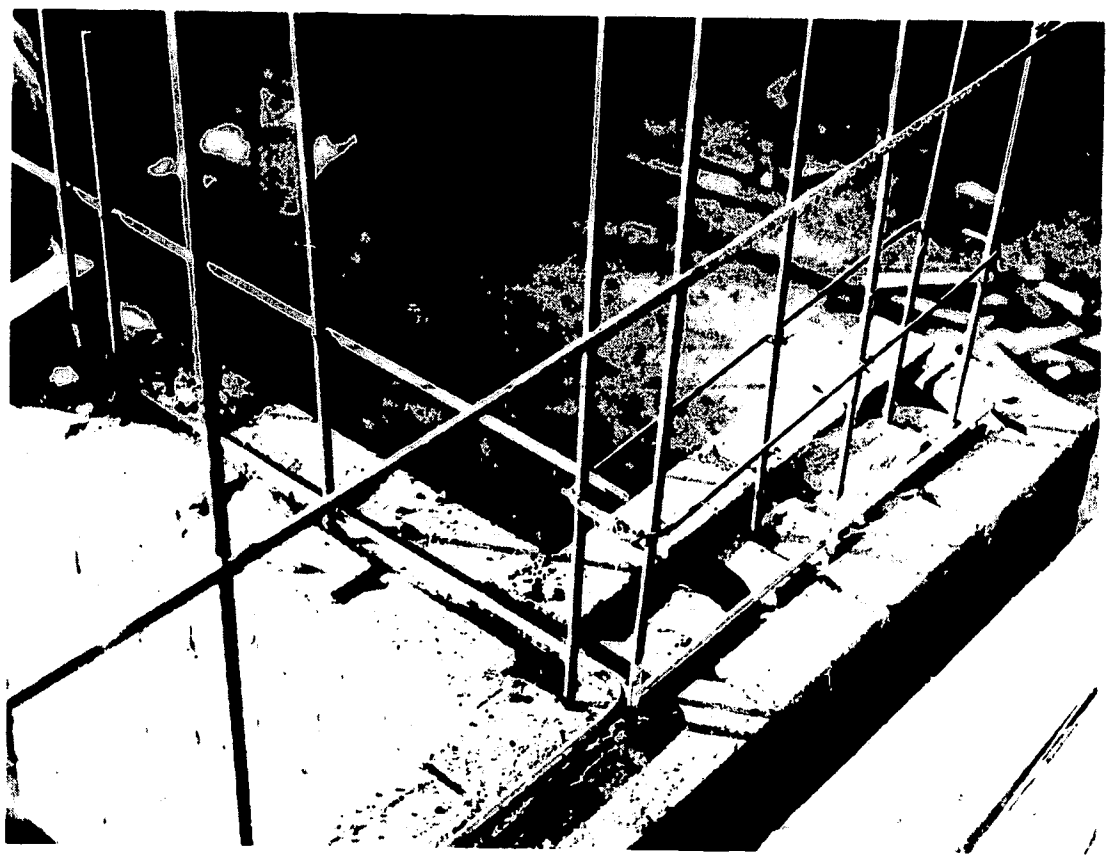


FIGURE 10.—*A wall reinforced to resist unusual forces. Reinforcement should be tied to footings and roof slab.*

part of the foundation rests upon the footing, and it is that part which furnishes the direct support for the entire building. Most of the footing and some foundations are built or cast in place of concrete but other masonry products may be used, particularly for the wall. The thickness and width of the footing and the depth of installation is dependent upon the structural weight, temperature, moisture, and soil. To assure uniform distribution of aggregate and removal of air pockets in poured concrete, a vibrator is sometimes used.

When the footings and walls are both of concrete and are poured separately, it is well to put vertical rods in the footings to tie them to the walls. Reinforcement in the concrete should be used as recommended by the architect. The breaking of capillary action by an underlay of gravel or cinders also serves somewhat as an insulation to coldproof the floor. A specially prepared paper with sealed overlaps or a polyethylene product can be placed under the slab to serve as a vapor barrier. Further methods for preventing problems arising from moisture are the installation of a footing drain tile system and a suitable guttering with downspouts leading to adequate drainage. The outside of masonry walls should be dampproofed below ground level.

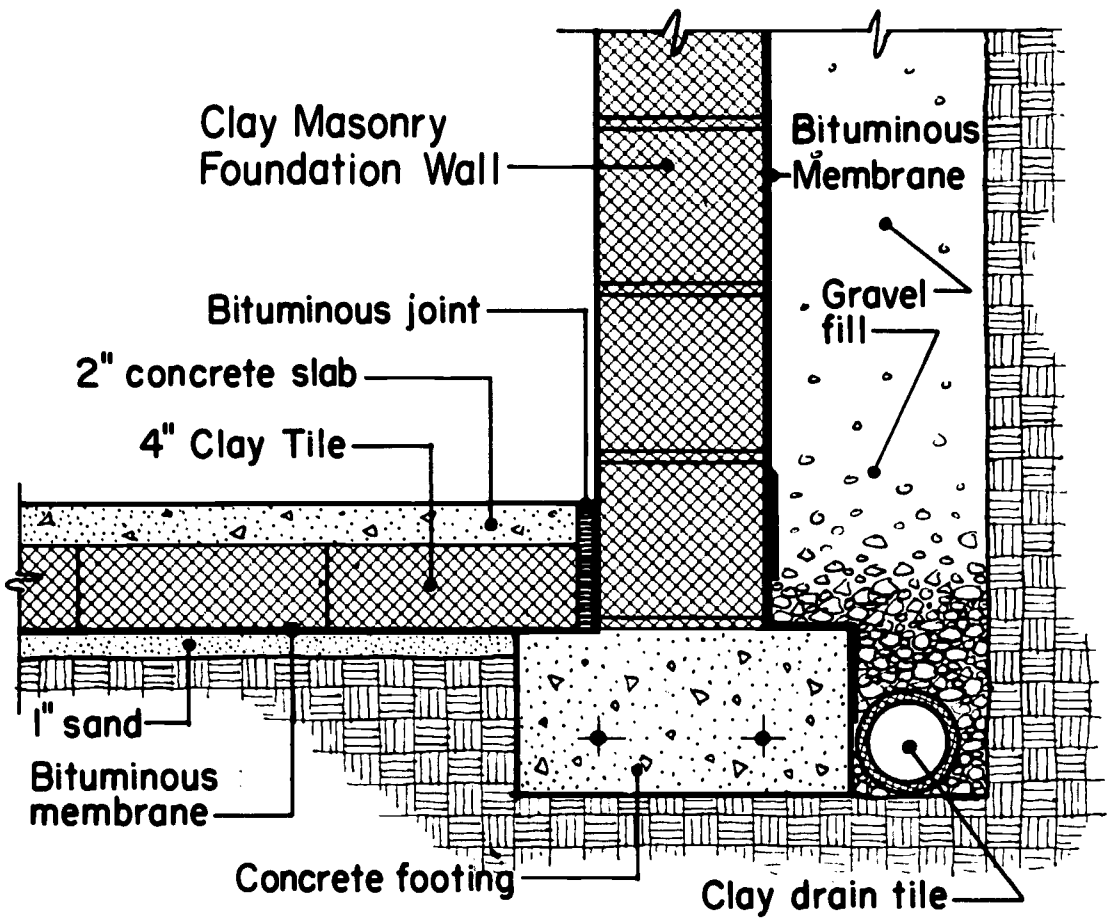


FIGURE 11.—*On-grade slab of concrete topping over structural clay floor tile aids in providing insulation, coldproofing, and comfort. Note footing, drain tile, gravel fill, expansion joint, and moistureproofing.*

IV. DEVELOPING DEPARTMENT BUILDING PLANS

EXPERIENCED TEACHERS of vocational agriculture recognize a definite need for good facilities in order to provide satisfactory instruction.

Service installations

In addition to consideration of space requirements, sound planning will provide for location and installation of all needed equipment for heating, electrical service, plumbing, air conditioning, and ventilating. Such service installations usually are more economical when done at the time of initial construction.

Safety

Those factors that pertain to the safety of persons and property are worthy of prime consideration in the design of shops and laboratories. However, even though dangers may not be so prevalent, safety also must receive attention in the design and equipment of classrooms and all other areas that will be used by students and teachers.

Classrooms and Related Areas

The ideal classroom provides 35 to 45 square feet of floorspace per student. Slightly less space may be satisfactory for large classes. If the conference method of instruction is to be used, with the tables placed in a U-shape, the maximum space indicated per student is desired. Where the department has two classrooms, it is well to have one room slightly larger than the other. Such a difference in size enables the school to better meet the space requirements of large and small classes. Also if there are two classrooms, it is desirable to design the structure so both rooms can be made into one unit for special meetings for large groups. An accordion-type or other movable partition will permit this combination use. The partitions must be as nearly soundproof as is practical. The classroom ceiling should be accoustically treated and the sidewalls and rear wall may be treated similarly, but the front wall is to remain reflective. All inside pro-

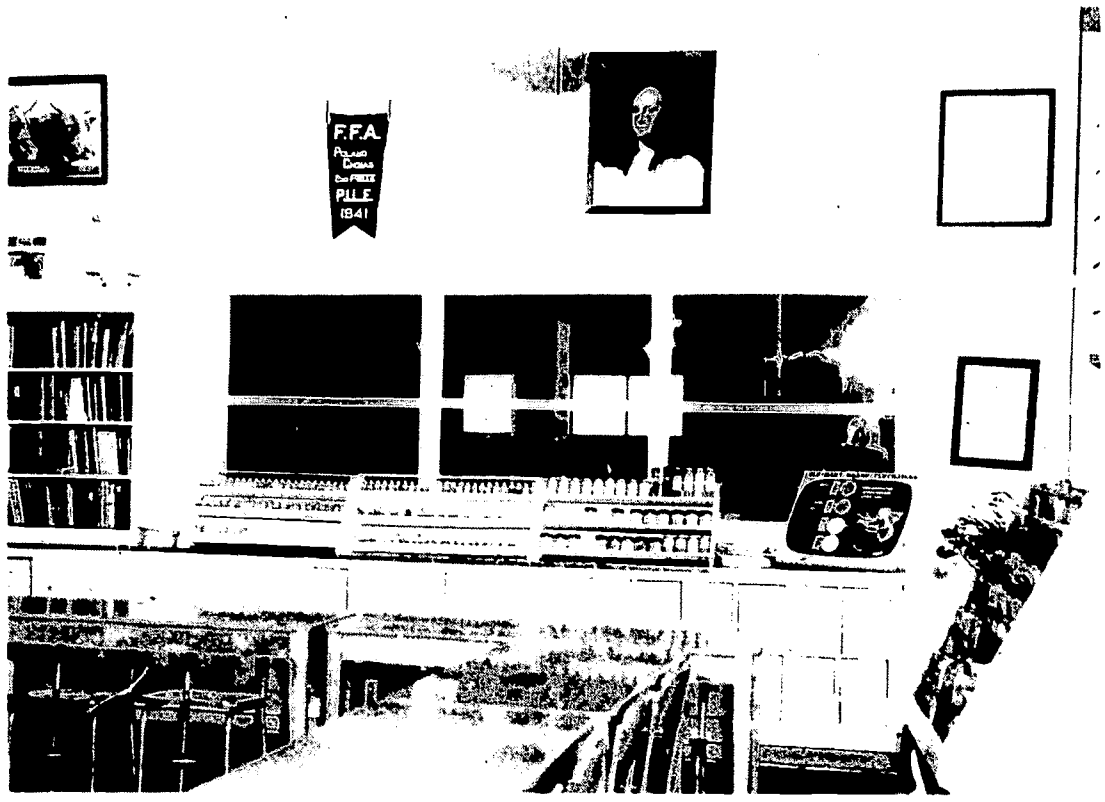


FIGURE 12.—*A classroom that provides windows for a view of the shop as an aid to supervision.*

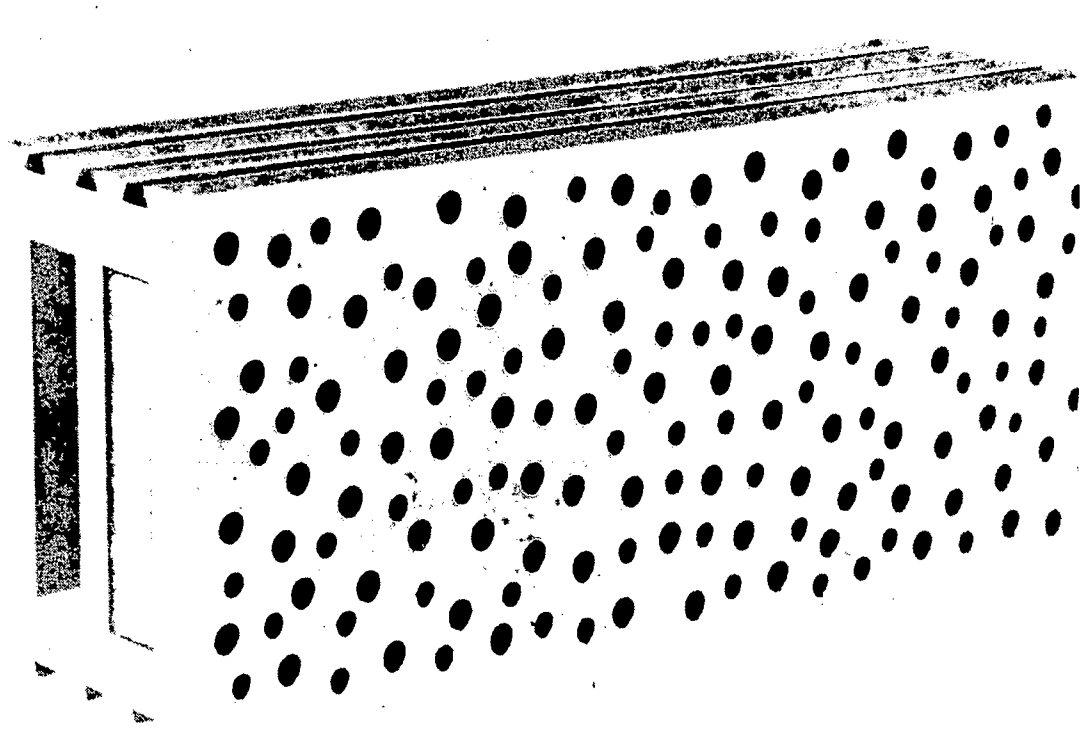


FIGURE 13.—*An acoustical tile with one shell filled with Fiberglas. Such construction absorbs sound, resists fire and abrasion and transmits very little heat and sound.*

jecting pilasters, pillars, and posts adversely affect the functional use of the classroom.

Storage space for instructional materials

A storeroom should be readily accessible to the classroom to facilitate transfer of teaching materials from that room to the classroom or demonstration desk. For efficient use this room must be well lighted. Well-placed convenience outlets also are needed. Caution must be taken to prevent the possibility of a fire hazard developing in a storeroom.

Some vocational agriculture supplies are particularly susceptible to damage by rodents, insects, and moisture. The storage room must be constructed to provide adequate protection from these sources of damage.

Typical instructional materials for which cabinet storage should be provided, include the following: Animal husbandry equipment, beekeeping equipment, crop collections, dairy equipment, disease collections of plants and animals, drawing boards, feed samples, general supplies, head and sheaf grains, horticultural equipment, insect collections, insecticides, poultry equipment, seed germinator, scales, soil samples, spray material, surveying equipment, and weed samples. Drawers that are metal lined and close fitting are needed for some perishable materials as well as the grain and crop samples, which may require treatment with gaseous insecticides. The stored supplies need to be grouped and arranged according to their use for instruction. It is well to tag the drawers, supplies, and other material for identification purposes. A master index posted in a convenient place in the storeroom will expedite the location of stored items.

Agricultural library

Nearly all high schools have general libraries, but a library to meet the specific needs of vocational agriculture should be located in that department. Preferably, this library may be located in a separate room, teacher's office, or conference room where both the high school, and post-high school students may study and work without disturbing a class in session. The teacher should maintain a current card record of all books and bulletins, identifying them by a code such as the Dewey Decimal System or some other approved method of filing reference material.

Teacher's office and conference room

The office should permit the teacher to have clear vision through glass panels, of the classroom, shop, and entrance. Two or more

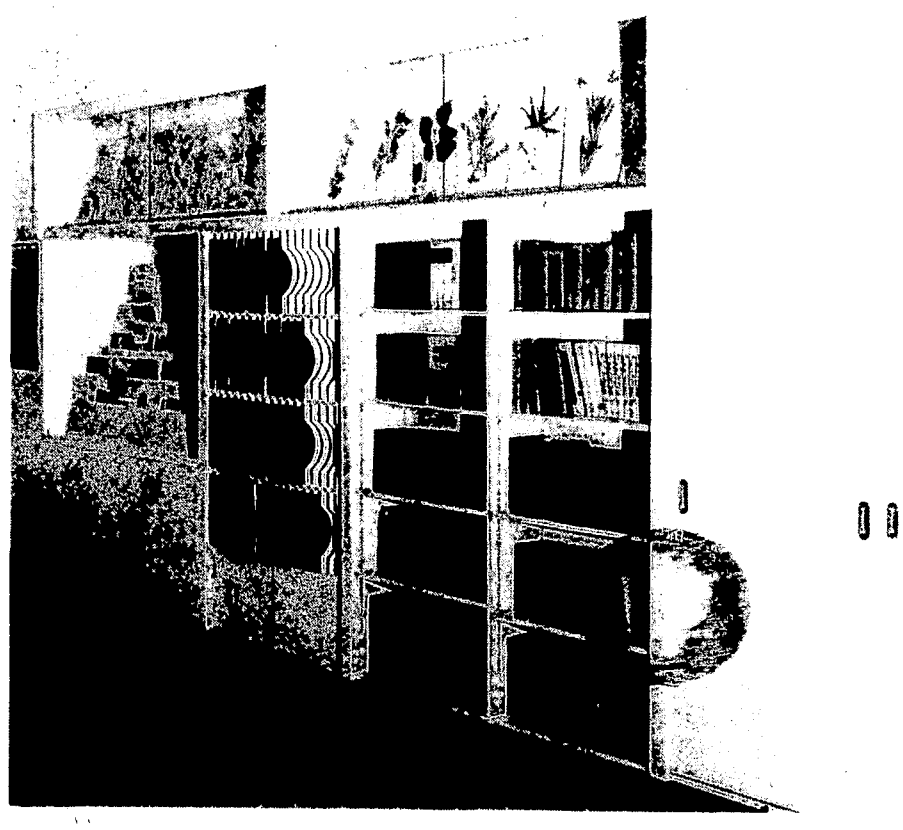


FIGURE 14.—*Storage space is often provided in the classroom for charts, magazines, students' note and record books, and reference materials. Note toe space beneath storage cabinets.*

teachers may share one office, but it must be of sufficient size to adequately take care of their requirements. The furniture in the office may include a desk, chair, and a four-drawer metal file, for each teacher, and a secretary's desk and chair. A table and chairs should be provided if the office is to serve also as a conference room. If the room is sufficiently large, the FFA files may be kept there. When the office also serves as the library, the necessary shelving and cabinets should be included. The teacher's office needs to have an outside phone and be connected with the school communication system.

Buffer space

A combination office and conference room, and storage rooms, often are located between the shop and classroom to cushion disturbing sounds that may come from the shop. Another part of the buffer space to reduce sound transmission between the classroom and the shop may be used for a washroom, toilet facilities, and lockers. To eliminate the use of paper towels and reduce litter, many schools now use hot-air driers instead of paper towels. Some prefer having the wash basins, hot-air driers, and individual lockers in the shop, rather than in a washroom, as a further aid in supervision. One or two

waterclosets, a urinal for each 30 students, and at least 4 hot-air driers should be provided. A shower may also be desirable.

Entrances

Doors from the shop to the classroom and office usually are at least 3 feet wide. However, there are some who consider it desirable to provide a door or doors into the classroom with a minimum width of 7 feet to permit the entrance of large items that will be used for instructional purposes. Some items of this sort are so heavy that floors must be on the same level and supported sufficiently to withstand the added load.

Floor coverings

Concrete floors and tile slab floors for the classroom and office are more satisfactory if they are covered with a material such as one of the many kinds of floor tile, or battleship-type linoleum. Such

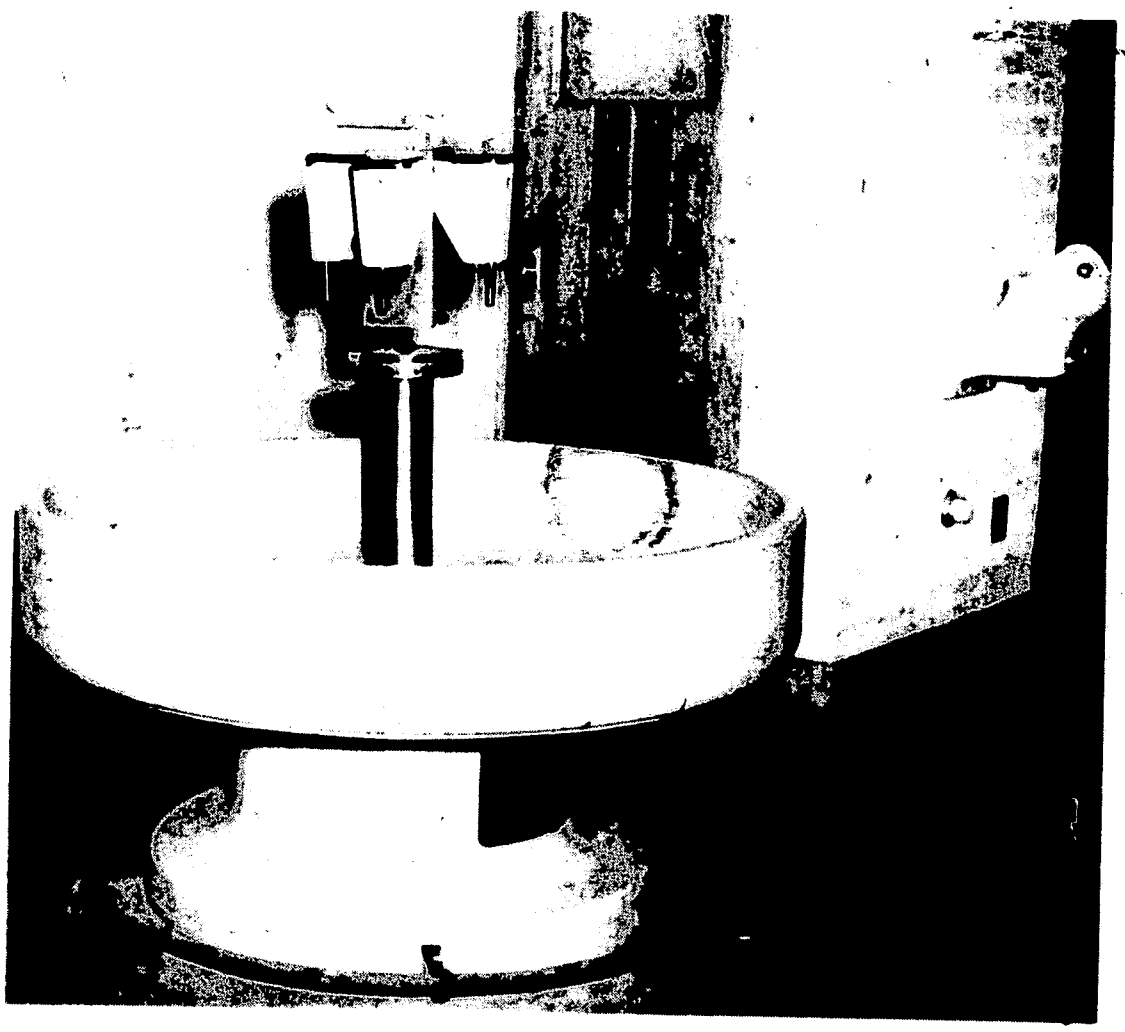


FIGURE 15.—*Locating the lavatory and water fountain in the end of the shop adjacent to the classroom makes supervision more effective.*

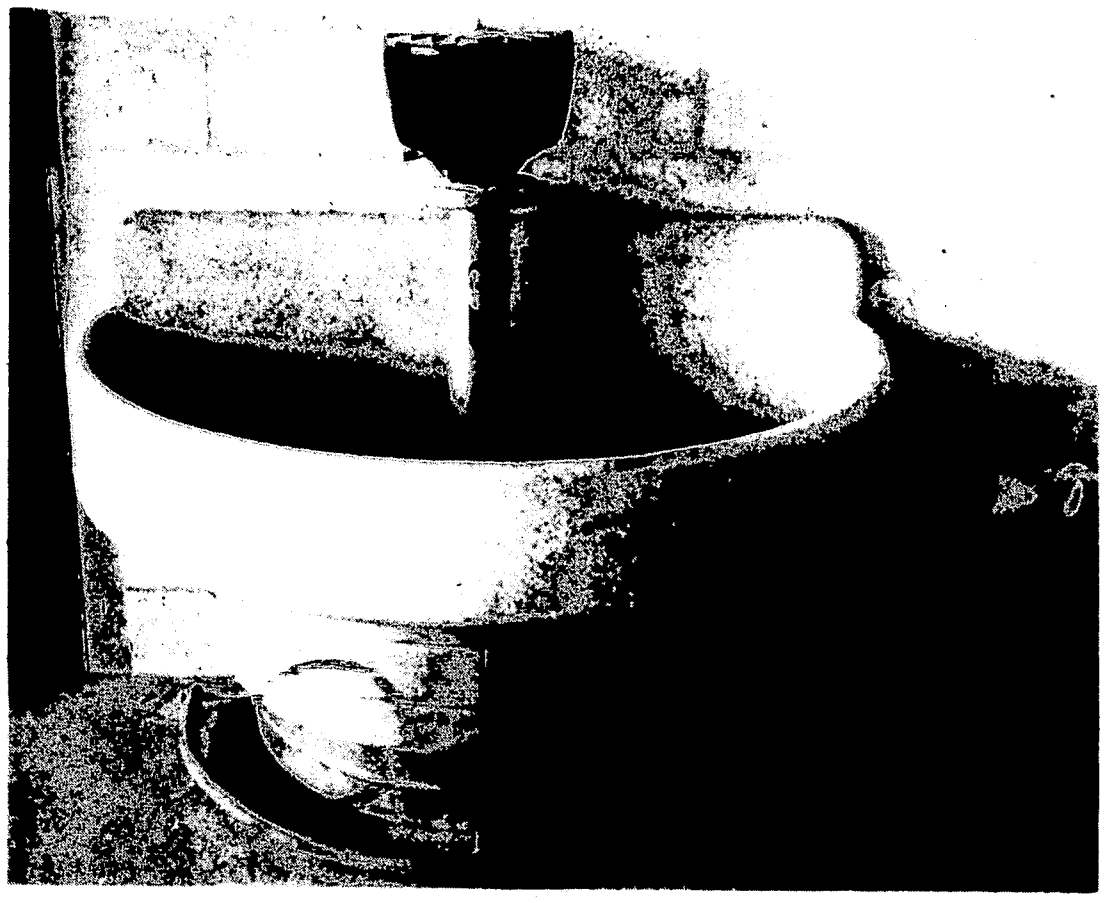


FIGURE 16.—*Some prefer the half-round-type lavatory. Rectangular-shaped lavatories also are available.*

materials are easy to clean, sanitary, comfortable to walk or stand upon, have some acoustical value, and may be obtained in colors helpful to lighting, with patterns that harmonize with walls and ceilings.

Colors of walls

The colors used in schoolrooms affect visual environment and deserve important consideration. Many consider the proper use of colors to be comforting, soothing, and healing—morale builders which result in increased student achievement. Auditory, esthetic, structural, and thermal factors are also involved.

Classroom walls will usually be of the same material throughout the school. Colors may vary according to the room location, the desire of the teacher, and whether lighting is natural or artificial. It is well to select and use a combination of colors that will provide a responsive atmosphere for study and work. Some of the functions of color are to direct the attention of students to the front of the room, intensify light where needed, and be pleasing to the eye. It is suggested that the wall back of the teacher (focal wall) be of the same color as the other walls, but of a slightly darker shade which



FIGURE 17.—*Double doors between the classroom and shop provide needed entrance space to bring large items into classroom for instructional demonstrations.*

is more restful to the eyes. The upper walls generally should be of a slightly lighter shade than the lower walls. Any wood or metal trim may be of the same color as that on the lower wall. White is best suited for the ceiling.

Conservative colors, such as medium blue, soft green, or a light gray are desirable for the office. Lighter shades of the colors used in the classroom and office are recommended for the storeroom. Lighter colors for the inside of storage cabinets in the office and classroom make it easier to find stored items. For extensive areas throughout the classroom, office, storeroom, and library, flat paint finishes are desirable. A glossy finish may be too reflective and bright for eye comfort. The architect is a specialist, or has the services of a specialist to advise on materials, colors, and light, but local school officials ought to be well enough informed on such items to be sure that their needs are met adequâtely.

Lighting

The chief school administrator, school staff, and the architect should insist upon good lighting. Technical personnel who may be involved include the electrical, illuminating, structural, heating, acoustical, air-conditioning, and ventilating engineers, and color consultants, the landscape architect, and the State school building director.

There is a wealth of recent information on the science of lighting school buildings. School officials and parents are aware that proper lighting contributes to learning. Scientific lighting may be used to create a cheerful atmosphere, conserve physical energy, reduce unnecessary physical tensions, contribute to safety, help those with subnormal vision, and promote work productivity. The measuring of natural or artificial light or a combination of these in terms of footcandles, or the amount of window glass surface in relation to the floor area are methods that have been used to determine the quality, quantity and adequacy of classroom lighting. However, these methods alone are no longer considered to be adequate.

A Color Chart System Showing the Recommendations of 2 Paint Manufacturers

Area	Manufacturer A	Manufacturer B
Ceiling	White tinted with Seafoam Green.	Flat White.
Walls and window casings	Seafoam Green (use same color down to floor. Do not use a dado).	Daylight Green with a dado of light green from the bottom of the window to the floor.
Doors, door casings, tool cabinets (inside and outside).	Vista Green	Light Green.
Bodies and noncritical parts of machines, bodies of machinists vises, bench brackets.	Vista Green	Horizon Gray.
Edges of tables of power tools, outside of movable guards on machines, top of ripping fence on saw, edges and tops of workbenches, jaws of machinists vises.	Focal Beige	Spotlight Buff.
Paintable portion of handles of machines, handles of vises.	Focal Yellow	Spotlight Buff.
Silhouettes of tools	Focal Beige	Spotlight Buff.
Floor	Dixie Gray	Light Stone.
Inside of saw guard, underside of rim of eye shield on grinder, inside of doors on switch and fuse boxes, inside of shields over moving parts.	Focal Orange	Alert Orange.
Outside of switch and fuse boxes, switch and receptacle plates.	Focal Blue	Precaution Blue.
Wall panel for hanging fire extinguishers and firefighting equipment.	Focal Red	Fire Protection Red.
First-aid cabinet	Focal Green with white cross on door.	White with Safety Green cross on door.
Stumbling, falling, striking—against hazards.	Alternate 2-inch stripes of black and zone marking yellow.	Alternate 2-inch stripes of black and High Visibility Yellow.

The usual visual environment is an integrated composite of daylight, electric light, color, surface brightness, space relations, and room design. Light-colored walls, ceilings, floors, and equipment aid good lighting. Today, the classroom lighting specialist deals with visual problems on the basis of direct brightness of light sources, plus

the reflected brightness of all surfaces inside and outside of the classroom. Brightness, expressed in terms of foot-lamberts, is the major factor to be considered. It can be measured directly by use of a brightness meter.[1] In general, the brightness goals assume a lighting system that provides from 35 to 40 foot-candles on the poorest lighted task, and as foot-candle levels are increased beyond 40, the sources of high brightness need to be controlled to more nearly approach the proper light for the task. Brightness difference between adjacent surfaces should be reduced to a minimum. Light distribution should eliminate direct and reflected glare.

Daylight is the primary source of light for most student work areas. Fortunately, a well-designed daylighting system can provide adequate illumination except under the severest conditions of darkened skies. Electric lighting systems, incandescent, fluorescent, or a variation of these, are very versatile in providing the degree of intensity, distribution, and brightness control for best visual requirements. The lighting system, including both natural and artificial sources, needs to incorporate adequate controls for high brightness, yet make as much use as possible of daylight.

Light switches need to be conveniently located and some three-way or four-way switches may be essential. Mercury switches which operate quietly are becoming more common.

Windows and ventilation

To prevent diverting the attention of students from assigned work, the base of the windows should be located sufficiently high to prevent outside activities from being visible to the students seated in the classroom. Neutral-colored low-transmission glass at the lower levels may affect the same purpose. There are varying opinions on this matter because some believe it undesirable and even harmful to student morale to block out or prevent views to the outside. Landscaping can be helpful in controlling distractions and disturbing noises, beside increasing student pride and interest in maintaining an attractive department and campus. It is important to have windows extend close to the ceiling. Light falling upon tables for students should come from above the level of the eyes and preferably from the left.

Since vocational agriculture classrooms are frequently used for projection purposes, they should be provided with blackout shades or curtains. Controlled ventilation is desirable when the room is darkened and windows are closed. If it is necessary to open windows

[1] Several goals for brightness are presented in a bulletin. "Common Sense in School Lighting," for sale by The American Association of School Administrators, 1201 16th St., Washington 6, D.C.

for ventilation, this can be accomplished by outside projection or by having the windows recessed behind the blackout shades.

Windows should open and close in a manner to provide needed draft-free ventilation, and be sufficiently tight to avoid air leakage, drafts, and entrance of moisture from storms when they are closed. If air conditioning is provided, the windows must prevent the excessive entrance of outside air or the loss of cooled air.

Draft-free ventilation must be provided for the maximum number of persons expected to occupy the room. Ventilation and heating engineers can be consulted on this problem, which also includes air conditioning and heating. Exhaust systems are needed to provide for the quick removal of fumes, gases, and objectionable odors arising from within or without the classroom. Heating, ventilation, exhaust, and air-conditioning units must operate quietly to avoid disturbance and interference with instruction.

Heating

Adequate facilities that will satisfactorily heat all inside instructional areas whenever needed and for the coldest day are essential. Automatic controls for temperature, humidity, and air circulation are desirable, but probably should provide for manual adjustments or cutoffs. Control of drafts, air circulation within the room, reduction of heat loss through openings, amount of exposed glass, zone control, and proper insulation are factors in heating adequacy and in costs. Insulated cavity walls provide more thermo protection than an uninsulated wall and lessens the demand on heating and cooling equipment. Consideration should be given to a system that will provide uniform heat and which uses fuel that is easily obtained and also economical. There should be local facilities for servicing the system, and it is well to install a type that permits normal operation and maintenance by the custodial staff.

A considerable portion of the agricultural program is conducted at other than regular school hours. This situation often merits the consideration of having a separate heating system for the department on the basis of economy, especially when the department is located in a separate building. Heating for the shop will be similar to that for the classroom but in the larger space, fans may be required for uniform distribution of the heat.

Electrical outlets

A sufficient number of properly located electrical convenience outlets are needed to provide adequately for lighting and other electrical service. The classroom outlets in most cases will be 115 volts,

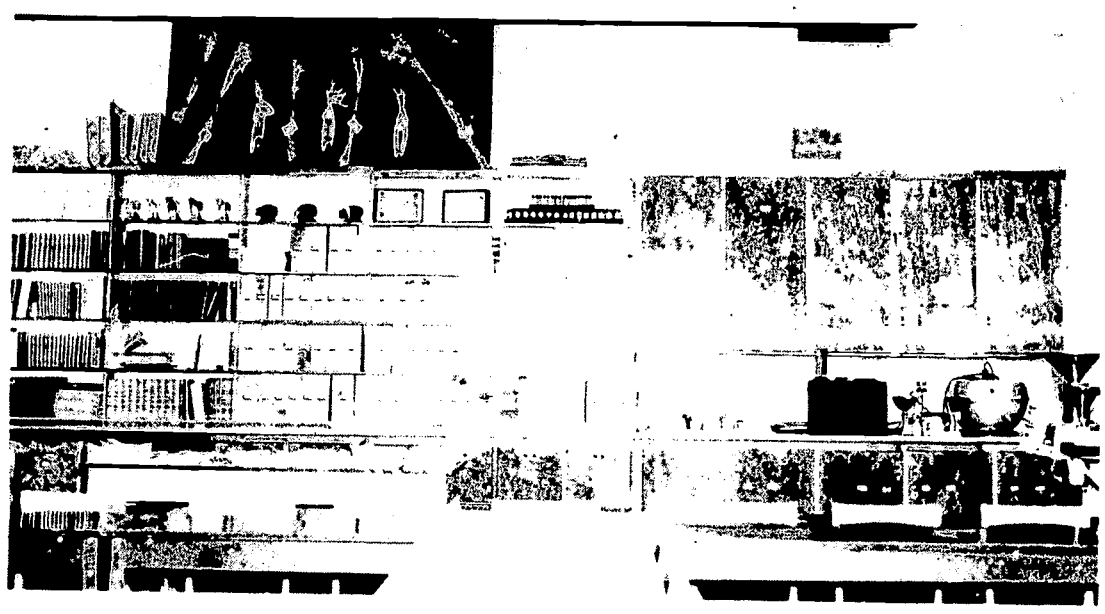


FIGURE 18.—*A reference library is sometimes combined with a laboratory.*

although there may be need for one or more 230-volt outlets. The wires must be of a size and kind to carry safely the maximum amperage load placed on each circuit for the lights and equipment used. For other than lighting, the use of three-pronged plugs, one of which is grounded, are becoming standard equipment for convenience outlets. Only outlets and attachments that are approved by the National Underwriters' Laboratories, Inc., should be used.

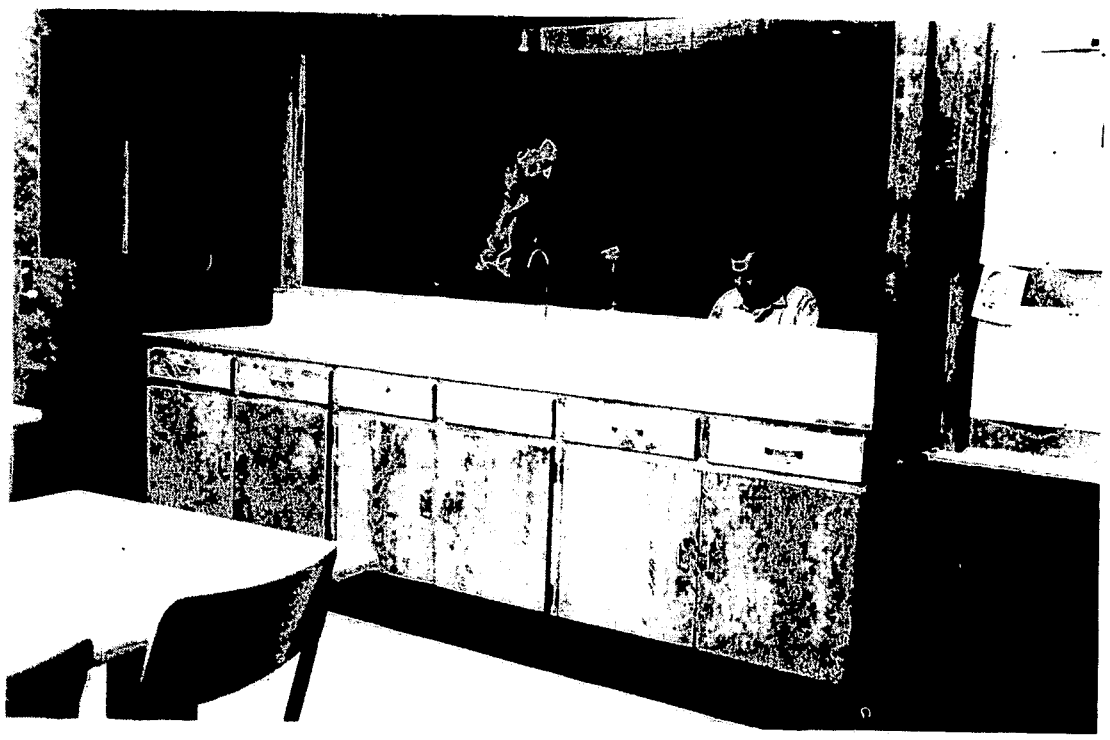


FIGURE 19.—*Laboratory space placed in the wall area separating office and classroom. Glass partitions allow supervision of laboratory, classroom, and shop while teacher is in the office.*

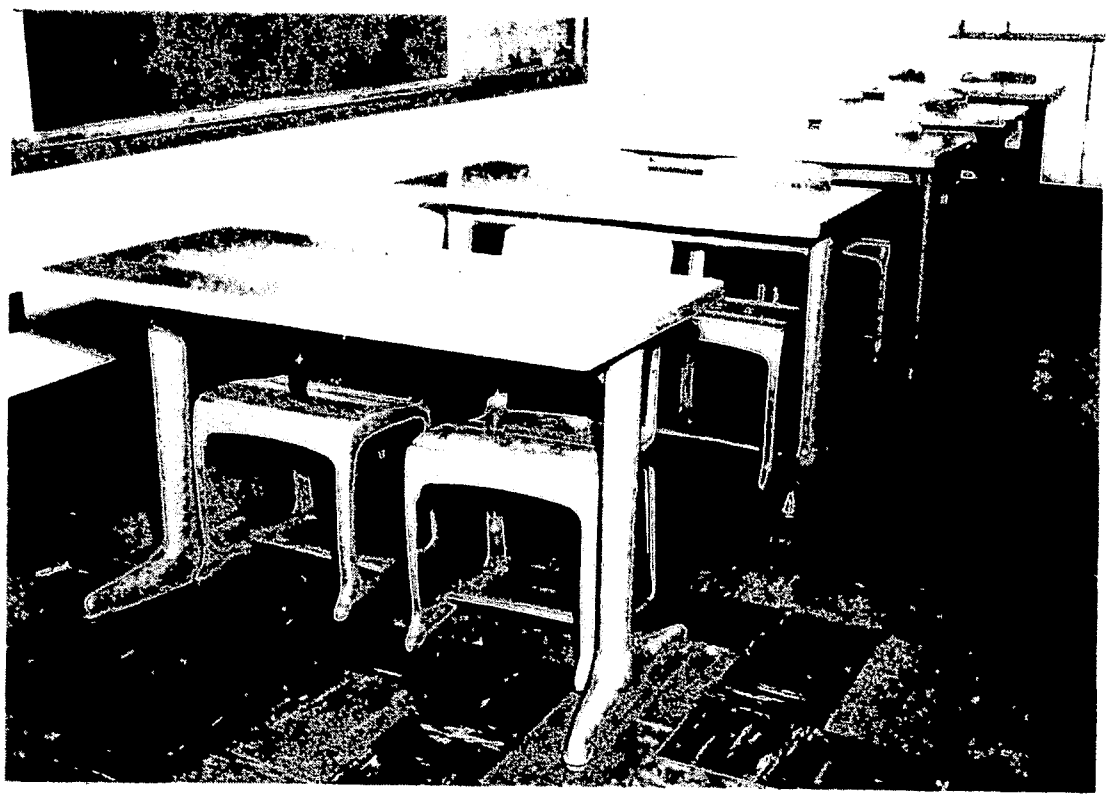


FIGURE 20.—*Strong, stable, and well-balanced student tables that are available in various lengths and widths. Some are adjustable in height.*

Classroom installations

Installations may include clocks; bells; communication systems; chalkboards; bulletin boards; cabinets; chart, reference, and magazine racks; display cases; and a laboratory unit. Chalkboards can be designed also to provide the display area needed for charts and other illustrative material. This can be achieved by having sliding chalkboards and bulletin boards, so that they can occupy the same area and thus conserve wallspace. The laboratory or classroom unit requires hot and cold water, gas for heat, and a sink and drainboard that are acidproof. A storage cabinet can be built under the sink and drainboard and under other work areas in the laboratory.

Chairs, tables, and desks

The careful selection of furniture for the department is important to assure the comfort and service essential to good instruction. The central area of the classroom needs to be free of all obstructions, with the exception of movable furnishings. Such items as cabinets and display cases are built into or along the walls.

For vocational agriculture instruction, tables and chairs are preferred over the usual single student desks found in most school classroom. A table that is 24 to 30 inches wide and 60 inches long is satisfactory for two students. These tables are convenient to group

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FIGURE 21.—*The welded metal frame student chair is strong, durable, light in weight, and does not squeak.*

for committee and conference purposes. Tabletops should be a hard natural wood, tempered pressed wood, or other hard-surfaced material.

Many prefer lightweight, squeak-free chairs having welded metal frames, wood bottoms, and backrests. These study room chairs should be of posture-type construction to assure maximum comfort. For classroom instructional purposes the folding type of chair is not recommended. To reduce noise, avoid slippage, and protect the floors, chair legs should have rubber or composition tips.

There are many different kinds of satisfactory interior arrangements. Some of these are illustrated in this bulletin. The relationship of classroom size to number of students may determine the arrangement. The teacher's desk may be combined with a demonstration table having an acidproof top, sink, hot and cold water, and gas for heat; and it should be located where all students can clearly observe presentations. The demonstration table may be in an adjoining laboratory room where students receive training in milk testing, soil testing, seed testing, budding and grafting, and other activities not suited to the classroom or shop. Some schools have a greenhouse of adequate size where some of these educational activities are conducted.



FIGURE 22.—*A* U*-shaped classroom arrangement is preferred by many for class study and discussion. A tack board is at the right. The door leads to the shop and office. Large window permits instructor to observe activities in the combination laboratory and storage room.*

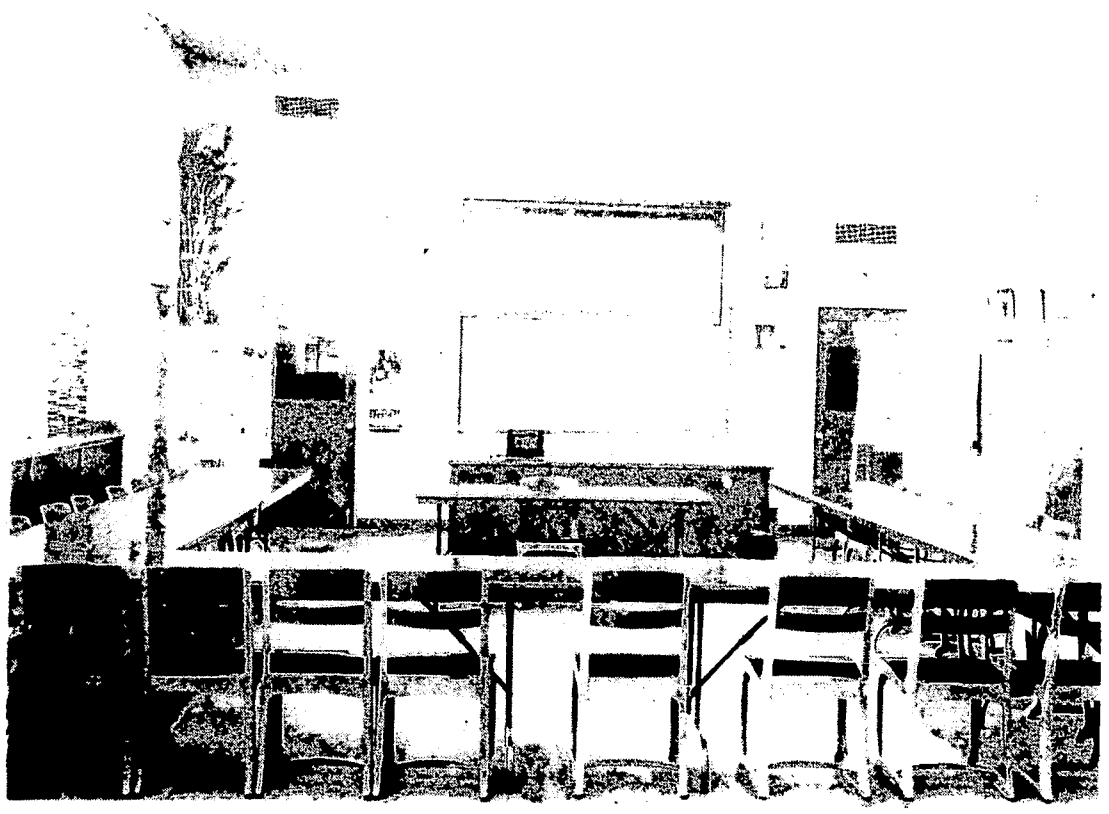


FIGURE 23.—*A combination tack and chalkboard conserves space. Right door leads to office and shop, middle door to storeroom of instructional material, and left door to department kitchenette. A modified* U *arrangement may be achieved by placing other student study tables just in front of the teacher's combination desk and demonstration table.*

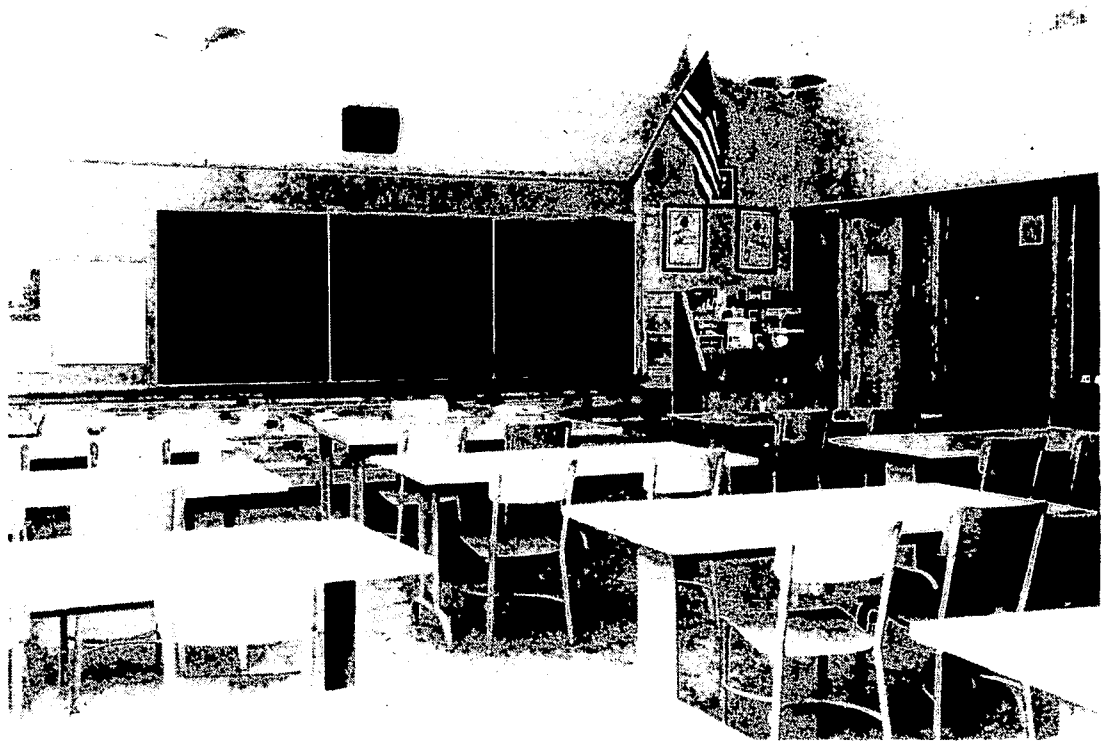


FIGURE 24.—*A satisfactory plan is three rows of study tables with two students per table. Note large area for chalkboard and tack board.*

Greenhouses

In those areas where a considerable portion of the farm income depends upon the use of greenhouses, hotbeds, and cold frames, such structures are important parts of the instructional facilities. In-



FIGURE 25.—*A greenhouse of sufficient size to provide instruction to an entire class.*

struction in connection with greenhouse production includes the care of ornamental plants and vegetables, and the propagation of seedlings or cuttings, along with the control of the usual diseases and pests pertaining to this phase of agriculture. The greenhouses should have either a curved eave or regular roof, with the latter preferable. These structures are often attached to the farm mechanics shop or classroom of the department, and the roofs may be either of the lean-to or even-pitch type. The local conditions and needs should determine the size and style of the structure.

The following suggestions include those made frequently by teachers having experience with greenhouses in the vocational agriculture training program: (1) Have a heating line direct to the boilers that will provide sufficient steam or hot water even if heat is cut down in the main building; (2) put the heating of the greenhouse on its own separate thermostat; (3) be sure the ridge ventilators are on an automatic thermostatically controlled unit; and (4) include a humidifier controlled by a humidistat. This last item does not eliminate the necessity for watering, and even automatic watering requires some attention. The first three items result from experiences during extremely cold or hot periods, particularly when these occurred during vacation or weekend periods. Some prefer a separate heating system for the greenhouse.



FIGURE 26.—*If only a few of the students are interested in the production of greenhouse plants, a smaller structure may be adequate.*

The Farm Mechanics Shop

The shop is an essential part of every department of vocational agriculture and should be used exclusively for the teaching of farm mechanics. The shop is preferably an integral part of the same structure in which the classroom is located, and is deserving of the same consideration as to esthetics, engineering, and economics in the selection of building materials, architectural design, and equipment.

The shop is a place for the teaching of mechanical skills and their application to practical farm situations involving the repair, maintenance, and construction of farm machinery, buildings, and equipment, as well as skills in farm shop work, farm electrification, and soil and water management. Two features are of paramount importance in the layout of a farm shop: (1) Large areas of unobstructed floorspace, and (2) easy access provided for large farm machines or other projects to and from the shop.

Shop space

Farm mechanics shops vary in size, but 40 feet is a minimum width. Provision should be made for 150 square feet of floorspace per student in the largest class. An additional 1,200 square feet is needed for workbenches, power tools, and other equipment.

Large areas require satisfactory space organization to save steps and allow for proper supervision of all activities. This involves a width-to-length ratio not greater than 1 to 2, with tool and supply rooms located at the side of the shop when possible, and equipment installed in such a manner as to localize types of work into definite areas.

Shop arrangement

The interior of a well-planned farm mechanics shop is arranged to provide for safe, effective, and efficient training. Proper location of equipment in the shop encourages and stimulates work efficiency and production, and makes possible close supervision. Areas are designated for the various kinds of work, with specialized tools, equipment, and power located in the areas where they are used. When planning the building, give due consideration to equipment selection and placement, tool storage, electrical outlets, and cabinet locations.

Drain

An inside floor drain, with a cleanout sludge pit, usually is located a short distance in front of the large entrance door. An area about equal to the size of the door is sloped to this drain.

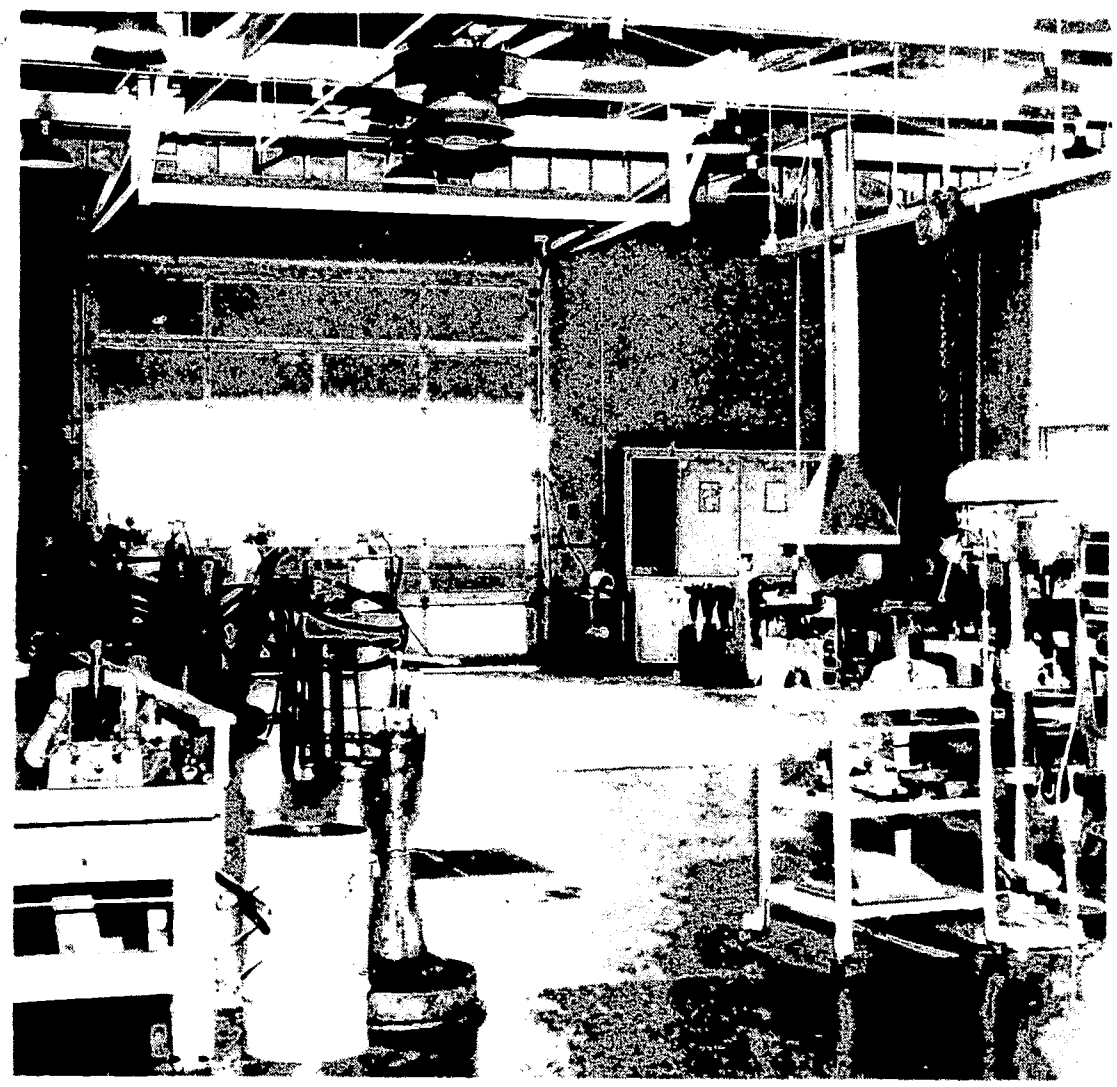


FIGURE 27.—*Interior view of shop showing an overhead type of door that is 16 feet wide and 14 feet high. Note manually controlled motor hoist and overhead track at right.*

Floors

Provide floors that are smooth and that are made of concrete, paving brick, floor brick, or end-grain woodblocks. A slope of 1 inch in 5 feet near the drain is desirable, with the remainder of the floor level. Two feet from the large entrance door a slope outward of one-quarter inch per foot should be provided to prevent water from running into the shop during storms. Floors must be sufficiently strong to support heavy farm equipment, and be given treatment to make them skid resistant in the areas occupied by operators of power equipment. When crawler tractors and other similar heavy equipment are brought into the shop, floors will need to be protected by temporary planking. The floor area should not be obstructed by posts, inside pilasters, or pillars. The structure should be designed to make all areas visible from any part of the shop.

If the architect is given full information concerning uses of the shop and the loads anticipated, he will be able to prepare specifications for the floor, including provision for underfill, vapor barrier, drain tile, floor thickness, concrete mixture, expansion joint strips, reinforcing, service installations, and the application of sealing compounds.

Ceiling and doors

It is important that the ceiling in a shop be high enough to provide necessary headroom for large farm equipment, the use of differential hoists, and the unloading of machinery from a truck, unless an outside

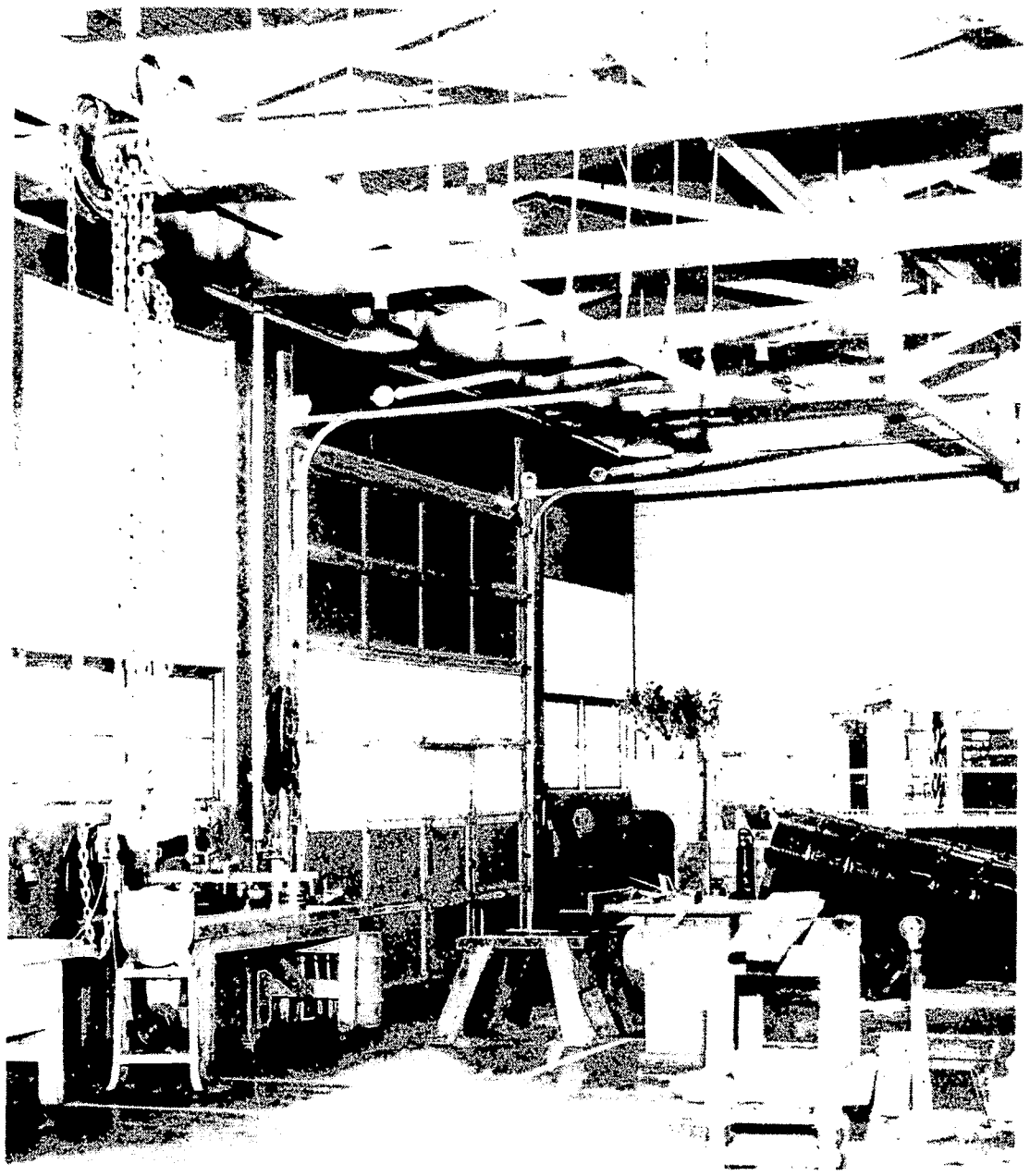


FIGURE 28.—*Overhead type of shop door in which there is a personnel door. Note safety lines on floor about machines.*

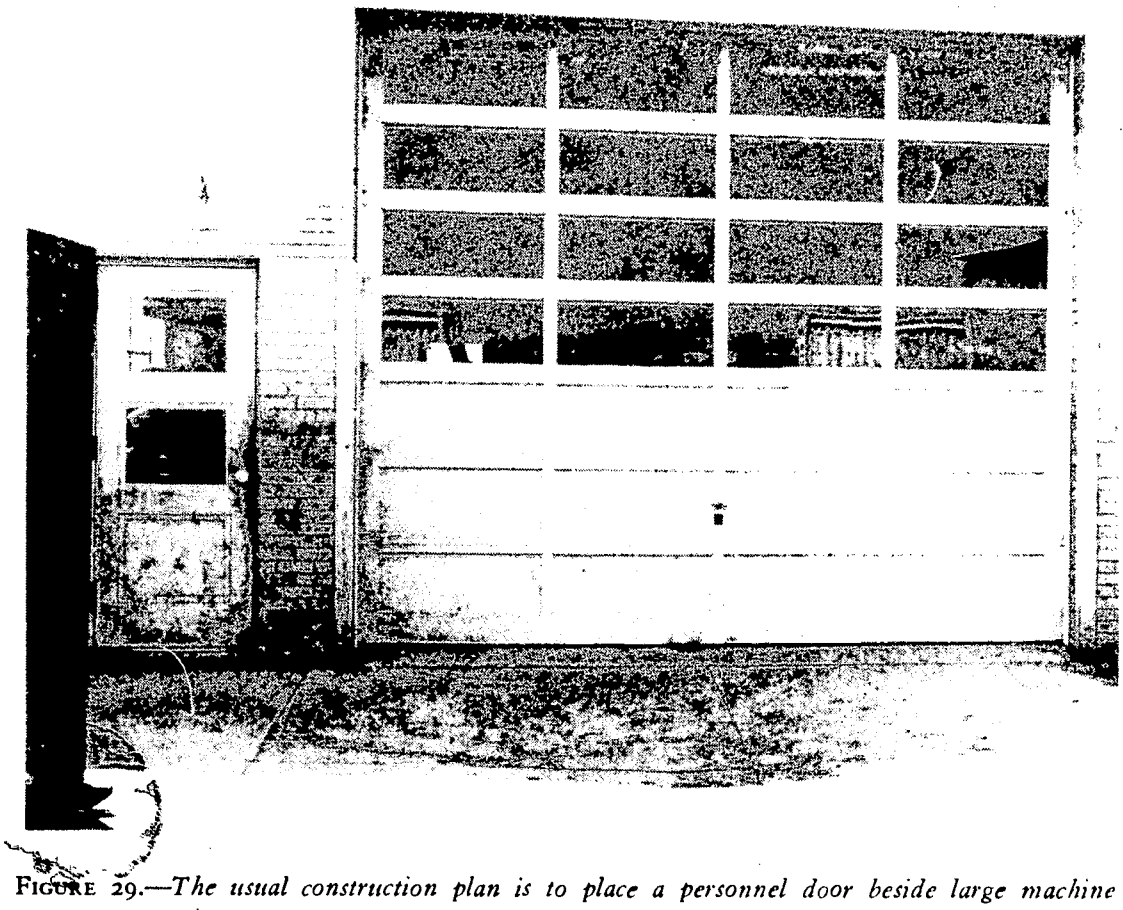


FIGURE 29.—*The usual construction plan is to place a personnel door beside large machine entrance door.*

ramp is provided. Usually a 14-foot ceiling will be adequate but base the height upon the largest machine to be brought into the shop. The entry door or doors should be 14 feet to 16 feet wide, preferably of the overhead type. An overhead door can be had, with coil spring and tension bar, that allows clearance within 1 foot of the ceiling.

Plans should provide for a standard-sized door preferably located beside each large door. This is not only a convenience, to avoid opening the large door for foot traffic, but also an important feature in safety and the conservation of heat.

Lighting and ventilation

Special consideration needs to be given to lighting in the shop. Locally directed lighting is provided where close work is to be done on machines. The main light fixtures should be provided with enough switches to permit adjustment to light needs and be high enough to allow adequate work clearance. Having some fixtures close to walls will prevent the workers' shadows falling on workbenches along the walls.

Grouping of windows in the shop allows for wall space for hanging

tool cabinets and the placing of tall shop equipment, such as drill presses. Two or three of such wall spaces, from 4 to 8 feet wide, on each side of the shop are usually sufficient. Ceiling height windows could begin about 6 or 7 feet from the floor in these areas to achieve essential window space. The base of all windows should be high enough above workbenches to avoid window breakage. Some educators feel that this is also important to shield students from distraction by outside activities.

Tinted, glare-reducing glass may be desirable in areas exposed to the sun. If large windowpanes are used, they may be protected from breakage with heavy-duty screens. In the colder climates, consideration may well be given to the use of double-glazed window sash. In some locations and types of construction, windowless walls employing skylights or clerestory windows may be preferable. Some make use of glass block and sheets of tinted corrugated plastic in the roof to allow for light.

Proper ventilation will require provision for opening windows or sections within a bank of windows. An exhaust system of ventilation is essential in the painting area, and all hot-metal-working areas. Some shops have both flexible and stationary systems to remove fumes, smoke, hot air, and odors.

Service installations

The need for clocks, warning bells, communication system, plumbing, exhausts, and other service installations, as explained for the classroom, also applies to the farm mechanics shop. A slightly different timing for the warning bell at the end of classes is necessary in the shop to permit time for students to return tools, to store equipment and projects, and to clean up for the next class. Individual lockers for students' work clothes and for very small projects are recommended. Such lockers help to eliminate friction between students because they prevent the use of the shop clothes of others and also provide security for students' personal possessions.

Janitor's service room

Where the vocational agriculture department is in a separate unit, it is well to provide a small storage supply room, with a mop sink for the janitor, which is convenient to both the classroom and shop.

Color dynamics and safety

In selecting colors and shades for the shop walls, consideration should be given to the exposure to natural light. Lighter colors give the maximum amount of reflected light. Light color is used on the

wall having the most windows, a darker color on the wall opposite the main light source, and an intermediate color on the end walls. The color of the ceiling is important from the standpoint of light reflecting qualities. White, cream, ivory, or soft white are desirable.

The main purpose of color conditioning tools and equipment is to focus the operator's attention on the object being worked upon with a minimum of eye strain. This can be accomplished to some extent by separating the critical or moving parts of the machine or tools from the noncritical or stationary parts by means of colors. The colors used tend to give prominence to the moving parts or bring them to the foreground while the nonmoving parts are "moved" toward the background.

Appropriate color dynamics fosters shop safety, make the shop more functional, increase work productivity, and reduce the effort required to maintain cleanliness as a part of good housekeeping. Color speaks a universal language when properly used as a visual aid to safety. Standard colors for specific purposes help identify safety equipment

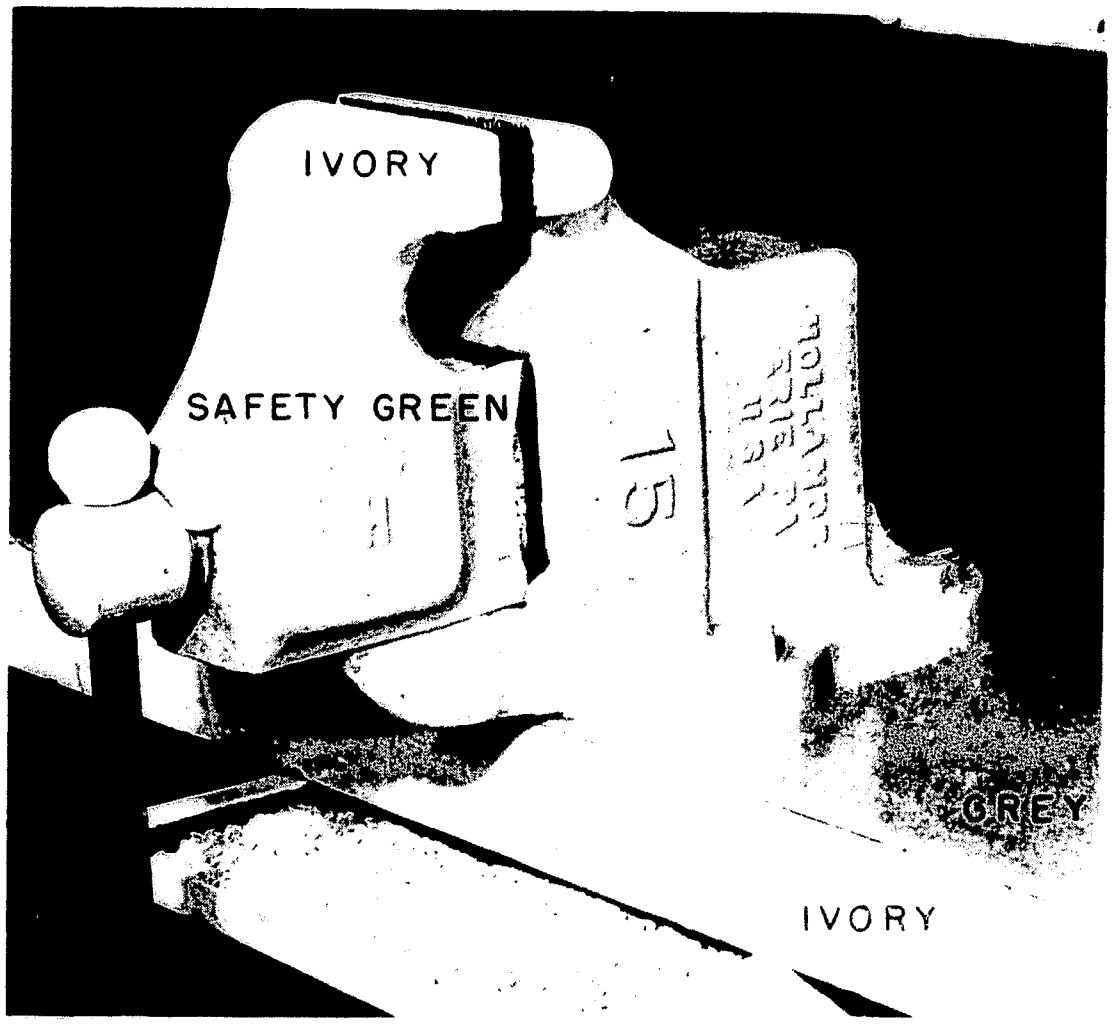


FIGURE 30.—*Safe working conditions are aided by color and cleanliness. Metal cuttings and oil are caught in the removable pan which is filled with absorbent material.*

and accident hazards. Color, however, is not intended as a substitute for proper guarding, for elimination of hazardous conditions, or for safe practices.

For uniformity of usage, a color identification code is included on pages 38–40. This code applies to other than field equipment, was approved for agriculture by a national conference conducted by the National Safety Council, and is based on the American Standard Safety Color Code. It has been limited to five basic colors, and their application is confined to farm buildings and shop or stationary equipment. It is recognized that too many color identifications constantly in a worker's field of vision are both confusing and fatiguing. For this reason, keep the number of markings to a minimum, providing greater emphasis for the markings which are used. For those who find it necessary or desirable to expand the number of colors or their respective applications, it is recommended that the American Standard Safety Color Code be followed.

Color identification

Red shall be the basic color for the identification of—

(*a*) Fire protection equipment
(*b*) Danger
(*c*) Stop
(*d*) Gasoline

Applications for *Red:*

(*a*) Fire protection equipment: Fire buckets or pail; fire extinguishers (color should be used on the housing, wall or support to identify the location); firehose and ladder locations (color should be used on the reel, supports, or housing but not on the equipment); fire exits—emergency fire exits shall be designated in red (either a sign, a red light, or by painting interior frame).

(*b*) Danger: Red lights at barricades, at temporary obstructions, and construction; danger signals such as flags, lights, or warning devices to designate slow-moving equipment being transported on highways.

(*c*) Stop: Emergency stop control devices.

(*d*) Gasoline: Cans, drums, barrels or other portable-type containers for gasoline shall be painted red with the name of the contents conspicuously stenciled or painted on the container in yellow. For all other flammable liquids, containers shall be of a different color with the name of the contents conspicuously labeled.

Orange shall be used as the basic color—

(*a*) To designate dangerous parts of equipment which may cut, crush, shock, or otherwise injure.

(*b*) To call attention to open enclosure doors.

(*c*) To designate exposed hazards when shields or guards have been removed.

Applications for *orange:*

(*a*) Exposed parts (edges only) of such as pulleys and gears.
(*b*) Interior surface of doors on fuse and electrical power boxes.
(*c*) Inside of inspection doors, guards, or shields which when not closed or in place expose a hazard.

Yellow shall be the basic color for marking dangerous physical conditions such as hazards which may cause stumbling, falling, and tripping or be struck against. Yellow and black stripes, yellow and black checkers, for yellow with suitable contrasting background may be used interchangeably, selecting the combination which will best attract attention.

Applications for *yellow:* Coverings or guards for guywires; handrails, guardrails, or top and bottom treads of stairways where caution is needed; markings for projections of platforms, doorways, stairways, posts, abrupt changes in floor level, low beams, and pipes.

Green shall be used as the basic color for designating the location of safety and first-aid equipment (other than firefighting equipment).

Applications for *Green:* To show location of safety bulletin boards, respirators, first-aid kits, safety goggles and face shields, and gloves.

Blue shall be used as the basic color for designating caution against starting equipment being worked upon, or the use of defective equipment.

Applications for *Blue:* A blue tag or similar identification should be attached to defective equipment which is not to be used until repaired or replaced (e.g., defective electric drill).

Miscellaneous items.—Although colors in the shoproom are important, the color scheme for equipment is even more significant for working efficiency in the shop. The following colors are suggested for items found in the shops:

Bulletin board—same as background.
Chain hoist block—focal yellow.
Covered heat pipes—same as background.
Electric conduit—same as ceiling, walls, background, or machine to which attached.
Electric motor—same as machine.
Electric control switch boxes—same as background, or base to which attached.
Electric fans and stands—same as wall color, or base to which attached.
Fire extinguishers and firefighting equipment—a 6-inch to 12-inch band of red about 6 feet above floor on post or on wall from which fire extinguishers hang.
First-aid cabinet—white with focal green cross in center of door.
Fixed bins and box exteriors—vista green and interior surfaces of focal buff.

A Color Chart Used in Many Farm Mechanics Shops for Tools and Equipment

Item	Orange [1]	Focal beige	Focal ivory [2]	Vista green
1. Anvil	----------	----------	Rim around top edges 1-inch wide.	Base and ⅔ of horn extending parallel with focal ivory line.
2. Air compressor	Electric switch	Valve adjusting knob	----------	Tank and base.
3. Acetylene welder	----------	Adjusting knobs	----------	Frame of cart.
4. Arbor saw	Face of switch box, [3] saw guard	Micro set knob, fence clamps, tilting and raising handles.	Edges of table	Noncritical parts.
5. Saw radial arm type.	Start and stop switch, saw guard.	Elevation handle, clamping and indexing levers, clamping handle, lever latch, operating handle.	Saw guard, edges of table.	Base casting, cantilever arm, saw table.
6. Drill press	Face of switch box[3]	Feed lever, quill lock, table, clamp index pin.	Edges of table	Noncritical parts except the column.
7. Electric arc welder	Start and stop switch.	----------	D.c. ammeter and voltmeter facings, current control knob, voltage and current controls, edges of welding table.	Noncritical parts.
8. Grinder	Face of switch box. [3]	----------	Tool rest	Noncritical parts.
9. Vise (machinist)	----------	Handle	Throat and jaws, top surface.	Base and sides of vise.

[1] Orange is often used near parts that cut, crush, or otherwise injure the operator.
[2] Focal orange preferred by some for edges of items listed. A focal color is "outstanding" and readily seen as contrasted with a receding background color.
[3] Some color codes use blue for face of switchbox, and orange for interior of box.

Floor—use nonskid strips, or a nonskid paint in localized work areas for machine operators.
Hand-pushed truck—focal yellow.
Hazard areas—such as low beams, stairways, posts and supports, should be striped in yellow and black such as is used on dead-end road signs.
Light cords and chains—none.
Machines—refer to color chart for tools and equipment.
Stairs—focal light gray, handrails, and banisters in yellow.
Tool cabinets—same as the wall and lettering in white.
Unit heaters—same color as wall or ceiling against which they are mounted.
Waste refuse can—lids and cans red for flammable waste and lettered in white. Waste cans for nonflammable products are painted white and lettered in black.
Window sash and frame—same as walls.

Skill training

Demonstrations in farm mechanics given in either the classroom or shop are effective devices for teaching skills and abilities. In addition to the special tools for the job being taught, the following are also required for the demonstration: Chairs or other comfortable seating that permits the students a maximum view of the demonstration; teacher's workbench for the tools and materials needed; portable chalkboard for charts, diagrams, drawings, and job sheets; and tools

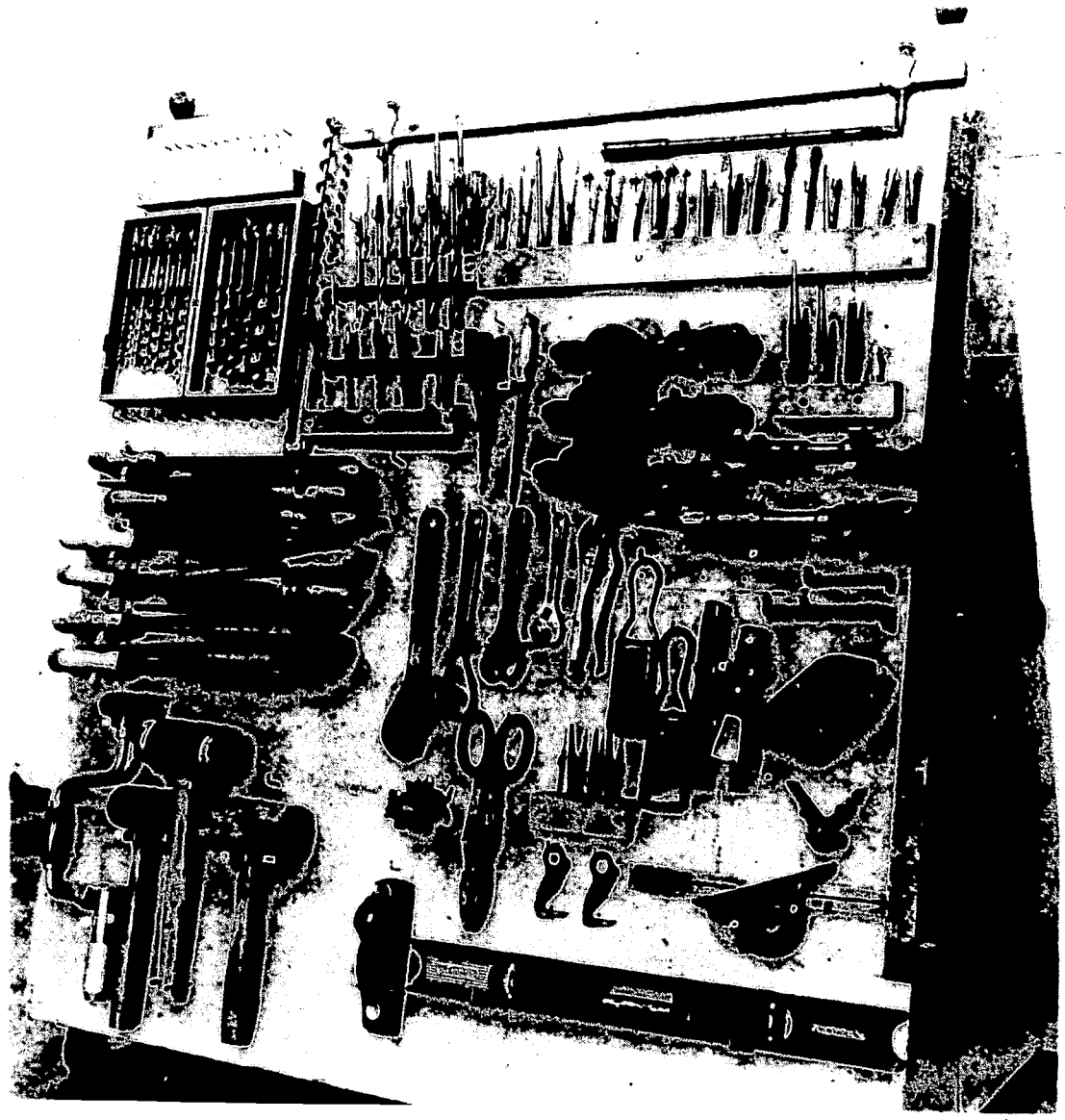


FIGURE 31.—*A castered rack on which tools are mounted can be easily moved to work or demonstration area. Other tools and supplies can be carried in the body of this rack, which is 28 inches wide with sides of plywood ⅜ inch by 4 feet by 5 feet.*

mounted on castered racks. For seating, many schools use portable bleachers mounted on ball-bearing caster wheels.

Work areas

The following work areas, all requiring benches, are located in the shop: farm carpentry, farm machinery service and repair, tool sharpening, arc welding, oxyacetylene welding and cutting, farm electricity, farm plumbing, sheet and cold metal work, soldering and hot metal work, concrete and masonry, and painting. Equipment, tools, and supplies should be conveniently located to serve each work area. In general the tools used for repair and servicing are located nearest

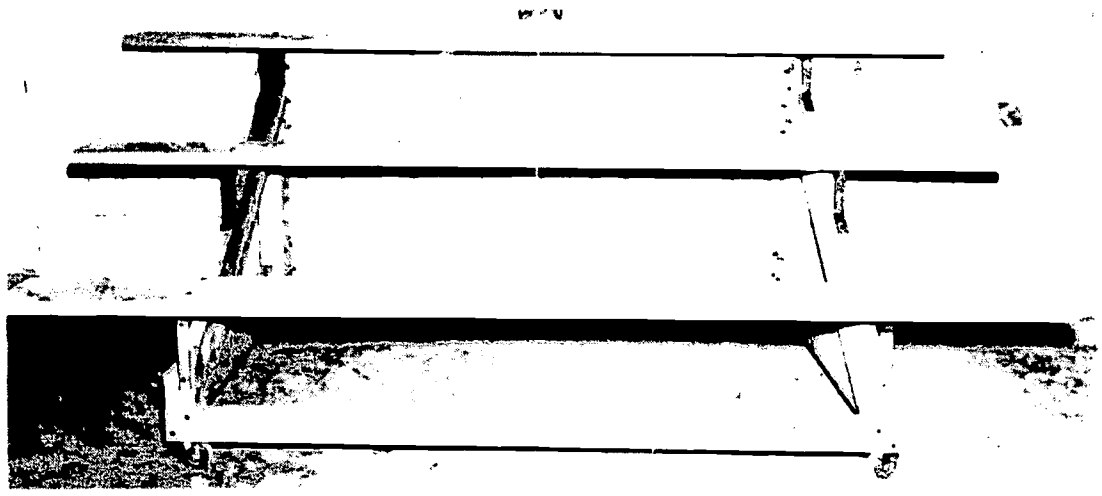


FIGURE 32.—*A bleacher aids students to observe demonstrations. The use of ball-bearing caster wheels facilitates moving bleacher where needed.*

the machinery access doors, and the tools used primarily for construction in the less accessible area. This plan tends to divide open floor-space into a repair and service area and a construction area.



FIGURE 33A.—*Underview of workbenches supported by welded angle irons mounted to the shop wall. These benches are 37 inches high.*

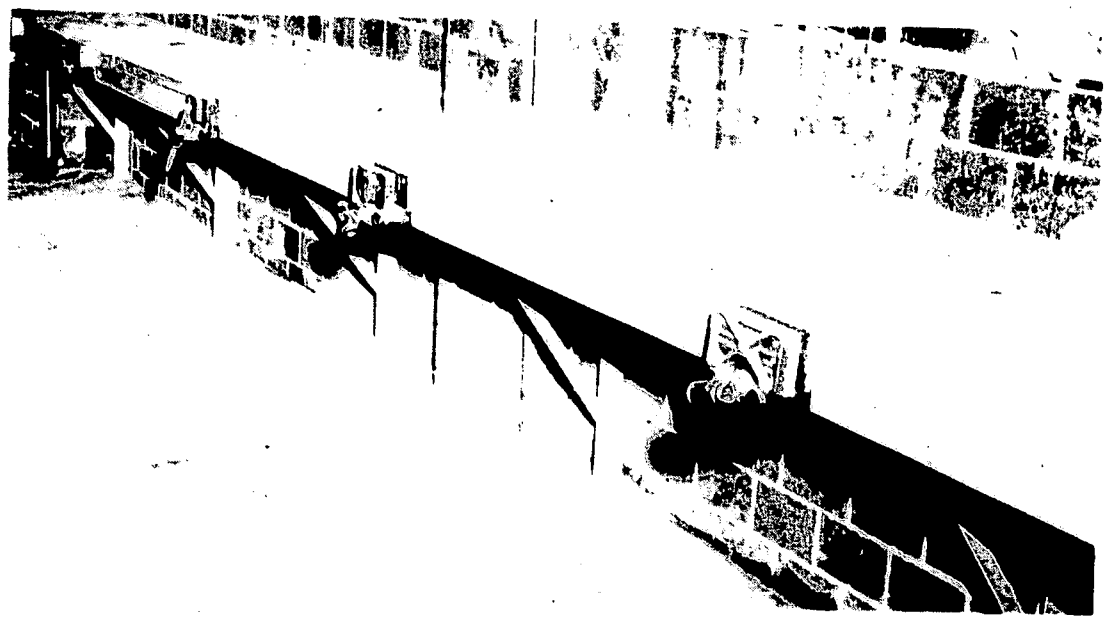


FIGURE 33B.—*Top view of the same workbenches.*

Workbenches

Sturdy workbenches for individual student use should be constructed and installed by the contractor. Generally, the benches are legless and supported by welded diagonal metal braces attached to the wall. Some prefer movable workbenches. Benches usually are 20 to 24 inches wide, 34 inches high, with about 6 feet of length per student, with a maximum of 90 running feet of bench space. Many prefer workbenches with a more natural and comfortable working height of 36 to 38 inches, including a movable wood rack for the smaller students to stand upon when working.

Benches in the metalworking area should be covered with steel plate one-eighth inch or more in thickness with the exposed edges protected by a 1/8-inch by 1¾-inch by 1¾-inch angle iron. A sturdy machinist vise with 4½-inch jaw, and usually mounted at the right-hand front corner of the bench, should be provided for each three students in the class, and an equal number of wookworking vises. Make available both swivelbase and stationary-base machinist vises. There should be provided also at least one well-anchored heavy duty blacksmith's leg vise in the shop, as well as a pipe vise. See fig. 50. The outer working surface of the carpentry benches should be hard wood, either thick timbers or flooring, laid over softer wood. The continuous screw-type vise is mounted at the left.

Storage spaces for lumber, metal, and tools

Where the ceiling height is sufficient, some prefer vertical storage of lumber and metal, which is convenient and economical of space.

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FIGURE 34.—*Castered supply racks can be stored under workbenches.*

Others prefer horizontal storage for lumber of the quality and moisture content used in farm mechanics. For horizontal storage, a metal rack with closely spaced supports on each tier will lessen the warping of lumber and permit the storage of short pieces.

Some prefer the storage racks to be in a protected place within the patio. Containers for hardware items and machinery parts stor-

age bins should preferably be in a locked room easily accessible from the shop.

The infrequently used, costly, delicate, and specialized tools, such as surveying equipment, micrometers, soil-testing equipment, and similar items, are usually kept in a separate storage room, in floor-length cabinets, or in drawers that can be locked, and which are accessible only to the teacher.

There are advantages in storing certain types of tools in wall cabinets located in each work area. Some teachers prefer also to have several rollaway tool racks (see fig. 31) with caster wheels, that can be stored under lock when not in use if they are not fitted with doors that can be locked. Since metalworking tools are used in several areas of work, mount such tools on rollaway racks. The principal advantage of tool cabinets and tool racks is convenience for the worker when obtaining and returning tools to storage. Some disadvantages of wall cabinets are that they are expensive to construct, some tools do not fit well into them, more of the teacher's time is required to check and lock up tools, and more general-purpose tools are needed when they are stored in wall cabinets for each separate work area.

Specialized tools for designated areas of shopwork, such as for

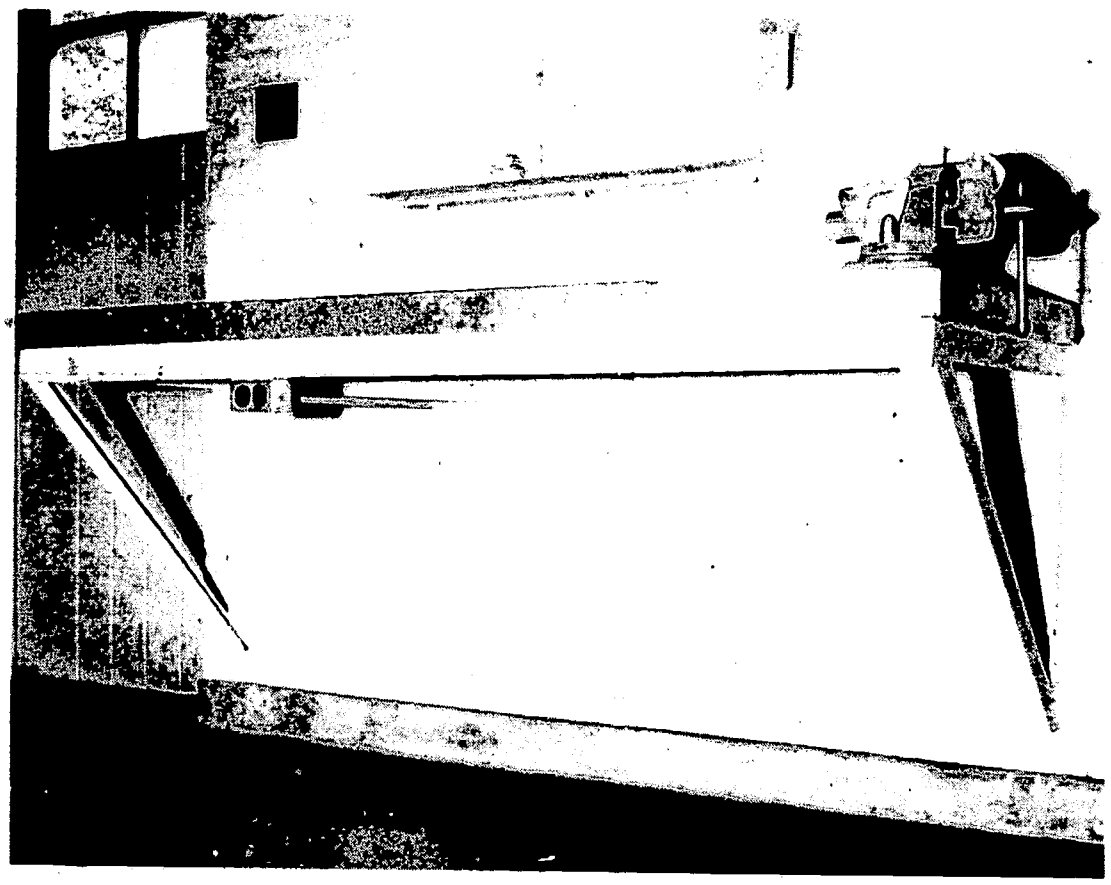


FIGURE 35.—*Workbenches in the metalworking area are covered with a steel plate. Note the machinist's vise on a swivel base.*

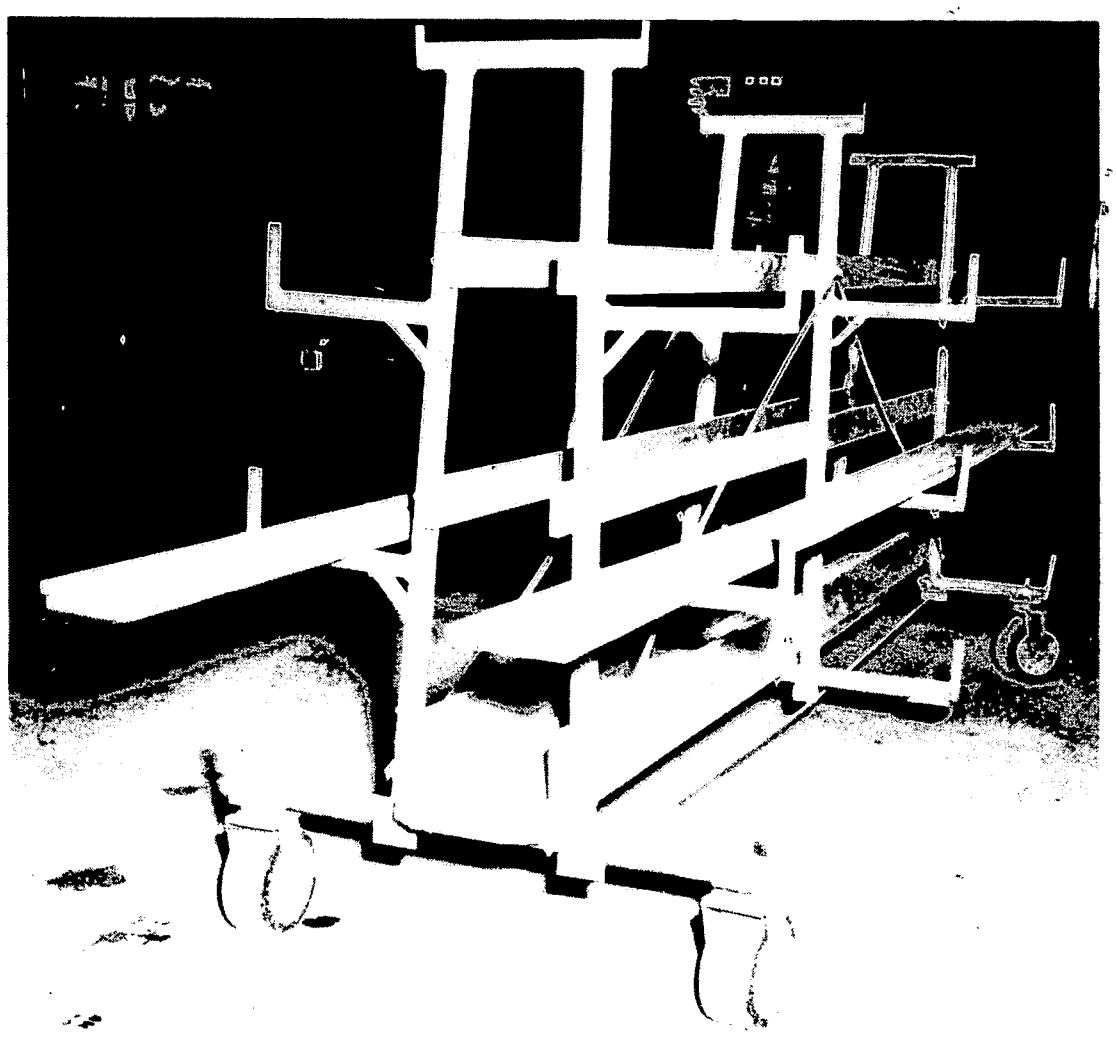


FIGURE 36.—*Lumber can be moved readily where needed by use of a portable supplemental storage rack.*

welding, are well adapted to storage in wall cabinets. Accessories for power equipment should be stored conveniently near the machines where they will be used.

Project and supply storage

The storage of uncompleted shop projects is an ever-present problem in many shops. Large projects, such as livestock feeders, farm machinery to be serviced, and farm trailers, are usually kept in the large center area of the shop or in an enclosed and protected patio area. Smaller items may be kept in rooms designed for that purpose or in unused storeroom space. Small projects and seldom-used supply items may be stored in an upper level of the storage room. Supplies such as plywood, hard board, sheet steel, and kegs of nails are often kept in a second level.

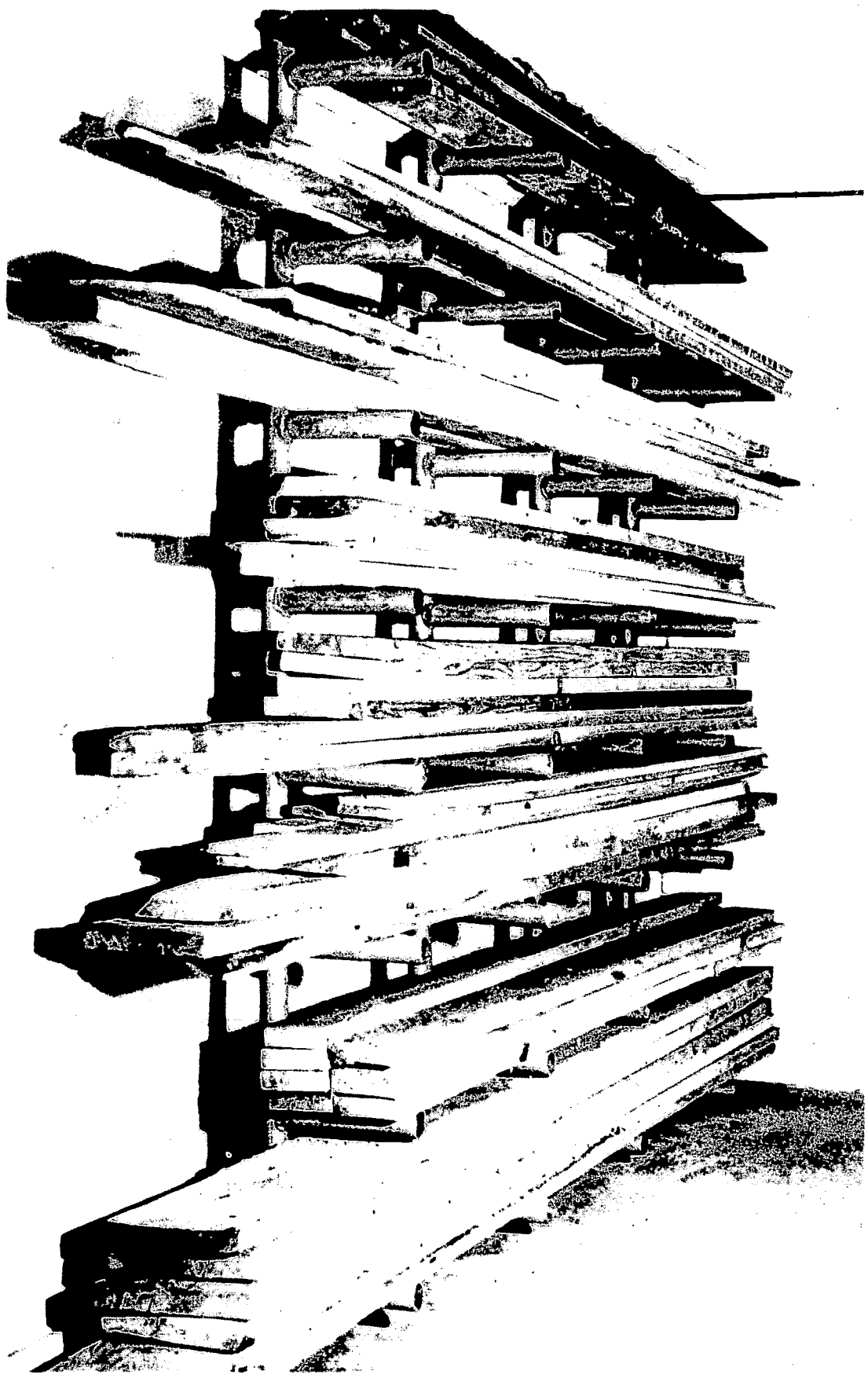


FIGURE 37.—*A lumber rack of 2-inch pipe with vertical supports 4 feet apart. The arm supports welded to vertical supports are 12 inches long and spaced 12 inches apart. Some prefer longer arm supports.*

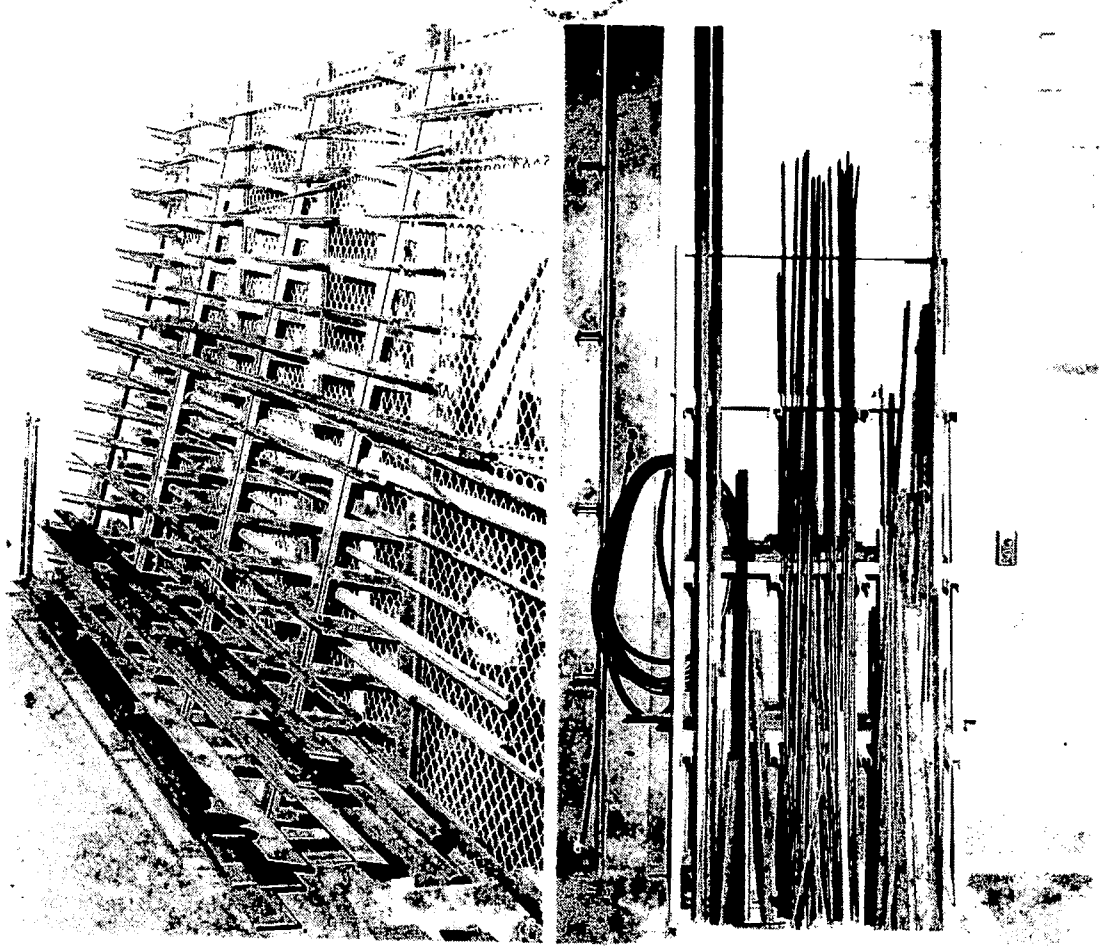


FIGURE 38.—*A horizontal metal storage rack (left) is handy to use, but some prefer vertical storage (right) to conserve space.*

Hoists and cranes

A safety hoist for handling heavy equipment may be hung from a carrier that operates on a track or beam. Locate the track so that the hoist will not interfere with the movement of equipment through the large service door. Roof trusses must be designed to carry the extra load. A portable **A**-frame or floor crane may be preferred. The floor crane or **A**-frame is less expensive and in many respects is more versatile and satisfactory, since its use is not limited to a fixed area in the shop. Place a stable floor stand under any suspended machine before working upon it.

Air compressor

An air compressor and tank unit with compressed air available throughout the shop and patio serves a most important function. A satisfactory unit will have a capacity of 6 cubic feet per minute at a pressure of 60 pounds per square inch, and tested to withstand safely 150 pounds of pressure. The unit should be equipped with an air filter, safety valve, pressure gage, a bottom drain plug to remove

moisture, and a bleeder valve to empty the air line between the compressor and check valve. To reduce noises in the shop and for safety, the air compressor unit may be located in the patio area.

An air-line pipe having quick-type fittings may be extended along the walls over the workbenches, to the center of the floor where machinery is serviced, and to the backwall of the shop adjacent to the patio. Rubber hose lines up to 100 feet in length may be used for attachment to the fittings. Some prefer a ceiling-supported, reel-type, pulldown airhose for the center of the shop.

Patio

A masonry-walled or fenced patio, sometimes referred to as a courtyard, is provided as an extension of the farm mechanics shop. A

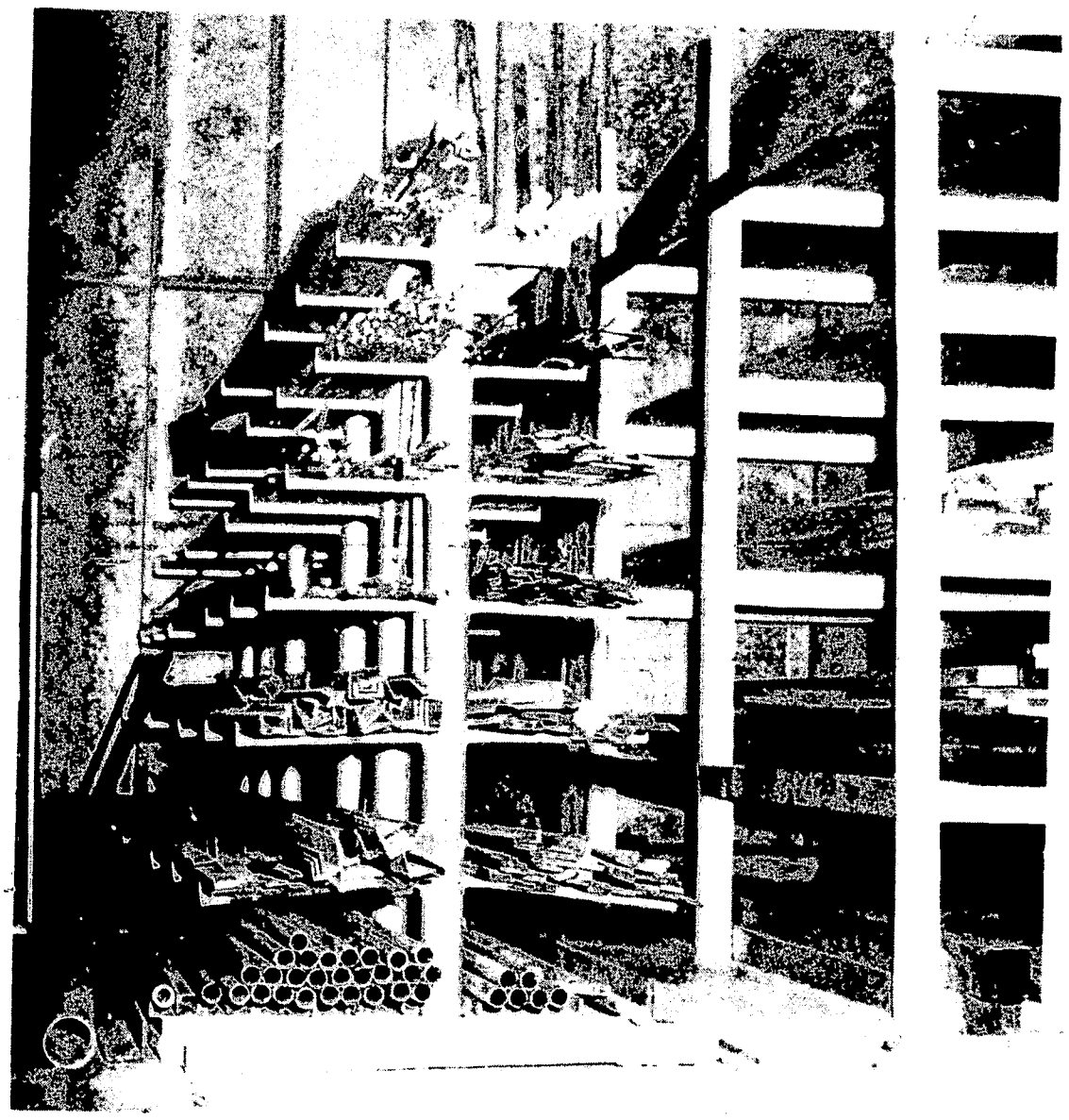


FIGURE 39.—*Others prefer a larger metal rack that holds round stock, flat stock, pipe, tubing, and angle iron for storage.*

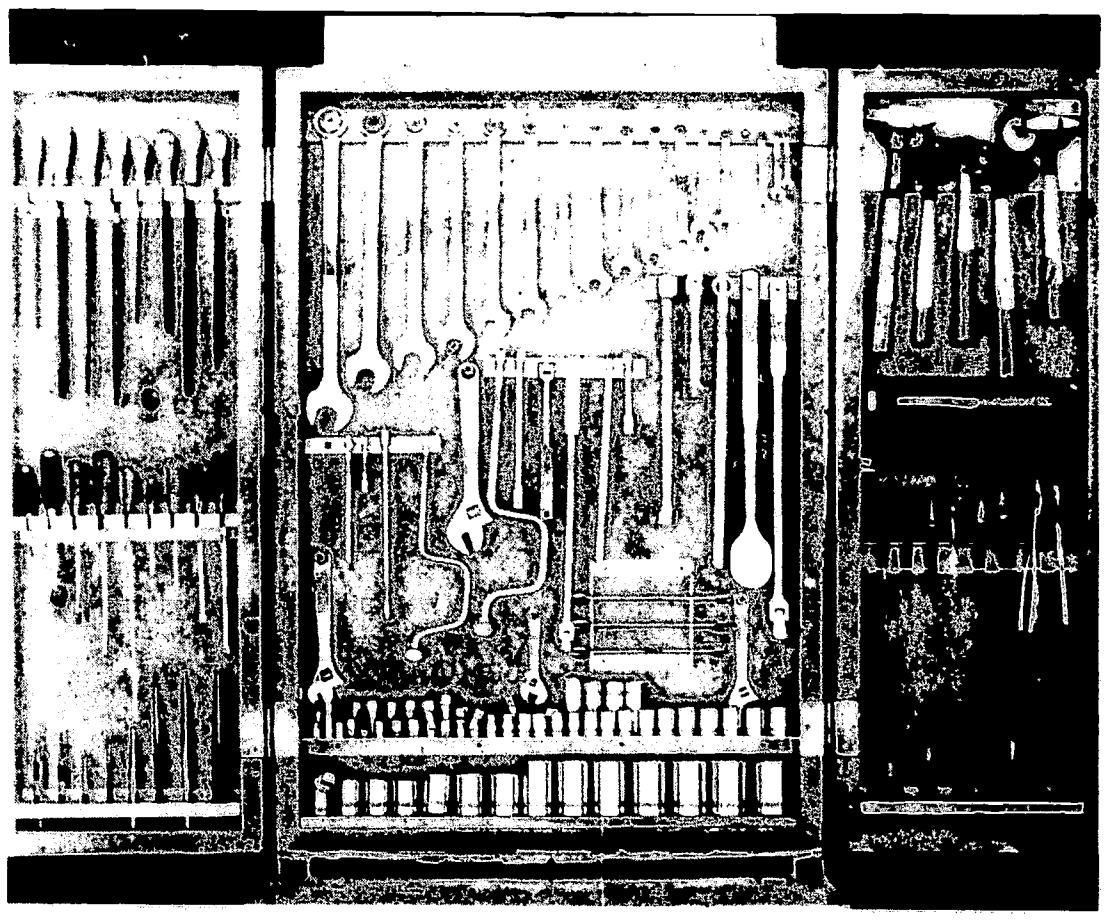


FIGURE 40.—*Tool cabinets equipped for a specific kind of shop activity should be located where such work is performed.*

masonry wall is preferred because of the protection it affords from wind and pilferage. Some prefer clay masonry screens because of the architectural effects that can be achieved while blocking out unwanted solar heat and glare and yet providing privacy. In all areas, this inexpensive part of the unit can be used most of the year, and in some sections the climate will permit use throughout the year. A minimum of 2,400 square feet of patio space serves well for storing or working on farm machinery, flammable materials, and large construction projects. It may also be desirable to use this area for welding and forge work. The patio space should be equipped with weather-protected electrical outlets providing 115- and 230-volt current. A floodlight, or lights to cover the entire area, is highly desirable for evening class work.

A cast-in-place floor of concrete, paving brick, or floor brick over gravel is recommended for the patio. Such a floor is an aid in keeping work clean, avoiding loss of tools and parts, and handling machinery efficiently.

An open-faced covered shed 12 to 24 feet deep along one side or end of the area will provide a place for the storage of flammable materials, air compressor unit, paints, machinery, scrap or metal

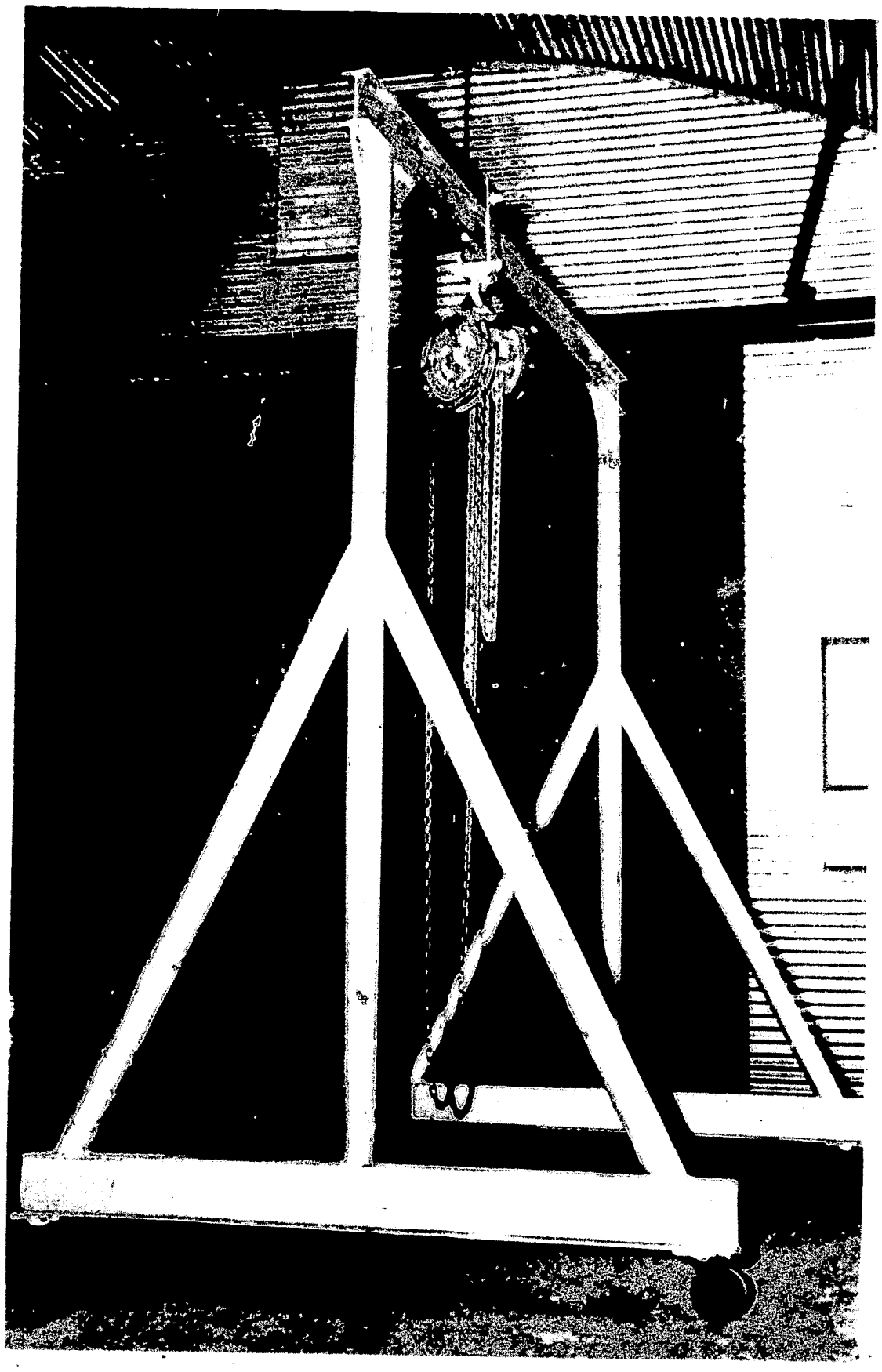


FIGURE 41.—*A portable hoist having large caster wheels needs to be strong enough to withstand heavy loads.*

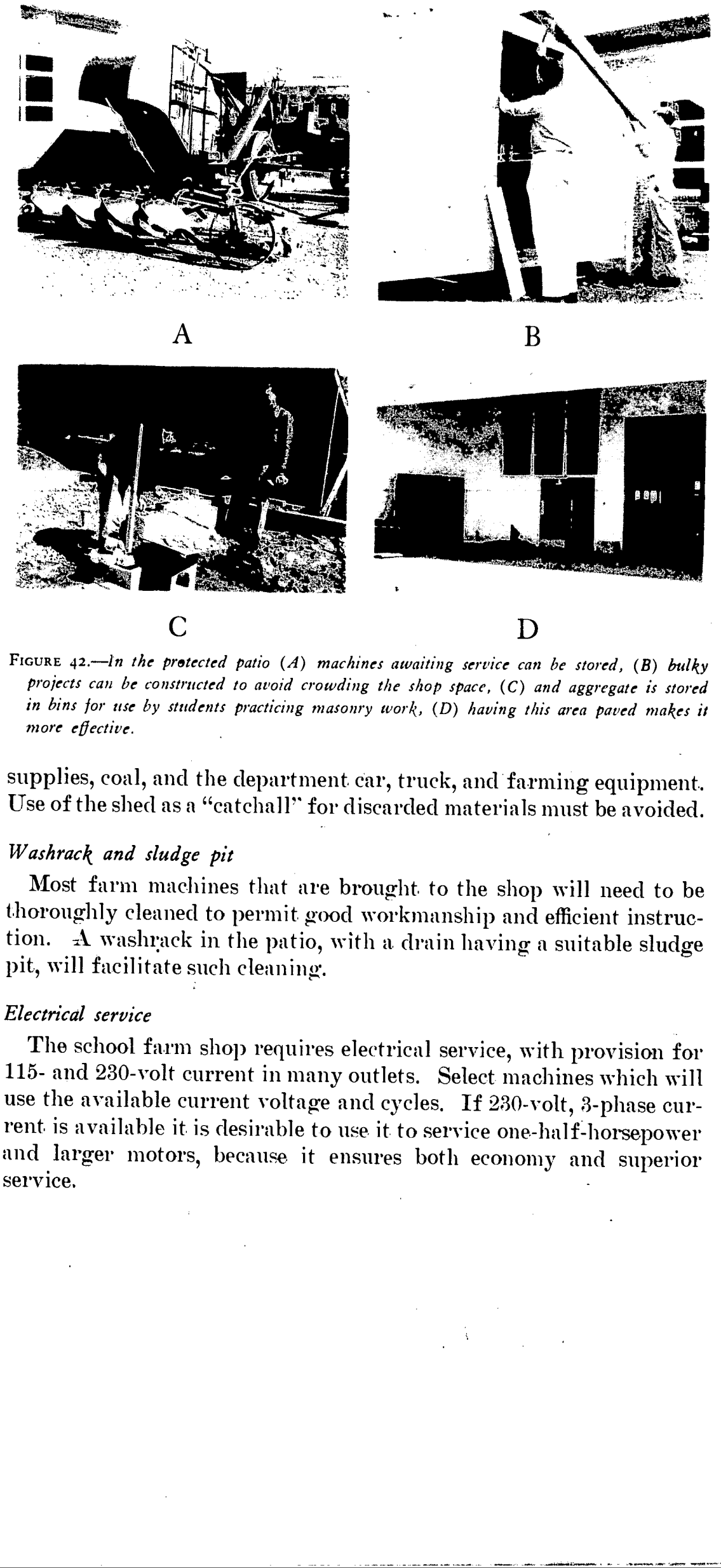


FIGURE 42.—*In the protected patio (A) machines awaiting service can be stored, (B) bulky projects can be constructed to avoid crowding the shop space, (C) and aggregate is stored in bins for use by students practicing masonry work, (D) having this area paved makes it more effective.*

supplies, coal, and the department car, truck, and farming equipment. Use of the shed as a "catchall" for discarded materials must be avoided.

Washrack and sludge pit

Most farm machines that are brought to the shop will need to be thoroughly cleaned to permit good workmanship and efficient instruction. A washrack in the patio, with a drain having a suitable sludge pit, will facilitate such cleaning.

Electrical service

The school farm shop requires electrical service, with provision for 115- and 230-volt current in many outlets. Select machines which will use the available current voltage and cycles. If 230-volt, 3-phase current is available it is desirable to use it to service one-half-horsepower and larger motors, because it ensures both economy and superior service.

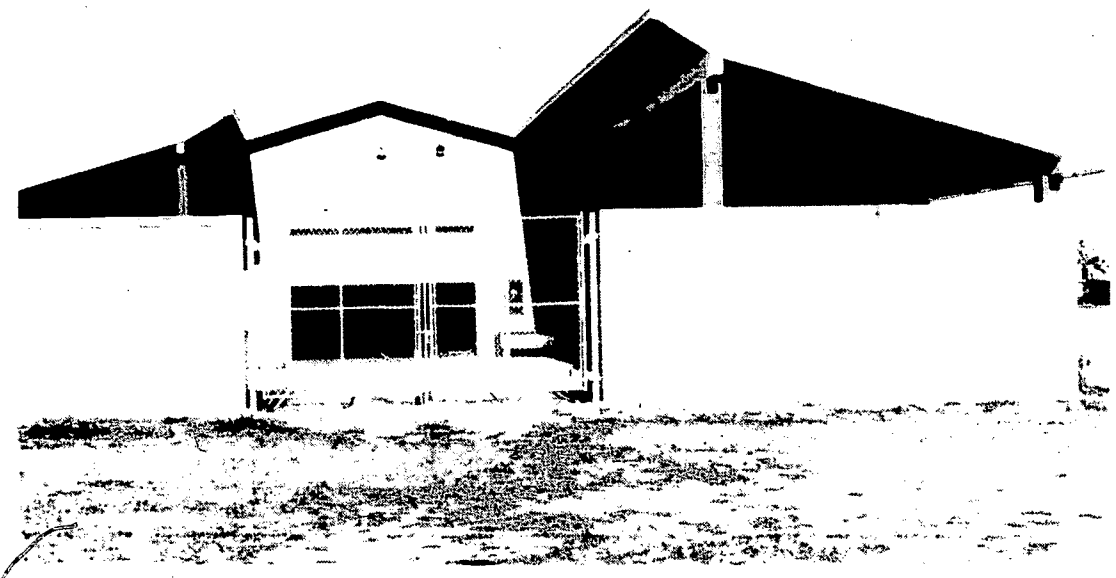


FIGURE 43.—*A patio enclosed with a masonry wall, showing shed roofs at each side.*

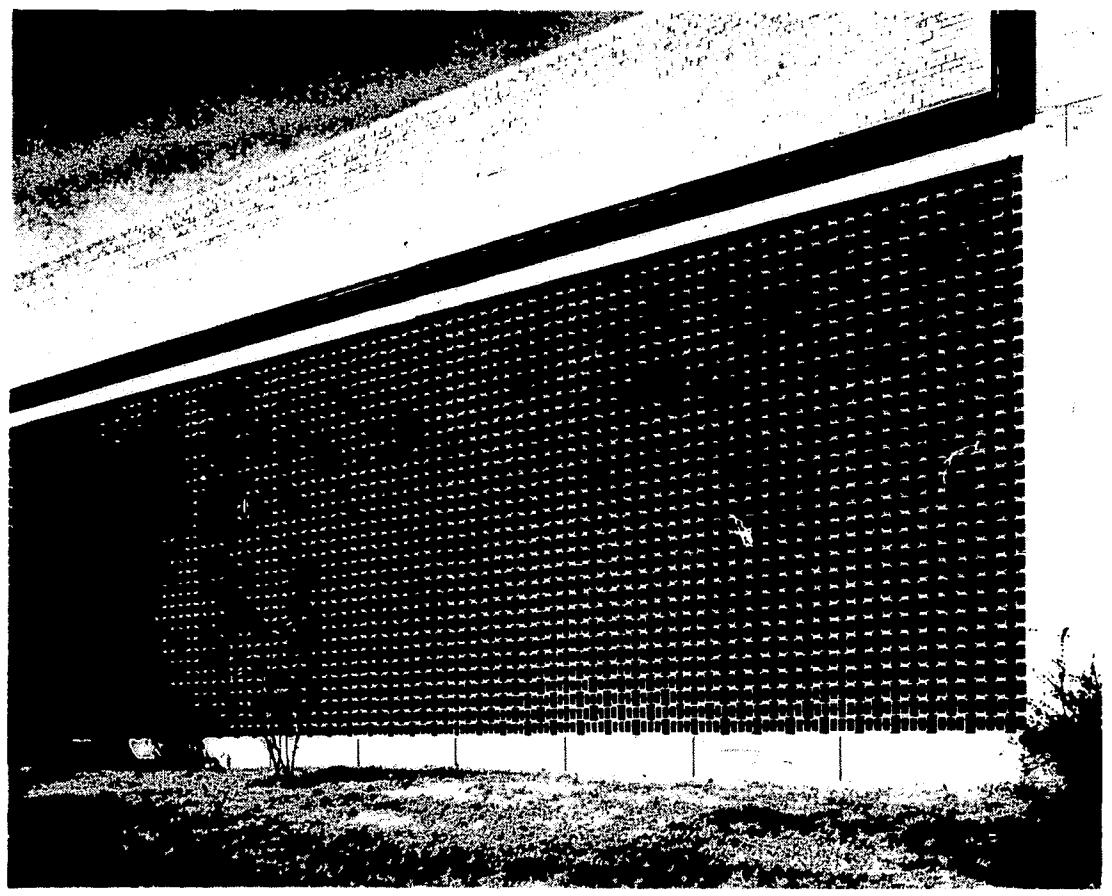


FIGURE 44.—A *clay masonry screen shielding a walkway from the main school structure to the department of vocational agriculture. Similar screens of less height may be used to protect the patio.*

A qualified electrical engineer should plan the service with an architect who is familiar with requirements. Careful plans should be made before construction, the size of machines and the number selected, and their location planned to calculate total connected load. Such planning can insure that there will be electrical outlets to provide proper and safe service at desired locations, and there will be no need to install unsightly extensions or use excessively long cords in the future. Plan a service entrance with at least 30 percent reserve for power tools that may later be added. (In addition to the shop, this reserve must also be provided in all other areas of the department.)

Service outlets should be color coded or otherwise marked to clearly indicate the current provided. All outlets in the floor should be equipped with watertight screw plate covers, and be flush with the surface, thus avoiding projections in the floor of the work area. It is often less expensive and more satisfactory to have ceiling drops than floor power sources.

A wiring diagram and detailed written description of the service should be provided for the vocational agriculture teacher, with another copy kept on file by the school administrator. Having two copies is especially helpful when there is a change either of teachers or administrators. A master switch, with a lock, to shut off all electrical power to machines makes the use of electrical equipment safer, is important in cases of emergency, and readily permits power shutoff during nonwork periods.

No attempt will be made here to provide detailed instructions for installing electrical service. Some suggestions may be gained from Section D, 17, "Wiring," in chapter VI.

V. TOOLS AND EQUIPMENT

A SUGGESTED LIST of tools and equipment for the farm mechanics shop was submitted to recognized specialists in each of the four administrative regions. These specialists working with other State staff members prepared the list that is presented in this chapter. It is recognized that this suggested list of tools and equipment is not common to all departments of vocational agriculture, but will vary as a result of the type of program offered, space available, number of students enrolled, local budget, and the training of the teacher.

The following basic list of suggested tools and equipment for a department of vocational agriculture is divided into three parts: A, B, and C. Further information pertaining to these separate listings follows:

A. A general list of items for the farm mechanics shop.

B. A list of tractor and truck maintenance equipment which should supplement the A list when instruction is given on the maintenance of trucks and tractors.

C. A list of electrical equipment which is to be used along with the general A list for teaching electrical work.

It is recognized that each State may have already prepared a list of tools and equipment recommended for farm mechanics shops. It is also recognized that the need for tools and equipment of a particular nature will vary between States and sometimes in schools within a State.

The quantity given for each tool or piece of equipment is usually the minimum and may need to be increased to meet specific State or local conditions.

When you prepare purchase orders, it will be necessary to provide further details than those indicated here, including manufacturer's name, size, weight, quality, item number, finish, and other essential descriptive statements.

Equipment is not listed for major reconditioning work on engines, differentials, and transmissions, since such jobs are usually done in special shops.

List A

(Suggested Basic Tools and Equipment for a Farm Mechanics Shop)

	Quantity
Anvils:	
Blacksmith's, with ½-in. tool steel facing, 150 or 200 lbs	2
Guard and sickle	1
Bars:	
Crow and tamping, combination, 6 ft., homemade	2
Pinch, 3-ft. and 4-ft. lengths, each	1
Wrecking	2
Bevel, sliding T	2
Bits:	
Auger for use in electric drill, ¼ in., ⅜ in., ½ in., ⅝ in., ¾ in., 1 in., with ¼-in. shank, brad point, each	1
Auger, hand brace, ¼ in. to 1¼ in. by 16ths, set	2
Countersink	2
Drill, twist, ½-in., ⅝-in., ¾-in., ⅞-in., 1-in. Morse tapered shank, each	1
Drill, twist, 1/16 in., to ½ in., by 32ds., set	1
Expansive, ⅞ in. to 3 in	1
Screwdriver, ¼ in., 5/16 in., ⅜ in. each	2
Wood boring, for use in brace 3/32 in. to ¾ in. by 32ds, set	2
Braces, ratchet, bit, 10-in. and 12-in. sweep, each (some prefer 8-in. and 10-in.)	2
Brake, angle iron, homemade, for sheet metal	1
Brush, wire wheel	1
Cans:	
Filler, oil, 1 qt., 2 qt., 1 gal., each	1
Gasoline, safety—size optional	1
Oiler, squirt—assorted sizes	3
Storage, for solvent	1
Water, radiator filler	1
Chain, log, 5/16 in. by 12 ft. to 16 ft. with grab hook and ring	2
Chisels:	
Cabinet, shank running through handle, ¼ in., ½ in., ¾ in., 1 in., each	1
Cold, ⅜ in., ½ in., ¾ in., 1 in., each	2
Cold, blacksmith's handled-width at eye 1½ in	1
Hot, blacksmith's handled-width at eye 1½ in	1
Clamps:	
C, 4-in., 6-in., 8-in., 2 pairs each	2
Fixtures, for use on ¾-in. pipe, set	4
Splicing, 9 in	1
Clipper, bolt, ¼ in. and ½ in., each	1
Coppers:	
Electric, 300 watt	3
Soldering, 1½ to 3 lbs. pair, each	1
Cutters:	
Glass	2
Pipe, capacity 1 in. to 2 in	1

List A—Continued

	Quantity
Die stock and dies:	
Pipe threading, ratchet, pipe capacity, ⅛ in. to 1 in	1
Pipe threading, ratchet, adjustable, with receding dies, 1-in. to 2-in. capacity	1
Digger, post hole, long handle	2
Dividers, wing, 8 in. or 10 in	2
Dresser, emery wheel	1
Drills:	
Electric, heavy duty ½-in., with bench stand	1
Electric, portable, geared chuck, ¼-in. capacity	2
Hand, capacity, ¼ in	1
Press, heavy duty back geared, 14–17- or 19–21-in. with taper arbor chuck to 2 in. capacity	1
Press, light, belt driven, 11–13 in. with geared chuck, to ½ in. capacity	1
Star or masonry, ¼ in., ⅜ in., ½ in., ⅝ in., ⅞ in., 1 in., set	1
Drivers:	
Screw, offset, 6 in	2
Screw, phillips head, 3-in., 4-in., 5-in. shank, each	2
Screw, shockproof, 4 in., 6 in., 8 in., 12 in., each	1
Screw, short, heavy duty, shockproof	1
Edger, concrete worker's, square corner and round corner (each)	1
Extractor, screw, "Ezy-out," set	1
File, card, cleaning	2
Flaring tool, tube	1
Float, wood, concrete worker's	1
Forges:	
Coal, 30 in. by 36 in. by 6 in	1
Gas, size optional	1
Gages:	
Drill sizes	1
Marking	1
Screw pitch	1
Sheet metal	1
Vacuum	1
Wire size	1
Goggles:	
Acetylene welders, dark lenses with cover, over-spec type, pair (some prefer 4-in. or 6-in. medium green face shield with overhead flex)	4
Grinding, pair	3
Grinders:	
Bench, electric, wheel size 6 in., shielded belt and direct driven, 1 each, 2,700 to 3,300 rpm, ⅓ or ½ hp motor	2
Floor, electric, wheel size 12 in., face 1½ in., to 2 in., 1½ to 2 hp. motor	1
Portable, electric, with cable and wheel guard, ½-in. or ⅝-in. arbor and 4-in. to 6-in. wheel	1
Sickle, electric	1

List A—Continued

	Quantity
Groovers:	
Concrete worker's	1
Hand, ¼-in., ⅜-in. sheet metal worker's, each	1
Guns:	
Oil	1
Paint spray, capacity 1 quart—with hose and regulators	1
Zerk, lever type	1
Zerk, to fit top of grease can	1
Haft, awl-assorted sizes, sets	1
Hammers:	
Ball peen, 16 oz. (2), 20 oz. (2), 32 oz. (2), each	6
Claw, curved and straight, 10 oz. (2), 13 oz. (6), 16 oz. (6), 20 oz. (1)	15
Cross peen, 24 oz. (2), 40 oz. (2)	4
Sledge, handled, 6 to 8 lb	2
Hardie, blacksmith's, shank to fit anvil	2
Hatchets:	
Broad or bench, 4½-in. cutting edge	2
Shingling	2
Helmet, arc welders	8
Hoists:	
Chain, differential, capacity ½ to 1 ton	1
Floor crane with casters	1
Horse, automotive, wide base, homemade	4
Jacks:	
Automotive, hydraulic, capacity 2 to 3 tons	1
Portable, hydraulic, floor type, capacity 2 to 3 tons	1
Jointers:	
Handsaw	1
Electric powered, pedestal model, 6 in	1
Knives:	
Draw, 10 in	2
Putty	6
Lamp, trouble—automotive	4
Levels:	
Builder's with telescope, magnify 12 to 14 diameters	1
Carpenter's, plumb 18 in. and 24 in., 1 each	2
Line, chalk, 100 ft., with self-chalking can and reel	2
Mallets, wood and rubber, each	2
Mortar board, 30 in. by 30 in., homemade	2
Nippers, end cutting	1
Oiler, hand	2
Oilstone, combination	2

List A—Continued

	Quantity
Planes:	
Block, adjustable, 4-in., 6-in., each	1
Jack, 14-in	4
Jointer, 18-in. and 24-in., 1 each	2
Smoothing, 7-in. and 10-in., 1 each	2
Plate, screw, NC and NF, ¼-in. to ¾-in. by 16ths, set, each	1
Pliers:	
Combination, side cutting, 6-in. and 8-in., 3 each	6
Diagonal cutting, 8 in	2
Lineman's, 8 in	4
Long nose, 6 in	2
Round nose, 6 in	3
Plumb bob	1
Pullers:	
Gear, heavy duty	1
Gear, small, 0 in. to 3 in	1
Punches:	
Alining, points, 3/16 in., ¼ in., ⅜ in., each	1
Belt, revolving head, 4 or 6 tube	1
Blacksmith's, round, handled-width at eye 1½ in.—¼ in., ⅜ in., ½ in., each	1
Center, machinist's, diameter at top of tapered point, ⅛ in. to 7/32 in., each	1
Leather, hollow, used with hammer—assorted sizes, sets	2
Pin, machinist's, 3/32 in., ⅛ in., 5/32 in., 3/16 in., 7/32 in., 9/32 in., each	1
Sheet metal, with punches, 3/32 in., to ¼ in. by 32ds, set	1
Starter, assorted sizes	4
Reamers:	
Burring, spiral pipe, ¼ in. to 2 in	1
Expansion blade, 19/32 in. to 1 11/32 in., set	1
Rivet buster	2
Rules:	
Fourfold, 2 ft., brass tip	6
Steel tape, 6 ft	2
Stringer, brass bound, 2 ft	6
Zig-Zag, 6 ft.	4
Saws:	
Compass, ½ in	1
Crosscut, 8 or 10 point, 26 in	4
Electric, portable, 6¼ in., with adjustable depth and tilt	1
Electric, saber jig, portable	1
Hack, adjustable frame	3
Hack, power, with capacity to 4 in. by 4 in., metal	1
Keyhole, hack, 10 in	1
Rip, 5 or 6 point, 26 in	2
Tilting arbor or radial arm, 10 in., complete with motor	1
Scraper, carbon, wire	2
Screen, gravel—assorted size mesh, homemade, each	1
Seamer, "Handy"	1

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List A—Continued

	Quantity
Sets:	
Nail, assorted sizes	4
Rivet, assorted sizes, set	1
Saw, pistol grip	1
Shields:	
Grinder, face	2
Welder's, arc	4
Shovels:	
Round point, long handle	1
Round point, short handle	1
Square point, long handle	1
Square point, short handle	1
Snips:	
Tinner's, combination pattern, 12-in. length	2
Tinner's, regular pattern, 10-in. and 12-in. length	2
Spokeshave	2
Squares:	
Carpenter's steel, 16-in. by 24-in., 1/16-in. markings, rafter and framing, each	4
Carpenter's steel, 8 in. by 12 in	2
Combination, 12 in	4
Straightedge, wood, homemade	1
Tachometer or speed indicator	1
Tank, parts washing, 25-gal., homemade	1
Tape, steel, 50 ft. in case and 100 ft. in reel, 1 each	2
Tongs:	
Bolt, blacksmith's, 3/8 in., 1/2 in., 3/4 in. by 20 in. to 24 in., each	1
Plowshare, homemade, 24 in	2
Straight-lipped, 20-in. to 24-in	4
Torches:	
Arc, carbon	1
Blow, gasoline, capacity 1 quart	1
Welding, oxyacetylene, with cutting attachment	2
Trammels, beam, adjustable, pair	1
Trowels:	
Bricklayers, 9 in. and 11 in., each	1
Bricklayers, pointing, 5 in	2
Concrete finishing, 10 in. and 12 in., each	2
Vises:	
Drill press, 6-in. opening	1
Machinist's, 4 1/2-in. jaw	6
Machinist's, 4 1/2-in. jaw, heavy duty	1
Pipe, 1/8 in. to 3 1/2 in	1
Saw, 9 1/2-in. jaw	1
Solid box, blacksmith's leg, 50 lbs. to 100 lbs	1
Woodworking, continuous screw, 7-in. jaw	6
Welder, arc, 180 amp. AC (3), AC–DC (1), and portable DC (1)	5
Wire stretcher	1

List A—Continued

Wrenches:	Quantity
Adjustable, open end, 8 in	4
Adjustable, open end, 12 in. and 18 in., each	2
Allen type, 1/16 in. to 1/2 in., set	1
Box type, 5/16 in. to 1 in. by 16ths, set	1
Combination box and open end, 1/4 in. to 1 in., by 16ths, set	2
Flex set, 3/8 in, 1/2 in., 5/8 in., 3/4 in., set	1
Ignition, set	1
Pipe, 14 in.. 18 in., 24 in., each	1
Socket master, 1/2-in. square drive, 1/4 in., to 1 1/8 in., by 32ds, 12 point, set	1
Socket, midget, set	1
Special mechanics set, 5/16 in., to 1 in. by 16ths, with ratchet handle, 12 points, set	1
Tappet and check nut, set	1

List B

(Suggested Tractor and Truck Tools and Equipment for a Farm Mechanics Shop)

	Quantity
Battery:	
Hydrometer	1
Lifter, strap type	1
Bleeder, hydraulic brake	1
Compressors:	
Air, single stage, tank type, 6 cu. ft. per minute capacity at 60 lbs. psi	1
Valve spring, universal with extra parts	1
Cotter pin puller or extractor, plier type	2
Creeper, automotive	2
Funnel, with screen for filling fuel tank	1
Gages:	
Compression, with adapters	1
Cylinder	1
Depth, 6 in	1
Spark plug, round, wire	2
Thickness	4
Growler, armature testing	1
Micrometer calipers, with clamp ring, 0 in. to 6 in, by thousandths, outside and inside ratchet stop and set of standards	1
Pliers:	
Battery	3
Water pump, auto	1
Press, arbor, adjustable frame, 40 tons' capacity, optional	1
Pump, gear lubricant	1
Ruler, metal scale in 64th, 1 ft	2

List B—Continued

	Quantity
Spark plug cleaner and tester	1
Storage battery cell tester	1
Tester:	
Fuel bowl level	1
Storage battery cell	1
Valve or clutch spring	1
Timing light, neon	1
Valve lifter:	
"C" type, automotive	1
Heavy duty, automotive	1
Wrenches:	
Impact, electric, ½-in. square drive	1
Open end, alloy, ¼-in. to 1 in., set	1
Socket, ¾-in. square "lock-on" drive, 1⅛ in. to 2¼ in. by 16ths., set	1
Spark plug, long, thin, and deep, 12 point, ½ in. to 1⅛ in. by 16ths, set	1
Stud setter or extractor	1
Tension	1

List C

(Suggested Electrical Tools and Equipment for a Farm Mechanics Shop)

	Quantity
Ammeter, AC, Portable, 5-in. scale	1
Bit, electrician's, ½ in., ⅝ in., ¾ in., ⅞ in., 1 in., each	1
Clamp, linemen's splicing	6
Drill, electric, with 45° attachment	1
Grip, come-along, wire	1
Hickey, conduit bending, ½ in., ¾ in., 1 in., each	1
Pliers, splicing, reversible	2
Screwdriver, electrician's, insulated, length of blade, 3 in., 4 in., 6 in., 8 in., each	2
Soldering coppers, electric, tip dia. 9/16 in. and 1⅛ in., each	1
Soldering gun, electric	1
Tape, tempered steel finish, electrical	1
Torch, alcohol	1
Voltmeter, AC, portable, 5-in. scale	1
Wattmeter, AC, portable, 5-in. scale	1

VI. PLANNING GUIDE FOR BUILDINGS AND FACILITIES

THE FOLLOWING CHECKLIST incorporates many of the ideas and suggestions provided by State school building directors, State staff members of vocational agriculture, school administrators, teachers of vocational agriculture, and others. The list should assist in the development of plans for buildings and facilities for vocational agriculture. The items mentioned in the checklist are not of equal importance; some are included under more than one heading where this is deemed necessary, but all will need to be considered before final plans are developed. The checklist is not complete, particularly in reference to the small equipment items, many of which are listed in the preceding chapter on tools and equipment. When you check plans, determine if due consideration has been given to the following.

A. General Features

1. Location
   - *a.* The department is conveniently near or it is in the main school building.
   - *b.* If the department is separate from the main building, students can pass readily between the main school building and the department.
   - *c.* The location is reasonably level and the surface well drained.
   - *d.* The soil is well drained and fertile enough for the growth of grass, shrubs, and trees.
   - *e.* The department is situated far enough from the street to meet building code regulations.
   - *f.* The site provides adequate space, with proper exposure and orientation, for possible expansion, such as may be needed for classrooms, shop, greenhouse, lath house, and hotbeds.
   - *g.* The shop is so located and acoustically treated, and the area is landscaped, in a manner to prevent noises from disturbing students in classrooms.
   - *h.* The department has a separate heating system or one that can be controlled independently of the main building.
2. Access
   - *a.* The student entrance is on the side of the building toward the main school building, or on the same street or sidewalk.
   - *b.* The main student entrance opens into an entry hall that provides access to classroom, shop, and office.

A. General Features—Continued

2. Access—Continued

c. There is sufficient and convenient parking space available for all classes, including those for adults.

d. The utility entrances are unobstructed so that they can be used by service and delivery trucks.

e. The farm machinery storage floor area is at, or near, the same level as the shop floor.

f. Vehicle access to shop, with a door 14 feet to 16 feet wide and 12 feet to 14 feet high, is on a side, not an arterial, street unless it is set well back from street. See fig. 27.

g. Vehicle access from street to patio and to shop necessitates a second large door into the shop of the size mentioned in item *f* above.

h. The farm machinery storage area and patio are accessible by a large gate or door other than through the shop.

i. The approach, inside and outside, to the large farmshop entrance doors is unobstructed by installations. In cold climes it is usually preferable for these doors to face south or east.

j. There is a standard personnel door beside or in the large farm machinery entrance door. See figs. 28 and 29.

3. Worthy Considerations

a. The department is of a design that harmonizes with the main school structure.

b. The department is so constructed and the area so laid out as to readily permit adding or enlarging rooms.

c. The department is in one unit with the classroom convenient to the shop so that one teacher may supervise activities in both areas simultaneously.

d. The location and type of construction assures that the classroom will be relatively free of disturbing noises originating elsewhere.

e. The department building planners are fully informed about the community, being well acquainted with the farmers, local agriculture, businessmen, and economic potentials.

f. The department plans are designed to meet specifically the agricultural training needs of the community.

g. The entry walls or hall have inset display cases for trophies, agricultural products, and items of agricultural and educational interest. Spotlights make the displays attractive and more effective.

h. A carved stone or polychrome terra cotta FFA emblem is placed in the wall of the entryway or this emblem is in the entryway floor and made of linoleum.

i. The buttresses or other type of wall supports are on the outside of the building wall to make the interior walls more functional.

j. A list of the educational tasks to be performed in each part of the department is available to aid the architect in planning the lighting and other building features.

k. The preliminary plans and specifications for lighting and other building features are reviewed by the school administrator and the teacher of vocational agriculture in conference with the lighting engineer and architect.



FIGURE 45.—*Inset display cases are provided on either side of the vestibule entrance.*

A. GENERAL FEATURES—Continued

3. Worthy Considerations—Continued

l. The final plans and specifications for the building features are checked in detail by the responsible school authorities with the architect, prior to acceptance, to determine that all decisions and changes made earlier have been satisfied.

m. To insure that all work conforms to plans and specifications, the architect and his staff, during construction, provide inspection and supervisory services.

n. A performance check at completion of the work is made by the architect and his technical staff in company with school authorities to assure that all installations were made as planned.

o. Upon occupancy of the building, the school officials, teacher of vocational agriculture, and custodians or school engineer held a meeting with the architect, contractors, and supplier representatives on how to best use all installations and how to provide proper maintenance for each installation.

p. A written warranty is provided, as to the satisfactory performance of lighting and other installations, that covers a period of at least one year following completion and occupancy of the building.

B. Classroom

1. Floor Plan

a. A total of 35 to 45 square feet of floor space is provided per student in each class, with a minimum of 780 square feet exclusive of laboratory and storage room.

b. The room has a minimum width of 24 feet. (Room needs to be 28 feet wide if conference desk arrangement is used.)

c. The room is located on the first floor or ground level.

d. Entrance is provided other than from the shop.

e. The room or combination of rooms is sufficiently large to seat all of the high school students of vocational agriculture for FFA, or all of the adult farmers in class meetings.

f. In multiclassroom departments provision is made to open these rooms into one unit for accommodating large groups. See fig. 2.

g. The room is so located as to be free from disturbing noises and views.

h. There is access directly to the shop from the classroom through a short hall.

i. The entranceway from the shop is at least 7 feet wide to permit bringing shop items into the classroom for instructional purposes. See fig. 17.

j. The floors and walls are functional, being unobstructed by posts, pillars, pilasters, and projections.

2. General Features

a. The heating system is adequate, automatically controlled, and operates without disturbing noises or fumes.

b. The heating can be regulated in the department by the teacher.

c. The windows extend sufficiently high for adequate light.

d. The base of the windows is above the eye level of a seated person, if it is thought that outside distractions warrant such a plan.

e. Direct sunlight into the room can be controlled.

f. The room can be darkened for projection of visual aids.

g. Semidirect or diffused artificial light of at least 35 foot-candles is provided.

h. The walls, floors, and furnishings are finished in soft light colors, avoiding severe contrasts.

i. Approximately 30 percent of a solid wall area is available for built-in storage and display space.

j. The ceilings and walls possess effective acoustical properties. See fig. 13.

k. The wall between the shop and classroom is soundproofed or provided with a buffer space, such as storage room, office, library, supply room, or washroom.

l. Adequate exhaust fans are provided to quickly remove fumes, gases, and disturbing odors.

m. The classrooms in multiteacher departments are so designed that students in one room cannot see those in the other room or rooms.

n. The floor is resilient, light colored, durable, skid resistant, easily cleaned, and insulates the noise of footsteps.

B. CLASSROOM—Continued

3. Furnishings and Equipment

a. Twelve or more running feet of chalkboard is provided.

b. At least 30 square feet of bulletin board space is provided and preferably located near the classroom entrance. See fig. 24.

c. The duplex electrical convenience outlets are easily accessible and not more than 10 feet from any point along the walls.

d. The teacher is provided with an acidproof covered demonstration table, having a sink, hot and cold water, and electrical convenience outlets, and located either in the classroom or in the laboratory.

e Provide at least 80 cubic feet of drawers and enclosed shelves for storing laboratory equipment, usually located under a counter or laboratory table.

f. At least 16 cubic feet of enclosed cupboard space is available for storing laboratory supplies.

g. There are at least 32 cubic feet of enclosed shelves for the storage of teaching material.

h. Adequate shelf space is provided for reference books.

i. A partitioned cabinet provides for each student a shelf or drawer 12 inches high, 12 inches deep, and 4 inches wide to store notebooks and supervised farming records.

j. A vertical rack is conveniently located for storing charts in an organized manner.

k. The study table for each two students is at least 2 feet by 5 feet. See fig. 20.

l. The student tables are of a hard finish with glare-free tops.

m. There are portable tables for displaying teaching materials and for special situations.

n. The chairs are of posture type, squeak free, and of welded construction. See fig. 21.

o. Folding chairs with rubber-tipped legs are available to provide seating for special occasions.

p. Projection equipment including the screen is available.

q. There is a satisfactory magazine display rack.

r. Separate filing cabinets are available for the teacher and the FFA.

s. The classroom has desks adequate for the teacher's or teachers' needs.

t. A rodentproof, well-lighted storeroom of adequate size is easily accessible from the classroom.

u. The storeroom is equipped with shelves and metal-lined protective drawers.

v. The classroom clock has a large dial.

w. A bell system gives the time and rings other warnings to the classes.

x. A communication system is connected with the school office.

C. OFFICE AND CONFERENCE ROOM

1. General

a. The department office is convenient to the classroom.

b. The classroom is visible from the office. See fig. 19.

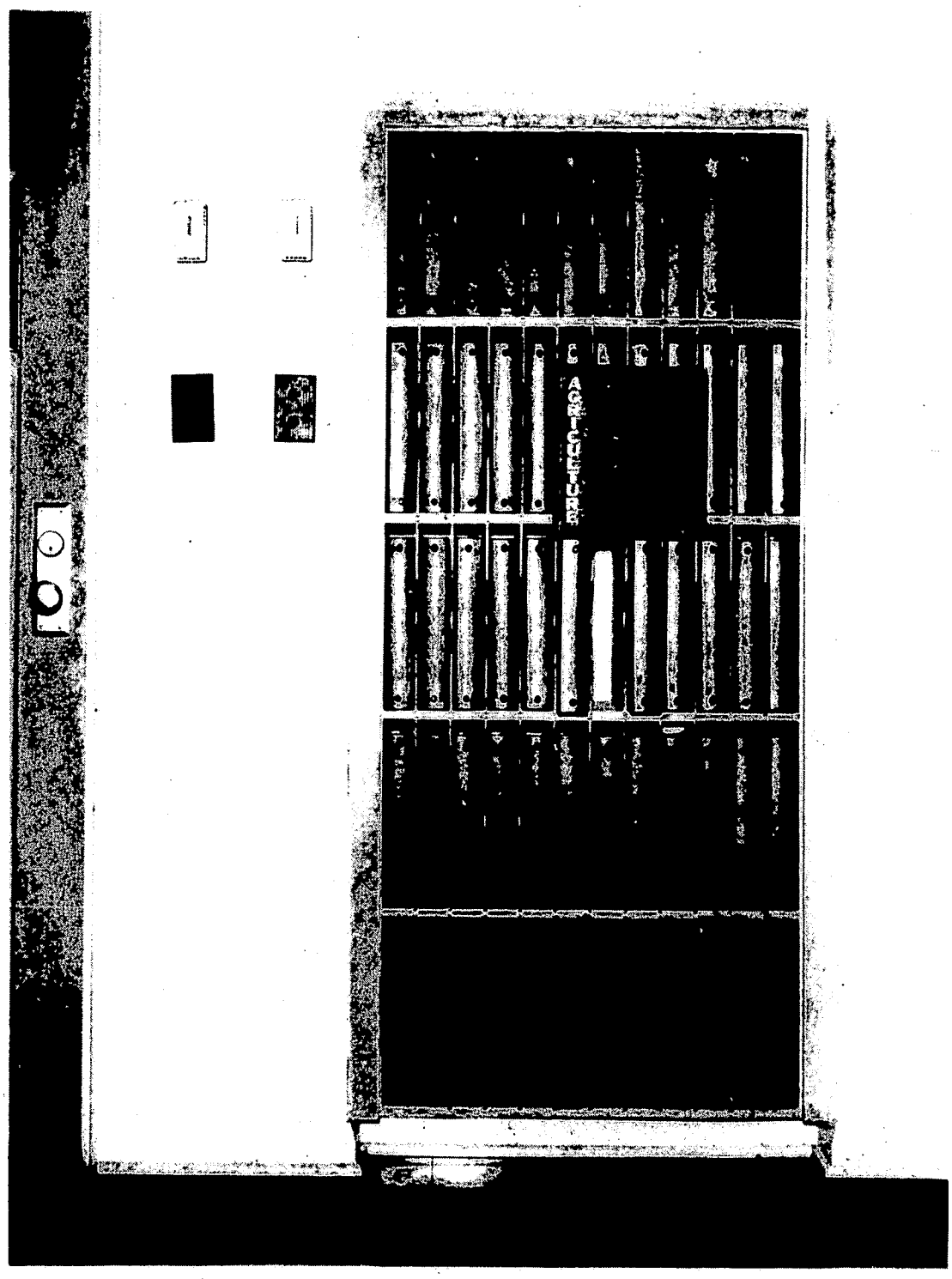


FIGURE 46.—*A vertical type of storage for the students' individual notebooks.*

C. OFFICE AND CONFERENCE ROOM—Continued

1. General—Continued

c. The shop activities can be observed from the office.

d. The office provides 80 to 120 square feet of floor space, with 60 square feet more for each additional teacher.

e. There is a closet for topcoats, hats, and shop clothes.

f. The lavatory and water closet for use by the staff and visitors is adjacent to the office.

C. Office and Conference Room—Continued

1. General—Continued

g. The design and size of the office is such that it can serve well as a conference or committee room.

h. The office walls and ceiling are effectively soundproofed. (Double-glazed window sash aids in soundproofing.)

i. The floor is smooth, resilient, skid resistant, easy to clean, and durable.

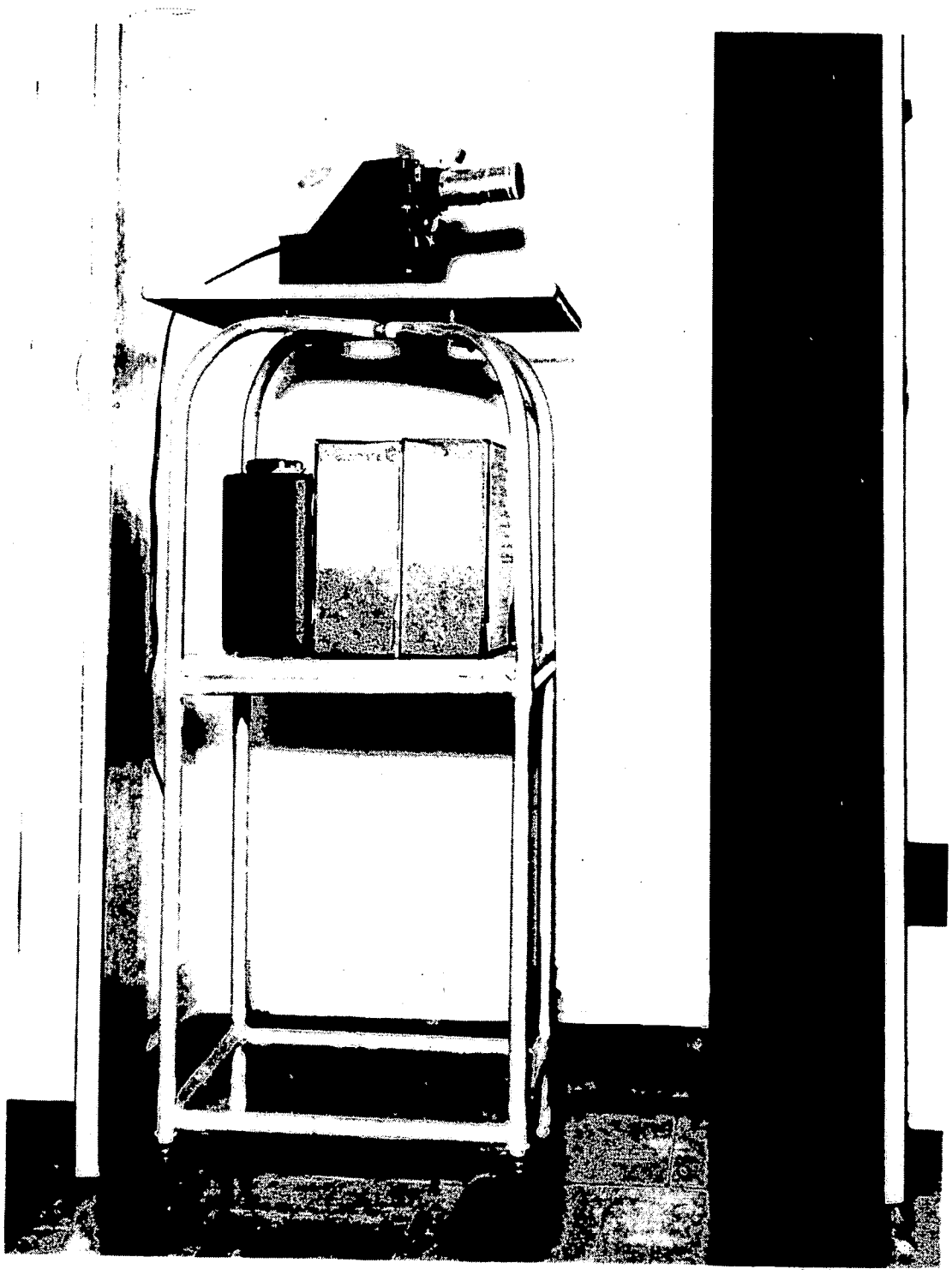


Figure 47.—*Projection equipment is essential to provide instruction through visual aids. Note the large caster wheels on the projector stand.*

C. Office and Conference Room—Continued

2. Furnishings and Equipment

a. Each teacher is provided with an office desk and chair.

b. A secretary's desk or typing table is available.

c. A conference table and at least four folding chairs having rubber-tipped legs are provided.

d. Each teacher has a 4-drawer, letter-size, filing cabinet.

e. A standard size typewriter is available.

f. A duplicating machine unless otherwise conveniently available is provided.

g. An adding machine is available.

h. An outside telephone is installed.

i. A communication system is connected with the main school office.

D. Farm Mechanics Shop

1. General Features

a. The floor is designed for at least 150 pounds per square foot.

b. The floor is smooth, fireproof, sealed, and durable.

c. The floor is skid resistant, especially around machines.

d. Safety zones are marked plainly on the floor around equipment to warn students against crowding the operator. See fig. 28.

e. Water near the floor drain will flow toward it, and there is a drainage slope outward from the large entrance door.

f. The ceiling is 12 to 15 feet high to provide clearance for overhead door and large machinery.

g. The floor is unobstructed by posts, pillars, pilasters, and other projections.

h. A tiedown ring is placed in the floor near the sump.

2. Heating

a. The heating system is adequate to maintain at the working level a temperature of 64° in coldest weather. (Nature of the work may require a slightly higher temperature.)

b. There is a fan or other method to distribute the heat without circulating dust or making disturbing noises.

c. The heating system can be regulated at the shop.

d. Heat is also available for evening meetings.

3. Lighting

a. The windows are so located that there is adequate wall space for cabinets.

b. The bottoms of windows are at least 60 inches high so as not to interfere with the work on the benches.

c. To avoid outside distractions from disturbing students, the base of windows are located sufficiently high or frosted or translucent wire glass is used.

d. The windows extend to within 4 to 6 inches of the ceiling to allow daylight to reach well into the shop.

e. The lighting fixtures over benches are placed so that a person does not cast a shadow on his work.

D. Farm Mechanics Shop—Continued

3. Lighting—Continued

f. Adequate light of proper intensity, diffused and lacking glare and shadows, is provided.

g. Additional local directed task lighting is provided on machines where close work is done.

h. The ceiling is of flat light color with nearly 80 percent light reflectivity.

i. The walls, benches, and machine bodies are painted in soft, light colors in accordance with an approved safety color coding.

j. Reel-type, pulldown, trouble lamps are available in the machinery service work area.

k. Electrical convenience outlets are available from ceiling drops and along the wall for attaching trouble lamps.

4. Ventilation

a. The welding booths and forges have hoods and forced exhausts to the outside. (Gas forges may not need a flue.)

b. Forced ventilation changes the air in the shop often enough to remove fumes from welding in the construction area and yet not increase the circulation of dust.

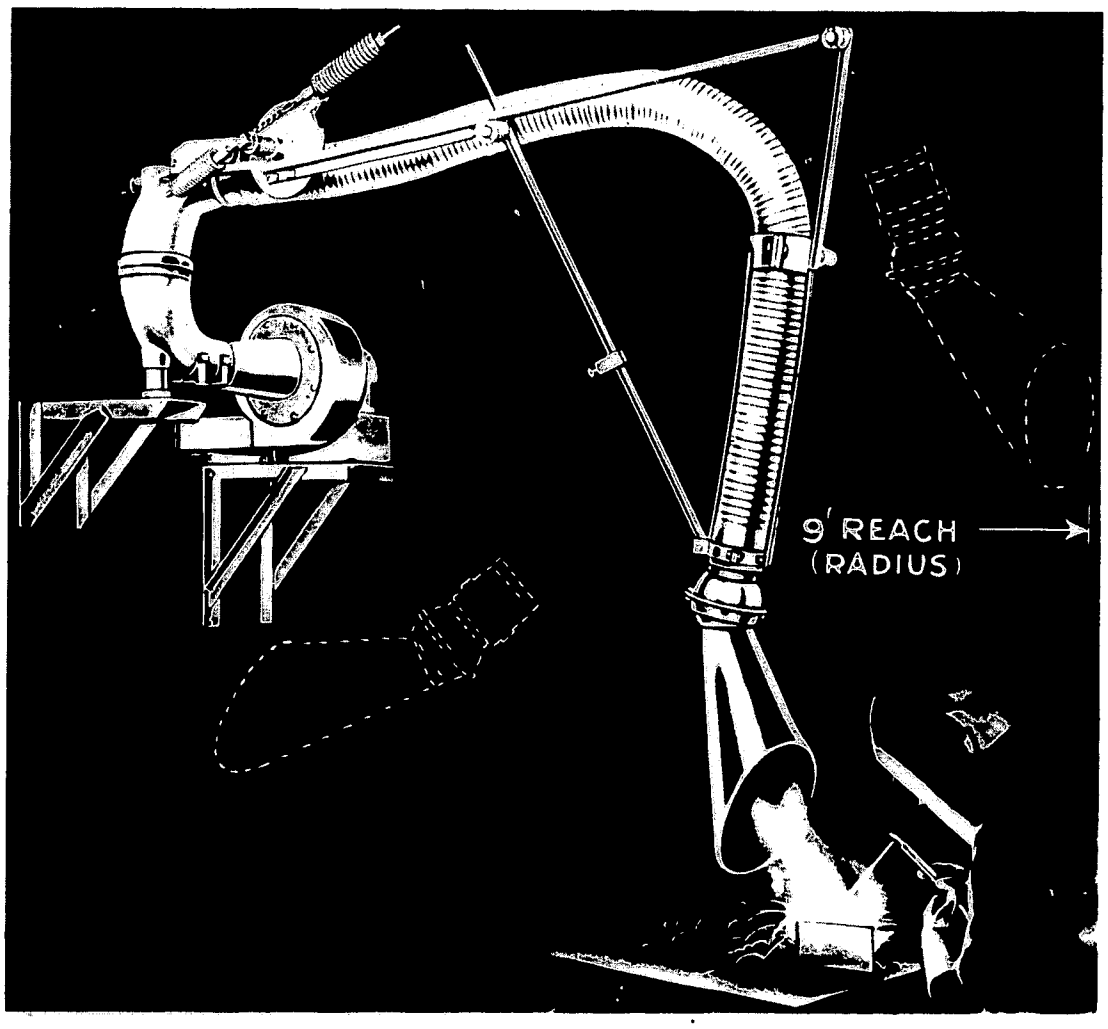


Figure 48.—*A flexible tube exhaust system attached to an overhead arm is convenient for removing fumes and smoke from many areas.*



FIGURE 49.—*To remove fumes from the paint area, locate the exhaust about 2 feet from the floor.*

D. FARM MECHANICS SHOP—Continued

4. Ventilation—Continued

c. There is an adequate exhaust for fumes in the painting area. Two feet from the floor is the ideal location of the exhaust to remove fumes when spray painting.

d. The windows can be controlled to permit natural ventilation without causing drafts.

5. Floor Plan

a. The shop space has a width to length ratio of at least 1 to 2.

b. The minimum shop width is 40 feet, and minimum size is 2,400 square feet.

c. The shop working area provides at least 150 square feet of floorspace per student in the largest class, in addition to 1,200 square feet occupied by machines and benches.

d. Storage room is provided for the infrequently used and costly tools.

e. Special tool cabinets are provided in each specific work area. See fig. 40.

f. The shop floorspace is unobstructed by inward projecting corners, walls, or pillars.

D. Farm Mechanics Shop—Continued

5. Floor Plan—Continued

g. The shop machines and workbenches are located mostly against walls to leave center floorspace unobstructed. See fig. 33.

h. The floor area is zoned by grouping tools and machines according to type of work, such as woodworking, hot metal, cold metal, electrical, construction, and servicing farm machinery.

6. Metalworking Area

a. The forges and metalworking machines are located so as to have at least a 3-foot aisle space to prevent crowding and bumping of the operators.

b. Metal-topped workbenches are equipped with heavy machinist vises conveniently located. See fig. 35.

c. There is adequate space at the machines to handle long or bulky items.

d. Provision is made for storage of open stock steel, scrap metal, pipe, bottle gas, and acetylene and oxygen tanks. Customary safety precautions for handling, storage, and use of flammable items are provided.

e. The power tools are equipped with individual motors that are grounded.

f. The welding tables are covered with a metal such as copper or aluminum that will prevent spatter from sticking.

7. Woodworking Area

a. The power tools are located so that 18-foot lumber can be processed.

b. The power tools are located so that they may all be operated at the same time without conflict.

c. Storage of usable scrap lumber is provided.

d. Safe provision is made for disposing of lumber refuse and other trash.

e. The power tools are equipped with individual motors that are grounded.

8. Farm Machine Repair and Construction Area

a. A floor drain with a cleanout-type sludge pit is located in the machinery repair area, or in the patio.

b. This area is arranged so that each of three farm machines may be moved in or out without disturbing the other two.

c. An unobstructed area of approximately 20 by 40 feet is available for working on machinery, and an additional area 20 by 30 feet is available for construction of items such as small buildings, feedracks, trailer-beds, and cattle guards.

d. This area can be reached by leads from an electric welder if welders are not portable.

e. Compressed air is available in the working areas, preferably pulldown type.

f. Pulldown-type trouble lamps are available in these working areas.

g. There are welding booths and other protected areas for welding.

9. Storage of Shop Supplies

a. There are 200 square feet of floorspace in the shop conveniently available for storage of supplies.

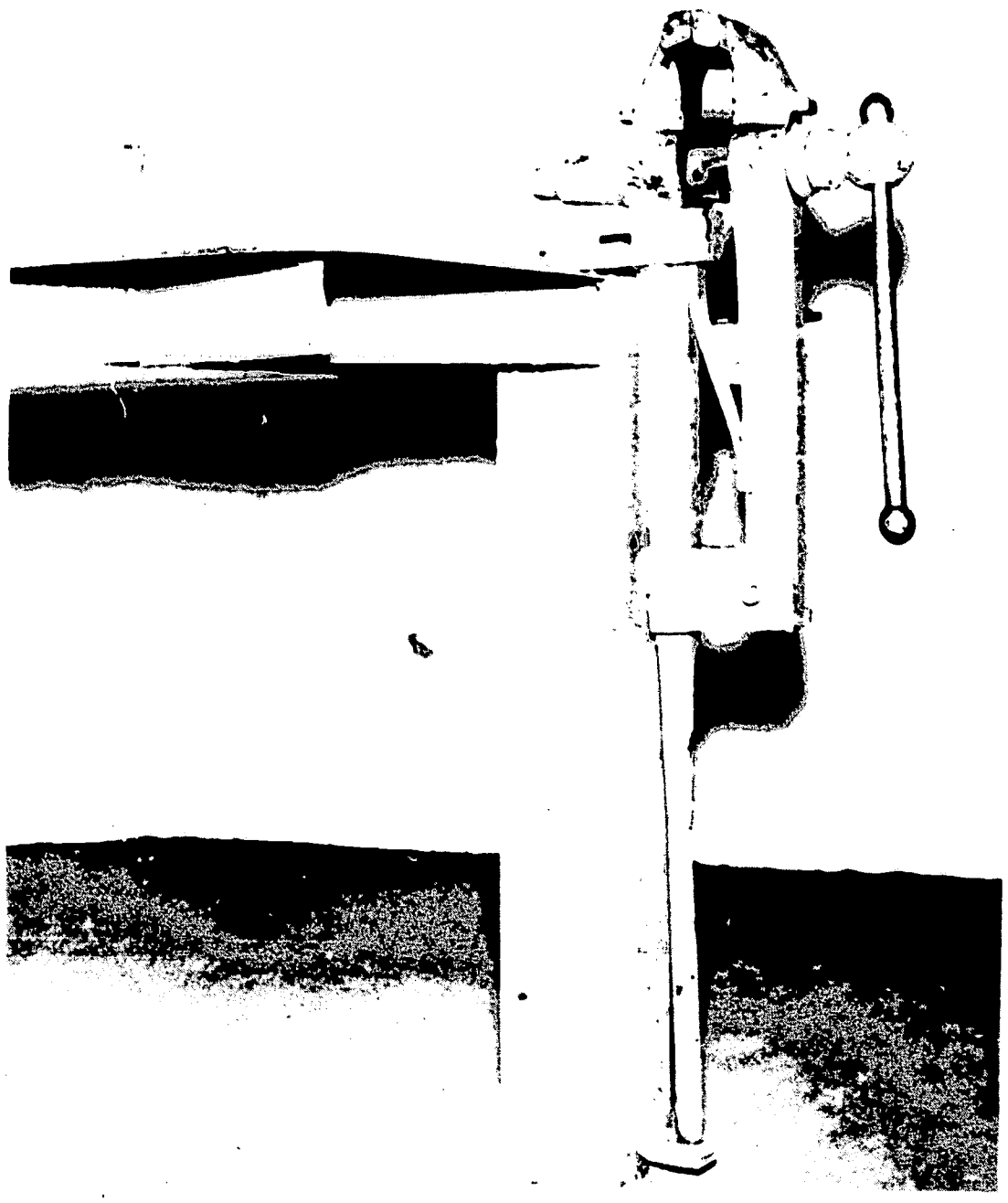


FIGURE 50.—*A firmly set blacksmith's leg vise with a heavy plate metal table serves a most useful purpose in the metalworking area.*

D. FARM MECHANICS SHOP—Continued

9. Storage of Shop Supplies—Continued

b. The storage room is at least 20 feet long with an upper level 7 feet above the floor for the rear 16 feet.

c. The storage room can be locked, with master key for the teacher.

d. The storage room is on the same floor level as the shop.

e. The room is equipped with racks for storing lumber and metal. See figs. 36 to 39.

f. There is a door on or near the end so that long lumber and long bars of steel or pipe can be taken in and out easily.

D. Farm Mechanics Shop—Continued

9. Storage of Shop Supplies—Continued

g. There are special racks on the second level for storing such material as sheet metal, plywood, small completed projects, demonstration materials, and wire.

h. This room preferably has a door opening directly outside to a driveway for deliveries.

i. Boxes or bins are provided and labeled for small items, such as nails, bolts, screws, and small tools.

j. At least 150 feet of shelving and 40 to 60 drawers are provided for storing such items as shellac, glue, gasket material, emery and sandpaper, replacement parts, extra tools, and expendable supplies.

k. Lumber and some metal can be stored on rollaway racks under workbenches. See fig. 34.

10. Storage of Shop Tools

a. General-purpose tools are arranged in cabinets above the workbenches.

b. Tools are provided in cabinets and color coded according to the kind of work to be done in the area.

c. Tool cabinets are painted with silhouettes or with cutouts of each tool to show its location.



Figure 51.—*The teacher and students can observe safely the arc welding work through a fireproof, spatter-resistant plastic screen having a color density of a welding lens. Walls of the booth have been treated to make them fire resistant.*

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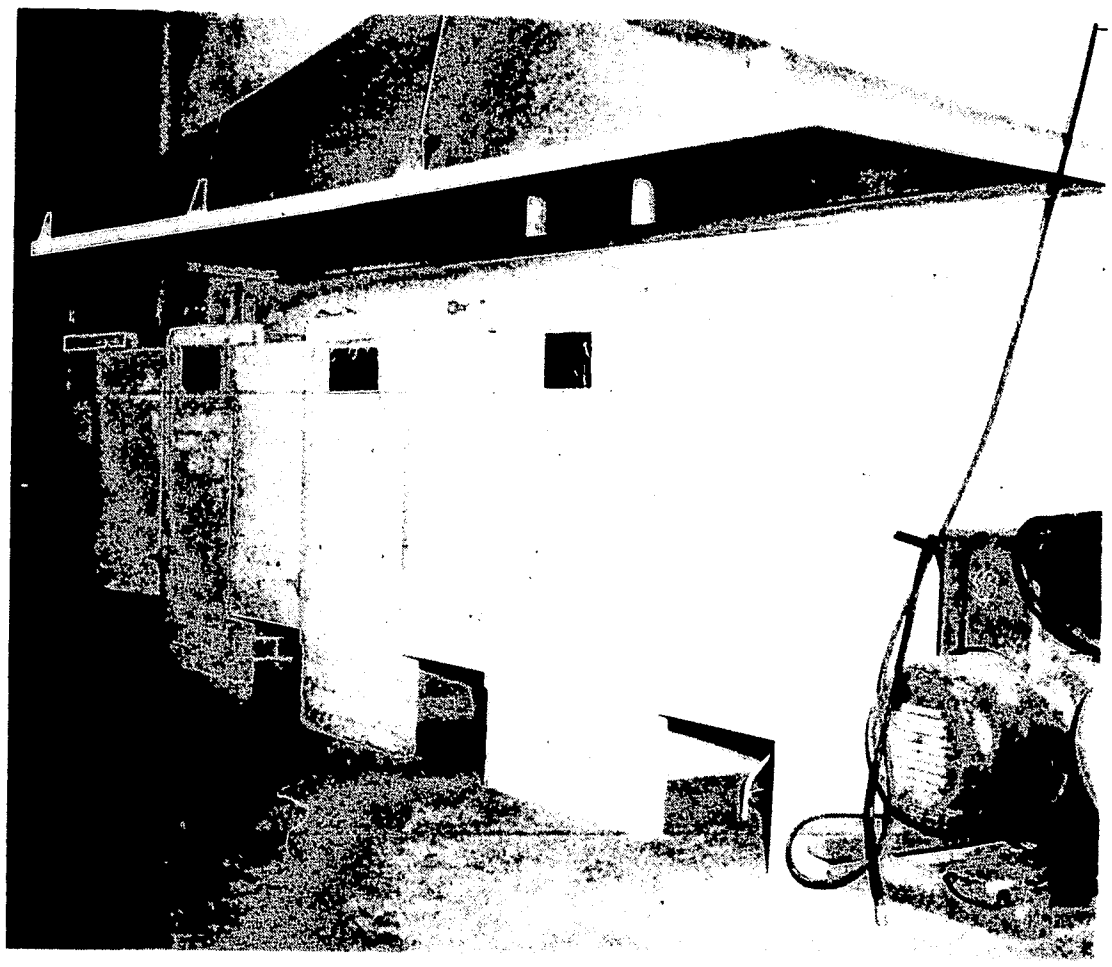


FIGURE 52.—*Some prefer the more permanent-type masonry booths. To further insure safety, each booth has a separate light, overhead exhaust ventilation, and a safety window. Welding table is located at side of each booth under the window so that teacher can observe work of student. Space below door aids in ventilation.*

D. FARM MECHANICS SHOP—Continued

10. Storage of Shop Tools—Continued

d. All tool storage rooms and cabinets can be locked.

e. There is a storage room of at least 100 square feet of floorspace or floor-length cabinets for special tools such as micrometers, precision equipment, portable electric drills, surveying equipment, and other costly tools.

f. There are sufficient portable tool cabinets to supplement tools in wall cabinets. See figs. 40 and 60.

g. There is a special closet for storing field and farm tools, such as shovels, hoes, sledges, crowbars, hand rakes, and forks.

11. Student Clothes and Storage Lockers

a. There is a storage locker of 3- to 8-cubic-feet capacity for each student for storing small projects, machine parts, and his personally assigned working tools.

b. Many prefer having the student storage lockers located in the shop so that they may be easily supervised.

c. Student clothes lockers are located near the lavatory.

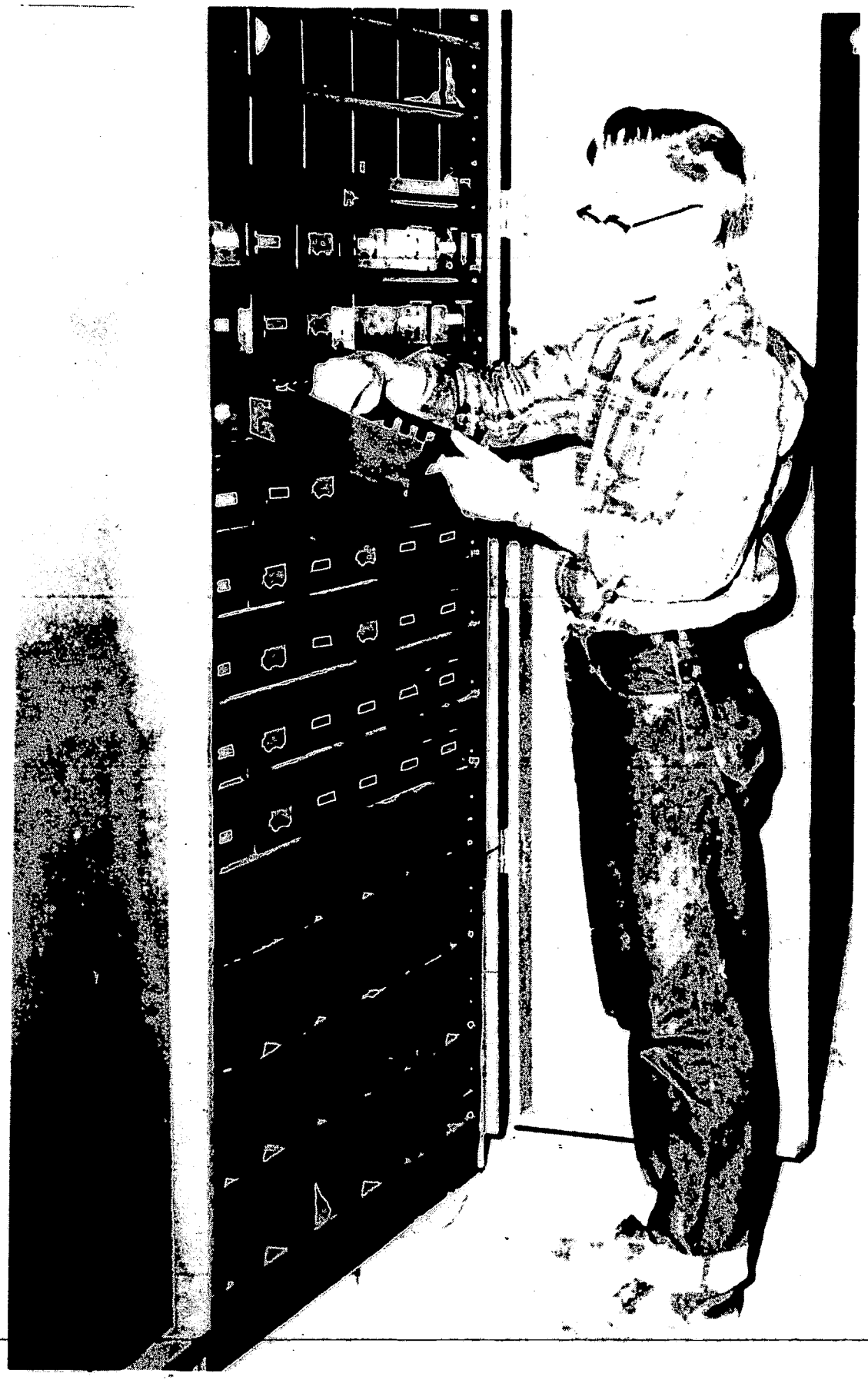


FIGURE 53.—*Containers that are properly labeled for nuts, bolts, screws, cotter pins, and washers are kept in a cabinet. Nail storage is in a separate cabinet.*

D. Farm Mechanics Shop—Continued

11. Studendt Clothes and Storage Lockers—Continued

d. Adequate protected storage space in which long, bulky, or large articles can be stored is provided for each class.

12. Patio Area

a. There is covered space in this area partially protected from the wind and weather, for storing or working upon machinery in the process of repair.

b. The machine storage area is secure from pilfering by protective fences or walls. See fig. 43.

c. The storage area is large enough to accommodate 6 to 10 farm machines.

d. The storage area is paved or hard surfaced.

e. There is available hot and cold running water and a mixing valve to provide warm water for washing, and to clean machines.

f. There is an elevated wash rack for use when cleaning machines that are to be reconditioned or serviced.

g. There is a drain with a cleanout-type sludge pit.

h. Compressed air connections are available. For greater safety the compressed air unit is often located in the patio area.

i. Floodlights are available for nightwork.

j. There are sufficient convenient electrical outlets, protected from moisture, for power and light use.

k. Protective storage is provided for fuels, oils, solvents, metal, and wood.

l. There are floored bins for the storage of sand, gravel, and other masonry products.

13. Shop Safety

a. The shop is equipped with a first-aid kit complete with bandages, tape, disinfectant, burn ointment, cotton, compresses, and tourniquet, and the classes receive first-aid training.

b. A fire extinguisher is placed at each of the hot metal stations—forge, acetylene, and arc—with not more than 40 feet from an extinguisher at any place in the shop or patio.

c. The fire extinguishers are of the type approved by underwriters' laboratories for the place where they are to be used, and are periodically inspected.

d. There is a hose bib with 50 feet of ¾-inch garden hose.

e. Closed cans are provided for all flammable materials, the cans being painted red with a yellow band and the name of the liquid stenciled in black on this band

f. Closed cans, painted green, are provided for solvents and distillate and the name of contents stenciled in white on the side. Only a safe solvent should be used for cleaning purposes.

g. Safe and protected storage is provided for volatile fuels, paints, solvents, and chemicals.

h. Tightly covered cans are provided for oily waste and rags.

i. Safety blocks are provided for supporting heavy objects.

j. The chain hoist is supported by a heavy chain and hook.



FIGURE 54.—*Many schools consider a fire blanket arrangement as a "must" among the shop facilities.*

D. FARM MECHANICS SHOP—Continued

13. Shop Safety—Continued

k. Safety guards are provided for belts, grinding wheels, blades, and gears on all machines.

l. Stationary grinding and buffing machines are equipped with face shields, and safety goggles are provided at all machines, both stationary and portable.

D. Farm Mechanics Shop—Continued

13. Shop Safety—Continued

m. Hand shields or helmets are supplied for all arc welding.

n. Shields are provided for all inside and patio arc welding work, using spatter-resistant screen having a color density of a welding lens for the booths, and for demonstration tables.

o. Leather or other approved types of gloves are provided for welders at each machine.

p. Acetylene and oxygen cylinders are secured in carts and elsewhere in a manner to keep them from falling or being knocked over.

q. There are protective goggles or shields for each acetylene torch.

r. Electrical wiring meets the code of National Underwriters' Laboratories, Inc.

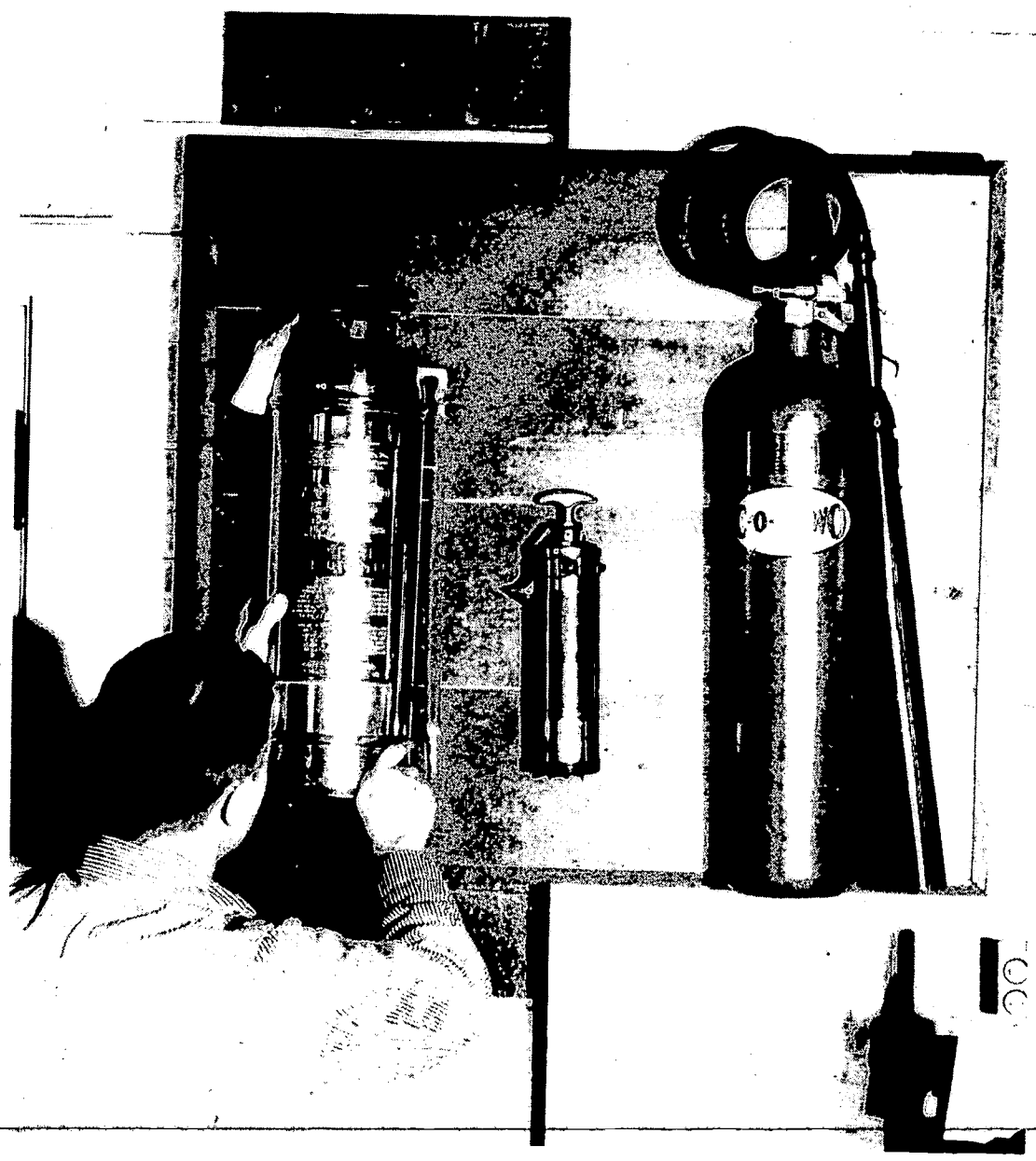


Figure 55.—*Locate fire extinguishers near areas where greatest fire hazards exist and for convenience hang them with base at a shoulder-high level.*



FIGURE 56.—*A face shield provides needed protection in addition to that given by the guard on this portable grinder.*

D. FARM MECHANICS SHOP—Continued

13. Shop Safety—Continued

s. The electrically operated tools, machines, and motors are properly grounded, and all convenience outlets have provision for grounding portable tools.

t. The power tools are equipped with switches that are safely and conveniently located, and there is a master switch for emergencies.

u. A color dynamics or color engineering plan of painting in the shop is used to designate danger areas and to reduce eye fatigue.

v. There is a leakproof manifold system to carry exhaust fumes from running internal combustion engines to the outdoors.

w. There is a forced air intake and exhaust ventilation system in the shop to quickly remove all gases, fumes, dust, and smoke without increasing circulation of dust.

x. A separate paintroom or protected area with forced ventilation is provided. Face masks are provided for spray painting.

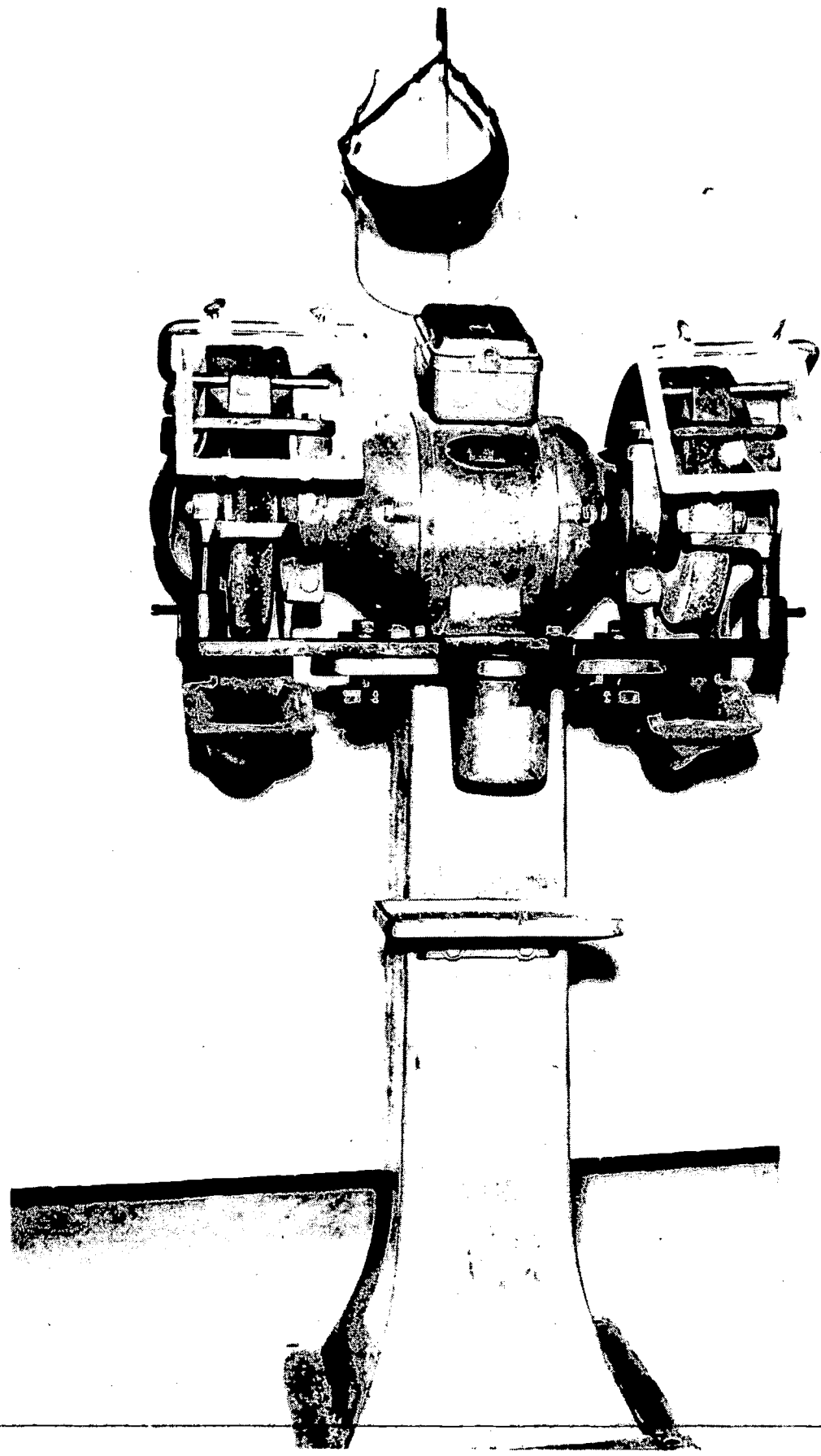


FIGURE 57.—*Keep the wheel guard, toolrest, and shield properly adjusted and the face shield handy.*

D. Farm Mechanics Shop—Continued

13. Shop Safety—Continued

y. The tank on the air compressor has a safety valve.

z. There is a glaziers' table with cabinets for the safe storage of glass.

aa. The building is constructed of fireproof and fire-resistant materials.

bb. All machines, motors, and benches are set securely in position.

cc. There is adequate directed light at all work stations and machines.

dd. Areas about machines and steps are skid resistant and are kept free of obstacles and litter. Concrete floor in other areas is sealed.

ee. There is freedom from dangerous overhead storage.

14. Special Features

a. An automatic signal in the shop rings at the beginning and end of class periods.

b. The bell signal gives a warning ring for a cleanup and storage period before the end of class periods.

c. The clock is of sufficient size to be plainly visible throughout the farm mechanics shop and is lighted for use at night or has a luminous dial.

d. There is a wash tank with drain rack where sludgy, greasy, or badly soiled machine parts can be cleaned and drained.

e. A steam jenny is available to clean farm machines before and after servicing or reconditioning.

f. There is running hot and cold water and a mixing valve with hose connections so that water of the temperature desired is available in machine cleaning and repair areas.

g. A hoist or floor crane of 3- to 5-ton capacity or other provision for lifting and moving the farm machines in the repair area is provided. See fig. 41.

h. The outdoor ramp is near the shop or in the patio for loading and unloading machinery or livestock. See fig. 59.

i. The machinery entrances and other entrances are flood lighted for night use.

j. A cold water faucet is near the forge.

k. A drinking fountain is in the shop. See fig. 15.

l. There is gas, natural or artificial, in the shop.

m. The separate paintroom has an adequate exhaust fan located 2 feet from floor. See fig. 49.

15. Machinery and Power Equipment

a. A tilting arbor 10-inch table or radial arm saw is provided.

b. A 6-inch or larger jointer is available.

c. An 18-inch throat band saw is available.

d. A gas forge and an anvil is installed.

e. An electric welder is provided for each six students in a shop class.

f. An engine-powered portable electric welder available for field use is desirable.

g. An oxyacetylene cutting and welding outfit is available.

h. A light, belt-driven, 11- to 13-inch geared chuck drill press of ½-inch maximum capacity is provided.

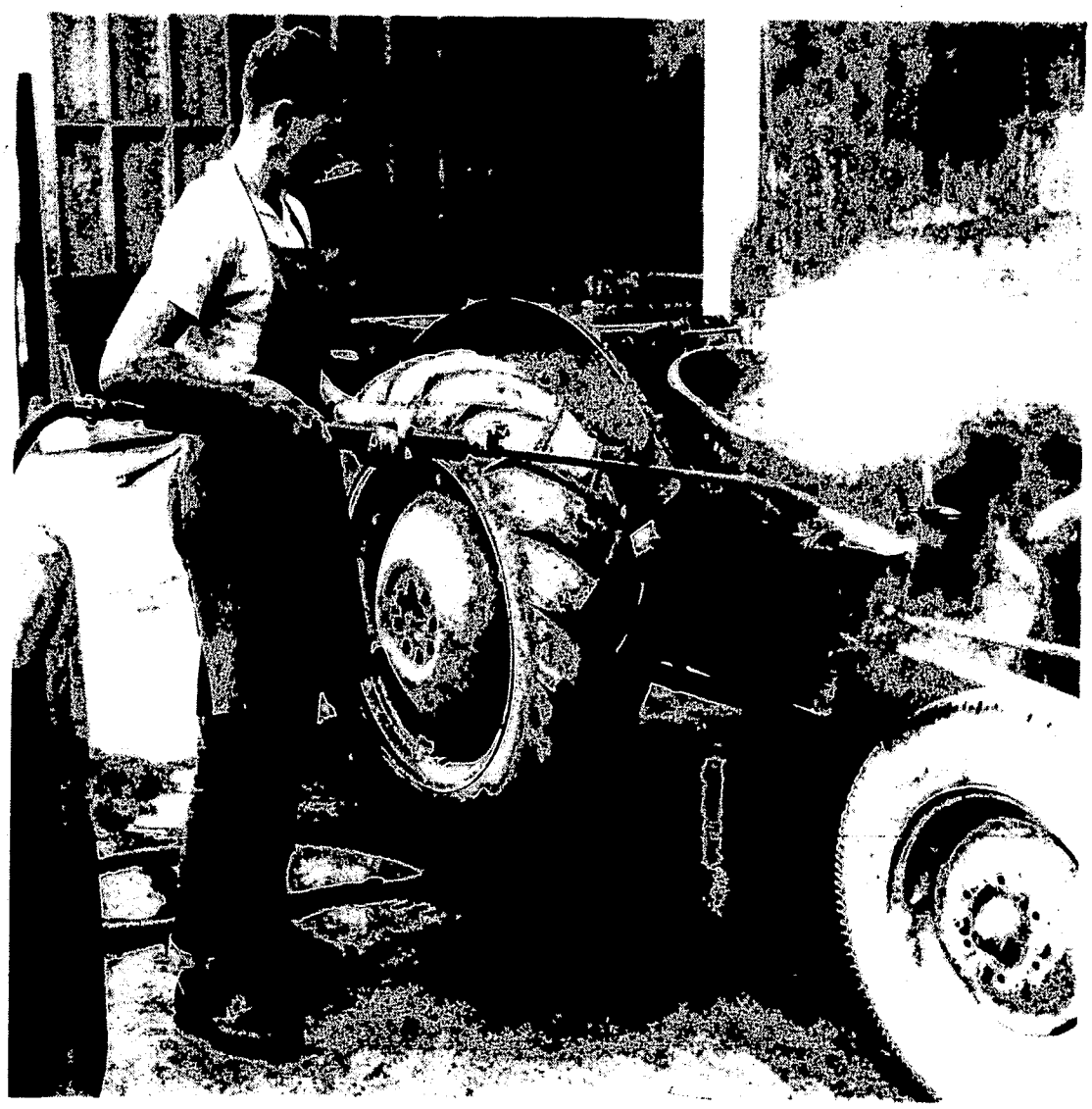


FIGURE 58.—*A steam cleaner makes it easier to properly service, adjust, maintain, paint, and recondition farm machines. Use steam with precaution.*

D. FARM MECHANICS SHOP—Continued

15. Machinery and Power Equipment—Continued

i. A back-geared, power-fed drill press of 1- to 2-inch capacity and 14- to 17-inch or 19- to 21-inch size is provided.

j. A grinder is available that is reserved for tool fitting.

k. A 1½-horsepower or larger heavy duty grinder is provided and fitted with 1½-inch by 12-inch wheel.

l. There is an air compressor equipped with storage tank and attachments.

m. A portable floor jack and a heavy duty automotive jack, both hydraulic, are provided.

n. A power hacksaw is available.
(See ch. V for a more complete list of tools and equipment.)

16. Benches and Shop Study Equipment

a. There are a total of 6 lineal feet of bench space for each student in the advanced classes.

D. Farm Mechanics Shop—Continued

16. Benches and Shop Study Equipment—Continued

b. A machinist vise is provided for each three boys in the largest class. See figs. 30 and 35.

c. A woodworking vise is provided for each three to five boys in the largest class.

d. The workbenches are 34 inches high and between 20 and 24 inches wide. Many prefer benches 36 to 38 inches high, using a movable wood rack for the smaller students to stand upon when working. See fig. 33.

e. The workbenches attached to the walls are secured with diagonal metal braches. Rollaway storage racks can be placed under this type of bench. See fig. 34.

f. The metalworking benches have ⅛-inch or heavier steel-covered tops and angle iron over the exposed edge.

g. The woodworking benches have heavy hardwood tops.

h. There are a portable chalkboard of at least 12 square feet in the shop and a bulletin board of the same size.

i. There is a chart rack or stand in the shop.

j. There is a three-tier portable bleacher to be used during demonstrations. See fig. 32.

k. A study table is available with a rack of current farm mechanics reference books and periodicals.

l. The portable items, such as shop bleacher, lumber racks, tool racks, and work tables, have 3-inch or larger caster wheels.

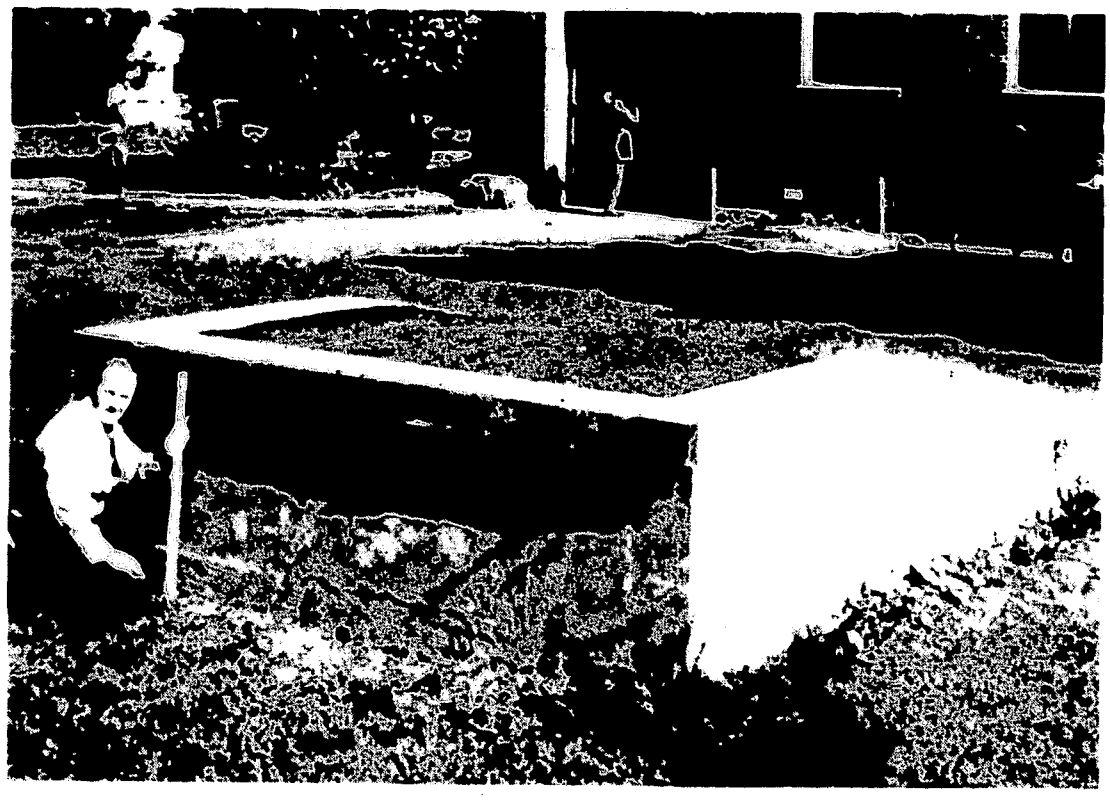


Figure 59.—*A loading ramp convenient to the shop. Note heavy bumper board bolted to the concrete ramp.*

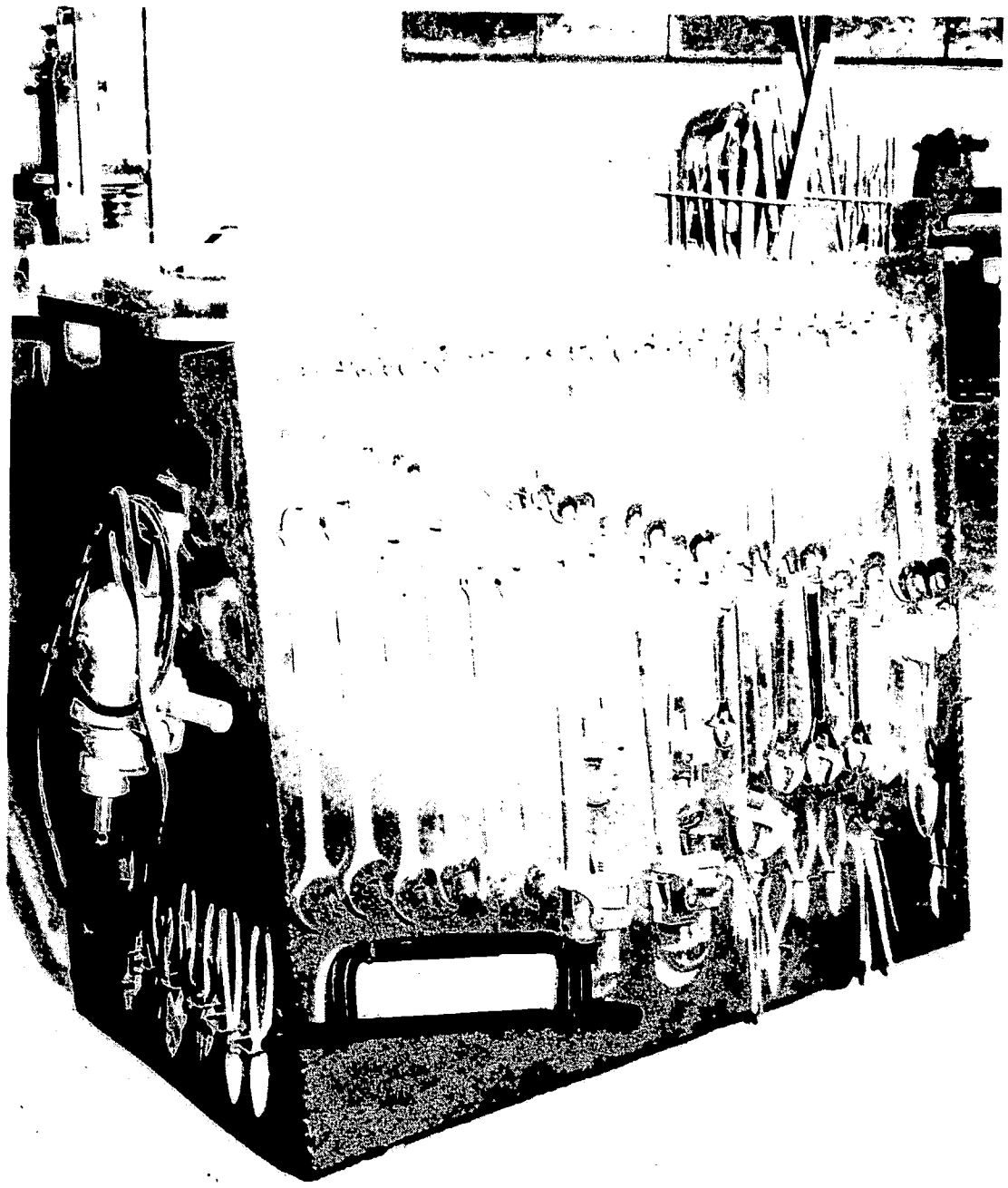


FIGURE 60.—*The use of tool carts having large caster wheels facilitates moving these to the job and into protective storage. Each cart is equipped with tools appropriate for a specific kind of shopwork.*

D. FARM MECHANICS SHOP—Continued

17. Wiring

The actual power and wiring requirements for the shop equipment should be determined by a competent electrician or engineer.

a. There are at least 3 circuits of 3-phase, 60-ampere, 230-volt current in the shop. However, single-phase current is less costly to install and is ample for limited input 180 ampere a.c. welders.

b. The 3-phase circuits are available to each power tool using one-half-horsepower or larger motors.

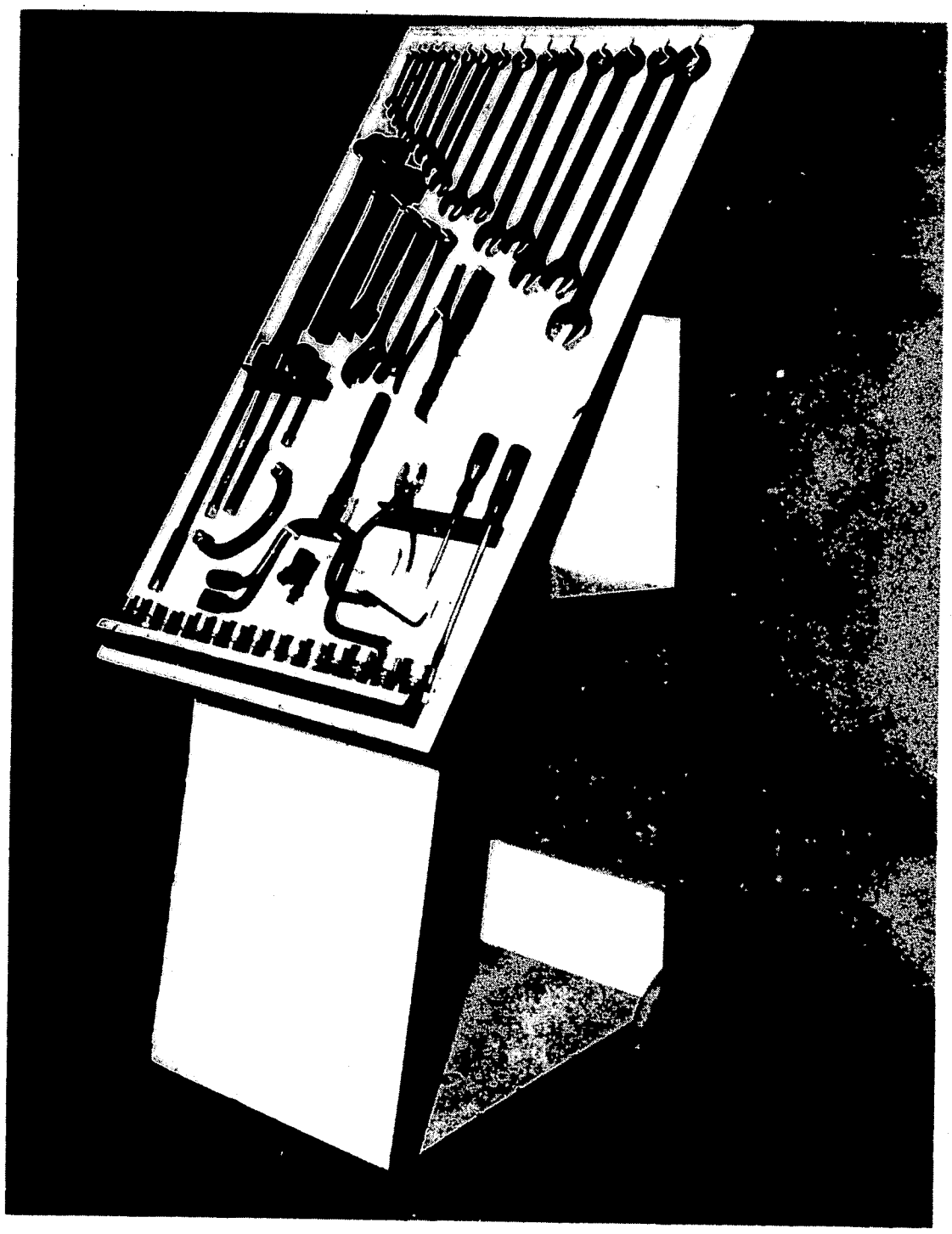


FIGURE 61.—*Rolling tool panels enable a student to easily take needed items to the job in the shop or paved patio.*

D. FARM MECHANICS SHOP—Continued

17. Wiring—Continued

c. There is at least one 3-phase circuit of ample capacity, properly fused for each d.c. electric welder.

d. There is a 60-ampere circuit of single-phase, 230-volt current for each 2 a.c. electric welders.

e. There are sufficient 115-volt circuits as determined by the load in watts so that each may be protected by a 20-ampere fuse.

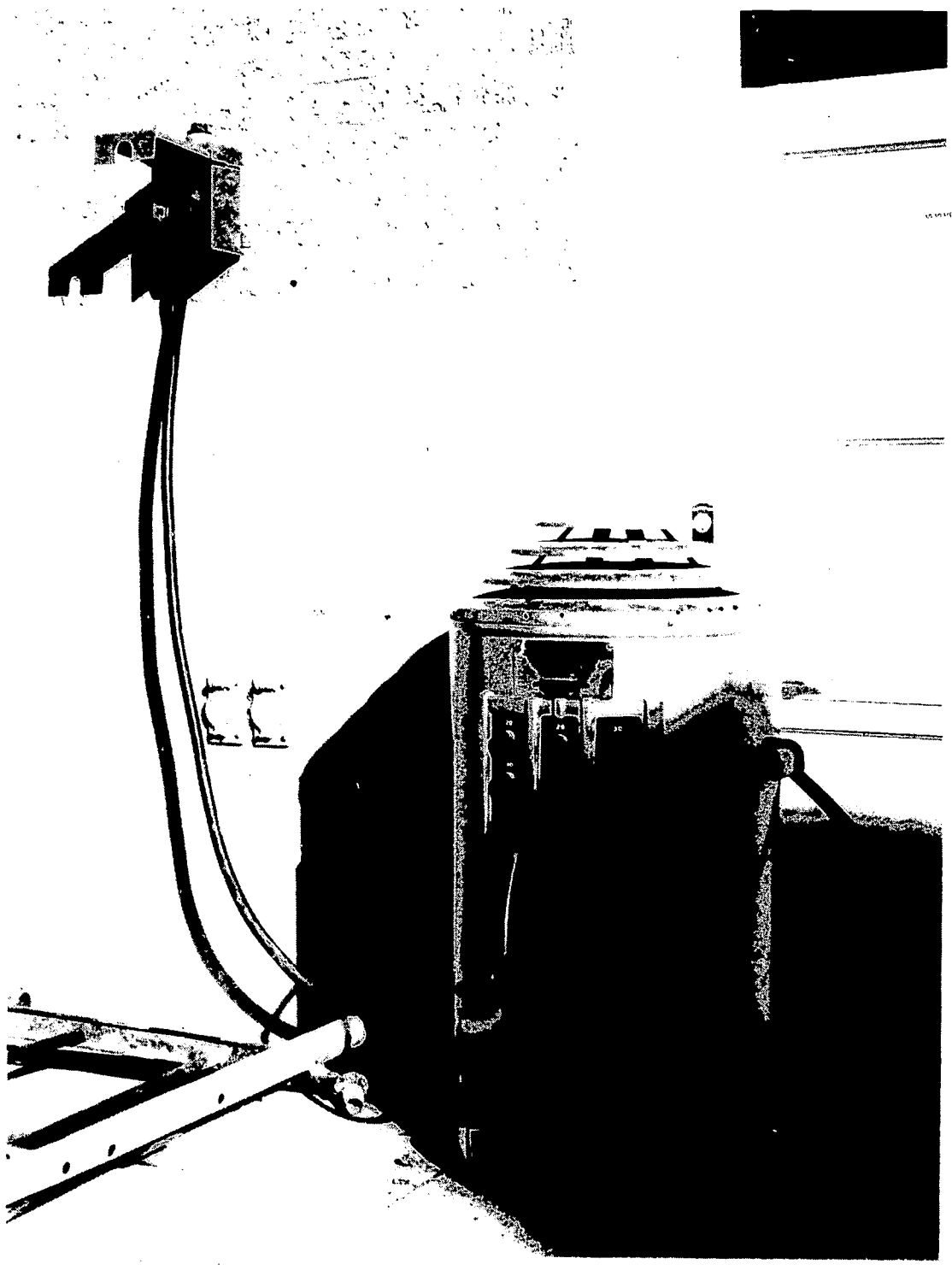


FIGURE 62.—*Welder and weatherproof appliance receptacles need to be easily accessible in the paved patio area.*

D. FARM MECHANICS SHOP—Continued

17. Wiring—Continued

f. There is provision for floor-level, waterproof, screw-plate-covered, 230-volt electrical connection for machines that do not stand against the walls. Some prefer ceiling drops as they are cheaper and cause less trouble.

D. Farm Mechanics Shop—Continued

17. Wiring—Continued

g. There are pulldown-type 115-volt electrical outlets for use in the machinery repair and construction areas.

h. The service entrance wiring plan allows for a liberal, rather than a conservative, long-term plan of expansion of facilities.

i. There are both 115- and 230-volt convenience outlets in the patio area.

j. The power machines are equipped with automatic overload protective switches.

k. The stationary power machines and motors are grounded and securely set, and all convenience outlets provide for grounding portable power tools.

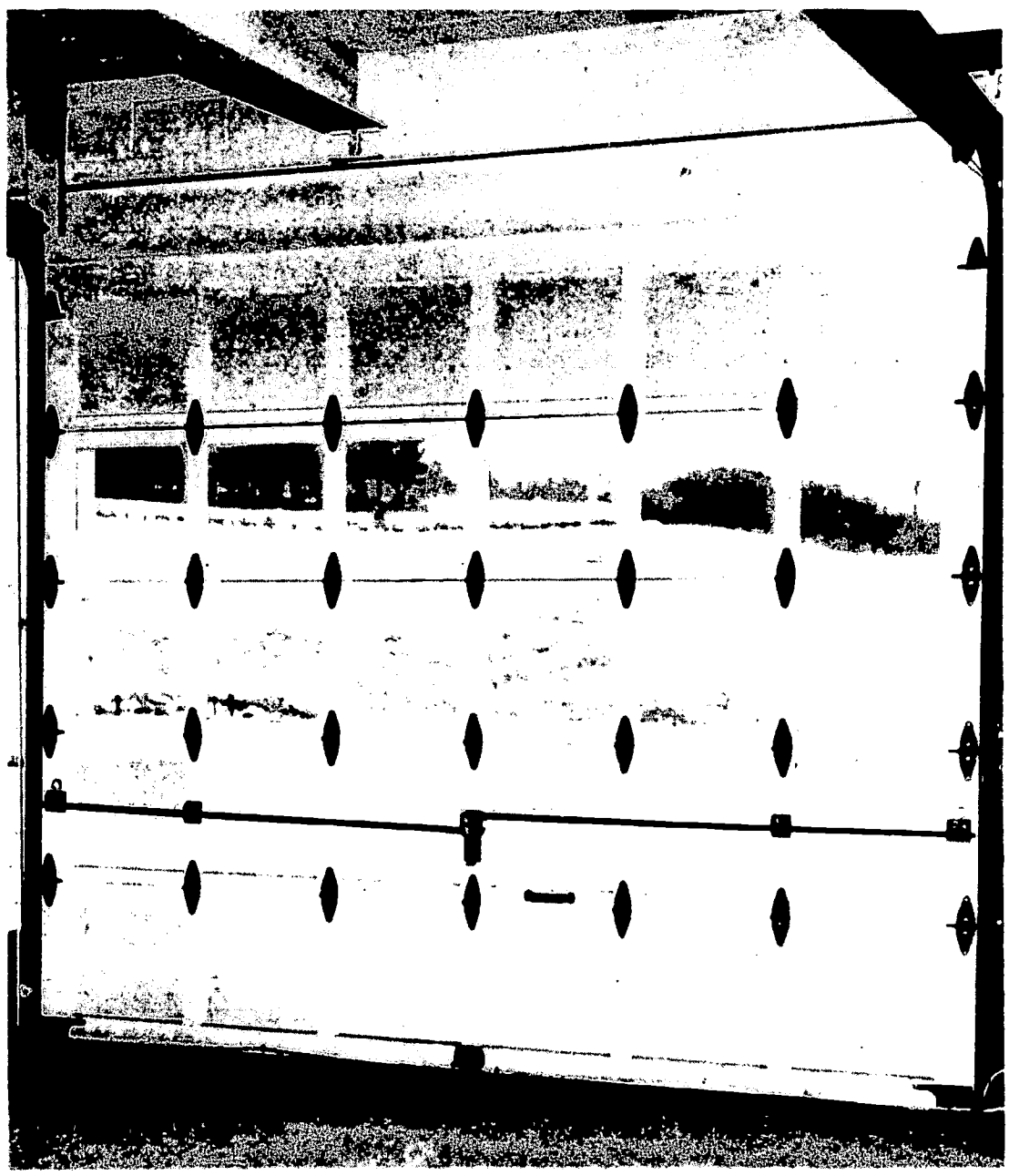


Figure 63.—*The garage, like the farm mechanics shop, should have a large entrance door, preferably of the overhead type.*

D. Farm Mechanics Shop—Continued

17. Wiring—Continued

l. There is an electric line for current and ground located near the ceiling along the walls above the workbenches with drops every 10 or 12 feet.

m. Each electric drop above the workbenches includes the following: 4 plug-ins of 115 volts using 3 prongs, a 230-volt plug-in for 3-phase, and a 230-volt plug-in for single phase.

n. The several kinds of electrical convenience service outlets are identified by an approved color code system.

o. There is a locked type of master control switch for emergency use, and to turn off power during nonwork periods.

E. Garage Space

1. There is a garage or other provision for storing FFA or department-owned vehicles and farm machinery which is near but not in the shop. The covered patio may be used for such storage.
2. There is provision for adequate and safe storage of gasoline, fuel oils, and lubricants for the equipment mentioned above.

F. Sanitary Facilities

1. Where otherwise not easily accessible, there is a powder room with water-closet and lavatory for use by female patrons attending adult classes, receptions, banquets, and special meetings for parents.
2. The powder room contains a washbasin with hot and cold water, a soap dispenser, and a paper towel dispenser or hot-air drier.
3. The student toilet room in the agriculture department has at least one watercloset.
4. A urinal is provided for each 30 students, with a minimum of 2.
5. The washbasin, at which about one-third of the class can wash at one time is near the clothes lockers. The usual circular basin with foot control has a 36-inch-or-larger diameter and the semicircular has a 54-inch diameter. Some prefer the rectangular-shaped wash basins.
6. There are hot-air driers or paper towel dispensers and soap dispensers adjacent to the washbasin.
7. The washbasin and locker area is so located in the shop that the teacher can supervise them while instructing in the shop.
8. There are sufficient brooms, brushes, and other janitorial supplies and equipment in an adequate and convenient storage space.

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*AGRICULTURAL ENGINEERING; *ENGINEERING TECHNICIANS; *EDUCATIONAL NEEDS; *JOB SKILLS; ON THE JOB TRAINING

A shortage of engineers and the necessity to improve efficiency has casused engineering organizations to depend upon technicians to carry out routine duties. Consequently, the status of engineers is enhanced as their duties become more clearly creative. The engineering technician work at New Holland, Michigan, falls into three classes: drafting, field testing, and laboratory testing. Draftsmen advance in the organization from elementary trainee responsibilities to the complex assignments of a design draftsman in 4 or 5 years. Field test technicians work as operators, mechanics, and observers at field locations. Laboratory technicians engage in devising and conducting laboratory endurance tests and stress analysis. The major educational requirement is the 2-year associate degree. Because men with some advanced education usually aspire to higher job levels, the technician curriculum should be applicable to later acquisition of an engineering degree. However, the technician job level is no longer considered a dead end. Technicians are considered promotable, and group leader jobs in drafting and testing are open to them. There is a possibility of their reaching the design or test engineer level. (JM)

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Paper No. 66-556

TECHNICIAN NEEDS IN A FARM MACHINERY ENGINEERING GROUP

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OFFICE OF EDUCATION

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I come before you as an ASAE member who also is a member of an engineering organization employing a sizeable number of engineers and technicians. As we struggle along under the shortage of engineers the last few years, we are pleased to see this subject of technician training receiving so much attention on Society programs. Employers are being forced to utilize all available means of improving efficiency of their engineering organizations and have thus come to depend more and more upon technicians. It is hoped that if we can work with our educator members in developing these technician curricula, we can alleviate this shortage problem. At the same time, the status of our engineer members will be enhanced because their duties will be more clearly in the creative design and decision making areas with technicians available to carry out the routine duties.

This paper will not present new information. As it develops, you will note a striking similarity to R. J. Miller's paper entitled "The Farm Equipment Industry's Need for Agricultural Engineering Technicians" given at the 1964 Winter Meeting of ASAE on a program whose topic was "Implications of Agricultural Engineering Technician Education." Again this past summer at the 1966 Annual Meeting the Education and Research Division presented on one of its programs a Panel Discussion on "What is an Agricultural Engineering Technician/Technologist?" Gentlemen, I hope this evening to provide a partial answer to that question as it applies to our industry.

Reviewing the technician type work in the Engineering Division at New Holland, it falls into three classes as follows:

1. Drafting under four grades ranging from Draftsman Trainee to Design Draftsman.
2. Field testing under the title of Field Test Technician.
3. Laboratory testing under the title of Laboratory Technician.

Draftsmen

Since much engineering work starts with designs and detail drawings, it seems appropriate that this discussion should begin with the draftsman-technician. Why should agricultural engineers concern themselves with training such people? Why not leave that task to trade schools and associate degree centers? As a matter of fact the products of such courses are mechanically good draftsmen, perhaps better than we engineers are at the conclusion of our professional degree curriculum. But they are most lacking in the basic agricultural and machinery orientation that usually means more in design than the creation of a masterful drawing. This is an increasingly important matter as the draftsman takes on increasing responsibilities.

We put a Draftsman Trainee to work on the most elementary drafting task of all - updating an existing tracing from a print marked up in red. Later he progresses thru the stages of detailing from someone else's free hand sketches and from design layouts (Fig. 1). By this time he has learned something about our standard practice on fits and clearances and the theory of dimensioning. With good progress he can advance to complicated assembly drawings and design layouts in four to five years, and has then qualified for promotion to Design Draftsman. Supervised by an engineer who makes the original specifications, calculations, and decisions on section sizes, the draftsman makes the design layout and actually contributes



Fig. 1
Detailing from a design layout

design decisions of his own because every layout develops problems in space and clearances that the engineer will often delegate to him. As a design progresses into the fabrication and testing stage, the draftsman relieves his supervisor on matters like purchase requisitions and shop work orders. He carries out design changes from the engineer's verbal instructions, sometimes face-to-face, sometimes by letter or telephone from the test location in Idaho.

At this working level a Design Draftsman is contributing at a pace which graduate engineers usually don't reach for at least two years. He is, in fact, close to the experienced engineer in over-all effectiveness, and some do make the grade to becoming a full-fledged engineer with night school courses in mathematics, mechanics, etc. New Holland occasionally sponsors professional engineer review courses, and we find draftsmen and technicians from the test groups making up a large portion of the class.

Field Test Technicians

A Field Test Technician is closely associated with the product throughout its development and final testing stages. He puts in many hours with the equipment in somebody's field as the operator, the mechanic, and, above all, the observer, helping to pinpoint its functional problems and cooperating with the engineers in working out solutions for these difficulties.

On other days the objective is quite different. Our laboratory people go along to make torque readings. Now our Field Test Technician is the skilled operator who puts the machine thru the prescribed paces while records pour out of the oscillograph recorder; who is able to hold a forage harvester operation at peak tractor load level for as much as two minutes to assure a representative sample at maximum torque when traces are analyzed later. (Fig. 2)



Fig. 2

And in this day of sophisticated product development we may decide to subject our machine to an accelerated test over our test track. Here too the Field Test Technician is in the driver's seat. He is cautioned to be especially vigilant because fatigue failures that might take all summer in a hay field could arrive in less than a half-day, when the stress frequency is multiplied a thousand times. Detecting a crack or structural yield in its earliest stage is almost always more meaningful than what you see after the final collapse.



Fig. 3

Often the product moves back to the shop for modifications or repair. Sometimes that shop is our home base in New Holland; sometimes a rancher's shop in Bakersfield, California; sometimes a shop truck under a tree at the end of the field (Fig. 3). Now the task may be switching components around, replacing broken parts, or making adjustments according to a prearranged investigative plan. But it might also mean extensive cutting and fitting to come up with a totally different relationship of components so as to test a new approach to the problem. We have found it necessary to put more and more "utility" type trucks in the field to handle such work; vehicles equipped with portable electric power, welder, acetylene torch, assorted electric hand tools, gages, hardware racks, etc. The technician lives out of such a truck and is its custodian.

Of course, I shouldn't make the mistake of inferring that our designs are so wide of the mark that our technician spends all his time revamping the equipment. Most of his time is actually in the field. He could be studying a knotter's functional tolerance under maladjustment conditions or searching for the cause of an improper cycling of the variable drive belt on a combine.

All these efforts in the shop and field go for naught if the results are not communicated to the engineering design area. Sometimes the project or design engineer is present to observe with his own eyes. However, the usual case

calls for a daily written report by the Technician (Fig. 4). A report that states the situation, what testing procedure was followed, what results were observed or measured, and what conclusions or recommendations, if any, seem to derive from this effort. We have not found it easy to train Technicians to turn out good reports, but have had reasonable success by prescribing formats to be followed in organizing the report content. Formats channel not only his thinking while reporting but his observations and measurements during the day in the field.



Fig. 4

A sidelight in the Field Test Technician's life is cross country travel by air, by passenger car, by truck; calling a motel room "home" and a farmer's shop his "office." We move experimental machines with our own vehicles, and, most of the time the driver is that same Technician.

His satisfaction arises from contributing to the successful launching of a new product. Somewhere on that machine one of his ideas, even though minor, will be used. As a matter of fact a few of our Technicians have to their credit major improvements that they worked out many miles from home, with no engineer or supervisor present.

Laboratory Technicians

Now to complete the picture, we'll take a brief look at the third category, the Laboratory Technician.

Our lab test operation performs a variety of accelerated endurance tests and and compiles stress analysis data to serve as a base for endurance testing and also for re-evaluation of design assumptions. It is carried on jointly with field test operations. The technician is a key performer in these activities. Engineer supervision directs, but he builds and operates test fixtures like this device for testing a hydraulic system (Fig. 5) or this one for evaluating the components of a sickle drive (Fig. 6). These setups sometimes become quite elaborate such as our knotter testing machine which automatically ties two twines around a dummy bale every ten seconds and subjects the entire tying mechanism to the same stresses and dusty wear conditions as are experienced in Texas or California. A season of field operation compresses into a week of equivalent laboratory cycles.

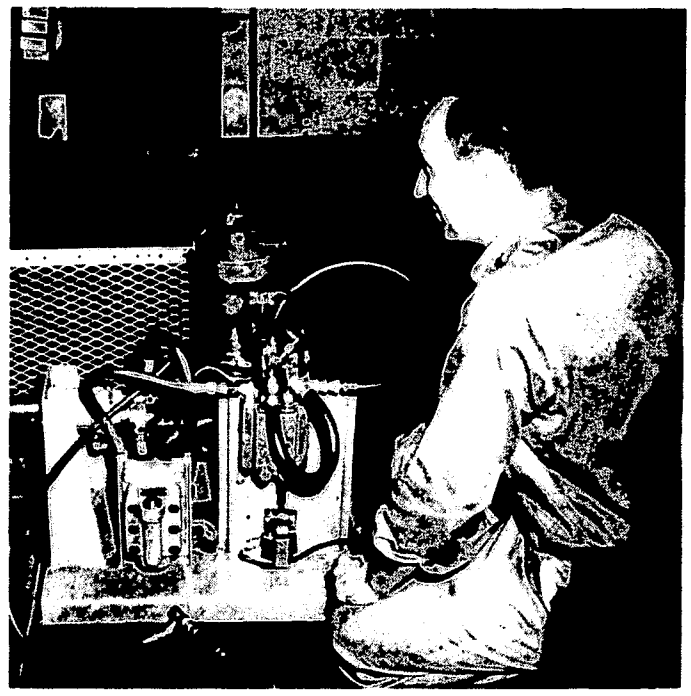


Fig. 5

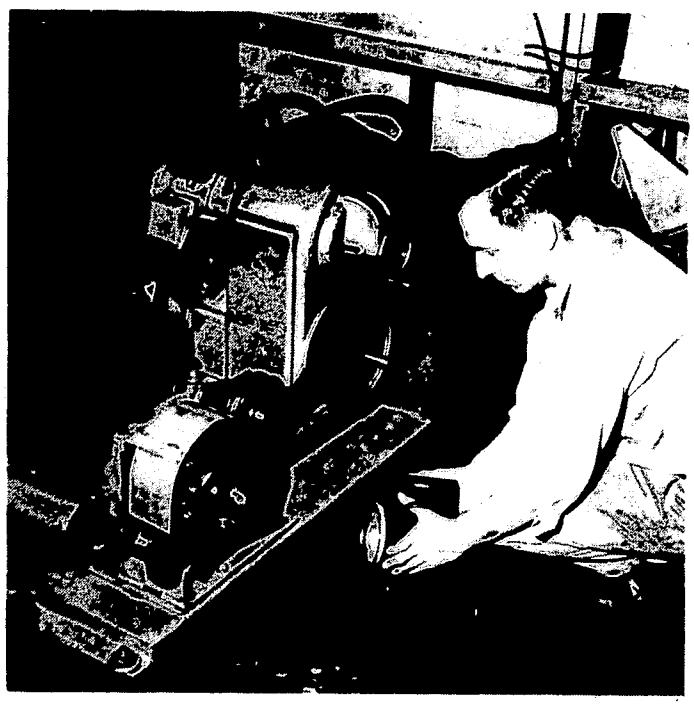


Fig. 6

The foregoing tests depend heavily upon the other phase of our laboratory work - stress analysis. The next several slides depict activities that may be observed daily and all performed by technicians, not necessarily in the sequence shown. The printed copy of this paper lists only a few of these scenes because of space limitations:



Fig. 7

1. A previously gaged shaft being put thru a mechanical calibration in torsion. (Fig. 7)
2. A close-up of a gaged shaft, these gages having been cemented in place some time before. This technique also applicable to structural members if critical area previously isolated by stresscoat.
3. Spraying a part with stresscoat lacquer in preparation for testing to determine if unusual stresses exist under load.
4. Manning the oscillograph and recorder equipment in the field. (Fig. 8)
5. Harvester fully wired for a field run. Gages are hidden but lead wires and collectors are visible.

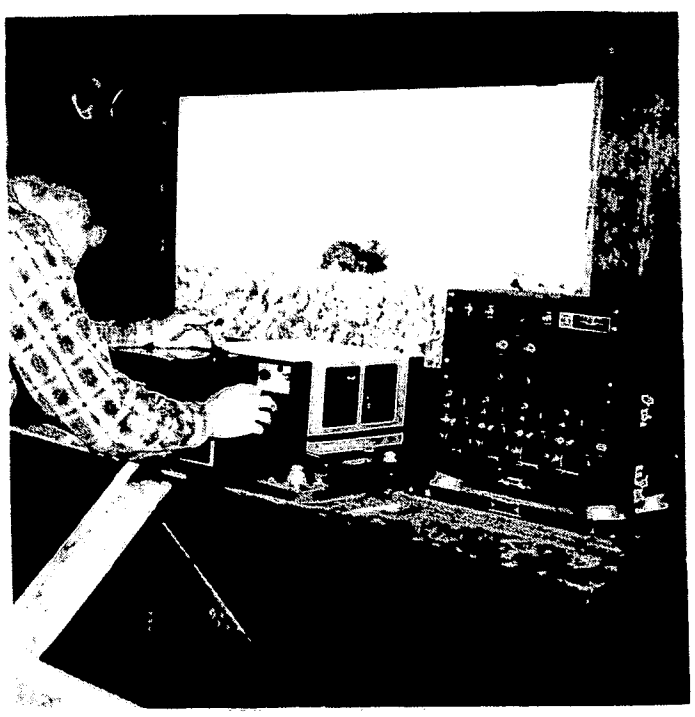
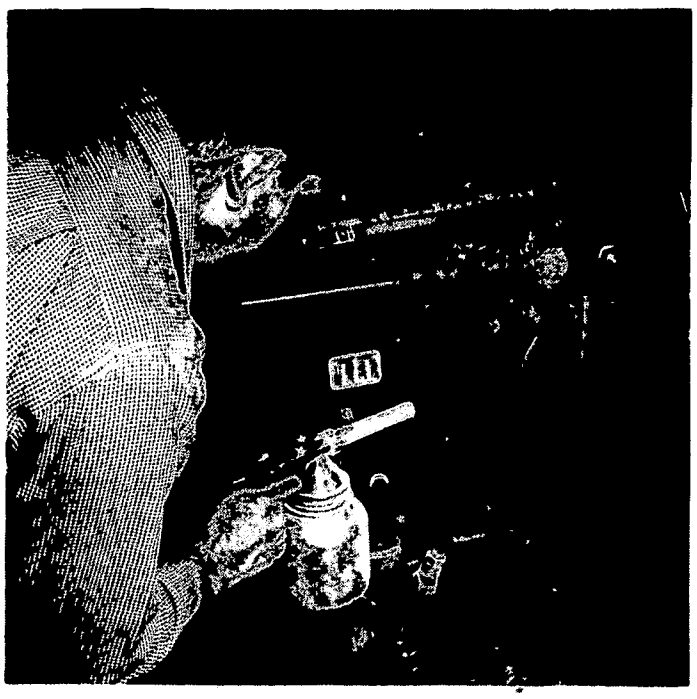


Fig. 8



6. Reading the stress pattern on a stresscoat job after test has been run. (Fig. 9)

Fig. 9



Fig. 10

7. Making a planimeter analysis of oscillograph records. (Fig. 10) These traces are in terms of unit strain and from them such things as unit stress, average torque, average HP, peak torque, peak HP and various combinations of same calculated. Technicians are taught these fundamental relationships and routinely complete such data sheets.

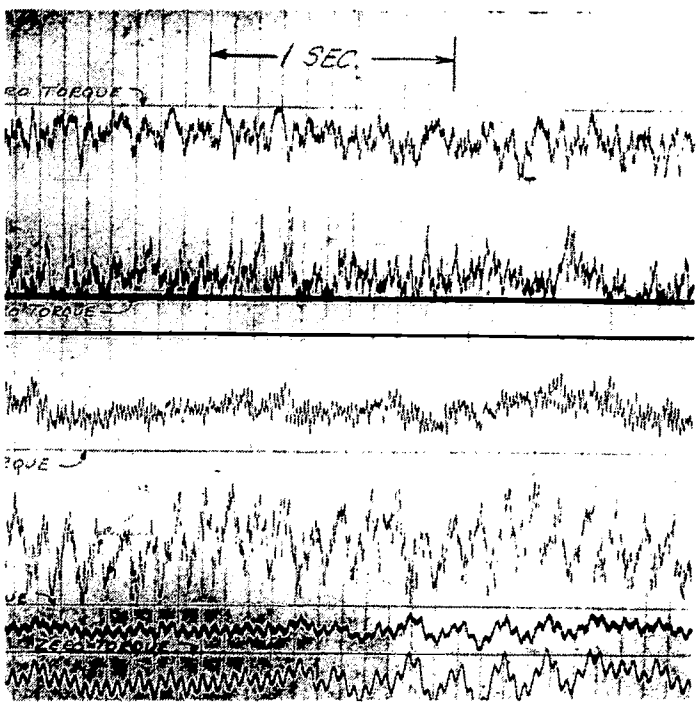


Fig. 11

8. A close-up of a family of strain traces, a sample of raw data. (Fig. 11)

9. An assemblage of the tools a technician works with in stress analysis activities.

There is much more to the stress analysis field than what is shown here, but that is reserved for the engineer. The interpretation of unusual trace configuration, the conclusions from stresscoat patterns, and the life predictions that follow. Nevertheless you can see a fascinating part in it for technicians. Its importance to us seems to grow month-by-month.

Perhaps now it's time to talk about educational requirements for these jobs. Our objective is to hire men with at least two year associate degrees. However, older men with quite a few years in allied agricultural fields, including farm operation, have done a good job for us with full effectiveness being reached in about nine months to a year on the job. I suspect that the range of duties described here is too broad to be trained into any one individual and certainly not in two years. Actually they seem to suggest two or three areas of specialization in the technician curricula now being offered. The man whose allergies keep him out of the hayfield will be interested in drafting; the outdoor type will prefer field testing, etc.

We find that men who have had advanced education usually aspire to greater things and are always looking toward night school courses. It would seem, therefore, that a technician curriculum whose courses do not count toward an engineering degree might be a disappointment in later years, especially if the man moves to a different state.

The term "dead end" has been heard in these discussions on agricultural engineering technicians. To a degree that is now true in our setup, but it is a changing

situation. We can see more than one grade of technician in our future, and we consider these people promotable. If they acquire sufficient technical knowledge and match it with sound judgment there are group leader jobs open to them in the Drafting Department and also in Testing. The possibility of reaching the design or test engineer level was also mentioned earlier in this paper with reference to draftsmen.

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Teachers, coordinators, and school administrators can use this manual as a guide in initiating and supervising cooperative work experience education programs. Originally prepared by the Bureaus of Business and Distributive Education, Publications, and Vocational Curriculum Development, the manual was revised by high school and Bureau personnel. Information covers fundamental considerations before adopting a program, the developmental phases, and the operation of the program. Some areas included are (1) outcomes of cooperative work experience programs, (2) coordinator qualifications, (3) training facilities, (4) advance planning, (5) the Oistributive Education Club of America (DECA) program, (6) the coordinator's work, (7) administration and supervision, (8) public relations, (9) evaluative criteria, and (10) employment regulations. Also included are a bibliography, a checklist of evaluating programs, and forms for use by the teacher-coordinator. (MM)

COOPERATIVE WORK EXPERIENCE MANUAL

For Business and Distributive Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
BUREAU OF BUSINESS AND DISTRIBUTIVE EDUCATION
ALBANY • 1965

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FOREWORD

As our society becomes more industrial and urban in character, schools are being called upon to do a better job of developing human resources. Every young person needs an education that meets his needs and abilities, whether he plans to continue his education in college, become a skilled worker, or enter semiskilled or unskilled employment. For many boys and girls, supervised work experience with the challenge of an actual job, demonstrates the importance of their formal education. By working in an actual office or retail store, these young people have the opportunity to explore job possibilities open to them and to develop personal initiative, responsibility, and self-confidence.

Because of the comparative newness of cooperative work experience education, coordinators, teachers, and school administrators have suggested the need for a manual which outlines in some detail the important aspects of initiating and supervising such a program. The original manual was prepared by Billings G. Burlingame and Hobart H. Conover of the Bureau of Business and Distributive Education in cooperation with the Bureau of Publications and the Bureau of Vocational Curriculum Development and Industrial Teacher Training. Dr. Carroll A. Nolan, Syracuse University, and Viola R. Holmes, formerly of Cortland High School, rendered invaluable professional assistance in preparing the original manuscript. The present revision was prepared by Sidney Lerner, Levittown Memorial High School, with the assistance of William D. Hailes, Jr. and E. John Gradoni of the Bureau staff.

This manual undertakes to bring together the many details associated with the operation of a successful cooperative office skills or cooperative distributive education program. The duties and the responsibilities of a teacher-coordinator are carefully described in this manual.

The assistance of the supervisory staff of the Bureau of Business and Distributive Education is always available to local school officers who would like help with the task of administering or supervising these important programs.

JOSEPH R. STROBEL
Assistant Commissioner for
Instructional Services
(Vocational Education)

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Distributive Education

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part I

FUNDAMENTAL CONSIDERATIONS

PART I

FUNDAMENTAL CONSIDERATIONS

FUNDAMENTAL CONSIDERATIONS BEFORE ADOPTING A PROGRAM

Work experience education helps to meet the needs of many of our school youth. Work experience education as defined by the Regents Council on Readjustment of High School Education, however, is "not mere employment of pupils, but part-time employment under the supervision of the school, with related instruction provided by the school both before and during the period of employment." [1]

For many years educators have recognized that an excellent way to train for a particular job is to work at that job. In many areas of our educational program, schools set up classroom laboratories that closely approximate actual work stations. But as the council's report suggests, the ideal way to attain job competence is by supplementing a classroom laboratory and instruction with the learning opportunities of an actual job.

Many boys and girls do not think easily on the abstract level. They do, however, learn more readily and with enthusiasm when they see theory in operation and have an opportunity actually to practice what they are learning. A cooperative part-time job thus becomes a laboratory where the student applies many of his school subjects and sees their meaning and importance.

Cooperative work experience not only contributes to vocational competence—for many students it makes learning a pleasant experience. For these students it means that personal initiative, responsibility, and confidence are developed. They learn to work with others in an adult world; they quickly recognize the importance of desirable attitudes and acceptable behavior as they associate with fellow workers on a job. Probably no other learning procedure rivals cooperative work experience as a means for achieving these goals.

Business is eager to cooperate with schools so that young men and women may be better prepared for their life work. While cooperative work experience programs have been initiated in many schools throughout the State, a number of schools have yet to include this excellent learning procedure as a part of their educational program.

A cooperative work experience program, either distributive education or office skills, can function successfully only when certain basic conditions exist in the school and in the local community. If these basic conditions are not present when the program is being organized, there must be positive assurance that they can be met within a reasonable time after the program is started.

Since determining these factors requires considerable study and appraisal of local school and community conditions, it is suggested that local conditions be examined thoroughly; and perhaps a survey of some type should be completed. Recent and authentic statistical information already exists and is available for the asking. For example, information about the job market may be obtained from local offices of the State Department of Labor. School administrators and work experience coordinators will want to evaluate the strengths and weaknesses of the situation and determine how these factors affect a strong cooperative work experience program.

[1] New York State Education Department. *The Schools We Need—Now and for Tomorrow*. Report of the Regents Council on Readjustment of High School Education.

These are the basic factors:

The initial success of a cooperative office skills or distributive education work experience program will depend on

- The school philosophy
- Adequate school population
- Student interest
- Appropriate work stations

Philosophy of the School

Does the philosophy of the school recognize the value of cooperative work experience?

Not only the school administrator but his entire staff must understand and appreciate the benefits to be derived from cooperative work experience. An administrator may occasionally observe among members of his staff lukewarm interest or even disapproval of the concept. Certain members of a faculty may believe that cooperative education tends to disrupt other school activities which to them seem more worthwhile. They may, for example, voice objection to the practice of early dismissal of the cooperative student workers because of undue interference with usual accomplishment in the formal school program.

A coordinator, who with the help of a school administrator develops with the staff a positive working philosophy at the time a cooperative distributive or office skills program is about to be initiated, will eliminate one of the most disturbing obstacles to the success of the program.

School Enrollment

Is the school enrollment large enough to warrant one or more programs of this type?

To justify the existence of cooperative classes, it is important that they attract sufficient numbers of qualified students. The size and characteristics of the student body are deciding factors in the size and quality of these classes. If, for example, a large percentage of the graduates of a school continue their education in schools of higher learning, fewer pupils will be interested in a complete two-year cooperative work experience program. However, it is possible to organize a college preparatory business and distributive education program designed for these students. [1]

The work experience program may also afford certain students an opportunity to ascertain through actual experience whether or not they have selected a suitable field of work before registering for post-high school education in merchandising or office occupations. The work experience program can best serve students of adequate mental and physical capacity, students who have a high regard for honesty, truthfulness, responsibility, and service to others.

School administrators may not support work experience programs that will serve only a small number of students or that will lead to little possibility of vocational placement. Changing occupational trends and the growing complexity of distribution are reasons for providing education in distributive occupations. Work experience is the practical application of a program based on first-rate classroom instruction in the disciplines of distribution—marketing, merchandising, and management.

Some students in distributive education classes may not be interested in work experience until graduation. Work experience should be treated as a privilege. However, students should not be denied the benefits of sound classroom instruction in distributive occupations because they do not work. It would not be realistic, for example, to insist that enrollment in all vocational business classes be restricted to students who are employed in acceptable part-time office or retail occupations.

Military service and marriage may prevent many young distributive education graduates from immediately applying their skills to full-time employment. There will undoubtedly be many times during their lifetime, however, when they will call on their high school training.

[1] Bureau of Business and Distributive Education Bulletin No. 150, February 1, 1963; *Suggested Combination College Preparatory Business Education Programs.*

The number of teachers in a business department can serve as a guidepost to reflect readiness for specialized instructional programs. Office skills cooperative programs can operate well in schools with two or more business teachers, while the cooperative distributive education program can function effectively where there are at least three business teachers.

Student Interest

Is there sufficient student interest in part-time work experience?

Although a student body may in terms of size and character seem to warrant one or more such programs, still another factor must be taken into account—actual student interest. Some students are reluctant to participate in this type of activity because of the effect it may have upon their taking part in certain other school functions. Other students welcome the opportunity to learn how to perform a job to an employer's satisfaction. In a few instances, money earned may be the decisive factor in determining whether or not a student continues his high school education until graduation.

Whatever the benefits, the pupil who participates in a cooperative work experience program must choose this type of experience in preference to other school activities which might interfere with the part-time job. Pupils who are not willing to give up the majority of their extracurricular activities in order to participate in the work experience program should not be accepted for it. Employers complain when pupils ask for time off to participate in sports or to attend school functions. Merchants are usually reasonable in agreeing to some activities, especially club activities in which they are involved, such as Distributive Education Clubs of America (DECA). Schools can assist in scheduling extracurricular functions at a time when cooperative work experience pupils can participate.

Suitability of Community

Is the community suited to a work experience program of this type?

The size of the community, types and location of possible work stations, and the availability of transportation are factors that should be considered in surveying a community. Cooperative programs can function successfully in small communities, but the majority of them are operating in schools located in population centers of at least 5,000.

Here are questions that should be raised relative to the community:

—Does the community have a sufficient number of business establishments in either distributive or office fields where cooperative students can be placed?

—Can potential employers be interested in the program and persuaded to give it real support?

—Are local business conditions such that cooperative students are likely to be kept on the job long enough to obtain an adequate amount of work experience during the school year?

—Will the available jobs give the students worthwhile experience?

Success of a cooperative distributive education or office skills program is directly related to the availability of satisfactory job opportunities and to the proximity of these work stations to the school. If the distance to such stations is considerable, there must be convenient and easily accessible transportation facilities. If such is not the case, it is questionable whether a cooperative program should be considered. This problem is a real one for large suburban schools located at a distance from the main shopping or business district. Some schools may find that suburban shopping plazas developing nearby will furnish satisfactory job opportunities, particularly for a distributive education program.

Inadequate means of transportation may make it impossible for students to arrive at job stations in time to spend an average of 15 hours a week at their work. For part-time distributive education workers this usually does not present the same degree of difficulty as for the cooperative office skills workers, since many retailing establishments remain open later in the day and on Saturday.

IMPORTANT OUTCOMES OF COOPERATIVE WORK EXPERIENCE PROGRAMS

When school administrators weigh the possibility of adding cooperative work experience programs to the curriculum of their schools, certain basic issues are considered:

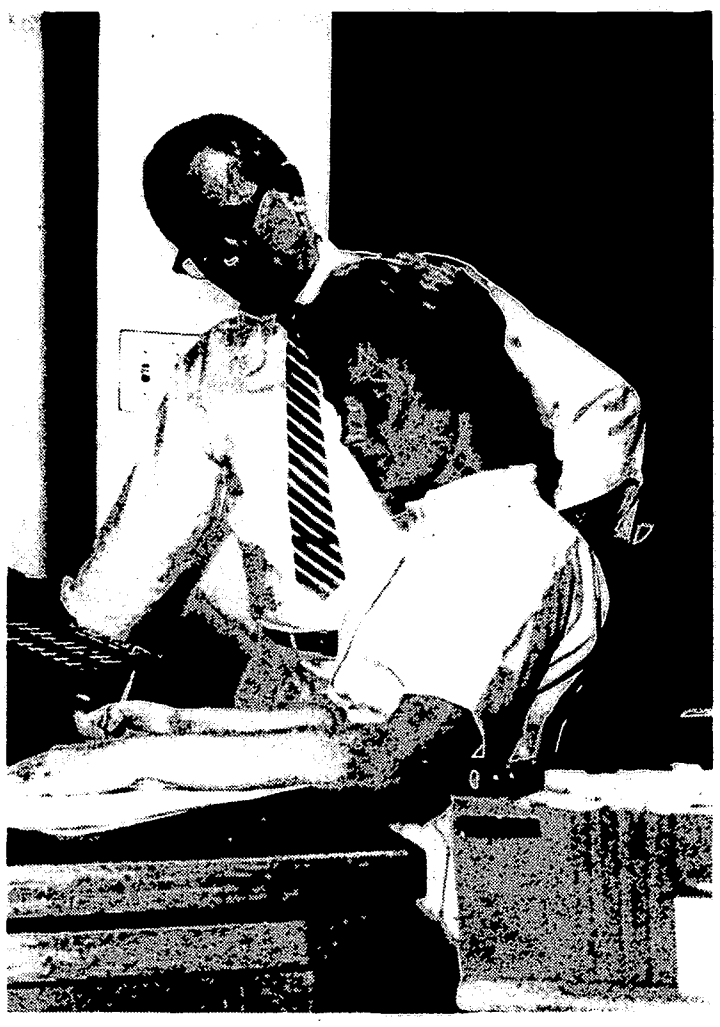
1. What objectives of a cooperative office skills or cooperative distributive education work experience program are desired?
2. How can the cooperative work experience program be of real service to the participants and to the community?

The coordinator should evaluate his program periodically in terms of objectives and content. Some suggested objectives for a successful cooperative work experience program are listed below.

Some Suggested Objectives:

1. Preparation of each participant for employment in an occupation in his field of interest.
2. Opportunity to explore related jobs in order to gain increased knowledge and vocational competence.
3. Opportunity to develop positive on-the-job personality characteristics.
4. Opportunity to gain a sense of responsibility toward a job and to develop loyalties toward an organization.
5. Opportunity to learn to work well with others.
6. Opportunity to apply in practice theory presented in the classroom and to add meaning to the related school program.

Cooperative work experience programs also aim to provide opportunity for developing positive on-the-job personality characteristics. A new sense of responsibility toward a job will become apparent when a student learns the important role his work plays in the overall operation of the employing organization. He will recognize that in the business world tasks are assigned that must be completed within a reasonable amount of time and often before fixed deadlines. It will also become evident to him how important it is to learn to work harmoniously with fellow employees.



Bookkeeping Work Experience Student Receives On-the-Job Training in the Accounts Receivable Department of a Local Employer

For the cooperating student worker, related class instruction increases in value because he is certain to raise specific questions pertaining to his job. The work of the classroom takes on new significance as the need for certain knowledges and skills becomes more apparent. This fact alone may provide the incentive for certain students to remain in school until graduation.

For the cooperating employer, a work experience program affords the opportunity to share in the educational growth of young men and women by placing actual business equipment and facilities at their disposal. By observ-



Office Skills Cooperative Work Student Receives On-the-Job Training at Local Work Station

ing these beginners at work, an employer may discover promising candidates for his permanent organization and thereby reap the benefits of a better trained work force.

For the school as a whole, still other values are inherent in cooperative education. The facilities and counsel of business are placed at its disposal. The cooperative education program provides an opportunity for developing better mutual community understanding, as well as improved relations with business.

Because programs of this nature make added provision for individual student differences, the school is in a better position to serve the young men and women of the community.

The teacher also profits from participating in a cooperative work experience program. As he witnesses new procedures being introduced by business and industry and as he learns of the qualifications and shortcomings of the students he has taught, it becomes urgent that he adjust course content and teaching processes so as to relay to his classes these newly developed and practical ideas.

A coordinator may want to add to the list of outcomes of cooperative distributive education or office skills programs. Specific objectives and/or outcomes should be developed for the local school program and set down in writing. The effectiveness of the program will depend upon how it is evaluated in terms of these objectives and how revisions are made as the program continues.

FEDERAL-STATE RELATIONSHIPS AND FEDERAL AID

To aid high school students in the junior and senior years to prepare for a career in the DISTRIBUTIVE and OFFICE SKILLS fields, a program of cooperative work experience has been developed by the State Education Department. It entails a highly practical working partnership involving the high school, the business leaders of the community, and the students. It is backed, of course, by parents and the community in general. The program is available to all high schools in the State.

Cooperative courses in distributive education were greatly stimulated by the passage of the George-Dean Act of 1936 and the George-Barden Act of 1946. These acts made available Federal funds to States to be used to develop and extend cooperative training in the distributive trades. Under the New York State plan, high schools which operate approved programs in distributive education may apply for reimbursement for certain costs of operation. In view of the changing nature of reimbursement requirements and a degree of uncertainty regarding the amount of funds available for this purpose, inquiries about Federal reimbursement for office skills and distributive education classes should be made directly to the Bureau of Business and Distributive Education, State Education Department, Albany, New York 12224. Periodically, the Bureau will prepare bulletins and similar releases about this aspect of the program.

part II

DEVELOPMENTAL PHASES OF THE PROGRAM

PART II

DEVELOPMENTAL PHASES OF THE PROGRAM

THE COORDINATOR

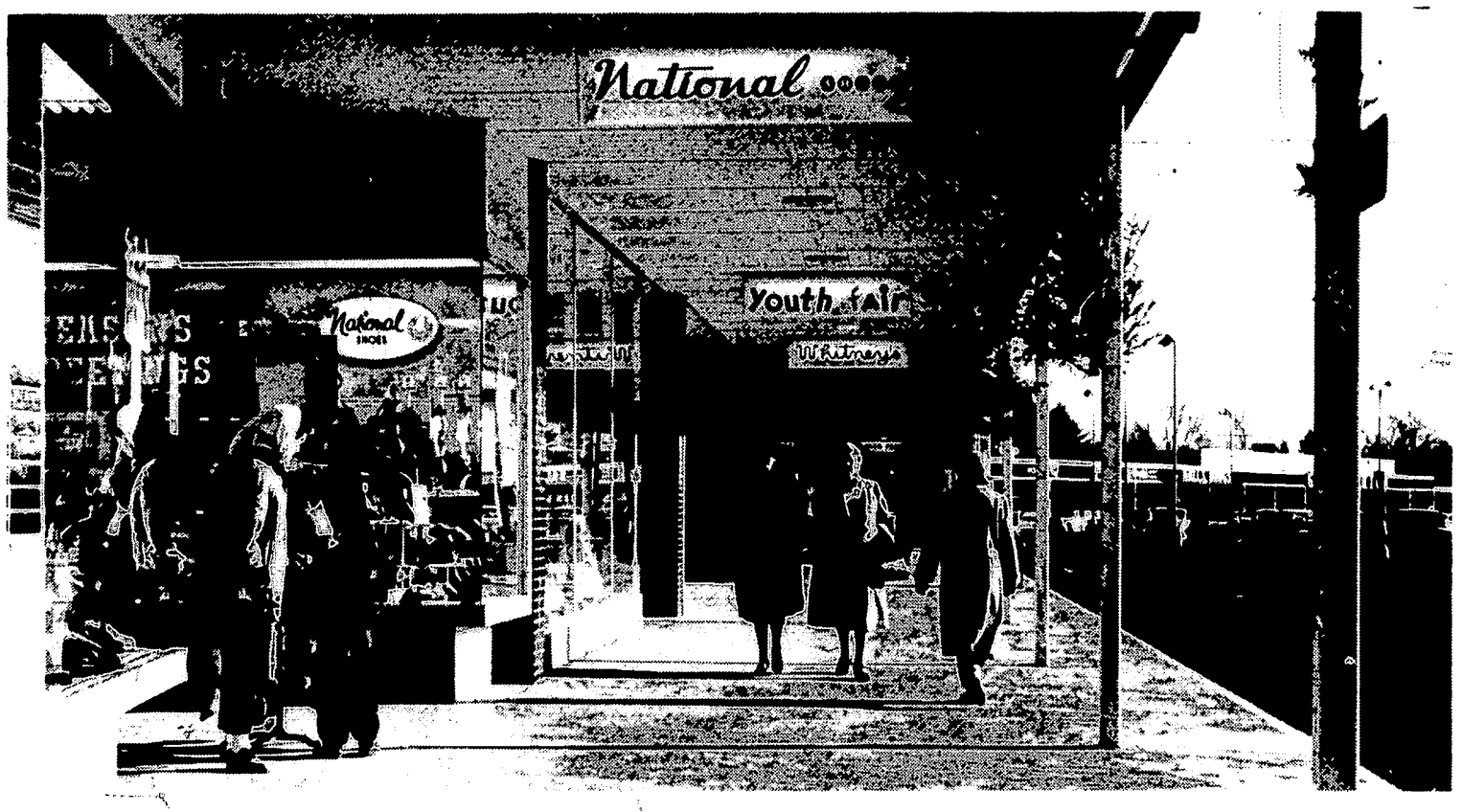
After the school has ascertained from a preliminary perusal of the foregoing fundamental considerations that a cooperative work experience program is needed and that the community has the resources and facilities to meet the need, the school in cooperation with community leaders and preferably under the leadership of a teacher-coordinator, begins the advance planning phase for a cooperative work experience program.

THE COORDINATOR

The teacher-coordinator is the key to the development of an effective cooperative education program. The coordinator takes on the role of a consultant as well as that of a teacher of business or distributive education. He may also help organize an adult program for employees, managers, and personnel people. The success of either the distributive or the office skills program depends largely on the degree to which the coordinator assumes his key role as organizer and leader in an area of education more demanding than conventional classroom instruction.

Professional Preparation and Experience and Personal Qualifications

The distributive education teacher-coordinator should have substantial preparation in economics, merchandising, and marketing. The distributive education coordinator should have sufficient practical work experience in retailing so as not to be at a disadvantage when talking with merchants and employers. Certification requirements specify a minimum of one year of approved and appropriate experience in a distributive occupation. The combination of



"The Curriculum Is the Community"—The Skills and Attitudes Needed by the Community Are Provided in the Cooperative Work-Study Program

technical courses and practical experience provide interesting, meaningful content which becomes the basis for effective classroom instruction. Specific details on professional preparation for a distributive education teacher-coordinator may be obtained from Division of Teacher Education and Certification, State Education Department, Albany, New York 12224.

The coordinator's practical experience and his grasp of actual work problems will help to instill confidence in the minds of students as well as businessmen. Thus, a strong coordinator can successfully bridge the gap between the school and the business community.

The coordinator must be able to communicate with businessmen; he should be able to "speak their language." He must be able to initiate workable plans, to put these plans in writing, and to execute them. He must secure the cooperation of people because they approve of the objectives of the program and accept him as a leader in business education.

Qualifications and Responsibilities

The teacher-coordinator must:

1. Be a properly trained business teacher who has demonstrated the ability to make classroom activities alive, dynamic, and interesting.
2. Recognize the necessity for earning the respect of businessmen.
3. Be concerned with developing training techniques dealing with specific skills and information as a result of working with students on the job.
4. Seek to match student qualifications with types of skills and other abilities required for the job.
5. Appreciate the need for a carefully organized plan of public information about the school's work experience program.

Students selected as cooperative student workers are usually sincere in their desire to profit from their work experience. They have elected this cooperative type of learning experience in preference to many other school activities. On the one hand, the coordinator has responsibility for making the related instruction worthwhile and functional for his students; on the other hand, he should capitalize on work experience of student workers by finding ways for maximum sharing these experiences in the school with other students and teachers.



Typical Office Practice Layout Offering Instruction in Office Skills for Cooperative Program

ADEQUATE TRAINING FACILITIES WITHIN THE SCHOOL

Office Skills Classrooms

In the typical cooperative office skills program, related classroom instruction is carried on in such classes as secretarial practice, office practice 1, office practice 2, shorthand 2, and bookkeeping 2. These classroom laboratories should be suitably equipped with office machines, equipment, and materials that approximate actual office conditions. Periodic visits to local offices where students are employed should be made to observe equipment and procedures currently used in the community. Employers and personnel people should be invited into the classroom to observe and make suggestions. Frequently, older but serviceable equipment and material are available to schools either on loan, at extremely reasonable cost, or for the asking.

A diagram of a model office practice laboratory with a reception area, individual offices, and varied "skill centers" is shown in this manual. This classroom should be as business-like as possible, an atmosphere of "the office" prevailing. The suggested physical layout of the laboratory provides for many concurrent activities. Students could be interviewing each other in the offices, others operating machines in the duplicating and other rooms. Provision is made for counselling in the coordinator's office.

Distributive Education Laboratory

In distributive education, the classroom laboratory plays a vital role. Showcases, display racks, cash registers, work counters, and display material contribute effectively to successful classroom instruction. The distributive education laboratory cannot become an actual store, but it can have enough of the elements of actual working conditions—cash register checkout, sales counter, stock room—to resemble closely, existing equipment in use in stores and retail establishments in the community. Merchants will frequently assist schools in obtaining much of this equipment, and they should be consulted in the design of such facilities.

Mannequins, display cases, and many other items frequently can be borrowed from local merchants, and the coordinator should be alert to ask for discarded displays and fixtures which are constantly being disposed of by local businessmen.

Layouts and arrangements can become quite complex; but regardless of the extent of facilities, classrooms which support cooperative programs should ideally provide some of the following:

Office Skills

Typewriting equipment
Filing equipment
Office machines
Dictating and transcribing machines
Duplicating equipment
Planning and conference area
Reference center

Distributive Education

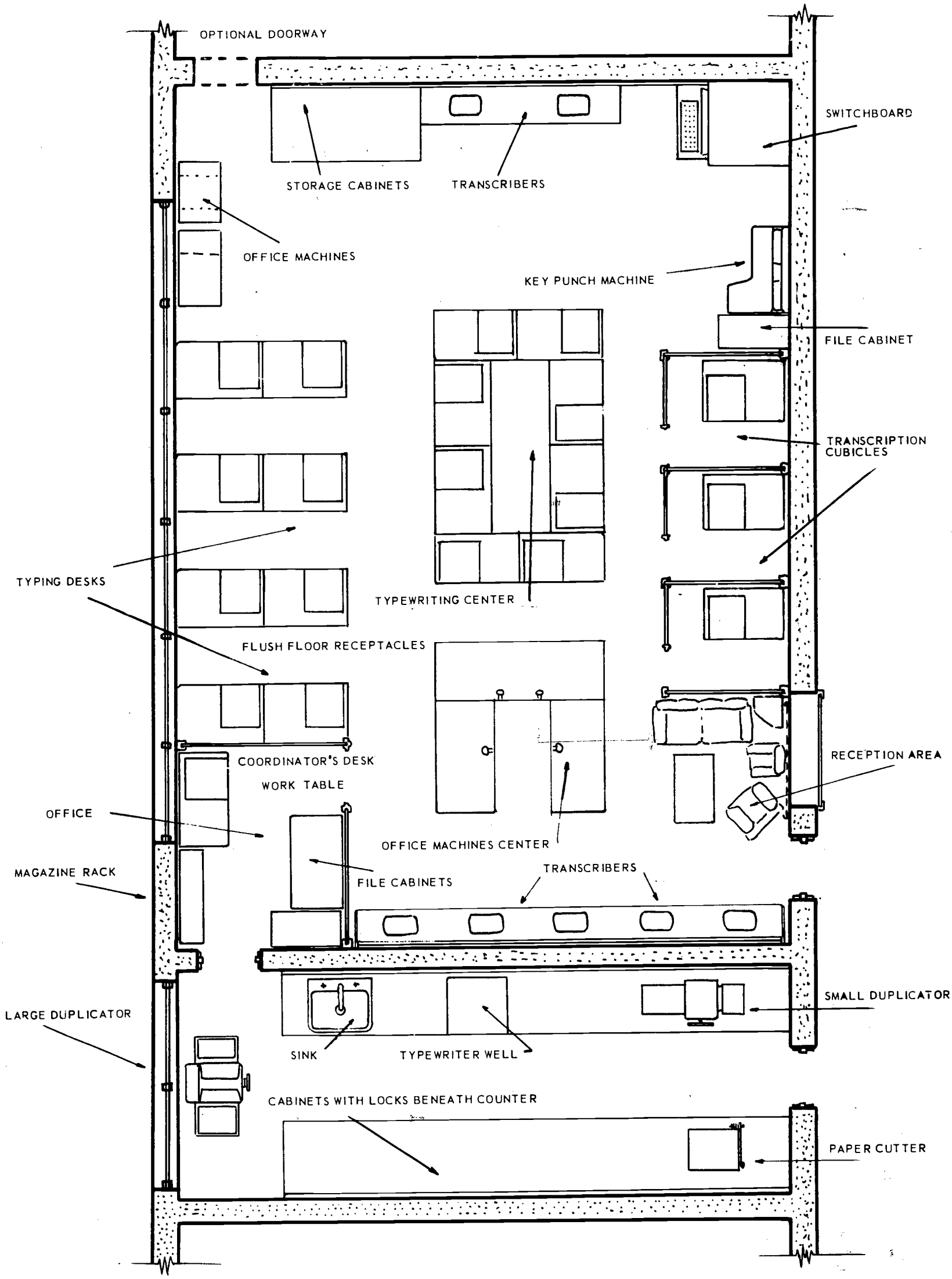
Selling equipment
Display equipment
Sales recording equipment
(cash register)
Stock area and shelves
Record keeping area
Planning and conference area
Reference and resource center

Distributive Education Classroom Laboratory*

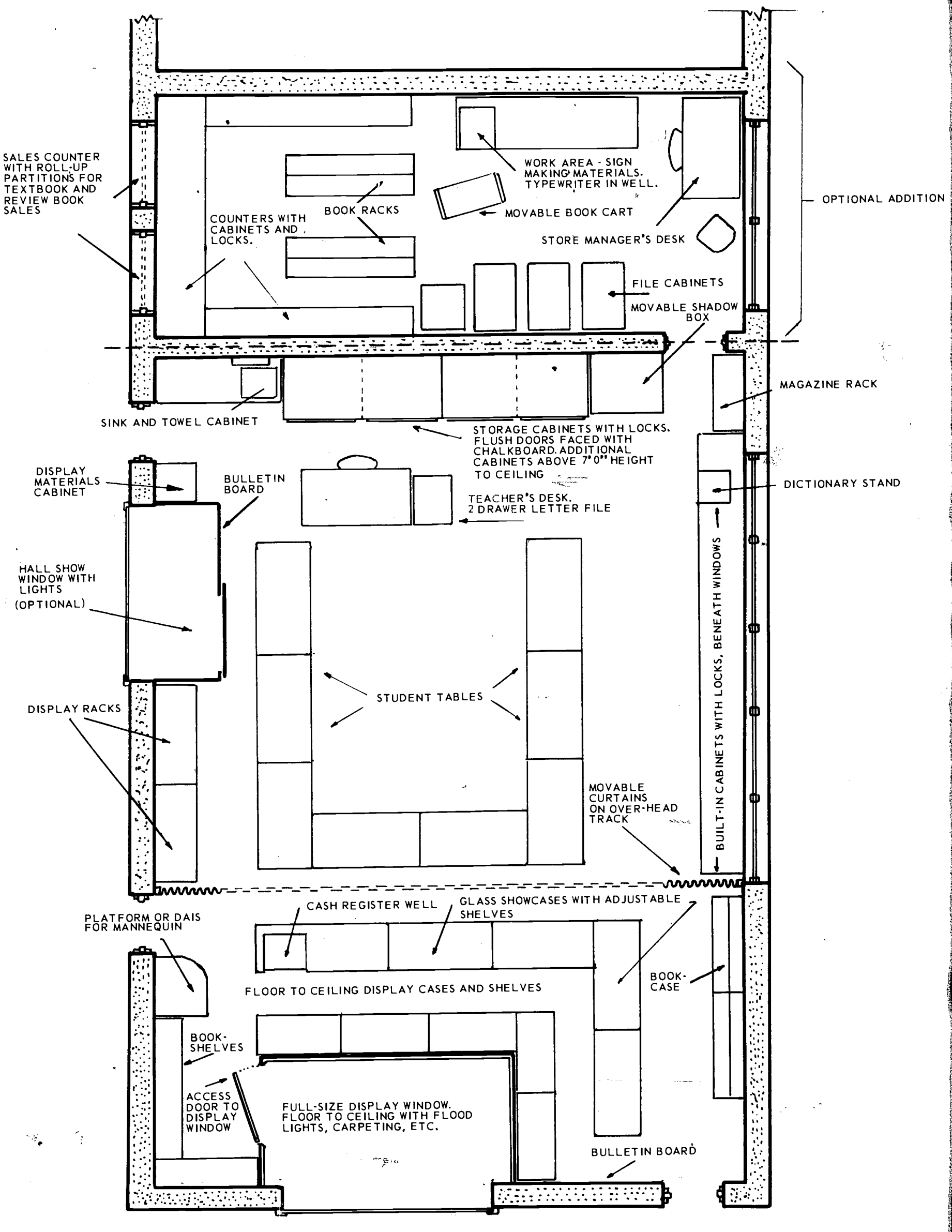
The distributive education laboratory should be equipped in such a way as to provide the type of related instruction correlating with the variety of jobs reflected in the program's work stations.

The coordinator will have in his care some expensive machines and equipment. This equipment should be used to its fullest capacity throughout the school year. When equipment is not fully utilized, it is difficult for an administrator to justify requests for new equipment. No equipment should be requisitioned which will remain idle for much of the school year.

* More suggested layouts and equipment lists are included in *A Pictorial Guide To Aid in Planning Business and Distributive Education Classrooms and Facilities* available from the Bureau of Business and Distributive Education, Albany, New York 12224.

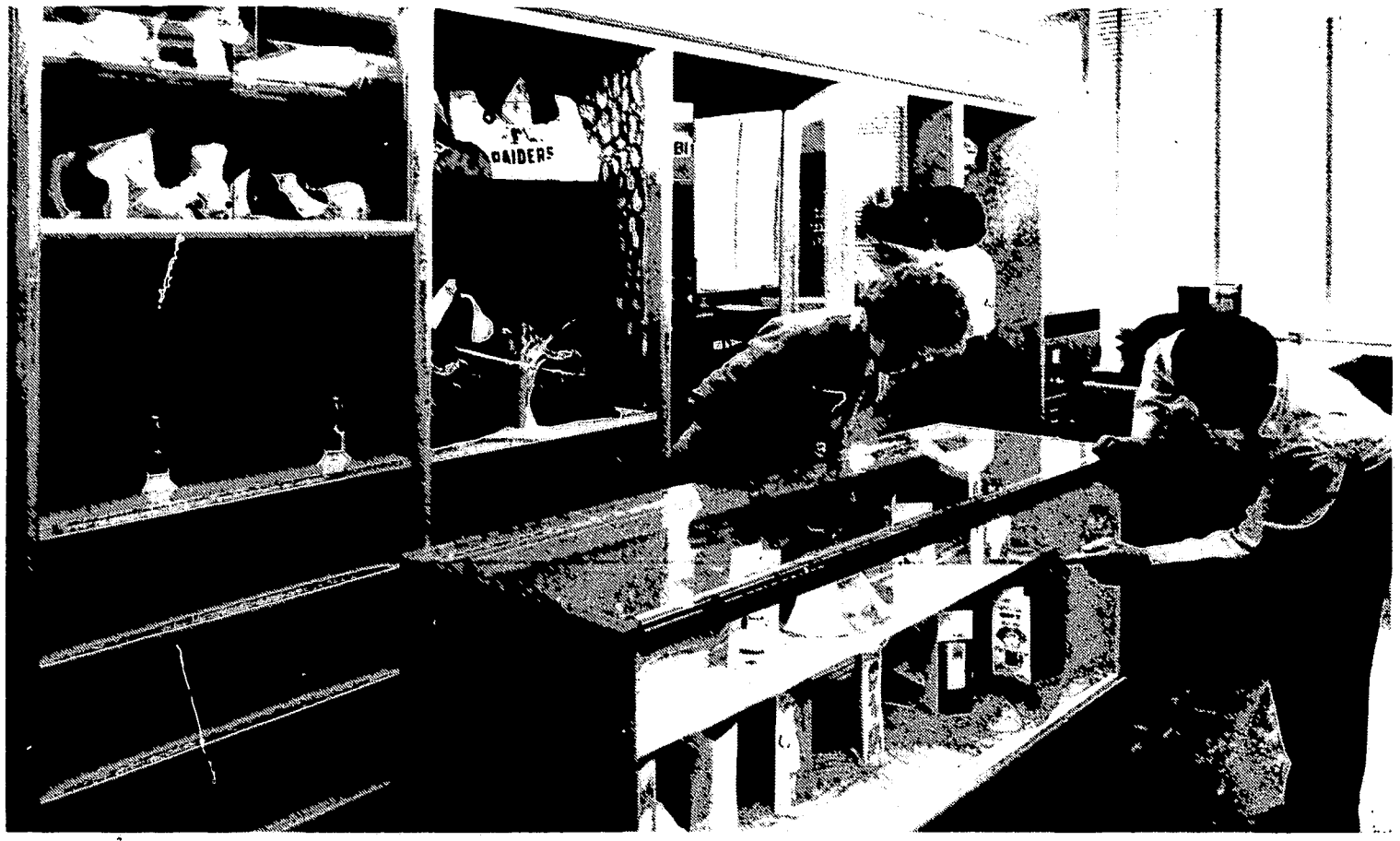


OFFICE SKILLS CLASSROOM LABORATORY



DISTRIBUTIVE EDUCATION CLASSROOM LABORATORY

A carefully kept laboratory has publicity value. A successful cooperative work experience program in either distributive education or office skills will attract students, parents, and business leaders to the classroom laboratory. Coordinators should take full advantage of these natural interests. The appearance of the laboratory should be that of a progressive store or a well-run business office. Not only should good housekeeping be demanded of students but also display and bulletin areas should be carefully planned and frequently changed.



Distributive Education Students Gain Valuable Experience Working Together To Learn Display Techniques

Reference Materials

Many coordinators provide reference material in the classroom; and this usually includes such items as textbooks, pamphlets, brochures, journals, house organs, and handbooks related to secretarial and office skills or to distribution.

The trend, however, in schools with ample library facilities is to provide a "D.E. Corner" in a portion of the library where students may go to perform research assignments. This has several advantages. Librarians prefer to handle the materials themselves rather than have reference material "farmed out" in classrooms; it gives them greater control, especially in the care of periodicals. Students who are not in the program may become interested in cooperative experience by reading some of the literature or seeing displays in the distributive education or office skills section of the library.

Long-Range Budgeting

In order to develop and maintain equipment and training materials, it is desirable that a budget be prepared, setting forth specific needs. Long-range planning assures a classroom laboratory that is as modern as it is functional. The amount of money to be budgeted for the cooperative education program must be adequate to provide for periodic additions and replacements of selected pieces of equipment.

Classroom Equipment Control

Inventory control of classroom equipment is a responsibility of the teacher-coordinator. Only by keeping a perpetual inventory of all classroom items can expenditures for equipment replacements and additions be properly planned. The teacher-coordinator must be certain that classroom equipment:

1. Is adequate in variety and number to meet training needs.
2. Reflects current business usage or practice.
3. Is suitable for covering the various areas of training.

It will be difficult for a school administrator to justify equipment that remains idle in the classroom for several months at a time. It is imperative that each piece of equipment be used to its maximum advantage throughout the school year. Adequate storage space should be provided when the equipment is not in use.

ADVANCE PLANNING

For numerous reasons it is desirable in initiating a new cooperative work experience program, to investigate, gather information, and to plan in advance with members of the business community, school officials, students, and parents. If members of these groups share in the gathering data and the planning, there is likely to be less disagreement on policy and procedures once the program gets under way. In most cases businessmen are eager to cooperate with the school, particularly when it is clear that real values are to be derived by young people of the community and by business.

A teacher-coordinator should appreciate the advantages of a carefully planned program for disseminating information in order to interest the student body, teachers, employers, and the public in, and keep them informed about, what is going on in the cooperative education program. For more specific suggestions, see "Good Communications" under discussion of the public relations program in this manual.

Advance Planning Within the Business Community

There are several activities the coordinator and his school can launch to further the type of cooperation necessary for a successful cooperative work experience program. Influential persons in the business community can be invited to the school for an orientation or briefing session. Invitations to attend such a meeting might be sent to officers of the local chamber of commerce, retail merchants association, local chapter of Administrative Management Society (formerly NOMA) and similar groups.

Representatives of the school can in turn address meetings of the various organizations to present the program to the members. Pamphlets, brochures, or circulars can be prepared by the school for distribution to local employers and civic organizations. Samples of brochures which schools have produced as well as assistance in preparing such materials can be obtained by writing to the Bureau of Business and Distributive Education, New York State Education Department.

As a rule, the person or persons who will eventually coordinate the program should make personal calls to local businesses and offices in order that participating employers can become acquainted with individuals representing the school in this activity.

Initial discussions can first be held with the local chamber of commerce secretary or with other leaders representing business and civic groups. If, as is customary, these leaders show interest, a joint meeting with the school officials can then be arranged. This latter meeting is often sponsored jointly by the chamber of commerce, or similar group, and the school. Those present from business will probably include the secretary of the local chamber of commerce, chairmen of the chamber's committees on retailing and on education, and leading merchants and other business executives of the community. Those persons representing the school may include the superintendent, high school principal, guidance director or counselor, chairman of the business department, and office skills or distributive education teacher-coordinator.

The meeting is frequently presided over by the teacher-coordinator, who presents the story of cooperative distributive and/or office skills education and how it operates both in the school and on the job. Merchants may affirm their desire to see such a program introduced into the school. It is not unusual for the chamber of commerce to follow up this meeting by formally confirming its support in a

letter to the superintendent of schools or the board of education.

Favorable action may result from this joint meeting in the following chain of events:

1. Formal action by the board of education authorizing distributive education in the school.
2. Official action by the chamber of commerce and its retail merchants committee, expressing their desire to participate in this school-community educational experience.
3. Employment of a teacher-coordinator, if one has not already been engaged, and formulation of an official statement of his responsibilities.
4. Appointment of an advisory committee of local retailers and business leaders.
5. Development of a distributive education curriculum and of a cooperative work experience program suitable for the school and the business community.

Some school administrators may engage a teacher-coordinator before actually instituting the program. This provides opportunity for him to become better acquainted with the business community. Distributive education should be placed in its proper perspective ready for the next step in the planning.

The work of initiating a cooperative work experience program in the office skills follows much the same chain of events. It would therefore appear that parallel procedures of this character might well be developed for cooperative office occupations.

Advance Planning Within the School

The importance of orienting the faculty to the idea of a work experience program has been discussed. Some suggested ways of doing this follow:

1. Explain to the faculty how a work experience program functions, perhaps at a faculty meeting or some other suitable time.
2. Outline the curriculum with guidance counselors. Work out with the counselors definite procedures for placement of cooperative part-time students.
3. Confer with student program planning personnel to
   —arrange students' schedules so that time for work experience will be available.
   —provide for a system of early excuses from school for those students who must leave for their jobs before the regular school dismissal hour.
   —develop procedures for supervising students who are released to work.
4. Inform the student body of the work experience plan. Use facilities of the guidance office, assembly programs, panel presentations by local business people, and films to tell the story.

Informing the student body requires careful planning as does the work of informing the business community. It is necessary to determine the appropriate media to be used and to consider the timing of the orientation program. Persons who will assist with the details should be found.

Advance Planning Includes Talks With Parents

The teacher-coordinator must tell the story of the program to parents. Through such school organizations as the Parent-Teachers Association, the coordinator has an opportunity to discuss the many advantages of cooperative work experience with the parents of students who may wish to participate. Parents may be reached through the medium of a "Parents Night" program. Attractive pamphlets, circulars, local and school newspapers, and other bulletins may be used to reach parents who may not learn of the program through these meetings.

Cooperation of parents can be obtained when the coordinator explains the program to them, obtains their consent, and informs them periodically, of progress of their boy or girl.



Teacher-Coordinator Plans Student's Work Experience Program With Parent in Home Interview

A great deal of the coordinator's time during the initial stages of the program will be concerned with planning. His objective must be to bring the level of school and community knowledge concerning a cooperative distributive or office skills work experience program to a point where it is accepted in the same manner as are the other phases of the high school program.

The Advisory Committee

An advisory committee has been found to be of great assistance in furthering the effectiveness of a cooperative education program. Where both distributive education and office skills programs are being considered, there can be a joint committee composed of interested local retailers and office employers. It is advisable to select as members those who are willing to employ student workers. The committee can advise the school administrators and the teacher-coordinator on the organization and promotion of the program. Meetings of the advising committee should be planned by the teacher-coordinator with the agenda carefully developed. Often these meetings can be held as luncheons.

The Curriculum

The responsibility for developing the curriculum for the distributive education or office skills cooperative program rests with the school. The teacher-coordinator should study carefully the needs of the local employers and plan the instructional content to include these needs. The advisory committee can be of service in this respect.

The Bureau of Business and Distributive Education has developed curriculums for both fields. They are shown on the next two pages.

Vocational Stenographic Curriculum C
(Cooperative Office Skills)

9th Year	10th Year	11th Year	12th Year
	Shorthand 1	Shorthand 2	Secretarial practice[1]
	Typewriting	Transcription	Office experience[2]

Recommended electives:
9th year—Introduction to business
11th year—Business law

Vocational Bookkeeping Curriculum B
(Cooperative Office Skills)

9th Year	10th Year	11th Year	12th Year
	Typewriting	Bookkeeping 1	Bookkeeping 2[3]
	Business arithmetic		Office experience[2]

Recommended electives:
9th year—Introduction to business
11th year—Office practice 1 or business law

Vocational Office Practice Curriculum B
(Cooperative Office Skills)

9th Year	10th Year	11th Year	12th Year
	Typewriting	Bookkeeping 1	Office practice[4]
	Business arithmetic	Office practice 1[4]	Office experience[2]

Recommended elective:
9th year—Introduction to business

[1] Double period, or single period with an additional period of supervised office experience in the school.
[2] Must work for pay in a properly supervised, well-regulated office an average of 15 hours a week.
[3] Single or double period.
[4] Double period recommended.

Vocational Machine Transcription Curriculum B
(Cooperative Office Skills)

9th Year	10th Year	11th Year	12th Year
	Typewriting 1 Business arithmetic[6] Bookkeeping 1[6]	Machine transcription Business law[6]	Secretarial practice[1] or Office practice[2] or 12th-year-vocational business practice[3] Office experience[2]

Recommended elective:
9th year—Introduction to business

Cooperative Vocational Distributive Education Curriculum

9th Year	10th Year	11th Year	12th Year
Introduction to business	Business arithmetic	Distribution 1 Business law	Distribution 2 Store experience[5]

Recommended elective:
10th year—Typewriting

[1] Double period, or single period with an additional period of supervised office experience in the school.
[2] Must work for pay in a properly supervised, well-regulated office an average of 15 hours a week.
[3] Single or double period.
[4] Double period recommended.
[5] Must work in a properly supervised, well-regulated store an average of 15 hours a week.
[6] One unit of bookkeeping 1 or business arithmetic or business law.

Vocational office and distributive education curriculums, as well as three-unit sequences without work experience, are described in *Administrative Handbook for Business and Distributive Education* available from the Bureau of Business and Distributive Education, State Education Department, Albany, New York 12224.

Three-Unit Work Experience Sequences for the Nonbusiness Form of the State High School Diploma

Students interested in work experience and desirous of obtaining full-time office or store employment immediately upon graduation from high school should be strongly urged to complete one of the vocational work experience curriculums outlined in the preceding pages.

The following three-unit sequences are for students who are interested in work experience but who cannot devote to it the time required by the vocational work experience curriculums. Ordinarily a student who completes only a three-unit sequence will not have all of the vocational competencies possessed by one who completes a vocational curriculum.

Cooperative Office Skills

Shorthand two years*
Transcription
Office experience (1 unit)

Typewriting
Office practice (1 unit)
Office experience (1 unit)

Bookkeeping 1
Bookkeeping 2
Office experience (1 unit)

Bookkeeping 1*
Office practice (1 unit)
Office experience (1 unit)

Typewriting 1
Machine transcription (1 unit)
Office experience (1 unit)

Typewriting
12th year vocational
business practice
Office experience (1 unit)

Cooperative Distribution

Distribution 1
Distribution 2
Store experience (1 unit)

Distribution 1
Business law
Store experience (1 unit)

Distribution 1
Bookkeeping 1
Store experience (1 unit)

Distribution 1
Business arithmetic
Store experience (1 unit)

Typewriting
12th year vocational
business practice
Store experience (1 unit)

Syllabuses are available outlining the minimum instructional content to be covered. The teacher-coordinator should implement these suggested minimums with additional training based on the resources available within the local community.

Certain basic requirements have been established for work experience with reference to time to be devoted to instruction.

For Distributive Education

Plan A. In a cooperative work experience program covering two school years, one regular class period a day should be devoted to vocational instruction.

Plan B. In a cooperative work experience program covering one school year, two regular class periods a day should be devoted to vocational instruction. This should be a double period, if possible.

Plan C. In a one-year distributive education program organized for students who have completed two units of credit in such subjects as bookkeeping, business arithmetic, business law, retailing, salesmanship, advertising, display or textiles, an average of one regular class period a day is devoted to vocational retailing instruction.

For Office Skills Education

If students in a cooperative office skills program have completed two units of credit in such subjects as bookkeeping, business arithmetic,

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* Students choosing this major sequence must also complete as an elective, typewriting (1 unit).

business law, typewriting, shorthand, transcription, or office practice, one regular class period is devoted to vocational office skills instruction. Bookkeeping 2, office practice 1, office practice 2, secretarial practice, and shorthand 2 can be conducted as cooperative education classes.

Office or store experience gained during vacation periods may be applied if done under supervision of the teacher-coordinator.

When distribution 1 is the only distributive education subject offered in a school, it may be organized on a cooperative basis with some students acquiring the 15-hour weekly average of work experience.

When a school offers both distribution 1 and distribution 2, the latter should be offered on a cooperative basis, but distribution 1 need not be offered as a cooperative education subject.

Display Facilities in the School and Community

Coordinators place varying emphasis on the importance of display in the distribution curriculum. The needs of the community usually indicate the extent to which display techniques should be emphasized. If a number of cooperative student workers are employed in window trimming and jobs involving display of merchandise, then maximum advantage should be taken of local store windows and aisle displays. Merchants who want to develop this kind of skill in their employees will be glad to cooperate by making display facilities available and encouraging cooperative education classes to prepare displays in the store. Whenever students do some activity of this kind, a small sign identifying the students and the school might be placed in the window or on the aisle display.

Some coordinators develop rating sheets for judging window displays and assign this type of activity as a class exercise that requires a grade. DECA contests include display judging and similar activities.

The Distributive Education Club Program (DECA)

The DECA club program serves to supplement classroom and job experience by providing an outlet for student centered participation in activities which are of particular interest to students of distribution. These educational activities of the club program can enhance classroom instruction and job experience.

Areas of emphasis in the club program should encompass:

1. Broadening economic understanding.
2. Increasing knowledge of distribution.
3. Maintaining constructive attitudes toward new techniques used in distribution.
4. Increasing opportunities for leadership in citizenship activities.
5. Developing understanding of the social and economic responsibilities of those engaged in distribution.

Participating in the above-mentioned areas can improve:

1. The spirit of cooperation.
2. Understanding of competition.
3. Recognition of social values.
4. Ability to communicate.
5. Opportunities for individual recognition.
6. Opportunities to develop leadership.

The teacher-coordinator should secure USOE, Vocational Division Bulletin No. 294, Distributive Education Series No. 31, entitled *Educational Values in Club Programs*. This bulletin, available from the United States Government Printing Office, Washington 25, D.C., contains a full explanation of the value of club activities in distributive education and the teacher-coordinator's role as counselor and communicator.

Many of the principles developed in this bulletin can be applicable to club activities in the area of office skills.

part III

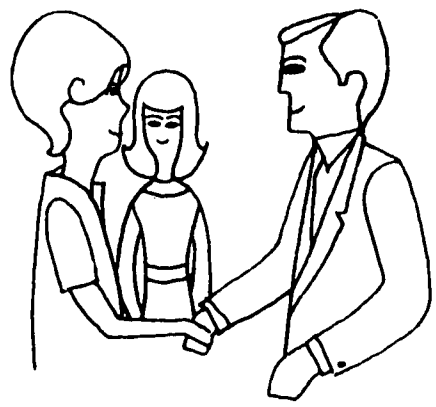
THE PROGRAM IN OPERATION



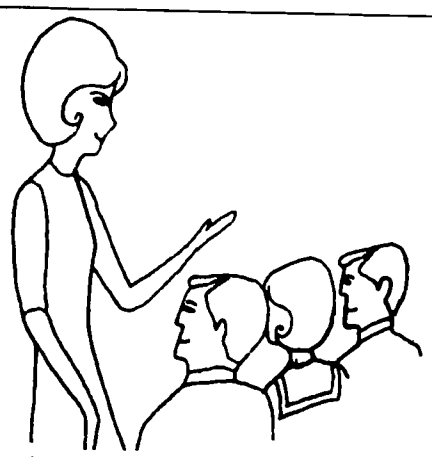
SELECTION OF STUDENT



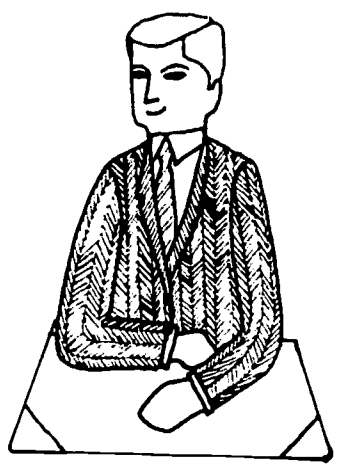
SELECTION OF
WORK STATIONS



PARENT RELATIONSHIP

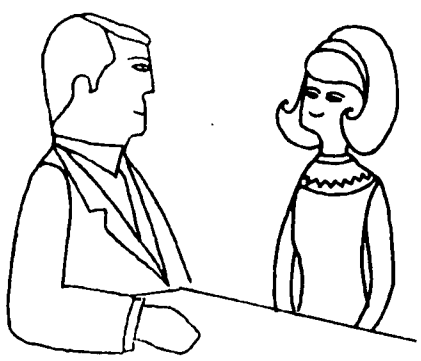


ADAPTING INSTRUCTION
TO STUDENT NEEDS





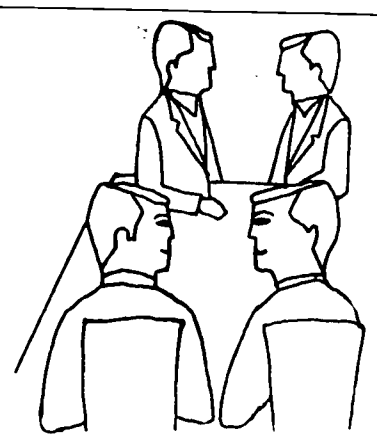
SUPERVISION OF
STUDENTS ON JOB



GUIDANCE



PERIODIC REPORTS
BY EMPLOYERS



ADVISORY COMMITTEES

ASPECTS OF THE COORDINATOR'S WORK

PART III

THE PROGRAM IN OPERATION

ASPECTS OF THE COORDINATOR'S WORK

A cooperative education program continues to be successful only when the teacher-coordinator is aware of the magnitude of his task and is willing to assume certain duties and responsibilities quite unlike those normally performed by a regular classroom teacher. To help the new teacher-coordinator to realize the nature and importance of these responsibilities, they will be treated here in some detail.

The Guidance Aspect of the Program

A majority of students entering a cooperative work experience program should be those who plan to enter employment directly following their high school graduation. By the very nature of the cooperative program the coordinator has an active role in the selection and guidance of students who enter the program. In addition to the guidance functions already mentioned, the coordinator will give guidance and counsel:

—As he talks with students about their educational future.

—As he confers with parents in regard to training of their son or daughter.

—As he visits with students concerning employment trends in the country.

—As he confers with other teachers in order to be more fully aware of the strengths and weaknesses of his students.

—As he relays to the guidance staff information gained from his experience with work experience students.

ADMINISTRATION AND SUPERVISION

Recruitment and Selection of Cooperative Student Workers

Students enrolled in the distributive and office skills classes should, by both interest and aptitude, show promise in these occupational areas. Many schools use a battery of tests as one way to identify these interests and aptitudes. Information of this kind is helpful in advising students whether or not they should undertake such training.

Because of the variety of job opportunities in distribution and office skills and the diverse ability levels required for these positions, students of widely varying abilities may profit from the instruction and work experience offered. A coordinator should not encourage students who obviously would have difficulty meeting employment standards to enter the cooperative program.

In a distributive education program, it is anticipated that many students who are enrolled in distributive occupations courses will participate eventually in the work experience phase. Fewer students enrolled in office skills classes (shorthand, bookkeeping, office machines, etc.) will participate in outside work experience; some of the office skills and distributive occupations curriculums do not require work experience. (See *Handbook for Business and Distributive Education* for a complete description of State-approved business curriculums.)



Selection of Appropriate Work Stations

Selection of appropriate employment opportunities for those enrolled in the cooperative education program should be made on the basis of definite criteria. Some suggested points to consider in selecting a cooperative work station are:

1. The business establishment should be progressive.
2. The work station should provide a varied learning experience.
3. The environment and duties of the job should contribute to career preparation.
4. The work station should be conveniently located or easily accessible by transportation facilities.
5. The employer should be one with an understanding of, and a definite interest in, the cooperative plan of training.

Before students are placed by the coordinator, certain basic facts should be reviewed with the employer:

1. It must be understood that the student worker will be paid for his services.
2. The amount of time the student will devote to his job must be clearly understood by all concerned.
3. The employer must be willing to grant the student the same employee benefits that are available to other part-time employees.
4. The employer must be willing to assist the coordinator and the student by making a periodic appraisal of the student's work performance.

Available to the teacher-coordinator is a publication of the Office of Education; U. S. Department of Health, Education, and Welfare; Vocational Division Bulletin No. 260; Distributive Education Series No. 22; entitled *Work Experience Laboratories*. This bulletin from the United States Government Printing Office, Washington 25, D. C., contains a full explanation of work experience laboratories and their place in a distributive education program. Many of the principles developed in this bulletin are equally applicable to the office skills field.

Planning the Student's Program

A cooperative student worker should be able to spend an average of 15 hours a week at his job. In many schools this means that schedules be so arranged that work experience students are able to reach their work stations in ample time to meet employers' requirements. In certain schools of the State, schedules are planned so that cooperative student workers spend a week in school and an alternate week on the job, each on a full-time basis. In a few schools students are assigned to a work station as a pair, one student working each morning, the other working the afternoon portion of the day. This team arrangement is sometimes done on the alternate week basis.

An increasing number of students are reporting to work after school hours and on Saturday and holidays when school is not in session. These students require little or no released time. A student who is working an average of 15 hours a week in addition to his regular school load, should have his class schedule arranged accordingly. For example, the student who works usually must plan to prepare the bulk of his homework assignments while in school. Experience shows that many students who work evening hours are not likely to go home and study when they leave their store or work station. This may not be the case with students in the office skills program who leave school early and are able to complete their work assignments by early evening. In planning a suitable class schedule for a cooperative work experience student, consideration should be given to the demands of the job on his time. Under certain circumstances this may mean a downward adjustment in the number of courses to be carried by a cooperative student worker.

Credit for Work Experience

Cooperative student workers should understand the importance of satisfactorily performing regular school work as well as doing

a good job in part-time employment. Prevailing practice is to grant one unit of credit toward graduation for 600 hours of supervised work experience completed during the school year. This would include supervised summertime and vacation employment. Consequently, 300 hours of work experience accumulated during the school year would merit one-half unit. It is not generally recommended that students who accumulate more than 600 hours of work experience be granted more than one full unit of credit in any one school year. In addition, it is not recommended that work experience in excess of 600 hours be carried over into another school year.

Students should be encouraged to work an average of 15 hours a week when school is in session. Additional hours can be accumulated during holidays and vacations.

Relationship with Parents

Parental interest and cooperation are vital to the program. Parents, therefore, must become acquainted with all aspects of this educational experience. They should realize the importance of regular attendance of their son or daughter both in school and on the job. The teacher-coordinator may secure their cooperation through attractive leaflets and brochures, general meetings with groups of parents, and occasional visits to the home.

A parent will be proud to know that his boy or girl is successful on the job. The teacher-coordinator should convey this type of information to a parent by a telephone call, a personal visit to the home, or a message in the school or local newspaper.

Placement of Students in Work Stations

The capabilities and interests of student workers vary, and the coordinator should endeavor to place students in job situations commensurate with their interests and abilities. He is in a position to know and evaluate the student. He is the one who has thoroughly investigated the employment possibilities and jobs available. A card file of available work stations with a brief description on each card will prove useful.

The personality of the student worker should be considered carefully in placing students. Some student workers are quick to grasp new methods and new procedures and are more aggressive and willing to accept responsibility, while others are timid in their approach to a new assignment.



The teacher-coordinator, working closely with the guidance staff, should:

1. Seek the advice and assistance of guidance counselors.
2. Be provided with data from the guidance files and student records, test results, student grades, and comparable data.
3. Seek the help and opinions of other teachers who know the students well.
4. Furnish guidance counselors pertinent information about job opportunities in the community.

Before prospective students are enrolled in cooperative work experience jobs, the coordinator should:

1. Evaluate the student's previous school record and analyze test scores and related data prior to initial interview.
2. Provide each prospective trainee with an interview to discuss every aspect of the program.

3. Impress upon the student that participation in a work experience program will require a great deal of time and his best effort, and that this may preclude some or all of his extra-curricular activities.

A great many demands are made on the coordinator's time at the start of school in September; consequently, whatever can be done before students are in class or actually on the job will contribute materially to a smooth-running operation.

Orientation of the New Cooperative Student Worker

The cooperative student worker should be shown that the cooperative education program is important to himself, to the school, and to the employer. He should realize that his success on the job will be a credit to himself and all concerned, and that failure on his part will reflect upon his training and upon his school as well as have significant consequences for his future career.

The coordinator and the work station supervisor should prepare the student for his new job, analyzing carefully with him the duties. If the student understands thoroughly what is expected, he will probably perform his duties willingly and satisfactorily. During the initial weeks of employment, especially, the coordinator should be alert to detect problems which might develop to a degree that the employer dismisses the student worker. The coordinator should help the student understand the demands of the job and any special requirements the employer may have established. The student should realize that the procedure followed by his employer, even though quite different from those taught at school, may also be effective. Students should not openly criticize their employers' methods. The coordinators should include new practices and procedures in the classroom instruction, and through class discussion develop the merits and shortcomings of various types of activities and operations.

During these first weeks the coordinator and the work station supervisor will be of tremendous assistance to the student worker by observing him at work; discussing with him in class and in private conference, respectively, certain aspects of his new job; familiarizing him with those routines and skills that help him to handle his work more effectively. They should give the student a chance to ask questions to which he cannot find answers for himself and to assist him to evaluate his own progress as well as to hear others' evaluations of it. The kinds of assistance and the amount given, change and diminish accordingly as the student worker acquires competence and assumes responsibility for himself. The teacher-coordinator should confer with each beginning student worker as soon as possible after observing him at work.

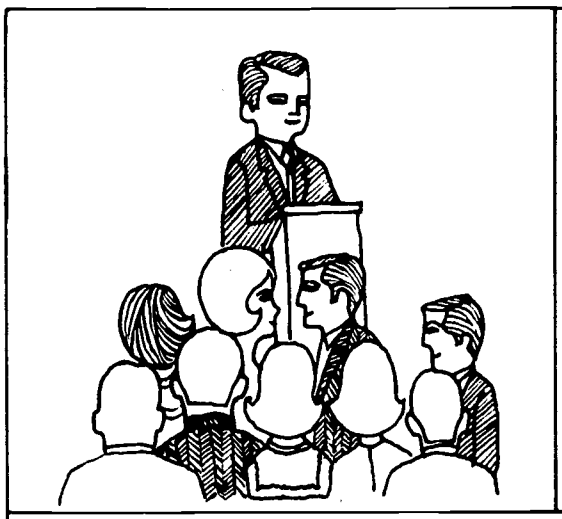
Visiting Students on the Job

A strong cooperative work experience program is built on;

- A well-developed course presented in a class atmosphere which is alive, interesting, and appropriate to the work being done on the job by the student.
- Intelligent, continuous, helpful supervision of the students while employed as student workers.

It is sometimes difficult to know how frequently students should be visited at their work stations or the extent to which the coordinator should assume responsibility for the student's job performance. It may be difficult for the teacher-coordinator to be certain that he is affording student workers the right kind of supervision. Some work stations will involve more activities which the student must learn to perform satisfactorily than others. Some offices and stores are so organized that all employees are carefully supervised from the start of their employment; other business organizations expect the employee to carry on his duties with little supervision. In any case, the visits of the teacher-coordinator should be helpful to the student.

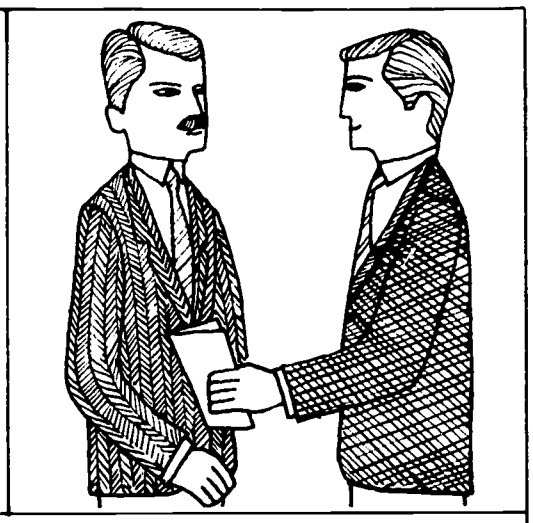
The coordinator should visit his student worker on the job often enough to keep himself informed of the situation. He should make a visit with a purpose in mind, and he should



Recruitment and instruction of students



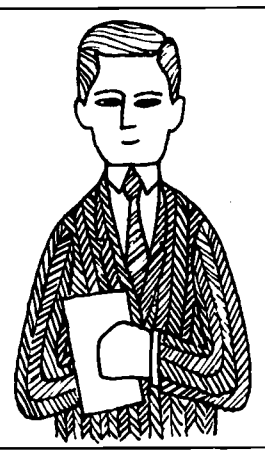
Utilization of display facilities



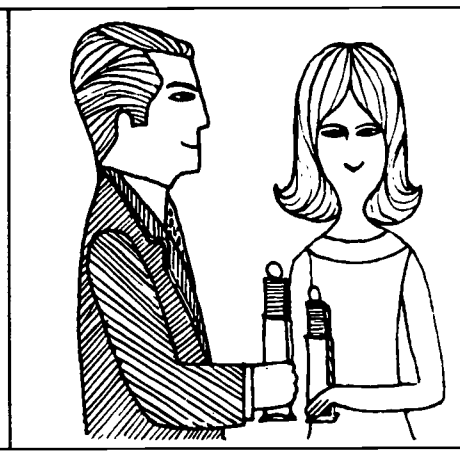
Securing periodic reports from employers



Work with advisory committees



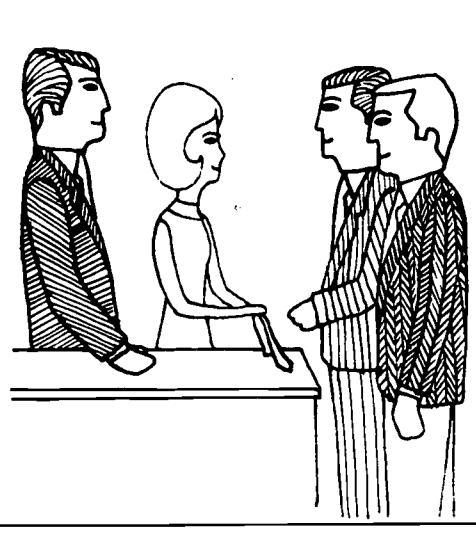
Selection of work stations and placement of students



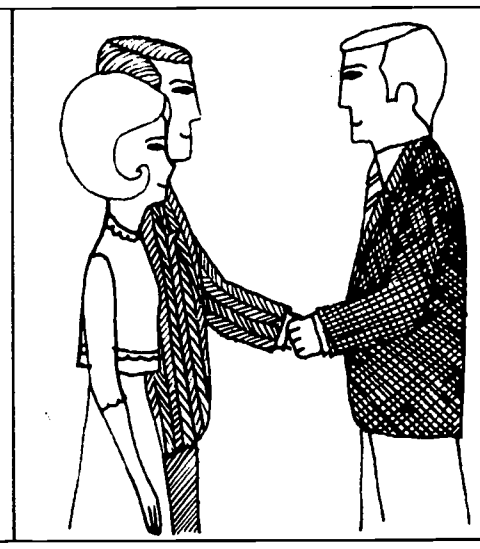
Club activities



Guidance and orientation of students



Visits to students on the job

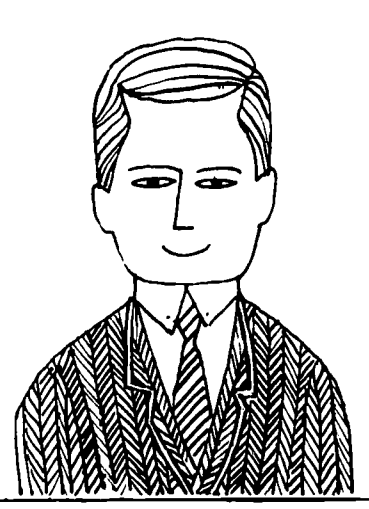


Calls on parents



Public relations and reports to superiors





Program planning and adaptation of instruction to student job needs

COORDINATION IN ACTION

not waste the cooperating merchant's time. If a specific person, such as the manager is sought, it is advisable to arrange appointments.

Basic objectives of the coordinator's visits should be:

1. To secure employer evaluations of student trainee.
2. To observe the type of work being done by the trainee.
3. To observe the trainee's performance.
4. To discuss with the store or office supervisor methods of improving training for the particular job being done by the student worker.
5. To secure materials and suggestions which will make classroom instruction more valuable.
6. To become familiar with management policies.
7. To develop new work stations.
8. To assure that cooperative education students are not exploited.
9. To make the employer aware of the school's interest and concern.

Some tips for increasing the value of coordinators' visits:

1. Summarize briefly and record each visit.
2. Avoid controversial situations in dealing with employers.
3. Avoid unwarranted discussion of confidential information.
4. Be considerate of the employers' time and yet firm in requesting reasonable and fair reports.

COORDINATION

Work with Advisory Committees

An advisory committee can be a strong aid to the teacher-coordinator. Meetings with the committee several times during the year provide a channel of communication between the school and the cooperating employers. The advisory committee can be helpful in developing the interest and support of employers. It can aid by:

—Developing new training stations.

—Securing employer participation in class work at school.

—Arranging special events such as an end-of-the-year student-worker employer banquet.

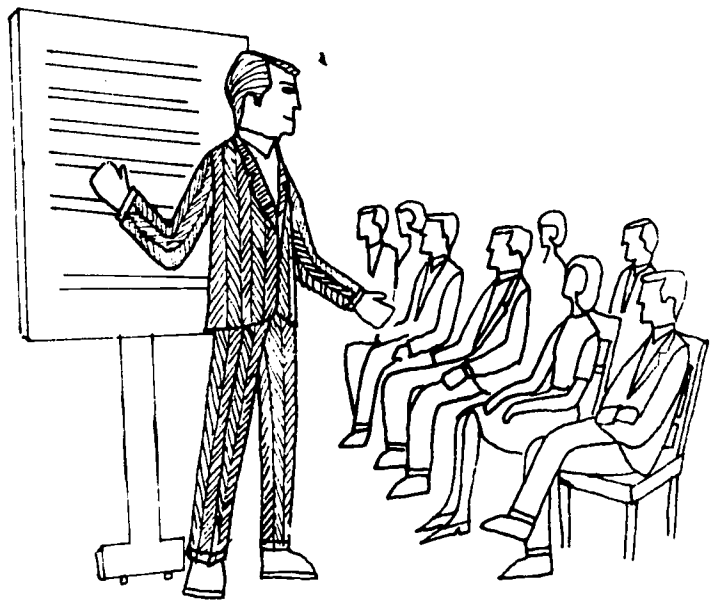
—Arranging publicity for the program.

—Encouraging students to enroll for work experience.

—Securing speakers for club meetings and banquets.

Advisory committees may vary in size from 5 to 10 members.

Successful advisory committees have been developed under the auspices of the local chamber of commerce and other business associations. These have been appointed as regular standing committees of the chamber in consultation with school officials. This type of committee makes businessmen familiar with the cooperative education program and more likely to support it.



Adaptation of Instruction to Student Job Needs

A cardinal aim of vocational education has always been to make the learning situation similar to that which the student will subsequently find on the job. The cooperative distributive education and office skills programs offer a real opportunity to achieve this basic



Distributive Education Student Gets Practical Sales Experience Presenting Merchandise to Real Customer

objective, because the actual job is part of the total learning situation. However, the job also presents problems which can be discussed in the classroom.

In-school instruction should be planned each week, keeping in mind the problems and needs of those students who are working. Some suggestions are listed below:

1. Develop job analyses for typical jobs. Use these analyses to organize individual instructional material.
2. Encourage students to discuss in the classroom problems encountered on the job. The teacher should lead discussions on these specific questions.
3. Encourage employers to suggest areas where students need additional training. This is a valuable source of information and will draw the employer closer to the program.
4. Borrow instructional materials which are currently found in business and particularly those actually being used by cooperative students on the job.
5. Invite employers to meet with the class to discuss specific topics.

6. Organize field trips related to class work to provide practical learning situations.
7. Focus students' attention upon the wise use of money earned through part-time employment.
8. Discuss with students, income tax reports, payroll forms, and accounting procedures used on the job.
9. Review the subject of workmen's compensation and other legal aspects of employment.
10. Develop an understanding of common labor-management concepts.

PLANNING

The Coordinator's Time Schedule

Effective supervision of a work experience program cannot be accomplished without systematic planning. A general outline should be prepared each year prior to the opening of school. It should be flexible enough to permit changes as the year progresses and specific enough to indicate direction and purpose of the year's work.

The Monthly Plan. Before the first of each month, the principal activities of the month should be listed. In a distributive education program in particular this affords an excellent method of coordinating in-school and out-of-school activities. Time should be alloted for regular contact with key business and professional persons in the community. Bulletin No. 148, Bureau of Business and Distributive Education, suggests in detail how such plans are made.

The Weekly Calendar. The weekly plan is similar to daily lesson plans of the classroom teacher. Each day's schedule indicates time to be spent in each of the coordinator's activities, including planned class activities and intended visits to cooperating employers. Suggested guides for developing a weekly plan are:

1. Enter major duties to be performed during the week.
2. List special problems and schedule them.
3. List and schedule specific work stations to be visited during the week.
4. Schedule any student conferences.
5. List for class attention the subject matter weaknesses observed by the coordinator or those brought to his attention by students or employers.
6. Provide time for contacting special speakers or for carrying out special class projects.
7. At the week's close summarize the work actually accomplished.
8. Transfer work scheduled but not completed to the next week's schedule.

Special Planning Activities. In addition to the monthly or weekly calendar, certain phases of the cooperative work experience program that at times during the year require special consideration, include:

1. Inventory of work stations

   Before the opening of school, the coordinator should:

   a. Check with employers to determine the number and type of cooperative student workers needed.
   b. Make contacts with new employers and secure additional work stations, if needed.
   c. Interview cooperative student workers in order to place them at stations in accord with their interests and abilities.

2. Placement of work students

   Most cooperative work experience students will be placed in work stations soon after the opening of school. During the first week of school, the coordinator should:

   a. Make certain that student workers have social security cards and employment certificates.
   b. Brief each student worker on his job and its responsibilities.
   c. Prepare referral cards, signed by the teacher-coordinator, to be presented to the new employer.

d. Contact the employer and visit the student worker at work.

3. Records of work experience credit

Work experience satisfactorily completed carries regular Regents or high school credit and therefore should be recorded on permanent records and report cards along with other courses, using the regular grading system of the school.

The coordinator should prepare forms that provide a convenient method of rating the cooperative student worker on his job performance. Since work experience is intended to supplement classroom instruction in distributive education courses, a student who does failing work in Distribution 1 or 2 would also fail or forfeit work experience credit.

4. End-of-year activities

Among the numerous details during the closing weeks of the school year that should be scheduled in order to be handled properly are the following:

a. Arrangements should be made for the summer employment of cooperative student workers who plan to continue their work (under supervision) during this period.

b. Potential employers should be interviewed in order to determine available training stations for the fall term.

c. Each cooperative student enrolled for the next fall term should be interviewed. This will indicate to the coordinator his work station requirements for the fall term.

d. "Thank you" letters should be written to cooperative education employers.

e. Certain budgetary and inventory activities may be required.

5. Summertime activities

Below are suggested activities for coordinators employed on an eleven-month basis to supervise the work experience program.

a. Make occupational surveys of the community.

b. Maintain contact with students who are working during the summer.

c. Place students in jobs which are not available in September or October.

d. Conduct home visitations to interview students who plan to enroll in the program in September.

e. Work with guidance personnel to assist them with administrative details inherent in cooperative work experience programs.

f. Make follow-up studies.

g. Prepare instructional material for the ensuing school year and correlate it with on-the-job training needs of student workers.

h. Attend professional improvement courses and/or conferences.

i. Plan instructional program.

j. Check existing reference materials and obtain new items.

k. Plan for instruction, organization, and supervision of adult distributive education classes.

EVALUATION OF THE PROGRAM

Records of the cooperative student's progress while on the job are important to the student worker, to the school, and to the employer. The most important form is the employer's rating sheet. The employer should be adequately instructed in the use of this form. Some coordinators mail the form to each employer or supervisor with an explanatory covering letter. The letter states that on a given day, at the convenience of the employer, the teacher-coordinator will call to analyze the performance of the student worker. Many coordinators prefer to take the form around personally and

complete it in conference with the merchant. This is likely to be faster, as merchants are busy and are apt to set such a form aside, unless it is brought to their immediate attention.

Periodic Reports from Employers

Periodically the teacher-coordinator meets with the student's work station supervisor for a discussion of points on the employer's rating sheet. This is an opportunity for a frank discussion of any special problems which have confronted the student or the employer.

This form of evaluation is of considerable aid in motivating the student to improve his work. The coordinator should discuss the performance rating with each student worker as soon as possible after each appraisal.



Store Managers Are Also Partners in the Teaching of Future Merchandisers

Reports to Administrators

The teacher-coordinator should report the activities of the program to his superintendent, principal or department chairman. Such a report should be filed as often as is desired by administrators. It may include:

1. Stores or offices visited.
2. Names of persons interviewed.
3. Students observed.
4. Hours spent away from school.
5. Miles traveled.
6. Expenses incurred.

A report of this kind may be used to support a statement to the board of education for travel expenses. A portion of travel expenses are reimbursable from Federal funds when incurred in connection with a distributive education program.

The coordinator may use these reports to summarize the work of the year in an annual report.

Annual Report

This report should contain a summary of the year's class and supervisory activities. Data should include total enrollment figures, a summary of hours worked, and wages earned by the part-time student workers. The highlights of individual student achievements should also be narrated.

PUBLIC RELATIONS PROGRAM

School administrators realize that when "something new" is added to a school program, a full program of information and publicity is needed.

Purposes of a Public Relations Program

The purpose of a publicity program is to inform everyone concerned with the school and the community of:

—Need for the program.

—Aims and purposes of the program.

—Method by which the program operates.

—Benefits to the individual participant.

All communications media should be utilized to tell the story of the cooperative program. These include:

—Printed brochures and leaflets.
—School and community newspapers.
—School assemblies.
—Appearances before local business, service, and civic clubs.
—Radio and television programs and interviews.

Good Communications

Most teacher-coordinators agree that good publicity—short, well-written articles in local newspapers, preferably with photographs of students—is one of the best devices for persuading local merchants to participate in a cooperative education program. Parents, school board members, and many others in the community like to read about student activities associated with cooperative work experience training. Newspaper articles at each stage of development should give details of organizational meetings and plans.

The teacher-coordinator should search out ways of publicizing the cooperative student activities, such as by the use of display cases, shadow boxes, and bulletin boards in the school. Special activities or achievements should be reported to local and school newspapers with names and pictures of the students and businesses involved.

In some communities the chamber of commerce has effectively publicized the development of the cooperative work experience program. In one community the chamber prepared special editions of its regular newsletter telling the story of cooperative education. This newsletter went to chamber members in the city. The chamber also purchased enough copies of a brochure on distributive education prepared by the National Retail Merchants Association to give a copy to each senior high school student.

In the ninth and tenth grades are many potential cooperative work experience students who will have to decide on a school program. What choices they make, especially in an atmosphere which places emphasis on academic rather than vocational choices, depend largely on the information and impression each student gains from seeing publicity, talking to students already in the program, and from the attitudes their parents have formed from the same sources.

Guidance should be planned so that all potential cooperative students have full knowledge of the program. The teacher-coordinator should meet with homeroom groups to answer questions.

Faculty members should be informed about the unique features of a cooperative work experience program. One or two articles discreetly placed on the faculty bulletin board, brief announcements at faculty and teacher association meetings, and the involvement of faculty members in judging local contests, noting window displays, listening to student sales talks, or evaluating school store performance can do a great deal to improve the image of the cooperative work program.

Faculty members often can be helpful in assisting distributive education students in their classes. This is particularly true in such subjects as English and mathematics, which have a direct bearing on job success. On the other hand, work experience can be the key motivating factor responsible for improved performance on the part of the student in many phases of his school program. Consequently, the teacher-coordinator should make certain that cooperative student workers are properly identified for teachers of other courses enrolling such students.

Parents are proud to hear of their son's or daughter's successful achievements. The teacher-coordinator should convey this kind of information to a parent by a telephone call, a personal visit to the home, or a message in the school or local newspaper. Thus, he is using naturally the best possible means for building positive public relations.

Periodic reports about the cooperative work experience program should be made to the administration. The dates of important activities, such as conferences, contests, ban-

quets, and club functions should be scheduled and presented to administrators well in advance if they should want to attend. Administrators differ in the kind and degree of detail they need in reports, and it is essential to agree on an acceptable procedure early in the program.

SURVEYS AND THEIR USE

Several kinds of surveys can be used effectively by the distributive education or office skills teacher-coordinator in his program planning and classwork. These include:

—Survey of business and community.
—Service type of survey.
—Follow-up survey of graduates and other former students.

Survey of Business and Community

The business and community survey would be designed to determine:

1. Number of people employed locally.
2. Number of new employees needed each year.
3. Number currently being trained.
4. Pertinent information as to hours, salaries, and other employment facts.
5. Trends in employment in the distributive and/or office skills fields as indicated by the above facts.

Much of the information needed in a community survey is already available from such sources as the local chamber of commerce or local business associations, the New York State Department of Commerce, and the U. S. Census Bureau. However, the new teacher-coordinator who personally conducts a survey will acquire an intimate knowledge of his business field and will establish contacts with potential employers of his cooperative students.

Service Survey

The service survey can be undertaken by the teacher-coordinator with the aid of the class to carry out details. Such a study might analyze foot traffic in front of a store or at a street intersection. A shopping preference survey conducted by students could be a valuable service to the business community as well as a fine learning device in the cooperative education program.

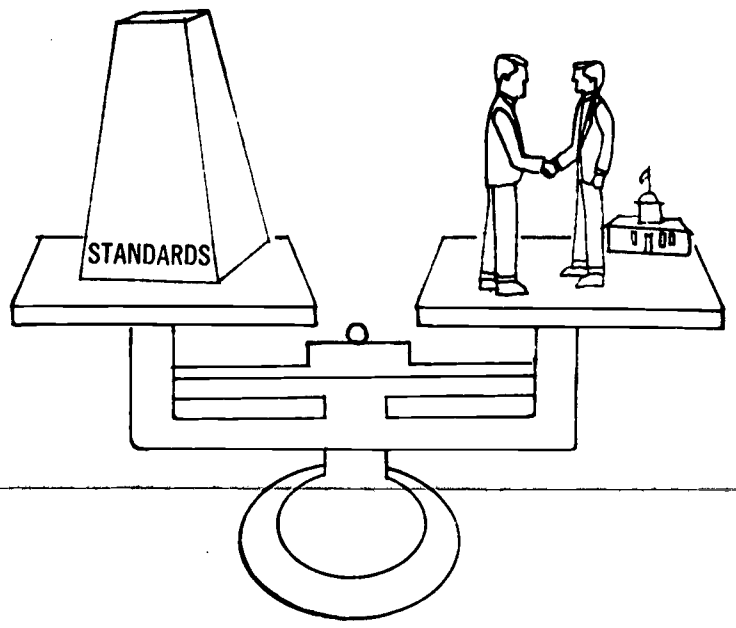
Office skills classes can survey the various offices of the community to determine the most generally used machines or office procedures. These surveys may be planned as a club activity.

Graduate Follow-up Survey of Former Business Education Students

The distributive education or office skills survey of graduates is a continuing study which every teacher-coordinator should conduct. By this procedure the coordinator keeps a record of business education graduates to determine their progress. One way to conduct such a study is with a simple questionnaire sent to each graduate.

EVALUATIVE CRITERIA

Each year high schools are adding cooperative distributive education or cooperative office skills to their curriculum, or are revising them. These cooperative education programs should be evaluated in the light of criteria set forth in the school's philosophy, employers' agreed practices, accepted community customs, and Federal and State regulations and requirements.



Evaluation of the program is an on-going process carried on by the school, and by co-operating employers and student workers under the direction of the school. How the teacher-coordinator records evaluations and uses them to further the growth of the program is vital to its continuing success. All forms should be kept as simple, clear, and concise as possible, yet complete and objective enough to give accurate interpretation of facts. Facts should be distinguished from value judgments and subjective opinion. The local program should be viewed in the context of situations and trends statewide and even nationwide.

In the Appendix is a checklist and forms which may serve as guides to schools.

EMPLOYMENT REGULATIONS

Business students gaining practical experience in approved offices, stores, and other distributive outlets should be paid the prevailing wage for employees doing the same type of work.

State minimum wage orders apply to some other areas of employment. When questions arise concerning the minimum wage in these areas, the school authorities should seek the advice of the representative of the nearest office of the New York State Department of Labor. These offices are located at

Albany	State Campus
Binghamton	221 Washington Street
Buffalo	State Office Building
Hempstead	134 Jackson Street
New York City	80 Centre Street
Rochester	155 Main Street, West
Syracuse	333 East Washington Street
Utica	500 Charlotte Street
White Plains	300 Hamilton Avenue

When questions arise concerning the Federal minimum wage, school authorities should seek the advice of the representative of the nearest office of the United States Department of Labor. These offices are located at

Albany
Federal Bldg.
Brooklyn
250 Livingston Street (12th floor)
Buffalo
431 Post Office Bldg.
Swan and Ellicott Streets
Jamaica
92-32 Union Hall Street (Room 414)
New York City
341 Ninth Avenue
Rochester
211 Federal Bldg.
Syracuse
732 University Bldg.

Work Hours and Wage Regulations:

STUDENT WORKING HOURS IN THE RETAIL TRADE
Effective October 15, 1962

SCHOOL IN SESSION	BOYS & GIRLS 14 & 15	GIRLS-16*	BOYS-16*	GIRLS-17-21	BOYS-17-21
Hours per day	3	4	4	8**	8**
Hours per week	23***	28	28	48	48
Prohibited hours	6 p.m.-8 a.m.	10 p.m.-7 a.m.	12 Mid.-6 a.m.	10 p.m.-7 a.m.	12 Mid.-6 a.m.

* When excused early from school to participate in the distributive education (retailing) work experience program, 16 year old boys and girls may work as many more hours as they are excused early. *The Department of Labor requires that the working papers be marked to show that the student is a Distributive Education (Retailing) Student and the number of hours the student is excused from school.*

** May be employed 10 hours on any one day in order to make up a shorter work-day or holiday in the week. The shorter work-day may not be more than 4½ hours and the other four days may not be more than 9 hours each. Weekly hours may not exceed 48 hours.

*** Federal legislation limits the work of children 14 and 15 years old in firms engaged in interstate commerce to a maximum 3-hour day and 18-hour week when school is in session.

MINIMUM WAGE STANDARDS

INDUSTRY	PART-TIME HOURS	PART-TIME WAGE	FULL-TIME HOURS	FULL-TIME RATE	OVERTIME HOURS	OVERTIME RATE
Retail Trade	30 hours or less	$1.25 per hour	Over 30 hours	$1.25 per hour	Over 40 hours	$1.87½ per hour

Note 1—An employee must be paid for at least 4 hours per day, *EXCEPT* students attending full-time school on days of required attendance.

Note 2—An employee who works more than 30 hours but less than 37½ hours in any one calendar week must be paid for 37½ hours.

Note 3—An employee shall be paid for one additional hour for any day in which, (1) the spread of hours is more than 10, or (2) in which there is a split shift with more than 1½ hours during the split.

Information on this subject is contained in the booklet, *An Abstract of Laws Governing the Employment of Minors in New York State,* available without charge from the New York State Department of Labor, State Campus, Albany 12226.

An agreement was made in 1953 between the State Labor Department and the State Education Department concerning supervised employment during school hours of students who are members of cooperative retailing classes. This applies to employment in retail and wholesale establishments and in offices.

When these students are employed during school hours they are under the supervision of the school. Section 185-a of the State Labor Law relating to the employment of minors outside of school hours does not apply to cooperative retail students when employed during school hours. This agreement between the two departments is made to facilitate the development of cooperative retailing classes. It applies only to students who are enrolled in cooperative classes.

LEGAL REQUIREMENTS FOR TRAINEES

The teacher-coordinator should become familiar with the following information concerning employment and training.

Employment Certificates

The standard employment certificate, commonly called "working papers," certifies that a student under 18 years of age is legally employed. It is signed by the student, the issuing officer (usually in the school), and the employer. The student under 18 who has not been issued an employment certificate for a particular job cannot be employed. He must not work prior to obtaining a completed certificate because the employer's compensation insurance is invalid. In addition, the employer would have to pay *double* the amount of settlement in the event of injury.

The application for an employment certificate is not the certificate itself! The following steps should be taken in processing working papers:

1. The student should obtain an application form from the school guidance office.
2. The application should be completed and signed by the employer, the physical examiner (if applicant did not have an examination within six months), a parent, and the student.
3. The completed application should be returned to the issuing officer and the employment certificate issued—one copy is kept by the issuer, one is held by the employer.

Section 3226, paragraph 1, of the Education Law (reissuance and revocation of employment certificate or vacation work permit) states that when a certificate has been returned to the certificating officer, he shall issue a new certificate upon presentation of a new pledge of employment from the prospective employer.

A new physical examination is required if more than six months have lapsed since the issuance of the last certificate of physical fitness. Paragraph 4 of section 3226 states that any employment certificate may be revoked for cause by the superintendent of schools within his respective jurisdictions.

Social Security

Students who do not have an account number must obtain a social security number before they can be paid for any work performed. Social security provides the covered worker, his dependents, and survivors with benefits equivalent to a partial replacement of his earnings as a result of the employee's retirement at or after 65 (62 with reduced benefits), or because of death prior to his retirement.

Most workers are entitled to benefits under the provisions of the Social Security Act. Among those not covered at present are certain professional people, some government employees, and employees of certain nonprofit organizations. The Social Security Act does not provide coverage for children employed by either parent.

The nearest social security field office will supply additional information and will provide a form to be used in requesting a statement of the account. The record of employee contributions should be checked for accuracy at least every three years since there is a limit to the period in which corrections or adjustments can be made.

Unemployment Insurance

Students are not eligible for unemployment insurance since they are not available for full-time employment. A student is deemed not to be in employment under the law if: (1) he is in regular attendance during the daytime in an institution of learning and performs services as a part-time worker during all or part of the school year or regular vacation periods; (2) he is working under a cooperative work-study program approved by the State Commissioner of Education and regularly operated and supervised by a local board of education; (3) he is working under a post-high school work-study program in a recognized institution of higher education. Additional information may be obtained from the nearest office of the State Employment Service or from the Bureau of Employment Security, U. S. Department of Labor, Washington 25, D. C.

Workmen's Compensation

Workmen's compensation provides payment for necessary medical care and benefits to an employee disabled by injury or illness caused by his work. It is based on the principle that an employer is responsible for physical disability that befalls any of his employees because of working conditions or the work assigned to him. A worker should not be penalized further by loss of wages, but that some provision for reasonable payment must be made by the employer and counted as a rightful part of his production costs.

Students should not be placed on a job where the employer does not carry workmen's compensation. Railroad workers, Federal government employees, and workers of other groups that have their own compensation programs are not eligible for workmen's compensation. Farm workers are not covered, unless the employer elects to come under the law. The worker pays nothing toward workmen's compensation. The employer pays through the State fund or to a private insurance company.

In case of injury the worker should get immediate medical or surgical treatment for injuries or illness incurred on the job. The employee must notify the employer of accidental injury within thirty days and of disability due to occupational disease within ninety days. Benefit payments are received in proportion to the extent of the injury or illness, time lost, and the average wage. There is usually a waiting period before eligibility is established for wage compensation payments. If a permanent disability results, rehabilitation training is provided in preparation for other work. In case of death from occupational causes, the family or dependents receive compensation.

An employer is liable only when negligence can be proved. Parental consent signature does not alter the situation. Double com-

pensation benefits for those under 18 years must be paid if negligence is proved. In the event of a permanent injury, a minor may receive compensation on the basis of the earnings of an adult in the same industry or line of work. For further information contact the local Workmen's Compensation Board office.

Disability Insurance

Students are not eligible for disability benefits and should not be required to pay toward any benefits. Most New York State firms are presently covered by this insurance law.

Workers pay a certain amount that is regularly withheld from their pay checks. The employer, who contributes the balance of the cost for protection, may arrange for the benefit payments by insurance through the State fund, a private insurance company, or self-insurance established by his firm.

Disabled workers receive a portion of their average weekly wage up to a maximum weekly benefit. Maximum periods of annual payment are established. For further information call the local office or the State Capitol office of the Workmen's Compensation Board.

part IV

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Distribution 1 and 2 syllabus

Re: Your professional I.Q. Bulletin No. 145

Some suggested activities to be used by business educators in interpreting business and distributive education to others. Bulletin No. 137

Some suggestions for acquainting students in early secondary school years with the business and distributive education offerings. Bulletin No. 139

Some suggestions for additional cooperation among members of the business and guidance departments

Some suggestions for making provision for individual differences in business and distributive education programs. Bulletin No. 140

Suggested combination college preparatory—business education programs. Bulletin No. 150

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EVALUATING DISTRIBUTIVE AND OFFICE SKILLS COOPERATIVE PROGRAMS

APPENDIX

The items listed in these sections may serve as a checklist by which to measure the local distributive education and office skills programs. These are some of the areas which the State supervisor may observe on his visits. They will serve as guides by which to view the various phases of the programs. They can also indicate problem areas which need attention. The items listed are intended as goals toward which to strive.

ORGANIZATION AND ADMINISTRATION

Yes No

Aims and Objectives

☐ ☐ 1. Has a written statement of the objectives of the program been approved by the advisory committee and accepted by the employers?

☐ ☐ 2. Are there periodic evaluations of the program in terms of these objectives?

☐ ☐ 3. Is there evidence that the objectives are adjusted as changes occur in the community?

The Coordinator

☐ ☐ 1. Is the distributive education coordinator trained in both professional and technical phases of distributive occupations?

☐ ☐ 2. Does the coordinator have the personal leadership qualities necessary to unite effectively school and business groups in support of the program?

☐ ☐ 3. Does the coordinator have a clear understanding of and a strong belief in the important role of distribution and the distributive occupations in our American economic system?

☐ ☐ 4. Does the coordinator participate actively in school and community activities?

☐ ☐ 5. Is the coordinator respected by the students and faculty?

☐ ☐ 6. Do the retail and other business leaders consider the coordinator a well-informed professional and technical person to whom they feel free to go for advice and consultation?

The Distributive Education Classroom Laboratory

Yes	No	
☐	☐	1. Is there adequate room space for an optimum size class?
☐	☐	2. Does the classroom contain a variety of typical store facilities, such as display cases, window cases, display window, counters, cash register?
☐	☐	3. Does the room have adequate tables and chairs to permit flexibility in the use of various group teaching activities?
☐	☐	4. Are there convenient adequate storage facilities for display and other instructional materials not being currently used?
☐	☐	5. Is provision made for space for private conferences with students and visiting business people?

Advisory Committee

☐	☐	1. Is there a distributive education advisory committee composed of local education and distributive leaders with special subcommittees where needed?
☐	☐	2. Does the advisory committee meet regularly and take an active interest in the operation of the distributive education program?
☐	☐	3. Are the school administrator and the coordinator active members of the advisory committee?
☐	☐	4. Does the distributive education coordinator furnish the leadership for the committee and plan the agenda for its meetings?

INSTRUCTION

☐	☐	1. Is a variety of teaching methods and techniques used, such as conferences, lectures, panel discussions, student reports, and individual and group projects and demonstrations?
☐	☐	2. Is there evidence of carefully planned-in-advance, written lesson plans?
☐	☐	3. Does the instructional planning take full advantage of community resources through visits to local firms and appearances of prominent business leaders before the class?
☐	☐	4. Is attention given to special needs of individual students?
☐	☐	5. Are adequate records kept of the students' on-the-job progress, hours worked, and wages earned?
☐	☐	6. Is there remedial instruction based on individual student needs?

Instructional Materials

☐	☐	1. Is there planned and effective use of various audiovisual aids, such as movies, slide films, charts, flannel board presentations, bulletin boards, slides, blackboards, and posters?

Yes	No	
☐	☐	2. Are current instructional materials representing various types and levels of distributive occupations available?
☐	☐	3. Are trade and business magazines available for students' use?
☐	☐	4. Is a basic text or texts with other books available as supplementary references?

COORDINATION AND SUPERVISION

General

☐	☐	1. Does the schedule of the coordinator provide sufficient time for coordination activities?
☐	☐	2. Does the coordinator use this scheduled coordination time primarily for coordinating purposes?
☐	☐	3. Does the coordinator plan coordination time carefully and develop a schedule which can be followed?

Coordination Activities

☐	☐	1. Does the distributive education coordinator visit each training station at regular intervals?
☐	☐	2. Is there regular contact by the coordinator with the trainee's work station supervisor and other members of store management in order to learn of the student's progress?
☐	☐	3. Does the coordinator observe the student while on the job?
☐	☐	4. Have the teacher-coordinator and employer developed an analysis of the trainee's job and listed desirable learning outcomes?
☐	☐	5. Does the coordinator check the student's work and progress in the light of these objectives?

Records and Reports

☐	☐	1. Does the coordinator prepare a record of his daily coordination activities?
☐	☐	2. Does he present this report weekly or monthly for his school principal and superintendent?
☐	☐	3. Are records kept of each student's work and progress on the job?
☐	☐	4. Does the coordinator evaluate these records and use them as a basis for both classroom instruction and conferences with students?

Student Follow-up

☐	☐	1. Does the coordinator keep a record of graduates from the program?
☐	☐	2. Is there an organized system of follow-up of former students by means of an annual questionnaire or interview with each former student?

Yes	No	
☐	☐	3. Is definite effort made to adjust the distributive education program on the basis of the findings from the follow-up activities?

PUBLIC RELATIONS

Within the School

☐	☐	1. Are the other teachers in the school well informed and sympathetic with respect to the distributive education program?
☐	☐	2. Is there a planned program of periodically informing teachers and student body of the program and its various activities?
☐	☐	3. Are guidance counselors informed of the distributive education program and its place in the total school program?
☐	☐	4. Is there student counseling with regard to entering the distributive education program on the basis of student ability and interest?

In the Community

☐	☐	1. Is the distributive education program respected by the business community, the school, and the parents?
☐	☐	2. Is there a well-planned effort to keep the whole community informed of the distributive education program and its activities through such media as the newspapers, radio, television, movies and films, descriptive leaflets and brochures, talks to various community groups, and exhibits and displays?

TRAINING STATIONS

☐	☐	1. Are cooperative employers carefully educated as to the purpose of the distributive education program and the training station?
☐	☐	2. Are training stations selected on the basis of their ability to provide adequate experience to supplement the class instruction?
☐	☐	3. Are cooperative employers taught to think of distributive education as a "training program" and not a source of inexpensive labor?
☐	☐	4. Are student trainees kept on the employer's payroll throughout the school year?
☐	☐	5. Is there a spirit of close cooperation between the store personnel and the distributive education coordinator?
☐	☐	6. Is there a regular evaluation by the teacher-coordinator and the employer of the student's progress on the job?

CLUB PROGRAM

☐	☐	1. Do club activities aid in the development of leadership abilities on the part of student members?
☐	☐	2. Are club members encouraged to develop a sense of individual responsibility?

Yes	No	
☐	☐	3. Do club activities allow for practical application of distributive education through competition?
☐	☐	4. Do club activities teach and encourage the use of ethical practices in business?
☐	☐	5. Do club activities contribute to a better understanding of our free competitive enterprise system?
☐	☐	6. Does the club program assist in the development of appreciation of civic and social obligations of those engaged in distribution?

LEGAL REQUIREMENTS

☐	☐	1. Are all students participating in the actual work experience phase 16 years of age or over?
☐	☐	2. Are students employed an average of 15 hours a week during the school year?
☐	☐	3. Is the program under supervision by the coordinator at all times when the hours reported above are counted?
☐	☐	4. Are students being paid for their work?
☐	☐	5. Is the amount of time devoted to related instruction in accordance with State regulations?
☐	☐	6. Are qualified and available students in the cooperative class employed?

CHECKLIST FOR EVALUATING COOPERATIVE PART-TIME PROGRAMS IN OFFICE EDUCATION

Objectives

☐	☐	1. Has a written statement setting forth the philosophy and objectives of the cooperative office skills program been developed?
☐	☐	2. Is the program evaluated periodically in terms of these objectives?

Advisory Committee

☐	☐	1. Has a general advisory committee made up of local business representatives been appointed to assist the school in the development of the *whole* business education program?
☐	☐	2. Have the services of this committee or a special advisory committee been utilized in the formulation of the philosophy and objectives of the cooperative office skills program?
☐	☐	3. Is this committee called upon to assist the coordinator in locating suitable training stations for the program?
☐	☐	4. Does this committee meet regularly and function actively?

Community, School Understanding

Yes	No	
☐	☐	1. Has the program been given adequate publicity and promoted aggressively among various community organizations?
☐	☐	2. Have the objectives and philosophy of the program been presented to the entire faculty in an effort to build genuine understanding?
☐	☐	3. Does the school administrator or coordinator review the operation of the program periodically with the entire faculty in an effort to resolve any problems that may have arisen?
☐	☐	4. Are guidance counselors informed as to the place of work experience in the total school program?
☐	☐	5. Does the coordinator discuss the program and its operation in pre-vocational business classes in order that long-range plans may be made by students?
☐	☐	6. Does the coordinator counsel with other business teachers in the school with regard to prospective cooperative students?
☐	☐	7. Are written objectives and operating procedures of the program placed before parents of potential cooperative students?
☐	☐	8. Are students counseled with regard to entering the cooperative office skills program on the basis of their abilities and interests?

Work Stations

☐	☐	1. Do the work stations provide an opportunity for well-organized learning situations?
☐	☐	2. Are learning opportunities provided at a majority of the work stations varied in nature?
☐	☐	3. Is an effort made to rotate students on those jobs where varied learnings are not possible?
☐	☐	4. Does the schedule of the coordinator provide sufficient time to visit these training stations periodically?
☐	☐	5. Does the coordinator observe the students while on the job?

Related Instruction

☐	☐	1. Are students encouraged to participate in the evaluation of the instruction and thereby contribute to the progress of the program?
☐	☐	2. Is an effort made in the periods of related instruction to present basic background information, skills, and attitudes that are common to all office occupations?
☐	☐	3. Does the coordinator endeavor to provide instruction for each student directly related to his specific job situation?
☐	☐	4. Are the standards of achievement demanded in the classroom comparable to those of beginning office workers?

Yes	No	
☐	☐	5. Does the teacher-coordinator have suitable classroom instructional materials?
☐	☐	6. Does the classroom laboratory have adequate machine equipment?
☐	☐	7. Does the school budget permit periodic addition or replacement of equpiment?

Reports

☐	☐	1. Does the coordinator work with the guidance staff in his efforts to secure information about students?
☐	☐	2. Does the coordinator have access to, and use, complete student records including tests, grades, attendance and health records, and other available data?
☐	☐	3. Have suitable forms been prepared for recording each of the various coordinating activities?
☐	☐	4. Does the coordinator prepare a record of his daily coordination activities?
☐	☐	5. Is this report presented weekly or monthly to his school principal and superintendent?
☐	☐	6. Is the coordinator able to maintain some type of weekly record for each student which is in sufficient detail that it can be used for individual conferences with the student?
☐	☐	7. Is student accomplishment on the job evaluated periodically by the employer?
☐	☐	8. Has the coordinator prepared an evaluative device to be used by employers in their appraisal of students under their jurisdiction?
☐	☐	9. Are these employer reports used as a basis for classroom instruction and conferences?
☐	☐	10. Is an accomplishment report submitted at least quarterly to the administration for review?

Follow-up Activities

☐	☐	1. Does the coordinator have an organized program of follow-up of former cooperative students?
☐	☐	2. Are records of these former students kept up to date?
☐	☐	3. Are former cooperative students encouraged to counsel with the coordinator?
☐	☐	4. Is the cooperative program adjusted to the findings of the follow-up program?
☐	☐	5. Are these findings recorded and reported to the school administrator, the faculty and the advisory committee?

Public Relations

Yes	No	
☐	☐	1. Is the cooperative program periodically publicized in school publicity media?
☐	☐	2. Is a planned program of publicity carried on within the school for the benefit of the members of the faculty?
☐	☐	3. Is the cooperative program periodically publicized in local publicity media?
☐	☐	4. Does the school administrator check the effectiveness of the program with each of the following: —Business representatives? —Faculty members? —Community groups? —Pupils?
☐	☐	5. Does the school administrator occasionally accompany the coordinator on his visits?

Legal Requirements

☐	☐	1. Are all students participating in the actual work experience phase 16 years of age or over?
☐	☐	2. Are students employed an average of 15 hours a week during the school year?
☐	☐	3. Is the program under supervision by the coordinator at all times when the hours reported above are counted?
☐	☐	4. Are students being paid for their work?
☐	☐	5. Is the amount of time devoted to related instruction in accordance with State regulations?
☐	☐	6. Are a majority of the students in the cooperative class employed?

SUGGESTED FORMS FOR USE BY THE TEACHER-COORDINATOR

The following pages contain suggested forms for use by the teacher-coordinator. The teacher may want to adapt some of these forms to suit his local situation.

Form I

Application for Work Experience

Following are two sample applications for participation in the work experience program in Distributive Office Occupations. A school might adopt one of these forms or modify one. The application is filled out by the student wishing to participate in the cooperative work experience program. Provision should be made for parents' and the guidance counselor's approval.

Distributive or Office Education

_____ High School

APPLICATION FOR PARTICIPATION IN THE DISTRIBUTIVE OR OFFICE OCCUPATIONS WORK EXPERIENCE PROGRAM

(Please fill in accurately all of the information requested on this blank. Each item plays an important part in admitting you to this class.)

Name _____ Homeroom _____ Date _____

Address _____ Telephone _____

Birthday: Yr. _____ Mo. _____ Day _____ Age _____ Height _____ Weight _____

Type of Diploma: _____ Regents _____ School

Number of units actually completed in each grade to date:

9	10	11	12

Have you applied for working papers: _____ Yes _____ No - S.S. No. _____

List previous work experience you have had for which you received pay. (Please list most recent job first.)

Employer (Person or Organization)	Types of Work Performed	Term of Employment
1		
2		

Why do you wish to enroll in the work experience program:

_____

_____

Parental Approval

We request that our son, daughter be permitted to undertake the part-time work as planned.

Signed _____ Signed _____

Student Parent

Counselor Approval

I have reviewed this pupil's high school program and find it possible for him/her to be enrolled in the work experience. I believe he/she would benefit from this experience.

Signed _____

Work Experience Coordinator: _____ Approved _____ Disapproved

(Alternate Form)

HIGH SCHOOL **D.E. Cooperative Training Program**

APPLICATION FOR ADMISSION

Name _____ Registration No. _____ Home Room _____
Social Security No. _____ Distribution 1 _____ 2 _____
Age _____ Date of birth _____ Height _____ ft. _____ in. Weight _____ lbs.
Mother's Name _____ Occupation _____
Father's Name _____ Occupation _____
Health: *(circle one)* - Excellent; Good; Fair; Poor
Do you have any physical disabilities? _____ If yes, what are they? _____

If accepted for this course, in what kind of organization would you prefer to work?

List the jobs you have worked at before _____

If now working, give job, name and address of employer _____

Do you plan to go to college? _____ Course of Study _____
In what extra-curricular activities have you taken part? _____

What are your hobbies, if any? _____
Why do you want to enroll in this course? _____

Three references are required from outside of school (neighbors, employers, church, etc.)

Name	Address	Telephone No.
1.		
2.		
3.		

Excellent opportunities are available for young people to educate themselves for obtaining a position upon graduation, or for training to enter college as a business major. If accepted, it is understood that the student will perform school work and store work effectively. Failure to do so will result in removal from this training course.

Signed _____
(Pupil)

I consent to _____ entering the Retail Cooperative Training Program and agree to cooperate with school and training agency.

Signed _____
(Parent or Guardian)

(Do not write below this line)

- -

Student Program Data:

These rules are used as guideposts for the new cooperative student to help him avoid the pitfalls sometimes encountered on a first job.

Form II

Rules for Part-Time Employees

In this type of work where the office or store; the school; and you, the student, are all concerned and cooperating together, it is essential that certain rules and regulations be strictly observed. The employer has work to be done, and he is employing you with pay to do it. The school has a definite responsibility in the arrangement. You are preparing for a life work and making a reputation and record which will follow you the rest of your days. It should be understood from the beginning that any student who does not take this work and responsibility seriously or who fails to abide by any of these rules or those of his employer may be asked to drop his part-time work experience, in which case he will not receive work credit.

1. Position	No student may seek part-time employment under this program without first interviewing and obtaining the consent of the teacher-coordinator. No student working under the program may sever connection with his employer without the consent of the teacher-coordinator. Students should speak to the teacher-coordinator about any difficulty arising in regard to the work (pay, hours, transfer, leaving, etc.) and any other change desired before taking it up with the employer.
2. Punctuality	The employer expects you to report at a given time. Failure to do so may cause other employees to work overtime or may result in other serious consequences. You *must* report on time.
3. Responsibility	If you are ill, immediately notify your employer and school that you cannot report. This must be done as early in the morning as possible in order to allow time for other arrangements to be made. Only serious illness can be considered a legitimate excuse for remaining away from work.

4. Honesty

Business cannot tolerate any deviation from absolute honesty. Cooperative students must observe complete integrity in all relationships with this program and the businessmen who participate. It is clear that deviation from this basic honesty can seriously affect the chances of obtaining future employment.

5. Personal

You should dress properly for your work. Boys should wear shirt with a tie and a suit coat unless granted permission by the employer to dress otherwise.

Girls should dress conservatively and in keeping with the standard of the office or store where employed. Avoid excessive "makeup." Pay attention to such details as clean hands and finger nails, polished shoes, neatness of hair, cleanliness and good repair of clothes.

6. Reports

It is your responsibility to furnish the coordinator with weekly wage and hour figures. The weekly payroll slip or envelope may be submitted, or you may obtain wage and hour report blanks once a week from the coordinator, have them legibly filled out in ink, properly signed and returned to the office. These figures should be in the coordinator's hands by Tuesday of the following week. Failure to take care of these matters on time endanger your receiving school credit for hours worked and may lower your grade for the course.

(See Form IV)

(KEEP THIS SHEET IN YOUR WORKBOOK FOR CONSTANT REFERENCE)

Form III

Job Opportunity Card

This card can be used by the coordinator to maintain a file of job opportunities.

DISTRIBUTIVE OR OFFICE EDUCATION No. _____

_____ High School

JOB OPPORTUNITY CARD

Position (s)_____ Date _____

Type of Vacancies _____ Number_____

Requirements of the Job:_____

Check: ___Shorthand ___Typewriting ___Office Machines ___Switchboard
___Filing ___Bookkeeping ___Duplicating Machines ___Other

Learning Opportunities for the Student:_____

Hourly Rate: $_____ Approximate Hours per Week: _____

Business Address _____

Person in charge: _____ Telephone No._____
Title:_____ Department _____

REMARKS:_____

Form III

Persons Recommended	Date	Report

Position Filled By	Rate	Date

REMARKS

(Back)

Form IV

Introduction Card

This card is to be used as an introduction of prospective part-time work experience students to employers; and since it identifies bona fide cooperative education students, the cards should be numbered consecutively and controlled.

Distributive or Office Education

School Telephone _____ _____ High School No. _____

_____ Address: _____
(Street) (City) (State)

Date _____ 19____

TO: _____ _____ Distribution _____ Office Skills _____

_____ _____ Phone _____ Dept. _____

_____ _____

Dear Mr. Employer:

This will introduce _____, Age: _____ Grade: _____, a student enrolled in the cooperative office or distributive occupations work experience program of _____ High School. This student is interested in part-time work experience with your firm as _____. We appreciate any consideration you can give this applicant.

Sincerely,

Student's Social Security No. _____

_____
(Teacher-Coordinator)

Form V

APPLICATION FOR RELEASED TIME SCHOOL-WORK PROGRAM

This application is prepared by the student desiring early dismissal from classes to report for work at an approved training station. Provision is made for necessary approval by school officials concerned.

_____

_____ **High School**

Cooperative Work Experience Program

Distributive Education_____ Office Skills _____

Application for Released Time

REQUEST FOR PROGRAM CHANGE Date _____

Student_____ Firm name _____

Registration No.____Home Room:___ Address _____

Home phone_____Grade:_____ _____

Travel time necessary from school to place of business_____ Firm's telephone No. _____

Effective date of released time work schedule_____ Training supervisor or employer _____

WORK SCHEDULE HOURS

HOURS	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
From							
To							

Units of credit earned to date _____

Attendance:

Comments:

STATEMENT TO BE SIGNED BY PARTICIPATING STUDENT: "I understand that the policy of the school states that if I am sick enough to absent myself from school, I am too ill to attend my job. It is understood that any infractions will be considered as truancies and will affect my remaining in this program."

STUDENT'S SIGNATURE DATE

1._____
Teacher-Coordinator

2._____
Assistant Principal's Approval

3._____
Guidance Counselor's Approval

Form VI

Application for Part-Time Christmas Work

This application for seasonal work is signed by the student and his parent and contains information supplied by the guidance counselor. It also provides, at the end of the season, a record of the work done.

This form is not applicable to the cooperative office skills program.

Form VI

Distributive Education

_____ High School

APPLICATION

For Part-Time Work in Retail Selling

Christmas, 19____

GRADE

10____
11____
12____
Other:_____

Name _____ Homeroom _____

Address _____

Telephone _____ Height _____ Weight _____ Age _____

Do you have working papers? s? _____ _____
Yes No

Previous experience working for pay: Soc. Sec. No.: _____

Dates	Employer	Type of work done	Salary

Please list three stores where you would like to work:
List in order of preference.

Choices	Reason
1st	
2nd	
3rd	

School Schedule

Period	Mon.	Tues.	Wed.	Thurs.	Fri.
1					
2					
3					
4					
5					
6					
7					
8					

(To be filled in by counselor)

Scholastic standing this year:

First report _____

Second report _____

I, the undersigned, understand that

—before being allowed to participate in this plan, my parents will sign the request on the line provided on the reverse side of this form.

(over)

—when accepted by a store for part-time employment, I may be excused from school ONLY AFTER my last recitation of the day.

— the school will suggest openings for jobs, but I will be expected to apply for the position in the regular manner.

—when accepted by a store, I shall remain with that store until December 24, unless by conferring with school authorities, it is thought better that I discontinue my work.

__ I am to furnish the school with the records of my work as requested.

I agree to perform the duties assigned to me by my employer to the best of my ability and to the credit of the school.

Signed _____
Pupil

For Parents:

We would like to request that our son, daughter be permitted to undertake the part-time work as planned.

Signed _____
Parent

Guidance Counsellor
Work Experience Good ____; Approved ____; Disapproved____;

Record of Work Experience

Store _____

Address _____

Supervisor _____

Salary rate per hour $ _____ Dept. _____

Week Ending	No. of Hours Worked	Salary Received

Comment by work station supervisor at conclusion of working period:

_____

_____

_____

_____

_____

_____

Date _____

Signed _____

Form VII

Sample On-the-Job Training Plan

This type of training plan shown on the following page can be used by the teacher-coordinator in conferring with the participating employer regarding desirable types of on-the-job experience to be provided the student worker. The plan or schedule of experiences should be adapted to the particular work situation.

Form VII

_____ High School

Distributive Education Program
On-the-Job Training Plan

Student_____ Age____ Beginning hourly wage: $_____
Type of work:_____Homeroom_____ Raise 1 - Date $_____
Raise 2 - Date $_____
Firm name_____ Normal Work Schedule Hours:

Address_____

Telephone_____

Training Supervisor_____

	M	T	W	Th	F	S
From						
To						

It is expected that the student worker will engage in some of the following work experiences during the course of his or her employment: (Check)

Stock Activities
__receiving merchandise
__check mdse. against order/invoice
__price and mark merchandise
__determine retail price
__bring mdse. to selling area
__display mdse. in selling area
__order mdse.
__take inventory
__perform housekeeping duties
__prepare mdse. for delivery
__perform delivery
__other_____
_____

Selling Activities
__sell mdse. to customers
__handle returns
__perform other customer services
__use cash register
__complete sales checks
__keep sales tally
__wrap mdse.
__suggest items for store purchase
__maintain stock control system
__take stock counts
__maintain stock
__other_____
_____

Cashiering Activities
___ use cash register
___ package mdse.
___ maintain supplies
___ maintain mdse. stock
___ check out cash register
___ deposit receipts
___ other_____
_____

Specialized Activities
___ participate in store promotion
___ assist in advertising
___ perform general store display
___ perform window display
___ confer with buyers and salesmen
___ work in credit department
___ work in control
___ work in personnel
___ formal classroom training, { hours per wk.
___ other_____
_____

Advanced Activities
___ instruct new employees
___ supervise employees
___ other_____
_____

Note: It is expected that the student worker shall be paid in accordance with the provisions of Federal and State labor laws, and regulations of the Bureau of Internal Revenue. The coordinator should be notified of changes in duties, problems as they arise, and areas where classroom instruction or individual consultation by the coordinator may increase the usefulness and productivity of the trainee. The work station supervisor will be asked to evaluate the student worker periodically.

Employment Period:
Start_____ 19____
Terminate_____ 19____

Signatures:
Employer_____
Student_____
Parent_____
Teacher-Coordinator_____

Form VIII

Weekly Time and Salary Record

This report is prepared by the student worker and signed by the employer. It is returned by the student to the teacher-coordinator.

School Year
19___ - 19___

_____ High School

Week #____

Retail Cooperative Training Program
Weekly Time and Salary Record

Student _____ Firm name _____

Field of Work _____ Address _____

_____

Beginning wage per hour $_____ Training supervisor
Raise 1 $_____ Date _____ or employer _____
Raise 2 $_____ Date _____ Store telephone No. _____

Work Schedule

Hours	M	T	W	Th	F	S
From →						
To →						

DATE (Mo. & Day)	TOTAL HOURS hours	minutes	TYPE OF WORK DONE ON JOB AND INSTRUCTION RECEIVED
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Total hours worked this week →			Cumulative hours → hours: ___ minutes: ___

Total salary this week before deductions _____ $ _____

Cumulative salary → $

COMMENTS:

Form IX

Weekly Wage and Hour Report

This report is signed by the employer at the end of the week and returned by the student to the teacher-coordinator. It indicates, among other things, the number of hours of work experience obtained by the student. The student may be requested to summarize his work experience, relate problem situations, etc. on the reverse side of the report.

Distributive or Office Education

_____ High School

WEEKLY WAGE AND HOUR REPORT

Name _____ Week ending _____

Day	Worked		Total Hours Selling*	Total Hours Not Selling *	Department If Not Selling	Total Hours Worked
	From	To				
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Totals						

Rate per hour _____ Wages for week _____

Name of employer _____

Employer's signature _____

*Not applicable to cooperative office skills program.

Form X

Individual Student Work Record

One sheet is used for each student in the cooperative program. This form provides a weekly record, among other things, of hours worked during the school year. This information must be kept by the teacher-coordinator for the annual report.

The information obtained from form IV is posted weekly to form V.

Distributive or Office Education

_____ High School

Individual Student Work Record

Employer _____ Salary rate per hour _____

Address _____

_____

Name of Student

Week Ending	Hours Worked	Salary	Week Ending	Hours Worked	Salary

Form XI

Report of Hours Worked

This form provides on a single sheet a monthly record of hours worked by each student worker during the school year.

Information obtained from Column 2 of Form V is posted monthly by the teacher-coordinator to Form VI. Figures for all weeks ending in a given month are posted to that month even though the week has begun the previous month. For example, the hours worked during the week ending Saturday, October 2, are posted in October even though most of the week falls in September.

Distributive or Office Education

_____ High School

Report of Hours Worked by
Cooperative Students in Distributive or Office Occupations Classes

Name of Student	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Total
TOTAL													

Form XII

Report of Wages Earned

This form provides on a single sheet a monthly record of wages earned by each student worker during the school year.

Information obtained from Column 3 of Form V is posted monthly by the teacher-coordinator to Form VII in the same manner that information is posted to Form VI.

Distributive or Office Education

_____ High School

Report of Wages Earned by
Cooperative Students in Distributive or Office Occupations Classes

Name of Student	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Total
TOTAL													

Form XIII

EMPLOYER JOB RATING SHEETS

These forms are used by the employer in evaluating student worker on-the-job performance.

EMPLOYEE RATING SHEET

Name of Trainee _____ Date of Rating _____

Firm _____ Address _____

Job _____ Work Station Supervisor _____

Characteristic	Check Appropriate Column 1	2	3	4	5
COURTESY					
COOPERATION					
INITIATIVE					
APPEARANCE					
ABILITY TO FOLLOW INSTRUCTIONS					
JOB PERFORMANCE					

1 - Extremely poor; 2 - Below average; 3 - Average; 4 - Above average;
5 - Excellent

Form XIV

EMPLOYEE RATING SHEET

Firm Name _____ Name of Rater _____

Name of Trainee _____ Date of Rating _____

Characteristic	Check Appropriate Column				
	Superior	Above Average	Average	Below Average	Poor
PUNCTUALITY					
HUMAN RELATIONS ABILITY					
ATTITUDE TOWARDS WORK					
PERSONAL APPEARANCE					
WORKMANSHIP					

General comments concerning bright spots or deficiencies.
Use other side if necessary.

Form XV

_____ High School

JOB RATING SHEET FOR COOPERATIVE TRAINING

Student _____ Distributive 1__2__ Rating: Mid-year ___ Final ___

Firm name _____ Employer signature _____

Note: In rating student worker, please use as your standard or norm the work of other cooperative work experience students in similar training positions. Please do not attempt to use the performance of your regular employees as a standard for rating the student worker. (Check appropriate box.)

QUALITIES	EXPLANATION	Unsatisfactory	Satisfactory	Above Average	Outstanding
Appearance	Grooming				
	Poise and bearing				
	Speech habits				
Communication	Listening and responding				
Mental Alertness and Interest	Alertness in grasping instructions				
	Persistence and patience in carrying them out				
Cooperation and Loyalty	With executives				
	With co-workers				
	With public				
Initiative	Readiness to assume responsibility				
	Readiness to do extra work and submit ideas				
Performance	Quality of work, including accuracy				
	Quality of work; production				
Attitudes	Tact and courtesy				
	Enthusiasm for job				
Attendance	Regularity				
	Punctuality				

REMARKS: Please indicate any comments on the above ratings, plus suggestions as to how student may improve. (Continue on other side of page if needed.)

Form XVI

STUDENT WORKER VISITATION FOLLOW-UP RECORD

Trainee _____ Work Station _____

Training Objective _____

Training Sponsor _____ Date Placed _____

Date of Visitation	Comments	Training Needs

Note: This visitation follow-up record can serve as a student's on-the-job progress report and is an invaluable source of information to be used during individual trainee conference sessions. It provides a chronological record of visitations made to each employed student's work station and assures to a reasonable degree that each trainee receives a minimal amount of on-the-job supervision from his teacher-coordinator. Notations as to specific training needs enable the teacher-coordinator to individualize his instruction and to relate classroom instruction to on-the-job problems.

Form XVII

Coordination Plan Sheet

The coordination plan sheet can be used to record coordination activities to be performed on a day-to-day basis. These activities include such regularly scheduled duties as: (1) Employer contacts; (2) Organization of instructional materials; (3) Student worker visitations and counseling; (4) Administrative assignments; (5) Adult education supervision and teaching; (6) DECA club work; (7) Professional meetings; (8) Publicity and public relations activities; (9) Community contacts and projects; (10) Advisory committee work.

DISTRIBUTIVE EDUCATION PROGRAM

_____High School

Daily Coordination Plans Dates _____

Date	Description of Coordination Work Scheduled	Proposed Follow-up Action

Form XVIII

Summary Report of Coordination Contacts

This report may be prepared on a monthly, quarterly, or semester basis to provide a visual summary of the extent of supervision provided to student workers by the teacher-coordinator.

_____ High School

School Year 19___ to 19___ From _____ to _____
(Monthly, Quarterly, Semester)

Summary of Supervisory Contacts

Distributive Education _____ Office Skills _____

Student Worker	Work Station	Date of Contact by Person	Letter	Telephone	Total Contacts
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					

Form XIX

Work Experience Credit Summary Sheet

This report can be used by the teacher-coordinator to compile year-end work experience credit data which may be requested by school officials and members of the guidance staff.

_____ High School

D. E. COOPERATIVE TRAINING PROGRAM

School year: 19___ to 19___ Total students employed:____

Name of Trainee	Work Station	Position	Period of Employment From - To	Total Hours	Total Wages	Beg. Wage Rate	End. Wage Rate	Credit	Comments
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									

Form XX

Follow-Up Study Questionnaire

The following questionnaire can be used by the teacher-coordinator to obtain valuable information about graduates of the distributive education program.

The form should be mailed to the graduates with a stamped addressed return envelope.

Form XX

_____ High School

Graduate Follow-up Questionnaire

Name of Teacher and School

Name and Address of Student

From:

To:

Instructions: Please return the completed questionnaire in the inclosed envelope.

PRELIMINARY QUESTIONS

1. Are you married? Yes____ No____

2. Are you in the military service?
   Yes____ No____
   (If yes, what is your specialty?)

3. Are you now, or were you, enrolled in an institution for further education? Yes____ No____
   (If yes, check one:)
   ___Full-Time ___Part-Time

4. Give name of school or institution

5. What (is) or (was) your objective or major?

6. Degree or certificate received _____
   Expect to receive _____ Date
   ___Associate degree ___Baccalaureate
   ___Certificate ___None
   Other (specify) _____

7. Have you enrolled for one or more adult vocational education course(s) or program (s)?____Yes ____No
   (If yes, give name of course(s).

8. What is your present occupational goal? (Career objective)

EMPLOYMENT

1. Are you employed? ___Yes ___No
   (If yes, check one:)
   ___ Full-Time ___Part-Time

2. If you are not employed, are you seeking employment? ____Yes ___No

3. Position or job title

4. Name of business

5. Kind of business (such as department, hardware or food stores, wholesale drugs, real estate, insurance, steel, electronics, plumbing, construction, farming, Federal, State, local, Government, military services; etc.) Other

6. Current salary range per week:
   (____ 35-75) (____ 76-110)
   (____111-150) (____151+)

7. (Check one or more as applicable) In the past 12 months, have you been:
   ___Given more responsibility
   ___ Entered a supervisory position
   ___ Entered a management position

8. What do you like most about your present job? Check one or more
   ___Salary ___Prestige
   ___Working conditions
   ___Opportunity for advancement
   ___Other (specify) _____

9. If your present job is not in the field for which your vocational training prepared you, please check reason below:
   ___Pay ___Entered armed forces
   ___Health ___Working conditions
   ___Marriage
   ___Lack of employment opportunity
   ___Other (specify)_____

Note: Please use reverse side for any additional comments.
If the address shown above is not correct, please indicate your present address on the reverse side and check here, _____ New Address

Form XXI

Annual Summary

This annual summary provides information of particular interest to parents, employers, younger high school students, faculty members, guidance counselors, school officials, and board of education members.

Much of this information has news value and will be welcomed by local newspaper editors. School administrators will also welcome publicity of this kind which tends to strengthen good public relations between the school and the community. Judicious use of this information should result in an increased enrollment of better students.

This form is suggestive of the type of information which should appear in an annual summary. Coordinators should use it as a basis for developing their own summary adapted to their local situation.

Form XXI

ANNUAL SUMMARY

1. Number of cooperating employers

2. Number of cooperative distributive or office occupations pupils granted work experience diploma credit during the school year

3. Number of cooperative distributive or office occupations pupils granted work experience diploma credit for summer vacation work

4. Number of cooperative work experience pupils released before close of school day for part-time work

5. Number of man-hours worked by cooperative distributive or office occupations pupils during school year

6. Number of man-hours worked by cooperative distributive or office occupations pupils during summer vacation

7. Amount earned by cooperative distributive or office occupations pupils engaged in employment for which work experience diploma credit was granted

8. Average hourly wage earned by cooperative distributive or office occupations pupils

*9. Number of high school pupils (not cooperative distributive occupations pupils) given pre-employment training and placed in stores to handle the Christmas trade

*10. Number of adults so trained and placed

11. Number of senior cooperative distributive or office occupations pupils planning to continue their education in this field

Schools where education will be continued:

_____

_____

_____

_____

* Not applicable to cooperative office skills program

VT 002 156

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A Follow-Up Study of Vocational Students at North Idaho Junior College.

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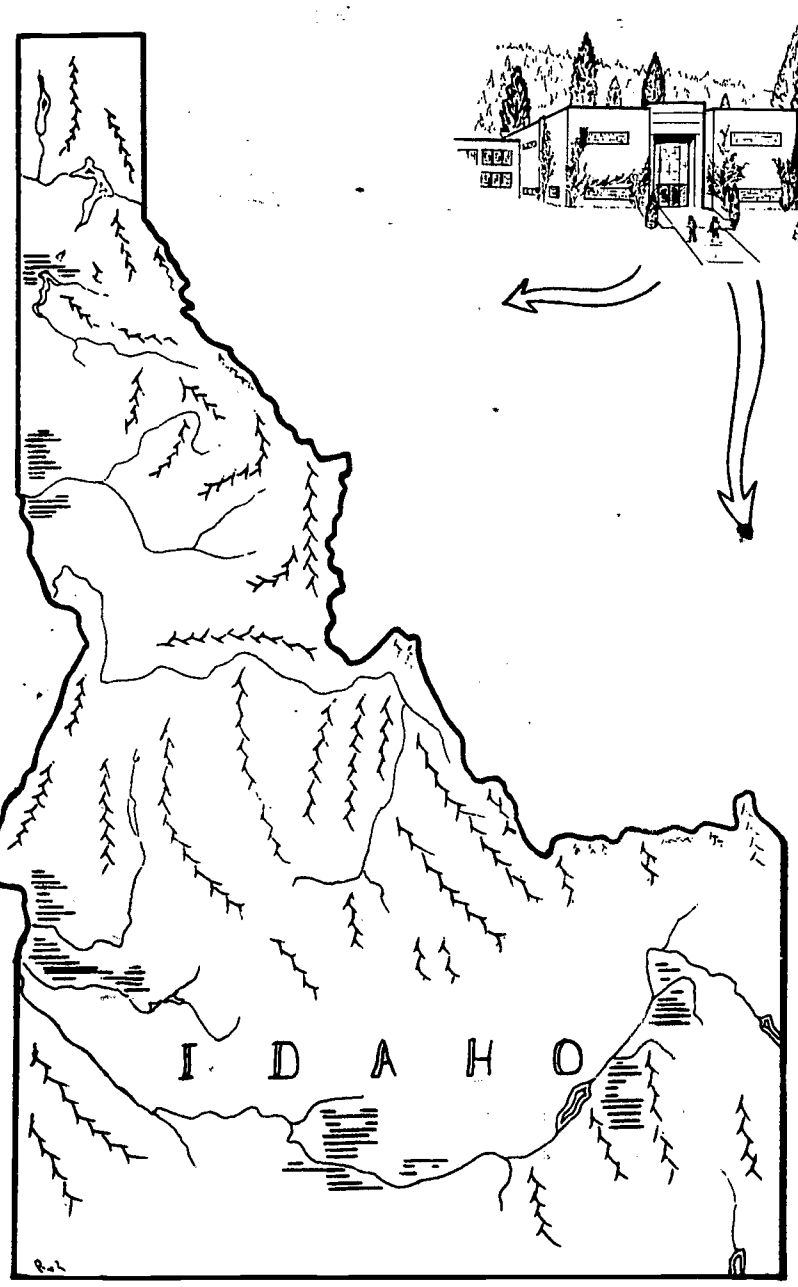
*TRADE AND INDUSTRIAL EDUCATION; *JUNIOR COLLEGES; *EDUCATIONAL PROGRAMS; *VOCATIONAL ADJUSTMENT; EDUCATIONAL EXPERIENCE; AUTO BODY REPAIRMEN; AUTO MECHANICS (OCCUPATION); ELECTRONIC TECHNICIANS; *VOCATIONAL FOLLOWUP; PROGRAM EVALUATION
*NORTHERN IDAHO JUNIOR COLLEGE; IDAHO

Fifteen of 25 graduates and dropouts formerly enrolled in Automobile and Body and Fender Repair, 32 of 70 formerly enrolled in Automobile Mechanics, and 54 of 73 formerly enrolled in Industrial Electronics responded to questionnaires concerning their status since leaving college and their retrospective evaluation of their educational experience. Relatively small numbers and return percentages for the three groups necessitate caution in the interpretation of the findings which indicate that the majority of respondents were satisfied with their choice of programs and that the college is doing a commendable job in training. An analysis of the total number of jobs held by the three program groups revealed that the majority were not related to the respondents' programs of training. Of respondents engaged in jobs related to their training, a majority indicated that their education had prepared them for responsibility and advancement while the opposite response was made by those in jobs not related to their training. (HC)

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A Follow-Up Study Of Vocational Students At North Idaho Junior College



THE STATE OCCUPATIONAL RESEARCH UNIT
COLLEGE OF EDUCATION
UNIVERSITY OF IDAHO
MOSCOW, IDAHO

VT002156

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The State Occupational Research Unit
College of Education
University of Idaho
Moscow, Idaho

A FOLLOW-UP STUDY OF VOCATIONAL STUDENTS AT NORTH IDAHO JUNIOR COLLEGE

Kenneth M. Loudermilk, Director
Robert W. Richman, Assistant Director
Robert H. Heger, Research Fellow

Former Research Fellow N. Dale Gentry
directed this project and completed
most of the research on which
this report is based

The research reported herein was initiated pursuant to Contract Number OE-5-85-118 and was completed pursuant to Grant Number OEG-4-7-063014-1590 with the United States Department of Health, Education and Welfare, Office of Education

July, 1967

FOREWORD

The study presented in this report is one of two follow-up research projects conducted through the State Occupational Research Unit during the past year and a half. This study is a follow-up of students formerly enrolled in three vocational-technical programs at North Idaho Junior College, Coeur d'Alene, Idaho. Thus the area of focus is a portion of the educational program in one of Idaho's area vocational schools. The high school program was the main focus of the other study, entitled "A Follow-up Study of Pocatello and Idaho Falls High School Graduates (1954-1963)," which was published in June, 1967.

The major portion of the research in this study was conducted by N. Dale Gentry, Research Fellow, who was assigned to the State Occupational Research Unit during the 1965-1966 academic year. Mr. Gentry's selection of this project has proved to be a timely contribution to the Unit's ongoing research program. He assumed full responsibility for the design and conduct of the study. Mr. Gentry is especially to be commended for completing the project, even though this required several months of work subsequent to his separation from the Unit.

A special note of appreciation goes to Mr. Clarence E. Haught, Director, Area Vocational Education School, North Idaho Junior College, and members of his staff for assistance to Mr. Gentry during the study. Data from student records and assistance in the construction of the questionnaire form were indispensable to the success of the project. The State Occupational Research Unit assumes full responsibility, of course, for the data thus obtained (including questionnaire responses) and for the several analyses and interpretations. This report is presented with the hope and expectation that it will generate better and more extensive follow-up studies, with the end objective of improving Idaho's program of vocational-technical education.

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INTRODUCTION

There is a recurrent need in the field of education for feedback concerning the relevance of the subject matter, and in the case of applied science or technology, the skills taught to students. This investigation may be considered an initial step in providing such feedback at the vocational-technical school level in Idaho. It is also hoped that this study might help raise questions about the type of information and method of treatment desired in follow-up studies for use in future endeavors of this kind.

This attempt to provide feedback for the educators of the Area Vocational Education School situated at North Idaho Junior College (NIJC), Coeur d'Alene, Idaho considers primarily certain characteristics of former students, both graduates and dropouts, of this area school. Such an approach runs several risks. The student characteristics chosen for investigation (dependent variables) may or may not accurately reflect the appropriateness of aspects of the curriculum (independent variables) to the skill involved. Irrelevant variables may have had greater impact on characteristics of former students than those under consideration. The subjective nature of questionnaire data is always just cause for caution in drawing conclusions. Experimental control in such a study is in some respects non-existent. Thus, the results of this type of study are at best tenuous, at worst misleading, and subsequent discussions and data presentations must be considered with due caution.

Background

Three vocational programs were chosen for investigation: Automobile Body and Fender Repair, Automobile Mechanics, and Industrial Electronics. Two two-year programs--Automobile Mechanics and Industrial Electronics--had been taught at NIJC continuously for five full years prior to the initiation of this study, thus providing four graduating classes. The two-year program of Automobile Body and Fender Repair had been taught continuously for three years, providing two graduating classes.

Procedure

Two major questions appeared to summarize the type of information

desired from former students of the NIJC vocational-technical program: (1) How do the students evaluate their experience at NIJC with respect to the work they are now doing? (2) What are the characteristics of students who have attended the NIJC program--where are they, what are they doing, how are they doing, etc.?

Data from NIJC records provided the names and permanent addresses of students as well as some additional data (Appendix A, page 2, Table 1) for the latter question in the preceding paragraph. Questionnaires (Appendix A, pages 6-10) were constructed which also provided data about students, as well as their evaluations of certain aspects of the NIJC curriculum. The first two pages of the questionnaire were the same for all students; the third page was similar in format, but was worded appropriately for each of the three program groups (Appendix A, pages 8-10). Personnel at NIJC provided considerable assistance in securing data about students who had been enrolled in the three programs, and in determining information to be obtained via questionnaire, particularly with respect to the technical areas of subject matter.

Cover letters (Appendix A, pages 3-4) were prepared for an initial mailing, and were signed by both the investigator and the instructor who had the most contact hours with the student. Two subsequent follow-up letters for nonrespondents were signed only by the investigator on behalf of the vocational-technical personnel. The three mailings were spaced at approximately six-week intervals beginning in April, 1966. A copy of the questionnaire was enclosed with each mailing. As is customary, respondents were assured that all information would be kept strictly confidential.

Following completion of the mailing phase of the study, tabulation and analysis of the results were effected and are presented in this report. Due to small Ns (number of cases), it was not possible to perform extensive statistical analyses. Furthermore, many of the data did not lend themselves to statistical treatments outside the nonparametric class. Accordingly, the data were compared directly by means of frequencies or percentages. Occasionally the chi-square test was applied in an effort to "tease out" important trends and relationships.

The following three sections of this report will be concerned with students enrolled in Automobile Body and Fender Repair (ABF), Automobile Mechanics (AM), and Industrial Electronics (IE), in that order. Following this will be a summary comparison between some aspects of the three programs--that is, the major findings presented in the foregoing three sections. The concluding section of the report will contain the conclusions and implications of the study. Throughout the remainder of the report, and in Appendixes B, C, and D, the reader may note several discrepancies between the N given for the number of respondents and the Ns in various tables. Such discrepancies are due to a lack of data; several respondents, even though they returned the questionnaire, failed to answer several of the questions.

AUTOMOBILE BODY AND FENDER REPAIR

During the three-year period from 1962 to 1965, 25 students entered and left the ABF program at NIJC. Of these former students, 10 may be classified as nonrespondents and 15 as respondents (Appendix A, page 5, Table 2). Actually, three of the students classified as nonrespondents could not be located. For the purpose of comparing the population on whom questionnaire data were not available, these three students may legitimately be classified as nonrespondents. Thus, 60 per cent of the ABF population being studied returned questionnaires.

Comparison of Respondents with Nonrespondents

Rothney (1958) has adequately challenged the practice of assuming comparability between respondent and nonrespondent populations in questionnaire studies. In the present study some information was available on both respondents and nonrespondents: amount of previous schooling, grade point average, and length of time spent at NIJC. This information provides a basis for comparing the respondents and nonrespondents in the three programs with respect to the three characteristics listed.

Eleven of fifteen respondents had graduated from high school, compared to only two graduates out of eight nonrespondents (Appendix B, Table 1). This distribution could have occurred one time in ten by chance (Appendix B, Table 2), hence one may not assert with

assurance that this represents a real difference between respondents and nonrespondents. One may consider the data in a slightly different fashion: the mean number of years of education for ABF respondents was 11.4 compared to 10.1 for nonrespondents (Appendix B, Table 1).

Thirteen of fifteen respondents (87 per cent) spent two or more semesters at NIJC compared to only four of ten (40 per cent) nonrespondents (Appendix B, Table 3). Respondents spent an average of 2.3 semesters at NIJC as compared to 1.4 semesters for nonrespondents. A chi-square test indicates that this is a real difference, significant between the .05 and .02 levels (Appendix B, Table 4).

Each of the fifteen respondents earned a grade point average (GPA) of 2.5 or higher. Only two of seven nonrespondents earned a GPA this high. The mean GPA for respondents was 3.02 compared to 1.48 for nonrespondents (Appendix B, Table 5). This difference is significant beyond the .01 level (Appendix B, Table 6).

The preceding data demonstrate that respondents and nonrespondents probably represent different populations in respect to grade point average and amount of time at NIJC. This does not justify inferences about other characteristics of the two groups, but simply emphasizes the risk involved in assuming that respondents represent the student population being studied.

General Characteristics of Respondents

The material to follow includes additional comparisons of the respondents and nonrespondents, as well as characteristics of the respondents revealed by questionnaire responses. Reference may be made to the questionnaire in Appendix A which was the instrument used to obtain most of the data which follow. Tabular material is contained in Appendix B. The reader desiring a quick overview may read only the text. If more detail is desired, references to Appendix tables may be followed up at the points indicated.

Although nearly half of the ABF students (10 of 23) had failed to graduate from high school, only about 25 per cent of the respondents (4 of 15) had failed to do so (Appendix B, Table 2). The two students with more than a high school education had previously enrolled in Auto Mechanics.

Respondents in general had had about 2.33 semesters of training,

while the ABF class as a whole (including nonrespondents) had had slightly less than two semesters of training (Appendix B, Table 3). The fact that the average student left the ABF program with about two semesters of training suggests that sufficient skill and knowledge can be obtained in one year to get started in the ABF field. One respondent, in fact, indicated that the earnest student could do so, and that he had learned enough in one year to secure a good job.

The grade point average for the entire group of ABF students was 2.56 (Appendix B, Table 5). The respondents had a 3.02 GPA, whereas the nonrespondents had a 1.48 GPA. As already noted, this is a significant difference (Appendix B, Table 6).

Fourteen respondents divided equally over whether the ABF curriculum was their first or second choice of program (Appendix B, Table 7). Of particular interest is the fact that only two persons indicated they were presently dissatisfied with that choice. Further, the two who were dissatisfied had initially made ABF their first choice (Appendix B, Table 8). One of these respondents suggested that the reason for dissatisfaction was the low pay. This will receive further comment shortly. The other respondent did not indicate his reason for dissatisfaction. There is no apparent basis for asserting that those for whom ABF was originally second choice ought to now be dissatisfied. But the fact that none of those persons is presently dissatisfied suggests there may be satisfactions in doing ABF work of which students were unaware when they chose (or were referred to) the ABF program.

Three respondents volunteered information concerning disabilities which limited their employability: (1) severed tendons in one hand, (2) softening of the knee bone, and (3) "40 per cent disability." None of these had had periods of unemployment, however, nor had they been required to terminate a job because of their disability. Two of the three were currently doing ABF work. The third indicated he had been unable to find an ABF job that would pay enough to support his family, but that he was making plans to open his own body shop.

The ABF students were asked to rate several characteristics of the College on a four-point scale: poor, satisfactory, good, and excellent. The primary purpose of this portion of the questionnaire

was to obtain the students' relative appraisal of the school functions: (1) quality of shop instruction, (2) quality of theory instruction, (3) amount of counseling given students, (4) quality of counseling given students, (5) help given students to find jobs, and (6) interest shown by teachers in student problems. The method of quantifying the results for interpretation was to weight the scores: 4 for excellent, 3 for good, 2 for satisfactory, and 1 for poor. The highest possible weighted score (4 times 15 respondents) was 60 for each of the above six characteristics.

The total weighted scores ranged from 42 to 52; a clear majority rated each characteristic as "good" or "excellent." The indication is (Appendix B, Table 9) that teacher interest and quality of professional help--including instruction and counseling--were viewed with considerable satisfaction. The students apparently were less satisfied (although only <u>one</u> rating was poor) with the help they received in locating jobs, and with the amount of counseling they received at NIJC. Since the initiation of this study, the Area Vocational Education School has employed a counselor, indicating that the school itself recognized this as an area of need.

How did ABF students obtain their first job when they left NIJC? Is the manner in which students found jobs related to the type of work they secured? Most students (Appendix B, Table 10) looked for their own job, had help from a friend or relative in securing a job, or were already employed. It is interesting that those who were already employed and those who obtained their jobs through friends universally entered non-ABF work. Those who went job hunting all found ABF jobs or related jobs. The numbers dealt with in these comparisons, however, are so small that the distribution could easily be one of chance.

The 15 ABF respondents had held a combined total of 40 jobs since leaving NIJC for an average of 2.7 jobs per person (Appendix B, Table 11). The average length of time out of NIJC was slightly over 1½ years, and the average job lasted about 7 months (Appendix B, Table 12). Of the combined total of 40 jobs held by the respondents, 17 were ABF jobs (Appendix B, Table 13). This was by far the most common employment. Sawmill work, factory work, service station attendant, and farm work accounted for 16 of the remaining jobs. Several other positions

were held only once by respondents.

It might be expected that, the more training received in a particular occupational area, the more likely it would be that the trainee later would be employed in that occupation. By examining the relationship between semesters of training and type of work engaged in, one can see that this is not necessarily the case for this group of ABF students. A visual inspection of Tables 14, 15, and 16, Appendix B reveals no clear relationship between the number of semesters at NIJC and the type of work (related to ABF or not related) engaged in by the students. Three possible reasons for the lack of any consistent relationship are considered here. There may, of course, be others. First, the sample is small, and the variables affecting actual job placement may be so complex that any relationship is obscured. Second, the length of time required to learn skills necessary for gainful employment may be brief enough so that several students are capable of mastering these skills in two semesters. This possibility already has been discussed. Third, the reasons why some persons leave ABF jobs may be operative when the students are seeking their first jobs, resulting in their selection of non-ABF work. The discussion of reasons for leaving jobs, reasons for remaining on jobs, and rate of pay--in the paragraphs immediately following--expand further this third point.

Former students were asked to tell why they left each job. Jobs were categorized into ABF work and non-ABF work, and reasons for leaving were summarized and recorded in each category (Appendix B, Table 17). Due to low frequencies, it is not possible to identify any significant trends. It may be observed, however, that there is a trend toward reasons which indicate employment dissatisfaction, including low rate of pay, difficulties with the employer, and seeking a better or different job. Reasons which indicate circumstances beyond the respondents' control, such as being drafted, family illness, and layoffs, were mentioned less frequently. Even the respondent who established his own business said he did so because wages in ABF work were too low.

Reasons for remaining on jobs similarly showed no marked differences between ABF and non-ABF work (Appendix B, Table 18). It should be noted that there were noticeably fewer reasons given for remaining

on ABF jobs than on non-ABF jobs--4 and 10 reasons, respectively. No clear-cut conclusions may be derived from Table 18, in that both the ABF and non-ABF job holders gave a variety of reasons for remaining on their jobs.

Perhaps the wage level (Appendix B, Table 19) was more important in changing jobs than many of the respondents verbalized. The mean income for ABF jobs was $306 per month, compared to $409 for non-ABF jobs (excluding one self-employed trucker who claimed $1,500 per month; by including his income the mean wage would be $462 per month). This difference in mean income is statistically significant beyond the .01 level. This amount of variation in wages could be of considerable importance to an individual in deciding whether to remain in the ABF field or transfer to another type of employment with higher pay.

Tables 20 and 21 of Appendix B present data relative to the geographical location of employment. There is no apparent relationship between the type of work students performed (ABF or non-ABF) and where they worked (Table 20). Approximately 58 per cent of all jobs held were located in Idaho, 22 per cent in Washington, 15 per cent in California, and 5 per cent in Oregon. Eighty per cent of the respondents (12 of 15) secured their first job in Idaho, while only about 53 per cent (8 of 15) held their last job in Idaho (Table 21). An examination of the completed questionnaires revealed that many of those who left Idaho, both upon leaving NIJC and after working in Idaho, moved to more industrially prosperous areas, especially the Seattle-Renton area of Washington.

The last page of the questionnaire (Appendix A, page 8) was designed to obtain an evaluation by former students of their educational experiences at NIJC. The results could be considered in a variety of ways. Should only those students in ABF work be considered in evaluating the importance of a skill on the job? Should students who spent less than 4 semesters at NIJC be included in evaluating the amount of time spent on different phases of the program? The decision was to present the results for those doing ABF work, those doing non-ABF work, and the totals (Appendix B, Tables 22 and 23). There is still the problem of determining what these ratings might mean. What criteria are suitable for evaluating the responses?

Some skills seem important (Table 22) regardless of the type of work, tool care being the best example. Welding, hand tool use, metal preparation, and refinishing all seemed to be of general importance. That is, half or more of the respondents in one or both of the ABF and non-ABF categories felt they were of much or moderate importance on their present jobs. Glass replacement, attachments, and machine tool operation were of importance mainly to those in ABF work. Frame reconditioning, upholstery, and fabric cleaning seemed of slight importance to either group. It would be difficult to argue, however, that these latter areas have no place in ABF training.

Similar difficulties of interpretation are faced in attempting to evaluate the students' ratings of the adequacy of time spent in training on the different skill areas (Appendix B, Table 23). Respondents generally felt that the amount of training time was adequate for hand tool use, machine tool operation, tool care, metal preparation, refinishing, and attachments. Welding, frame reconditioning, and fabric cleaning were about equally divided between "adequate" and "not enough" ratings. Respondents, especially those engaged in ABF work, indicated that not enough time was spent on upholstery. This seems contradictory to the earlier rating of little importance on their present jobs, thus raising some question as to the validity of the ratings in general. Perhaps, on the other hand, these respondents felt they would do more upholstery if they had had more experience with it in training.

In some respects the responses to the questions on the last page of the questionnaire (Appendix A, page 8) were more illuminating than the ratings above--at least more of the personal feeling of the respondents was evident. An instructor who had access to such comments might well feel as though he were receiving genuine feedback rather than simply check marks in response categories. Most persons did not indicate skills or specialties which would be worthwhile additions to the ABF course (Appendix B, Table 24). Three persons felt more welding would be worthwhile and two felt more work on glass replacement would help. Single respondents gave a number of additional suggestions. Interestingly, the two respondents with four semesters of training did not suggest any additions to the program. None of the respondents favored eliminating any ABF skills currently taught

(Appendix B, Table 25).

Seven respondents felt that the ABF course had prepared them for responsibility and advancement on their jobs, seven said "no," and one failed to respond (Appendix B, Table 26). Of the five persons currently employed in ABF work, three were in the group that felt they were prepared for responsibility and advancement, one did not respond, and one said "no" because he had only one semester of training. The latter added, however, that he was gradually learning what he would have learned had he remained in school. Those who responded "no" seemed to do so because their work was not related to ABF work, rather than because of deficiencies in the ABF program.

Nine persons felt that an additional year of ABF training would not be sufficiently worthwhile to forego a year's earnings, five thought it would be, and one failed to respond (Appendix B, Table 27). All of those employed in ABF work responded negatively (or gave no response) to this question; at the same time those who said "yes, it would be worthwhile" were currently employed in non-ABF work. One respondent seemed to capture a salient point: ". . . when I don't know something, the boss or one of the other guys are plenty willing to show me."

It might have been helpful in our consideration of the ABF program at NIJC to compare graduates with dropouts. However, only 2 of the 15 respondents were graduates (having completed four semesters). Consequently, any comparisons would be somewhat facetious. This matter is complicated further in that non-graduation does not necessarily indicate that these other students did not successfully complete an equivalent amount of training. As was noted earlier, at least one student left prior to completing four semesters simply because he had an ABF opportunity and felt that he had adequate training to handle the job. Under such circumstances there is no satisfactory criterion for selecting a group of dropouts which can meaningfully be compared with graduates.

AUTOMOBILE MECHANICS

Seventy persons who were enrolled in the AM program during the five-year period 1960-1965 were included in this study. Of the 70 persons, 32 returned questionnaires, 12 could not be located, and 26 who were contacted failed to respond. Thus, of those contacted, 55 per cent responded; however, because of those not located, only 46 per cent of the entire population studied may properly be considered respondents (Appendix A, page 5, Table 2). Once again it is evident that the questionnaire results could easily represent a biased segment of the population being studied.

Comparison of Respondents with Nonrespondents

As with the ABF students, respondents and nonrespondents may be compared on amount of previous schooling, grade point average at NIJC, and semesters of training at NIJC. The mean amount of previous schooling for AM respondents was 11.7 years compared to 11.3 for nonrespondents (Appendix C, Table 1). Only 4 of 31 respondents, or nearly 13 per cent, had not graduated from high school, compared to 9 of 34 nonrespondents, or 26 per cent. This difference is not statistically significant (Appendix C, Table 2). Seventy-eight per cent of the respondents (25 of 32) had spent two or more semesters at NIJC, compared to 61 per cent (23 of 38) of the nonrespondents. This relationship is not significant (Appendix C, Tables 3 and 4). The mean grade point average for respondents was 2.53 compared to 2.17 for nonrespondents. Thirteen nonrespondents had GPAs lower than 2.5, while only eight respondents had GPAs this low (Appendix C, Table 5). These differences are not significant (Appendix C, Table 6). While none of the above comparisons indicate statistically significant differences between respondents and nonrespondents, there is a consistent trend in favor of respondents--i.e. higher GPA, more high school graduates, and longer attendance at NIJC.

General Characteristics of Respondents

A majority of 87 per cent (26 of 30) of the respondents replied that AM was their first choice, and 13 per cent (4 of 30) indicated this program was their second choice upon entering NIJC (Appendix C, Table 7). Four people indicated they were not satisfied with AM as

their vocational choice, but except for one, they were not the same persons who earlier indicated that AM had been their second choice of program (Appendix C, Table 8). Those expressing dissatisfaction gave the following reasons: (1) could not get work in the AM field, (2) preferred a field of work other than AM (teaching), (3) work presently was not interesting, and (4) felt his experience at NIJC was not at all worthwhile (worded a bit stronger). Only one of the respondents indicated a physical disability which limited his employability, the disability being difficulty with a lumbar disc. He had, however, a history of continuous employment in AM work.

An examination of the AM respondents' evaluations of characteristics of the AM program (Appendix C, Table 9) reveals generally high ratings on all six of the characteristics. Ratings were assigned as follows: 4 for excellent, 3 for good, 2 for satisfactory, and 1 for poor. Ratings were assigned by 29 respondents, thus yielding 116 (4 times 29) as the highest possible weighted score. The total weighted scores ranged from 73 to 96, thus reflecting a majority of "good" and "excellent" ratings. Quality of teaching, counseling services, and teacher interest in students received relatively high ratings. The highest number of "poor" and "satisfactory" ratings was assigned to the characteristic of help given students to find jobs.

AM students most frequently obtained jobs by "job hunting" when they left NIJC (Appendix C, Table 10). Friends and relatives were the next important source of first jobs, followed by employment agencies. The help of school personnel, joining the service, and already holding a job accounted for two persons each. Six persons did not specify how they obtained their first jobs. Respondents who went "job hunting" tended to enter non-AM jobs (6 of 7), as did those (3 of 3) who secured jobs through an employment agency. Those who were helped by school personnel, had the help of a friend or relative, already had jobs, and those who joined the service tended to enter AM jobs. Overall, a slight majority of the respondents entered non-AM work on their first job out of NIJC.

Data were available for 25 respondents regarding the total number of jobs held (Appendix C, Table 11). These 25 AM respondents held an average of 2.2 jobs and had been out of school an average of

2.9 years. The respondents had held a combined total of 22 AM jobs and 39 non-AM jobs (see Appendix C, Tables 13 and 14 for maximum totals). Of the total 32 respondents, 15 had held at least one AM job, while 17 had not.* The average length of 21 AM jobs for which data were available was 18.9 months, while the average time spent on 31 non-AM jobs was 12.0 months (Appendix C, Table 12).

The most common type of job held by the respondents was, as might be expected, in the AM field or in closely related fields. General auto mechanic, diesel, tune-up, and front-end work were listed most frequently (Appendix C, Table 13). The non-AM jobs were more varied (Appendix C, Table 14). Agricultural work and truck or equipment operation are examples of the non-AM jobs reported.

There appears to be some relationship between the amount of training in the AM course at NIJC and whether or not the student performed AM work after leaving. Approximately three-fourths of the students who had four semesters of training held at least one AM job after leaving NIJC, while less than one-third of those with one semester of training held at least one AM job (Appendix C, Table 15). Furthermore, 62 per cent of those with more than two semesters of training were currently employed in AM work, while only 17 per cent of those with one or two semesters of training were currently employed in AM work (Appendix C, Table 16). There also is some relationship between amount of training and first job held (Appendix C, Table 17). There is a slight trend for those with more training to move into first jobs in AM, and a clearer trend for those with less training to obtain their first jobs in other types of employment.

The reasons given by AM respondents for leaving jobs are summarized according to whether the work was AM or non-AM (Appendix C, Table 18). Because of the diversity of reasons, and the relatively small N, it is not possible to assert that there is any difference between the two groups. It is interesting to note that no person gave rate of pay, not liking the job, or seasonal work as reasons for leaving AM jobs, while several persons in non-AM work gave these reasons.

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*All of the 32 respondents reported some of their work history; 7 did not list the total jobs held, thus accounting for the N of 25 given at the beginning of this paragraph.

This could be a result of simply fewer reasons being given for leaving AM jobs, but also is suggestive of some genuine differences between the two groups. Reasons given for remaining on jobs (Appendix C, Table 19) are noteworthy in at least two respects: respondents doing AM work indicated more frequently than those not in AM work that they liked the type of work and were satisfied with the rate of pay. Notice that these reasons tend to complement those discussed earlier in this paragraph.

The difference in the average salary for AM work and non-AM work is moderate, the means being $394 and $431, respectively (Appendix C, Table 20). A casual inspection of the Table reveals that salaries for AM are slightly more homogeneous than salaries for non-AM work. The one salary which is quite deviant for AM work ($900) was reported by a person operating his own business.

Sixty-seven per cent of all jobs (35 of 52) for which data were available were in Idaho (Appendix C, Table 21). An additional 23 per cent were in Washington, and only 10 per cent in other locations (Oregon and Nevada). Several servicemen did not report their location while on duty, possibly because they were stationed at several successive bases. Whether the respondent held an AM or non-AM job seemed to have no relationship to the location of the job. Most respondents began their work careers in Idaho, but a moderate number left the state between their first and last job. This was due partially to men entering the armed services and consequently leaving the state (Appendix C, Table 22).

The AM respondents' evaluations of the importance of skill areas on their jobs, as well as their evaluations of the amount of time spent on these areas during training do not readily lend themselves to interpretation (Appendix C, Tables 23 and 24). For those respondents holding AM jobs, there is universal agreement that hand tool use and electrical system training are of moderate or much importance in their work. Carburetion and engine repair are ranked next in terms of importance, followed by the braking system and machine tool use. Automatic transmission repair was the only area rated of little importance by most respondents in AM work.

The majority of respondents not in AM work (Appendix C, Tables

23 and 24) rated most of the skill areas as having little importance, with the following exceptions: hand tool use and machine tool use were rated of much or moderate importance by a majority of the respondents. Exactly half of the respondents rated engine repair and carburetion as being of little importance. The respondents not in AM work concurred with those in AM work by rating automatic transmission repair as having little importance.

It seems rather contradictory that automatic transmission repair received the lowest overall rating in importance of all the skill areas, while it also was rated as the skill area being most deficient in amount of time spent during training (Appendix C, Tables 23 and 24). Perhaps some respondents do not do automatic transmission repair because they do not feel adequate for it, hence they feel the area needs more consideration during school training. A rather interesting phenomenon is that those respondents not in AM work felt that all areas, with the exception of automatic transmissions, had received adequate consideration during training, while those doing AM work indicated that electrical and carburetion systems also needed more attention. It is possible that those doing automotive work have a better basis for making a judgment.

Respondents suggested a variety of what they felt would be worthy additions to the AM course (Appendix C, Table 25). The reader is referred to the Table which contains several suggestions, including automatic transmissions; power steering, brakes, and accessories; shop machinist work; and several others. It should be noted that the majority of the respondents who made suggestions were classified as presently working in AM and were also graduates of the AM course. It seems logical that the suggested additions reflect a knowledge of most facets of the AM course. The primary reason for including the detailed suggestions is that the teaching personnel themselves may consider the merit of the suggestions. No respondent suggested the elimination of any skill area (Appendix C, Table 26).

The vast majority of the respondents engaged in AM work believed their training at NIJC prepared them for responsibility and advancement on their present job (Appendix C, Table 27). Less than half of those not in AM work indicated that it prepared them for such

responsibility and advancement. Presumably this was because their work was not of such a nature to be enhanced by training in the AM program.

The AM respondents also were nearly unanimous in their feeling that an additional year of schooling would be justified to prepare them for greater responsibility and advancement (Appendix C, Table 28). Only slightly over one-third of those in non-AM work were in favor of an additional year. One might question the real meaning of a "yes" response--both for AM and non-AM respondents--as most of the responses were qualified. The most common qualification was that the additional year would have to be in some area of specialization.

INDUSTRIAL ELECTRONICS

The highest percentage of respondents occurred in the IE field (Appendix A, page 5, Table 2). Questionnaires were returned by 54 of the 73 former students, yielding a return rate of 74 per cent. In addition, the parents of one former student replied, stating that their son was deceased. Of the 19 nonrespondents, 5 could not be located. These students attended NIJC from 1960 to 1965, constituting four graduating classes.

Comparison of Respondents with Nonrespondents

A comparison of respondents with nonrespondents indicates that the two groups are similar regarding amount of previous schooling, length of time at NIJC, and grade point averages (Appendix D, Tables 1-6). These results, plus the relatively high return percentage, suggest that the questionnaire responses for this program group are fairly representative of all students attending during this five-year period.

General Characteristics of Respondents

Most of the students who enrolled in IE were high school graduates (Appendix D, Table 1). A few were high school dropouts (about 10 per cent) and a few had some school experience beyond high school (about 8 per cent). Those with more than a high school education had been enrolled in some type of college course prior to entering the IE program. As was noted above, respondents and nonrespondents were similar in amount of previous schooling, the mean for both groups being very close to 12 years.

Sixty-two per cent of all students remained in the IE program for the full four semesters (Appendix D, Table 3). About 14 per cent completed less than two semesters. Only 3 of the 48 students who returned the second year dropped out before completing the course. The average length of time at NIJC for IE respondents was well over three semesters.

The mean GPA for IE students was 2.28 (Appendix D, Table 5). The students tended to cluster in a range from a GPA of 1.5 to 3.5. There was no significant difference between respondents and nonrespondents, the averages being 2.34 and 2.13, respectively (Appendix D, Table 6).

Only three respondents indicated that the IE course had been their second choice of program (Appendix D, Table 7). All of these three were currently satisfied with that choice (Appendix D, Table 8). However, 15 respondents who had selected IE as their first choice were not presently satisfied. Several reasons were given for current dissatisfaction with IE as a vocational choice (Appendix D, Table 9). Difficulty in securing a job was the most common reason given. Other examples were: employment in other work, loss of interest in electronics, and failure to finish the program.

Seven persons reported physical or health disabilities that limited their employability. These included (1) color blindness, (2) "back trouble," (3) impaired use of right arm, (4) reaction to heavy concentrations of dust, (5) arthritis, (6) illness and knee operation, and (7) "unable to do manual labor." Only the respondent who had the knee operation indicated unemployment resulting from his health condition. The person who had arthritis stated that he may have to quit work since his arthritis is becoming progressively worse. For some of the respondents with disabilities, IE seemed like a very suitable vocation--for example the person reporting the reaction to dust. The respondent with impaired use of his right arm was unemployed, but felt this was not because of his impairment but rather that he did not finish the program.

In response to the request to rate several characteristics of the IE program, the respondents gave quality of instruction and teacher interest in students a generally high rating (Appendix D, Table 10). Ratings were assigned to six characteristics as follows: 1 for poor,

2 for satisfactory, 3 for good, and 4 for excellent. The total weighted scores ranged from 114 to 167; 212 (4 times 53 respondents) was the highest possible score. The respondents were least impressed with the help given them to find jobs, as about one-third rated this characteristic as poor. Amount and quality of counseling generally were rated satisfactory or better.

The most frequent means of obtaining jobs was "job hunting" after the students left NIJC (Appendix D, Table 11). But only 4 of 14 jobs obtained in this manner were IE-related jobs. Seven persons found jobs through interviews while at NIJC, and these were all related to IE. Six students had the help of a friend or relative in securing jobs, and four of these were IE-related. Eight respondents did not specify how they obtained their jobs, only two of which were IE-related. The totals in Table 11 reveal that less than half of the respondents obtained their first job in IE-related work. It is noteworthy that certain means of securing first jobs, such as through employment agencies, interviews while in school, and friends or relatives tended to result in more IE-related placements than certain other methods of job hunting. Increased emphasis in the placement area at NIJC seems worthy of some consideration and exploration by officials of this college.

Of the 54 respondents, 47 listed their complete job history and one a partial job history. The 48 respondents held 49 IE jobs and 62 non-IE jobs (Appendix D, Tables 14 and 15). The average length of an IE job was slightly under 15 months, while the non-IE job averaged slightly over 13 months (Appendix D, Table 13). The overall averages in the latter table are somewhat misleading in view of a careful examination of the various frequencies. Of the non-IE jobs, more than half were less than nine months in duration, relatively few were scattered in the one- to two-year range, and another peak in employment occurs at three years. It seems that persons in non-IE jobs quit most frequently in the three- to five-month range, and the rate at which they quit after that gradually declines. The pattern is similar for those holding IE jobs, although the highest frequency for leaving jobs is approximately a year, compared to the three- to five-month range for non-IE jobs. The explanation for the relatively large number holding

jobs of more than 36 months (IE and non-IE combined) is that two graduating classes had been out of school for at least three years.

The 48 people who provided adequate data held a combined total of 111 jobs, for an average of 2.3 jobs per person (Appendix D, Table 12). Surprisingly, there is no clearcut relationship between length of time out of school and number of jobs held. More persons who had been out of school three years held only one job than persons who had been out only one or two years. As might be expected, those who had been out of school four years had held a slightly greater number of jobs, on the average, than those out of school three years or less.

Interpretation of the type of work engaged in by respondents is somewhat ambiguous, particularly in IE or IE-related jobs (Appendix D, Table 14). Respondents classified nearly a dozen jobs they had held as "electronics technolgist." On the other hand, some respondents who might otherwise be classified as "electronics technologists" were much more specific. Electronics parts assembly had been performed by seven respondents. Five jobs were in the armed services working on radio and radar maintenance and repair. Four jobs were related to telephone maintenance and repair. A variety of other work accounted for one to three jobs each, including supervisory, inspection, service, assembly, maintenance, and repair work in several specific fields.

Of the 62 non-IE jobs (Appendix D, Table 15), sales positions were held most frequently (nine jobs), lumbering was second with seven, labor was third with six, and the armed services and construction accounted for five positions each. The types of work just mentioned accounted for over half of all the non-IE jobs. Fifteen other types of work were performed by respondents in 30 jobs.

There seems to be a definite relationship between the amount of training received and whether the respondent entered IE or non-IE work. Of the 35 respondents who graduated from the IE program, 32 have held one or more IE jobs, while of 13 non-graduates, only 4 have done IE work (Appendix D, Table 16). An examination of whether first jobs and current jobs are related to amount of training at NIJC indicates a similar, though perhaps less direct relationship. Sixty-three per cent (22 of 35) of those with four or more semesters of training held their first job in IE (Appendix D, Table 17), while only 15 per

cent (2 of 13) of those with less training secured IE jobs. Those with four semesters of training also tended to engage in more IE work with the passage of time. Specifically, of the 35 respondents with four semesters of training, 27, or 77 per cent, held their current job in IE (Appendix D, Table 18). Only 23 per cent (3 of 13) of those with less training reported current employment in IE work.

Reasons respondents left different IE jobs are tabulated in Appendix D, Table 19 for IE jobs, non-IE jobs, and total jobs. The reasons "better job" and "higher pay" are the most common given for leaving a job. Entering the service and being laid off also were frequently reported. The above four reasons account for over half of the reasons given. Those reasons which seem to occur more frequently for non-IE work than for IE work include (1) higher pay, (2) to enter electronics work, (3) dissatisfied with work, and (4) seasonal or temporary. The relatively small Ns, however, necessitate a cautious interpretation.

The two most common reasons given for remaining on jobs are the good salary and chance for advancement (Appendix D, Table 20). Additional reasons such as "the work is interesting," "satisfying work," and values placed on the experience received also were mentioned relatively frequently. A variety of other reasons were listed. A casual inspection of Table 20 might lead one to believe that several reasons for remaining on jobs are given at a higher rate for IE jobs than for non-IE jobs. It must be noted, however, that the ratio for total number of reasons given is about five to one in favor of IE jobs. Converting the two scales to the same base reveals that there is no clear-cut difference between the two groups.

The mean monthly salary (Appendix D, Table 21) for IE work was $485 compared to $429 for non-IE work. For both categories the most frequent salary was $400-449 per month, but there were fewer IE jobs in the $300-400 range, and more in the $500-700 range. The average for all jobs was $457 per month.

Electronics work was performed by respondents in Idaho, Washington, and California most frequently, but also in Colorado, Oregon, Arizona, Minnesota, Iowa, and Louisiana (Appendix D, Table 22). Non-IE jobs were preponderantly in Idaho and Washington. Only a few respondents had moved to California, Montana, and Illinois. Servicemen outside

the U.S. reported stations in Korea, Vietnam, and Germany.

What possible relationship exists between geographic location and type of work? At least two persons indicated their reasons for remaining on a job was because of its geographic location. Do some IE students forego employment in IE-related work to remain in Idaho? In general, IE respondents tended to leave Idaho as time passed. Almost half of all IE respondents held their first job in Idaho, but only about one-fourth held their last job in Idaho (Appendix D, Table 23).

The students' evaluations of the importance of certain subject matter areas on their present job and their evaluations of adequacy of amount of time spent on the area during training are shown in detail in Appendix D, Tables 24 and 25. The task of assigning meaning to these ratings is a difficult one. Certainly semiconductor theory, transistor circuits was rated most important on their jobs by those who performed IE work. At the same time more students than in any other subject area felt the amount of time spent on this area in training was inadequate. Electronic drafting and radar and microwave fundamentals were rated lowest by students in importance on their jobs. However, at least 20 per cent of the students in IE-related work felt these two areas were of much importance. Perhaps it is important to note that many of the students appeared to be specialized extensively enough in their work to feel some subject matter areas were very important, and other areas were of relatively little importance on that particular job. There appears to be no other consistent relationship for subject matter areas between adequacy of time spent during training and importance on present jobs.

Respondents produced 36 suggested additions to the IE curriculum (Appendix D, Table 26). These are not all additions in the full sense of the term, for respondents frequently stated "more of . . . ." Those areas which seemed to be most prominent in the respondents' thinking when they made suggestions were circuitry of various types and assorted mathematics. The majority of suggestions were mentioned only once, and thus may reflect individual interests more than shortage areas in the present curriculum. Most of the respondents (37) did not recommend eliminating any IE subjects or related subjects (Appendix D, Table 27). Seven suggestions for the decrease or elimination of spe-

cific subjects or study areas seemed to represent individual evaluations rather than a general view of several persons.

Those persons actually engaged in IE work almost unanimously agreed that their experience at NIJC had prepared them well for their jobs (Appendix D, Table 28). At the same time, only one-third of those engaged in non-IE jobs felt that their training at NIJC had prepared them for responsibility and advancement on their job. About half of all respondents (26 of 54) indicated that an additional year of training would be worth the temporary cost in time and money (Appendix D, Table 29). Only 6 of the 26 respondents had completed a year or less of training at NIJC. The implication, therefore, is that these persons were advocating an IE course three years in duration, rather than the present two years. The question remains, however, whether these persons would have attended for an additional year of training if such had been available. Several of the respondents qualified their answers by stating that the additional year of training would have to be in some specialized field.

SUMMARY PROGRAM COMPARISONS AND GENERAL DISCUSSION

Former students at North Idaho Junior College (NIJC), Coeur d' Alene, Idaho were sent questionnaires which solicited information relative to their status since leaving the College and retrospective evaluations of their educational experiences. Students--both graduates and dropouts--who formerly were enrolled in Automobile Body and Fender Repair (ABF), Automobile Mechanics (AM), and Industrial Electronics (IE) were included in the study. Data abstracted from the questionnaires and student records have been presented and discussed in earlier sections of this report and in the appendixes. This section presents important highlights and discussions relative to the total findings of the study.

The relatively small Ns and the return percentages for the three program groups necessitate caution in the interpretation of the findings. Furthermore, it was demonstrated that those responding to the questionnaire study differed from the nonrespondents. In all three program groups, the respondents had more years of previous schooling,

more semesters at NIJC and higher grade point averages at NIJC. Two of the three comparisons showed significant differences for the ABF group.

The majority of the respondents in all three program groups were satisfied with their choice of program, even though not all had entered a program representing their first choice upon entrance into NIJC. Those expressing dissatisfaction gave a variety of reasons, thus reflecting personal idiosyncrasies more than any general characteristic of the occupation.

Physical disabilities were reported by respondents in all three groups. A few seemed to be hampered by their disabilities, and others may experience difficulty sometime in the future. The majority, however, were able to continue their work without serious interference from their physical condition.

The respondents rated NIJC on several characteristics, such as quality of instruction and the help given them to find jobs. Apparently the College is doing a commendable job of educating students in the three programs, as most of the ratings were "good" or "excellent." The lowest ratings were assigned to "help given students to find jobs." The latter perhaps should be considered by College officials and steps taken to improve this aspect of the program.

A variety of methods were used by the respondents to obtain their first jobs after leaving NIJC. Some methods may be more effective than others as a means for entering jobs which are related to the students' programs. For example, when NIJC personnel assisted in job placement, the jobs tended to be in work related to the students' training. When the students went "job hunting," there was a tendency to enter non-related jobs. The small Ns preclude, however, any definitive conclusions. A majority of all AM and IE respondents entered first jobs not related to their training.

An analysis of the total number of jobs held by the three program groups revealed that the majority were not related to the respondents' programs of training. There also was a definite tendency for the students to hold a number of relatively short jobs following their separation from NIJC. These results, and those in the preceding paragraph, are difficult to interpret. The availability of job openings, geo-

graphic location of employment, and additional personal and economic factors may be operative. Once again it may be suggested that the College investigate the possibility of improved placement services. The counseling program also should have important contributions to make in relation to the eventual job placement of students.

The respondents in the three programs gave a variety of reasons for leaving--or remaining on--various jobs. No single reason seemed prominent, thus suggesting that personal idiosyncrasies were more important than general characteristics of the jobs. Although interpretation was rendered difficult by the small Ns, it seemed that wages may have been more important than many respondents verbalized. Non-ABF and non-AM jobs averaged higher wages than did ABF and AM jobs, respectively. Conversely, IE jobs had a higher mean salary than non-IE jobs.

All three program groups had several members who left the State of Idaho to obtain their first jobs. As time passed, the number leaving the state continued to increase. The latter was most true of the IE respondents. These findings indicate that Idaho tends to lose large numbers of skilled and technically-trained workers. Washington and California were frequent recipients of those leaving Idaho.

There was no clear relationship between the number of semesters of training received at NIJC and whether the ABF respondents entered ABF or non-ABF work. This was interpreted as indicating that a two-year ABF program was longer than necessary to prepare students for ABF entry jobs. It is noteworthy that NIJC officials already had considered shortening the ABF program to one year. Based on the findings of the present study--plus other additional information--NIJC officials have reduced the ABF program from two years to one year, while at the same time increasing the daily instructional time from six to seven hours. Conversely, the number of semesters completed in the AM and IE programs had important implications regarding the subsequent employment history of the respondents. Those with four semesters of training had a greater tendency to enter work related to their training. Furthermore, as time passed, those with more semesters of AM and IE training showed a greater tendency to enter training-related work, even though their first jobs had been in non-related fields.

Each of the three programs was broken down, with the help of NIJC personnel, into a number of skill areas which composed the program of instruction. The skill areas then were arranged in the questionnaire so that the respondents could evaluate them according to their importance on their present job and the adequacy of the instructional time devoted to each. The results were a little difficult to interpret because of the small Ns and the variety of individual interests reflected in the responses. Nevertheless, the respondents generally indicated that the instructional time spent on each skill area was adequate. Some skill areas, such as tool care and use, seemed important regardless of whether the respondent was in work related to his training or in non-related work. Other skill areas were more specific, and were marked as important primarily on the training-related jobs. Responses relative to the skill areas, plus additional suggestions, might be used by experienced instructional personnel to revise and upgrade the content of the three programs.

Three questions at the end of the questionnaire solicited the respondents' evaluations regarding fairly broad aspects of the three programs. Few respondents recommended that any of the skill areas currently taught be eliminated from the program. A clear majority of those respondents engaged in jobs related to their training indicated that their education at NIJC had prepared them for responsibility and advancement on their present jobs. The opposite response seemed characteristic of those in jobs not related to their training. Several respondents stated that an additional year of training would be desirable, but this tended to be qualified in that the additional training would have to be in some area of specialization.

CONCLUSIONS AND IMPLICATIONS

Conclusions

The present study was an attempt to demonstrate how contacts with former students could be effected, and how the resulting information could be organized and interpreted. The relative success of this endeavor must be left to the judgment of the reader.

The Area Vocational Education School at NIJC apparently is pro-

viding an adequate educational program for the three occupational areas investigated in this study. Few respondents suggested the elimination of skill areas, and several characteristics of the school program received favorable ratings by the former students. On the other hand, the job placement program and the revision or upgrading of certain skill areas seem worthy of some consideration.

Follow-up studies should be considered an indispensable part of any program of vocational-technical education. There is perhaps no better resource for evaluation than the students who have been trained and have attempted to implement their training in some type of related employment. It follows, therefore, that specific provisions should be made for follow-up studies. The students themselves should be prepared for this prior to their departure from the school. Discussions and demonstrations by instructors and research personnel regarding how the follow-up information is to be used are very much in order. Certain implications of the present study relative to procedures which might be followed in future studies are presented under the next, and final, heading.

Implications

The design of the questionnaire is of considerable importance. Perhaps one of the most valuable steps in construction of the questionnaire is the careful formulation of the questions to be answered by the study. This in turn could well determine the nature of the data and the manner of securing it. Specifically, are the data to be treated statistically or otherwise? Will open-ended questions or discrete response categories better serve the purposes of the survey? If statistical treatment is to be involved, valuable time and effort may be saved if the questionnaire (response categories) is constructed with particular statistical methods in mind. A pilot study could be quite useful in discovering questionnaire and data weaknesses.

Persons contemplating a follow-up study might wish to consider alternative sampling procedures. In the present study, contact was attempted with all members of several classes. More extensive contacts with a smaller sample might well be justified.

The length of time required for contact with students deserves some attention here. In this study, three mailouts spanned a three-

month period. An additional month was required for receiving responses after the third mailout. Fifty-two per cent of all responses were received from the first mailout, 26 per cent from the second, and 22 per cent from the third. It was felt that the three contacts were necessary to provide a minimum number of responses.

Of particular concern in the present study was the tendency of respondents to omit responses to certain questions. Some omissions were systematic, i.e. several respondents failed to answer. An example of this is the open-ended question at the bottom of the second page of the questionnaire. An evaluation of type of question, location in the questionnaire, etc. may be useful in helping to alleviate this problem. Perhaps emphasizing to respondents the importance of answering all items would also be helpful.

The value of this type of study appears to be limited, i.e. it provides information concerning certain former students of a given course of study for a given period of time. This suggests that local personnel at different schools might appropriately be responsible for such investigation. Other considerations may also support this position. If those persons who supervise and/or teach a given curriculum are responsible for researching the effectiveness of their program, they may (1) be more capable of determining data to be secured, (2) make finer and more appropriate discriminations in interpreting data, and (3) more carefully consider what relationships among variables justify analysis. Placing the responsibility on various schools (reference is not specifically to NIJC) might help establish vocational-technical research as an ongoing process. Schools would be more likely to secure more data about students while they are in attendance and prepare them for follow-up contact after their departure.

Educational research at the vocational-technical school level in Idaho has long been at a serious disadvantage. The shortage of research personnel and funds, and excessive work loads, are well known, and have almost precluded the conduct of useful research projects. Fortunately, there is some indication that more attention, personnel, and funds are being allocated to research. The present report is intended as a stimulus to the development of a needed--and heretofore largely neglected--research emphasis in vocational-technical education.

Hopefully, others will be challenged to do a more adequate and extensive follow-up of their students.

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APPENDIX A

This Appendix contains a list of the basic data obtained for each student from school records, and copies of the questionnaires and cover letters which were used to contact former students of North Idaho Junior College (NIJC), Coeur d'Alene, Idaho.

Table 1

Data Concerning Each Student Obtained From NIJC Records

1. Name
2. Permanent address
3. Amount of previous schooling
4. Course grades
5. Semesters at NIJC
6. Certificated (graduated) or noncertificated
7. Dates attended
8. Course of study

APPENDIX A, CONT'D

First Cover Letter

Dear . . . . ,

Hello! How are you? Surprised to be hearing from your old instructor? Well, we have heard from many of you former Industrial Electronics* students over the years, you know--Christmas cards, announcements, etc. This way we have learned where some of you are and how things are going for you. Of course we are very interested in what you are doing, how you are getting along, and how valuable your training here was for you.

If we could find out this kind of information on <u>all</u> of our former students, we would be in a much better position to evaluate the program here at NIJC. In order to do this we are presently working with the State Occupational Research Unit, University of Idaho, and together we are sending questionnaires to all former students of the Industrial Electronics course. The questionnaire we are sending you has been designed so that you can complete it in just a few minutes. The data obtained will be kept strictly confidential. None of the information will be used on an individual basis; all will be pooled to find out group characteristics, so please answer as frankly as possible. In order to obtain accurate results it is important that we hear from <u>all</u> students.

We have enclosed a self-addressed, stamped envelope. Won't you <u>please</u> sit down right now and fill out the questionnaire, and drop it in the mail?

By the way, if you would be interested in including a personal note, we would be delighted to receive it.

Thanks in advance for your help. We are sincerely,

Your Instructor,

Research Assistant,

*Wording was appropriate for Industrial Electronics, Automobile Mechanics, or Automobile Body and Fender, depending upon the course of study in which the student previously had been enrolled.

APPENDIX A, CONT'D

Cover Letter 2

Dear . . . ,

Hello again! Hope things are going well for you. We are still interested in where you are, what you are doing, and how you are doing, etc.

On our end, the study is going along quite well. We have had the opportunity to hear from many of your former classmates, and we are encouraged. You may have felt that your questionnaire wasn't important, that one person doesn't make much difference. But in order to learn how good our program at NIJC is, we feel it is important to hear from <u>every one</u> of you.

We <u>don't</u> want to inconvenience you any more than necessary, so we are enclosing a questionnaire and a return envelope. Won't you <u>please</u> jot down the information we need and return it today?

Thanks for helping us.

Sincerely,

Cover Letter 3

Dear . . . ,

It's hard to believe that summer is half over. Time has rushed by so quickly. Soon hazy autumn days will be here and kids will be getting ready for school. It is also nearly time for us to finish our study of former students of the NIJC Vocational-Technical school.

We have heard from most of your former classmates, but we really feel that our study won't be complete until we hear from you. As far as we know, no one else in Idaho has ever done the kind of study we are trying, so we feel that it is especially important to hear from <u>every one</u> who was in your class.

If for some reason you didn't receive a letter and questionnaire before please accept our apologies and here is another; or in case you misplaced the one we sent earlier, we are enclosing another, as well as a return, stamped envelope.

We at NIJC hope this is an enjoyable summer for you. We would certainly appreciate a personal note along with your questionnaire. Won't you please answer the questionnaire now and return it soon so we can finish our study?

Please accept our wholehearted thanks for your help.

Sincerely,

Table 2

Data Concerning Students Studied and Questionnaire Response Rates in ABF, AM, and IE Programs

Program	Classes Studied	Number of Students	Number of Respondents	Response Rate
Auto Body and Fender	1962-1965	25	15	60%
Auto Mechanics	1960-1965	70	32	46%
Industrial Electronics	1960-1965	73	54	74%

APPENDIX A, CONT'D (Questionnaire, page 1)

NORTH IDAHO JUNIOR COLLEGE VOCATIONAL-TECHNICAL SCHOOL QUESTIONNAIRE

This questionnaire has been constructed to make answering as rapid and easy as possible. Please answer all items as completely and accurately as you can. ALL information will be held STRICTLY CONFIDENTIAL and will be utilized only for research purposes.

Name_____ Phone_____

Present Address_____
Street City State Zip Code

Was your vocational course at NIJC your: First Choice ☐ Second Choice ☐

Are you presently satisfied with your vocational choice? Yes ☐
No ☐ If No, please explain_____

Do you have any physical or health disabilities that limit your employability? Yes ☐ No ☐ If Yes, please explain extent of limitation_____

Date you left NIJC Vocational-Technical School_____
Month Year

How did you obtain your first job after leaving NIJC?

☐ Answering want ad
☐ Employment agency
☐ Help of school personnel
☐ Interview while in school
☐ Help of friend or relative
☐ Other_____

Please give your honest opinion about the following items concerning your education at NIJC.

	Poor	Satisfactory	Good	Excellent
Quality of shop instruction	☐	☐	☐	☐
Quality of theory instruction	☐	☐	☐	☐
Amount of counseling given to students	☐	☐	☐	☐
Quality of counseling given to students	☐	☐	☐	☐
Help given students to find jobs	☐	☐	☐	☐
Interest shown by teachers in student problems	☐	☐	☐	☐

On the next page is space for employment history. Please list the jobs you have held since leaving NIJC, starting with your present job and working back to the first job you held after leaving NIJC. Include any periods of training or education.

APPENDIX A, CONTINUED (Questionnaire, page 2)

EMPLOYMENT HISTORY

EMPLOYER	LOCATION (STATE)	DATE BEGUN Month	DATE BEGUN Year	DATE LEFT Month	DATE LEFT Year	REASON FOR LEAVING	TYPE OF WORK PERFORMED	AVERAGE EARNINGS $ per Hr./Wk./Mo.

What is there about your present job (or the job you held the longest) that encourages your to remain on that particular job? _____

APPENDIX A, CONT'D

Questionnaire, Page 3, Auto Body and Fender

The course in Auto Body and Fender Repair includes some of the specialty and skill areas listed below. Please check the appropriate boxes.

	Importance on Present Job			Was the Amount of Time Spent on This at NIJC:		
	Little	Moderate	Much	Not Enough	Adequate	Too Much
Hand Tool Use	☐	☐	☐	☐	☐	☐
Machine Tool Operation	☐	☐	☐	☐	☐	☐
Tool Care	☐	☐	☐	☐	☐	☐
Welding	☐	☐	☐	☐	☐	☐
Metal Preparation	☐	☐	☐	☐	☐	☐
Frame Reconditioning	☐	☐	☐	☐	☐	☐
Refinishing	☐	☐	☐	☐	☐	☐
Upholstery	☐	☐	☐	☐	☐	☐
Fabric Cleaning	☐	☐	☐	☐	☐	☐
Glass Replacement	☐	☐	☐	☐	☐	☐
Attachments	☐	☐	☐	☐	☐	☐

In your opinion, what Auto Body and Fender skill or specialty not currently taught would be worthwhile as an addition to the course?____

_____

Would you recommend eliminating completely any of the Auto Body and Fender skills or specialties being taught?_____

_____

Did the training which you received at NIJC prepare you for responsibility and advancement on your present job?_____

_____

Would the cost in time, money, and loss of wages for an additional year of training be justified in preparing you for additional responsibility and advancement?_____

_____

_____

_____

_____

_____

APPENDIX A, CONT'D

Questionnaire, Page 3, Auto Mechanics

The course in Auto Mechanics includes some of the specialty and skill areas listed below. Please check the appropriate boxes.

	Importance on Present Job			Was the Amount of Time Spent on This at NIJC:		
	Little	Moder-ate	Much	Not Enough	Ade-quate	Too Much
Front End	☐	☐	☐	☐	☐	☐
Brakes	☐	☐	☐	☐	☐	☐
Automatic Transmission	☐	☐	☐	☐	☐	☐
Electrical System	☐	☐	☐	☐	☐	☐
Carburetion	☐	☐	☐	☐	☐	☐
Engine Repair	☐	☐	☐	☐	☐	☐
Hand Tool Use	☐	☐	☐	☐	☐	☐
Machine Tool Use	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐

In your opinion, what Auto Mechanic skill or specialty not currently taught would be a worthwhile addition to the course?_____

_____

_____

Would you recommend eliminating completely any of the Auto Mechanic skills or specialties being taught?_____

_____

Did the training which you received at NIJC prepare you for responsibility and advancement on your present job?_____

_____

_____

Would the cost in time, money, and loss of wages for an additional year of training be justified in preparing you for additional responsibility and advancement?_____

_____

_____

APPENDIX B

This Appendix contains tabled data taken from school records and questionnaires of students formerly enrolled in Auto Body and Fender Repair (ABF)

Table 1

Years of Previous Schooling for 23 ABF Students

Years of Previous Schooling	Respondents	Nonrespondents	Total
14-14.9	1		1
13-13.9	1		1
12-12.9	9	2	11
11-11.9	1	1	2
10-10.9	1		1
9- 9.9		5	5
8- 8.9	1		1
7- 7.9	1		1
Total	15	8	23
Mean*	11.40	10.06	10.93

*Calculated from raw data, not grouped data shown.

Table 2

Chi-square Distribution of Previous Schooling for 23 ABF Students

	Respondents	Nonrespondents	Total
High School Graduates	11	2	13
Non High School Graduates	4	6	10
Total	15	8	23

χ^2 = 3.188, Not significant (Yates' correction applied)

APPENDIX B, CONT'D

Table 3

Semesters at NIJC for 25 ABF Respondents and Nonrespondents

Semesters	Respondents	Nonrespondents	Total
4 - up	2	1	3
3 - 3.9	3		3
2 - 2.9	8	3	11
1 - 1.9	2	3	5
0 - 0.9		3	3
Total	15	10	25
Mean*	2.33	1.40	1.96

*Calculated from raw data, not grouped data shown.

Table 4

Chi-square Distribution of Length of Time at NIJC for 25 ABF Students

Time at NIJC	Respondents	Nonrespondents	Total
One year or more	13	4	17
Less than one year	2	6	8
Total	15	10	25

χ^2 = 4.052, significant beyond .05 level (Yates' correction applied)

Table 5

Grade Point Average for 22 ABF Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
3.51 - 4.00	2		2
3.01 - 3.50	1		1
2.51 - 3.00	10		10
2.01 - 2.50	2	2	4
1.51 - 2.00		2	2
1.01 - 1.50		1	1
.51 - 1.00			
0 - .50		2	2
Total	15	7*	22
Mean**	3.02	1.48	2.56

*Three students withdrew before receiving grades.
**Calculated from raw data, not grouped data shown.

Table 6

Chi-square Distribution of Grade Point Average for 22 ABF Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
2.50 or higher	15	2	17
2.49 or lower		5	5
Total	15	7	22

χ^2 = 10.097, significant beyond .01 level (Yates' correction applied)

Table 7

"Choice" of Curriculum by ABF Respondents

ABF Curriculum was:	Number of Respondents
First choice	7
Second choice	7
No response	1

Table 8

Satisfaction with Vocational Choice at NIJC by ABF Respondents and Reasons Given for Dissatisfaction

	Respondents Indicating:	
Satisfied with Choice:	First Choice	Second Choice
Yes	5	7
No*	2	

*Reasons given for dissatisfaction: (1) pay is too low, and (2) no reason given.

Table 9

Rating of NIJC on 6 Characteristics by 15 ABF Respondents

Characteristic	Rating: Poor	Satisfactory	Good	Excellent	Weighted Score*
Quality of shop instruction		1	8	6	50
Quality of theory instruction		1	10	4	48
Amount of counseling given to students		2	11	2	45
Quality of counseling given to students		1	8	6	50
Help given students to find jobs	1	4	6	3	42**
Interest shown by teachers in student problems		1	6	8	52

*Weightings are as follows: 1 = poor, 2 = satisfactory, 3 = good, and 4 = excellent. Total possible score: 15 x 4 = 60.
**Adjusted for 1 less response than other characteristics.

Table 10

Method of Securing First Job and Whether or Not First Job Was Related to Training for 15 ABF Respondents

Means of Securing First Job	Number of Respondents Entering: Related Work	Nonrelated Work	Total
Answering want ad		1	1
Help of school personnel	2		2
Help of friend or relative		3	3
Went "job hunting"	3		3
Already employed		3	3
Set up own business	1		1
Other--not specified	2		2
Total	8	7	15

Table 11

Number of Jobs Reported by 15 ABF Respondents According to Length of Time Out of School

	Respondents Out of School:			
Number of Jobs Held	3 Years	2 Years	1 Year	Total
6			1	1
5			1	1
4	1	1	1	3
3			1	1
2		4	1	5
1		1	3	4
Total respondents	1	6	8	15
Average # of jobs*	4.0	2.2	2.9	2.7

*Total number of jobs = 40.

Table 12

Length of Jobs in Months for Respondents in ABF Work and Non-ABF Work

	Number of Jobs in:		
Number of Months	ABF Work	Non-ABF Work	Total
27 - 29		1	1
24 - 26		1	1
21 - 23			
18 - 20	2	1	3
15 - 17			
12 - 14	1	2	3
9 - 11	1	1	2
6 - 8	5	5	10
3 - 5	4	5	9
0 - 2	4	7	11
Total jobs	17	23	40
Average # of months*	6.8	7.4	7.1

*Calculated from raw data, not grouped data shown.

Table 13

Type of Work Reported by ABF Respondents--All Types

Type of Work	Number of Jobs
Body and fender	17
Millwork (sawmill)	6
Factory production	4
Service station attendant	3
Farm work	3
Banking	1
Janitorial	1
Radio announcer	1
Route salesman	1
Tire recapping	1
Trucking	1
Woodwork	1
Total	40

Table 14

Relation Between First Job and Amount of Training
For 15 ABF Respondents

Semesters of Training	Number of Respondents in: ABF Work	Non-ABF Work	Total
4	2		2
3	2	2	4
2	3	4	7
1	1	1	2
Total	8	7	15

Table 15

Relation Between Current Job and Amount of Training for 15 ABF Respondents

Semesters of Training	Number of Respondents in: ABF Work	Non-ABF Work	Total
4	1	1	2
3	1	3	4
2	2	5	7
1	1	1	2
Total	5	10	15

Table 16

Relation Between Type of Job and Amount of Training for 15 ABF Respondents

Semesters of Training	Number of Respondents Holding: All ABF Jobs	Some ABF Jobs and Some Non-ABF Jobs	All Non-ABF Jobs	Total
4	1	1		2
3	1	2	1	4
2	2	1	4	7
1		1	1	2
Total	4	5	6	15

Table 17

Reasons Given by ABF Respondents for Leaving ABF Jobs and Non-ABF Jobs

Reason Given	Number of Respondents in: ABF Work	Non-ABF Work	Total
Rate of pay	3	1	4
Laid off	2	2	4
Take better job	1	3	4
Take different job		2	2
Difficulty with employer	3		3
Started own business	1		1
Seasonal work		1	1
Drafted	1		1
Family illness	1		1
Total	12	9	21

Table 18

Reasons Given by ABF Respondents for Remaining on ABF and Non-ABF Jobs

Reason Given	Number of Respondents in: ABF Work	Non-ABF Work	Total
Rate of pay	1	3	4
Like the work		3	3
Good future		2	2
Good working conditions	1	1	2
Own boss		1	1
Interesting work	1		1
Challenging work	1		1
Total	4	10	14

Table 19

Monthly Income For ABF Respondents
on ABF and Non-ABF Jobs

Dollars Per Month	Number of Respondents in: ABF Work	Non-ABF Work	Total
$700 - 749		1	1
650 - 699			
600 - 649			
550 - 599		1	1
500 - 549	1	1	2
450 - 499	1	5	6
400 - 449		3	3
350 - 399		4	4
300 - 349	3	2	5
250 - 299	6	3	9
200 - 249	1		1
150 - 199	1		1
Total	13	20	33
Mean*	$306	$409**	$368

*Calculated from raw data, not grouped data shown. (A t-ratic for difference between means is 2.81, significant beyond the .01 level)

**For purposes of comparison, one extreme income of $1,500 per month was excluded. By including this income, the mean for non-ABF work would be $462 and the mean for all jobs would be $402 per month.

Table 20

Location of Jobs by State For ABF Respondents
Holding ABF and Non-ABF Jobs

State	Number of Jobs in: ABF Work	Non-ABF Work	Total
Idaho	10	13	23
Washington	1	8	9
California	4	2	6
Oregon	2		2
Total	17	23	40

Table 21

Location of First and Last Jobs for ABF Respondents

Location	Number in: First Job	Last Job	Total
Within Idaho	12	8	20
Outside Idaho	3	7	10
Total	15	15	30*

*Four respondents moved from Idaho to another state; one of the four moved because he entered the service.

Table 22

Ratings by ABF Respondents of Importance of Skill Areas on Present Job

Skill Area	5 Respondents in ABF Work			9 Respondents Not in ABF Work			Total		
	Little	Moderate	Much	Little	Moderate	Much	Little	Moderate	Much
Hand tool use	1		4	2	2	3	3	2	7
Machine tool operation	1	2	2	5	1	2	6	3	4
Tool care	1	1	3	1	3	5	2	4	8
Welding	1	2	2	4	1	3	5	3	5
Metal preparation	1	1	3	3	1	3	4	2	6
Frame reconditioning	4	1		5	2	1	9	3	1
Refinishing		1	4	4	1	3	4	2	7
Upholstery	4		1	8			12		1
Fabric cleaning	3	2		7	1		10	3	
Glass replacement	2	2	1	6	1	1	8	3	2
Attachments	2	2	1	6		1	8	2	2

Table 23

Ratings by ABF Respondents of Adequacy of Amount of Time Spent on Different Skill Areas During Training at NIJC

	5 Respondents in ABF Work			9 Respondents Not in ABF Work			Total		
Skill Area	Not Enough	Ade- quate	Too Much	Not Enough	Ade- quate	Too Much	Not Enough	Ade- quate	Too Much
Hand tool use		5			9			14	
Machine tool operation	1	4		1	7		2	11	
Tool care	1	4			7	1	1	11	1
Welding	3	2		4	5		7	7	
Metal preparation	1	4		1	6	1	2	10	1
Frame reconditioning	3	2		3	5		6	7	
Refinishing		5		1	7		1	12	
Upholstery	4	1		4	4		8	5	
Fabric cleaning	2	3		5	3		7	6	
Glass replacement	3	2		2	6		5	8	
Attachments		5		1	7		1	12	

Table 24

Summary of Responses to Question: "In Your Opinion, What ABF Skill or Specialty Not Currently Taught Would be Worthwhile as an Addition to the Course?"

Response	Times Given
No suggestions	8
More welding	3
More glass replacement	2
More frame work	1
More use of plastics	1
More refinishing	1
Spot painting on lacquers and acrylic lacquers	1
Subject well covered	1

Table 25

Summary of Responses to Question: "Would You Recommend Eliminating Completely Any of the ABF Skills or Specialties Being Taught?"

Response	Times Given
No	14
No response	1

Table 26

Summary of Responses to Question: "Did the Training Which You Received at NIJC Prepare You For Responsibility and Advancement on Your Present Job?"

	Number of Respondents in:		
Response	ABF Work	Non-ABF Work	Total
Yes	3	4	7
No	1*	6	7
No response	1		1

*Reason respondent gave for not feeling prepared was that he did not complete the ABF course.

Table 27

Summary of Responses to Question: "Would the Cost in Time, Money, and Loss of Wages for an Additional Year of Training be Justified in Preparing You For Additional Responsibility and Advancement?"

	Number of Respondents in:		
Response	ABF Work	Non-ABF Work	Total
Yes		5	5
No	4*	5	9
No response	1		1

*Two of these respondents indicated their training at NIJC gave them a good basis, and that additional help could be gained from co-workers or foremen.

APPENDIX C

This Appendix contains tabled data taken from school records and questionnaires of students formerly enrolled in Auto Mechanics (AM)

Table 1

Years of Previous Schooling for 65 AM Students

Years of Previous Schooling	Respondents	Nonrespondents	Total
12-12.9	27	25	52
11-11.9	1	2	3
10-10.9	2	2	4
9- 9.9	1	1	2
8- 8.9		4	4
Total	31	34	65
Mean*	11.74	11.29	11.51

*Calculated from raw data, not grouped data shown.

Table 2

Chi-square Distribution of Previous Schooling for 65 AM Students

	Respondents	Nonrespondents	Total
High School Graduates	27	25	52
Non High School Graduates	4	9	13
Total	31	34	65

χ^2 = 1.114, Not significant (Yates' correction applied)

Table 3

Semesters at NIJC for 70 AM Respondents and Nonrespondents

Semesters	Respondents	Nonrespondents	Total
4 - up	13	10	23
3 - 3.9	2	2	4
2 - 2.9	10	11	21
1 - 1.9	4	9	13
0 - 0.9	3	6	9
Total	32	38	70
Mean*	2.64	2.15	2.37

*Calculated from raw data, not grouped data shown.

Table 4

Chi-square Distribution of Length of Time at NIJC for 70 AM Students

Time at NIJC	Respondents	Nonrespondents	Total
One year or more	25	23	48
Less than one year	7	15	22
Total	32	38	70

χ^2 = 2.496, Not significant.

Table 5

Grade Point Average for 62 AM Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
3.01 - 3.50	1		1
2.51 - 3.00	16	14	30
2.01 - 2.50	4	6	10
1.51 - 2.00	6	6	12
1.01 - 1.50		1	1
.51 - 1.00	1	3	4
0 - .50	1	3	4
Total	29	33	62
Mean*	2.53	2.17	2.34

*Calculated from raw data, not grouped data shown.

Table 6

Chi-square Distribution of Grade Point Average for 62 AM Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
2.50 or higher	21	20	41
2.49 or lower	8	13	21
Total	29	33	62

χ^2 = .961, Not significant.

Table 7

"Choice" of Curriculum by AM Respondents

IE Curriculum was:	Number of Respondents
First choice	26
Second choice	4

Table 8

Satisfaction with Vocational Choice at NIJC by AM Respondents and Reasons Given for Dissatisfaction

	Respondents Indicating:	
Satisfied with Choice:	First Choice	Second Choice
Yes	23	3
No*	3	1

*Reasons given for dissatisfaction: (1) no personal interest, (2) am presently in other work, (3) experience at NIJC not worthwhile, and (4) unable to break into auto mechanics work (people will not hire an apprentice).

Table 9

Rating of NIJC on Six Characteristics by 29 AM Respondents

	Rating				
Characteristic	Poor	Satis-factory	Good	Excel-lent	Weighted Score*
Quality of shop instruction	2		14	13	96
Quality of theory instruction		6	12	11	92
Amount of counseling given to students	2	2	16	9	90
Quality of counseling given to students	1	3	13	12	94
Help given students to find jobs	6	5	6	6	73**
Interest shown by teachers in student problems	2	4	8	15	94

*Weightings are as follows: 1 = poor, 2 = satisfactory, 3 = good, and 4 = excellent. Total possible score: 4 x 29 = 116.
**Weighted score is adjusted for four less responses on this characteristic than on other characteristics.

Table 10

Method of Securing First Job and Whether or Not First Job was Related to Training for 29 AM Respondents

Means of Securing First Job	Respondents Entering: Related Work	Nonrelated Work	Total
Employment agency		3	3
Help of school personnel	2		2
Help of friend or relative	4	2	6
Went "job hunting"	1	6	7
Already employed	2		2
Entered service	2		2
Asked by employer	1		1
Other--not specified	1	5	6
Total	13	16	29

Table 11

Number of Jobs Reported by 25 AM Respondents According to Length of Time Out of School

Number of Jobs Held	Respondents Out of School: 4 Years	3 Years	2 Years	1 Year	Total
6	1				1
5					
4	3				3
3			2		2
2	3	4	4		11
1	2	2	3	1	8
Total	9	6	9	1	25
Average # of jobs	2.9	1.7	1.9	1.0	2.2

APPENDIX C, CONT'D

Table 12

Length of Jobs in Months for Respondents in AM Work and Non-AM Work

Number of Months	Number of Jobs in: AM Work	Non-AM Work	Total
48 - 51	1		1
45 - 47		1	1
42 - 44			
39 - 41			
36 - 38	2		2
33 - 35			
30 - 32		1	1
27 - 29	1		1
24 - 26	4	6	10
21 - 23		1	1
18 - 20	1	1	2
15 - 17	3	1	4
12 - 14	3	1	4
9 - 11	1		1
6 - 8	3	4	7
3 - 5	2	11	13
0 - 2		4	4
Total Jobs	21	31	52
Average # of months*	18.9	12.0	14.8

*Calculated from raw data, not grouped data shown.

Table 13

Type of Work Reported by AM Respondents--Work Related to AM

Type of Work	Number of Jobs
Mechanic	7
Diesel mechanic	3
Tune-up	2
Front end	2
Auto mechanic	1
Truck mechanic	1
Jet mechanic	1
Gas and diesel mechanic	1
Farm machinery mechanic	1
Mechanic--bookkeeper	1
Millwright--mechanic	1
Maintenance	1
Total	22

Table 14

Type of Work Reported by AM Respondents--Non-AM Work

Type of Work	Number of Jobs
Agricultural	5
Truck driver and/or equipment operator	5
Labor, general	4
Armed services	4
Millwork	4
Body and fender	3
Forestry	2
Mining	2
Clerical	2
Ambulance operator	1
Laundry	1
Furnace installation	1
Steelworker	1
Auto assembly	1
Highway surveying and engineering	1
Furnace operator	1
High-mill assistant operator	1
Total	39

Table 15

Relation Between Type of Job and Amount of Training for 31 AM Respondents

Semesters of Training	Number of Respondents Holding: All AM Jobs	Some AM Jobs and Some Non-AM Jobs	All Non-AM Jobs	Total
4	4	4	3	11
3	1	1		2
2	2	2	7	11
1	1	1	5	7
Total	8	8	15	31

Table 16

Relation Between Current Job and Amount of Training for 31 AM Respondents

Semesters of Training	Number of Respondents in: AM Work	Non-AM Work	Total
4	6	5	11
3	2		2
2	2	9	11
1	1	6	7
Total	11	20	31

Table 17

Relation Between First Job and Amount of Training for 31 AM Respondents

Semesters of Training	Number of Respondents in: AM Work	Non-AM Work	Total
4	5	6	11
3	2		2
2	4	7	11
1	2	5	7
Total	13	18	31

Table 18

Reasons Given by AM Respondents for Leaving AM Jobs and Non-AM Jobs

Reason Given	Number of Respondents in: AM Work	Non-AM Work	Total
Entered service	4	4	8
Take better job	2	3	5
Rate of pay		3	3
Temporary or seasonal		3	3
Did not like work		3	3
Enlistment over	1	2	3
Laid off	1	1	2
Death or illness in family		2	2
Started own business		1	1
Difference with foreman		1	1
Moved	1		1
Total	9	23	32

Table 19

Reasons Given by AM Respondents for Remaining on AM and Non-AM Jobs

Reason Given	Number of Respondents in: AM Work	Non-AM Work	Total
Like the type of work	5	1	6
Environment (working conditions, outdoors, etc.)	2	3	5
Rate of pay	3	1	4
Chance to advance	1	2	3
Steady work		2	2
Compatible with farm work		2	2
"Benefits"	2		2
Challenging	1	1	2
Like employer	1		1
Chance to meet people	1		1
Easy work		1	1
Total	16	13	29

Table 20

Monthly Income for AM Respondents on AM and Non-AM Jobs

Dollars Per Month	Number of Respondents in: AM Work	Non-AM Work	Total
$900 - 949	1		1
850 - 899		1	1
800 - 849			
750 - 799			
700 - 749			
650 - 699		2	2
600 - 649			
550 - 599		4	4
500 - 549		3	3
450 - 499	3	2	5
400 - 449	4	4	8
350 - 399		3	3
300 - 349	3	4	7
250 - 299	3	3	6
200 - 249	1	1	2
150 - 199		1	1
Total	15	28	43
Mean*	$394	$431	$418

*Calculated from raw data, not grouped data shown.

Table 21

Location of Jobs by State for AM Respondents Holding AM and Non-AM Jobs

State	Number of Jobs in: AM Work	Non-AM Work	Total
Idaho	12	23	35
Washington	3	9	12
Oregon	2	1	3
Nevada		2	2
Total	17	35	52

Table 22

Location of First and Last Jobs for AM Respondents

Location	Number in: First Job	Last Job	Total
Within Idaho	23	16	39
Outside Idaho	7	14	21
Total	30	30	60*

*Eight respondents moved from Idaho to some other location; four of these moved because they entered the service. One respondent moved from another state to Idaho.

Table 23

Ratings by AM Respondents of Importance of Skill Areas on Present Job

Skill Area	Respondents in AM Work			Respondents Not in AM Work			Total		
	Little	Moderate	Much	Little	Moderate	Much	Little	Moderate	Much
Front end	4	2	3	8	1	1	12	3	4
Brakes	2	3	4	6	2	2	8	5	6
Automatic transmission	8	1		10			18	1	
Electrical system		5	4	6		4	6	5	8
Carburetion	1	2	6	5	2	3	6	4	9
Engine repair	2	2	6	5	3	2	7	5	8
Hand tool use		1	9	4	3	3	4	4	12
Machine tool use	3	2	5	4	4	2	7	6	7

Table 24

Ratings by AM Respondents of Adequacy of Amount of Time Spent on Different Skill Areas During Training at NIJC

	Respondents in AM Work			Respondents Not in AM Work			Total		
Skill Area	Not Enough	Ade-quate	Too Much	Not Enough	Ade-quate	Too Much	Not Enough	Ade-quate	Too Much
Front end	2	5		1	8		3	13	
Brakes	1	6			9		1	15	
Automatic trans.	6	1		6	2		12	3	
Electrical system	4	3		1	8		5	11	
Carburetion	4	3		2	7		6	10	
Engine repair		8			9			17	
Hand tool use		8			8	1		16	1
Machine tool use	3	5		1	8		4	13	

Table 25

Summary of Responses to Question: "In Your Opinion, What AM Skill or Specialty Not Currently Taught Would be a Worthwhile Addition to the Course?"

Response:*	Times Given
Automatic transmissions	3
Power steering, brakes, and accessories	2
Shop machinist work	2
Lathe work	1
Hydraulics	1
Fundamentals of small diesel engine	1
Welding	1
Front end	1
Engine repair	1
Shop orders	1
Complete brake repair--incl. use of drum lathes	1
Alternators	1
Fuel injection	1
Governors	1
Transistorized ignition	1
Trouble shooting, engine and electrical difficulties	1
Body and fender	1
"None"	4

*Responses were usually in terms of "more emphasis on . . ." rather than "add . . . to the course." The above listed 25 responses were given by 19 respondents; 13 respondents gave no response, as contrasted to the response "none" in the table.

Table 26

Summary of Responses to Question: "Would You Recommend Eliminating Completely Any of the AM Skills or Specialties Being Taught?"

Response	Times Given
No	22
No response	10

Table 27

Summary of Responses to Question: "Did the Training Which You Received at NIJC Prepare You for Responsibility and Advancement on Your Present Job?"

	Number of Respondents in:		
Response	AM Work	Non-AM Work	Total
Yes	10	8	18
No	1	5	6
No response	1	6	8*
Total	12	19	32

*Total includes one respondent for whom it was impossible to determine whether or not current job was related to AM.

Table 28

Summary of Responses to Question: "Would the Cost in Time, Money, and Loss of Wages for an Additional Year of Training be Justified in Preparing You for Additional Responsibility and Advancement?"

	Number of Respondents in:		
Response	AM Work	Non-AM Work	Total
Yes*	9	7	16
No	1	6	7
No response	2	5	7
Total	12	18	30

*Most "yes" responses were qualified; the additional year would have to be in some area of specialization.

APPENDIX D

This Appendix contains tabled data taken from school records and questionnaires of students formerly enrolled in Industrial Electronics (IE)

Table 1

Years of Previous Schooling for 73 IE Students

Years of Previous Schooling	Respondents	Nonrespondents	Total
14-14.9	1		1
13-13.9	4	1	5
12-12.9	45	15	60
11-11.9	1	3	4
10-10.9	2		2
9- 9.9	1		1
Total	54	19	73
Mean*	11.98	11.95	11.97

*Calculated from raw data, not grouped data shown.

Table 2

Chi-square Distribution of Previous Schooling for 73 IE Students

	Respondents	Nonrespondents	Total
High School Graduates	50	16	66
Non High School Graduates	4	3	7
Total	54	19	73

χ^2 = .377, Not significant (Yates' correction applied)

Table 3

Semesters at NIJC for 73 IE Respondents and Nonrespondents

Semesters	Respondents	Nonrespondents	Total
5 - up	1	1	2
4 - 4.9	35	8	43
3 - 3.9	2	1	3
2 - 2.9	8	7	15
1 - 1.9	5	2	7
0 - 0.9	3		3
Total	54	19	73
Mean*	3.44	2.97	3.32

*Calculated from raw data, not grouped data shown.

Table 4

Chi-square for Semesters at NIJC for 73 IE Respondents and Nonrespondents

Time at NIJC	Respondents	Nonrespondents	Total
3-5 semesters	38	10	48
0-2 semesters	16	9	25
Total	54	19	73

χ^2 = 1.255, Not significant (Yates' correction applied)

Table 5

Grade Point Average for 70 IE Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
4.00	1		1
3.50 - 3.99	1	1	2
3.00 - 3.49	10	3	13
2.50 - 2.99	12	3	15
2.00 - 2.49	12	5	17
1.50 - 1.99	8	4	12
1.00 - 1.49	5		5
.50 - .99	1	1	2
0 - .49	1	2	3
Total	51	19	70
Mean*	2.34	2.13	2.28

*Calculated from raw data, not grouped data shown.

Table 6

Chi-square Distribution of Grade Point Average for 70 IE Respondents and Nonrespondents

Grade Point Average	Respondents	Nonrespondents	Total
2.50 or higher	24	7	31
2.49 or lower	27	12	39
Total	51	19	70

χ^2 = .242, Not significant (Yates' correction applied)

Table 7

"Choice" of Curriculum by IE Respondents

IE Curriculum was:	Number of Respondents
First choice	51
Second choice	3

Table 8

Satisfaction with Vocational Choice at NIJC by IE Respondents

	Respondents Indicating:		
Satisfied With Choice:	First Choice	Second Choice	Total
Yes	36	3	39
No	15		15
Total	51	3	54

Table 9

Reasons Given by IE Respondents for Being Dissatisfied With IE Vocational Choice

Reason Given	Times Given
Difficulty in securing jobs	4
Employed in other work	2
Lost interest in electronics	2
Did not finish program	2
"Too difficult for me"	1
Poor instruction	1
Lack of accreditation	1
Low salary	1
Electronics work not available in rural locations	1
Entered another trade, and wish to be back in electronics	1

Table 10

Rating of NIJC on Six Characteristics by 53 IE Respondents

Characteristic	Rating: Poor	Satis-factory	Good	Excel-lent	Weighted Score*
Quality of shop instruction	3	17	16	17	153
Quality of theory instruction	4	7	19	23	167
Amount of counseling given to students	8	16	15	14	141
Quality of counseling given to students	7	17	13	16	144
Help given students to find jobs	16	14	11	6	114**
Interest shown by teachers in student problems	4	10	17	22	163

*Weightings are as follows: 1 = poor, 2 = satisfactory, 3 = good, and 4 = excellent. Total possible score: 4 x 53 = 212.
**Weighted score is adjusted for six fewer responses than on other characteristics.

Table 11

Method of Securing First Job and Whether or Not First Job was Related to Training for 51 IE Respondents

Means of Securing First Job	Respondents Entering: Related Work	Nonrelated Work	Total
Answering want ad	1	3	4
Employment agency	3	3	6
Help of school personnel	1	1	2
Interview while in school	7		7
Help of friend or relative	4	2	6
Went "job hunting"	4	10	14
Entered service	1	1	2
Through labor union		1	1
"By chance"		1	1
Other--not specified	2	6	8
Total	23	28	51

Table 12

Number of Jobs Reported by 48 IE Respondents According to Length of Time Out of School

Number of Jobs Held	Respondents Out of School: 4 Years	3 Years	2 Years	1 Year	Total
6	1			1	2
5	2	2			4
4			1		1
3	1	1	3		5
2	8	6	3	7	24
1		8	2	2	12
Total resp.	12	17	9	10	48
Total jobs	35	33	21	22	111
Average # of jobs	2.9	1.9	2.3	2.2	2.3

Table 13

Length of Jobs in Months for Respondents in IE Work and Non-IE Work

Number of Months	Number of Jobs in: IE work	Non-IE Work	Total
36 - 38	4	7	11
33 - 35	1	2	3
30 - 32	3		3
27 - 29			
24 - 26	3	3	6
21 - 23	3	1	4
18 - 20	1	2	3
15 - 17		3	3
12 - 14	8	3	11
9 - 11	9	5	14
6 - 8	6	6	12
3 - 5	7	15	22
0 - 2	3	7	10
Total jobs	48	54	102
Average # of months*	14.8	13.1	13.9

*Calculated from raw data, not grouped data shown.

Table 14

Type of Work Reported by IE Respondents--Work Related to IE

Type of Work	Number of Jobs
Electronics technologist	11
Electronics parts assembly and/or testing	7
Armed services radio and/or radar maint. and repair	5
Telephone equipment maintenance and repair	4
Electronics production supervisor	3
Electronics equipment inspection and calibration	3
Minuteman missile system installation	2
Computer system analysis, maint. and repair	2
TV and/or radio repair	2
Electrician	2
Inertial guidance system installation	1
Electronics for nuclear physics research	1
Communications technologist	1
Troubleshooting and control panel wiring	1
Service shop manager	1
Naval gun system electronics maintenance	1
Electromechanic	1
Customer engineer	1
Total	49

Table 15

Type of Work Reported by IE Respondents--Non-IE Work

Type of Work	Number of Jobs
Store or business sales	9
Lumbering	7
Labor	6
Armed services	5
Construction	5
Heavy equipment operator	3
Drafting	3
Mechanics	3
Mining	3
Forestry	3
Machinist	2
Highway crew	2
Schooling	2
Tire repair	2
Factory assembly	2
Bookkeeping	1
Janitorial	1
Typewriter repair	1
Radio announcer	1
Ski lift operator	1
Total	62

Table 16

Relation Between Type of Job and Amount of Training for 48 IE Respondents

	Number of Respondents Holding:			
Semesters of Training	All IE Jobs	Some IE Jobs and Some Non-IE Jobs	All Non-IE Jobs	Total
4	15	17	3	35
3		2		2
2	1		6	7
1		1	3	4
Total	16	20	12	48

Table 17

Relation Between First Job and Amount of Training for 48 IE Respondents

Semesters of Training	Respondents in: IE Work	Non-IE Work	Total
4 - up	22	13	35
3		2	2
2	1	6	7
1	1	3	4
Total	24	24	48

Table 18

Relation Between Current Job and Amount of Training for 48 IE Respondents

Semesters of Training	Respondents in: IE Work	Non-IE Work	Total
4	27	8	35
3	2		2
2	1	6	7
1		4	4
Total	30	18	48*

*Six respondents did not provide information about their employment history.

APPENDIX D, CONT'D

Table 19

Reasons Given by IE Respondents for Leaving IE Jobs and Non-IE Jobs

Reason Given	Number of Respondents in: IE Work	Non-IE Work	Total
Higher pay	2	7	9
Better job	5	4	9
Entered service	5	3	8
Laid off	4	3	7
Entered electronics job		5	5
Dissatisfied with work	1	4	5
Left service	2	2	4
Job terminated	1	2	3
Seasonal or temporary work		3	3
Not enough work	1	1	2
Entered school		2	2
Different job	1	1	2
Illness (personal or family)	2		2
Contract terminated	1		1
Business was sold	1		1
To find full-time work		1	1
Total	26	38	64

Table 20

Reasons Given by IE Respondents for Remaining on IE and Non-IE Jobs

Reason Given	Number of Respondents in: IE Work	Non-IE Work	Total
Good salary	12	2	14
Chance for advancement	10	1	11
Interesting	7		7
Satisfying--like work	1	4	5
Experience received	4	1	5
Good fringe benefits	3		3
Good working conditions	3		3
Challenging	1	1	2
Geographic location	1	1	2
Variety of work	2		2
Opportunity to use own ideas	1		1
Freedom on job	1		1
Utilizes training	1		1
Like employer	1		1
Able to travel	1		1
Regular hours		1	1
Total	49	11	60

Table 21

Monthly Income for IE Respondents on IE and Non-IE Jobs

Dollars Per Month	Number of Respondents in: IE Work	Non-IE Work	Total
$1000 - 1049		1	1
700 - 749	2		2
650 - 699	3	1	4
600 - 649	4	2	6
550 - 599	8	3	11
500 - 549	5	1	6
450 - 499	5	5	10
400 - 449	12	13	25
350 - 399	1	9	10
300 - 349	3	9	12
250 - 299	3	1	4
200 - 249	1	1	2
Total	47	46	93
Mean*	$485	$429	$457

*Calculated from raw data, not grouped data shown.

Table 22

Location of Jobs by State for IE Respondents Holding IE and Non-IE Jobs

State	Number of Jobs in: IE Work	Non-IE Work	Total
Idaho	9	34	43
Washington	11	17	28
California	13	3	16
Oregon	5		5
Colorado	5		5
Montana		1	1
Arizona	1		1
Minnesota	1		1
Illinois		1	1
Iowa	1		1
Louisiana	1		1
Total	47	56	103

Table 23

Location of First and Last Jobs for IE Respondents

Location	Number in: First Job	Last Job	Total
Within Idaho	22	13	35
Outside Idaho	25	34	59
Total	47	47	94*

*Two respondents moved from another state to Idaho; eleven respondents moved from Idaho to another location.

Table 24

Ratings by IE Respondents of Importance of Subject Matter Areas on Present Job

Subject Area	Respondents in IE Work			Respondents Not in IE Work			Total		
	Lit-tle	Moder-ate	Much	Lit-tle	Moder-ate	Much	Lit-tle	Moder-ate	Much
Math	8	11	7	4		2	12	11	9
Communications and report writing	11	6	8	4	2		15	8	8
Electronic drafting	15	5	5	6	1		21	6	5
Semiconductor theory, transistor circuits	2	4	20	6			8	4	20
Radar and microwave fundamentals	15	3	7	6			21	3	7
Radio communications (F.C.C. license)	12	6	7	5	1		17	7	7
Digital computer fundamentals	12	7	6	6			18	7	6

Table 25

Ratings by IE Respondents of Adequacy of Amount of Time Spent on Different Subject Matter Areas During Training at NIJC

Subject Area*	Respondents in IE Work			Respondents Not in IE Work			Total		
	Not Enough	Ade-quate	Too Much	Not Enough	Ade-quate	Too Much	Not Enough	Ade-quate	Too Much
Math	5	22		2	3		7	25	
Comm. & report writing	8	17		3	2		11	19	
Elect. drafting	5	19	1	2	3		7	22	1
Semicon. theory, trans. cir.	15	10		1	4		16	14	
Radar and micro-wave fund.	3	19	3	1	4		4	23	3
Radio comm.-FCC.	3	17	3	3	2		6	19	3
Digital comp.	9	15		3	2		12	17	

*Subject area abbreviations may be interpreted by reference to Table 24 on this same page.

Table 26

Summary of Responses to Question: "In Your Opinion, What IE Subject or Related Subject Not Currently Taught Would Be a Worthwhile Addition to the Course?"

Response*	Times Given
Circuitry	
A. Solid-state circuits	2
B. Microcircuitry	2
C. Monolythic circuitry	1
D. Circuit analysis	1
E. High frequency circuits	1
Semi-conductor theory	3
Schematic reading	3
Trouble shooting with schematic diagrams	1
English	2
Math	
A. Math	1
B. Trigonometry and calculus	1
C. Second and third determinants	1
D. Computer math	1
E. Boolean algebra for computer work	1
Computers	
A. Analog computer fundamentals	1
B. Logic circuitry in programming	1
C. Computers	1
Television	
A. Closed circuit TV	1
B. Video recording equipment	1
Mechanical drafting	1
Radar microwave	1
Wave analysis	1
Electrical code	1
Electrical shop practices	1
Report writing	1
"telephony" and "theory"	2
More sophisticated use of instruments	1
Do not discontinue radio communications	1

*Usually responses were given in terms of "teach more . . . " or "teach more advanced . . . ," rather than "add . . . " to the course. A total 22 respondents gave the above responses, 22 gave no response, 7 responded "none," 2 said "don't know," and 1 replied sarcastically "Industrial Electronics."

Table 27

Summary of Responses to Question: "Would You Recommend Eliminating Completely Any of the IE Subjects or Related Subjects?"

Response*	Times Given
No	37
No response	10

*One response each suggested the elimination of electronic drafting, radar--but not microwave--fundamentals, and report writing. One each suggested a decrease in radio and TV repair, drafting, and TV circuitry. Another suggested the F.C.C. license be made optional.

Table 28

Summary of Responses to Question: "Did the Training Which You Received at NIJC Prepare You for Responsibility and Advancement on Your Present Job?"

	Number of Respondents in:		
Response	IE Work	Non-IE Work	Total
Yes	28	6	34
No	1	8	9
No response	1	4	11*

*Includes six respondents for whom data was insufficient to determine whether or not current job was related to IE.

Table 29

Summary of Responses to Question: "Would the Cost in Time, Money, and Loss of Wages for an Additional Year of Training be Justified in Preparing You for Additional Responsibility and Advancement?"

	Number of Respondents in:		
Response	IE Work	Non-IE Work	Total
Yes	17	7	26*
No	12	7	19
No response	1	4	9**

*Includes two respondents for whom it was impossible to determine whether work was IE Work or Non-IE Work.
**Includes four respondents for whom it was impossible to determine whether work was IE Work or Non-IE Work.

VT 002 185

VT 002 185
Mathetics, A System of Programmed Instruction.

Draper Correctional Center, Elmore. Ala. Rehabilitation Research Foundation
MF AVAILABLE IN VT-ERIC SET.
Rehabilitation Research Foundation, P.O. Box 1107, Elmore, Alabama 36025.
Pub Date - 66 60p.

*PROGRAMED INSTRUCTION; *PROGRAMING; PROGRAM PLANNING; *INSTRUCTIONAL DESIGN; VOCATIONAL EDUCATION; JOB ANALYSIS; JOB SKILLS; EDUCATIONAL NEEDS; EDUCATIONAL OBJECTIVES
MATHETICS

Mathetics is a training system that provides for the trainer a guide for determining what to teach, a basis for making teaching strategy decisions, a detailed procedure for constructing a lesson. It includes making a job analysis, describing the characteristics of the trainees, and determining training objectives, the differences between the master of the job and the student. With the job and population analysis and the objectives as guides, the matheticist writes "a prescription" for the training deficiencies. The prescription expresses the steps in producing a product in stimulus-response units called operants which may be arranged so that the student is presented the last step of a performance first, the next to last second, and in that sequence until all operants have been taught. This procedure is "chaining." Four papers presented at programed instruction conferences in April 1966 are included: "The Two Meanings of Mathetics" and "Mathetics--The Ugly Duckling Learns to Fly," by J.H. Harless, are an overview of the mathetical system and the techniques employed by the mathetical analyst and writer. "Mathetics in Industrial and Vocational Training," by M.T. McGaully, describes the activities of major mathetical programing units in the United States. "The Development and Production of Mathetical Programs--A Case History" by S.J. Cassels, III, describes the major production procedures of the programing unit of the Rehabilitation Research Foundation of Alabama. (PS)

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MATHETICS

A SYSTEM OF PROGRAMMED INSTRUCTION

Papers Prepared by

Materials Development Unit

Rehabilitation Research Foundation

under

M.D.T.A. of 1962

(Public Law 89-15)

M E M O R A N D U M

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DATE: 5-10-68

RE: (Author, Title, Publisher, Date) J. H. Harless, Michael T. McGaulley, Samuel J. Cassels, III., Mathetics - A System of Programmed Instruction Rehabilitation Research Foundation ---- April, 1966

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Development Group Materials Development Unit Staff of an MDTA E&D Project

Level of Group College Graduates w/Experienced Programmers

Method of Design, Testing, and Trial Based on experiences of programmers in training and developing materials by the Mathetical system--three papers developed for presentation at the National Programmed Learning Conference, Leicestershire, England April, 1966; one paper presented to the fourth annual convention of the NAT Society of Programmed Instruction, St. Louis, Mo., April 1966.

(3) Utilization of Material: Training for Programmers

Appropriate School Setting

Type of Program Programmed Instruction Workshops

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Geographic Adaptability U. S., England

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INTRODUCTION

The four papers contained herein were written by three members of the Materials Development Unit, Rehabilitation Research Foundation, Elmore, Alabama. They were selected for joint distribution to present our experience with the mathetical system in the light of current mathetical programming activities.

The first three papers were delivered at the National Programmed Learning Conference, Leicestershire, England, in April, 1966. The fourth was presented to the Fourth Annual Convention of the National Society of Programmed Instruction, St. Louis, Missouri, April, 1966.

"The Two Meanings of Mathetics" and "Mathetics: The Ugly Duckling Learns to Fly" are an overview of the mathetical system and the techniques employed by the mathetical analyst and writer. "Mathetics in Industrial and Vocational Training" describes the activities of major mathetical programming units in the United States. "The Development and Production of Mathetical Programs: A Case Study" describes the major production procedures of our programming unit.

Mathetics, by name, is not being practiced by a large number of programmers; however, the techniques that have been utilized by mathetical lesson writers are gradually being adopted by many other writers of programmed materials.

The usual product of the mathetical system is a programmed text, but the practices and procedures of mathetics are believed to be applicable to education in a much broader view.

THE TWO MEANINGS OF MATHETICS[1]

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Chief Programmer
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Elmore, Alabama

Introduction

Mathetics has been the subject of controversy since its first description by Thomas F. Gilbert early in 1962. Gilbert then defined mathetics as, "...the systematic application of reinforcement theory to the analysis and reconstruction of those complex behavior repertories usually known as 'subject-matter mastery', 'knowledge', and 'skill'."[2]

If one were to poll the programming world in an attempt to derive a descriptive definition of mathetics, he would discover that virtually nothing of a specific nature is generally known of this system, except that "mathetics teaches everything backwards."

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[1]This paper is part of a three unit presentation on mathetics. For a further explanation of the characteristics of mathetical lessons, and a survey of their usage in the United States, see Michael T. McGaulley. "Mathetics in Industrial and Vocational Training." Rehabilitation Research Foundation.

For a description of the organization and working procedures of the programming unit of the Rehabilitation Research Foundation, see Samuel J. Cassels, III. "The Development and Production of Mathetical Programs: A Case Study."

[2]Gilbert, Thomas E., "Mathetics: The Technology of Education," Journal of Mathetics, Vol. 1, No. 1, January, 1962, p. 8.

This misconception that mathetical lessons (programs) necessarily and invariably teach retrogressively, stems from one of the more unusual strategies sometimes employed by a mathetical lesson writer. Although this special technique represents only one of the many devices used, "chaining" of the behaviors has become synonomous with mathetics itself. Present-day mathetic-ists employ chaining under special circumstances contingent upon many variables, as we shall see later.

The goal of the proponents of mathetics is to evolve a genuine technology of education by welding the concepts of behavioral science to the effective practices and procedures that have always been utilized by <u>good</u> teachers, and more recently, by good programmers. Therefore, mathetics is not "new" in the usual connotation of the word.

A technology, by definition, is not new in fundamentals, but rather is the systematic application of concepts and principles for new functions or the improvement of the methodology for old ones. Therefore, the word "mathetics" has two distinct meanings: First, in its broader implication, mathetics is a complete <u>training system</u> that guides the trainer to description of mastery, and discovery of training deficiencies of a specific population. The system includes guidelines for the analysis of the skills and knowledges to be learned, and specific strategies for overcoming the deficieneies. This remedy of a training deficiency may take the form of a programmed text or other types of training

vehicles such as films, slides, role-playing exercises, etc. Also, to make this system complete, a methodology for validation and curriculum implementation has been evolved. Mathetics is secondly a step-by-step procedure for the construction of the actual programmed lesson. This process, like other good programming methods, is devoted to ensuring that only the exact functions of the mathetical teaching unit (the "exercise") are served.

It has been demonstrated that the mathetical technology is precise enough to allow two matheticists working independently with the same set of objectives to produce programs identical in many important aspects such as size of step, order of steps, level of simulation, cueing conventions, and general page layout.[3]

The System of Analysis

Rarely does a matheticist set out to "program" any particular topic or block of subject matter. A mathetical program is not a textbook or a chapter in programmed form. The duty of the matheticist is to discover the exact training deficiency in a well-defined population.

In order to discover this deficiency, the matheticist's first task is one of description. This is done in the job analysis when the matheticist interviews specialists in a particular domain

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[3]The general conclusion that mathetics is only an eclectic system is somewhat contradicted by this fact.

for the purpose of listing all the products[4] produced by that job. These products are then described in terms of the requirements they must meet, the steps of performance in deriving them, and the knowledges and behaviors that are prerequisite to their production.

Having completed the job analysis, the matheticist describes the characteristics of the trainees, noting especially the related knowledge, skills, and academic abilities of the students.

The precise training deficiency is then found by listing the differences between the master and the student. This difference is expressed in the form of training objectives.

With the job and population analyses and objectives as guides, the matheticist writes a "prescription" for the training deficiency. The prescription expresses the steps in producing a product in stimulus-response units called "operants."

Essentially linear programmers write a prescription of behavior when they break the behaviors to be taught into the smallest steps. But at this point, the linear programmer in many instances is ready to write his program without any specific attention to the special nature of the behavior to be taught.[5] The matheticist, on the

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[4]A "product" is the describable and measurable results of performance. Virtually any task can be described in terms of the products produced by that task.

[5]Happily, many programming groups are beginning to pay more than lip-service to analysis at this point.

other hand, spends much time in a detailed behavioral analysis to determine the characteristics of his prescription.

This analysis of the prescription has three overlapping purposes: (1) to discover the learning problems inherent in the behaviors, such as interactive inhibitions and the amount of generalization needing to be taught; (2) to discover learning problems inherent in the intended student population; (3) to determine the optimum sequence for teaching the behaviors called for in the prescription. This rigorous and systematic analysis of the behaviors to be learned by the student is the heart of the mathetical system and is the major rationale for mathetics. The programmer's behavior is guided by this analysis which forces him to examine all aspects of the material he will ultimately teach in the program. The analysis gives him a scientific basis on which to make his selection of teaching strategies.

Using the results of the analysis, the matheticist reexamines his prescription and answers this question: How many of the stimulus-response units (operants) will be presented to the student at one time? In other words, what is the "operant span" of this population? This concept of "operant spans" is a rather radical departure from the usual concept that the teaching units (frames) of programmed instruction should be in extremely small steps.[6] Step sizes designed to meet the requirements of the individual

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[6]Even though this theorem is undergoing a change in P. I., programs are still written in relatively small steps with little regard to the characteristics of the design population.

population have demonstrated that the boredom resulting from homogeneously small frames has been eliminated in mathetical programs. Parenthetically, the physical bulk of the programs has been drastically reduced for production economy, quicker terminal reinforcement, and time savings for the student.

The matheticist then summarizes his decisions in a detailed lesson plan to serve as a guide for the actual writing of the program. Depending on his findings, the matheticist may decide to employ one or more of several special strategies for increased teaching and learning efficiency.

One of the more interesting and controversial of these special strategies is the process of "chaining." This procedure, which has become erroneously synonomous with mathetics, is the arrangement of the operants so the student is presented the last step of performance first, the next to last step second, and so forth until all operants have been taught to the student.

For example, a mathetical programmer teaching long division may demonstrate to the student how to perform the last operation (subtraction) first; then, he would demonstrate how to multiply, while cueing the student to subtract to complete the operation; finally, he would demonstrate the first step (short division), cue the student to multiply, and release him without cues to subtract to complete the long division again.

By this chaining process the student is constantly completing the operation while adding new knowledge and behavior to his repertory. In theory, chaining allows him to work for and receive the terminal reinforcement many times while learning the steps of the operation. Also, by using the chaining process, the student can relate the particular step he is learning to the entire operation and can see how each part is germane to the final product.

Thus mathetics is first of all a procedure for analysis of the behavior to be taught.

In a second amd more specific meaning, mathetics is a scientific technique of program construction.

Exercise Construction

There are a finite and describable number of functions that each teaching unit (exercise) of mathetics must serve: 1) the student must be put under the control of the discriminative stimulus (or S^D); 2) the student must observe the stimulus by directing his attention to the S^D and by classifying the S^D from all other discriminative stimuli; 3) the student must be given instructions on how and what response to make in the presence of the discriminative stimulus; 4) the student must make the required response in presence of the S^D; 5) the student must place the S^D in context with the entire operation being taught.[7]

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[7]Gilbert, Thomas F., "Mathetics: II. The Description of Teaching Exercises," Journal of Mathetics, Vol. I., No. 2, April, 1962, pp. 7-56.

Some exercises require additional functions depending on their location in the sequence; a "prompt" (or cueing) of a previously demonstrated exercise and/or the presenting of the S^D of a previously demonstrated and cued exercise for the student to perform without aid is necessary in these exercises.

The matheticist examines the exercises he has written and synthesizes the entire operation into verbal statements in step form. He also attempts to discover similar behaviors already known to the student population. The matheticist uses this archetype behavior as an analytical homology or analogy for the student to use to relate the new skills or knowledge he is to learn in the exercises. With the synthesized steps and archetype, the matheticist constructs "understanding" exercises to precede the "performance" exercises. These "understanding" exercises give the student an overview of the behaviors he is to learn. They are designed to provide him with a "selective looking behavior" in the "performance" exercises.

The matheticist will also spend considerable time writing and rewriting these "understanding" and "performance" exercises to insure that the language is suited for the population, that no irrelevant subject matter is introduced, and that the context of each behavior is always set for the student.

At this point the matheticist has completed only two-thirds

of his work. The draft program is checked by a subject-matter and curriculum specialists for content validation. Any changes indicated are made.

The matheticist then begins trying out the program on actual members of the design population. This exacting procedure is performed to validate or correct any decisions made by the matheticist in operant span, sequence, wording, etc.

Matheticists, like other good programmers, take the point of view that a motivated student is seldom at fault when a program fails to teach him; therefore, the student is the central figure in the analytical, design, and tryout phases of the mathetical process. Students' responses, questions, and comments are carefully noted in this tryout process and revisions are made according to the dictates of the student.

When the matheticist is empirically confident that the program has undergone sufficient tryouts and revisions to meet the requirements of the objectives, the program is field-tested on large numbers of the design population under the conditions of intended use.

Summary

Mathetics, therefore, is a complete training system that gives the programmer; (1) a guide for determining what to teach, (2) a basis for making teaching strategy decisions, (3) a detailed

procedure for constructing a program.

Mathetics is somewhat eclectic in nature, but is unique in application, if not in principles. All inclusively, mathetics is a step toward a technology of education.

MATHETICS IN INDUSTRIAL AND VOCATIONAL TRAINING

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This paper is part of a three unit presentation on mathetics.[1]

In describing the effect of mathetics on vocational and industrial training, I shall (1) make mention of the major mathetical programming units and the lessons they have produced, (2) point out the significant characteristics of mathetical lessons, and (3) discuss some of the difficulties presently being encountered by mathetical programming units.

I. MATHETICAL PROGRAMMING UNITS NOW IN OPERATION

The Rehabilitation Research Foundation is a non-profit corporation conducting a number of experimental projects[2] in education and human development at Draper Correctional Center near Montgomery, Alabama.

One of the projects is a unique school in which all instruction (other than in basic literacy) is accomplished with programmed instruction. Another of the projects is a vocational school for youthful offenders in which courses are offered in barbering, bricklaying, welding, electrical appliance repair, radio-television repair, automobile servicing, and technical writing. Academic deficiencies of the students are remedied by daily sessions with programmed instruction.

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[1] For an explanation of the mathetical analysis and exercise writing technique, see J. H. Harless. "The Two Meanings of Mathetics," Rehabilitation Research Foundation.

For a description of the organization and working procedures of the programming unit of the Rehabilitation Research Foundation, see Samuel J. Cassels, III. "The Development and Production of Mathetical Programs: A Case Study, "Rehabilitation Research Foundation.

[2] These experimental projects are supported under the Manpower Development and Training Act, contracts #(M)6068-000 (OMAT) and #82-01-07 (HEW), and by the National Institute of Mental Health, Contract #MH00976-04.

A programming unit was set up adjunctive to the vocational school to provide training materials where needed. The availability of enough programs in academic subjects permitted emphasis to be placed on developing programs to assist in the teaching of manual skills and other knowledges needed in the shops. Mathetical lessons were selected as the primary training medium. Writers and staff were hired and operations began in October, 1964.

As this paper is written, six lessons have been successfully field tested: "Recognizing Electrical Circuit Symbols," "Introduction to the Volt Ohm Milliammeter," "Soldering Leads," "Introduction to Electricity, Part I," "Mixing Mortar," and "Cleaning Carburetor Air Cleaners." Nearly 300 students participated in the tryouts.

The largest number of students took "Recognizing Electrical Circuit Symbols." To determine its limits, the lesson was tested with three distinct populations: (A) students with a year or more of experience or training, (B) students with at least two months of related training or experience, (C) those with no related training or experience. Time required to complete this lesson ranged from 45 minutes to 5 hours, 15 minutes, with an average of around 3 hours. Average gain from pretest to posttest (all groups included) was 79%. Average posttest scores were 95%, 96% and 91% for the three groups, respectively.

Another series of field tests is scheduled for February, 1966. "Recognizing Electronic Circuit Symbols," a companion to the electrical symbols lessons, will be tried then. Part II of "Introduction to Electricity" will also be ready, as will a lesson for bricklaying students

in establishing the floor level of a building under construction. Three parts of a package for barbering students are nearly ready for tryout: "Preparation of a Customer" and "The Tools and Areas of a Haircut" have been tested on individual students; the third part of the package is an experimental guide to assist beginners as they give their first few haircuts. Illustrations and directions will be printed on a scroll and installed in a device on or near the barber chair. A large package on the estimation of bricklaying materials has been prepared by two young prison inmates, graduates of our one-year course in technical and program writing.

Ultimately, it is expected that these lessons will be used not only in state vocational schools but in other types of training projects as well, including the Federal Job Corps and Youth Opportunity Centers. They will be published by a governmental agency and will be available to industry.

The consultants who advised the choice of mathetics for the programming unit at the Draper Project cited among their reasons the quality of the lessons produced by the Instructive Communications Unit of the U. S. Public Health Service at the Communicable Disease Center, Atlanta, Georgia. This unit was set up in early 1963 on an experimental basis. Results of the first lesson produced were so satisfactory that the unit was soon given a permanent status under a protege of Dr. Gilbert, the originator of mathetics. Two of the lessons published by this unit were cited among the 16 most outstanding in a 1965 survey conducted by Robert Horn of Columbia University.[3] These were "Amebiasis: Laboratory Diagnosis,"

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[3] Robert E. Horn. Excellence in Programmed Instruction - Results of a Survey Identifying 16 Outstanding Programs, Programmed Instruction, 1965, IV, 9.

a three volume lesson for a population of doctors, nurses and laboratory technicians, and "Food-Borne Disease Investigation," intended for public health field workers. Two other programs of the unit also received votes in the survey. These were "Insecticide Formulation," intended for crop sprayers and their supervisors, and "Jet Injector Operation," a lesson to be discussed at more length later in this paper. Four other lessons are in advanced tryout stages and will be published within the next few months.

The third major producer of mathetical programs is TECO Instruction, Inc., of Fort Lauderdale, Florida. TECO is a private consulting firm specializing in the preparation of custom programs for industry. One lesson, "Highway Plan Reading," has been taken by over 5000 employees of state highway departments. Another, on the operations of a bank teller, is gaining wide acceptance. One user alone, First National City Bank of New York, has used it with over 600 employees. "Selected Medical Terminology" was written to teach correct spelling, pronunciation, and usage of difficult technical words to a population of hospital secretaries and typists.

The influence of mathetics has also been spread by the efforts of individual matheticists. Some have taken employment in large commercial and governmental programming centers where they have been able to shape the behavior of their colleagues. Matheticists were employed on a consultant basis to assist in the training of the original core of programmers of the U. S. Air Force.

II. CHARACTERISTICS OF MATHETICAL LESSONS

A. Layout and Response Flexibility

Mathetics is not a format system. No attempt is made to achieve uniformity of style or appearance from lesson to lesson or page to page. The governing rule in setting up an exercise is simply to use whatever is best depending on the characteristics of the behavior to be taught and the abilities of the student population. Thus, an "Exercise" (the teaching unit in mathetics) may look much like a linear frame, or it may appear as a double page spread with all the graphic appeal of a good magazine advertisement.

Most often, paper-and-pencil-type responses are called for in mathetical lessons, particularly if the behavior being taught is primarily verbal; however, student responses involving the use of tools or simulator kits are also commonly found in mathetics.

B. Extensive Use of Illustrations and Simulations

A primary function of the complicated mathetical analysis is that of locating and defining those stimuli to which the student should be taught to respond. In a mathetical exercise, we present the student with this particular stimulus (technically, the "discriminative stimulus") and teach him the correct response to be made to it. Since in most cases the discriminative stimulus is something visual, it is most suitable to present it visually to the student in the lesson. Thus it is that you will find that illustrations, representations of the stimulus, are at the center of nearly every demonstration page in mathetical lessons. (Show first and second transparencies)

Less theoretically, illustrations and simulator kits are used because of the assistance they give the student in transferring his knowledge from the learning situation to the job. A picture is worth a thousand words, and the chance to apply what he has learned by practicing the job may be worth a thousand pictures to the student.

In varying degrees of reality, the responses called for in mathetical lessons are simulated performances of the job being taught. Dry-firing with an innoculation injector or soldering gun is simulated performance that approaches very near to the real thing. However, in most situations, a lesser degree of simulation will work just as well. For example, it is likely that a student who has been directed to imagine working with a certain tool, having a photograph or drawing of the tool to guide him, will be able to use the actual tool properly within a very short time of handling it for the first time. Even mere pencil activity such as marking on a drawing at key points or in a certain sequence, may be sufficiently high-grade simulation of job performance that transfer will be insured.

C. Large Teaching Step Size

> In mathetics, "The principle for determining the size of an exercise is not 'break the material into small parts'; the principle is to require in every exercise as much mastery performance as the student can reasonably negotiate."[4]

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[4] Thomas F. Gilbert. Mathetics: The Technology of Education. Journal of Mathetics, 1962, 1, 25.

The first third of a matheticist's time in working on a lesson is spent performing an analysis of the behavior to be taught and making studies of the abilities and characteristics of the design population. Upon the basis of the findings, he estimates the maximum amount of material the students will be able to grasp in each exercise of the lesson. The philosophy in mathetics is to attempt to push the student to take the largest steps possible.[5]

As a practical consequence of this philosophy, whole-page spreads are common in mathetics. Freedom and flexibility come with the larger spreads. There is ample room to use big, clear pictures and plenty of white space. The matheticist can be typographically playful to capture or recapture student attention.

Very often it "makes sense" to the student to be presented with the whole of a job sequence at one time. (Show third transparency) This spread demonstrates the sequence of behavior in administering a shot with the jet injector. Each operation flows on to the next as part of a cycle. The completeness of the cycle can be preserved by teaching in large steps.

The model teaching sequence in mathetics calls for each stimulus-response relationship ("operant") to be presented at least three times: once in a "demonstration," then in a "prompt," when the student is called upon to make a response with some assistance, and finally in a "release"

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[5] Any over-estimation of student abilities will be caught and corrected in the tryout cycle. If necessary, remedial exercises can be prepared for the less able students in the target population.

when he responds without the help of any hints in the lesson. It is usually heartening to the student to perform the release, particularly as he proceeds further into the lesson and can work more and more of the job in the release. If the programmer follows the three-part model teaching sequence, much of the repetition that students dislike can be avoided.

III. SOME DISADVANTAGES

A. The Cost of the Behavioral Analysis

A mathetical lesson is more than a textbook in program form. The matheticist does not accept the standard teaching sequence as conclusive. What appears to be logical order to the professor may be chaotically confusing to the student. Accordingly, the matheticist starts fresh by going back to the fountainhead, the man who actually does the job. From this subject-matter specialist the matheticist learns exactly how the job is done under field conditions. This information is then broken down in a series of analyses designed to find the true "shape" of the behavior, as well as any teaching problems inherent in the topic, and alternate, potentially more efficient methods of performing the job.

In the course of this analysis, many hitherto unrealized facts are turned up about the job and about the system of which it is a part. This "spin-off" may bring about increased efficiency in job performance as well as savings in training costs.

When the analysis is complete, the matheticist knows exactly what material will be contained in each teaching step. In addition, he will have located most of the learning problems due to competition, or to the multiplicity of variable factors, or to terminology with which the student would not be familiar.

On the average, a full one-third of the matheticist's time is spent in the analysis phase. Some of this time, however, can be regained by increased efficiency in later phases.

B. The "Matheticist Gap"

The cost of training a staff of mathetical programmers is high, for it takes usually from six to eight months for a novice to become competent. During this time, little if any, of the work he turns out is usable. Moreover, the attrition rate among matheticist trainees is high. For some, the mathetical procedure remains forever a mystery. Others cannot develop the knack of expressing their knowledge in terms that can be understood by the student.

It is not yet possible to predict the individuals who will succeed as mathetical programmers. Even those whose backgrounds and test scores parallel those of the best matheticists may turn out to be disappointments. Conversely, we at Rehabilitation Research Foundation discovered our senior staff artist, a man in his fifties with no programming experience, to have an amazing aptitude for mathetical writing. He took over a complicated course in the bricklaying field on which the regular programmers had about given up, tinkered with it in his spare time, and turned out a lesson that we now cite as one of our best.

C. Increased Fabrication Costs

A mathetical lesson that involves the use of a simulator kit will almost certainly be somewhat more costly to manufacture than will be a simple printed lesson. Even if there is no such simulator used, production costs for the mathetical lesson will be greater than for other types of programs because of the heavier use of illustrations. It may be necessary to have a staff artist for every typist/paste-up man. For some lessons, a more expensive printing process and more expensive paper may be required because of special art work.

These, then, are the three major disadvantages of mathetics. All come down in the end to a matter of increased costs. Whether the cost is worth it or not is an individual matter, depending upon the particular circumstances of the user. In industry, the extra costs may be more than offset by the savings in trainee salaries resulting from the greater efficiency of the mathetical lesson. The fabrication costs, amortized over a sufficiently large trainee population, may, in the long run, prove insignificant. Even the problems of finding trained matheticists may be overcome if the work is let out to be done by a programming consultant on a contract basis.

CONCLUSION

Mathetics has now developed into a third force in American industrial programming. The flexibility of the "second generation" programs published within the last year or two indicate that mathetical programming is ideally

suited to the training needs of vocational schools and industry where transfer of skills to the actual job situation is critical. Although mathetical lessons are inherently more expensive to produce than are those of other programming techniques, savings resulting from "spin-off" effects and from increased training efficiency may offset the extra cost.

Unit 1

CHARACTERISTICS OF AMEBAE

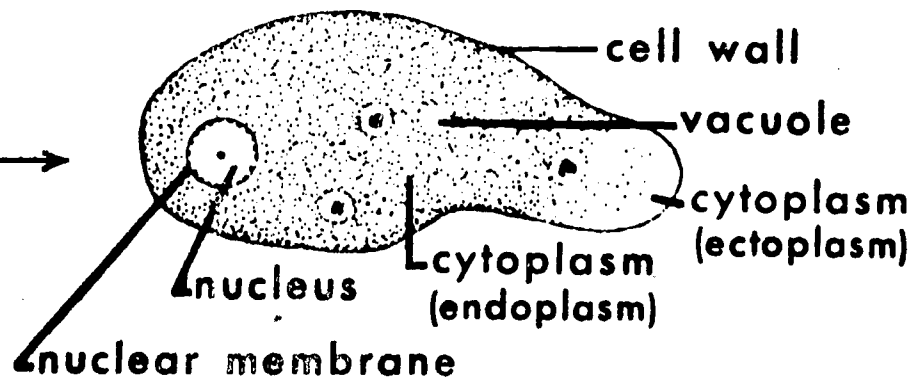
The CELL is the basic unit of life; each cell contains all of the characteristics necessary to sustain it. These may be classified according to STRUCTURE and FUNCTION.

Study carefully the characteristics, drawings, and labels shown below but do not try to memorize:

STRUCTURE characteristics →

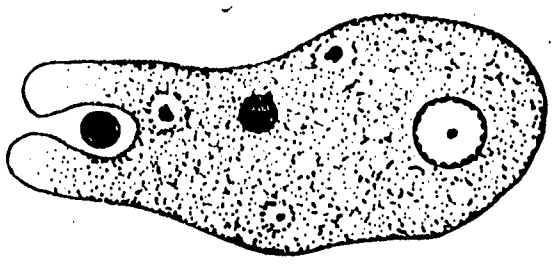
Locate the

1. nucleus
2. nuclear membrane
3. cell wall
4. vacuole
5. cytoplasm
   a. endoplasm
   b. ectoplasm

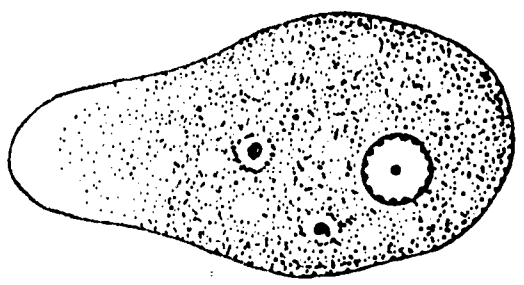


FUNCTION characteristics →

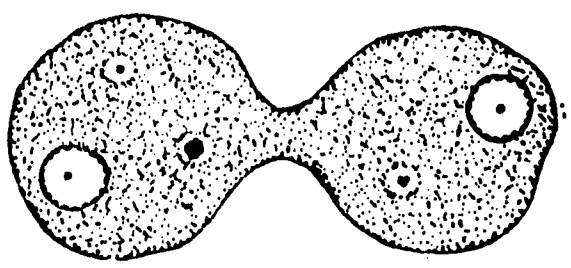
1. FEEDING: note how the pseudopodia engulf the food
2. MOVEMENT: note how the cell is pulled forward by the extended pseudopodia
3. REPRODUCTION: note how the cell multiplies by binary fission



FEEDING



MOVEMENT



REPRODUCTION

Remember:
all cells may be characterized by:
STRUCTURE & FUNCTION

If you already knew the information contained on this page, you may skip to page 7—otherwise continue your study of the above material on the next page.

(Adapted from "Amebiasis: Laboratory Diagnosis, Part I," U.S. Department of Health, Education, and Welfare/Public Health Service, Communicable Disease Center, Atlanta, Georgia.)

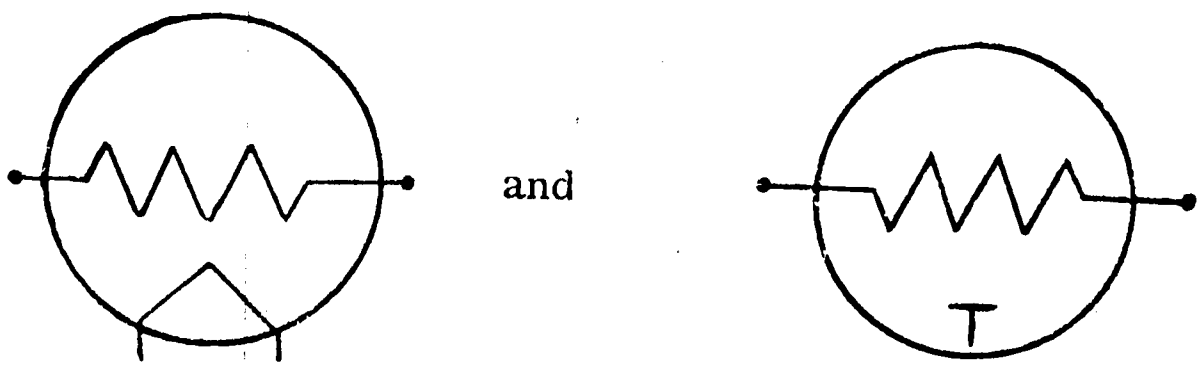
There are

TWO SYMBOLS

for

THERMISTORS

Notice the spelling.



LOOK CLOSELY AT THESE TWO SYMBOLS.

THEY BOTH MEAN THE SAME THING

AND

THEY LOOK JUST ALIKE

EXCEPT THAT

SOMETIMES THE SYMBOL IS DRAWN WITH ∩

AND OTHER TIMES

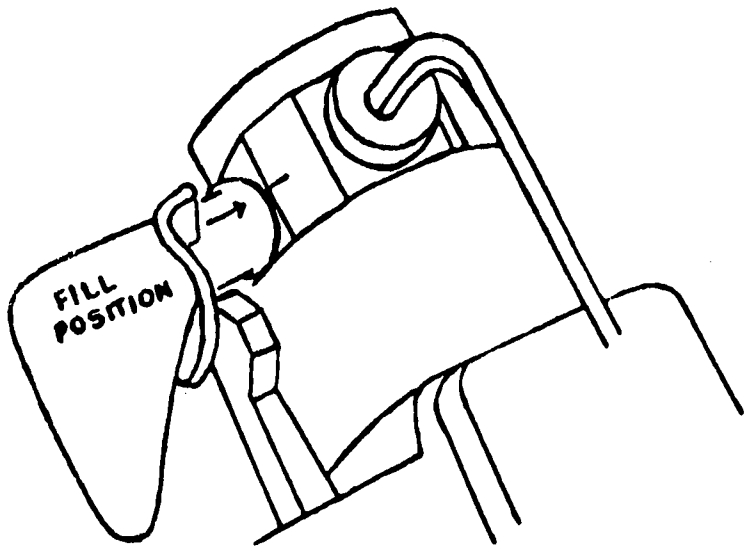
IT IS DRAWN WITH A " T" INSTEAD.

Unit 2 ADMINISTERING THE INJECTION

The schematic on these two pages shows you how to ***ADMINISTER INJECTION (Step II)***. Study the schematic carefully, then say *aloud* the steps summarized in the middle of the page until you know them. Before leaving these pages you should pick up the injector and actually follow the steps with the machine turned off. Use your own lower arm to see the nozzle imprint (be sure to take off the red protective cap first). Do it several times.

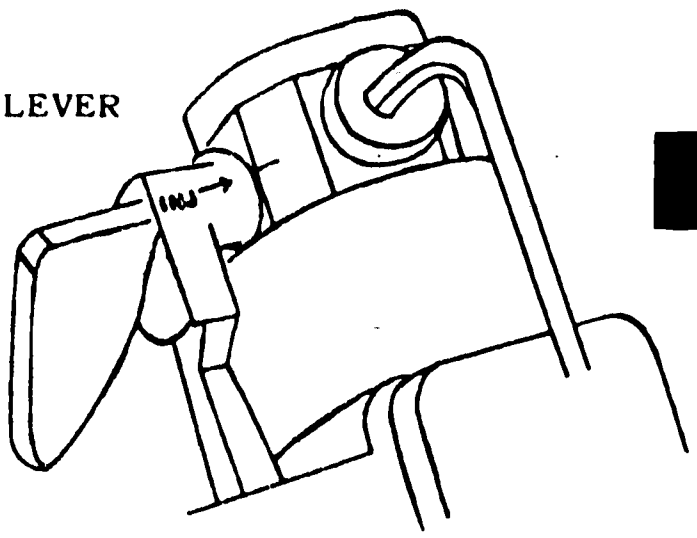
START here and follow the arrows counterclockwise:

1. see that the COCKING LEVER is at "FILL," then

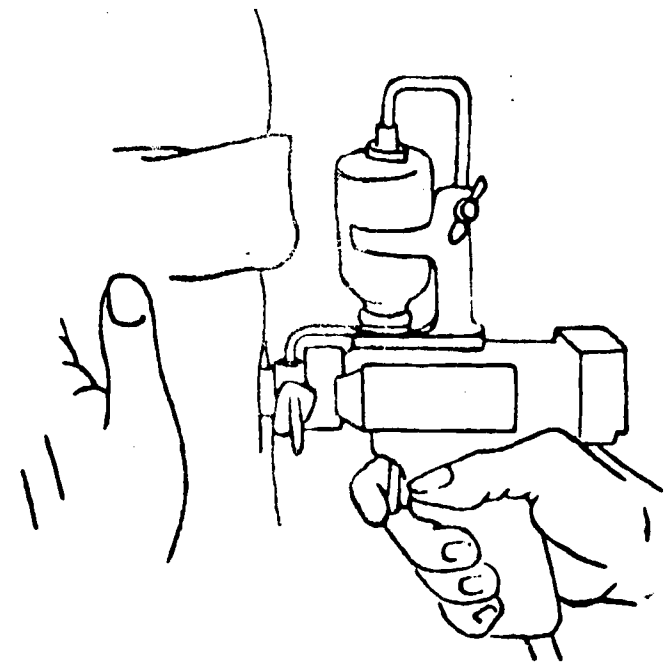


1. COCKING LEVER at "FILL"
2. turn to "INJ"
3. nozzle against arm at 90° angle to the bone
4. support arm, squeeze trigger for 3 seconds
5. COCKING LEVER *immediately* back to "FILL"

2. turn COCKING LEVER to "INJ"



5. turn COCKING LEVER back to "FILL" *immediately* after injection. Leaving on "INJ" too long puts a strain on the machine. NEVER turn on OR off with the lever on "INJ."

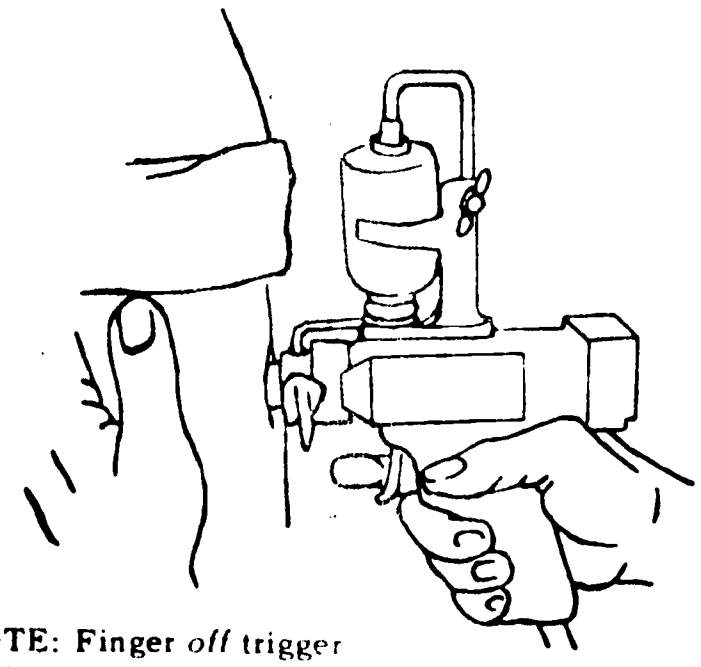


NOTE: Finger *on trigger* only after the nozzle is *firmly* seated and the arm is "bunched" or stretched toward the back.

4. squeeze trigger for full THREE SECONDS (count: "One thousand one, one thousand two, one thousand three")

Remember to actually follow the steps with the injector several times before leaving these pages.

3. press nozzle FIRMLY at ½-inch-depth site at 90° angle with the bone toward back of arm; support arm ("bunch" or stretch). Seat the nozzle *firmly* (not on a muscle) so that all points of the nozzle are partially buried. Remember, correct pressure will leave a strong nozzle imprint.



NOTE: Finger *off* trigger

(Adapted from "Jet Injector Operation, Model 33," A Self-Instructional Lesson, U.S. Department of Health, Education, and Welfare/Public Health Service, Communicable Disease Center, Atlanta, Georgia.)

THE DEVELOPMENT AND PRODUCTION OF MATHETICAL PROGRAMS: A CASE HISTORY

Samuel J. Cassels, III
Rehabilitation Research Foundation
Elmore, Alabama

This paper is part of a three unit presentation on mathetics.[1]

In discussing the development and production of mathetical programs by the in-house programming unit of the Rehabilitation Research Foundation of Alabama, this paper will describe the purpose and organization of this unit, present the most useful procedures that have been developed thus far, present some variations of procedures, and make recommendations.

The Rehabilitation Research Foundation of Alabama is a private, non-profit organization that is presently conducting a number of experimental projects in education and human development at the Draper Correctional Center northeast of Montgomery, Alabama.[2] As one of these projects, a vocational school for youthful offenders is producing entrance level workers in the following six trade areas: automobile servicing, barbering, bricklaying, radio and television repair, small electrical appliance repair, and welding. In addition, the following three classes are conducted as an important part of the vocational school project: remedial education, supplementary education, and technical writing.

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[1]For an explanation of the mathetical analysis and exercise technique, see J. H. Harless. "The Two Meanings of Mathetics," Rehabilitation Research Foundation.

For an explanation of the characteristics of mathetical lessons, and a survey of their usage in the United States, see Michael T. McGaulley. "Mathetics in Industrial and Vocational Training," Rehabilitation Research Foundation.

[2]These experimental projects are supported under the Manpower Development and Training Act, contracts #(M)6068-000 (OMAT) and #82-01-07 (HEW), and by the National Institute of Mental Health, contract #MH00976-04.

The in-house programming unit is called the Materials Development Unit, and it is an experimental and demonstration part of the vocational training project. This unit was established in October of 1964 to develop special programmed materials that would expedite the teaching of the aforenoted six vocational trades. In addition, the unit was to develop similar materials for the courses in remedial education, supplementary education, and technical writing. The unit was to investigate subjects in the programming field; for example, the evaluation and implementation of programs, and research into the methodology of programmed instruction. Finally the unit was to develop special training materials such as instructional wall charts, sequential diagrams, and vocational type visual aids.

The unit presently consists of a chief programmer, two programmers, one program editor, two production assistants, and two artists.

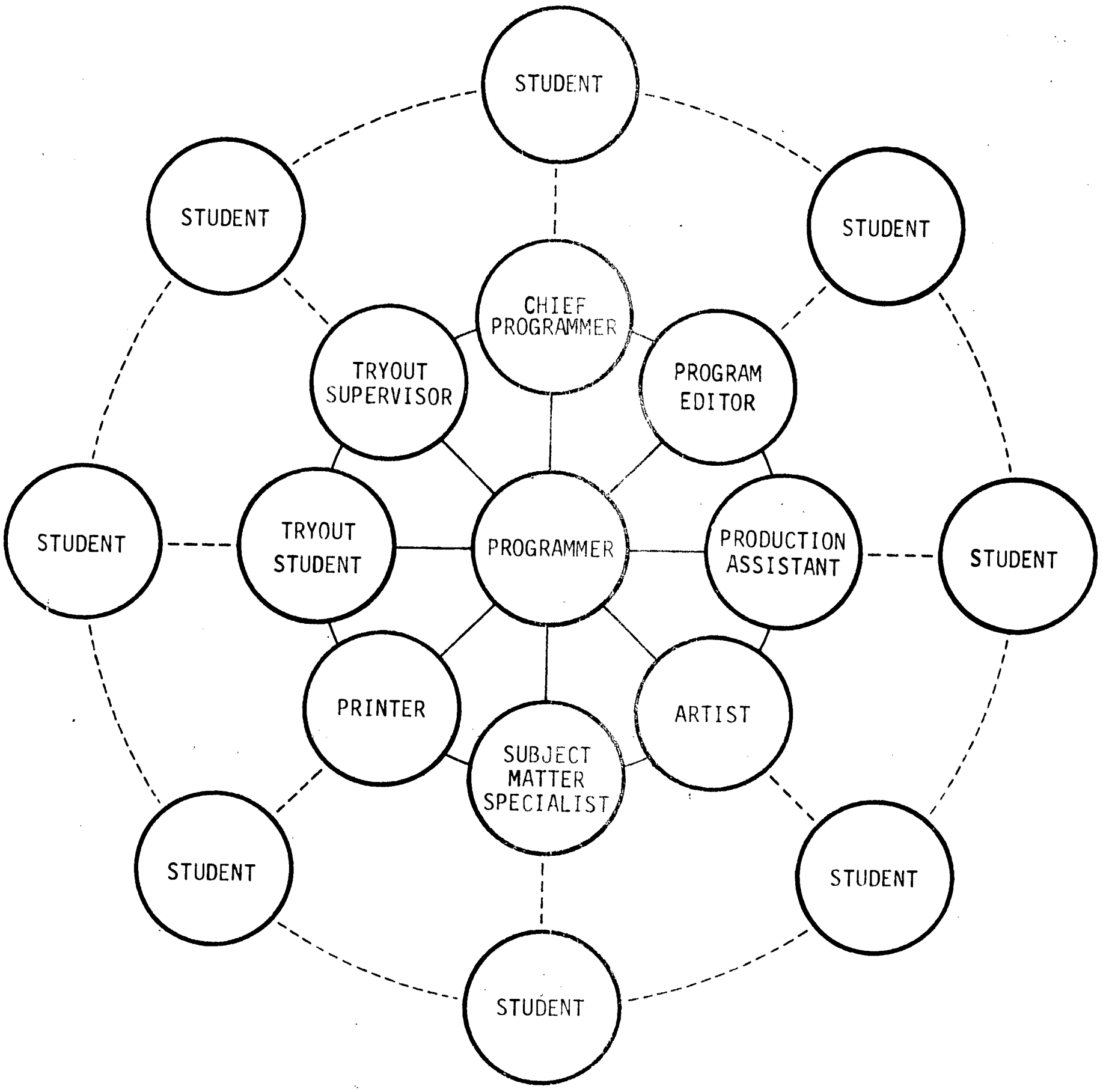
The members of the unit currently perform multiple duties. The chief programmer serves as the instructor of the technical writing class. The programmers serve as revisions associates and tryout supervisors. One programmer supervises the production section. The two production assistants perform multiple tasks including the preparation of all offset-lithographic masters for the unit and for the project. The chief artist serves as the photographic laboratory technician, and the assistant artist serves as the printer for the unit.

The collating and binding of lessons are performed with the aid of the technical writing students. They also assist the unit in the assembly of group test and field test packages.

The programming unit employs a team effort in the development and production of every product. Some of the results of the early individual tryouts made the necessity of a team effort crystal clear. The assumption of multiple duties by each member resulted from a unanimous desire for higher quality and increased efficiency.

The founding theory of the products of the Materials Development Unit is that they must be student oriented and student proved. With this theory as a base, the work of the unit can be best illustrated by the following operations chart.

(Show slide of operations chart)



MATERIALS DEVELOPMENT UNIT

OPERATIONS CHART

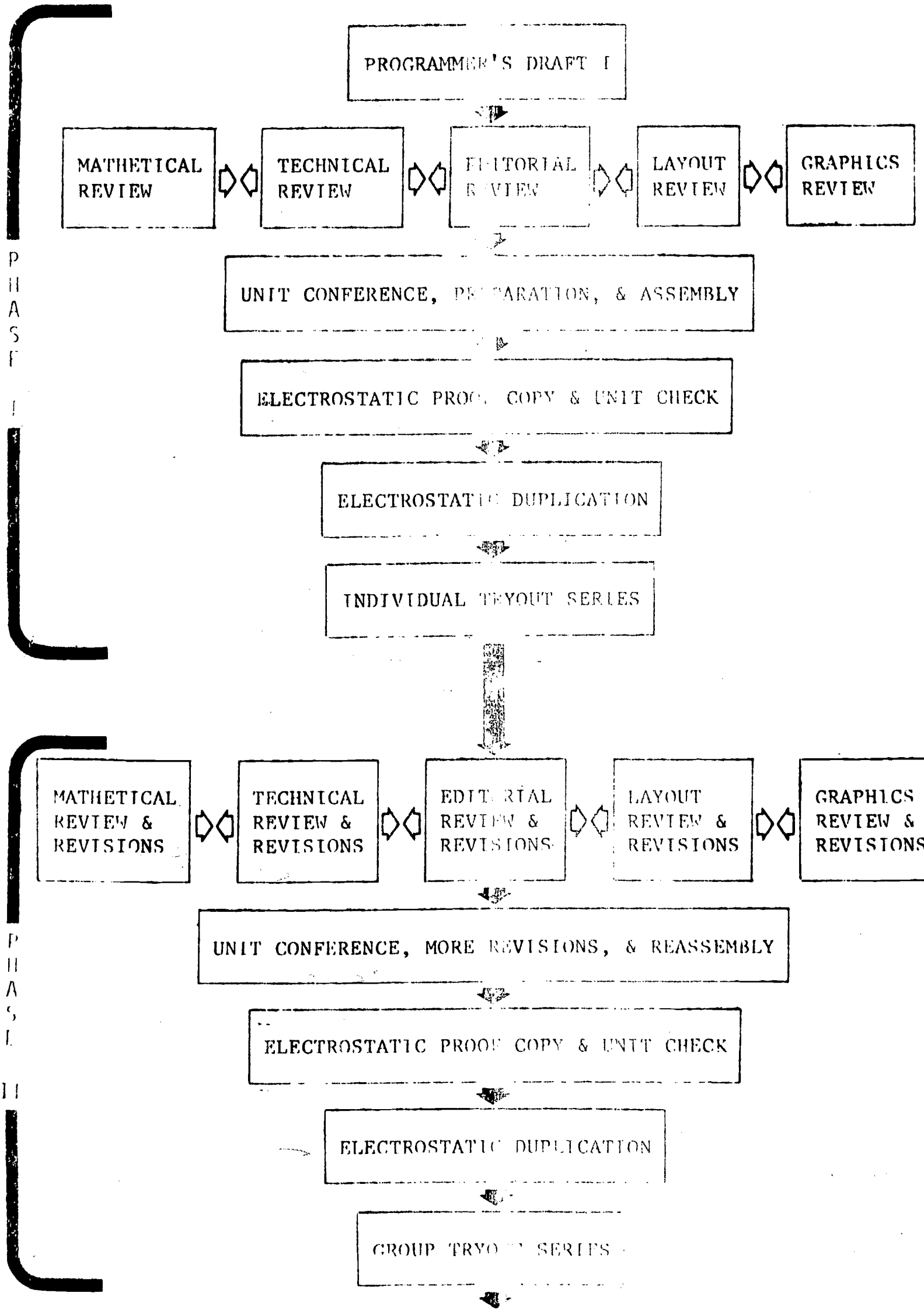
The circular form of the chart illustrates the continuous interaction of the unit members in the creation of an instructive product. The programmer is the center and cornerstone of all programming activities. Since a mathetical lesson is a tutorial medium, the programmer must communicate with the student in every aspect of the lesson. So must the other members of the programming unit.

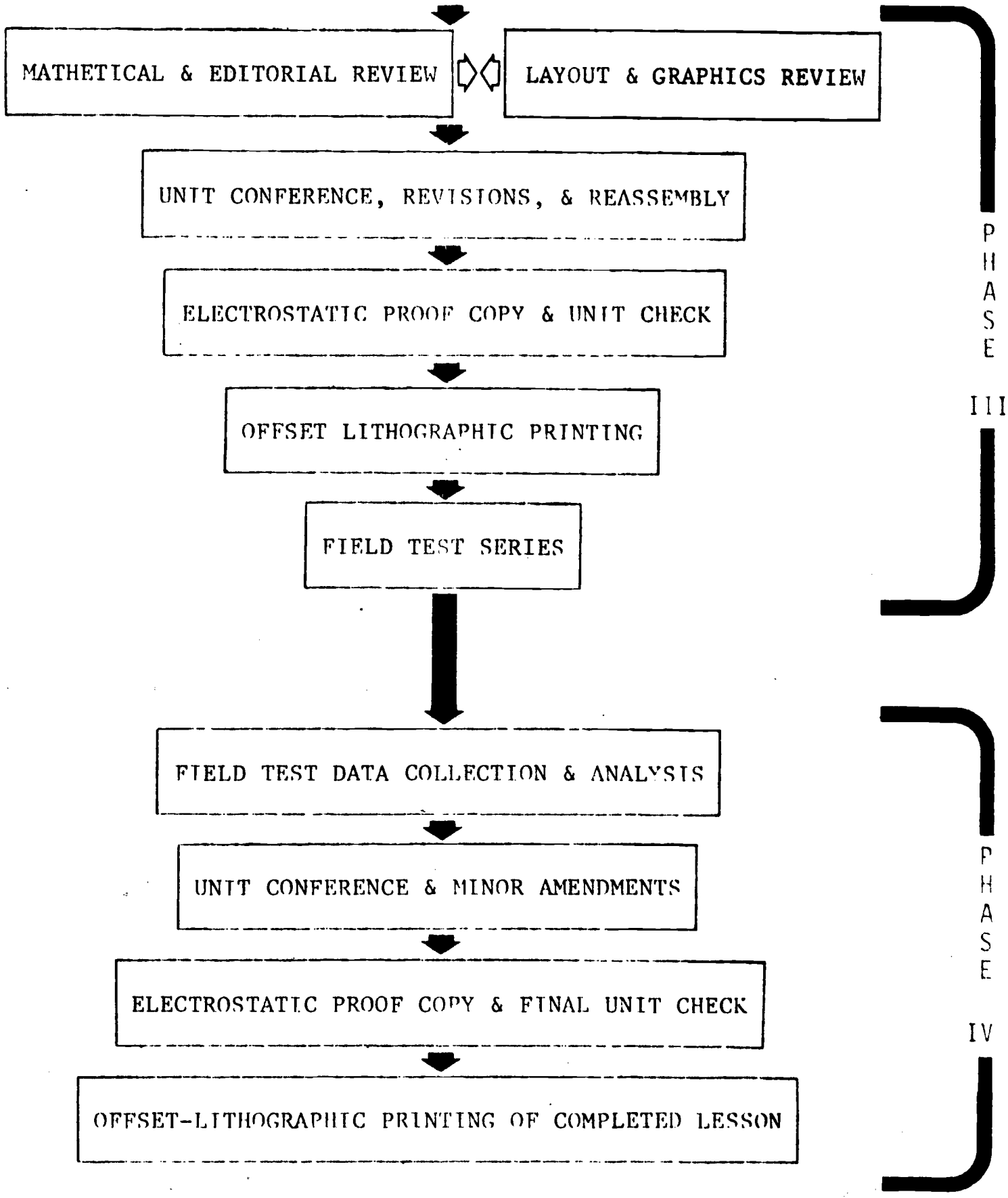
The observer will likely note that the subject matter specialist and the tryout student are included in the unit operations. In most cases, our subject matter specialists are vocational project instructors. They are valuable temporary members of our team because they are skilled in instructive techniques, and are master practitioners of their trades. The tryout students provide important feedback about the unique vocabulary and behavior aspects of the student population.

The unit has evolved a fast route of flow for mathetical lesson development. However, the unit has intentionally avoided the formation of rigid rules in order to maintain a maximum degree of originality. Our development and production process appears to best meet the needs of our type of programming unit. The following general flow chart illustrates our process.

(Show slide of general flow chart)

MATERIALS DEVELOPMENT UNIT
LESSON DEVELOPMENT & PRODUCTION
GENERAL FLOW CHART




MATHETICAL & EDITORIAL REVIEW
LAYOUT & GRAPHICS REVIEW
UNIT CONFERENCE, REVISIONS, & REASSEMBLY
ELECTROSTATIC PROOF COPY & UNIT CHECK
OFFSET LITHOGRAPHIC PRINTING
FIELD TEST SERIES
PHASE III
FIELD TEST DATA COLLECTION & ANALYSIS
UNIT CONFERENCE & MINOR AMENDMENTS
ELECTROSTATIC PROOF COPY & FINAL UNIT CHECK
OFFSET-LITHOGRAPHIC PRINTING OF COMPLETED LESSON
PHASE IV

The programmer's actions from the selection of his subject matter through the completion of his first draft have been discussed by my colleagues, Harless and McGaulley.[3] Thus, it is expedient to begin the discussion of our development and production process at the completion of the programmer's first hand-written draft. For the sake of convenience, this chart is separated into four phases.

The observer will note from the chart that the programmer's first draft is subjected to five review processes in Phase I as follows: mathetical, technical, editorial, layout, and graphics. Usually, these reviews are performed by the chief programmer, subject matter specialist, editor, production assistants, and artists, respectively. It should be noted that embryonic stages of this first draft would have undergone revision treatments by these same reviewers. After the Phase I reviews are completed, a joint conference is held during which suggestions and decisions are made concerning the composition of the first tryout lesson. Immediately following this conference, the production assistants and the artists prepare the lesson for tryout. The duplication of Phase I lessons is usually accomplished by an electrostatic copying machine.[4]

Usually, individual tryouts are conducted in sets of three, with students of low, medium, and high abilities. The review and revisions step of Phase II will determine if the lesson should be phased back for further detailed work and more individual tryouts.

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[3] J. H. Harless, "The Two Meanings of Mathetics"
Michael T. McGaulley, "Mathetics in Industrial and Vocational Training"

[4] These subjects are discussed in detail in a report now in progress entitled "Shortcuts in the Production of Mathetical Programs," Samuel J. Cassels III, with J. A. Crosby, B. F. Harigel, D. O. Taunton, Jr., and R. R. Truitt.

The Phase II unit conference is a very important step because the first set of detailed decisions are made about revising the lesson. These revisions are carefully and promptly carried out by the staff.

Phase II duplication is usually accomplished by an in-house offset-lithographic press and by utilizing an inexpensive short run electrostatic offset master.[5]

Group tryouts of Phase II are usually conducted with four to eight students testing a lesson simultaneously under simulated classroom conditions. Our unit has tried to develop certain vocational lessons to the point where they can be successfully group tested by an entire vocational class at an opportune time in their course study. Such a tryout not only tests the lesson under excellent classroom conditions, but usually provides a later indication of the lesson's effect on the progress of the class.

At the completion of the Phase II group tryout, an important unit staff conference is held to decide what should be done to prepare the lesson for its first field test. During this conference, every facet of the lesson is discussed, including possible problems in field testing. Preliminary plans are then made, and the field test preparations are begun. When appointments for field tests are confirmed, the necessary number of copies are collated, bound, and packaged.[6]

Field tests are conducted in a manner similar to the group tryouts with the exception that a detailed orientation is given to the students prior to the field test, and that extensive population data is gathered prior to and during the period of the field test.

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[5] See: "Shortcuts in the Production of Mathetical Programs." Samuel J. Cassels III.

[6] Ibid.

These population data are analyzed at the completion of the field test, and the results assist in the evaluation of the field test results. Ideally, no changes should be made in the field test edition of a lesson. Since few products of man are flawless, minor amendments are provided for before the completed lesson is published. Such minor amendments consist of very small changes in grammar, punctuation, and the like.

Sometimes a field test will reveal unique characteristics about a lesson. Such data should be included as a part of the lesson description. If a field test ever reveals major weaknesses, a detailed review and analysis is undertaken immediately.

The printing process for completed lessons consists of high quality printing work. Therefore, the preparation of all copy for this edition should be as exact as the production assistants and artists can make it.

It should be noted that these general procedures will vary according to the problems raised by each lesson. For this and many other reasons, each lesson should be treated as an individual case by the programming unit. We use the term INDIVIDUALIZED LESSON on every cover to emphasize that each lesson is unique in its design population, in its contents and specifications, and in the way it was created.

The most common procedural variations occur when the first individual tryout results indicate that lessons either communicate very well or virtually fail to communicate at all. In the former case, a preliminary group tryout is usually held immediately to test the reliability of the good news. If the preliminary group tryout is equally successful, indicated revisions are quickly made, and the lesson is retested as soon as possible. Further confirmation accelerates the lesson into a field test. Regretfully, our unit has experienced only a few successfully accelerated

lessons to date. Due to the knowledge we gained in 1965, we anticipate achieving substantially more success with accelerated lessons in the near future.

If the first individual tryout fails to communicate with the student, the lesson is phased back to the programmer for reanalysis and rewriting. This ultimately saves valuable time and money. Such a failure cannot be charged to any lack of ability of the programmer, but rather to an overall underestimation of the learning problem for a certain population.

Other common procedural variations concern warranted shortcuts to determine good exercise and lesson design, time saving reassembly shortcuts to obtain immediate results from individual tryout revisions, extended use of quick person-to-person conferences instead of joint conferences, individual decisions instead of group decisions, and accelerating techniques relating to the physical production of lessons.[7]

At the present time, we use the following general guidelines to determine what accelerating measures and shortcuts to take in a lesson's development and production: the initial teaching ability of the first individual tryout, the class status of the tryout population, and the course demand for the lesson. We also rely on strong, but unscientific intuition.

If adequate facilites exist, tailored procedures and accelerating techniques can enable enable mathetical programs to be created for and installed in a variety of vocational training situations in a relatively short time. No attempt is made herein to state a method of

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[7] The details of these procedures are the subject of a report now in progress entitled "Shortcuts in the Production of Mathetical Programs," Samuel J. Cassels III, with B. F. Harigel, D. O. Taunton, Jr., R. R. Truitt, and J. A. Crosby, Rehabilitation Research Foundation

predicting how much time is consumed in any phase of a mathetical lesson's development because an accurate method does not presently exist to the best of our knowledge.[8] However, a subject of simple sequential behavior of approximately five major steps or less and limited in scope can usually be programmed into an effective mathetical lesson by a unit like ours for a 9th grade population in about 15 working days. This estimate does not consider time for field testing the lesson, perfecting the developed lesson for a specific population, or treating special teaching problems. These factors, together with the other work load of the unit, constitute the major unknown quantities in time prediction.

Our experience in estimating our time needs has been heavily influenced by the inclusion of the technical writing class in certain facets of our operation. Although these young men have contributed much to the effort of our unit, instructional time combined with natural student errors have substantially subtracted from the initial estimate of the class's value to the unit.

As a result of being located within the prison compound, the unit has operated within a variety of negative physical conditions that would not likely exist in any business, industrial, or other "free world" situation.

Our unit has experimented with a wide variety of subject matter and with some of the problems of teaching an inmate population. These efforts have consumed a considerable amount of time that would have been ordinarily devoted to production efforts.

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[8] A generalized time study, job estimation, and cost analysis is planned by the author for the near future.

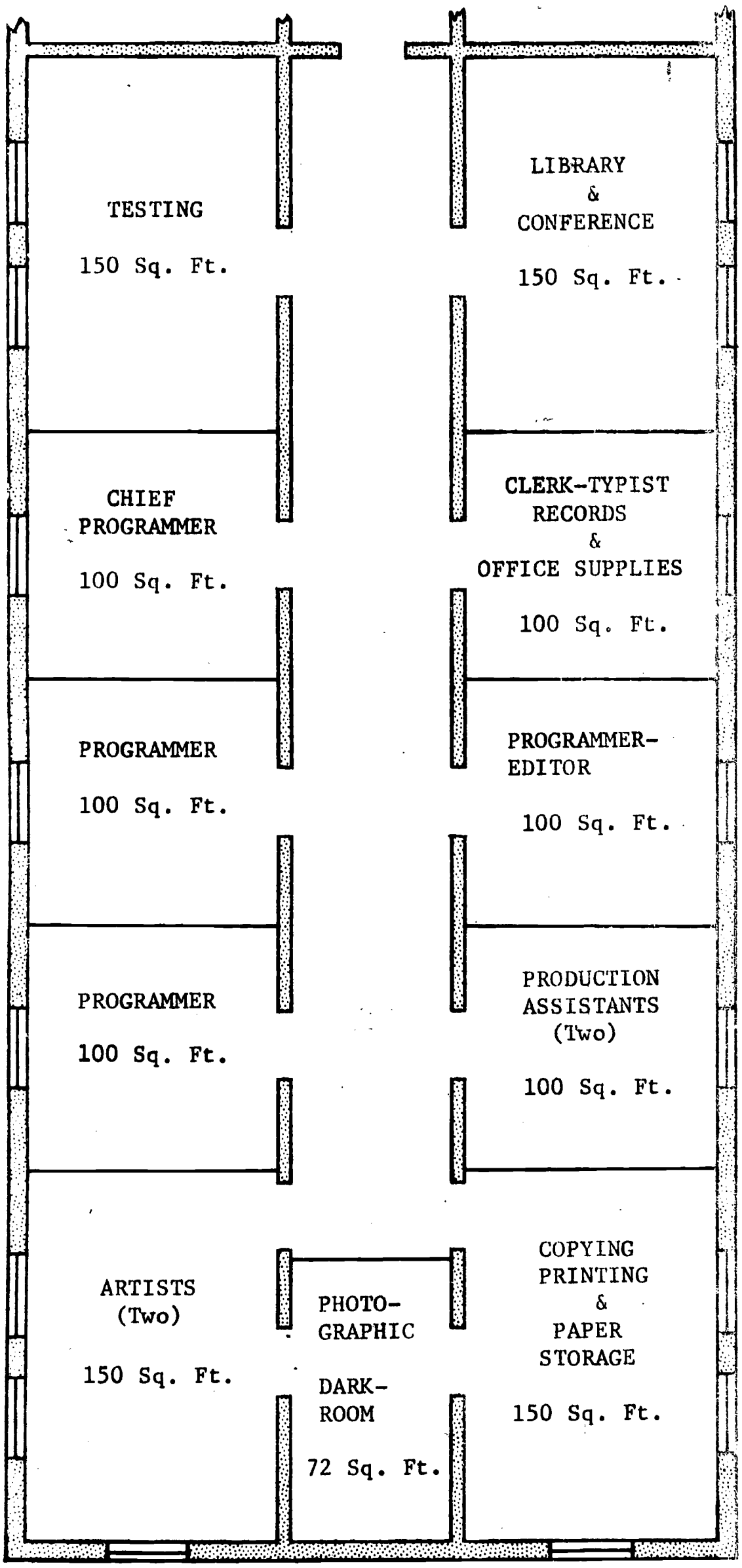
Therefore, we do not feel that an analysis of our time factors would be of substantial value to other units at the present time. We do feel that a development and production period of several weeks is a relatively short time in the field of programming. This does not mean that any mathetical program can be developed and produced in several weeks. It does mean that many subjects can be programmed into a mathetical lesson within a short period.

Mathetical programming units can usually function equally well inside or outside a training body.[9] Since a mathetical lesson should approximate the actual job environment as much as possible, our programming unit is particularly fortunate to be located in the very midst of the six vocational environments which embody most of the subject matter for our current activities. In general, any mathetical programming facility should be able to function efficiently as a separate body as long as such facility does not suffer geographical isolation from the student population, subject matter specialists, and sources of the subject behavior. Our experience has shown that a mathetical program that teaches a vocational subject can be developed by an in-house unit in a relatively short time, with a few staff members, and with a modicum of office space, equipment, and other overhead expenses. Our staff presently occupies some 691 square feet of office space for its entire operation. We have been cramped for space and our efficiency has suffered for this and for similar reasons. Therefore, we recommend that programming units like ours occupy office areas similar to that illustrated by the following diagram.

(Show slide of diagram)

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[9] For a description of these units in the United States, see Michael T. McGaulley, "Mathetics in Industrial and Vocational Training."



SAMPLE OFFICE SUITE

FOR

IN-HOUSE PROGRAMMING UNIT

This suite contains 1,272 square feet of usable office space. The hall area is not included.

Note the following characteristics:

1) Can be located in wing of office building;

2) Secluded darkroom formed by closing end of hall;

3) Suite has door for extra privacy.

The size and layout of this suite is presented as a general example of a desirable office area for our type of programming unit. An even more desirable arrangement would include slightly larger offices with connecting doors.

We highly recommend that a programming office suite (and each of its offices) be both private and quiet, and that an interoffice telephone or other communication device be installed in each room. We also recommend that such noise limiting appointments as are financially feasible be installed throughout the suite.

Since programming activities require a maximum degree of concentration by both staff and tryout student, an in-house office suite should be as secluded as possible.

Our process of developing a mathetical lesson or other programmed material has been and is presently geared to vocational subjects, and particularly to those that involve a sequential overt behavior. However, our development process can be readily applied to all subject matter because no step in research, analysis, design, testing, or production has been eliminated.

Because of the accelerating capabilities of our process, and the relative brevity of the mathetical program, lessons that are needed immediately can be developed rapidly and successfully if sufficient staff time and facilities are made available.

The cornerstone of our development process is the ability of an individualized student oriented lesson to be rapidly and accurately student proved. For this cornerstone to exist, salient results of tryouts and field tests must be accurately and readily obtained. Many avenues are open to a mathetical programming unit in preparing tryout editions of an individualized lesson. Because our programs are genuinely individualized and because our

unit utilizes accelerating techniques, we elected to produce our first tryout editions in a form that embodies the programmer's concept of the finished product. This is in keeping with our approach to individual tryouts--the individual tryout should serve to confirm the lesson plan, estimates of operant span and exercise design, and all other important aspects of the program. In other words, the research, analysis, and design activities of the programmer should effectively preclude major failures of the first tryout. If a mathetical programmer cannot rightfully expect initial success from his efforts, then his first tryout would be no more than a shot in the dark. This would doom mathetical programming activities to failure at the very outset.

We have discovered that it is not necessary to produce individual tryout editions in a polished physical form. To the contrary, we have determined that even an almost crude edition will prove or disprove the programmer's basic lesson design. Therefore, to confirm the most important aspects of a lesson at the earliest possible time, we have adopted a policy of producing the individual tryout editions without any time consuming finishing touches.

Group tryout editions include many physical improvements, while field test editions incorporate all planned refinements.[10]

We have been able to overcome our natural strong feelings about our first tryout editions and subsequent editions by constantly keeping this fact in mind--the student is always right! The truth of this statement has been proven again and again. And the knowledge of this fact

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[10]The details of these production procedures are discussed in a report now in progress entitled, "Shortcuts in the Production of Mathetical Programs," Samuel J. Cassels III.

has enabled every member of our unit to maintain a high degree of objectivity.

Since the programming unit produces each tryout edition according to a detailed set of objectives that we define in behavioral terms, any deviations from the desired behavior will be immediately apparent upon the completion of the lesson by the tryout student. Thus, by taking carefully selected shortcuts in production work and by trying the lesson out as a complete item with definite results under close observation, our lessons can be rapidly and accurately student proved.

With close attention to details, our development process often produces some unusual tryout results. The first set of individual tryouts will often reveal important facts about the student population previously unknown. For example, the previously tested arithmetic abilities of a certain student population showed that the population should be able to negotiate a simple equation with little or no difficulty. A short programmed lesson was developed that utilized a simple equation, after the equation itself was tested for clarity by several students. But when the lesson itself was tried out by a larger number of students, we discovered that the lesson failed to teach certain students who had been "dropouts" from school or who had otherwise failed to gain an adequate education. Most of these students lacked a conventional practice in arithmetic. This proved once again that the ability of these students to perform a prerequisite behavior quickly and accurately was as important as their basic knowledge of the prerequisite behavior. But the unusual thing revealed by this tryout was the appeal of the lesson design to these students, even though these students could not adequately negotiate the behavior. Laboriously and tenaciously, students worked

through the lesson with a determination seldom witnessed. Many of the interest stimulation factors in this lesson were due to the efforts of our chief artist who skillfully illustrated the simple equation with three dimensional drawings. Thus, we gathered valuable data about this art work that might have been suppressed by another development process.

The mathetical artist strives to elicit the definite, productive learning response from the student that has been carefully planned for by the programmer. The well drawn mathetical illustration will stimulate the student to accurately imitate that portion of the mastery behavior that is being graphically presented. Even though the aforementioned lesson failed to teach certain students, it was an overwhelming success with students who could negotiate a simple equation.

In addition to unusual tryout results, many types of valuable data are automatically accumulated by the development process. Since each change is carefully considered and agreed upon by the programming staff as a whole, isolated errors in lesson design are most unusual. When errors are made, they are usually pointed out by a prominent deviation in student behavior.

Individual tryouts primarily serve to correct major errors. Group tryouts primarily serve to correct minor errors. Field tests primarily serve to prove the validity of a lesson for a large population and to reveal any special specifications of a lesson. The automatic accumulation of data is pursued through every phase.

In the case where a subject being programmed is of an introductory nature or has few, if any, prerequisites, the data collected by our process can sometimes enable a lesson to be simultaneously produced for slightly different populations. For example, a simple subject matter

that is generally applicable to two or more vocational courses can usually be separately tailored into a lesson for each course by utilizing items peculiar to each vocation. Such a procedure allows a programming unit to save valuable development and production time. Of course, if the subject populations have any major differences, it would be necessary to develop individualized lessons for each population.

Our streamlined production process enables us to incorporate revisions without undue loss of time. A rigorous mathetical editing procedure, together with a detailed grammatical editing procedure, provides for scientific and efficient revisions after each tryout until the final field test has been reviewed and approved.[11] The development editions can be validly produced and tested if the physical definition of the printed product is clear and no distracting factors exist such as faded print, ghost images, and lack of opacity. The fine details of the printers art should be saved for the finished product.

The mathetical lessons and other training materials that are being created by our unit are so designed that they can be readily integrated into the existing curricula of our vocational project or those of similar vocational schools. Our development and production process enables us to rapidly tailor programmed lessons for a vocational or related curricula.

As one examines any phase in the creation of a mathetical lesson, the major point to remember is that the procedures followed for a particular lesson are those procedures, however unique, that will best lead to achieving the teaching objectives of the lesson.

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[11] These procedures will be discussed in detail in a future paper.

We do not claim that our procedures are the ultimate in efficiency. To the contrary, we believe that we have developed an efficient beginning that we can continue to improve in the future.

We welcome the challenge of our future. We have examined our experiences of 1965, and have gained a new determination to solve the problems we have heretofore failed to solve, and to meet more difficult challenges than we have previously met. We are confident that our future efforts can be more effective and that our services can be increased.

In closing, the Materials Development Unit of the Rehabilitation Research Foundation of Alabama extends an invitation to inquiries about details of our activities.

"Mathetics: The Ugly Duckling Learns To Fly"

by J. H. Harless, Chief
Materials Development
Rehabilitation Research Foundation

This paper is intended to be a partial answer to numerous queries concerning mathetics[1] received by the author. These questions can be summarized:

"Whatever happened to mathetics?"

"What is mathetics?"

"What did Gilbert mean when he said ...?"

"What is the difference between mathetics and normal (sic) kinds of programming?"

As is consistent with good practice in mathetics and programmed instruction, an attempt was made to diagnose the exact "training deficiencies" of the "student" population before this paper was written. Over 200 questionnaires were sent to last year's NSPI Convention attendees. Questions pertinent to this report were:

"Have you ever seen a mathetical program?"

"If so, what were the titles?"

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[1] For additional information on the mathetical technology, see the following papers available from the Rehabilitation Research Foundation, Elmore, Alabama. J. H. Harless, "The Two Meanings of Mathetics"
Michael T. McGaulley, "Mathetics In Industrial And Vocational Training"
Samuel J. Cassels III, "The Development And Production Of Mathetical Programs: A Case Study"

"What are the major characteristics you have observed or heard about the mathetical system?"

"Are there any specific things you would like to know about the mathetical system?"

One hundred and four questionnaires of the 200 were returned.

"Have you ever seen a mathetical program?"

Yes:	51
No:	49
Don't know:	4

"If so, what were the titles?"

No answer:	5
Samples:	18
One:	22
Two or more:	20

"What were the major characteristics you have observed or heard about the mathetical system?"

Even though less than half admitted ever having seen a mathetical lesson, all but ten responded to this question.

The most frequent, and usually the only, comment was, "Mathetics teaches backwards."

"Are there any specific things you would like to know about the mathetical system?"

The most frequent responses were:

"A simple explanation of what it is."
"What are the differences in mathetics and other approaches?"
"A guide to writing mathetical frames."

Several things are obvious, if these one hundred and four respondents are representative: A. Very little is known about

the mathetical system. B. What is known is a misconception: mathetics is a different format for presenting frames; that is, arranging them in backward order. C. Format alone characterizes programmed instruction of any kind.

What Mathetics Is

Just as it is ridiculous to characterize linear programming as a process of breaking subject matter down into small frames of information, it is even more erroneous to describe the mathetical process as "presenting frames backwards."

The ultimate format of a mathetical lesson is unknown at the beginning of the mathetical process. It is our contention that there are too many variables in the nature of the behaviors being taught, the characteristics of the intended population, and the environmental and curricular setting to be able to state what a mathetical training vehicle will "look like" before a detailed and systematic investigation is undertaken.

This systematic investigation of a training task is the broadest definition of mathetics. The details and implications of this definition are considerable.

Mathetics is a complete training system. It is a step-by-step guide for the lesson writer's behavior to insure that he has considered each element of the training task, has examined and noted numerous facets of the learning theory as related to his particular training task. In short, mathetics is a systematic and documented procedure for looking at behavior to determine the most

efficient and effective method for changing behavior.

This "scientific eclecticism" has resulted in a rather rigorous procedure in recent years. Procedures described by Gilbert[2] are still used in part, but subsequent research and trial have dictated revisions, additions, and subtractions. The most glaring example of these changes is the de-emphasis on the chaining of behaviors, probably the most controversial and best known teaching strategy recommended in Gilbert's original treatise.

Although a comprehensive written document still does not exist, the following is the general procedure employed by the mathetical unit of the Rehabilitation Research Foundation.[3]

Occupation Analysis[4]: Given the delimited domain of an occupational title or subject matter area and a general design population, the matheticist, with the aid of a subject matter specialist and references, lists the tasks that make up that domain. In this initial step, the matheticist is interested only in the overt behaviors or the physical products of behavior. (See Appendix A.)

Task Selection: Each task in the list is examined in two phases in the form of a series of selection criteria questions.

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[2]Gilbert, Thomas E., "Mathetics: The Technology of Education," Journal of Mathetics, Vol. 1, No. 1, January, 1962.

[3]This procedure is similar to the system employed by the Instructive Communications Unit of the Communicable Disease Center, another major producer of mathetically oriented materials.

[4]This procedure was designed for the examination and reconstruction of repertories in the industrial and vocational areas, but is applicable to virtually any domain.

Phase I: A. Can a majority of these students presently perform this task to a minimal level without training?

B. Do adequate training materials exist that "teach" this task as a unit.

If the answer to either of these questions is "yes," the task is eliminated from further consideration.

Phase II: The remaining tasks are listed and the following questions are weighted and asked of each task:

A. Is the instructor unable to teach this task to an acceptable level with only one group demonstration?

B. Is this a genuine training problem?[5]

C. Are there many stimulus generalizations?

D. Can the behaviors be simulated economically?

E. Is the method for performing this task relatively constant?

F. Will training materials on this task have wide use.

G. Is this a basic learning problem?[6]

H. Is there relatively common agreement on the method of performance of this task?

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[5] That is, does the student need to know, recall, and perform this task; or would a checklist, written instructions, etc. fill the need; or is it a motivational problem?

[6] Or is it contingent on many subskills?

I. Can training material on this task be economically evaluated?

The perfect candidate for a mathetical lesson would have all "yes" answers to these questions. However, the tasks are then listed in priority for treatment.

Task Analysis: Although the task analysis is much too involved a procedure for discussion here, generally the matheticist breaks down the highest priority task into the "products" of the behavior of the task and describes it according to:

A. The criteria of acceptable performance (in terms of time, completion, and accuracy).

B. The small steps of performance of the task.

C. The related information that will facilitate the performance and generalization of the task.

D. Special difficulties experienced by the subject matter specialist in teaching these behaviors to the design population. (See Appendix B.)

Population Analysis: The matheticist discovers all he can about the design population, reading level, math skills (if applicable), prior experience, age range, general intelligence and cultural background.

Training Deficiency Analysis: The task analysis is compared to the population analysis to further define what is to be taught. This analysis should answer the following questions:

A. "Does this task require many sub-lessons (successive approximations to be presented as sub-lessons in a package)?

B. "Will additional diagnostic tests be required to determine the precise deficiences of individual students?"

C. "Will it be possible to prepare one lesson for the task with different 'tracks' for further treatment of individual differences?"

Efficiency Analysis: The order, the possibility of hidden discriminations, the extent of generalization, and omissions of any steps as given by the subject matter specialist are examined. The matheticist does this by performing the behavior himself, noting his own behavior, experimenting with the order, reformulating, testing etc. The matheticist examines references to determine if there is any additional information not gained from the subject matter specialist.

Training Objectives And Criteria Exam: The matheticist uses an approach similar to the well-known Mager system[7], but with special emphasis on describing the restrictions and limitations of the lesson. At this point the matheticist and the subject matter specialist(s) translate the objectives into a mode of evaluation.

Prescription of Behaviors: The behaviors listed in the steps of performance and the pertinent covert behaviors are written

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[7] Mager, Robert F., Preparing Objectives For Programmed Instruction, 1962, San Francisco: Fearon Publishers, Inc.

in stimulus-response terms. This "behavioral blueprint" expresses the chain and subchains of the behavior and all the discriminations the student must make. The prescription precisely identifies the discriminative stimuli and the responses they occasion. (See Appendix C.)

Generalization Analysis[8]: Each discriminative stimulus is examined to determine the smallest number of instances of the stimulus that should be represented in the lesson to allow for maximum generalization by the student.

Competition-Facilitation Analysis: The matheticist compares each operant of the prescription to every other to determine the interactive characteristics of the behavior. He notes intra and extra lesson competition and facilitations in an effort to determine the most effective order of presentation of the behaviors and to spot special problem areas that will require some additional teaching strategies[9]. (See Appendix D.)

Estimation of Operant Span: On the basis of all foregoing work, the matheticist reconsiders and rewrites the prescription to express the largest step toward mastery the student can take at one time. This is done by combining adjacent operants of the

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[8] Detailed procedures for the performance of this and subsequent analysis have been worked out, but are too lengthy for presentation here.

[9] Chaining is an example of a strategy the matheticist may employ on rare occasions. The more common strategies include the use of mediation (a special class of mnemonic), additional prompting exercises, and the maximum use of illustrations.

prescription according to the difficulty of the behavior for the design population, the characteristics of the population, the problems discovered in the analysis of the prescription, and other factors noted by the writer or indicated by the subject matter specialist. This conception of operant spans will be discussed later in the paper.

Lesson Plan: The matheticist lists the operants with their new "spans" in the sequence he has decided to teach them. This lesson plan is written consistent with the philosophy of the "exercise model" whereby each operant is demonstrated to the student in one exercise, prompted to performance in a second, and released to perform the operant in a third without cues.

One exercise may contain a demonstration, a prompt, and a release of three different operants, contingent on the findings of the analysis. In any event, all operants are released for performance by the students in their correct sequence at least once.

Lesson Construction: Following a rather precise set of guidelines, the writer constructs each exercise called for by the lesson plan: represents the discriminative stimulus (S^D); locates the response locus and writes instruction on the performance of the response (S^I); draws attention to the discriminative stimulus (S^A); classifies the discriminative stimulus (S^C); sets the exercises in context with the rest of the behaviors being taught (stimulus complex); allows the student to perform the response in presence

of the demonstration (S^F). As mentioned, the exercise may call for two additional functions: a prompt of a previously demonstrated behavior (S^P), and/or the uncued production of a previously demonstrated and prompted operant (S^L). (See Appendix E.)

The remainder of the mathetical process is very similar to the try-out and revision cycle used by conscientious programmers. Each draft of the lesson is tried out on representatives of the design group and revised until the writer is reasonably confident that the lesson achieves the training objectives.

The lesson is field tested on large numbers of students under the actual conditions of intended use.

What Is Different About Mathetics?

Formerly, there was meaning in contrasting mathetics with programmed instruction, but today the "differences" are isolated to a few concepts and practices.

Perhaps a more correct title for this paper would have been "Programmed Instruction: The Ugly Duckling Is Beginning To Fly." This would surely be the case if one were to examine the professed practices and procedures of many of the progressive investigators in programmed instruction and weld their techniques into a precise system.

Whether this progress is a result of interactive influence of mathetics and programmed instruction or independent growth is

academic and germane only to ego-needs. The happy fact is that some programmers are re-examining, revamping, and progressing.

However, an examination of the literature, promotional pieces, and a majority of even the most recent programs reveals a still faithful adherence to these characteristics of programmed instruction:

1. Small steps
2. Active responding
3. Immediate confirmation
4. Self-pacing
5. Small error rate
6. Logical sequence

Some authors add one more:

7. Operationally defined objectives

This practice continues despite experimental evidence to the contrary on the validity of some of these items. This practice continues in face of few linear programs and almost all mathetical lessons which have been validated and which demonstrate large step sizes, require large amounts of <u>covert</u> responding[10], give little or no immediate confirmation, and are <u>not</u> in normal-order performance sequence.

In spite of "progressiveness" on the part of many linear programmers, mathetical lessons still exhibit some different characteristics on the face, and a vast number in the part of the iceburg

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[10]Most programmers equate "active" responding with "overt" responding.

that the student doesn't see - the rigorous system of analysis employed by mathetical lesson writers.

The major observable difference is the use of the "exercise." The mathetical exercise usually encompasses a double-page spread, but may be several pages long. There is no meaning in a comparison of a frame to an exercise. An exercise represents the largest amount of behavior a student can absorb in one demonstration. One exercise may take scores of frames (in a linear program) to teach, or one frame may indicate behaviors contained in several exercises.

The second observable difference is in the method of confirmation. A mathetical lesson is usually accompanied by an answer book, but not <u>all</u> responses are confirmed. Usually the student is encouraged to check his answers in early exercises of the lesson, and whenever the nature of the responses warrants it. A mathetical lesson recently produced by the Rehabilitation Research Foundation had no confirmation in any form for one edition and a complete answer book for another. No remarkable difference in post-test performance was seen between the two field test groups except that the average time for the answer book group was longer.

Absent, of course, in mathetical lessons are frames of any size; gone, therefore, is the rigidity of format and the boredom of endless blocks of type and blanks so characteristic of linear programs. The matheticist makes a special effort to simulate the behaviors graphically, especially the discriminative stimuli; therefore, the mathetical lesson is usually highly illustrated.

Much time is spent in the design and layout of an exercise to make it attractive and interesting as well as to serve precise functions.

One of the most pleasing differences to the student is that mathetical lessons are characteristically small in bulk. This is due to the increased operant span and the philosophy of greatly delimited domain of the original endeavor.

We have been talking about what lessons and programs look like. The most important consideration, however, is the systematic approach the matheticist takes and the precise attention paid to each analysis. Many programmers profess to perform "behavioral analysis;" usually, a close examination reveals that even the most sophisticated are merely listing generalizations and discriminations. Unfortunately, most programmers begin to write frames as soon as objectives are written and profess to "analyze" as they go along.

The effort that it takes to become proficient in this analytical procedure is self-evident. Whether any programmer, or matheticist for that matter, is willing to expend this extra energy is a factor involved in a larger question than is germane here.

Summary

Mathetics, therefore, is a training system that provides for the trainer: (1) a guide for determining what to teach, (2) a basis for making teaching strategy decisions, (3) a detailed procedure for constructing a lesson.

No matheticist professes to have "the answer." No matheticist feels that he is unique in the universe. Mathetics is constantly undergoing change and will continue to do so until a genuine technology of education is achieved.

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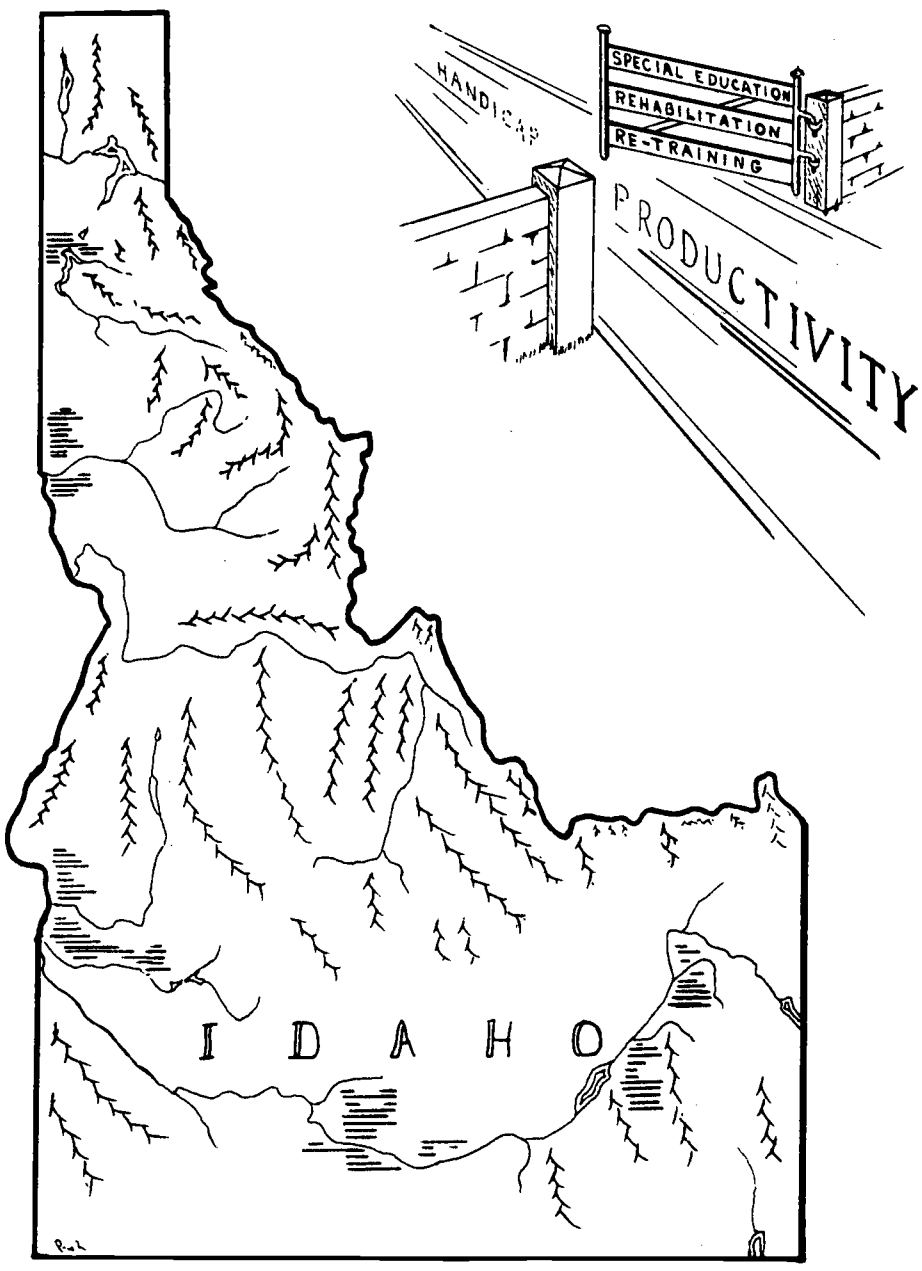
*MENTALLY HANDICAPPED; *PHYSICALLY HANDICAPPED; VOCATIONAL EDUCATION; EMPLOYMENT OPPORTUNITIES; *VOCATIONAL REHABILITATION; SPECIAL EDUCATION; HANDICAPPED CHILDREN; PROGRAM DESCRIPTIONS; STATE AGENCIES; SOCIAL AGENCIES; COMMUNITY AGENCIES (PUBLIC)
IDAHO

Services offered by the following training facilities in Idaho are described and numerical data are given concerning the individuals assisted: Elks Rehabilitation Center, Department of Public Assistance, Lesic Inc., Lincoln School, Idaho Society for Crippled Children and Adults, Inc., Department of Employment, Idaho State Board for Vocational Education, Vocational Rehabilitation Service, Idaho State School and Hospital, Veterans Administration Hospital, Idaho Department of Health, Job Placement for Retarded Workers. Since only a small proportion of the handicapped were being aided, the following recommendations of the Idaho Council on Mental Retardation were endorsed as applicable to all handicapped persons: (1) The Idaho Board for Vocational Education should promote and seek legislative support for especially designed vocational educational programs as well as continue to encourage training in regular vocational training, (2) The state vocational rehabilitation program, now conducted by the Idaho Vocational Service, should include the mentally retarded, (3) The Idaho Board of Health should be vested by the Legislature with the responsibility for vocational rehabilitation, (4) The Vocational Rehabilitation Agency should assist local groups to establish sheltered employment and training opportunities, and (5) The Idaho Department of Employment should provide fuller employment services to the retarded and train counselors to understand the mentally retarded. Additional recommendations were to provide for early identification of the handicapped through the schools, additional work-experience programs to bridge the gap between school and the job, and additional sheltered workshops. A listing of examples of types of jobs which mentally handicapped persons may be employed is included. (JK)

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A Study Of Vocational Training For Mentally and Physically Handicapped



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A STUDY OF VOCATIONAL TRAINING FOR MENTALLY AND PHYSICALLY HANDICAPPED

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Former Research Fellow Grant L. Martin directed this research project, and completed most of the research on which this report is based

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

During the spring semester of 1966, the Research Fellows assigned to the State Occupational Research Unit were given the responsibility of selecting, designing, and carrying through to completion a research project which had implications for vocational education in Idaho. A study of training facilities for mentally and physically handicapped persons in Idaho was selected by Research Fellow Grant L. Martin, and the results of his study are presented in this report.

Mentally and physically handicapped persons frequently require special training facilities and teaching methods if they are to realize their highest potential. Perhaps the most important responsibility of the educational system is to identify early in their school career those students who have some physical impairment or who, for various reasons, are not able to learn as quickly and easily as the majority of students. Early identification and treatment may make the difference between a relatively unproductive worker and one who is a self-supporting, qualified member of the labor force. It has been proven many times over that, with proper training and placement, handicapped persons can make a significant and unique contribution in a wide variety of occupations.

As this publication went to press, we were visited by Mr. Harold A. Taylor, Director of Services for the Blind, Department of Public Assistance, Boise. Mr. Taylor is a member of the Advisory Committee for the State Occupational Research Unit, and several times has expressed an interest in services for the handicapped. Mr. Taylor pointed out that, in addition to training facilities, opportunities for employment need to be identified. The latter should be incorporated as a major objective in all studies concerned with employment opportunities. Especially important for vocational placement of the handicapped are occupations which have a long-term potential.

This publication should be useful to educators and other persons responsible for the education and training of both young persons and adults who may participate in the Idaho labor force. Perhaps this report should be considered an initial effort in this regard, with a more comprehensive and detailed directory to be prepared at a later date. A directory of service agencies and organizations of all types might be more appropriate. The format might be improved if a standard outline were developed with similar items of information presented for each entry. The Idaho Psychological Association, at the annual meeting in April, 1966, appointed a committee to compile a list of rehabilitation services in Idaho. Perhaps this committee can build upon the work completed by Mr. Martin, and produce a more complete and useful directory.

The personnel of the State Occupational Research Unit wish to thank the several persons who contributed information during this study. Several are specifically acknowledged throughout the report. Others may inadvertently have been omitted, but their contributions nevertheless are greatly appreciated.

A STUDY OF VOCATIONAL TRAINING FOR MENTALLY AND PHYSICALLY HANDICAPPED

This report contains the results of a study of vocational training and placement opportunities for handicapped persons in the State of Idaho. Idaho has an estimated 72,000 (Governor's Committee on Employment of the Handicapped, 1966) physically and mentally handicapped persons,[1] based on the estimated state population of 724,000 (Harmsworth, 1966). In comparison, there were 173,696 elementary and secondary students in Idaho in the fall of 1965 (Harmsworth, 1966), some 17,000 of which likely had some handicap.

It may be well to point out that the definition of handicapped used in this report must, of necessity, be broadly construed. There is no one general definition which can adequately be used for all situations. The U.S. Public Health Service, in national surveys, has used the following: ". . .a physical or mental condition that prevented an individual from carrying on his usual duties, such as working, going to school, or keeping house" (Allan, 1958, pp. 14-15). However, this definition limits the term to a small, rather severely disabled portion of the population. It will be seen later in this report that several state agencies classify some people as handicapped even though they are working full time or are attending school. The problem of definition will be considered in more detail after other clarifying information has been presented.

It is not the purpose of this report to review the history, including legislation, of vocational rehabilitation. Pertinent legislation is Public Law 565 which is the 1954 amendment to the 1943 Vocational Rehabilitation Law. The 1943 law provided for funds to be allocated to the states for services for the handicapped. The 1954 amendment provided for new services such as hospitalization without a time limit, the supply of tools and supplies for small business enterprises for seriously disabled persons, and the establishment of special rehabilitation facilities such as sheltered work shops. There are, of course, many other laws which affect the training of handicapped persons, such as Social Security, Medicare, and Veterans' benefits. For a complete discussion of the history of vocational rehabilitation, see Roberts (1965, Chap. 17).

The remainder of this report is devoted to a consideration of opportunities for training and placement of the handicapped in Idaho. Although attempts were made to include those programs established by city and state organizations, there may be community and private groups which provide services to the handicapped which have been overlooked. The method used in this study was to contact the various organizations and determine what

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[1]This figure is obtained by multiplying the estimated state population by .10. The handicapped constitute approximately 10% of the population nationally.

services were offered. The next several pages of this report contain information obtained via correspondence and from personal interviews during the spring of 1966. The name of the agency or organization is given as a heading, followed by a description of the services rendered to the mentally and physically handicapped. A section near the end of the report contains several examples of the types of jobs in which mentally and physically handicapped persons may be employed. A concluding section of the report presents an overview of the work which needs to be done if these workers are to realize their maximum personal development, and make a worthwhile contribution to the Idaho labor force.

ELKS REHABILITATION CENTER[2]

The Elks Rehabilitation Center in Boise does not have a formal training or placement program. Their primary objective is to physically rehabilitate persons with gross physical handicaps. Many patients are referred to organizations such as the Vocational Rehabilitation Service when they are ready for job training. The Center does have several miniature job situations which are utilized for therapeutic purposes, but which also provide the patient with some information about a job area, and serve to evaluate how the patient may perform in a given vocational area. Examples of these miniature jobs are: printing, ceramics, weaving, and office machine operation.

DEPARTMENT OF PUBLIC ASSISTANCE[3]

The DPA works primarily with blind persons, but does provide assistance to other types of handicapped persons. The service provided by the DPA is very similar to that provided by the Vocational Rehabilitation Service (considered later in this report). Essentially, the DPA program includes a complete physical and social evaluation, frequently accompanied by a psychological assessment. Tests for specific job categories are given, most of them being miniature job situation tests. Following this complete evaluation, appropriate training is begun. Training will be subsidized at any suitable location within the state, considering such factors as the client's interests, abilities, and eventual contribution to the labor force.

During 1965 the DPA rehabilitated 45 persons, provided aid to 124 blind persons, provided instruction aid to 60 people, and operated the State School for the Blind at Gooding, which has about 30 students. Coop-

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[2]This information was obtained courtesy of the director, Richard L. Williams during a personal visit to the Center in May, 1966.

[3]This information was obtained courtesy of the director, Mr. Harold Taylor, via correspondence and during a personal visit in May, 1966.

eration between the DPA and the Vocational Rehabilitation Service is evident in that Vocational Rehabilitation frequently maintains the individual in training while the DPA helps maintain the individual's family. It was mentioned above that the DPA works primarily with blind persons. The following vocational areas have been found to work out very well for blind workers: data processing, gas engine mechanic, piano tuning, and electronics. Of course, many blind persons enter professional lines of work.

LIVE, INC.[4]

Live, Inc. is a non-profit sheltered workshop in Boise. The organization was founded by the Department of Public Assistance primarily to provide employment for the blind. It has since developed to include employment opportunities for several different types of mentally and physically handicapped persons. Eighteen persons were employed in the spring of 1966. Limited training is offered in the areas of gas engine and appliance repair. Any necessary evaluation is provided by the Department of Public Assistance, which also utilizes the workshop facilities for job situation tests.

LINCOLN SCHOOL, BOISE, IDAHO

A program (Plumb, undated) is now in progress at the Lincoln School in Boise to give older mentally handicapped students experience in part-time paid employment. The work may be performed after school or during a portion of the school day, with school supervision and credit being given for successfully completed work. The eleven students involved during the past year ranged in age from 16 to 21 years and were mildly retarded or educable.

The objectives of the work-experience program are:

1. To provide experiences which enable students to become self-sufficient and active participants of the community.

2. To provide continuing training in knowledge and attitudes which are needed on the job.

3. To develop habits of good grooming, personal hygiene and social skills.

4. To bridge the gap between school and life in the community as a contributing member.

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[4]Ibid. footnote # 3.

5. To learn that all work is important; society is dependent upon all types of workers regardless of their training.

6. To give each student the opportunity to experience working in an actual job situation, under school supervision.

The work-experience aspect of the program is supplemented with academic work, but emphasis is on those skills which are immediately pertinent and meaningful to the student outside the classroom. The school itself has no formal placement service for students who leave the school, but many jobs have developed simply as a continuation of the work-experience placement. Agencies such as the Department of Employment are also utilized for placement services whenever possible.

IDAHO SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

The primary function (ISCCA, 1965) of this organization is to sponsor speech and hearing therapy. Consequently, the Society does not engage in vocational training or placement. Such services do indirectly assist in preparing the handicapped for some vocation, by minimizing the affects of the handicap. Four speech and hearing centers are distributed about the state at Boise, Lewiston, Twin Falls, and Idaho Falls.

DEPARTMENT OF EMPLOYMENT[5]

The Department of Employment has the main objective of finding suitable employment for handicapped applicants. When further evaluation, training, or financial assistance is needed, the client is referred to some particular agency for the appropriate service. The objective of job placement with any applicant is to match the abilities of the person with the job requirements in such a way that employee and employer achieve mutual satisfaction. The same goal applies to the handicapped applicant, although in this case the help of outside agencies is often solicited. Thus, the Department of Employment works closely with other agencies represented in this report in order to assess the client's employment potential, and to provide medical services, vocational training, and financial assistance.

There are three different criteria (Employment Security Agency, undated) by which the Department of Employment classifies a person as handicapped. First, an individual is classified as handicapped if he has a disability included in the "List of Handicaps" established by the Department. This list includes about one hundred physical disabilities such as stomach ulcer, congenital absence or amputation of one foot or leg, and

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[5]This information was obtained courtesy of Mr. Bob Zimmerman, Department of Employment, in May, 1966, unless otherwise indicated.

asthma. This list includes a very wide range and degree of disabilities. Second, there are five criteria which can be applied to an individual. If one or more of the following questions can be answered "yes," the person is classified as handicapped. Does the impairment or characteristic:

1. Require the applicant to modify or change his occupation?

2. Make it difficult for the applicant to get employer acceptance for suitable work?

3. Require special consideration to prevent the applicant from undertaking work likely to aggravate the disability, or cause him to jeopardize the health and safety of others?

4. Restrict the opportunities for an inexperienced handicapped applicant for entering industry, trade, or profession?

5. Indicate that the handicapped job seeker can improve his employability through the use of the adjustment service of another agency?

Third, a person is classified as handicapped if he has a service-connected disability which is rated 10 per cent or more by the Veterans Administration, or which has resulted in retirement from a branch of the armed services.

In 1965 the Department of Employment (1966) placed a total of 1482 handicapped persons; in 1964, 1302 persons; and in 1963, 1510 handicapped placements were made. About 4 per cent of the total job placements for each of the above years was handicapped applicants. It should be emphasized, however, that the range of degree of disability for those placed on jobs was very great. Any breakdown of placements into specific categories of disability would require study of the files of each local Employment office. The information to be gained by such a procedure did not seem worthwhile for the present study.

IDAHO STATE BOARD FOR VOCATIONAL EDUCATION

The Idaho State Board for Vocational Education (1964; State Board of Education, 1964) has no specific responsibility for training physically or mentally handicapped persons. However, it is the intent of the laws and policies of Vocational Education that training should be available to all persons who desire and need preparation for employment. Practically, this means that there are handicapped persons who have been trained in the Vocational Education program. Thus, other state agencies mentioned earlier frequently provide support for handicapped persons engaged in training at the Area Vocational Schools. There are probably other persons also who would qualify as handicapped who provide their own support while training in an Area Vocational School.

It should be noted that several different kinds of vocational education programs are offered throughout the state, and that handicapped

persons are probably benefitting from these:

1. Some 98 high schools in the state currently offer one or more vocational education programs.

2. Five Area Vocational Schools are currently operating in Pocatello, Boise, Coeur d'Alene, Lewiston, and Twin Falls.

3. Adult education courses are offered locally throughout the state, with the intent of improving and updating vocational skills and maintaining individual stability in employment. Four to five thousand persons annually receive training through this program.

VOCATIONAL REHABILITATION SERVICE

This agency (State Board of Education, 1964) prepares physically or mentally handicapped persons for employment, and assists them in becoming suitably employed. A medical evaluation of each applicant is used to determine his residual abilities and the extent and permanence of his disability. This evaluation is also used to determine the existence of a vocational handicap, and the applicant's employment potential. To be eligible for benefits a person must have a physical or mental disability which results in a substantial handicap for employment, must have a reasonable probability of becoming suitably employed without undue delay; and must be of near working age.

Medical, surgical, or psychological treatment necessary to eliminate or reduce the handicap may be supplied at the expense of the Vocational Rehabilitation Service. The conditions for this are that the treatment must assist the individual to become employable within a reasonable length of time, and the needed services must not be available to the individual from his own resources or other public or private funds. Following restoration, the Vocational Rehabilitation Service will provide training expenses and facilitate job placement for the client. Training can take place in several possible ways.

1. Training in university, college, trade school, or vocational school.

2. Training in local high schools through a cooperative arrangement.

3. Training through correspondence courses.

4. Training while working on the job.

During the two-year period 1962-1964, 1537 persons were actively served by the Vocational Rehabilitation Service. In this same period 767 persons were considered rehabilitated. The numbers of persons rehabilitated during the years 1963, 1964, and 1965 were 363, 404, and 409, respectively. To say that a person is rehabilitated means he has been placed

in a suitable work situation following successful completion of evaluation, restoration, and training.

Although the Vocational Rehabilitation Service serves both physically and mentally handicapped persons, the percentage of rehabilitants who were mentally handicapped constituted only about 3 per cent of the total rehabilitants in 1964. Idaho ranks forty-fifth nationally (U.S. Department of Health, Education, and Welfare, 1965) in this respect. This implies that Idaho has a smaller proportion of mentally handicapped, fewer mentally handicapped persons apply for assistance, or--and this seems most likely--less is being done to rehabilitate those with mental handicaps.

Job placement is achieved through close cooperation between the Vocational Rehabilitation Service and the Department of Employment. In addition, personnel offices of schools and industrial firms are used whenever possible. It should be noted that the Vocational Rehabilitation Service works closely with the applicant, considering his interests, desires, and abilities. At all times, however, the initiative for success or job placement lies with the applicant. The individual must take an active role in contacting potential employers. In other words, the applicant must sincerely desire rehabilitation and productive employment.

IDAHO STATE SCHOOL AND HOSPITAL

The Idaho State School and Hospital at Nampa (undated materials) has initiated a training program in the field of vocational rehabilitation. This program began in 1963 through a grant from the State Board for Vocational Rehabilitation. It is offered to assist eligible retarded adults in achieving gainful employment in their communities, in addition to teaching them to care for their own basic needs as demanded by society. Persons from both the State School and surrounding communities are served in the following training areas:

1. Farm--Training is given in dairy procedures, irrigation, planting and harvesting, and in the use of farm machinery.

2. Service Station--Greasing, oil changing, washing, waxing, tire repair, and servicing of autos.

3. Lawn and Shrubbery Care.

4. General Maintenance--Training for helpers for painters, carpenters, plumbers, and electricians.

5. Vocational Workshop--Training in sanding, assembling, painting, sawing, and use of power tools.

6. Food Services--Training as helpers in commercial kitchens, bakeries, butcher shops, and cafeterias.

7. Laundry Operations.

8. General Housekeeping.

9. Janitorial Service.

10. Special Care--Training to assume some of the institutional work load. However, the training also applies to work in nursing homes, baby sitting, hospital aid, housekeeping, and special nursing care.

Training is offered primarily within the facilities of the school. A few students (presently about 35)[6] are given an opportunity to receive on-the-job work experience in the surrounding community. Occasionally a trainee may stay in a private home on or near the job. Following training the Vocational Rehabilitation Service endeavors to secure job placement for the trainee, and will offer vocational counseling. From 75 to 100 residents are presently in training who have the potential to become self sustaining members of the community. An additional 23 persons are in training who are not school residents but who have been referred in for their period of training.

GOODWILL INDUSTRIES[7]

Goodwill Industries, which had its beginning in 1902, has a large evaluation and training center in Spokane, Washington. Since many Idaho residents have been referred to this center, a description of their program is included in this report. Goodwill Industries hires physically and mentally handicapped persons who are not able to compete in the business world. These people are frequently referred by outside agencies such as the Vocational Rehabilitation Service and the Department of Public Assistance. The first step in the process following referral is a complete evaluation which lasts several weeks. This evaluation includes personal interviews, a case history, medical history, psychological report, and vocational testing. The TOWER system is the primary method used for determining vocational potential.

TOWER (Institute for the Crippled and Disabled, 1963) is the abbreviation for "Testing Orientation and Work Evaluation in Rehabilitation." This system was originated and developed by the Institute for the Crippled and Disabled, located in New York City. TOWER is a testing system which utilizes simulated work conditions. The testing system presently includes thirteen broad areas of vocational evaluation: Clerical, Drafting, Drawing, Electronics Assembly, Jewelry Manufacturing, Leathergoods, Lettering, Mail Clerk, Optical Mechanics, Receptionist, Sewing Machine Operating, Workshop Assembly, and Welding. Within each of these thirteen categories

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[6]Information in this paragraph was obtained courtesy of Mr. Ralph Colton, Teacher, Moscow Opportunity School, Moscow, Idaho, April, 1966.

[7]This information was obtained courtesy of J.J. Chiarello, Director of Training and Rehabilitation, during a personal visit in April, 1966, unless otherwise indicated.

there are numerous subdivisions which apply to many related occupations.

It should be noted that Goodwill performs many evaluations each year for outside agencies. Following evaluation an occupational objective is established, and the person may then be returned to the referring agency which is responsible for obtaining training for the individual. This training may be at a trade school, college, or other institution depending upon the individual's potential and location.

In the event that Goodwill undertakes the client's training, rather than returning him to another agency, the individual is classified as an evaluee and tries out for various jobs at the main plant. When a suitable field is found, the person becomes a trainee and engages in a one or two year training program in one of the following areas: welding, sales, shoe repair, warehouse worker, PBX, telephone operator, office worker, laundry, dry cleaning, sewing, pricing, appliance repair, refrigeration, watch repair, and wood working. Following training, job placement is made through one of the cooperating agencies or private businesses.

Goodwill is a vocationally oriented center and concentrates on the later phases of rehabilitation. Thus, the physical problem has become less acute and the client is able to devote his attention to training for an occupation. The resulting success is indicated by the fact that Goodwill Industries in Spokane, Washington, handles approximately 40 evaluees per year and in 1965 placed 56 persons on jobs.

VETERANS ADMINISTRATION HOSPITAL

The primary objective of the VA Hospital in Boise is to restore the patient to as normal physical functioning as possible in as short a time as possible. Medical evaluation, diagnosis, and therapy are initiated as soon as the patient enters the hospital. After physical rehabilitation is complete, the individual is placed on a job appropriate to his occupational skills. Job placement is coordinated by VA officials who utilize the Department of Employment and private business contacts.

Three major sources[8] of assistance to the individual are available if rehabilitation training is required. First, the Vocational Rehabilitation Service may provide training and financial support. The operation of this agency has been described in detail earlier in this report. The second major source of assistance for training is the new G I Bill-- The Veterans Readjustment Benefits Act of 1966. This bill provides monthly support for veterans who have served on active duty since January 31, 1955. Support will be given for training in any educational institution, including vocational schools, business colleges, and colleges or universities. A third source of aid is from funds established by the Disabled Veterans Act (Public Law 87-815). Financial assistance is provided to

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[8]This information was obtained courtesy of Mr. Charles H. Bond, Counselor, Office of Student Affairs and Counseling, University of Idaho, during a personal visit in April, 1966.

any veteran with a 10 per cent or more disability who can prove financial need. This money is to be used for training oriented toward returning the disabled veteran to the active labor force. Training may be taken at any educational institution, including trade schools and apprentice programs.

Two programs provide financial support for the children of deceased veterans. Such support may incidentally include handicapped persons, and thus might possibly be construed as assistance to the handicapped. Under the War Orphans legislation the son or daughter of a deceased veteran may receive monthly support for training or education. The Dependency Indemnity Compensation provision also provides for monthly support to the mother of children of deceased veterans. In this case, however, the death of the veteran need not have occurred as a consequent of his active military service. Under the latter provision, benefits are available beyond the age of 18 only if the child is attending school.

In summary, the VA Hospital in Boise offers only physical rehabilitation or restoration. Mental patients are referred to other VA facilities such as the VA Hospital in Salt Lake City. Job training is available only through other sources such as the Vocational Rehabilitation Service and G I Benefits.

IDAHO DEPARTMENT OF HEALTH

The primary function of the Department of Health is performing clinical diagnosis and facilitating disease prevention. There are, at this time, no programs for the training or placement of handicapped persons. The Planning section of the Department is currently studying this problem and may have some recommendations or programs to initiate in the near future. The main contribution of the Idaho Department of Health is the operation of the State School and Hospital at Nampa, which was considered earlier in this report. The Idaho Council on Mental Retardation (1966), which is under the Department of Health, has recently published A Plan for Idaho's Mentally Retarded. This plan includes recommendations for training programs for mentally retarded persons in the state. Some of these recommendations will be presented in the concluding section of this report.

JOB PLACEMENT FOR RETARDED WORKERS

The agencies and organizations within the state which have some responsibility for training and placing handicapped persons have been reviewed. It is evident that the type of work a physically handicapped person performs will be very much dependent upon the degree and location of his injury. On the other hand, it is common for the mentally handicapped to be intact physically. What types of work are suitable for those in this general category?

A survey (Strickland, 1964) was made of 436 educable-retarded youth in the Texas Special Education-Vocational Rehabilitation program. The results indicate that these youths were placed in a wide variety of work situations for on-the-job training. The following presentation of these job categories should suggest the possibilities for training and placement which also may be found for mentally retarded persons in the Idaho labor force.

The largest number of persons were placed in Hotel and Restaurant Occupations, the majority of these being Bus Boys and Dishwashers. Other placements included: Cafeteria Counterman, Soda Fountain Clerk, Fry Cook, Restaurant General Help, School Cafeteria Helper, Waitress, Salad Maker, and Dietary Aid.

Retail Trade Occupations were second in number of placements. The most pupils were assigned as Grocery Stockers and Stackers or as Florist Helpers. Other placements were made as helpers in the following: drug store, hobby shop, auto parts store, drapery shop, battery shop, bait and tackle shop, clothing store, and furniture and appliance store. Persons were also assigned as a Gift Wrapper and Meat Cutter Apprentice.

Placements in Auto Service Occupations were made as a helper in the following: Service Station Attendant, Mechanic, Auto Body Repair, Tire Capping, Generator and Starter Repair, Radiator Repair, and Wrecking Yard. Students were also placed as Used Car Lot Attendant, Parking Lot Attendant, and Car Washer.

Personal Service Occupations included were: Beauty Operator Trainee, Barber Trainee, Beauty Shop Assistant, Shoe Repair Helper, and Bootblack. Domestic Service Occupations to which students were assigned were: Janitor, Maid-General, Gardener Helper, and Porter. Medical Service Occupations included: Hospital-General Help, Practical Nurse, and Veterinarian Hospital Assistant.

Placements in Construction jobs were: Painter Assistant, Carpenter Helper, General Helper, Plumber Helper, Electric Company Helper, Brick and Tile Helper, Floor Layer Apprentice, and Tile Setter Helper. For Agriculture and Horticulture jobs students were used as: Farm Hand, School Ground Maintenance Helper, Landscape Nursery Trainee, Poultry Farm Hand, Agricultural Aid, and Tree Pruner.

Positions in Furniture Occupations were: Furniture Refurnishing Apprentice, Upholsterer Helper, and Factory Laborer. Job placements in Cleaning and Laundry Occupations included Cleaning and Pressing Helpers and General Laundry Helpers.

A miscellaneous category included: Moccasin Lacer, General Unskilled Labor, Routeman Helper, Day Nursery Assistant, Fence Erector, Packer of Frozen Foods, Baker Helper, Checker, Washeteria Maintenance, Foundry General Labor, Typist, Stock Clerk in Department Store, Bowling Lane Alley Boy, Textile Mill Laborer, Mattress Factory Helper, Combination Welder Helper, Electric Motor Cleaner, Radio Repairman Helper, Refrigerator

Mechanic Helper, Bottling Plant Laborer, Packer of Picnic Supplies, Operator of Paper Shredding Equipment, Dressmaker, Pocket Turner, Armature Winder Helper, Leather Goods Helper, Shipping Clerk, and Golf Course Maintenance Laborer.

Another list of jobs considered suitable for the mentally retarded is presented below, taken from Peterson and Jones (1964). This list also should provide suggestions for employment which may be found in Idaho.

SALES: Stock Boy or Girl - Stock boy in supermarket. Helper: In meat market, grocery store, produce retail store, drugstore, produce sales (wholesale), department store, appliance store, clothing store, furniture store, hardware store, lumber and building supplies, pet shop, livestock sales. Handyman: Fuel sales.

CLERICAL: Clerical Assistant: In school, advertising. Library Assistant. Helper in stenographic center. Messenger or mail pickup and delivery. Copy boy, newspaper. Wrapper or packer, mail order house.

DOMESTIC SERVICE: Dayworker: Child care, house cleaning, home laundry, handyman, meal preparation.

PERSONAL SERVICE (FOOD): Helper: Restaurant cooking, steam table, dining room, restaurant cleanup, table or counter service, outside customer service, hospital cooking, hospital kitchen cleanup, hospital room cleaning. Dishwasher: Restaurant, hospital.

PERSONAL SERVICE (GUEST/PATIENT): Helper: Guest room service, guest valet service, room preparation, patient service, hospital room cleaning.

PERSONAL SERVICE (RECREATION): Helper: Patron/Spectator service, grounds keeping, animal care, indoor sports halls.

PERSONAL SERVICE (MISCELLANEOUS): Attendant: Washroom. Helper: Barbershop, beauty shop, health salon.

BUILDING SERVICE: Helper: Building cleaning and maintenance, building housekeeping, building watchman, school or church building maintenance, elevator operator, building porter.

AGRICULTURE: Hand: Dairy farm, general farming, cattle ranch, hog ranch, sheep ranch, grain farm, fruit farm (tree), berry farm, farm poultry. Helper: Landscaping, truck farm, chick hatchery. Assistant, greenhouse.

FISHERY: Hand: Shell fishing, fish hatchery. Helper: Fishing boats.

FORESTRY: Hand: Lumbering firm. Helper: Reforestration, Christmas tree farm, maple sugar forest, nut forestry, gatherer of forest greens.

FOOD PRODUCTS: Helper: Poultry dressing, slaughter house, oyster cannery, bake shop, candy factory, dairy products, nut processing plant. Packer: Frozen foods. Assistant: Cannery.

PRODUCTION OF TEXTILES: Helper: Yard goods manufacturing, yard goods and/or clothing manufacturing, clothing manufacturing.

PRODUCTION OF LUMBER AND LUMBER PRODUCTS: Helper: Furniture factory, upholstery shop, toy factory, framing shop, box factory.

PRODUCTION OF PAPER AND PAPER PRODUCTS: Helper: Pulp mill, newsprint factory, box factory, stationery manufacturing.

PRINTING OCCUPATIONS: Helper: Small newspaper, large newspaper, greeting card printing, in printing and binding of books or magazines.

MANUFACTURE OF LEATHER AND LEATHER PRODUCTS: Helper: Leather manufacturing, shoe or boot manufacturing, leather accessories manufacturing.

PRODUCTION OF STONE, CLAY AND GLASS PRODUCTS: Helper: Glass production, brick yard, drain tile and pipe, pottery, cement block plant, stone quarry.

MANUFACTURE OF ELECTRICAL EQUIPMENT: Worker: Electrical equipment production.

MANUFACTURE OF TRANSPORTATION EQUIPMENT: Helper: Transportation equipment plant.

CONSTRUCTION: Helper: Highway construction, dam and bridge work, building construction.

TRADES AND SERVICES: Helper: Cleaning establishment, self-service laundry, rug cleaning establishment, diaper service, service station, car wash, parking garage.

PUBLIC SERVICE: Helper: Road maintenance, garbage or trash collection, park and grounds maintenance, painting and maintenance.

CONCLUSION

The problem of definition was mentioned earlier and subsequent discussion has implied that any general or comprehensive definition is not useful in a specific instance. A handicapped person is a person whose physical and/or mental functioning is at a lower level than the population norm--or at a lower level than would be assumed to be the case if the condition was not present. However, when one particular client applies for rehabilitation or training, his handicap must be considered in terms of his interests, remaining or potential abilities, and his previous experiences.

A variety of Idaho agencies participated in rehabilitation of handicapped persons last year. The Department of Employment made 1482 job placements. The Vocational Rehabilitation Service rehabilitated 409 persons. Approximately one thousand mentally and physically handicapped students are currently enrolled in special education classes throughout Idaho. The Department of Public Assistance aided a total of 259 persons. Approximately one hundred mentally retarded students are participating in the vocational training program at the Idaho State School and Hospital. Live, Inc. presently employs eighteen persons in a sheltered workshop.

By totaling the previous figures it might be concluded that 3268 persons were at some stage of rehabilitation last year, but it must be remembered that there is some duplication of services. By comparing the 3268 instances served by these agencies with the estimated 72,000 handicapped in the state, it is evident that only a very small proportion of the handicapped are being aided. However it must not be forgotten that many persons are served by state and private institutions. In addition, there are those who have already received help and those who are not in such a position as to be in need of rehabilitation.

The population of Idaho in 1970 is expected to be approximately 758,000 (Harmsworth, 1966). This would increase the number of handicapped persons to around 76,000, indicating that current programs will be even more inadequate unless expanded. Recommendations made by the Idaho Council on Mental Retardation (1966, pp. 9-10) in regard to vocational training and employment are very appropriate at this point:

> XXII. That the Idaho Board for Vocational Education promote and carry on, through the public schools, area vocational schools, and other institutions, especially designed vocational education programs for the retarded who can profit from vocational training, that this Board seek legislative appropriations sufficient to carry out such programs.
>
> XXIII. That the Board for Vocational Education continue to encourage training of the mentally retarded in regular vocational training programs in so far as they can benefit from them.
>
> XXIV. That the state vocational rehabilitation program, now conducted by the Idaho Vocational Rehabilitation Service, be given greater scope with the mentally retarded to be fully included.
>
> XXV. That in the event of passage of legislation now pending in Congress making it possible for federal funds for vocational rehabilitation programs to be received by any state agency, the Idaho Board of Health be vested by the Legislature with responsibility for vocational rehabilitation.

The Council feels that vocational rehabilitation services for Idaho's mentally retarded citizens are so underdeveloped and show sufficiently little promise of greater development as to warrant

a recommendation that this function be transferred to another agency of government. The conclusion is based on the findings of the Council's Task Force on Vocational Rehabilitation and Vocational Education and on other studies undertaken in recent years. The Council believes a basic change in philosophy of service is called for. It feels the Idaho Board of Health is best fitted to make that change.

XXVI. That the Vocational Rehabilitation Agency take the lead in assisting and encouraging local groups desiring to establish sheltered employment and training opportunities for the mentally retarded.

XXVII. That the Idaho Department of Employment, through its counselors, provide fuller employment services to the retarded. Knowledge of the mentally retarded--their potentialities and limitations--should be a part of the routine training background of counselors at the various employment offices throughout the state.

XXVIII. That The Idaho Department of Employment give greater emphasis to the finding of job opportunities for the retarded, working closely with appropriate public agency personnel as well as with prospective employers.

The author of this report would concur with these recommendations, adding that these could apply to the entire group of handicapped persons.

Handicapped persons must be identified. By early identification much preventive work can be done. This could be done through the schools if qualified personnel were available. In order to do this the schools must begin programs which will attract school psychologists, special education teachers, etc. to stay within the state instead of going to other Northwest states immediately after completing excellent training in Idaho Universities.

After identification, rehabilitation and training must be provided. Attention should be given to special education opportunities and facilities within the public schools. In order to handle those cases already in existence these facilities must be expanded. Additional work-experience programs must be developed to bridge the gap between school and the job, especially for those who do not adjust readily.

Additional sheltered workshops should be established in Idaho. Goodwill Industries in Spokane has expressed interest in providing assistance in the establishment of a workshop in some North Idaho location. The Southern part of the State could also profit from one or more additional workshops, or expansion of the present workshop in Boise.

As seen earlier in this report, the number and range of potential jobs for the mentally retarded is virtually limitless. With these possibilities in mind, responsible persons throughout Idaho can work toward a total and complete program of vocational training and placement for mentally and physically handicapped persons.

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*LIBRARY SERVICES; *RESEARCH COORDINATING UNITS; RESEARCH TOOLS; *LIBRARY GUIDES

Information from state Research Coordinating Units having or developing libraries was used to plan and improve the Vocational Education Research-Resource Library which has as its purposes to (1) implement the objectives of the program of occupational research and development in Kentucky by bringing together all available library research resources to support a continuing program of vocational education, and (2) facilitate access to the research and resource materials significant to immediate and anticipated needs of vocational education personnel involved in research and development activities. The guide gives the library's location, hours, equipment available for use, staff, services provided by the staff, and instructions for use of library materials outside the library. Materials available in the library are (1) books classified according to the Dewey Decimal system, (2) microfiche from Educational Resources Information Center. (3) verticle file materials such as research proposals, studies, bibliographies, questionnaires, project summaries, and information about projects approved and funded which arranged into the 10 areas, and (4) periodicals. Cooperating libraries and information systems are listed with general statements about their scope. (MM)

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A GUIDE FOR USE OF THE KENTUCKY VOCATIONAL EDUCATION RESEARCH-RESOURCE LIBRARY

1967

A GUIDE FOR USE OF THE KENTUCKY VOCATIONAL EDUCATION RESEARCH-RESOURCE LIBRARY

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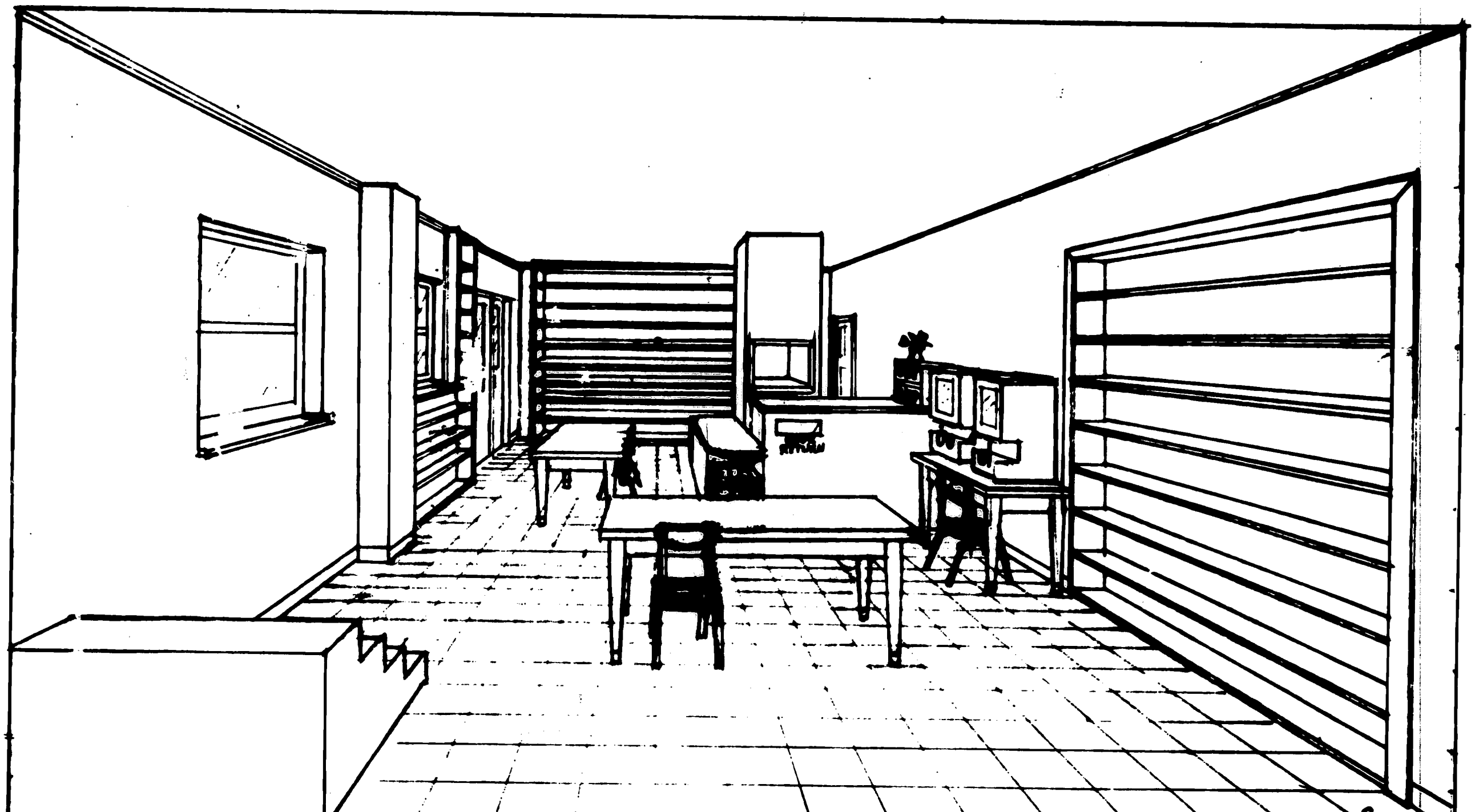
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FOREWORD

The Vocational Education Act of 1963 provided new funds for research and development in vocational and technical education. Perhaps the increase in educational research which followed the passage of the Act has caused the concern for developing new and better systems of information retrieval and dissemination. With the coming of ERIC, it was necessary to purchase new equipment, develop new files, and employ specialists in a new field. But this has been only a part of the increased concern for information systems. For many years, researchers faced the probability that when their research had been completed it would be placed on a library shelf or stored in containers for preserving microfilm. Much of the research would remain on these shelves until other researchers found it in searching for information needed to complete additional research. The alarming fact is that nothing else had been done with the earlier findings. In recent years, there has been an awareness of the importance of educational research. Administrators, teacher educators, supervisors, and others seem to realize the necessity of making decisions based on the findings of sound research.

The Vocational Education Research-Resource Library has been developed as an organ to be used by professional workers in vocational education. No pride will be taken in being able to inventory all of the library materials in the library at a given time. We will be proud to report most of the materials being used, not only by researchers, but also by those administrators and supervisors who can have an impact on improving programs, facilities, and teaching in vocational education in Kentucky. If we can consolidate information which is useful to persons employed in vocational education and make this information readily available, then we believe the library will serve a useful purpose. It is imperative that the results of educational research be made available to persons who can use the results to implement change in vocational education.

Charles D. Wade
Associate Research Specialist
in Information Services
Kentucky Research Coordinating Unit



Perspective of the Vocational Education Research-Resource Library
Taylor Education Building
University of Kentucky

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SECTION I

INTRODUCTION

The Kentucky Research Coordinating Unit was established in June, 1965, as the research and development arm of the state program of vocational and technical education. The primary purpose of the Unit is to stimulate, facilitate, and coordinate vocational education research and training programs, and experimental, developmental or "pilot" programs in Kentucky. In performing this primary purpose, the staff found it necessary to have information close at hand. Much of the needed information was to be found in books and publications in other libraries located on the campus of the University of Kentucky; however, many published and unpublished research studies could not be located and many of the publications in libraries were not available for extended periods of time or at critical periods. As a result, many of the Research Coordinating Unit staff members began collecting materials in their offices. Each person was aware of the materials he had collected, but many times two staff members working on separate projects would collect duplicate materials. The library which was being kept by the Division of Vocational Education, College of Education, University of Kentucky was very helpful in some cases, but no concentrated effort had been made to collect the results of the quantity of research completed in vocational-technical education since the passage of the Vocational Education Act of 1963. With this in mind, the director included as one purpose of the Kentucky Research Coordinating Unit to:

> Establish an occupational research-resource library for use by persons contemplating research, training, development, or evaluation projects related to vocational education. It will be maintained by the research staff for their use in conducting research, providing consultative services, and working with graduate students.[1]

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[1]Carl F. Lamar, Continuation of the Kentucky Research Coordinating Unit, Proposal for Research and/or Related Activities Submitted to the U. S. Commissioner of Education for Support through Authorization of the Bureau of Research (Lexington, Kentucky: College of Education, University of Kentucky, 1966), p 4.

Library Based on a Study

A research assistant was employed to conduct the study, "Development of a Library to Meet the Needs of Vocational and Technical Education Personnel Who Are Engaged in Research." The descriptive survey method was applied in the study to collect detailed information of similar situations in other state research coordinating units. All of the other forty-nine states were sent questionnaires. Forty-three of these states had research coordinating units. Nine of the units indicated that they had special libraries, and others indicated that they were in preliminary stages of organization and would later provide information concerning the development of their library or information storage and retrieval system when available.[2] Information obtained from the study was very valuable in planning for the improvement of the Vocational Education Research-Resource Library and enhancing the effectiveness of its operation.

Purposes of the Library

The purposes of the Vocational Education Research-Resource Library are:

1. To implement the objectives of the program of occupational research and development in Kentucky by bringing together all available library research resources to support a continuing program of vocational education.

2. To facilitate access to the research resource materials significant to immediate and anticipated needs of vocational education personnel involved in research and development activities related to the Kentucky program of vocational education.

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[2]Norma Miller, "Development of a Library to Meet the Needs of Vocational and Technical Education Personnel Who Are Engaged in Research," (unpublished Study for the Kentucky Research Coordinating Unit in Vocational Education, College of Education, University of Kentucky, Lexington, Kentucky), 1967, p 12.

SECTION II

USING THE LIBRARY

The library has been organized to provide materials for vocational education personnel engaged in research and development activities. Although it was designed to be most useful to the staff members, research assistants, and graduate assistants in the Division of Vocational Education, University of Kentucky, it has been established for any person desiring information on vocational and technical education in Kentucky and elsewhere.

Location of the Library

The Vocational Education Research-Resource Library is located in the basement of the Taylor Education Building, College of Education, University of Kentucky. The entrance to the library is through the offices of the Kentucky Research Coordinating Unit or through the offices of the Instructional Materials Laboratory.

Hours of Operation

The library is open from 8:00 a.m. to 5:00 p.m. daily except Saturdays, Sundays, and holidays. Arrangements can be made for use of the library at other hours, but plans need to be made in advance with a member of the faculty of the Division of Vocational Education.

Equipment Available for Use

The library has been equipped with shelves, file cabinets, two study tables and chairs, dictionary stand, and table for a microfiche reader and microfiche reader-printer. A desk and other equipment have been provided for use by library personnel.

Library Staff

The library does not have a full-time librarian; however, an associate research specialist in information services has responsibility for the operation of the library and several persons in the Research Coordinating Unit and the Instructional Materials Laboratory are familiar with the facilities and organization of the Library. One secretary in the Research Coordinating Unit will handle the cataloging of materials and make requests for

new materials to be added to the library. Most of the filing, numbering, and physical operation of the library will be handled by a graduate assistant or student help.

Services Provided by the Library Staff

Because the library staff has only part-time responsibility to the library, the faculty and staff of the Division of Vocational Education, University of Kentucky will be expected to become familiar with the facilities, equipment, and operation of the library. To the extent possible, the library will operate on a self-service basis. Should questions arise while using the library, one of the staff members will be in the area to offer assistance.

Materials not presently in the library may be requested. A file is kept on materials considered essential to research in vocational education. In order to request materials for the library certain information is necessary. The person making the request must indicate the title, author, publisher, price, and year of publication. Free materials will be requested immediately. Orders for other materials will be purchased as funds permit.

Listings of new materials secured by the library will be distributed to the vocational education personnel in the state. Microfiche will be ordered monthly and the professional personnel making use of the library will receive a listing of what has been received. New orders of books will be handled the same way; however, books will not be acquired on a monthly basis.

Using Library Materials Outside the Library

Library materials may be checked out of the library with no time limitation. Persons removing books from the library are requested to write their name on the card in the back of the book and leave the card in the check-out box on the desk. Non-book materials do not have cards, but a sheet located on the desk should be signed to indicate the date the check-out was made and the name of the publication being used. When materials are returned to the library they should be left in the book return box. The person returning the material is asked to mark his name off the list on the desk and return the book card to the back of the book.

The microfiche, microfiche reader, and reader-printer must not be taken from the library except by special request to the Associate Research Specialist in Information Services. They may be taken from the library for special occasions such as workshops, seminars, or demonstrations to groups larger than can be accommodated by the library facility.

SECTION III

ORGANIZATION OF THE LIBRARY MATERIALS

Materials in the Vocational Education Research-Resource Library include books, microfiche, vertical file materials, periodicals and other non-book materials. Research proposals, studies, bibliographies, questionnaires, project summaries, and information concerning projects approved and funded are in the vertical file. Materials are classified, arranged, and cataloged to facilitate access.

The card catalog is located in a metal filing cabinet in the library. It includes cards listing the author, title, and subject of the materials. The card catalog should be used to determine if materials are available in the library, and whether they are on the shelves, in the vertical files, or on microfiche.

Books

The Dewey Decimal Classification system is followed. The classification number designates the subject of the book. Books are arranged on the shelves according to the classification number and are identified in the card catalog by the plain white cards with the classification number in the upper left corner of the card.

Microfiche

Microfiche material is filed according to the ERIC number on the microfiche. There are red banded cards for microfiche in the card catalog with the ERIC number on the left side.

Vertical File Materials

Vertical file materials are arranged into ten areas:

1 Agriculture
2 Business and Office
3 Distribution and Marketing
4 Guidance
5 Health Occupations
6 Home Economics
7 Technical
8 Trades and Industry
9 Vocational Education
10 General

Each of the first nine areas is subdivided into further subject areas. Generally these areas are:

.1 Administration
.2 Legislation and Governmental Action
.3 Facilities and Education - General
  .31 Curriculum
  .32 Teaching Aids
  .33 Teachers and Teacher Education
.4 Effects of Vocational Training
.5 Research
.6 Manpower and Occupational Information
.7 General

The tenth major area, a general file, contains material which is relevant but not directly concerned with any of the nine vocational areas indicated.

Blue banded cards are used to indicate vertical file material in the card catalog. A number on the card will help locate the file containing a publication. The number to the left of the decimal indicates the major area and the number to the right of the decimal indicates the subdivision of the major area. Each file cabinet is labeled with numbers that correspond to the numbers in the card catalog.

Periodicals

Periodicals are displayed on the shelves in the library. Funds are not available for maintaining a large number of periodicals. It is felt that most of the important periodicals are available in other libraries on the campus. Certain research and vocational education periodicals are contributed to the library by members of the Research Coordinating Unit.

SECTION IV

RELATIONSHIP TO OTHER LIBRARIES AND INFORMATION SYSTEMS

The Vocational Education Research-Resource Library was planned to supplement other libraries and information systems and every precaution is taken to not unnecessarily duplicate other easily accessible sources of information. Cooperation and coordination with other library programs that relate to vocational education is necessary if the Vocational Education Research-Resource Library is to collect and provide materials vital to the research effort in vocational education.

Margaret I. King Library

The University of Kentucky has one of the finest libraries in the South and the faculty, staff, and students of the University will want to make use of this facility with its extensive listing of library resource materials. It is essential as a source of bibliographic information.

College of Education Library

Located on the third floor of Dickey Hall, the College of Education Library is available for use by all faculty and students of the University and provides a valuable source of educational books and periodicals.

Other College and Department Libraries

Many colleges and departments in the University of Kentucky maintain a library which contains publications that are of specific interest to the persons in that college or department. These libraries are very helpful when searching for information in a specific area.

Educational Research Information Center (ERIC)

The ERIC system was started by the U. S. Office of Education to provide an easy flow of information across the nation. ERIC produces microfiche copy of various kinds of materials. It includes copy of educational research funded by the Bureau of Research, U. S. Office of Education. A monthly publication, Research in Education, is a catalog listing of studies available on microfiche. It is available in the library. By reading the resume of each study, the staff of the Vocational Education Research-Resource Library can select those studies which apply either directly or indirectly to vocational education.

The Vocational Education Research-Resource Library is also cooperating with ERIC by collecting research materials in Kentucky to put into the system. The materials are sent to the Information Retrieval Division of The Center for Vocational and Technical Education, Ohio State University, which is the ERIC Clearinghouse for vocational and technical education. Selected materials will be forwarded to ERIC Central and may eventually be included in Research in Education.

Vocational Education Program Information System (VEPIS)

The Vocational Education Program Information System of the Kentucky Department of Education is another vital source of information for vocational and technical personnel engaged in research. VEPIS is a system designed primarily for the flow of financial, pupil, and staff information within the Bureau of Vocational Education. Vocational education communications from local school districts will be sent to the Bureau through one of the vocational divisions. The Division of Administration and Fiscal Accounting will handle the data and transmit it to the state financial agencies and to the Division of Computer Services. VEPIS will provide information concerning finances, staff, and students to persons needing such information to conduct research studies and other projects.

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VT 002 230

VT 002 230
The Work-Study Program Under the Vocational Education Act of 1963.

Office of Education, Washington, D.C. Div. of Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan66 4p.

*WORK STUDY PROGRAMS; *VOCATIONAL EDUCATION; *DISADVANTAGED YOUTH; HIGH SCHOOLS; FEDERAL PROGRAMS; FINANCIAL SUPPORT; COMMUNITY AGENCIES (PUBLIC); PART TIME JOBS

The work-study program provides financial assistance, through part-time employment, to students who have been accepted for full-time enrollment in vocational education programs designed for gainful employment. Students must be at least 15 and less than 21 years of age and in need of the earnings from such employment to commence or continue their vocational education. Students work under adult supervision generally as assistants for not more than 15 hours in any week during which classes are in session. In most instances, compensation may not exceed $45 per month or $350 per academic year for each student. Wherever possible, the work-study program is closely related to the student's vocational education program. Some probable job areas are education aide for teachers, typist, receptionist, cafeteria worker, laboratory assistant, library assistant, repairman, and grounds maintenance aide. Developing in the student a sound concept of work, good work habits, good attitudes, and a means of self-advancement is a nonmonetary but real value of the program. In 1965, Congress appropriated $25 million for the fiscal 1966 program. The future of the program will depend on how educators and others rise to the challenge of this innovation in vocational education. (WB)

ED027441

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4 p*

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult and Vocational Education
Division of Vocational and Technical Education
Washington, D.C. 20202

The Work-Study Program under the Vocational Education Act of 1963

The work-study program is designed to provide financial assistance, through part-time employment, to students who have been accepted for full-time enrollment in vocational education programs so that they may continue in vocational training. Providing youth with the opportunity to earn money is a means of implementing equality of educational opportunity by making it possible, financially, for all students to attend school. This opportunity for part-time employment while attending school can be a key factor in helping many youths to stay in school and to commence or continue their preparation for a vocation.

Administration

The Vocational Education Act of 1963 requires that State vocational education boards be responsible for the administration of work-study programs which have resulted from the provisions of State plans. The Act also requires that State boards be responsible for approving and supervising the administration of work-study programs by local education agencies. In approving work-study programs, the State board is to give preference to applications submitted by local educational agencies serving communities having substantial numbers of youth who have dropped out of school or are unemployed. Public agencies--Federal, State, and local-- are eligible to participate in the work-study program. The State board and local education agencies administering the program (as described in the Vocational Education Act of 1963) must ensure that the participants working in the program will not replace the regular employees.

Student Eligibility

To be eligible, students must be enrolled or accepted for full-time enrollment in a vocational education program designed for gainful employment. The educational agency is responsible for determining whether a student is actually enrolled on a full-time basis and whether he is capable of maintaining good standing. Students must be at least 15 and less than 21 years of age at the date they begin employment. Each student must be in need of the earnings from such employment to commence or continue his vocational program.

VT 02230

January 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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Type of Work Students May Perform

In many cases the job available to students will be that of an assistant. Under adult supervision, students may perform specific operations, of a single skill level, which do not require competency in a particular trade area. Numerous jobs are available within a local agency itself. Students could work in a school system, answering the telephone, filing, typing, duplicating, keeping records, selling tickets and school supplies, and distributing materials to classrooms. This work may be done in such places as the school office and guidance office for persons such as department heads and teachers. A school may use mature students, under close supervision, as leaders or coaches in the intramural athletic program or other extra-curricular activities. Grounds and school maintenance will probably constitute a large segment of the job placements.

Limitation on Hours and Compensation

No student may be employed more than 15 hours in any week during which his classes are in session. No student may receive compensation which exceeds $45 per month or $350 per academic year or its equivalent, unless the student is attending a school which is not within reasonable commuting distance from his house. If the student attends a school which is not within reasonable commuting distance, the compensation he may receive ought not to exceed $60 per month or $500 per academic year or its equivalent.

The academic year is nine or ten months during which regular classes are in session, as determined by the local educational agency. Accordingly, there are no limitations on compensation an eligible student may earn during the summer, and such earnings do not affect the amount of compensation allowable during the academic year. However, a student would still be limited to 15 hours of employment per week while attending class on a full-time basis. This interpretation will allow an expanded summer program designed to meet the needs of students accepted for or enrolled in vocational education programs.

Relationship to Vocational Program

Whenever possible, it is desirable to relate the work-study program to the student's vocational education program. To this end, students should be placed in jobs where their vocational competencies and interests can best be utilized. It is the responsibility of the supervisor of the program to provide the work-study job placement that will serve the needs of each student.

Probable Job Areas

A partial list of jobs open to youth participating in a work-study program follows:

1. Education aide for-
   a. Teacher
   b. School store, shop & office
   c. Intramural sports
2. Supply service aide
3. Typist
4. Orderly
5. Tutor
6. Receptionist
7. Cafeteria worker
8. Laboratory assistant
9. Audio-visual equipment operator
10. Library assistant
11. Recreation worker
12. Repairman
13. Child care worker
14. Social worker aide
15. Youth worker aide
16. Reproduction machine operator
17. Grounds/Building maintenance aide

Non-Monetary Value to Students

In many cases, the work-study program may provide a socially disadvantaged youth with his first experience in obtaining and holding a job. For many young people it will be important to develop a sound concept of work, good work habits, good attitudes, and to understand the reason for work. In addition, the job experience will provide opportunities for self-advancement.

Current Status of Program Development

The first appropriation for allotment to the States for the new Vocational Education Programs was made in October 1964. This included an appropriation of $5,000,000 for Section 13, Work-Study Programs for Vocational Education Students. In September 1965, Congress appropriated $25,000,000 for the fiscal 1966 program.

States welcome the work-study program, both as a valuable tool in the battle against dropouts and as an asset to vocational programs. They are developing programs as fast as possible, with limited State staffs, to handle all phases of the new Act and at the same time to continue programs under previous legislation.

Plans are being made by some States to use their work-study funds primarily to provide student assistance to local and area vocational schools. They plan to use students as teacher aides, office workers and maintenance assistants, and generally to assign all student workers to jobs within the local educational agency. In all cases, plans are

being made to assure that work performed is under adult supervision, and that a person on the school staff is designated to supervise the program. The experience of vocational education with the regular part-time cooperative program (as referred to in Section 104.16 of the Regulations) is being widely drawn upon as States develop a meaningful work-study program.

The development of a sound program that will be beneficial to needy youth presents a real challenge. The schools involved with the program will benefit through obtaining student assistance for various needed projects and activities. The future of the work-study program will depend on how educators and others rise to the challenge of this innovation in vocational education.

* * *

Additional operational details can be obtained from your State Work-Study Supervisor or State Director of Vocational Education.

DISCRIMINATION PROHIBITED - Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance." Therefore the Work-Study program, like every program or activity receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

VT 002 246

VT 002 246
What's Your Future in the World of Work--Think About It.

Bucks County Public Schools, Doylestown, Pa.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66. 24p.

*CAREER CHOICE; *EDUCATIONAL PROGRAMS; *EMPLOYMENT OPPORTUNITIES; EDUCATIONAL NEEDS; *OCCUPATIONAL GUIDANCE

This booklet is designed to inform youth of the opportunities in Pennsylvania for learning and for developing their interests and talents to become productive citizens. The briefly stated concepts are presented in simple, direct language with liberal line drawing illustration. The concepts are: (1) Almost everyone works, (2) Jobs are changing, (3) It is desirable to be good at a job, (4) Each person may achieve some excellence, (5) Excellence is required, (6) Satisfying work contributes to personal freedom, (7) Education is the means to success in work, (8) Jobs require certain kinds of education, (9) This education is available, (10) Choices must be made, and (11) Help in making choices is available. Different types of educational institutions and their relationships are shown in diagrams. (JM)

ED027441

What's your future in the world of work...

think about it!

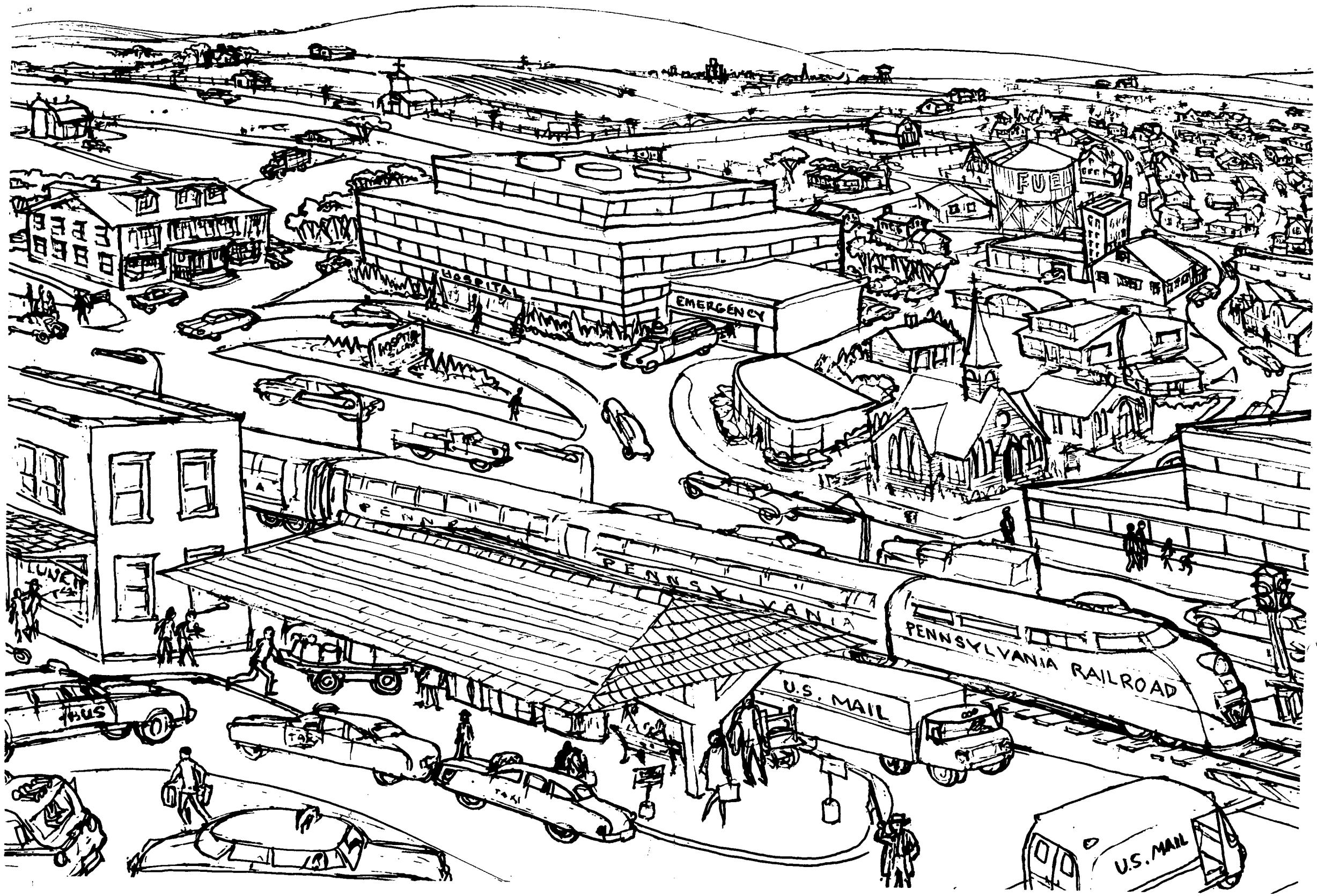


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OFFICE OF EDUCATION

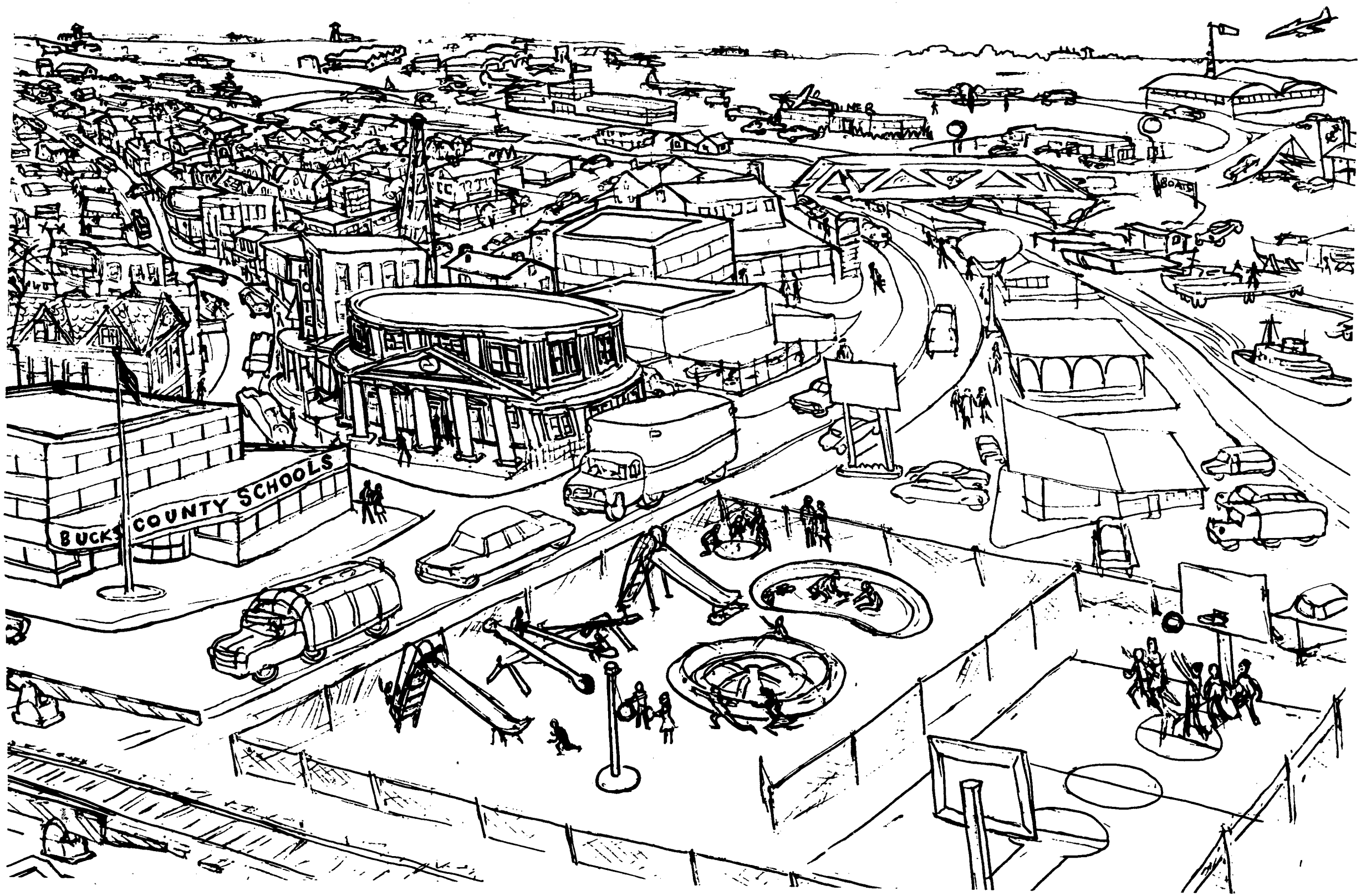
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VT002246

Your future in the world



of work...think about it !



If you are planning your future, this booklet is for you. We hope that it will help you understand the opportunities for learning in your great state.

We hope you will find the opportunities to develop every special interest and every special talent you have in order to be a productive citizen.

George E. Raab
Superintendent,
Bucks County
Public Schools

John W. Struck
State Director of Vocational
and Technical Education
Pennsylvania Department of
Public Instruction

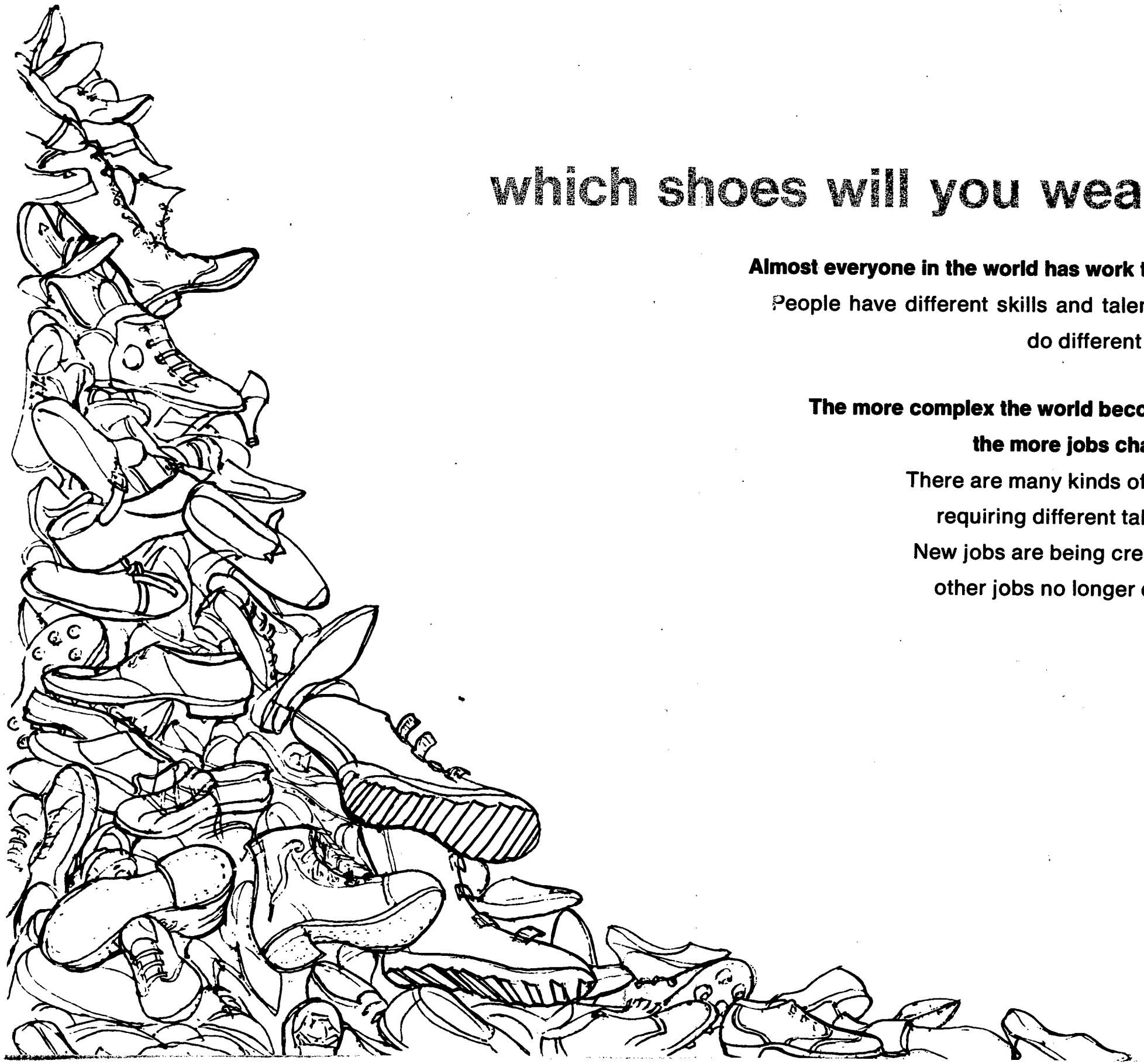
William M. Potter
Acting Chairman,
Vocational Committee,
Pennsylvania Board for
Vocational Education

Walter M. Arnold
Assistant Commissioner for
Vocational Technical Education
United States Office
of Education

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which shoes will you wear?

Almost everyone in the world has work to do.
People have different skills and talents to do different jobs.

The more complex the world becomes, the more jobs change.
There are many kinds of jobs requiring different talents.
New jobs are being created;
other jobs no longer exist.



it pays to be good at whatever you do

Tomorrow's world will require new knowledge and new skills. Everyone's talents, skills and interests are needed to fill many different jobs.

Getting ahead in one's job means being good at it. If you are interested in your work, if you want to succeed in it, if you feel that it suits you, you can be good at it.

First-rate work pays. If you are good at your work, you can avoid errors, costly mistakes, and dissatisfactions. You can prevent accidents and loss of lives.



each of us may achieve some kind of excellence

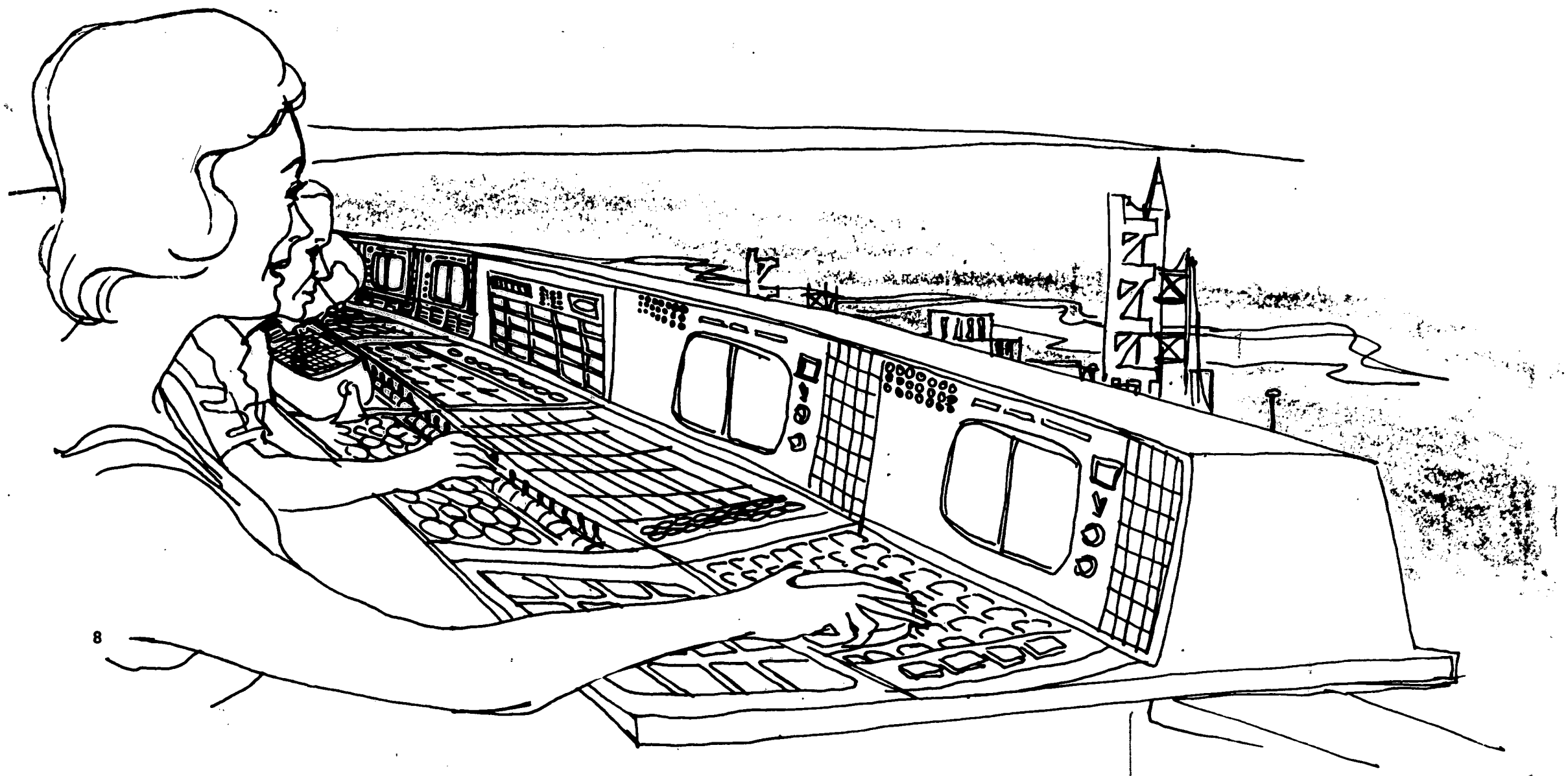
Each of us has gifts to give.
Each individual has potentials for courage, honor, recognition, appreciation. Each individual also has special talents and abilities which are his alone.

You need to develop your gifts
for your own fulfillment, in
order to do your work,
to be a good citizen,
to become a worthwhile person.

our changing world requires excellence

Our changing world requires excellence and imagination in many kinds of jobs. Exciting discoveries, inventions, and experiments are underway. Our lives depend on the efforts of people in many parts of the world. Men all over the world seek new horizons on earth and in space.

Our very destiny depends on how well we equip ourselves to meet change, challenge, and the unknown.



if you are good at your work

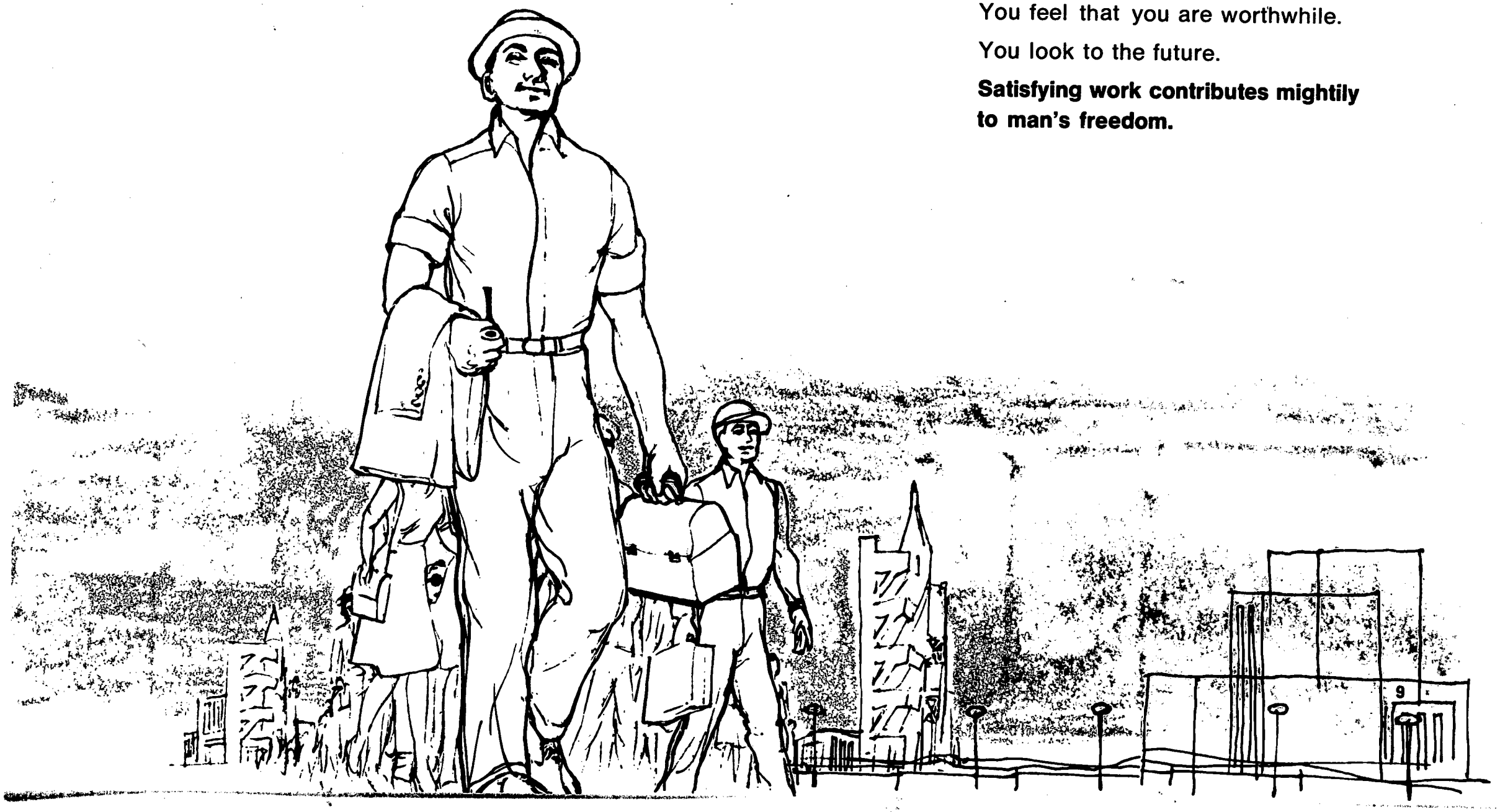
You have a place in your world.

You feel important.

You feel that you are worthwhile.

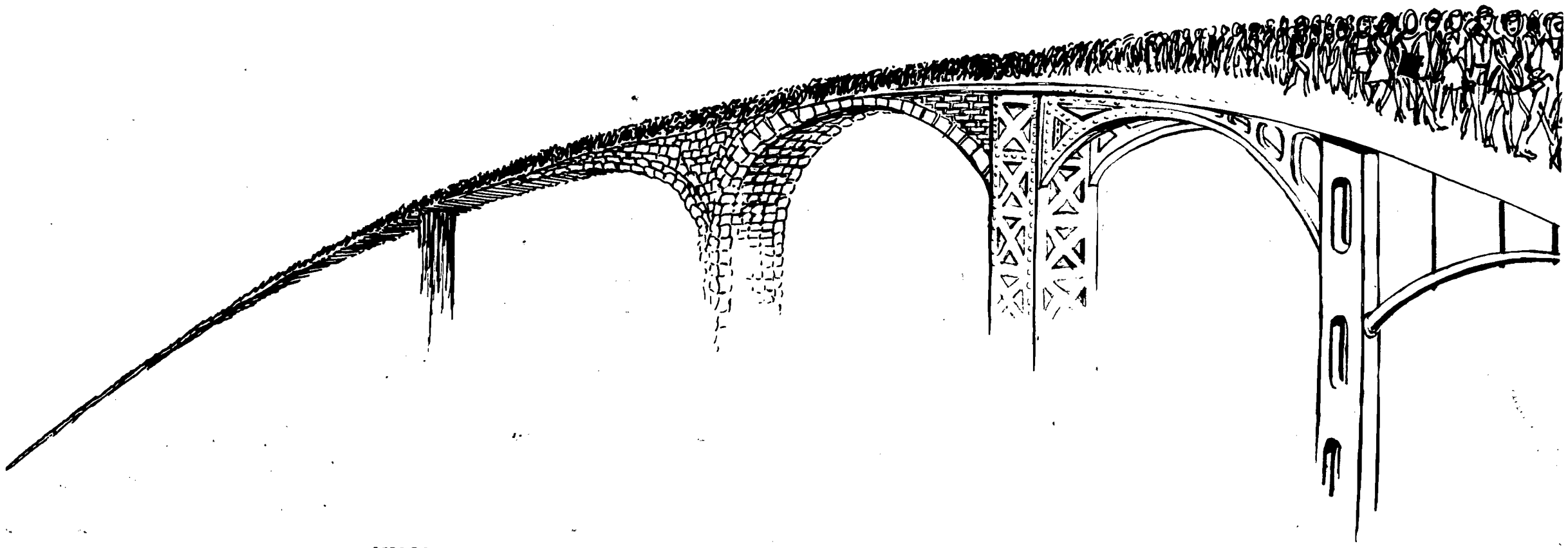
You look to the future.

Satisfying work contributes mightily to man's freedom.



what you learn makes the difference

education is the bridge between you and success in your work .



KNOWLEDGE OF THE PAST..... RESPONSE TO THE PRESENT..... PREPARATION FOR THE



FUTURE . . . . .

beautician
barber
dentist
carpenter
electrician
programmer
salesman
statistician
bulldozer operator
mason
optometrist
editor
engineer
biochemist
lion tamer
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aviator
navigator
nurse
pediatrician
sociologist
chauffeur
truck driver
window washer

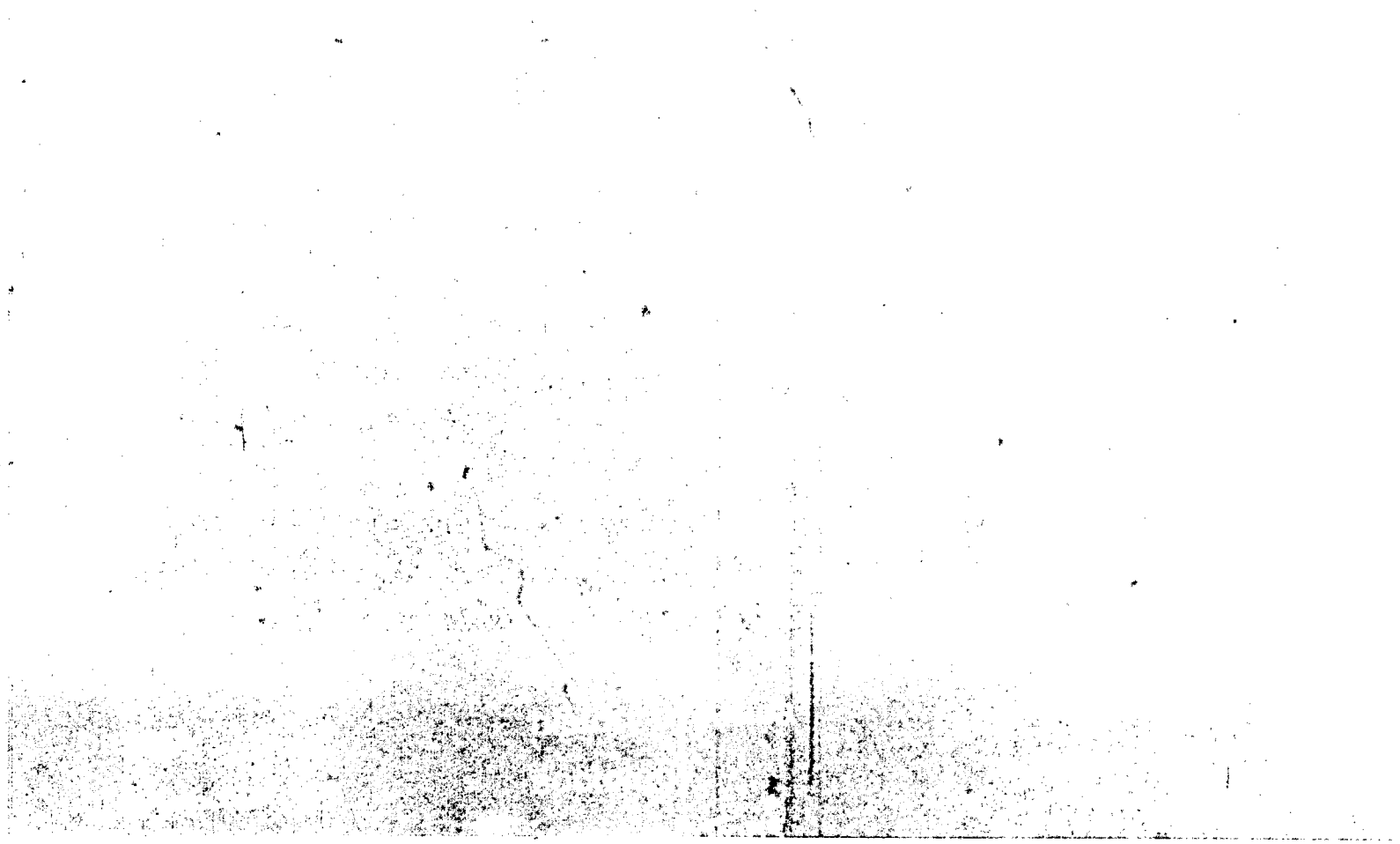
data processing
artist
stevedore
conductor
teacher
veterinarian
anthropologist
composer
musician
stage design
costumer
seamstress
dressmaker
shoe repair
printer
advertising
trapeze artist
reporter
dispatcher
religious leader
wig maker
archaeologist
zoologist
stewardess
newscaster
lawyer
banker

botanist
welder
technician
supervisor
receptionist
farmer
steel worker
translator
social worker
researcher
miner
retailer
tile setter
curator
secretary
clerk
public health
fire fighter
oceanographer
city planner
diplomat
realtor
contractor
professional athlete
labor leader
detective
highway patrol
traffic controller

What kind of education is a bridge between you and a job?
A program in which you get what you need in terms of the demands of a changing world, and in terms of your goals, your talents, your hopes, your becoming a person.

Your individual program should equip you
with knowledge,
with skills,
with abilities and judgment,
with appreciations,
to do your work.

courses and programs designed for you



Reading, writing and arithmetic. Everyone should have fundamental courses in communication skills.

The great issues of our times. Everyone should have courses which provide knowledge about the world in which we live. Courses should teach the values of our common life and how we become responsible citizens.

Skills and training for vocations. Everyone should have courses which develop abilities and talents for one's chosen work. Courses should create confidence in abilities and show you how to succeed in your work.

Good programs provide you with a wide variety of courses, opportunities to make wise choices according to your aptitudes and interests, assistance in choosing and planning, specific aid if you require it, and advanced specialized training.



making wise choices

You are always making choices.
You choose to learn or not to learn. You can choose a course or a program that fits you. You can choose to prepare for work or drift along.

You should be able to choose courses that fit your needs and interest from many available courses.
Courses can be available during hours and times that enable you to have programs of study, work, or work and study.

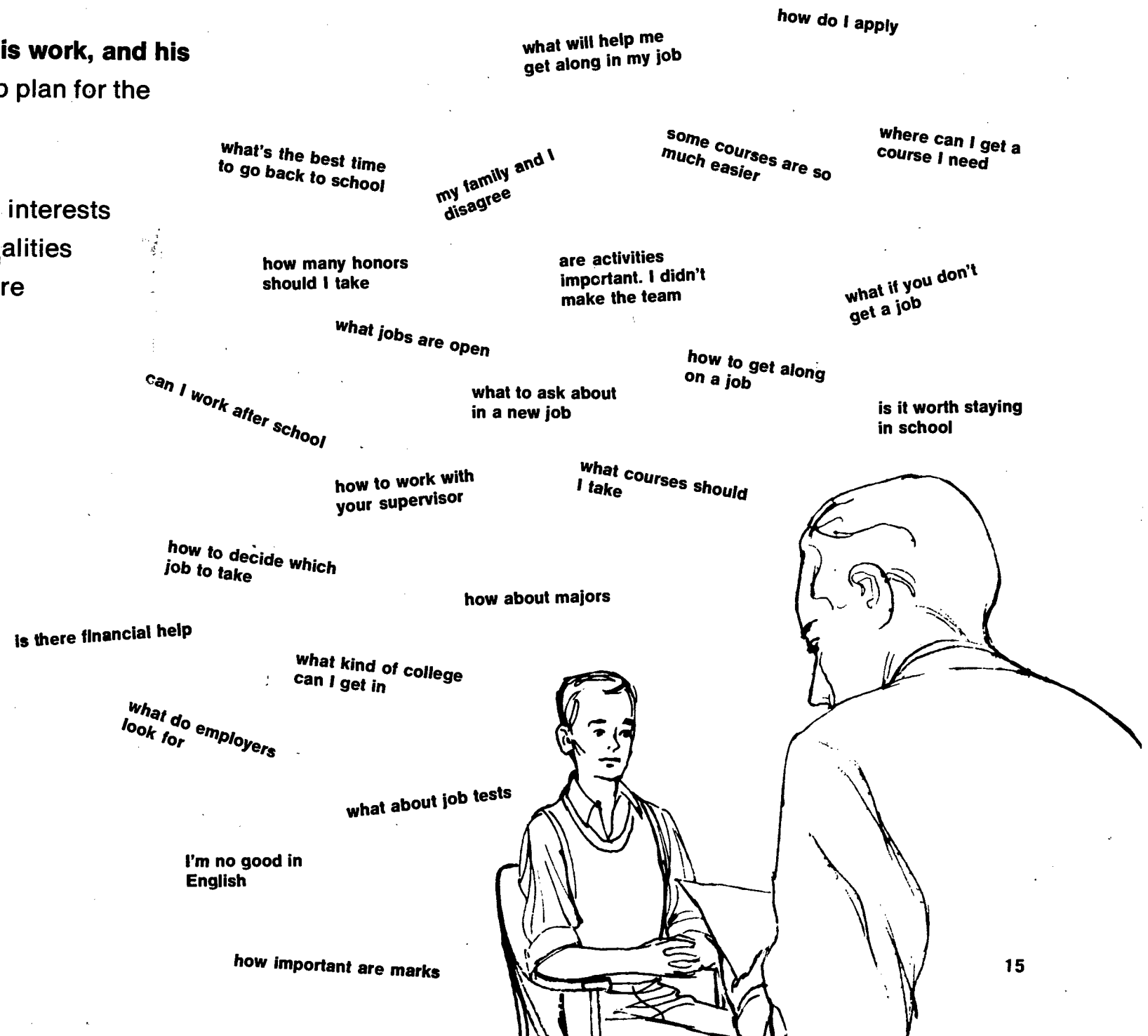
You should be able to enter and re-enter programs as needed.
Opportunities are available for many kinds of cooperative arrangements such as advanced placement with colleges, work-study programs with industries, technical programs through area schools.

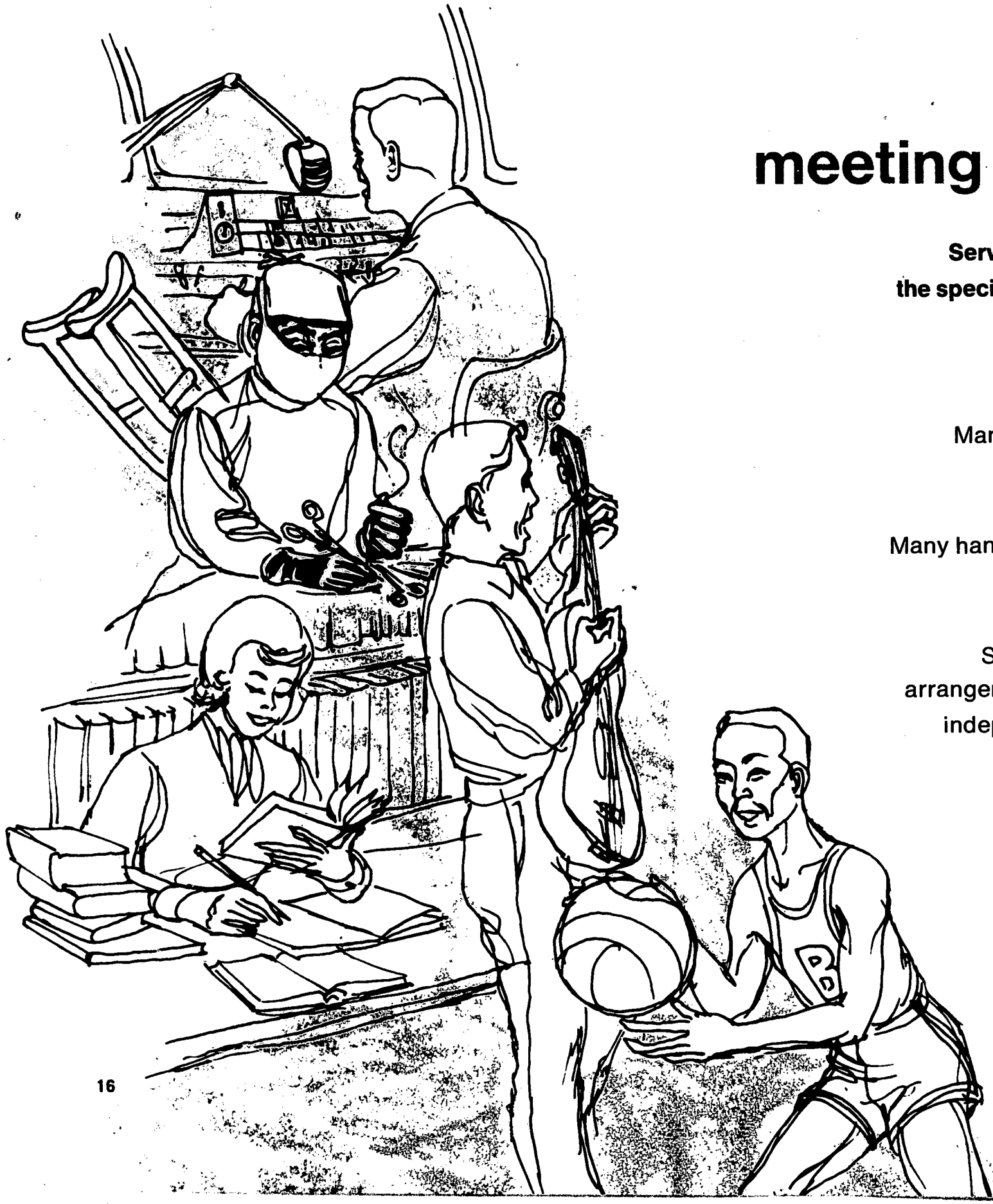
Guidance and advice from expert people can be available to you as you select courses and make decisions.

Everyone wonders about his future, his work, and his chance for success. There are ways to plan for the future, even with its unknowns.

There are jobs for which your special interests and talents are needed. There are qualities which make you employable. There are satisfactions from work which help make life worthwhile.

Guidance services exist to help you plan and to help you with your questions. Guidance services include counseling, course selection, job information, job or college placement, and better self-understanding. A trained counselor can help you and your family with your plans.





meeting special needs

Services in schools are provided to meet the special needs and interests of all students. Each of us has different abilities and different concerns.

Many talents emerge because of special encouragement or arrangements.

Many handicapped are employable and happy when equipped for jobs they can do.

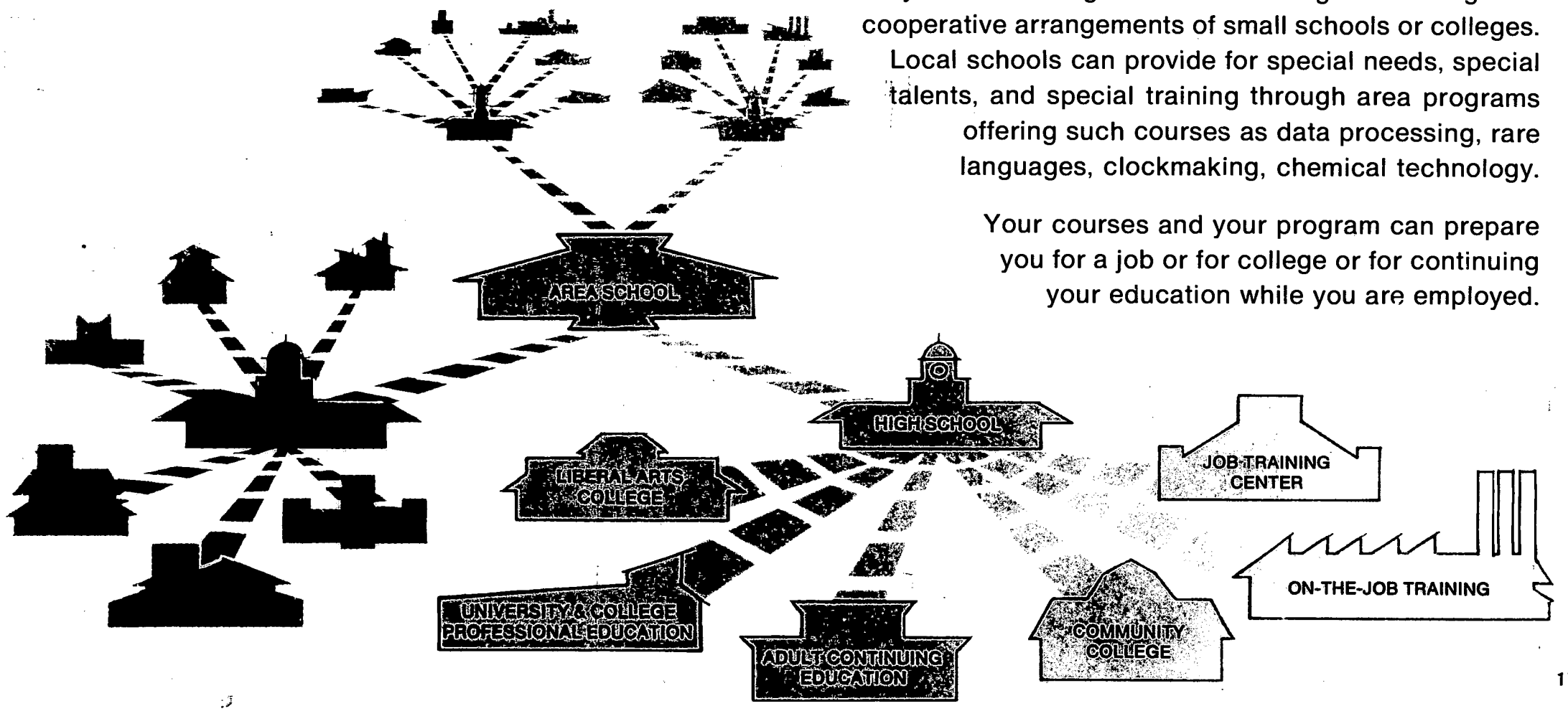
Special services, special courses and arrangements can help each person become independent, use his special abilities and talents, and cope with his problems.

your program can prepare you

Select courses and programs that prepare you for what you want to do.
Good programs lead toward your individual goals. Progress is recognized by diplomas, certificates, degrees, licenses which show that you have been trained for your work.

You may find the kinds of courses, resources, and services that you need in large schools or colleges or through the cooperative arrangements of small schools or colleges. Local schools can provide for special needs, special talents, and special training through area programs offering such courses as data processing, rare languages, clockmaking, chemical technology.

Your courses and your program can prepare you for a job or for college or for continuing your education while you are employed.



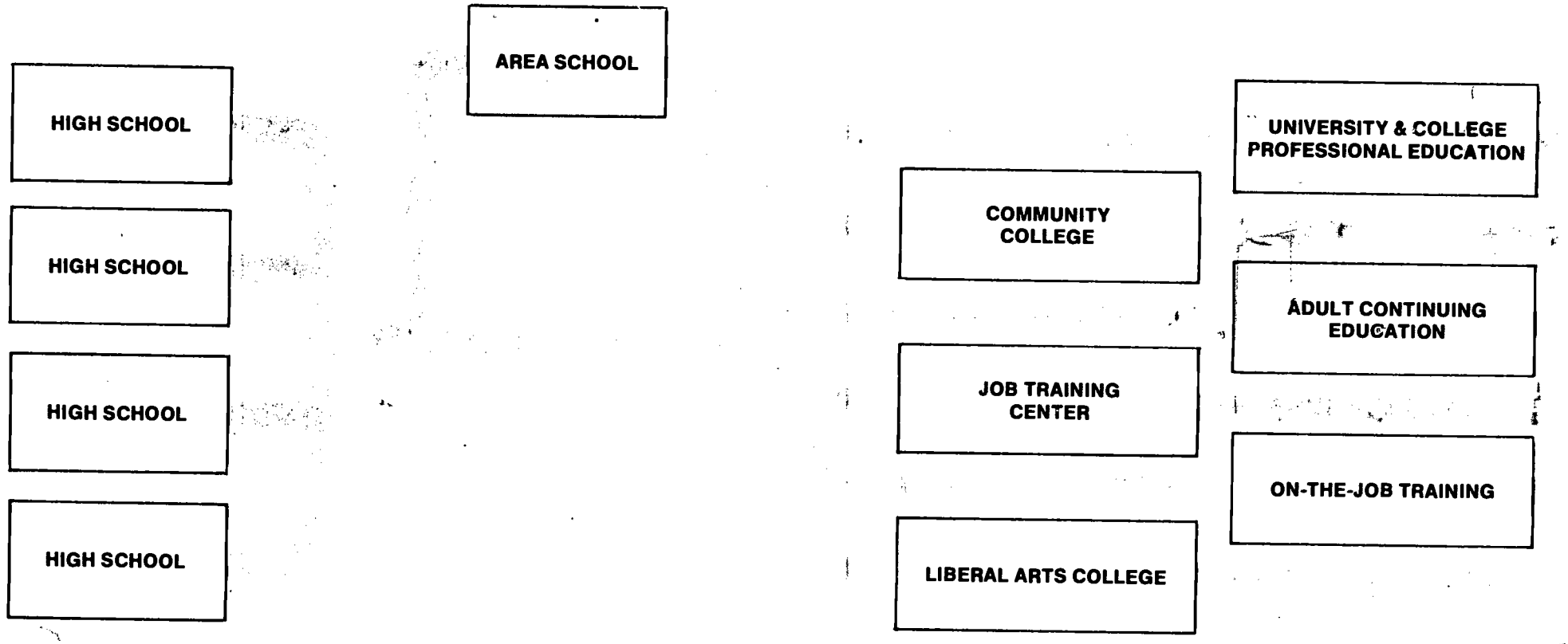


keep on learning

Continue your education so that you have a chance to get ahead, to learn new jobs, and to find new things to enjoy.

Some people are drop-outs of education at age 16 or 20 or 45. Be a drop-in for education instead.

Keep on learning if you want to improve your work, get a better job, and enjoy a better living.

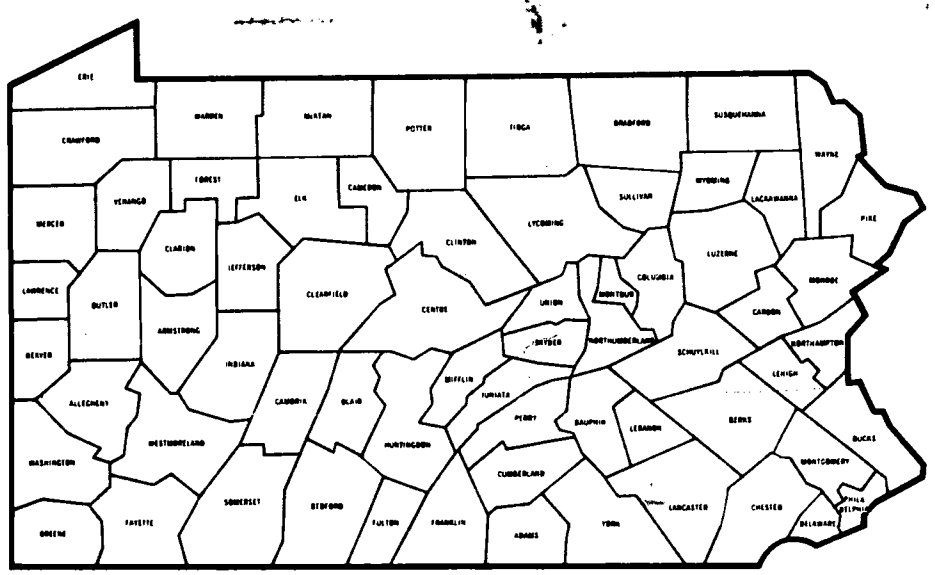


opportunities can be available for all

Your schools can offer you great opportunities. With more education you can be better trained for your work and you can get along better in what you are doing.

Opportunities are available in your community when adequate resources are provided for courses and programs for persons of every age. Programs include special interest, college preparatory, vocational, technical, occupational, the arts, and others.

Comprehensive programs are possible at reasonable costs only where enrollments are large enough to support many kinds of courses, resources, and services.



available in Pennsylvania

Twelve years of public education for all

Secondary schools for all youth

Guidance, counseling, and special services for all

Area vocational-technical schools that expand educational opportunities

Thirteenth and fourteenth year offerings and adult education courses

Collegiate level technical programs in community colleges

State colleges and universities offering liberal arts and professional education

goals for the future

Collegiate and post-high school technical programs available to all who can profit

Secondary and area school programs available for all

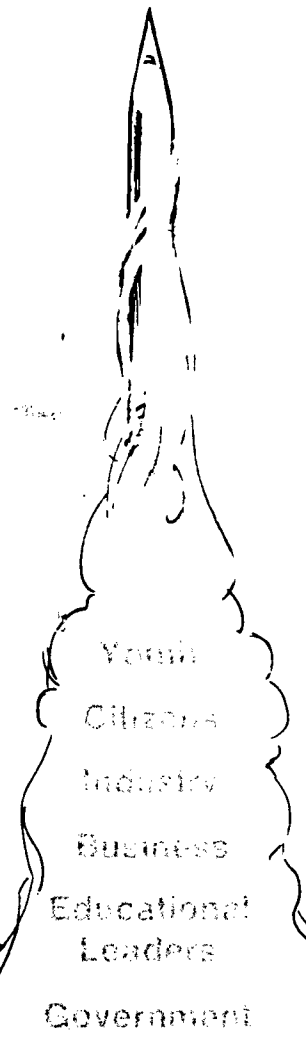
Kindergarten and nursery school programs available for all

Continuing education programs for job re-training, up-grading, employment

Civic and cultural programs for art, music, recreation, outdoor living

Educational and community services for counseling, family life, growth and development

International travel for educational and occupational advancement



help make opportunities possible

Education is everybody's business.

There is a new burst of freedom in education, a renewed sense of dedication.

Communities have expanded beyond our neighborhoods, our towns, our state, our nation.

Youth has the spirit and maturity for tomorrow.

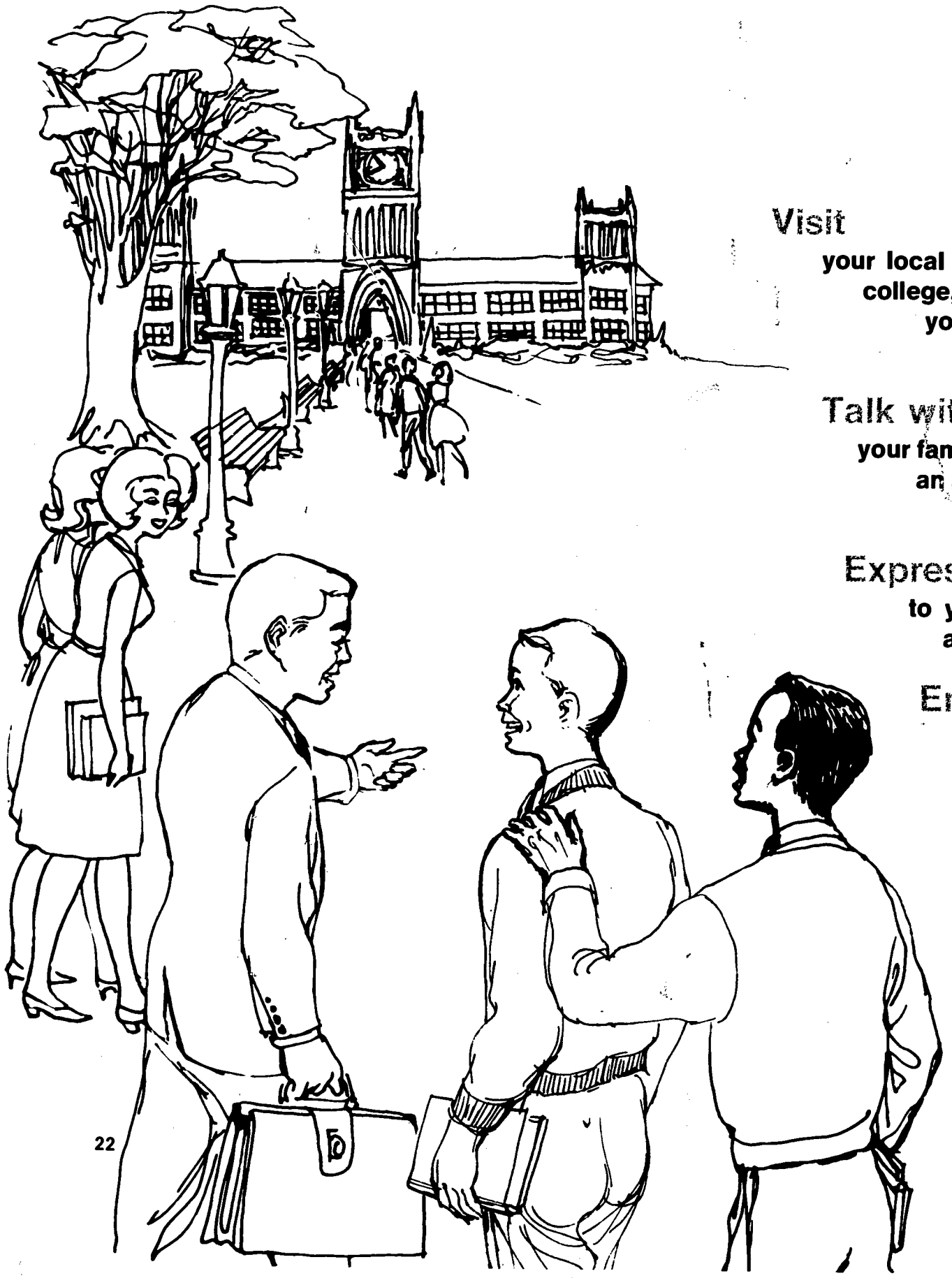
Citizens believe in education.

Educational leaders work together.

Business and industry encourage and support education.

Our government is committed to education.





Visit

your local high school, your area school, your community college, your adult education program, your civic center, your community or school libraries, your community agencies, your job training centers.

Talk with

your family, your teachers, your counselor, your principal, an advisor of your faith, your friends, your employer, people working at many different jobs.

Express your opinions

to your local officials and elected representatives about increasing opportunities for young people.

Encourage

your friends to continue school, to re-enter school, to take courses and to use school services whenever needed.

For further information about opportunities, contact your School Superintendent, your County Superintendent, or your State Department of Public Instruction.

ERIC

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...do something about it!

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Ford Foundation Grants in Vocational Education.

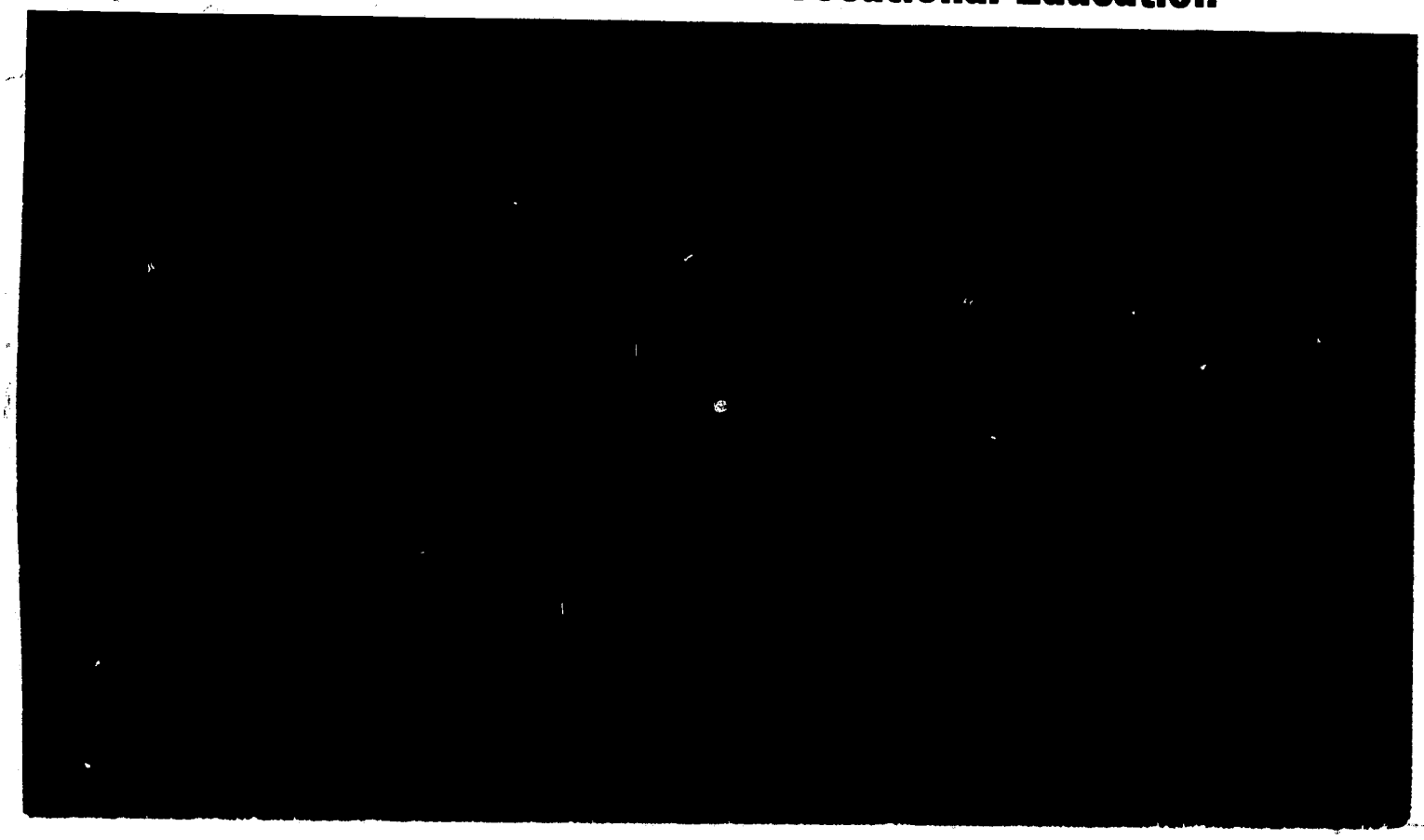
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Pub Date - Sep65 31p.

*VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; EXPERIMENTAL STUDIES; PILOT PROJECTS; RESEARCH PROJECTS; CURRICULUM RESEARCH; TEACHER EDUCATION; *WORK STUDY PROGRAMS; COLLEGES; HIGH SCHOOLS; POST SECONDARY EDUCATION; CONTINUING EDUCATION; DROPOUT PREVENTION; INDUSTRIAL ARTS; HOTEL OCCUPATIONS; GRAPHIC ARTS; VOCATIONAL EDUCATION TEACHERS; *FOUNDATION PROGRAMS; *GRANTS
FORD FOUNDATION

In its assistance to efforts toward quality vocational and technical education, the Ford Foundation has made grants to secondary schools, technical institutes, community colleges, research organizations, universities, and teacher-training institutions. Descriptions of pilot programs and experiments include (1) 6 in curriculum improvement, (2) 3 in research, development, and information, (3) 2 in vocational-technical teacher training, and (4) 7 in cooperative work-study education. Representative examples are: (1) a program built around the vocational interest of the student in the last 2 years of high school which seeks to stimulate him to continue education beyond high school, (2) a program to determine the best vocational education approach in motivating recent dropouts to finish high school, (3) a new curriculum in industrial arts which focuses on the concepts of industrial management, production, and service rather than on the use of hand and machine tools alone, (4) high school programs for careers in hotels and restaurants, (5) a comprehensive curriculum in graphic arts, (6) a center for research and development in vocational education, (7) a study of industrial advisory committees, (8) a program for preparing vocational teachers, and (9) experiments in post-high school cooperative education for vocational preparation for business and industry. (PS)

ED027442

Ford Foundation Grants in Vocational Education



Ford Foundation Grants in Vocational Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Other publications listed on page 27.

The Ford Foundation in 1963 initiated an effort to help improve vocational and technical education in the United States. It is designed to assist and encourage improved means of preparing American youth for productive jobs in a rapidly changing labor market and motivating them to greater educational accomplishment. In announcing the program, Henry T. Heald, president of the Foundation, said:

"Vocational education has been the stepchild of the American education system since it was introduced at the turn of the century. Traditionally, schools have been in a better position to prepare students for college than for vocations. This is partly because business, industry, and formal education have not been able to reach a clear understanding of their respective roles in fitting modern youth for the modern labor market. Now, as the pace of technological change is constantly quickening, the demand for special knowledge and skills is mounting. At the same time, more young people are unemployed because they are unskilled, or because they have the wrong skills for the new age. A rational, effective system of vocational education is needed."

Working with groups already active or interested in the field of vocational education and with others in education and industry, the Foundation assists promising experiments and pilot programs with potential for application throughout the country. As in other Foundation programs, support is not normally given for purely local needs, the routine operating costs of institutions, or building projects.

Not since World War II, when rapid, effective technical training for the armed forces and for wartime industry was a matter of national survival, has interest in vocational and technical training been so intense as in the mid-1960s.

Technological changes, which are intrinsic to an industrial society, have been unprecedented in scope and rapidity. Some occupations of long standing have been reduced, if not wiped out (the vanishing elevator operator comes readily to mind). New occupations, calling potentially for tens of thousands of employees (computer technicians, for example), have arisen in less than a decade.

The nature of the labor force has changed dramatically, too. Young people are increasing in numbers three times as fast as the population as a whole. The labor force, which now stands at 72 million, will increase during the 1960s by 13.5 million, of whom *nearly half* will be between the ages of sixteen and twenty-four. As a result, employers will have an abnormally large pool of new workers from which to draw, and they will seek only the well-trained applicants.

The pattern of a lifetime in a single occupation is less and less the lot of the average employee. Workers are not only moving about the country more than ever; in one recent year nearly eight million of them changed to a completely different industry, nearly three-fourths to a completely different occupational category.

Finally, great changes are under way in the employment fields where the greatest opportunities exist. Despite continuing hard-core unemployment, jobs remain unfilled in semi-professional technical areas (medical technicians, for example, or aides in child day-care centers) and in such occupations as food preparation, teaching, and retailing. Most new jobs for a rapidly expanding population have opened up not in private industrial plants but in service industries and in government work.

Against these conditions, vocational education measures up as follows:

—Too often vocational education today limits the range of opportunities and career choices for young people. Not often enough are students trained in general work skills that are transferable from one occupation to another.

—Instructional programs for career fields need to be developed—medical technology, graphic arts, and subprofessional business occupations, for example—to replace curricula aimed at preparation for a narrow range of occupations.

—In most vocational programs, youngsters must decide whether to get on a vocational track—and decide which type of vocational track—by the ninth grade, an age when students have not had sufficient opportunity to determine their real interests and aptitudes.

—In the dual system of education, vocational-technical education occupies a status decidedly inferior to academic (or general) education. Since the decision to pursue a vocational interest must be made as early as the ninth grade, vocational students have been cut off from general or academic educational programs in most high schools. Conversely, pupils in academic and general-education programs have been denied the opportunity of vocational training.

—Maintenance of two separate systems is not only wasteful for educational enterprise as a whole, it also restricts educational opportunities for youngsters. A youngster on a traditional vocational track is denied opportunities for academic training necessary to qualify him for college. Moreover, even if a student does not go to college, much of today's world of work demands richer general education than most traditional vocational programs offer. On the other hand, a pupil in a college-preparatory program should have the opportunity for experience in vocational training, for which he may turn out to be more suited. And even if he continues to pursue a college career, he will have had an exposure to the world of work, which is a necessary part

of liberal education in a scientific-technological society. Most important, vocational and general education have characteristics that naturally reinforce each other, and maintenance of separate systems prevents this interaction.

—Research in vocational and technical education—an inquiry to identify transferable skills, for example—is insufficient. Except for isolated research in university schools of agriculture, engineering, and education, universities have not applied the full range of their scholarly resources to the field.

—Experimentation and demonstration efforts are needed to determine the best means of training thousands of vocational-education teachers for secondary schools, technical institutions, and community colleges.

These shortcomings and needs are beginning to engage the active concern and effort of educators, industry, and public officials. The concern is heightened by a desire to apply burgeoning Federal aid to vocational education to best effect.*

*Substantial Federal assistance for vocational education began in 1917 after years of pressure by business and labor. The Smith-Hughes Act reflected a belief that neither apprenticeship nor the regular public-school system was providing adequate training for industry. Between 1917 and the end of World War II, Smith-Hughes appropriations, including subsequent amendment acts, totaled $302,962,697. The states were required to match the Federal funds dollar for dollar. The funds were for salaries of teachers and supervisors of trade, industrial, and agricultural subjects and for the training of teachers. (A variety of vocational training was supported under various New Deal programs as well, but these bypassed the regular school system almost entirely.) Annual Federal vocational-education authorizations were increased in 1946 and 1956, bringing the annual authorization to $39,012,330.

In the last five years, Federal assistance rose to a new order of magnitude with a series of laws beginning with the National Defense Education Act in 1958 and culminating with various anti-poverty acts in 1963 and 1964, all of which brings the current annual Federal appropriations for aid to vocational education to approximately $632.5 million, including in-school training and other forms of training. However, most Federal assistance consists either of emergency short-range measures or support for vocational training outside the regular educational system.

In its assistance to efforts toward quality vocational and technical education, the Ford Foundation has made grants to secondary schools, technical institutes, community colleges, research organizations, universities, and teacher-training institutions—all with the view, as a Foundation staff member wrote recently in a leading professional education journal, "that vocational education is an integral part of education, particularly at all levels of secondary and post-secondary education . . . and that improvement of vocational and technical education is the responsibility of all educators, academic and general as well as vocational." *

*Edward J. Meade, Jr., program associate, Ford Foundation and Fund for the Advancement of Education, "The Ford Foundation's Interest in Vocational and Technical Education," *Phi Delta Kappan*, Vol. XLVI, No. VIII, April, 1965.

Grants to Date

There is some overlap among these categories. For example, while the program at San Francisco State College aims mainly at preparing teachers for school systems adopting programs similar to that developed by the Cogswell Polytechnical College for the San Francisco Bay area public schools, it also includes further curriculum experiments and preparation of instructional materials.

Furthermore, other Foundation activities have facets relevant to vocational education. A comprehensive school-improvement grant for the Pittsburgh Public Schools, for example, includes revision of traditional occupational, vocational, and technical education programs designed to raise their quality and their prestige among students and the public.

Grants marked with an asterisk (*) were made by the Fund for the Advancement of Education, an independent organization established by the Ford Foundation. The same staff serves the Fund and the Education program of the Foundation.

Improvement of Curricula

1. Cogswell Polytechnical College	$185,000	1963
2. Oklahoma State University	185,000	1963
3. Stout State University	65,000	1964
4. City College of San Francisco	75,000	1964
5. Newton (Massachusetts) Public School System	430,000	1964
6. Western Washington State College	490,000	1965

Research, Development, and Information

1. American Institute for Research	447,000	1963
2. University of Wisconsin	820,000	1964
3. W. E. Upjohn Institute for Employment Research*	65,000	1965

Vocational-Technical Teacher Training

1. San Francisco State College	450,000	1965
2. Central Michigan University	496,000	1965

Cooperative Work-Study Education

1. Northeastern University*	143,000	1965
2. Alabama Agricultural and Mechanical College*	57,400	1965
3. Golden Gate College*	60,000	1965
4. Hampton Institute*	60,000	1965
5. New York Institute of Technology*	67,500	1965
6. Water and Sewerage Technical School (Neosho, Missouri)*	57,000	1965
7. Wilberforce University*	52,200	1965

Improvement of Curricula

1. Cogswell Polytechnical College

Project Director:
Garrison B. Smith, Cogswell Polytechnical College
300 Folsom Street, San Francisco, California 94105

The Foundation grant supports refinement, testing, and expansion of the "Richmond Plan," an experimental pretechnology curriculum devised in 1962 by Cogswell Polytechnical College (a two-year technical institute) for students in the last two years of high school. The project seeks to employ the academic (general) high school for effective vocational education. It began in two Richmond, California, comprehensive high schools under a grant from the Rosenberg Foundation. Ford Foundation assistance is financing its adaptation by ten other Bay Area high schools over a three-year period. In addition, two public junior colleges are being assisted in revising their programs to serve pretechnology students after high school.

The program is built around the vocational interest of the student, but it also seeks to stimulate him to continue education in a junior college, in a technical-institute technology program, or at a four-year college.

As main features, the program seeks to dovetail technical and academic subjects along the lines of natural relationships, to use a shop program to dramatize the relation between theory and practice, and to apply such new techniques as team teaching and programmed instruction.

The program is designed for students who are not challenged by college preparatory courses even though they have the capability of succeeding in them. Past academic performance is not a criterion for participation. The participants have mechanical aptitude but range widely in intelligence. Many, in fact, were poor students and some had been identified as potential dropouts.

The program consists of five major courses in the eleventh and twelfth grades—English, physics (one and one-half years), chemistry (half a year), mathematics through trigonometry, and technical laboratory (an integrated shop course including drafting). Students take these subjects as a group, but mix with other pupils in the high school for the other courses normally given in the eleventh and twelfth grades (history, social studies, physical education).

Teachers work as a team, after being trained in workshops. They hold several conferences a week to review progress and to coordinate the next week's lessons.

As an example of how the subjects are coordinated to reinforce each other, the study of heat taught in the physics class (through the first law of thermodynamics) is related in mathematics instruction to first-degree equations (necessary for linear expansion), supported in the laboratory by the construction of apparatus with which to conduct heat experiments, and is followed in English class by oral and written reports on the subject.

Some 600 students are enrolled in Richmond Plan programs. Teachers report that students who had not done well have become hard-working, highly motivated, and interested in their academic as well as technical subjects.

Most of them are expected to go on to two-year post-high-school technological programs, and to qualify eventually for careers as high-quality engineering technicians or even as engineers.

They are expected to be better equipped than other students to benefit from a junior-college education whether or not they ultimately transfer to four-year colleges. If they elect to go into industry after completing junior college, they will have a firm basis of industrial, engineering, and technological knowledge and skill needed for a variety of jobs.

Students who do not continue beyond high school will be better prepared to get jobs in industry and to take apprenticeship training

because of their skills and knowledge of both tools and materials.

2. Oklahoma State University (Research Foundation)

Project Director:

J. Paschal Twyman, Department of Education,
Oklahoma State University, Stillwater, Oklahoma 74075

The Oklahoma City Public Schools began a three-year program in 1963 to determine which approach in vocational education works best in motivating recent dropouts to finish high school. City and state agencies are financing the instructional costs of the program. The Ford Foundation grant is for comparative testing of these different approaches.

The experimental programs offer unemployed dropouts between the ages of nineteen and twenty-two who pass aptitude tests for certain occupations a chance to fulfill minimum requirements for a high-school diploma and to learn a marketable skill.

Three one-year programs are being tested. One group of 100 trainees is given both vocational and academic instruction. A second group of 100 trainees receives vocational instruction only. A third group of fifty has only academic studies. A general control group of 100 dropouts was identified to determine the job paths taken by dropouts who are given no additional education (although a few may be expected to return to school on their own initiative). Studies of differences in motivation and vocational and academic achievement among the first three groups are being made in the course of training. For two additional years, studies will be made of variations in job placement and job success among all four groups.

To enable the returned dropouts to finish high school and prepare for employment, improved methods and courses include individualized and non-graded instruction in vocational as well as academic subjects.

In each area of instruction teachers and counselors interview

students individually to establish their level of competence; in many cases, standardized diagnostic tests are used. Instruction allows for movement between various vocational fields, for independent study, and for a series of follow-up conferences between students and counselors. Schedules are flexibly designed to accommodate fast and slow learners. In academic subjects, for example, students may earn credit by demonstrating proficiency on an examination, so that courses need not consist of a fixed number of hours per semester. In addition to texts and other conventional instructional material, the program uses programmed learning, films, and closed-circuit television.

Like many of the Foundation-supported programs, the Oklahoma City experiment engages a variety of agencies in addition to the public schools. The Oklahoma Employment Security Commission surveys the labor market to identify jobs for which the students are being trained, tests prospective participants, and pays training allowance stipends to 200 trainees for fifty-two weeks. The Oklahoma State Board for Vocational Education, using Federal funds, is responsible for vocational instruction and provides professional staff, instructional materials and equipment, and facilities.

The program enables participants to make up for past educational deficiencies and obtain a high-school diploma by passing equivalency tests. The diploma is critical because often even youths with the requisite skills cannot obtain employment without it.

3. Stout State University

Project Director:
Wesley Face, Stout State University
Menomonie, Wisconsin 54751

In cooperation with ten neighboring secondary schools in Wisconsin and Minnesota, Stout State University is conducting a one-year experiment in industrial-arts education with Foundation aid.

Dissatisfaction with present industrial-arts programs parallels

many of the reservations about vocational education. Many educators and representatives of industry believe the schools devote too little effort to concepts and basic understanding that equip students for a lifetime of learning and advancement in industry.

The premise of the Stout experiment, therefore, is that students will benefit more from an understanding of the major components in American industry and technology than from a series of manual activities unrelated to each other. Thus the new curriculum focuses on the concepts of industrial management, production, and service rather than on the use of hand and machine tools alone. For example, instead of focusing on particular tools, the students learn various concepts (e.g. cutting, finishing, forming, fastening) associated with changing the form of industrial materials—ceramics, metal, textiles, etc. Instead of the usual project-building activities in wood, metal, and general shop (building book-ends and repairing motors, for example) students work in such industrial processes as abrasion, finishing, and fastening and relate their work to problems of management, production, and service.

The curriculum also includes general-education elements imparting an understanding of economics, management, sales and distribution, personnel, and related facets of industry.

The experimental program was developed in a year-long seminar among faculty members at Stout State, which has long been a center for the training of vocational, industrial, and home-economics teachers. In the summer of 1964, eleven teachers from nearby junior and senior high schools came to the university for an eight-week workshop on the new program.

During the 1964-65 school year, the program was tested in various schools in units ranging from three weeks to the full school year. The variations are designed to explore the use of the new curriculum as an alternative to current industrial-arts programs, a replacement for parts of traditional programs, and as an elective for

college-bound students. The aim is also to help determine the usefulness of industrial arts as part of a general curriculum, as well as demonstrate the relationship of industrial arts to vocational education. Teachers return to Stout State once a month to review progress.

In addition to teachers, twenty Stout seniors and graduate students applied the new curriculum in practice teaching during the 1964-65 school year.

In the summer of 1965 another eight-week workshop was held for teachers who conducted the demonstration programs and for a new group of teachers who will introduce it to other schools.

4. City College of San Francisco (Hotel and Restaurant Foundation)
Project Director:
Louis F. Batmale, City College of San Francisco
Ocean and Phelan Avenues, San Francisco, California 94112

The City College of San Francisco, with a Foundation grant, is preparing students not motivated by traditional high-school programs for careers in hotels and restaurants. The field offers special opportunities because it is expanding and because it offers a wide range of jobs, from cook or cashier to manager or salesman.

The college conducts annual two-week summer workshops for teachers from schools in the program (two schools are presently taking part—Oakland Technical High School, an urban, comprehensive school with a sizable Negro population, and Pacific High School, a lower middle-class suburban high school in San Leandro. Balboa High School, a middle-class school in San Francisco, and two other schools will join the program later). The first workshop, held in the summer of 1964, was attended by the home-economics, business, and English teachers and counselors and cafeteria managers. Training included planning, costing, purchasing, food preparation, baking, and cafeteria and dining-room operation. Participants made field trips to hotels and restaurants.

The program at the schools is conducted in the eleventh and twelfth grades. Together with the counselor, the home-economics, business, and English teachers form a team responsible for instructing students in basic education (science, mathematics, and English) and the principles of food preparation and service. This includes quantity food preparation; purchasing, storage, and control of supplies and equipment; and application of their course work in business practice and English. The course also includes practical work in the schools' cafeterias and faculty dining rooms, where students serve as hostesses and managers, cooks, and waiters.

On completion of their high-school courses, students will be eligible for more specialized training in the food-services classes at City College of San Francisco and Oakland City College, or in similar programs in other community colleges. Other students may elect hotel and restaurant management programs at four-year colleges. Those wishing to go to work immediately will have an adequate background for success in on-the-job training programs in local hotels and restaurants. Labor and management representatives, who serve on the program's advisory board, will also help place students in suitable positions.

5. Newton Public School System

Project Director:

J. Wallace Fletcher, Newton Public Schools

430 Walnut Street, Newton, Massachusetts 02160

The Newton public-school system, a national showcase for experimental efforts to improve academic excellence, has started an extensive effort to end the traditional separation of vocational and academic high-school studies. Assisted by a Foundation grant, Newton is developing truly comprehensive secondary schools that offer a full range of courses to all pupils, and treat vocational and technical subjects as electives in the same way as academic subjects. Thus they may be

taken by all students. Conversely, vocationally oriented students are permitted and encouraged to take academic subjects in order to broaden their educational background.

In adopting the new plan, Newton is gradually abandoning the operation of a separate vocational high school, in which only 200 of the city's 4,300 high-school students were enrolled. Newton school officials believe the low enrollment was due to the fact that parents regarded a separate vocational school as low in status. Hence the Newton program is an effort to give equal status to vocational and academic studies.

This is being done through revision of the vocational program. Instead of giving courses in specific fields in which the student may become "locked in" when his particular skill becomes outmoded, the new program will include "clusters" of skills which may be used in a variety of jobs. For example, students may receive training for any one of a large number of jobs in the medical field—dental technician or doctor's receptionist, for example—through a combination of courses (these might include biology, chemistry, and office practice). Other students will be trained in the same way for jobs in engineering, landscaping, display arts, and other fields.

A progression of vocational studies from the high school to the junior college or technical-institute level is being devised. For example, students with suitable high-school training may go on to two years study in such fields as nursing, business education, or electronics.

6. Western Washington State College

Project Director:
Ray A. Schwalm, Western Washington State College
Bellingham, Washington 98225

Western Washington State College, with a Foundation grant, is developing a comprehensive curriculum in the graphic arts. Ranging from the secondary school through the community college level, the

curriculum is expected to provide basic training to enable technicians to work not only in printing, but also in photography, commercial art, advertising, television production, packaging, internal corporate publishing, visual aid production, and cartography.

The college will develop a training program for future teachers of these courses, to be taught by college faculty in economics, psychology, sociology, anthropology, mathematics, chemistry, and industrial arts. Teachers and administrators will join college officials in a summer workshop and other activities to refine the curriculum designed for use in secondary schools.

The curriculum will concentrate on providing the basic skills needed in all the graphic arts—art, drafting, chemistry, English, journalism, and the social sciences. In grades eleven and twelve, a two-year program stressing the science and technology of visual communications will be given for students planning to attend a technical institute. A special twelfth-grade program will be for students planning to enter industry after high school. The new curriculum will be tested in secondary schools in Bellingham and Seattle and in Vancouver, British Columbia. Teams of teachers representing the relevant academic and vocational subjects will be responsible for teaching, planning, and evaluating the program.

At the community college level, the curriculum—to be tested by a community college in Seattle—will prepare students for technicians' jobs in such fields as advertising, photography, commercial art, printing, and similar professions. Western Washington State will itself conduct a two-year technology program for high-school graduates unable to attend a community college with a program suited to their needs.

After evaluations and revisions, the entire program will be published. Throughout the course of this project, graphic-arts educators from Arizona, Maryland, North Carolina, Pennsylvania, and Wisconsin will follow activities and participate in summer workshops along with the college and project-school faculty members.

17

Research, Development, and Information

1. American Institute for Research

Project Director:
Robert M. Gagné, American Institute for Research
410 Amberson Avenue, Pittsburgh, Pennsylvania 15232

The American Institute for Research, a nonprofit institution that conducts basic and applied research in the behavioral sciences, received Foundation support to evaluate the relevance of programs in vocational and technical schools to current technological needs and also to identify general and transferable work skills.

In the first study, the institute is analyzing the employment histories of some 10,000 graduates of vocational programs during the last ten years, as well as the histories of about 8,000 other high-school graduates, employed in similar jobs, who did not take vocational programs. Covering about 10 per cent of the country's public vocational high schools, some comprehensive high schools, and some private vocational schools, the study is one of the most ambitious ever undertaken in American education. Data include the characteristics of vocational schools and their students, including job stability, job performance, job satisfaction, and job potential of former vocational-school students.

Concentrating on the major skills taught in vocational high schools, the study seeks to clarify where and how people acquire skills, the relevance of vocational and technical education to employment, and the kinds of vocational training that have the best payoff. Results of computer analysis of the data are intended to help vocational educators revise curricula to meet the long-range demand for skilled manpower in industry, service jobs, and the professions.

In the second study, the institute is analyzing a spectrum of occupations to identify general and transferable work skills common to many jobs—for example, ability to make rough sketches of spatial ar-

rangements, or knowledge of safety procedures—in contrast with skills particular to each job. The institute is also attempting to apply the concept of "general skills" to a wide variety of jobs in the hope of finding a means for deriving various general skills from occupational information. The aim is to provide data on which a basic vocational curriculum, more adaptable to an age of changing technology, might be based. Tests will be devised to estimate the contribution of vocational and academic education to generalized vocational skills and the degree to which those skills are increased during school years.

2. University of Wisconsin

Project Directors:
Gerald Sommers and J. Kenneth Little,
Center for Research and Development of Vocational-
Technical Education and Training
University of Wisconsin, Madison, Wisconsin 53706

Wisconsin was the first major university to give high priority to the study of vocational and technical education, and its new center for research in the field plans to draw extensively from many disciplines in the university for study and development of vocational education.

The center, supported by the Foundation over a five-year period, is under the co-direction of a professor of educational psychology and a professor of economics. They are working with an advisory committee headed by the dean of the university's College of Letters and Science and composed of representatives of various university units, state institutions and agencies, and labor and management.

Since the beginning operations in the fall of 1964, the center has concentrated on establishing a clearinghouse of information basic to the strengthening of vocational and technical education—reports, curricular materials, and information on research and experimental projects under way. The center also plans to disseminate the information it collects through publications and field services.

The center's research will be conducted by experts in many fields —including economists, sociologists, psychologists, curriculum specialists, counseling experts, and specialists in the vocational-technical aspects of agriculture, commerce, engineering, home economics, and the industrial arts.

Research will be conducted in three main areas:

—Studies of "the changing world of work" will cover occupational trends and the job market, skills and knowledge required for current and developing occupations, relation of job needs to training programs, and the adequacy of job information and counseling.

—On the subject, "the human dimension," researchers will examine vocational-education programs for their demands on aptitudes, skills, and knowledge; selection and job-placement of trainees, and follow-up studies after employment; and problems of disadvantaged groups.

—The third field will be concerned with translation of knowledge of job trends and needs and of human resources into effective programs of education and training. Research will center on curriculum planning, counseling and work-study programs, development of instructional materials, training of teachers, and on-the-job training.

3. W.E. Upjohn Institute for Employment Research

Project Director:

Samuel Burt, W. E. Upjohn Institute for Employment Research
1755 Massachusetts Avenue, N.W., Washington, D.C. 20036

Under the requirements of Federal vocational-education legislation, tens of thousands of businessmen, labor officials, and industrial representatives serve on an estimated 11,000 industrial advisory committees throughout the country. Many trades and crafts have established their own committees to advise school systems on aspects of vocational education ranging from curriculum and training equipment to teacher selection and qualifications.

Yet no systematic study of industrial advisory committees has been made in the half century they have been active, and little is known about their actual effectiveness, methods of operation, and composition. To gather this information and to clarify the basis of effectiveness of the committees, the Fund for the Advancement of Education made a grant for a one-year study by the W. E. Upjohn Institute for Employment Research. The institute is a division of the W. E. Upjohn Unemployment Trustee Corporation, a private, nonprofit organization established in 1945 by the Michigan drug manufacturer.

Researchers will examine the following aspects of advisory committees: their influence on vocational-education course and program planning; their role in keeping teachers informed about changes and trends in the fields in which they teach; the selection of students for job placement; financial support of vocational programs; and the relation between educational programs conducted by industry and vocational programs in the schools.

Although industrial advisory committees have been in existence at the community level since the Smith-Hughes Act of 1917, the Vocational Education Act of 1963 required states to create advisory councils in order to qualify for Federal assistance.

Illustrative of the influence of advisory committees is the fact that in some areas they define the industrial experience that qualifies vocational teachers. Federal law requires that any changes in the scope and content of vocational education be based on the recommendations of the committees. In some instances, they are also the bodies to whom vocational teachers and administrators are responsible, in effect, more than to the local school board. At the other extreme, some advisory committees have limited impact on school programs and may be little more than honorary or perfunctory groups.

Through interviews with advisory committee members, school personnel, and others and through research on the record of committees, the Upjohn researchers will seek not only to gather information

but to clarify the role of the committees and to dispel popular and professional misconceptions of them. In a broader sense, the aim is to provide a more effective means of knitting industry and education into effective cooperation for better vocational education.

Vocational-Technical Teacher Training

1. San Francisco State College (Frederic Burk Foundation for Education)

Project Director:
Dwight H. Newell, San Francisco State College
1600 Holloway Avenue, San Francisco, California 94132

The main objective of San Francisco State's effort, supported by a Ford Foundation grant to the Frederic Burk Foundation for Education, is to help other schools in the Bay area—through workshops and in-service training for teachers—to institute programs similar to those of schools in the pre-engineering and food-technology programs (see pages 8 and 13). Summer workshops are scheduled over the next three years for about twenty vocational teachers each year; in addition, the college will sponsor a symposium for administrators and coordinators of vocational and technical education and a series of eight institutes for vocational-education teachers.

In addition to these services, the college will provide consultants—drawn from college faculty, industry, and staff of schools in the Richmond Plan—to advise teachers on curriculum and training methods. Consultants will also work with high-school staffs in an effort to get them to consider other fields of vocational education—for example, electronics and information programs—in addition to the pre-technology programs. The college will also review the possibility of extending the programs to junior high schools as well as senior high schools.

2. Central Michigan University

Project Director:
Ernest Minelli, Central Michigan University
Mount Pleasant, Michigan 48858

In cooperation with fourteen public school systems and three community colleges, Central Michigan University has planned a new program in vocational education composed of three elements: a technical-education program at the community colleges, based on and coordinated with a new high-school curriculum; a flexible degree program at the university for graduates of the community college programs; and a five-year degree program for the preparation of vocational teachers.

The new high-school curriculum will begin in the tenth grade, where students interested in vocational education will be able to explore a range of skills and study industry in modern society. Main objective of the tenth-grade curriculum will be the discovery and development of technical abilities rather than the preparation of students for specific employment.

During the eleventh and twelfth grades, the program will consist of a two-year sequence of courses in English, science, mathematics, and industrial-technical education. As in the pretechnology program (see page 8) students entering the labor force out of high school will be better prepared for training programs in industry, while those who wish to go to a community college will be able to continue in a sequential vocational program based on their high-school work. Students who complete their high-school program and wish to continue their education will have accumulated enough credits in general college preparatory work to admit them to Central Michigan's general liberal-arts program.

The community-college program will be designed to give the student proficiency in his chosen field. It is expected that most of the students will aim at a two-year associate degree, but they will be able

to transfer to the university if they wish to continue their education to the bachelor's degree level.

The program for preparation of vocational teachers combines for the first time at a university level the merits of the generalized industrial-arts approach, which is concerned with studies unrelated to particular fields, and specialized vocational education. The program will begin with a year devoted to interdepartmental studies, for which instructors from major subject areas will organize the curriculum to emphasize the interrelationships of subjects and their relevance to vocational education. The university will also strengthen its industrial-arts curriculum to provide for a particular area of concentration rather than general shop experiences. Each prospective teacher will complete a semester of industrial experience related to his area of concentration, plus a ten-week summer session in which he will work full time in industry. Students will also spend two semesters of school internships, first as teaching assistants and then as teaching associates under supervision, in high schools that have adopted the new vocational-education program.

The high schools to be included in the plan vary in size from a small rural school of fewer than 500 pupils to a large city school of over 3,000. Industry in the area will cooperate by accepting students for semester and summer working experience.

Cooperative Work-Study Education

Cooperative work-study education enables students to alternate periods of regular academic studies with off-campus employment related to their field of academic interest and to the careers they expect to follow. In addition to the advantage of interrelating education and the world of work, such programs sometimes enable low-income students to finance their advanced education.

The cooperative system has been confined largely to liberal-arts and engineering colleges. The Fund for the Advancement of Education in 1965 made seven grants for experiments in post-high-school cooperative education for vocational preparation for business and industry. Three of the recipients are predominantly Negro institutions. The projects are scheduled to begin in the fall of 1965.

Further information on these projects may be obtained from:

Roy Woodridge, Northeastern University, Boston, Massachusetts 02115

W. H. Hollins, Alabama Agricultural and Mechanical College, Normal, Alabama 35762

Russell T. Sharpe, Golden Gate College, 220 Golden Gate Avenue, San Francisco, California 94102

James R. Russell, Jr., Hampton Institute, Hampton, Virginia 23368

Bertram Spector, New York Institute of Technology, Syosset Extension, 175 Jericho Turnpike, Syosset, New York 11791

Lloyd Caughran, Water and Sewerage Technical School, Box 348, Neosho, Missouri 64850

Frederick Ross, Wilberforce University, Wilberforce, Ohio 45384

Northeastern University, which offers the largest cooperative-education program in the country (all of its 8,000 students participate), received a grant to coordinate and assist the work-study experiments. Northeastern will send staff members to other institutions to advise on such matters as the fields of study in which cooperative programs should be offered, and whether these should be elective or compulsory. The advisers will also help strengthen curricula, and suggest training programs.

In addition, Northeastern will bring staff members from the colleges to its campus for consultation internships. The interns will be

able to see how Northeastern administers its cooperative programs, from the first student interview with his faculty coordinator to the final report after the last assignment in the student's senior year.

Alabama Agricultural and Mechanical College will conduct a work-study program in electronics and mechanical technology in cooperation with Federal agencies and private industry engaged in space research in the Huntsville area. About forty students will take part in the program initially, and the number will be increased to about ninety by 1967. Students will follow a three-year program of alternating periods of study and work, including two summers. Curricula will be adapted in light of industrial developments encountered by the students.

Golden Gate College, in San Francisco, plans a three-year program under which twenty students a year will attend school and work during the spring and fall trimesters. In the summer trimester they will either work full time or attend remedial classes on a part-time basis. Students will receive academic credit for their work experience and will be eligible for an associate degree in business administration after two years. They will be encouraged to continue their studies towards the B.A. degree in evening classes.

Hampton Institute, in Virginia, will conduct a three-year program in industrial technology in cooperation with several major corporations, in an effort to train up to sixty students a year for supervisory posts. Students will spend their first two years in a general-education program with a technological emphasis; in the third year they will spend six months in industry working under the supervision of expert engineers and supervisors experienced in industrial training. Students will then return to the institute to complete work on their degrees, attending one extra summer session to make up for their time in industry.

New York Institute of Technology, a private post-secondary vocational school, will test a program in electrical and computer technology in which approximately 600 students—one quarter of the institute's enrollment—will pursue the bulk of their studies off campus. They will learn mainly through independent study, using programmed instruction material developed by the institute staff in cooperation with local industry. This material will be supplemented by use of television, radio, films, tape-recorders, and telephone; by field trips, and use of mobile libraries; and by laboratory, workshop, and tutorial sessions at the institute. Full-time attendance at the institute will only be required for a few weeks in the year.

Water and Sewerage Technical School, a private vocational school in Neosho, Missouri, will use its grant to enable 100 young men a year to take part in a cooperative study program with public and private utilities in the area. Under this program, the school will provide theoretical training in the increasingly complex field of water supply and sewerage disposal while the utilities—which have the large and expensive equipment schools cannot generally afford—will give practical training. Successful students will be hired as technicians by both public utilities and private industry.

Wilberforce University, in Ohio, a liberal-arts college, will institute a cooperative education program for its entire student body of more than 400. The year-round curriculum will consist of three academic periods. Freshmen will study for two or three periods before going to jobs; in the following three years they will spend at least four months a year in jobs. Courses will be rescheduled and faculty increased in accordance with the new program.

More than thirty organizations—including business and industry, schools, hospitals, and libraries, and Federal scientific institutions—will seek to provide employment under the program, leading to offers of permanent positions after the students have graduated.

The following is a selected list of publications available without charge from the Ford Foundation, Office of Reports, 477 Madison Avenue, New York, N.Y. 10022. A complete list of publications is also available.

The Ford Foundation Annual Report

About The Ford Foundation: General description of programs and objectives.

American Community Development: Preliminary reports on comprehensive community projects assisted by the Foundation in Boston, New Haven, Oakland, Philadelphia, and the state of North Carolina.

American Philanthropic Foundations: Facts and figures, with emphasis on national, general-purpose foundations.

The Apprentice Experts: An account of fellowship activities.

The Ford Foundation's Role in Engineering Education: An address to the American Society for Engineering Education by Carl W. Borgmann.

Language Doors: Foreign-language training and the teaching of English as a second language.

The New Teacher: Assistance for new patterns in teacher education.

The Pay of Professors: Report on grants for college-teacher salaries.

Scholars' Work and Works: Assistance to scholarly publication by university presses and improvement of library resources.

The Society of the Streets: Activities in youth development and delinquency prevention and treatment.

Stirring in the Big Cities: The Great Cities Projects: from the NEA Journals, published in 1962 and 1963, on Foundation-supported school-improvement programs.

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Vocational Teacher Role Definition and Role Conflict: The Counselor's Contribution. Summary of Report.

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ROLE THEORY; *ROLE PERCEPTION; *VOCATIONAL EDUCATION TEACHERS; *TEACHER ROLE; ROLE CONFLICT; *TEACHER BEHAVIOR; *COUNSELORS
OKLAHOMA

Role and role conflicts of vocational teachers were studied. Unstructured interviews with vocational education personnel, administrators, and teacher educators resulted in a list of vocational teacher behaviors for distributive education, trade and industrial education, vocational agriculture, and technical education. Based on this list, an instrument was developed which permitted respondents to indicate on a six point continuum the extent to which teachers actually engaged in the behaviors and the extent to which they should do so. It was tried with a pilot sample, refined, and administered to a stratified random sample of 1,502 vocational teachers, other teachers, vocational students, parents of vocational students, counselors, and administrators in 82 Oklahoma schools. Data were analyzed in terms of activity cognition and norms by the Kruskal-Wallis one-way analysis of variance and Mann-Whitney U tests. It was evident that counselors contributed to ambiguity of vocational teacher role through disparities between their own and teacher cognitions of what is and what ought to be done by teachers, through disparities between norms and expectations which they hold for the teacher. (JM)

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ED027441

SUMMARY OF REPORT

Vocational Teacher Role Definition and Role Conflict: The Counselor's Contribution*

John C. Egermeier, Solomon Sutker, and
J. Paschal Twyman

In recent years Role Theory has been utilized as a framework for a number of comprehensive studies of educational positions, including that of the superintendent (Gross, et. al.), the principal, (Sweitzer) and the teacher (Getzels and Guba). In view of the current emphasis upon providing appropriate vocational education to secondary school students a study of the role and role conflicts of the vocational teacher was undertaken.

This report summarizes findings relative to counselors' contributions to role definition and conflict for the Vocational teacher.

Theoretical Model

Within the framework of this investigation, role is conceived as the set of cognitions maintained about the behavior of occupants of a given position by all interested persons. The behavior of any occupant of the given position is considered to be strongly influenced by such cognitions held in relation to the position. Cognitions entering into the role of vocational teacher may be of many varieties and include, in the present framework, both activity cognitions (statements about what is perceived as existing) and norms (evaluative statements regarding what should exist). Thus the role of the vocational teacher may be considered to be a set of activity cognitions and norms held for that teacher position by vocational teachers themselves and by other counter-roles. Role conflict, in this study, is defined as the existence of disparate cognitions held for the behavior of vocational teachers.

VT 02291

*This report is based on a study entitled An Exploratory Analysis of Roles and Role Conflicts of Vocational Teachers in Oklahoma (Project No. OE-5-85-001) sponsored by the U.S. Office of Education under the provisions of Section 4 (c) of the Vocational Education Act of 1963. The authors were assisted by Carol A. Jensen, Charles H. Kaiser, and Kenneth J. Kiser.

Instruments and Methods

From unstructured interviews with vocational education personnel, administrators, teacher trainers, and others, a list of vocational teacher behaviors was constructed. Four broad areas of vocational education were considered: Distributive Education, Trade and Industrial Education, Vocational Agriculture, and Technical Education. Instruments were constructed which permitted respondents to indicate the extent to which they felt vocational teachers of a given type actually engaged in each of the behaviors (activity cognitions), and the extent to which they should do so (norms). Responses were scored on a six-point continuum ranging from "always" (scored as 1) to "never" (scored as 6).

After a try-out with a pilot sample and further refinement, the instruments were administered to 1502 respondents in eighty-two secondary schools selected on a stratified random basis to represent Oklahoma schools offering the various vocational programs under consideration. For each type of vocational education offered in each school the following respondents were sought: all vocational teachers, two non-vocational teachers, two non-vocational students, two vocational students, two parents of vocational students, one counselor, and one administrator. Each respondent completed forms relating to only one variety of vocational education.

In the interest of brevity, results presented are restricted to eleven vocational teacher behaviors which relate specifically to areas of immediate concern to counselors.

Data Analysis

For each vocational education type considered, responses of the seven counter-role positions were compared both in terms of activity cognitions and norms for each behavior. Kruskal-Wallis one-way analysis of variance

tests (Siegel) were utilized, followed by Mann-Whitney U tests (Siegel) to establish locations of significant differences. Results of comparisons between responses of counselors and the six other groups are presented in this report. Also reported are results of Mann-Whitney tests between counselors' activity cognitions and norms for each of the vocational teacher behaviors.

Summary of Findings

This report illustrates a method by which ambiguities in the definition of the social role for a given position holder can be examined. It is evident from the findings presented that counselors contribute to the ambiguity surrounding the role of vocational teacher in at least three ways: through disparities between their own and vocational teacher cognitions of what is and what ought to be done by the vocational teacher; through disparities between their own cognitions and those of the other position holders surrounding the vocational teacher, and through disparities between norms and expectations which they hold concurrently for the vocational teacher. The magnitude and direction of disparities are discussed in relation to specific items of vocational teacher behavior.

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*TEACHER ROLE; *VOCATIONAL EDUCATION TEACHERS; DISTRIBUTIVE EDUCATION TEACHERS; TRADE AND INDUSTRIAL TEACHERS; VOCATIONAL AGRICULTURE TEACHERS; STUDENTS; *COUNSELORS; *TEACHER BEHAVIOR; *ROLE PERCEPTION

A total of 1,502 counselors, administrators, vocational and nonvocational students, vocational and nonvocational teachers, and parents responded to a questionnaire listing 11 items of behavior to determine the extent to which they felt vocational teachers actually engage in the behavior (activity cognition) and should engage in it (norm). The response to each item was scored on a six-point continuum. Statistically significant differences in responses were identified by the Mann-Whitney U procedures. Of the respondents, 595 were in vocational agriculture, 548 with trade and industry, 87 with technical education, and 272 with distributive education programs. Activity cognitions and norms held for distributive education, trade and industrial, and vocational agriculture teachers were compared with counselor response, and the mean response was given when group and counselor response differed significantly. Comparisons of activity cognitions and norms held by counselors for the three teacher groups showed significant disparities in providing students with information about where they can get jobs, in maintaining up-to-date placement records of graduates, and in taking counseling or guidance courses in colleges. A summary of the report is available as VT 002 291. (WB)

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Vocational Teacher Role Definition and Role Conflict: The Counselor's Contribution*

John C. Egermeier, Associate Professor of Education, Oklahoma State University
Solomon Sutker, Professor of Sociology, Oklahoma State University
and
J. Paschal Twyman, Director of Research and Assistant to the Chancellor
University of Missouri at St. Louis

A total of 1502 counselors, administrators, vocational students, parents, non-vocational students, non-vocational teachers, and vocational teachers responded to the items below in terms of the extent to which they feel vocational teachers actually engage in the behavior (activity cognition) and should engage in it (norm). Responses were on a six-point continuum ranging from "always" (scored as 1) to "never" (scored as 6). Statistically significant differences in responses were identified by Mann-Whitney U procedures. Results of comparisons considered in this report are shown in Tables II through X on the following pages.

Item No.	Vocational Teacher Behavior
1.	Insist that all students admitted to their vocational courses have the potential ability to succeed in doing the work.
2.	Encourage students of high ability to take vocational classes.
3.	Suggest that personnel handling counseling functions revise their policies if a high proportion of students with poor academic ability are assigned to vocational classes.
4.	Exercise some type of control over decisions regarding students who are admitted to enroll in the vocational program they teach.
5.	Have as a primary objective training students who probably will not go to college.
6.	Have as a primary objective the teaching of skills which will improve their students' chances for employment immediately after graduation from high school.
7.	Emphasize the importance of a college education to vocational students.
8.	Provide students with information about how to apply and interview for a job after graduation.
9.	Provide students with information about where they can get jobs after graduation.
10.	Maintain up to date records on the job placements of vocational students who have graduated.
11.	Take counseling or guidance courses in college.

*This report is based on a study entitled An Exploratory Analysis of Roles and Role Conflicts of Vocational Teachers in Oklahoma (Project No. OE-5-85-001) sponsored by the U.S. Office of Education under the provisions of Section 4 (c) of the Vocational Education Act of 1963. The authors were assisted by Carol A. Jensen, Charles H. Kaiser, and Kenneth J. Kiser.

VT 02220

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Table I.

Number of Respondents by Program Type and Counter-Role

Counter-Role	Program Type			
	Vo-Ag	T & I	Tech. Ed.	D. E.
Vocational Teachers	63	134	10	26
Non-Vocational Teachers	102	87	17	50
Non-Vocational Students	115	88	18	51
Vocational Students	119	96	18	57
Parents	104	68	12	39
Counselors	38	35	6	26
Administrators	54	40	6	23
TOTAL	595	548	87	272

Table II.

Comparisons of Activity Cognitions Held for Distributive Education Teachers

Item No.	Counselor	Respondent Groups Being Compared With Counselor*					
		D. E. Teacher	Non-Voc. Teacher	Adminis-trator	Non-Voc. Student	D. E. Student	Parent
1	2.5				3.4	2.0	2.0
2	2.2	1.5					
3	2.6	3.0			3.5		
5	3.3		2.3				
7	2.4	1.7					1.5
10	2.6	1.1				1.7	
11	3.5					2.7	1.8

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table III.

Comparisons of Norms Held for Distributive Education Teachers

Item No.	Respondent Groups Being Compared With Counselor*					
	Counselor	D. E. Teacher	Non-Voc. Teacher	Adminis-trator	Non-Voc. Student	D. E. Student	Parent
1	2.9	1.3				2.1	1.8
2	2.6	1.5					1.9
3	2.9	1.6					
4	2.4	1.4					
7	2.4	1.7			1.8	1.6	1.4
10	1.4				2.4		

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table IV.

Comparisons of Activity Cognitions and Norms Held for Distributive Education Teachers by Counselors

Items on which significant disparaties appear ($p < .05$)	Counselors' Mean Response	
	Activity cognition	Norm
9. Provide students with information about where they can get jobs after graduation.	2.2	1.3
10. Maintain up to date records on the job placements of vocational students who have graduated.	2.6	1.4
11. Take counseling or guidance courses in college.	3.5	2.6

Table V.

Comparisons of Activity Cognitions Held for
Trade and Industrial Education Teachers

Item No.	Counselor	Respondent Groups Being Compared With Counselor*					
		T & I Teacher	Non-Voc. Teacher	Adminis-trator	Non-Voc. Student	T & I Student	Parent
1	2.8	2.3				3.8	2.2
2	2.6	1.9			3.7		
3	3.1	2.1					
4	2.8				3.7		
6	2.1	1.3					
7	3.2	2.0		2.3		2.2	1.5
8	2.4	1.9					1.7
9	2.4	1.8					
10	3.8	2.2		3.1		2.9	2.1
11	3.8	3.2	3.2		3.2		2.2

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table VI.

Comparisons of Norms Held for
Trade and Industrial Education Teachers

Item No.	Counselor	Respondent Groups Being Compared With Counselor*					
		T & I Teacher	Non-Voc. Teacher	Adminis-trator	Non-Voc. Student	T & I Student	Parent
1	2.5	1.5					2.1
2	2.5	1.5					
3	2.5	1.5					
4	2.5	1.6					2.0
6	1.7	1.3					1.5
7	2.4	1.8			1.9	1.7	1.4
9	1.2					1.8	1.5
10	1.5				2.4	2.3	

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table VII.

Comparisons of Activity Cognitions and Norms Held For Trade and Industrial Education Teachers by Counselors

Items on which significant disparities appear ($p < .05$)	Counselors' Mean Response: Activity cognition	Counselors' Mean Response: Norm
7. Emphasize the importance of a college education to vocational students.	3.2	2.4
8. Provide students with information about how to apply and interview for a job after graduation.	2.4	1.3
9. Provide students with information about where they can get jobs after graduation.	2.4	1.2
10. Maintain up to date records on the job placements of vocational students who have graduated.	3.8	1.5
11. Take counseling or guidance courses in college.	3.8	2.0

Table VIII.

Comparisons of Activity Cognitions Held for Vocational Agriculture Teachers

Item No.	Counselor	Respondent Groups Being Compared With Counselor*: Vo-Ag. Teacher	Non-Voc. Teacher	Administrator	Non-Voc. Student	Vo-Ag. Student	Parent
2	2.7	2.0					2.2
4	2.8	3.4	3.5		3.5	3.6	
5	3.0			3.6		3.7	
7	2.0	1.4				1.6	1.5
8	2.8	2.0					
9	2.7	1.9					
10	3.4	2.2			4.1		2.6
11	3.3						2.2

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table IX.

Comparisons of Norms Held For
Vocational Agriculture Teachers

Item No.	Counselor	Respondent Groups Being Compared With Counselor*					
		Vo-Ag. Teacher	Non-Voc. Teacher	Administrator	Non-Voc. Student	Vo-Ag. Student	Parent
2	2.4	1.6					
3	3.0	2.2					
7	1.9	1.4			1.6	1.3	1.2
10	2.2	1.5		1.5			

* Mean response is shown in each case where a group's responses differed significantly ($p < .05$) from counselors' responses.

Table X.

Comparisons of Activity Cognitions and Norms Held For
Vocational Agriculture Teachers by Counselors

Items on which significant disparaties appear ($p < .05$)	Counselors' Mean Response	
	Activity cognition	Norm
8. Provide students with information about how to apply and interview for a job after graduation.	2.8	1.8
9. Provide students with information about where they can get jobs after graduation.	2.7	1.7
10. Maintain up to date records on the job placements of vocational students who have graduated.	3.4	2.2
11. Take counseling or guidance courses in college.	3.3	1.9

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*TEACHER EDUCATION; *VOCATIONAL EDUCATION; GRADUATE STUDY; *COLLEGE CURRICULUM; *ADMINISTRATIVE ORGANIZATION; *PROGRAM COORDINATION; LAND GRANT COLLEGES; TEACHER EDUCATORS; TEACHER ATTITUDES
UNIVERSITY OF IDAHO

The objectives of the study were to ascertain the feasibility of coordinating current programs and developing a graduate program in the administration and supervision of vocational teacher education. Analysis of the catalog descriptions of programs in 44 land-grant universities showed the most common pattern to be separate departments in more than one college, 38.6 percent, and the least common to be a single department in one college, 13.7 percent. The seven teacher-trainers at the University of Idaho preferred the existing structure of four programs in three professional colleges to either the coordinated or separate department plan. They recognized the need for coordinating activities in vocational education, however, and were concerned about the possibility of course duplication and the need for the most qualified person to be responsible for each course. The feasibility of coordinating activities was supported by the fact that the major interest of the teacher trainers in the professional aspects of teacher education tended to be distributed throughout the various areas. Findings supporting the development of a graduate program in administration and superivison of vocational education showed that a basic core of upper division and graduate level courses is currently being offered that would be suitable for such a program, only one or two new staff would be needed, and most of the present teacher-trainers indicated an interest in participating in the program. (MM)

ED027441

A STUDY OF

VOCATIONAL TEACHER EDUCATION

UNIVERSITY OF IDAHO

VT 002122

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VOCATIONAL TEACHER EDUCATION

University of Idaho

1966

O. E. Kjos

PREFACE

This study was conducted under a contract with the Idaho State Board for Vocational Education. The study was initiated by the Idaho State Director, Vocational Education. The study was made by Dr. O. E. Kjos, Vocational Counselor Educator at the University of Idaho under the direct supervision of Dr. H. Walter Steffens, Vice President of Academic Affairs at the University of Idaho. Mrs. Karen Glenn served as research assistant for the study.

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Introduction

The University of Idaho entered into an agreement with the State Board for Vocational Education in May, 1966, for a study of existing Vocational Teacher Education programs[1]. The purpose of the study was to evaluate the current programs at the University of Idaho with a view toward improving their efficiency and effectiveness. The two major objectives of the study were:

1. To determine the feasibility of coordinating all efforts being made by the University of Idaho in the current Vocational Teacher Education programs and/or the establishment of a Vocational Teacher Education Department within one of the colleges at the University, and

2. To determine the feasibility of developing a graduate program in the Administration and Supervision of Vocational Education.

The University of Idaho assumed major responsibility for Vocational Teacher Education following passage of the Smith-Hughes Act in 1917. Graduates of the various professional schools of the University had filled Vocational teaching positions previously. These teachers were subject-matter specialists trained only in the technical or content area of their fields of work. With the assignment of Vocational teacher trainers, under provisions of the Smith-Hughes Act, the teacher education curriculum developed. It included professional courses in Vocational Teacher Education in addition to courses in general education and technical or content areas.

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[1] See Appendix A for a copy of the agreement.

The Philosophical foundations and objectives upon which the Smith-Hughes Act was based have persisted for many years. There have been some limited modifications as a result of subsequent Federal Acts, but secondary vocational programs and Vocational Teacher Education programs generally have tended to remain fairly static. The Vocational Education Act of 1963, however, provides for a greatly expanded program of vocational education in quantity, quality and scope. Section 1 of the Act states:

> The purpose of this Act is to authorize Federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment to youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the state--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.[1]

A major emphasis in the 1963 Act was that the use of funds was to be based upon groups and individuals to be served rather than upon the traditional vocational subject matter areas. Section 4(a) states that a state's allotment may be used for any or all of the following groups of persons:

1. Vocational education for persons attending high school.

2. Vocational education for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

3. Vocational education for persons who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment.

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[1] Vocational Education Act of 1963, Public Law 88-210, 88th Congress, H. R. 4955, December 18, 1963, p. 1.

4. Vocational education for persons who have academic, socioeconomic and other handicaps that prevent them from succeeding in the regular vocational education program.

Implementation of the Act has increased the demand for both vocational teachers and administrative-supervisory personnel. The change in requirements has been more than mere numbers -- additional personnel are needed at all levels, but they must possess new competence. This study was designed to provide a basis for an evaluation of the effectiveness of the vocational teacher education programs at the University of Idaho in fulfilling the provisions of the Idaho State Plan for Vocational Education and more nearly meeting the needs of all people in all communities in the State who want and need vocational education.

ADMINISTRATIVE AND CURRICULUM ORGANIZATION

The first objective of this study was concerned with the feasibility of coordinating all vocational teacher education at the University of Idaho and/or the establishment of a Vocational Teacher Education Department within one of the colleges at the University. The methodology employed in terms of this objective included:

1. An analysis of the administrative structure for vocational teacher education at the University of Idaho.

2. An analysis of the administrative structure for vocational teacher education at other land-grant universities and colleges.

3. A description of the present curriculums and course offerings at the University of Idaho.

4. A description of the curriculums and course offerings at other universities.

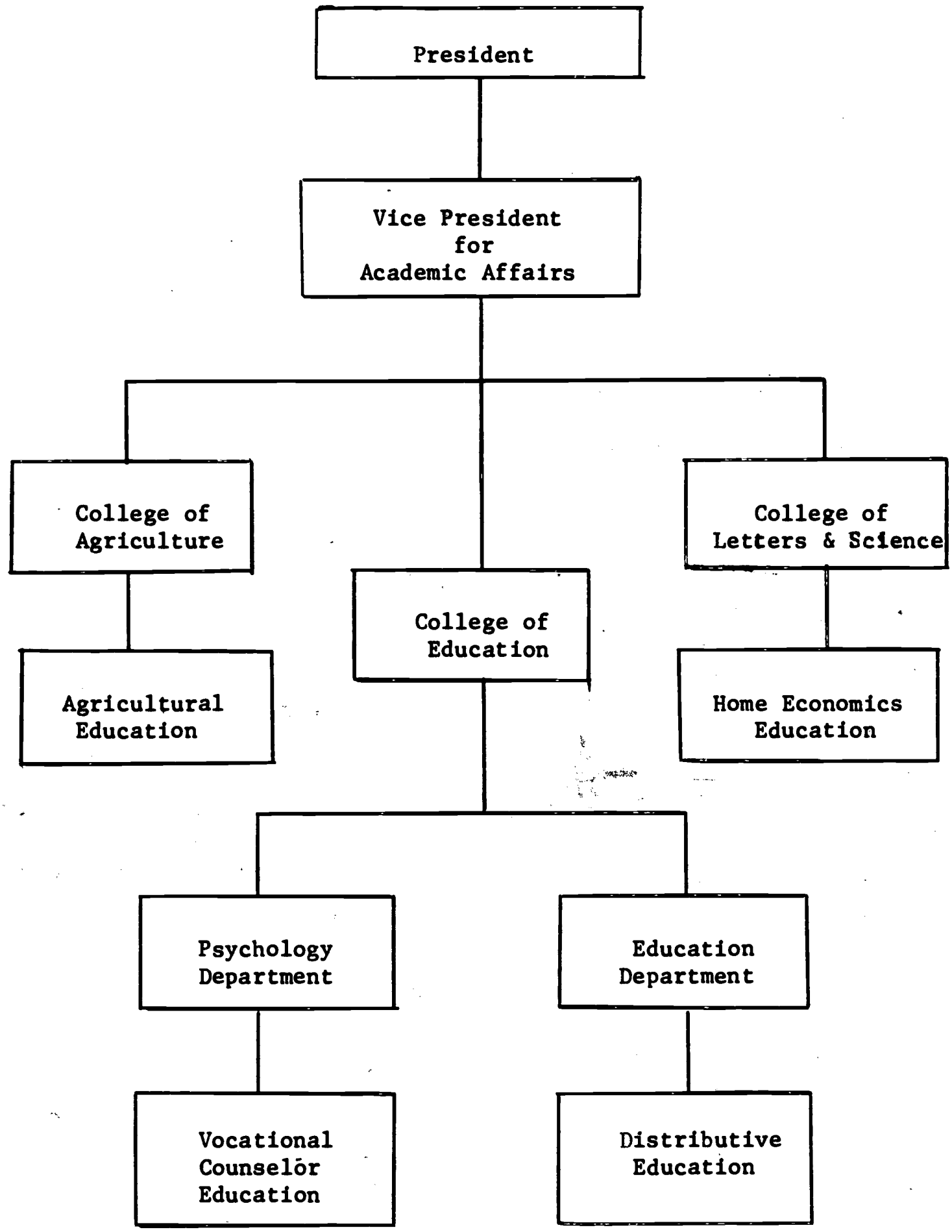
5. An analysis of alternate organization patterns.

I. ADMINISTRATIVE STRUCTURE AT THE UNIVERSITY OF IDAHO

Vocational teacher and counselor education at the University of Idaho is departmental -- centered with little unity. The deans of three professional colleges have administrative responsibility for one or more of the four vocational teacher education programs as shown on Figure 1.

The College of Education has administrative responsibility for two programs -- Distributive Education and Vocational Counselor Education. The Colleges of Agriculture and Letters and Science each have responsibility for one program -- Agricultural Education and Home Economics Education.

Figure 1
Organization for Vocational Education
University of Idaho

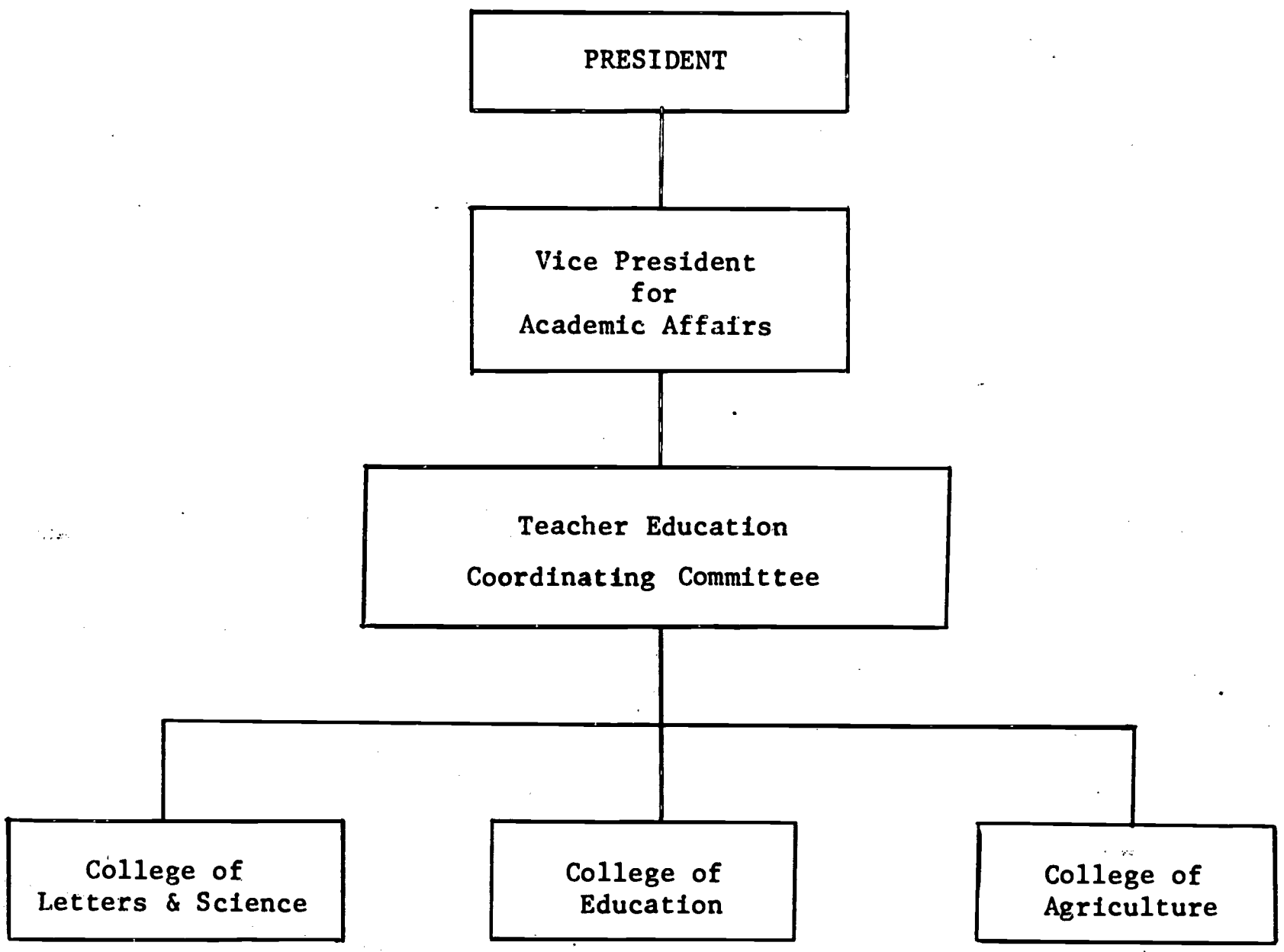


Present Coordination of Teacher Education

A Teacher Education coordinating committee serves in an advisory capacity on matters of certification and policy matters concerning teacher education. The committee is composed of twelve members who are appointed by the President. The Dean of the College of Education serves as chairman of the committee. Figure 2 shows the organization of the committee.

Figure 2

Coordination Committee Organization



II. ADMINISTRATIVE STRUCTURE AT OTHER UNIVERSITIES

An analysis of the catalog descriptions of vocational teacher education at 44 land-grant institutions revealed a variety of organizational patterns. These could be classified into four major types: (1) separate departments of vocational teacher education in more than one college of the university; (2) cooperative programs of vocational teacher education administered by two or more colleges of the university; (3) separate departments of vocational teacher education in one college of the university; and (4) a single department of vocational teacher education in one college of the university.

Separate Departments in More Than One College

The most common of the four types of organization was the traditional separate departments of vocational teacher education for each field of service. These departments generally were administered by the professional college offering the technical (content) courses of the programs. Seventeen, or 38.6 per cent, of the institutions had this type of administrative structure as indicated in Table 1.

Cooperative Programs Between Two or More Colleges

Nearly one-third, 31.8 per cent, of the universities indicated a cooperative type program for vocational teacher education. Coordination generally was accomplished through faculty committees rather than through a designated, single coordinator.

Separate Departments in One College

Seven of the 44 universities, or 15.9 per cent, showed all vocational teacher education as being the responsibility of one college of the institution.

These were organized as separate departments for each service area within the college. In five of the institutions the departments were administered by the College of Education; in one institution by the College of Agriculture, and one by a College of Life Science and Agriculture.

Single Department in One College

The single department of vocational teacher education, administered by one college of the university, was the least common type of organization listed by the 44 institutions. As shown in Table I, only six, or 13.7 per cent, of the universities reported this type organization. The vocational teacher education department was administered by the College of Agriculture in one institution, by the College of Education in four institutions, and by the College of Science and Arts in one institution.

TABLE I

ADMINISTRATIVE ORGANIZATION OF VOCATIONAL TEACHER EDUCATION AT 44 LAND-GRANT UNIVERSITIES

Organization Structure	Frequency	Per Cent
Separate Departments in More Than One College:	17	38.6
Cooperative Programs Between Two or More Colleges:	14	31.8
Separate Departments in One College:	7	15.9
Single Department in One College:	6	13.7
TOTAL	44	100.0

III. CURRICULUMS AT THE UNIVERSITY OF IDAHO

The University of Idaho offers work toward the certification of teachers in Vocational Agriculture, Vocational Home Economics, Distributive Education, Business and Office Education, Technical Education and Vocational Guidance. The Vocational Guidance program is designed to strengthen the preparation of secondary school teachers, counselors, and administrators in vocational guidance; it does not involve a separate curriculum for the preparation of vocational counselors. A degree program has not been offered in Trade and Industrial Education nor in Health Occupations.

Teacher trainers have been designated by the State Department of Vocational Education for Agriculture, Home Economics, Distributive Education, and Vocational Guidance. Federal-State financial support has also been provided in these four areas.[1] The programs in Business and Office Education and in Technical Education have not been reimbursed under provisions of the Idaho State Plan for Vocational Education and hence is not detailed in this study.

Undergraduate Curriculum Requirements

Table II shows a comparison of the requirements of the various teaching majors by area of study. A total of 128 semester hours is required for graduation in all programs except for Agricultural Education, which has a total requirement of 136 hours. The pattern of requirements is similar for the various service areas with the exception of the special secondary and the Vocational Education professional areas of study.

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[1] Refer to Appendix B for abstracts of the teacher training agreements between the University of Idaho and the Idaho State Department of Vocational Education.

TABLE II

COMPARISON OF CURRICULUM REQUIREMENTS
IN VOCATIONAL TEACHER EDUCATION
UNIVERSITY OF IDAHO

VOCATIONAL TEACHING MAJOR:	Agricultural Education	Home Economics Education	Distributive Education
Area of Study	CREDITS REQUIRED		
General Education Requirements	46-50	44-46	43-47
Special Requirements for Secondary Teachers	4	4	16
Vocational Education Professional Courses	21	20	6
Vocational Education Technical Courses (Content or Teaching Major)	44	48	44
Electives (May be used to complete teaching minor)	17-21	10-12	15-19
TOTAL CREDITS REQUIRED	136	128	128

Comparison of Undergraduate General Education Requirements

The general education requirements for vocational teacher education at the University of Idaho are shown in Table III. Total credits vary from 43 for men in Distributive Education and 46 credits for men in Agricultural Education.

The most significant difference in requirements among the various majors is in the science-mathematics area. Twenty credits are required in Agricultural Education, 18 in Home Economics and 12 in Distributive Education.

Special Requirements for Secondary School Teachers

Distributive Education included a block of professional credits required of all secondary teaching majors in the College of Education. The remaining two programs, Agricultural Education and Home Economics, have a four-credit requirement in this area of professional work as shown in Table IV.

TABLE III

GENERAL EDUCATION REQUIREMENTS FOR UNDERGRADUATES
UNIVERSITY OF IDAHO

VOCATIONAL TEACHING MAJOR:	Agricultural Education	Home Economics Education	Distributive Education
Subject Matter Area	Credits Required		
English			
Eng 1 and 2 English Comp	6	6	6
Eng 113 Business Writing			3
Eng 115 Technical Writing	3		
English Electives			3
Physical Education			
P.E. 1 Healthful Living (Women)	(2)		2
Women--4 activities courses	(4)	4	4
Men--4 activities courses	2	(2)	2
Psychology			
Psych 1 General Psych	3	3	3
Psych 55 Human Growth & Dev	3	3	
	or	or	
Psych 56 Human Growth & Dev	3	3	3
		or	or
Psych 151 Ed Psych		3	3
Science and Math			
Physical Sciences	8	8	
Biological Sciences	8	10	
Math	4		
Social Science			
Soc 51 Into to Sociology		3	
Soc 121 The Family		3	
Soc Sci Electives	7**	6	9***
Speech 31, Fundamentals of Speech	2		2
TOTAL CREDITS			
Men:	46	44	43
Women:	50	46	47

* Any math or science courses
** 7 credits required in Social Science, Humanities, or English
*** Must include American History or American Government

TABLE IV

SPECIAL UNDERGRADUATE REQUIREMENTS FOR
SECONDARY SCHOOL TEACHERS

VOCATIONAL TEACHING MAJOR:	Agricultural Education	Home Economics Education	Distributive Education
Subject Matter Area	Credits Required		
Foundations			
Ed 11 Ed Lectures (Orientation to Ed)			1
Ed 87 Foundations of Ed (Intro to history of ed, place of school in society, ed philosophy, etc.)	4	4	4
Methods			
Ed 114a Gen. Secondary School Methods			2
Student Teaching			
Ed 131 Student Teaching in the Secondary Schools			9
TOTAL CREDITS	4	4	16

Vocational Education Professional Courses

The vocational education professional requirements are principally the philosophical and methodological foundations and student teaching courses in vocational education. These requirements do not include the technical, or content, courses comprising the students' vocational teaching majors. The courses listed in Table V generally are the principal teaching responsibility of the teacher trainers.

Considerable variation in the teaching majors is evident in the vocational professional education subject matter area. As few as six credits of specialized vocational education has been required in Distributive Education and as many as 21 credits in Agricultural Education. Distributive Education majors take the same courses in orientation to education, general secondary methods and student teaching as do all nonvocational secondary majors. This accounts for a large part of the variability in requirements within the vocational education professional subject matter area.

A combined total of 64 credits of specialized vocational professional course work is required by the five major departments. Of this total, only two credits (Ag Ed 151, Principles of Vocational Education) are common to more than one department; both Agricultural Education and Home Economics majors are required to take the course. Distributive Education majors may also elect the course in place of Bus. Ed. 198, Organization and Administration of Cooperative Programs.

Specialized work in the philosophical foundations (and objectives) of vocational education is required by two departments. Methods of teaching vocational courses vary from three credits in two departments to ten credits in one department.

TABLE V

VOCATIONAL TEACHER EDUCATION PROFESSIONAL COURSES
UNIVERSITY OF IDAHO

VOCATIONAL TEACHING MAJOR:		Agricultural Education	Home Economics Education	Distributive Education
Subject Matter Area		Credits Required		
Foundations				
Ag Ed 151	Prin. of Voc Educ.	2	2	
Ag 1	Orientation	1		
Home Ec 9	Intro to Home Economics		1	
Methods				
Ag Ed 152	Beginning Methods (for jrs.)	2		
Ag Ed 153	Advanced Methods (for srs.)	3		
Ag Ed 154	Methods of Tching Farm Shop	2		
Ag Ed 157	Adult Agric. Ed Methods	2		
Ag Ed 161	Pro Seminar (Study of Ag Ed problems; discussion, etc.)	1		
Bus Ed 193	Methods & Materials in DE			3
H Ec 152	Methods in Teaching Home Ec		3	
H Ec 156	Methods in Adult Home Ec Educ.		3	
Curriculum				
H Ec 153	Problems in Teaching Home Ec (Curr)		2	
Administration and Supervision				
Ag Ed 158	Supervision of FFA	2		
Bus Ed 197	Coordination Techniques			3 or 3*
Bus Ed 198	Organization & Administration of Cooperative Programs			
Student Teaching				
Ag Ed 155-156	Practice Teaching	6		
H Ec 157	Student Teaching in Home Ec Education		9	
TOTAL CREDITS		21	20	6

* Ag Ed 151

Two departments require work in the curriculum or course construction area. No course work in vocational guidance is required at the undergraduate level.

Distributive Education majors are required to take the same student teaching course as was required for nonvocational teaching majors. A total of nine credits is offered for eight weeks of supervised teaching. The cooperating teachers are reimbursed $45.00 per student. No provision is made for reimbursing students for travel expenses.

The Agricultural Education Department required a maximum of six credits in student teaching. The student teaching experience is conducted in two sessions. A four-week experience is provided in the fall, followed by a two-week experience in the spring. The cooperating teachers are reimbursed at the rate $25.00 per student teacher. The student teachers are reimbursed for travel expenses incurred in the course. An observational experience is also provided for all student teachers as a unit of Ag Ed 152, Beginning Methods. The local critic teacher is reimbursed on a yearly basis for his cooperation in this course.

The Home Economics Department offers its own specialized course in student teaching. Nine credits are offered in the course. Local cooperating teachers are reimbursed at the rate of five dollars per week for each student teacher. The student teachers are also reimbursed for travel expenses of one round-trip from the University to the cooperating school.

Technical Course Requirements

The technical or content courses constitute the teaching major of each vocational teacher training program. The degree of dependence of the vocational teacher education programs upon the professional colleges varied from approximately one-fourth to over one-third of the total credits constituting the degree requirements, Table VI.

TABLE VI

TECHNICAL COURSE CREDITS REQUIRED FOR EACH VOCATIONAL MAJOR
UNIVERSITY OF IDAHO

Vocational Teaching Major	Total Credits	Technical Credits	%
Agricultural Education: Technical courses taken in the College of Agriculture	136	44	32
Distributive Education: Technical courses taken in the College of Business Administration	128	44	34
Home Economics Education: Technical courses taken in the College of Letters and Science	128	48	38

The Home Economics major was highest in dependence with 38 per cent of the total credits devoted to technical (content) courses offered by the College of Letters and Science. In Distributive Education 34 per cent of the undergraduate degree requirements were technical courses given in the College of Business Administration.

The Agricultural Education major had a total graduation requirement of 136 credits. Of these credits, 32 per cent were concentrated in technical courses offered by the College of Agriculture, Table VI.

Teacher Trainer Work Load Distribution

An average of the five teacher trainer's work loads over a three-year period (1964-65) indicated that approximately 75 per cent of their time was spent in instruction. The percentage of time devoted to instruction ranged from a high of 100 per cent for two instructors over the three-year period to a low of 60 per cent for two instructors, Table VII. The least amount of time devoted to teaching for any one semester for a full-time staff member was 40 per cent.

Relatively little effort had been expended in the area of research during the three-year period. Only two staff members reported time devoted to research and it accounted for approximately four per cent of the total work load of the five teacher trainers. The range of time in percentage was from 17 to five. One staff member did, however, devote 50 per cent of his time in the research area during the last year of the three-year period.

Administrative functions consumed approximately 10 per cent of the total time of the five teacher trainers.

TABLE VII

TEACHER TRAINER AVERAGE WORK LOAD DISTRIBUTION

University of Idaho * 1963-65

Teacher Trainer	Percentage of Time			
	Instruction	Research	Administration	Service
#1	100	0	0	0
#2	71	0	0	29
#3	70	0	14	16
#4	62	17	3	18
#5	60	5	25	10

The average time entailed in administration over the three-year period ranged from 25 per cent for one staff member to none for two staff members, Table VII.

The service area accounted for approximately 11 per cent of the total time of the five teacher trainers. More than one-fourth of the time of one instructor and no time for one instructor was expended in service activities.

Instruction

The major teaching responsibilities of the five teacher trainers was in the area of professional courses as shown in Table VIII. Only the instructor in Distributive Education had taught content courses during the three-year period 1963-65. The remaining two, combined, had taught only three separate content courses during the three-year period.

Excluding summer sessions, all of the professional course offerings were taught by the teacher trainers with the exception of two courses in Home Economics and one course in Agricultural Education.

Class Size

The average enrollment in the undergraduate professional courses taught by the teacher trainers was relatively light during the three-year period 1963-65, Table IX. The data presented were based upon lecture and laboratory courses only and do not include individual problems, seminar, or research and thesis.

Vocational guidance data were not included since they are not directly comparable to the class-size data for the other vocational teacher majors.

The enrollments in the other service areas represented majors primarily while the enrollments in the courses taught by the vocational counselor educator were composed of majors in elementary and secondary education, school administration and in guidance and counseling.

TABLE VIII

Area of Teaching Responsibility

University of Idaho - 1963-65

DEPARTMENT	Average Percentage of Credits	
	Professional Courses*	Content Courses
(1) Agricultural Education	100	0
(2) Distributive Education	92	8
(3) Home Economics Education	100	0
(4) Vocational Guidance Education	100	0

*Does not include additional responsibilities for courses in professional problems, seminar or research and thesis.

TABLE IX

AVERAGE CLASS SIZE OF PROFESSIONAL UNDERGRADUATE COURSES
University of Idaho 1963 - 1965

DEPARTMENT	NUMBER OF STUDENTS		
	1963-64	1964-65	1965-66
Agricultural Education	11	11	16
Home Economics Education	10	13	11
Distributive Education	3	4	2

IV. CURRICULUMS AT OTHER UNIVERSITIES

The 1965-66 catalogs of 44 land-grant universities were examined for curricular and specific course offerings. The catalogs did not include sufficient detail in all cases so that individual courses could be identified.

Vocational Teacher Education Programs

Of the 44 institutions studied, 42 or 95 per cent offered an undergraduate degree in Agricultural Education, Table X. Home Economics Education was offered by 41 or 93 per cent of the institutions. Three-fourths (77 per cent) of the universities offered Business Education and over one-half (55 per cent) had degree programs in Trade and Industrial Education. Distributive Education was offered by 17 and Technical Education by 10 of the universities. Only two, or five per cent, of the institutions' catalogs included an organized curriculum in Vocational Guidance.

Curricular Requirements

There appeared to be considerable agreement between the various vocational teacher education majors. A diversity of requirements were found, however, in the professional course area.[1] The highest level of agreement between institutions and vocational programs was in the course areas of methods and in student teaching, Table XI. Nearly all of the vocational teacher education departments required work in these two areas. Less than one-half required work in the area of curriculum planning.

Student Teaching

Over one-half the departments in Agricultural Education, Home Economics Education, Technical Education and Trade and Industrial Education offered their own specialized work in student teaching, Table XII.

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[1]For a detailed listing of the major and professional education requirements at the 44 institutions see Appendix D.

TABLE X

FREQUENCY OF VOCATIONAL TEACHER EDUCATION OFFERINGS
AT 44 LAND-GRANT INSTITUTIONS

Major	Frequency	Per Cent
Agricultural Education	42	95
Home Economics Education	41	93
Business Education	34	77
Trade and Industrial Education	24	55
Distributive Education	17	39
Technical Education	10	23
Vocational Guidance	2	5

TABLE XI

PERCENTAGE DISTRIBUTION OF REQUIRED PROFESSIONAL COURSES
44 UNIVERSITIES

REQUIRED COURSES	Agricultural Education	Business & Office Education	Distributive Education	Home Economics Education	Technical Education	Trade and Industrial Education
Foundations Courses						
History of Vocational Education					10	24
Intro to--Education	52	15		22	20	
Intro to or Foundations of Ed.	27	48	35	41		33
Foundations of Learning	9	4	6	3		
Principles or Objectives of Voc. Ed.	3	7	35	11	20	33
Principles of -- Education	9	52	47	22	50	48
Principles of Secondary Education	24	30				14
Principles of Guidance	3					
Philosophy and History of Ed.		22	6	8		
Improvement of Instruction		11	12			
Tests and Measurements		26	12	3		
Vocational Guidance			18		20	14
Methods Courses						
Methods of Teaching	142	148	59	100		5
Methods and Materials of Teaching	21				40	90
Techniques of Coordination		4	41			
Sec. School Methods and Practices		26	29	24		
Evaluation				27		
Methods of Extension Teaching				5		
Methods of A-V Education			6	3		

TABLE XI (continued)

REQUIRED COURSES	Agricultural Education	Business & Office Education	Distributive Education	Home Economics Education	Technical Education	Trade and Industrial Education
Administration and Supervision Courses						
Administration and Supervision	18					
Administration and Organization		7	59	3		5
School Administration	3					
Curriculum Courses						
Curriculum or Program Planning	39	11	24	24	30	57
Facilities and Departmental Programs	3					
Secondary School Curriculum	3					
Human Development and the Curriculum		4		3		
Analysis and Course Construction			6			
Other Courses						
Student Teaching	100	93	82	92	60	67
Seminars	24	4	12	16	10	5
Special Problems or Topics	21	4	12	16	10	
Instructional Aids	9				10	
Supervised Activities	9					
Independent Study				5		
No. of schools for which data was available	33	27	17	37	10	21

TABLE XII

RESPONSIBILITY FOR STUDENT TEACHING COURSES
44 INSTITUTIONS

Vocational Education Department	Percentage Distribution	
	Under Specialized Vocational Department	Under General Education Department
Agricultural Education	58%	42%
Business Education	13%	87%
Distributive Education	29%	71%
Home Economics Education	58%	42%
Technical Education	80%	20%
Trade and Industrial Education	67%	33%

Most of the student teaching in Business Education and Distributive Education was offered under the direction of a general education department.

V ALTERNATE ADMINISTRATIVE ORGANIZATION PATTERNS

Two different types of administrative organization were suggested in the first objective of this study. The first would provide for a coordinator of all vocational teacher education and the second would establish a vocational teacher education department within one of the colleges at the University.

Coordinator of Vocational Teacher Education

The coordinated program of vocational teacher education was the second most common of the types of organization reported by the 44 institutions included in this study. Generally the coordination was accomplished through faculty committees rather than through a single coordinator.

The coordinator at the University of Idaho would be responsible directly to the Vice President for Academic Affairs as shown in Figure 3. He would be assigned coordination and advisory responsibilities to each vocational teacher trainer through the three colleges involved.

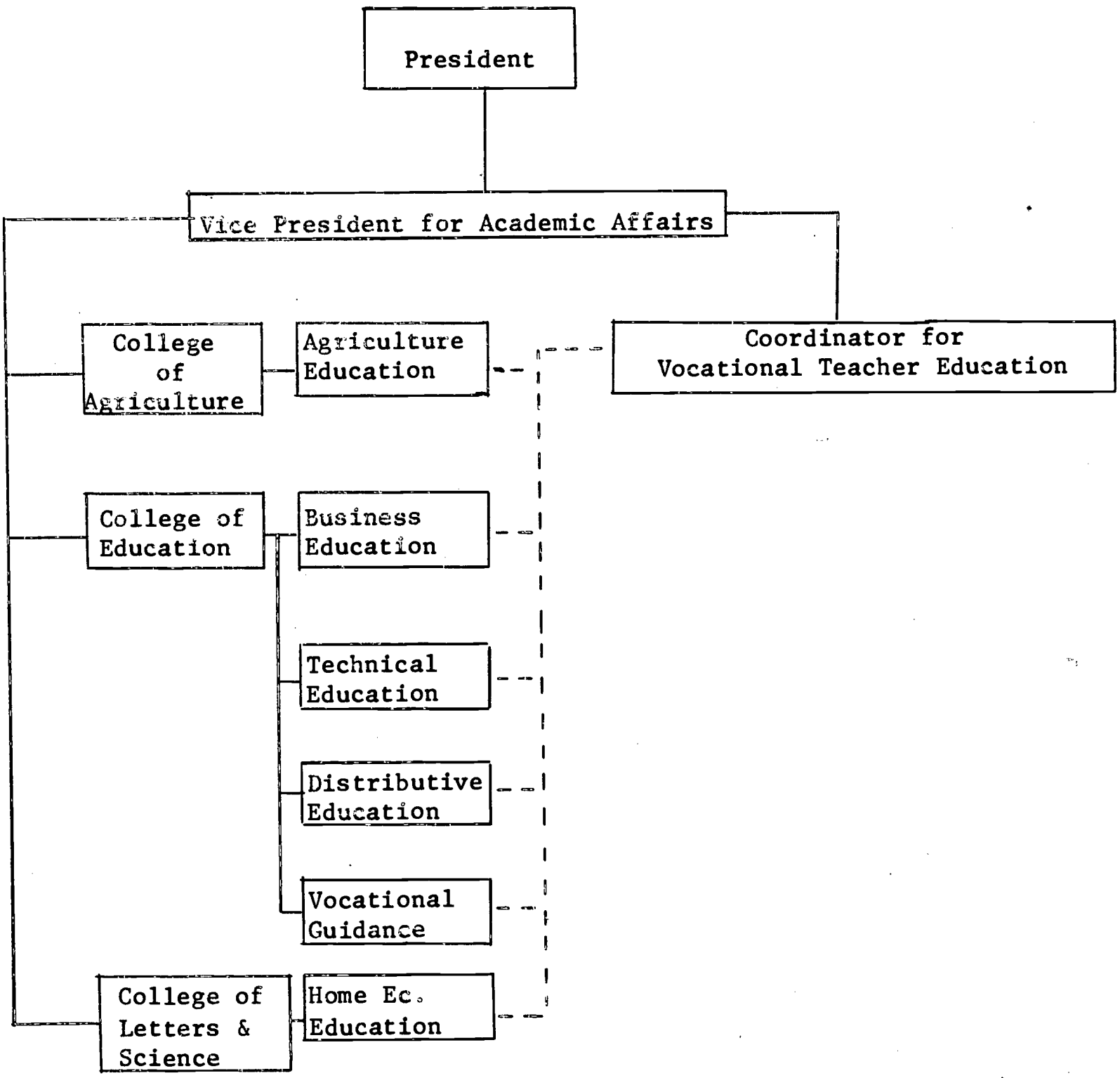
The coordinator-type organization would offer some advantages. The primary advantage would be that no reorganization would be required. It would enable the teacher trainers to remain more closely associated with the technical or content areas of the various programs. The principal disadvantage would be that the coordinator would lack the authority to effectively influence changes in programs and thus provide for the flexbility so necessary in vocational teacher education today. This type organization would have little advantage over the present Coordinating Committee at the University of Idaho (shown previously in Figure 2).

Department of Vocational Teacher Education

The single department of vocational teacher education was the least common type organization reported by the 44 institutions surveyed in the study. The trend in reorganization, however, appears to be in the direction of the single department.

Figure 3

COORDINATOR OF VOCATIONAL TEACHER EDUCATION



Under this type organization, all teacher trainers would be responsible to the same Department Head and the same Dean, as shown in Figure 4. The content or technical courses would remain under the direction of the various professional schools. The advantages of this type organization are: (1) the department head would have direct responsibility for the development and supervision of all the teacher education programs; (2) there would be greater cooperation between the teacher trainers; (3) it would provide for increased specialization by all teacher trainers; (4) duplication in course offerings could be reduced; (5) the teacher trainers could concentrate their efforts in their major areas of interest; (6) the number of budgets would be reduced; (7) programs for students could be developed that would be in harmony with the provisions of the Vocational Education Act of 1963, and (8) graduate programs could be strengthened through broader offerings without increasing the number of staff positions.

The disadvantages over the present type organization would be: (1) extensive reorganization would be required; (2) the teacher trainers would be limited in terms of contact with the technical or content areas of the curriculum, and (3) the teaching responsibilities of the teacher trainers would be limited largely to the professional phases of the programs.

Teacher Trainer Preference for Types of Organization

The seven teacher trainers were asked to evaluate the three basic types of administrative organization in terms of improving the efficiency and effectiveness of programs at the present undergraduate, the present graduate and the proposed administration and supervision levels. As shown in Table XIII, five indicated a preference for the present administrative structure for all three of the program levels (one teacher trainer indicated that the response was "neutral." The comments indicated that neither of the alternatives offered an appropriate

Figure 4

DEPARTMENT OF VOCATIONAL TEACHER EDUCATION

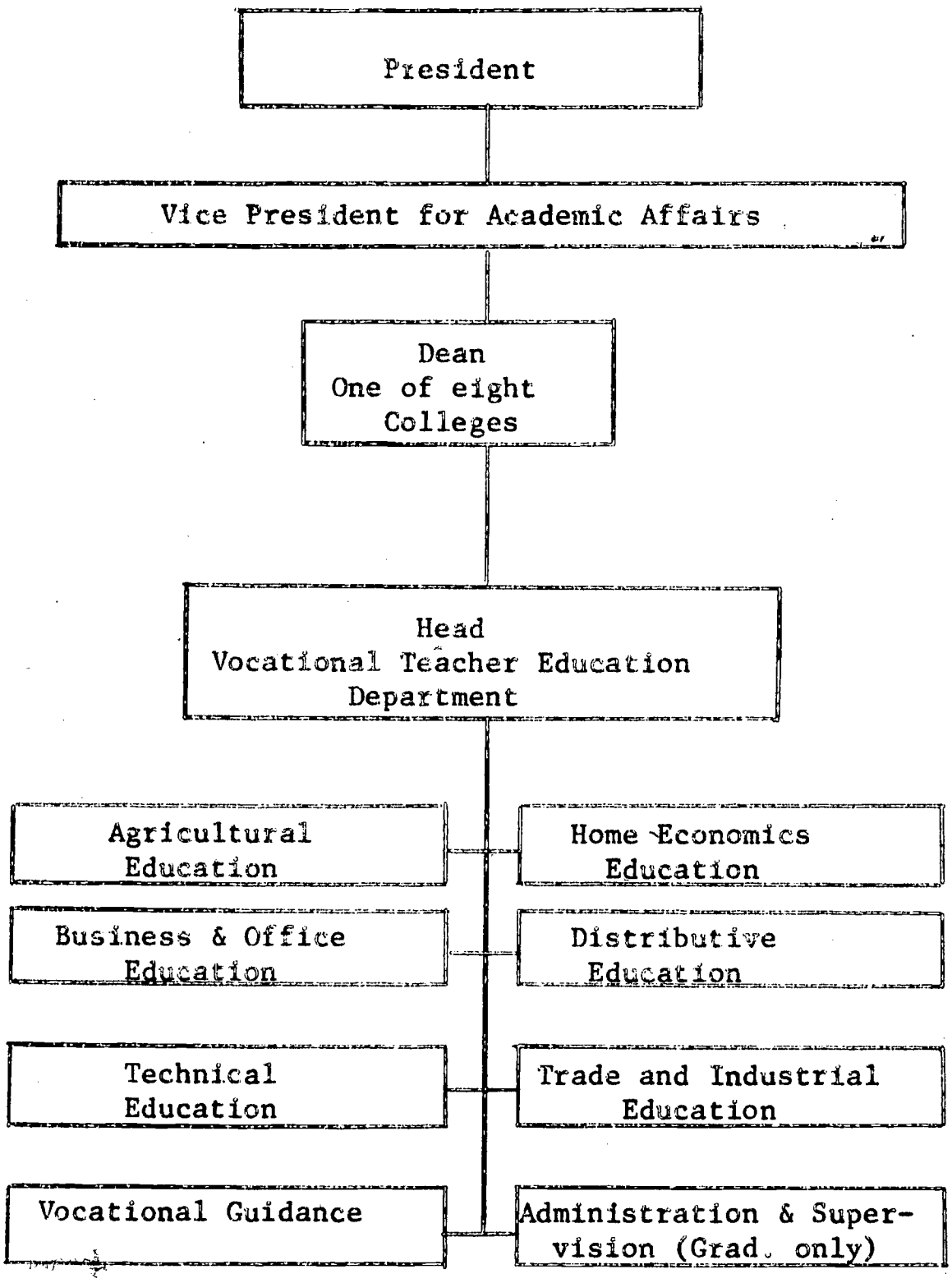


TABLE XIII

TEACHER TRAINER'S PREFERENCE FOR TYPES OF ORGANIZATION

Type Organization	No. of Responses[1] Undergraduate Programs	Graduate Programs	Administration and Supervision Program
Present Departmental Organization	5	5	5
Coordinator of Vocational Teacher Education	0	1	0
Separate Department of Vocational Teacher Ed.	2	1	2
TOTAL	7	7	7

[1]The responses of the teacher trainers in Business and Office Education and in Technical Education were included in this section since any reorganization might involve them.

solution to present problems). One teacher trainer indicated that the coordinator-type organization would be most effective at the graduate level and one response preferred the single department at the graduate level. Two respondents selected the single department of vocational teacher education as the most effective type organization at the undergraduate level and at the administrative and supervision level.

Feasibility of Coordinating All Vocational Teacher Education Activities

The need for coordination of activities in Vocational Education was recognized by all of the teacher trainers. There was some concern over the possibility of more than one course being offered at the present time when only one would be necessary and that the most qualified person should be responsible for the course. The members of all departments indicated that their department offered at least one course that would have value for all vocational teacher education students.

The feasibility of coordinating teacher education activities was further supported by the fact that teacher trainer's major interest in the professional aspects of teacher education tended to be distributed throughout the various activities. Three teacher trainers indicated a preference for the supervision of student teaching, five in the area of teaching methods courses, one for the coordination of cooperative programs, two for teaching courses in organization and administration, and one indicated a preference in the area of student appraisal.

GRADUATE PROGRAM IN THE ADMINISTRATION AND SUPERVISION OF VOCATIONAL EDUCATION

The development of vocational, technical education during the last few years has been influenced to a great extent by an increased national awareness of an imbalance between manpower supply and demand. This imbalance has been created by some rather profound changes within the total occupational structure of the nation. The changes have led to the conclusion that occupational opportunities are greatest in those occupations requiring advanced levels of preparation. The direction of vocational technical education development will be determined by the needs of various groups in relation to the opportunities that will be available to them. Programs must be designed to provide occupational competency for increasing numbers of students in a diversity of vocational fields. The scope of these programs has created a need for administrative personnel with the capability of planning and supervising a variety of educational activities.

The second objective of this study was to determine the feasibility of developing a graduate program in the administration and supervision of vocational education. The methodology employed in terms of the objective included:

1. A description of the University requirements at the master's and doctoral levels.
2. An analysis of the adequacy of present graduate courses.
3. An analysis of staff requirements.

I. DESCRIPTION OF MASTER'S AND DOCTORAL REQUIREMENTS

The general requirements for a master's degree include a minimum of 30 credits and a maximum of 36 credits. One-third of these credits may be earned in upper division courses (courses number 100) and at least two-thirds must be graduate in character (courses numbered 200 and above).

Master of Science Degree

A thesis is required for the Master of Science Degree. Not more than ten credits of research and thesis may be applied toward the minimum credit requirement. Approximately six credits of thesis credit and nine credits of supporting field work has been a common pattern. This pattern of requirements would leave a minimum of 15 credits to be applied toward the major in the Administration and Supervision of Vocational Education.

Master of Education Degree

The requirements for the Master of Education Degree are similar to those for the Master of Science Degree except that the candidate does not submit a thesis. A nine-credit core of foundations course work is required leaving a minimum of 21 credits for the major or related work.[1]

The Doctoral Degree

Approximately 90 credits (minimum of 78 credits) beyond the Bachelor's Degree are required for a doctoral program. Research normally constitutes one-third of the total course work, but should not be more than one-half of the total program. Some work in a minor or supporting field is expected of all candidates. A minimum-credit program would have a distribution of approximately 26 credits in the research area, 15 credits in a supporting field, and the remaining 37 credits devoted to course work in the major field. A typical program would entail 50-55 credits within the major and related areas.

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[1] For a description of the present graduate programs and courses in vocational teacher education see Appendix E.

II. ADEQUACY OF PRESENT GRADUATE COURSES

All but one of the vocational teacher education departments indicated that they did offer one or more upper division or graduate level courses that would be of value in the administration and supervision program. These courses were:[1]

Agricultural Education	151
Business Education	223
Industrial Education	220
Home Economics	207
Industrial Education	230
Home Economics	153
Psychology	121

Combinations of these courses could meet approximately one-half the masters and approximately one-third of the doctoral degree major field requirements.

III. STAFF REQUIREMENTS

The establishment of a graduate program in the Administration and Supervision of Vocational Education would require the addition of a minimum of one full-time staff member for a master's level program or two full-time staff members at the doctoral level. All the present teacher trainers, with one exception, indicated an interest in participating in the program. This would not, however, reduce the over-all requirement for additional personnel.

Facilities, equipment, supplies and library resources are major considerations in addition to new personnel. A substantial investment in research and program planning would assure a sound program.

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[1]For description of the graduate courses, see Appendix E.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study of vocational teacher education at the University of Idaho had two major objectives: (1) the feasibility of coordinating current programs and (2) developing a graduate program in the Administration and Supervision of Vocational Education.

The current programs are the administrative responsibility of three different professional colleges of the University. There has been an attempt to coordinate all teacher education on the campus through a Teacher Education Coordinating Committee. This approach has had little influence on the efficiency and effectiveness of the vocational teacher education programs. This over-all situation is typical of major institutions with responsibility for vocational teacher education throughout the States.

The instructional program at the University of Idaho is comparable to most programs at other major universities. There is considerable variability in procedures and requirements between the different departments. Each program is highly departmental - centered with little cooperative effort evident, even though all of the departments offered course work that staff members indicated would be of value for all vocational teacher majors. The major time of staff members is devoted to the teaching of professional courses with relatively little time expended for research or community service. The most serious limitation in the scope of the programs is that no major is offered in the Trade and Industrial area.

The vocational teacher educators at the University of Idaho are highly competent within their specialties. They are cooperative and interested in the growth of vocational education in Idaho, and cognizant of any problems that may exist in the over-all programs. Collectively, their strengths and interest

are distributed advantageously throughout the professional areas of vocational teacher education work. It appears, then, that any limitations on the further growth and development of vocational teacher education at the University of Idaho will be centered in organizational problems rather than in staff.

A basic core of upper division and graduate level courses is currently being offered that would be suitable in a graduate program in the Administration and Supervision of Vocational Education. Most of the teacher trainers also indicated an interest in participating in the program.

APPENDIX

A

COPY OF AGREEMENT FOR THE STUDY

Appendix A

AGREEMENT FOR A STUDY OF VOCATIONAL TEACHER EDUCATION PROGRAMS AT UNIVERSITY OF IDAHO

27 May 1966

The University of Idaho and the Idaho State Department of Vocational Education in order to evaluate the current programs of Vocational Teacher Education at the University of Idaho with a view to improving the efficiency and effectiveness of same enters into this agreement for a study of existing Vocational Teacher Education programs at the University of Idaho.

Objectives of Study

1. To determine the feasibility of coordinating all efforts being made by the University of Idaho in the current Vocational Teacher Education programs and/or the establishment of Vocational Teacher Education Department within one of the colleges at the University.

2. To determine the feasibility of developing a graduate program in the Administration and Supervision of Vocational Education.

Duration of Study

Three (3) months - June, July and August, 1966

Estimated Costs

Salaries	
Investigator	$2295
Clerical	900
Travel	500
	$3695*

*To be reimbursed 100% from the State Department of Vocational Education.

Staff

Investigator	Oscar Kjos
Clerical Assistant	To be selected by the University of Idaho

Administrative Responsibility

The investigator will be directed by and responsible to the Vice President of Academic Affairs, University of Idaho.

Results of Study

A report of this study and recommendations of the investigator to be presented to the Administration of the University of Idaho and the Idaho State Department of Vocational Education by November 1, 1966.

/s/ H. Walter Steffens
Vice President for Academic Affairs

Approved for the State Department of Vocational Education

/s/ Kenneth A. Dick
Vice President for Financial Affairs

/s/ S. R. Glenn
Director

APPENDIX

B

COPIES OF TEACHER TRAINING AGREEMENTS

Appendix B

IDAHO STATE BOARD FOR VOCATIONAL EDUCATION
Memorandum Agreement
for
Training Teachers of Vocational Agriculture
at
The University of Idaho
1965 - 1966 Fiscal Year

OBJECTIVES

To strengthen the pre-service training of teachers for vocational agriculture and agriculture related occupations in secondary schools, area vocational schools and in adult education programs.

To strengthen in-service training programs by preparing employed teachers to transfer their previous training to programs which prepare youth and adults for wage-earning occupations.

To continue to improve the teaching of agriculture education.

RESPONSIBILITIES OF UNIVERSITY OF IDAHO

It shall be the responsibility of the University of Idaho to carry out the objectives of this agreement and to employ a qualified vocational agriculture teacher educator competent to attain such objectives.

The vocational agriculture teacher educator so employed shall be responsible to the Dean, College of Agriculture, University of Idaho, and shall serve at a salary and under regulations as appropriate to policies of the University. The agriculture teacher educator shall carry out assignments pertinent to agriculture teacher education, including but not limited to:

Teaching

Supervising student teachers

Evaluating and improving teacher education programs

Assisting with all agriculture education workshops held at the University of Idaho

Attending state, national and regional conferences and meetings as are pertinent to agriculture teacher education and as are agreed upon by the Head, Agriculture Department and the State Supervisor of Agriculture Education.

The College of Agriculture, University of Idaho, shall cooperate with the State Department of Vocational Education in making an annual review of this Memorandum of Agreement and associated activities and shall recommend to the Board of Regents approval of such modification and/or changes as are agreed upon

RESPONSIBILITIES OF THE STATE DEPARTMENT OF VOCATIONAL EDUCATION

The State Department of Vocational Education will reimburse the University of Idaho for agriculture teacher education as per attached budget.

The State Department of Vocational Education, through the Head State Supervisor, Agriculture Education, shall offer such consultation and evaluation services as are consistent with carrying out this agreement.

The State Department of Vocational Education shall cooperate with the University of Idaho, College of Agriculture, in making an annual review of this agreement and associated activity and shall recommend to the State Board for Vocational Education concurrence with such modification or changes as are agreed upon.

REVISIONS OF THE MEMORANDUM AGREEMENT

This Memorandum of Agreement will be reviewed annually. Changes will be made annually and resubmitted to the Board of Regents and the Idaho State Board for Vocational Education for approval.

APPROVAL OF MEMORANDUM OF AGREEMENT

Signed for the University of Idaho

/s/ J. E. Kraus — November 22, 1965
Dean, College of Agriculture — Date

/s/ H. A. Winner — November 15, 1965
Head, Dept. of Agriculture Education — Date

/s/ Kenneth A. Dick — December 3, 1965
Vice President of Financial Affairs — Date

Signed for State Department of Vocational Education

/s/ Ralph W. Edwards — December 8, 1965
State Supervisor, Agriculture Education — Date

/s/ S. R. Glenn — December 8, 1965
State Director, Vocational Education — Date

IDAHO STATE BOARD FOR VOCATIONAL EDUCATION

Appendix B

Memorandum of Agreement
for
Teacher Training in Distributive Education
at
The University of Idaho
1965 - 1966 Fiscal Year

OBJECTIVES

- To perform pre-service training of teachers for distributive education in the secondary schools, area vocational schools, and in adult education programs.
- To perform in-service teacher training for employed teachers to aid them in upgrading themselves for the training of youth and adults in distributive occupations.
- To provide aid in the development of distributive education curriculum that is appropriate for both the area schools and the secondary schools of the State.

RESPONSIBILITIES OF THE UNIVERSITY OF IDAHO

- The University of Idaho shall be responsible for the performance of such teacher training, both in-service and pre-service, as is necessary to meet the needs of the State and to carry out the objectives of this agreement.
- The employed teacher educator shall assume responsibilities with relationship to the following activities:

  - Teaching the pre-service and in-service distributive education subject matter necessary to qualify teachers to meet the Idaho State Plan for Vocational Education.
  - The supervision of student teachers in the distributive education program.
  - Assisting with distributive education workshops held at the University of Idaho.
  - Assisting with planning and participating in the annual Summer Conference.
  - The visiting of schools to aid in the development of curriculum and teaching aids in those schools conducting vocational distributive education programs as well as the development of programs in those schools not currently participating.
  - Aiding employed teachers in upgrading their skills and knowledge to keep the program current with modern trends.

- The College of Education, University of Idaho, and such other colleges or divisions of the University as are appropriate shall cooperate with the State Board for Vocational Education in making an annual review of this Agreement and shall recommend to the Board of Regents such modification and/or changes as are agreed upon.

RESPONSIBILITIES OF THE STATE BOARD FOR VOCATIONAL EDUCATION

- The Idaho State Board for Vocational Education will reimburse the University of Idaho for distributive education teacher education according to Financial Agreement section of the Agreement.

- The State Board for Vocational Education will offer consultative and evaluative services as are consistent with carrying out this Agreement.
- The State Board for Vocational Education will cooperate with the University of Idaho in making an annual review of this Agreement and associated activities and shall recommend to the State Board for Vocational Education such modifications or such changes as are agreed upon.

REVISIONS OF THIS MEMORANDUM OF AGREEMENT

- This Memorandum of Agreement will be reviewed annually. Changes will be made annually and submitted to the Board of Regents and the Idaho State Board for Vocational Education for approval.

APPROVAL OF MEMORANDUM OF AGREEMENT

Signed for the University of Idaho

/s/ Everett V. Samuelson
Dean, College of Education

/s/ Kenneth A. Dick
Vice President of Financial Affairs and Bursar

/s/ H. Walter Steffens
Vice President of Academic Affairs

Signed for the State Board for Vocational Education

/s/ Lyle V. Brenna
State Supervisor, Business Education

/s/ S. R. Glenn
State Director, Vocational Education

12-16-65

IDAHO STATE BOARD FOR VOCATIONAL EDUCATION

Memorandum Agreement
for
Training Teachers of Vocational Home Economics
at
University of Idaho
1965 - 1966 Fiscal Year

OBJECTIVES

- To strengthen the pre-service training of teachers for vocational homemaking and home economics related occupations in secondary schools, area vocational schools and in adult education programs.

- To strengthen the in-service training programs by preparing employed teachers to transfer their previous training to programs which prepare youth and adults for wage-earning occupations.

- To continue to improve the teaching of Home Economics Education with emphasis on personal and family living.

RESPONSIBILITIES OF UNIVERSITY OF IDAHO

- It shall be the responsibility of the University of Idaho to carry out the objectives of this Agreement and to employ a qualified Vocational Home Economics Teacher Educator competent to attain such objectives.

- The Vocational Home Economics Teacher Educator so employed shall be responsible to the Head, Home Economics Department, College of Letters and Science, University of Idaho, and shall serve at a salary and under regulations as appropriate to policies of the University. The Home Economics Teacher Educator shall carry out assignments pertinent to Home Economics Teacher Education, including but not limited to:

- Teaching
- Supervising student teachers
- Evaluating and improving teacher education programs
- Assisting with all Home Economics Education Workshops held at the University of Idaho
- Assisting with planning and participating in the Annual Home Economics Teacher Education Workshop
- Attending State, National and Regional Conferences and meetings as are pertinent to Home Economics Teacher Education and as are agreed upon by the Head, Home Economics Department and the State Supervisor of Home Economics Education.

RESPONSIBILITIES OF THE STATE DEPARTMENT OF VOCATIONAL EDUCATION

- The State Department of Vocational Education, through the Head State Supervisor, Home Economics Education, shall offer such consultation and evaluation services as are consistent with carrying out this Agreement.

- The State Department of Vocational Education shall cooperate with University of Idaho, College of Letters and Sciences, in making an annual review of this Agreement and associated activity and shall recommend to the State Board for Vocational Education concurrence with such modification or changes as are agreed upon.

REVISIONS OF THE MEMORANDUM AGREEMENT

- This Memorandum of Agreement will be reviewed annually. Changes will be made annually and re-submitted to the Board of Regents and the Idaho State Board for Vocational Education for approval.

APPROVAL OF MEMORANDUM OF AGREEMENT

Signed for the University of Idaho

/s/ Boyd A. Martin
Dean, College of Letters and Sciences

/s/ H. Walter Steffens
Vice President of Academic Affairs

/s/ Kenneth A. Dick
Vice President of Financial Affairs

Signed for State Department of Vocational Education

/s/ Helen H. Wilson
State Supervisor, Home Economics Education

/s/ S. R. Glenn
State Director, Vocational Education

A MEMORANDUM OF AGREEMENT
Between the University of Idaho
and the State Department of Vocational Education, State of Idaho,
for the strengthening of the Vocational Guidance preparation of
school Guidance Counselors
1965 -1966 Academic Year
and
Summer Session 1966

Objectives

1. To strengthen the preparation of secondary school teachers, counselors and administrators in vocational guidance for the non-university bound secondary school students.

2. To work with the secondary schools on request as they endeavor to improve guidance and counseling for non-university bound secondary school students.

Responsibility of College of Education, University of Idaho

1. It shall be the responsibility of the College of Education, University of Idaho, to carry out the objectives of this Agreement and to make recommendations to the Board of Regents of a full-time faculty member competent to attain such objectives.

2. The faculty member so employed shall serve at a salary and under regulations applicable to other faculty members at the University.

3. The faculty member so employed shall be responsible to the head of the Department of Psychology in the College of Education, University of Idaho.

4. The faculty member so employed will be offered a summer appointment.

5. The College of Education, University of Idaho, shall cooperate with the State Department of Vocational Education in making a semi-annual review of this Memorandum of Agreement and associated activities and shall recommend to the Board of Regents such modification and/or changes as are agreed upon.

Responsibility of State Department of Vocational Education, State of Idaho

1. The State Department of Vocational Education will reimburse 100% of the cost of employment of the faculty member for the academic year plus summer session as per attached "Proposed Budget".

2. The State Department of Vocational Education will reimburse for other expenses of the faculty member's office as may be agreed to on an annual review basis between the College of Education and the State Department of Vocational Education.

3. The State Department of Vocational Education shall cooperate with the College of Education, University of Idaho, in making a semi-annual review of this Memorandum of Agreement and associated activities and shall recommend to the State Board for Vocational Education concurrence with such modification and/or changes as are agreed upon.

Responsibility Specifically Not Contained in this Memorandum

No activity engaged in under this agreement shall in any way involve supervision or evaluation of state guidance programs in the public schools which are responsibilities of the State Department of Education.

Revision of the Memorandum of Agreement

This Memorandum of Agreement will be reviewed semi-annually. Changes will be made annually and re-submitted to the Board of Regents and the Idaho State Board for Vocational Education for approval.

Approval of Memorandum of Agreement

Signed for University of Idaho

/s/ EVERETT V. SAMUELSON 6/2/65
Dean, College of Education

/s/ H. WALTER STEFFENS
Vice President for Academic Affairs

/s/ KENNETH A. DICK
Vice President for Financial Affairs

Signed for State Department of Vocational Education

/s/ S. R. GLENN 6/4/65
Director

APPENDIX C

Undergraduate Vocational Teacher Education Curriculums

University of Idaho

UNIVERSITY OF IDAHO

CURRICULUM MAJOR AGRICULTURAL EDUCATION

GENERAL DEGREE REQUIREMENTS (136 semester credits)

Graduates who have completed at least 20 credits in Ag Ed plus the state certification requirements (which include one teaching major of 20 credits) are eligible for an Idaho Standard Secondary Certificate valid for 5 years.

General:

Course No.	Course Title	Credit
	Biological Sciences	8
	Electives:	
	Agriculture	44
	Unspecified	21
	Humanities and Social Science	14
	Major Field	20
	Mathematics	4
	Physical Sciences:	
	Chemistry	8

Specific:

Course No.	Course Title	Credit
Eng 1 & 2	English Composition Basic skills in writing, reading and speaking.	6
Eng 115	Advanced English (Technical Writing) A study of technical and semi-technical style, semi-technical articles, reports, and business letters.	3
P.E. 31 & 33	Freshman Physical Education and Sophomore P.E. Fundamental skills in various sports.	2
Psych 55 or 56	Human Growth and Development Study of human growth in all of its phases--physical, intellectual, emotional, and social. Psych 55 emphasizes the period from conception to adolescence; Psych 56 from adolescence to maturity.	3
Sp 31-32	Speech, Fundamentals of An introduction to the skills and techniques of effective speaking with emphasis on preparation, delivery, and listening. Sp 31 is prerequisite to Sp 32.	2

Course No.	Course Title	Credit
Psych 1	General Psychology This introductory course is a survey of many areas of psychological activity with considerable emphasis on the application of psychology to everyday life situations.	3
Ed 87	Foundations of Education An introduction to the history of education, the place of the school in the social milieu, the basic principles under which our schools are operated and a consideration of contemporary educational philosophy.	4

REQUIREMENTS FOR SECONDARY TEACHERS (PROFESSIONAL COURSES)

Course Number	Course Title	Credit
Ag 1	Orientation An orientation and guidance course for freshmen.	1
Ag Ed 151	Principles of Vocational Education Vocational Education: its history, meaning, aims, administration and place in the school system.	2
Ag Ed 152	Beginning Methods For juniors	2
Ag Ed 153	Advanced Methods For seniors A continuation of Ag Ed 152	2
Ag Ed 154	Methods of Teaching Farm Shop A study of the application of efficient organization and management practice in teaching farm mechanics in vocational education in agriculture.	2
Ag Ed 155-156	Practice Teaching	6
Ag Ed 157	Adult Agricultural Education Methods Methods used by teachers of vocational agriculture in organizing and conducting young farmer and adult farmer classes.	2
Ag Ed 158	Supervision of the FFA Supervision of the Future Farmer Organization, community work and other problems not covered in Ag Ed 153.	2

TECHNICAL COURSES

Technical courses are taken in one of three areas:

1. Agricultural Economics
2. Agricultural Management
3. Agricultural Science

UNIVERSITY OF IDAHO

CURRICULUM MAJOR Home Economics Education

GENERAL DEGREE REQUIREMENTS (128 semester credits)

Course Number	Course Title	Credit
Chem 3	Introduction to Chemistry A systematic treatment of chemical principles and their application.	4-5
or		
Chem 11	Principles of Chemistry A systematic treatment of chemical principles and their application; for students with adequate chemistry background.	4
Chem 14	General Chemistry A continuation of Chem 3 or 11, designed for those students who do not plan to take further professional chemistry courses. Some work in inorganic, organic and biochemistry, electrochemistry, nuclear chemistry, and in qualitative inorganic analysis will be included.	4
Eng 1-2	English Composition Basic skills in writing, reading and speaking.	6
	Social Studies	6
P.E. Activities	4 activities courses	4
Bact 51	General Bacteriology A general survey of the field of bacteriology, designed for students in the general science courses as a foundation for advanced work in the subject.	4
Soc 51	Introduction to Sociology The basic concepts, principles and processes in sociology. An introduction to material relating to culture, social interaction, institutions, and social change.	3
Soc 121	The Family The historical and economic background of the modern family; the family as a social institution, its nature and functions; the family today; conditions affecting the family in America.	3
Zool 7-8	Introductory Anatomy and Physiology An introduction to the fundamentals of structure and function of the human body.	6
Psych 1	General Psychology This introductory course is a survey of many areas of psychological activities with considerable emphasis on the application of psychology to everyday life situations.	3
Psych 55 or 56	Human Growth and Development Study of human growth in all of its phases--physical, intellectual, emotional, and social. Psych 55 emphasizes the period from conception to adolescence; Psych 56 from adolescence to maturity.	3
or		
Psych 151	Educational Psychology	3
Ed 87	Foundations of Education An introduction to the history of education, the place of the school in the social milieu, the basic principles under which our schools are operated and a consideration of contemporary educational philosophy.	4

REQUIREMENTS FOR SECONDARY TEACHERS (PROFESSIONAL COURSES)

Course Number	Course Title	Credit
H Ec 152	Methods in Teaching Home Economics Resume of educational philosophy, principles of learning, and adolescent behavior. Emphasis on teaching techniques and materials for secondary schools and lesson plan development. Guided observation.	3
H Ec 153	Problems in Teaching Home Economics Study of secondary school home economics curriculum and problems frequently encountered by the teacher of home economics. Accelerated and schedules in conjunction with H Ec 157.	2
H Ec 156	Methods in Adult Home Economics Education Study of program planning methods and techniques, and organization in Home Economics Adult Education. Some observation and participation in community adult programs. Accelerated.	2 2
H Ec 157	Student Teaching in Home Economics Classes Supervised teaching in secondary school home economics classes.	9
Ag Ed 151	Principles of Vocational Education Vocational education: its history, meaning, aims, administration and place in the school system.	2
**H Ec 9	(See description below; a professional course)	

TECHNICAL COURSES PROFESSIONAL SCHOOL Home Economics (Letters & Science)

H Ec 6	Elementary Nutrition Study of fundamentals of nutrition.	2
H Ec 8	Introduction to Foods Principles involved in basic cookery and meal planning.	4
**H Ec 9	Introduction to Home Economics Home economics as a profession; history, scope and career opportunities.	1
H Ec 13	Art Art and crafts for home and community.	3
H Ec 23	Textiles A study of the factors in the intelligent selection and purchase of textile materials including identification of fibers and fabrics, fundamental weaves, yarn, colors and finishes; standardization and trade conditions affecting the consumer.	3
H Ec 24	Elementary Clothing Basic problems of clothing construction.	2
H Ec 65	Costume Design and Wardrobe Planning A study of the design, selection and purchasing of clothing for the individual and the family.	2

H Ec 73	Food Preparation and Serving Food preservation; meal planning, marketing and table service; demonstration techniques.	3
H Ec 82	House Construction Problems involved in designing a house; the plan; the interior and exterior design; building materials; and methods of construction.	2
H Ec 52	Household Equipment Selection, care and operation of household appliances and equipment.	2
H Ec 106	Problems in Nutrition Study of the most recent advances in all fields of nutrition with emphasis on recent investigations in infant, child and adult nutrition.	2
H Ec 124	Advanced Clothing Advanced problems including fabric selection, cost, flat pattern design and construction of garments for children and adults. Demonstration techniques.	2
H Ec 130	Family Relations Study of inter-personal relationships throughout the family life cycle.	2
H Ec 135	Child Development Professional approach to the principles of development in infants and young children; application of principles of guidance in supervised nursery school experiences. Interpretation and evaluation of research.	3
H Ec 141	Home Furnishings A study of furniture, materials, and color in the present day home. Practical problems.	3
H Ec 146	Principles of Home Management Analysis of resources in meeting family goals; time and money management, work simplification, emphasis on decision making and evaluation as family processes.	2
H Ec 147	Home Management House Residence Management integrating home economics knowledge and skills. Emphasis on relationships, decision-making in use of resources and evaluation.	3
H Ec 149	Home Management for Married Students A course comparable to H Ec 147 for homemakers or students with special dietary or other problems.	3

UNIVERSITY OF IDAHO

CURRICULUM MAJOR Technical Education (Non Reimbursed)

GENERAL DEGREE REQUIREMENTS (128 semester credits)

45-credit major: 15 credits in technical courses, 11 credits in professional courses, and 21-24 credits in one of the following four technics or technical areas of specialization: electricity-electronics, metals, drafting and wood.

Course Number	Course Title	Credit
Ed 1	Ed Lectures (Students transferring into the College of Education as juniors or seniors may have this requirement waived. General orientation to the field of education.	1
Eng 1-2	English Composition Basic skills in writing, reading and speaking.	6

General Education: 42 credits; each of the following areas must be represented:

Math and/or Science		12
Social Science	Including Amer. History or Amer. Gov't	9
English	Including composition and literature	12
Speech	Fundamentals	2

Physical Education:

P. E. Activities 4 semesters of activities courses Men -2

Psych 1	General Psychology This introductory course is a survey of many areas of psychological activities with considerable emphasis on the application of psychology to everyday life situations.	3
Psych 56	Human Growth and Development Study of human growth in all of its phases--physical, intellectual, emotional and social. Psych 56 emphasizes the period from adolescence to maturity.	3
	OR	
Psych 151	Educational Psychology The application of psychological principles and methods to the public school situation.	3
Ed 87	Foundations of Education An introduction to the history of education, the place of the school in the social milieu, the basic principles under which our schools are operated and a consideration of contemporary educational philosophy.	4
Ed 114a	General Secondary School Methods Consideration of problems and the methods of teaching common to all subjects at the secondary school level.	2

Ed 131	Student Teaching in the Secondary Schools Directed student teaching conducted under supervision in Idaho secondary schools involving complete teaching experience.	9

REQUIREMENTS FOR SECONDARY TEACHERS (PROFESSIONAL COURSES)

Course No.	Course Title	Credit
I Ed 151	School Shop Planning & Administration Principles of planning and administering school technical shops and laboratories; selecting, purchasing and storage of shop supplies and equipment; organizing a shop personnel system; implementing an effective shop safety program; maintaining shop records	3
I Ed 162	Industrial Educ. Curriculum Principles of course analysis and construction for industrial arts; selection and arrangement of subject content; state patterns of shop curriculum; special industrial arts program.	3
I Ed 165	Industrial Supervision Principles and practices relative to industrial supervision; duties and repsonsibilities and the industrial plant supervisor; the use of rating scales and other employee evaluating devices; supervisory methods utilized in on-the-job and in-plant training programs; methods of conducting a trade and job analysis.	2
I Ed 172	Industrial Educ. Methods Methods and techniques of instruction particularized for industrial arts; demonstration, lecture, the construction and use of instructional aids, preparation of individual instruction sheets; tests and evaluation devices for shop subjects.	3

TECHNICAL COURSES PROFESSIONAL SCHOOL Education

Course No.	Course Title	Credit
I Ed 30	Basic Electricity-Electronics A course covering basic electricity and an introduction to electronics. Includes three phases of instruction: technical theory, technical skill in performance of electrical testing and repair procedures, and preparation of instructional material for the junior high school level.	4
I Ed 40	Woodworking I A basic course in the fundamental operation of handtools; some machine work and wood turning; related technical information on materials and equipment; the selection and construction of suitable industrial arts woodwork projects.	3

Course No.	Course Title	Credit
I Ed 50	General Metals A study of basic hand tools, materials and operations in bench metals; project work with sheet metal, coke tin, perforated metal, aluminum, and wrought iron; related technical information on materials and processes.	3
I Ed 110	Maintenance of Tools and Equipment The selection, care and maintenance of hand and machine tools common to industrial arts shops.	3
Engr 1	Engineering Graphics Free hand lettering; use of instrument; free hand sketching; geometric construction; orthographic projection; sectioning; dimensioning; pictorial representation; charts and graphs.	2
Psych 116	Industrial Psychology	3

AREA OF SPECIALIZATION:

Each student majoring in technical education will secure a minimum of 21 credits in one of four basic technics or areas of specialization. A list of courses required may be obtained from the chairman of the Industrial Education Department.

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CURRICULUM MAJOR Distributive Education

GENERAL DEGREE REQUIREMENTS (128 semester credits)

Course Number	Course Title	Credit
Ed 1	Ed Lectures General orientation to the field of education. (Students tranferring into the College of Education as juniors or seniors may have this requirement waived.)	1
Eng 1-2	English Composition Basic skills in writing, reading, and speaking.	6

General Education: 42 credits; each of the following areas must be represented:

Math and/or Science		12
Social Science	Including Amer. History or Amer. Gov't	9
English	Including composition and literature	12
Speech	Fundamentals	2

Physical Education:

P.E. 1	Healthful Living Required for women, not men	2
P.E. Activities	4 courses in activities (women--4 cr, men-$\frac{0}{2}$ cr)	2-4
Psych 1	General Psychology This introductory course is a survey of many areas of psychological activity with considerable emphasis on the application of psychology to everyday life situations.	3
Psych 56	Human Growth and Development. Study of human growth in all of its phases--physical, intellectual, emotional, and social. Emphasizes the period from adolescence to maturity.	3
	OR	
Psych 151	Educational Psychology The application of psychological principles and methods to the public school situation.	3
Ed 87	Foundations of Education An introduction to the history of education, the place of the school in the social milieu, the basic principles under which our schools are operated and a consideration of contemporary educational philosophy.	4
Ed 114a	General Secondary School Methods Consideration of problems and the methods of teaching common to all subjects at the secondary school level.	2
Ed 131	Student Teaching in the Secondary Schools Directed student teaching conducted under supervision in Idaho secondary schools involving complete teaching experience.	9

REQUIREMENTS FOR SECONDARY TEACHERS (PROFESSIONAL COURSES)

Course Number	Course Title	Credit
Bus Ed 193	Methods and Materials in Distributive Education Current methods and materials for teaching distributive education.	3
*Bus Ed 196	Directed Work Experience in Distributive Education Job analysis, job descriptions, weekly work-experience reports and analysis coordinated with problems related to the student's employment in an approved distributive occupation.	2
Bus Ed 197	Coordination Techniques Problems of the coordinator in the cooperative part-time program. Guidance and selection; placing students in work stations; assisting job adjustment; developing the training station.	3
	OR	
Bus 198	Organization and Administration of Cooperative Programs Principles, practices and legislation followed in developing cooperative part-time and adult programs under the federal vocational acts.	3

*Not required professional course unless students do not have 2000 hours or equivalent of full- or part-time work experience.

TECHNICAL COURSES PROFESSIONAL SCHOOL BUSINESS ADMINISTRATION

Course Number	Course Title	Credit
Bus 31-32	Principles of Accounting Introduction to accounting for individual proprietorships, partnerships and corporations.	6
Bus 165	Business Law The legal framework of business enterprise. Study of the workings and origins of legal institutions and the functions of law as a system of social thought and social action. The background importance, and role of law in our society, with particular emphasis on private property and contract as basic concepts of a free enterprise system.	3
Bus 124	Financial Management Analysis of the policies and practices required for effectively planning and controlling the sources and uses of a company's funds. Emphasis on application of financial principles to specific business situations.	3
Econ 51-52	Principles of Economics Organization and operation of the American economy, supply and demand analysis, money and banking, employment and aggregate output, public finance, economic growth; principles governing production, price relationships and income distribution and their application to selected problems	6
Engl 113	Business Writing Emphasis on business correspondence, correct form and more particularly content and style of business letters.	3

Course Number	Course Title	Credit
Geog 12	Economic Geography A study of the reciprocal relationships between mankind and its earth environment, resource distribution, and the changing pattern of commodity movements.	3
O Ad 3	Typewriting Problems The development of occupational competence in office-type production problems including correspondence, manuscripts, legal documents, and other special problems.	2*

*O Ad 3 may be waived by examination.

Distributive Education Option:

Bus 103	Marketing A description and analysis of the marketing processes, with an evaluation of marketing institutions and middlemen according to the functions they perform.	3 3
Bus 173-174	Retail Merchandising Planning location, initial capital and physical requirements, store organization and the control of personnel, merchandise requirements, pricing, retail expense management, etc., the application of principles and techniques on retail merchandising.	6
Bus 170	Marketing Problems The development of the capacity of management through the analysis of marketing problems where the significant facts are presented in a business setting. The selection of channels of distribution, distribution policies, sales promotion, price determination, and price policies.	3

Course Number	Course Title	Credit
Bus 151	Personnel Management A study of the organization, policies, and procedures of managing men.	3*
Bus 134	Industrial Management The individual business and its conditioning factors of location, buildings and equipment, layout, materials, production control, and personnel policies.	3*
Bus 132	Sales Management Practices and problems involved in selecting training, compensating, stimulating, supervising, and directing the selling efforts of an outside sales force. Analysis of organization and methods for controlling such practices and problems.	3*
Bus 109	Principles of Advertising The function of advertising, its social and economic aspects, principles of effective sales motivation, layout, copy, type, and media. Elementary study of the mechanical processes of printing and photo-engraving.	3*
Bus 171	Marketing Research & Analysis Purposes, methods, and techniques of market research and analysis, both quantitative and qualitative, including analysis of potential markets, product analysis, and adoption.	3*

*3 credits required from these five courses.

All distributive education majors are required to complete one teaching minor of at least 20 semester credits or complete one teaching major of at least 60 semester credits.

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CURRICULUM MAJOR BUSINESS EDUCATION (Non-Reimbursed)

GENERAL DEGREE REQUIREMENTS

Course Number	Course Title	Credit
Ed 1	Ed Lectures (Students transferring into the College of Education as juniors or seniors may have this requirement waived. General orientation to the field of education.	1
Eng 1-2	English Composition Basic Skills in writing, reading, and speaking.	6

General Education: 42 credits; each of the following areas must be represented:

Math and/or Science		12
Social Science	Including Amer. History or Amer. Gov't	9
English	Including composition and literature	12
Speech	Fundamentals	2

Physical Education:

P.E. 1	Healthful Living Required for women, not men.	2
P.E. Activities 4 courses	(Men--2 cr; Women--4 cr)	2-4

Psych 1	General Psychology This introductory course is a survey of many areas of psychological activity with considerable emphasis on the application of psychology to every day life situations.	3
Psych 56	Human Growth and Development Study of human growth in all of its phases--physical, intellectual, emotional and social. Psych 56 emphasizes the period from adolescence to maturity.	3
	OR	
Psych 151	Educational Psychology The application of psychological principles and methods to the public school situation.	3
Ed 87	Foundations of Education An introduction to the history of education, the place of the school in the social milieu, the basic principles under which our schools are operated and a consideration of contemporary educational philosophy.	4
Ed 114a	General Secondary School Methods Consideration of problems and the methods of teaching common to all subjects at the secondary school level.	2
Ed 131	Student Teaching in the Secondary Schools Directed student teaching conducted under supervision in Idaho secondary schools involving complete teaching experience.	9

REQUIREMENTS FOR SECONDARY TEACHERS (PROFESSIONAL COURSES

Course Number	Course Title	Credit
Bus Ed 191	Methods in Business Education (I) Current methods and materials for teaching vocational secretarial and clerical subjects. Secretarial Option students take this course for 3 credits, General Business Option students for 2 credits.	2-3
Bus Ed 192	Methods in Business Education (II) Current methods and materials for teaching bookkeeping and basic business subjects.	3

TECHNICAL COURSES PROFESSIONAL SCHOOL Business Administration

Course Number	Course Title	Credit
Bus 31-32	Principles of Accounting Introduction to accounting for individual proprietorships, partnerships and corporations.	6
Bus 165	Business Law The legal framework of business enterprise. Study of the workings and origins of legal institutions and the functions of law as a system of social thought and social action. The background importance, and role of law in our society, with particular emphasis on private property and contract as basic concepts of a free enterprise system.	3
Bus 124	Financial Management Analysis of the policies and practices required for effectively planning and controlling the sources and uses of a company's funds. Emphasis on application of financial principles to specific business situations.	3
Econ 51-52	Principles of Economics Organization and operation of the American economy, supply and demand analysis, money and banking, employment and aggregate output, public finance, economic growth; principles governing production, price relationships and income distribution and their application to selected problems.	6
Eng 113	Business Writing Emphasis on business correspondence, correct form and more particularly content and style of business letters.	3
Geog 12	Economic Geography A study of the reciprocal relationships between mankind and its earth environment, resource distribution, and the changing pattern of commodity movements.	3
O Ad 3	Typewriting Problems The development of occupational competence in office-type production problems including correspondence, manuscripts, legal documents, and other special problems.	2*
O Ad 16	Shorthand Dictation Development of skill in taking dictation in Gregg Shorthand Simplified.	4*

*O Ad 3 and O Ad 16 may be waived by examination. O Ad 16 not required in DE and General Business options.

O Ad 85	Office Machines A first course in the operation of commonly used adding-calculating machines.	2

Secretarial Option:

O Ad 71	Shorthand Speed Development The development of the ability to take dictation at high speed.	3
O Ad 72	Shorthand Transcription The development of transcription skills to occupational competency levels.	3
O Ad 195	Secretarial Office Procedures A study of the various filing systems and practice in the use of them; training in the operation of transcribing and duplicating machines; training in secretarial duties, responsibilities, and procedures.	3
Bus 124	Business Finance Analysis of the policies and practices required for effectively planning and controlling the sources and uses of a company's funds. Emphasis on application of financial principles to specific business practices and problems.	3*
Bus 151	Personnel Management Study of the organization, policies and procedures of managing men.	3*
Bus 103	Marketing A description and analysis of the marketing processes, with an evaluation of marketing institutions and middlemen according to the functions they perform.	3*
Bus 162	Office Management Operation of the modern office from the manager's point of view. Organization and scheduling of duties for various workers, problems of selection, training and promotion, and their classifications and rates of compensation. Special emphasis on coordination of office with other departments, shortcut techniques, etc.	2*
Econ 103	Money and Banking Theory of money and banking with some emphasis on banking practices.	3*

*6 credits required from these five courses.

General Business Option:

Bus 91-92	Intermediate Accounting Principles underlying content and construction of financial statements; corporation accounting; interpretation of financial statements using comparative, analytical, and other techniques.	6
Econ 103	Money and Banking Theory of money and banking with some emphasis on banking practices.	3

Appendix C

Course Number	Course Title	Credit
Bus 134	Industrial Management The individual business and its conditioning factors of location, buildings and equipment, layout, materials, production control, and personnel policies.	3*
Bus 103	Marketing A description and analysis of the marketing processes, with an evaluation of marketing institutions and middlemen according to the functions they perform.	3*
Bus 133	Introduction to Management Theory A study of concepts of power, authority, and influence; communications, delegation and decentralization, decision and planning theory; formal organization structures, group decision-making, philosophy and values in business organizations, and considerations of organization as a social issue.	3*
Bus 168	Government Regulation of Business Institutional development of the economic relations between government and business. Economic analysis of the various types of government control employed.	3*

*6 credits required from these four courses.

All Business Education majors are rquired to complete one teaching minor of at least 20 semester credits or complete one teaching major of at least 60 semester hours.

APPENDIX D

UNDERGRADUATE PROFESSIONAL COURSES AT OTHER UNIVERSITIES

AGRICULTURAL EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 33 schools)*
Student Teaching	7	33
Methods of Teaching Ag Ed or Ext.	2.6	31
Young Farmer and/or Adult Educ	2.5	19
Intro to Ag Ed	1.7	17
Curriculum Planning or Program Planning	3	13
Principles of Voc Ed	2	13
Methods of Teaching Farm Mechanics	2	12
Seminar in Voc Ag	1	8
Directing Youth Programs; FFA courses	3	7
Supervision & Administration of Voc Ag	2	6
Problems in Teaching Voc Ag	2	5
Community Leadership in Ag Ed	2	4
Supervised Activities in Ag	2.5	3
Instructional Aids in Voc Ag	2	3
Princ. of Ag Ed	3	3
Methods of Teaching Supervised Farm Program	2	3
Rural Education	2	2
Special Topics	3	2
Objectives in Voc Ag	1	1
The All-Day Class Program	3	1
Facilities & Departmental Programs in Voc Ag	2	1
Agricultural Leadership	3	1

*Includes only the schools that listed specific curriculums.

EDUCATION REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 33 schools)*
Foundations of Ed	2.5	9
Principles of Secondary Ed	3	8
Methods and Materials of Tching	3	7
Foundations of Learning	3	3
Individual and the School	4	1
Teacher & Secondary School Admin.	3	1
Planning for Teaching	4	1
Social Foundations	3	1
Principles of Guidance	2	1
Secondary School Curriculum	3	1

*Includes only those schools that listed specific curriculums.

BUSINESS EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 27 schools)*
Student Teaching	7	24
Teaching Business Subjects (Gen)	2	17
Principles of Bus Ed	2.5	14
Methods of Teaching Typewriting & Ofc Prac.	2	14
Methods of Tching Shorthand & Trans.	2	13
Methods of Tching Bookkeeping & Clerical Practice	2	13
Intro to Bus Ed	2	4
Pric. of Voc Ed	1.3	2
Improvement of Instruction in Bus Subjects	3	2
Teaching Retail Merchandising	1.3	1
Accounting for Teachers	3	1
Managing Personal Finances	3	1
Problems in Bus Ed	2	1
Improvement of Instruction in Shorthand and Typewriting	3	1
Student Teaching Seminar	3	1
Techniques of Coordination in Voc Bus	2	1

*Includes only the schools that listed specific curriculums.

Appendix D

EDUCATION REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 27 schools)*
Intro and Foundations of Ed	2	13
Principles of Secondary Ed	3	8
Secondary School Methods	3	7
Testing and Measurements	3	7
Philosophy and History of Ed	2.7	6
Curriculum Planning	3	3
Organization and Administration	2.5	2
Foundations of Learning	3	1
History & Appreciation of Artcrafts	3	1
School Exploratory Experience	1	1
School & Society	4	1
Individual and the School	4	1
Human Development and the Curriculum	4	1
Community Forces & Resources	3	1

*Includes only the schools that listed specific curriculums.

DISTRIBUTIVE EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 17 schools)*
Student Teaching	7	14
Methods of Teaching DE	2	10
Prin and Phil of DE	2.5	8
Techniques of Coordination	2	7
Organization and Admin. of Ed for DE	2	6
Intro and Prin. of Voc Ed	2	6
Curriculum Content for DE	2.5	4
Problems in DE	2	2
Job Analysis	2	2
Intro to Business	3	1
Improvement of Instruction in DE	2	1
Managing Personal Finances	3	1
Improvement of Instruction in Merchandising	3	1
Retail Store Operation & Management	2	1
Teaching Advertising & Display Problems	2	1
Materials and Processes of Industry	3	1

*Includes only the schools that listed specific curriculums

Appendix D

EDUCATION REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 17 schools)*
Foundations & History of Ed	2	6
Organization & Administration	2.5	4
Intro to Ed	2	4
Secondary School Methods	3	3
Secondary School Principles	2	2
Tests and Measurements	2.5	2
Vocational Guidance	3	2
School Exploratory Experience	1	1
Foundations of Learning	3	1
History and Appreciation	3	1
Analysis and Course Construction	3	1
Vocational Psychology	3	1
Individual and the School	4	1
School and Society	4	1
A-V Education	2	1

*Includes only the schools that listed specific curriculums.

HOME ECONOMICS EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 37 schools)*
Methods of Teaching Home Ec	3	36
Student Teaching	7	34
Adult Education in Home Ec	2	18
Evaluation in Home Ec Ed	2.5	10
Curriculum in Home Ec Ed	3	8
Intro to Home Ec	1	8
Home Ec Education	2	8
Problems in Teaching Homemaking	3	6
Seminar	1.5	5
Intro and Princ of Voc Ed	2	4
Prin. and Prac for Demonstrations	2	3
Family Life	2.5	2
Organization of Home Ec Ed	3	2
Observation and Special Needs in Home Ec Ed	3	2
Independent Study	2	2
Methods of Extension Teaching	2.5	2
Intro to Methods	3	1
Field Experiences	4	1
Extension Organ. and Policies	2	1
Home Ec for the Adolescent	1	1
A-V Methods for Home Ec	2	1
Communication Methods	3	1

*Includes only the schools that listed specific curriculums.

EDUCATION REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 37 schools)*
Intro and Foundations of Ed	2.5	15
Secondary School Methods & Practices	4	9
History and Philosophy of Ed	3	3
Princ. and Organ. of Ed	2	3
School and Society	3	2
Individual and the School	4	1
Foundations of Learning	3	1
Admin. and Organization	3	1
Tests and Measurements	2-3	1
Human Development and the Curriculum	3	1
Curriculum	1	1

*Includes only the schools that listed specific curriculums.

TECHNICAL EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 10 schools)*
Intro and Prin. of Tech Ed	3	5
Student Teaching	6	5
Shop Organization & Management	2	5
Job Analysis	2	4
Methods & Materials in Tech Ed	2.5	4
Curriculum Construction	3	3
Intro to I Ed	3	2
Intro to Voc Ed	2	2
Industrial Safety	3.5	2
Instructional Aids	3	2
Hist. and Devel. of Voc Ed	3	1
Phil. of Tech Ed	3	1
Observation in Student Teaching	1	1
Problems in I Ed	C.A.	1
Industrial Maintenance Practices	3	1
Industrial Supervisory Practices	3	1
Modern Industry	2	1
Voc Guidance	3	1
Voc Psych	3	1

*Includes only the schools that listed specific curriculums.

TRADE AND INDUSTRIAL EDUCATION

MAJOR REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 21 schools)*
T and I Methods and Materials	2.5	19
Student Teaching	6.5	15
Curriculum Construction	2.7	11
Intro. and Prin. of I Ed	2.5	10
Job Analysis	2	10
Shop Organ. and Management	2	9
Intro and Princ. of Voc Ed	2	7
Hist. and Development of Voc Ed	2.7	5
General Shop Program	2	4
Cooperative Programs	2	3
Foremanship Training	2	3
Seminar	1.5	2
General Drafting for Teachers	2	2
Observation of Student Teaching	1	2
Shop Safety	2	2
Industrial Maintenance Practices	2	2
Teaching Process in Voc Ed	2	1
Adult and Out-of-School Youth Ed	2	1
Problems in I Ed	C.A.	1
Organization and Admin. of I Ed	2.5	1
Industrial Supervisory Practices	3	1
Study of Modern Industry	3	1

*Includes only the schools that listed specific curriculums.

Appendix D

EDUCATIONAL REQUIREMENTS

Course	Average Number of Semester Credits	Frequency (out of 21 schools)
Intro to Education	2	4
Prin. and Foundations of Educ	2	3
Secondary Ed. Prin. and Practices	3	3
Vocational Guidance	3	2
Curriculum Construction	3	1
Vocational Psychology	3	1
History and Appreciation of Artcrafts	3	1

*Includes only the schools that listed specific curriculums.

APPENDIX E

GRADUATE PROGRAMS AND GRADUATE COURSES

UNIVERSITY OF IDAHO

GRADUATE PROGRAMS - University of Idaho

Agricultural Education

M. S. in Agricultural Education

14-16 cr in Ag Educ (including thesis)
14-16 cr in one or several minors

Ag Ed courses offered (when needed):

251-252	Seminar (No description)	1-3
X 258	Directed Planning Workshop A workshop designed primarily for teachers of vocational agriculture. It includes a study of problems in curriculum construction, methods, course content, and modern trends in agriculture.	Max. 6
257	Problems in Teaching Vocational Agriculture For regularly employed teachers of vocational agriculture in Idaho. Includes attendance at summer conference for teachers of vocational agriculture, problems of methods, and new developments in the field of vocational agricul. This course may be repeated three years with credt.	3
260	Advanced Methods in Farm Mechanics Objectives, modern teaching methods, and current information in regard to the farm mechanics program in high school and adult classes.	1-3
261	Adult Programs in Agriculture Philosophy of adult educational and community coordination in vocational agriculture. The development and present status of adult education and current subject matter and organization in relation to progressive adult programs in Idaho and the Northwest.	1-3
281-282	Professional Problems Done under the direction of professor in whose subject the greater part of the work is offered.	1-3
283	Program Planning in Vocational Agriculture Emphasis upon preparation for off-farm agricultural occupations.	1-3
300	Research and Thesis Credits to be arranged (10 credits)	
	Total Credits	37

GRADUATE PROGRAMS - University of Idaho

Business Education

M.S. in Education
M of Ed

12-credit core

Philosophy and Educational Foundations	3
Psychological Foundations	3
Measurements	3
Research	3

12 cr in Major (BE)

6 electives

Courses offered (when needed):

Bus Ed 207	Workshop in Business Education (no description)	1
Bus Ed 211-212	Seminar A study of topice from recent research, and group discussion on selected research problems.	2-4
Bus Ed 215-216	Professional Problems This course is for students wishing to study independently in areas not normally covered by formal course work.	1-3 (Max.6)
Bus Ed 220	Improvement of Instruction in Secretarial Subjects Problems in the development of occupational competency in the secretarial subjects; methods and materials for instruction; standards of achievement; a critical review of literature and research.	3
Bus Ed 221	Improvement of Instruction in Bookkeeping and Basic Business An analysis of teaching procedures and materials for instruction; techniques for measuring and evaluating achievement; a critical review of literature and research.	3
Bus Ed 222	Current Issues in Business Education An analysis of philosophies, objectives, trends, and organization patterns of business education in the secondary schools. A critical review of literature and research.	3
Bus Ed 300	Research and Thesis	C.A.

Total Credits 19

GRADUATE PROGRAMS - University of Idaho

Distributive Education — Masters of Education

12-credit core		
Philosophy and Educational Foundations		3
Psychological Foundations		3
Measurements		3
Research		3
15 cr in Major (DE)		15
3 cr electives		3

Courses offered (when needed):

Bus Ed 207	Workshop in Distributive Education (no description)	1
Bus Ed 211-212	Seminar A study of topics from recent research, and group discussion on selected research problems.	2-4
Bus Ed 215-216	Professional Problems This course is for students wishing to study independently in areas not normally covered by formal course work.	1-3 (Max. 6)
Bus Ed 223	Administration and Supervision of Adult Distributive Education Procedures and techniques for the establishment and development of adult programs in distributive education.	3
Bus Ed 224	Current Issues in Distributive Education An analysis of philosophies, objectives, trends, and organization patterns of distributive education.	3
	Total Credits	16

GRADUATE PROGRAMS - University of Idaho

Home Economics Education

M. S. in General Home Economics

20 cr in Home Ec Educ.
10 credits in supporting field

H Ec Ed courses offered: (when needed):

H Ec 203	Home Economics Education Accelerated Course (No description)	1-4
H Ec 204	Curriculum in Home Economics Study of curriculum problems and planning in secondary homemaking education.	2
H Ec 205	Seminar (No description)	1-2
H Ec 207	Technique of Supervision (no description)	2
H Ec 210	Directed Readings	1-3
H Ec 300	Research and Thesis	C.A.
	Total Credits	13

GRADUATE PROGRAMS - University of Idaho

Technical Education

M of Education (Industrial Education)

12-credit core:

Philosophy and Educational Foundations	3
Psychological Foundations	3
Measurements	3
Research	3

18-credits in Industrial Education

I Ed 200 a and b	Professional and Technical Problems in I Ed	up to 6
I Ed 220	Evaluation in Industrial Education The application of methods and techniques of evaluation to I Ed. Special attention given to the construction and use of objective type tests, performance tests, rating scales, checks and grading industrial products and projects.	3
I Ed 230	Administration and Supervision of I Ed Programs Principles and practices relating to the administration and supervision of industrial education and vocational programs at the secondary level; examination of existing fed and state legislation regarding I Ed programs. Designed primarily for those who plan to enter administration or supervisory positions in secondary education.	3

Other courses taken in advanced technical courses.

Total Credits 12

VT 002 328

VT 002 328
Terrell, Errol J.
A Report of a Study of the Need for a Vocational-Technical School in the Milford-Stratford Area.

Connecticut State Dept. of Education, Hartford. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Nov66 10p.

*ENROLLMENT PROJECTIONS; *SCHOOL PLANNING; *AREA VOCATIONAL SCHOOLS
MILFORD; STRATFORD; CONNECTICUT

This summary report of selected data relative to the need of a new vocational school includes (1) identification of primary feeder towns, (2) travel distances to existing and proposed schools, (3) estimated enrollment based on 6 percent of students entering ninth grade, and (4) projections of potential enrollment through 1976. (EM)

ED027441

CI
11p

A
REPORT
OF
A STUDY OF THE NEED FOR A VOCATIONAL-TECHNICAL SCHOOL IN THE MILFORD-STRATFORD AREA

CONNECTICUT STATE
DEPARTMENT OF EDUCATION
NOVEMBER, 1966

DIVISION OF
VOCATIONAL EDUCATION

Project Number 649

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT 02328

Prepared by:

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Consultant, Bureau of Vocational Services
Division of Vocational Education
State Department of Education
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CONNECTICUT

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Laurence Eddy, Chief

STUDY CONCLUSIONS

Students from the Milford-Stratford area now are required to travel some distance to reach existing regional vocational-technical schools. The crowded conditions and the limited number of admissions at these vocational-technical schools tend to discourage students from these areas from filing applications.

On the basis of geographic accessibility a vocational-technical school in the Milford area might best be located near the Milford-Orange boundary. A vocational-technical school in the Milford area would draw most enrollees from Orange, Milford, Stratford and West Haven.

Interest in the establishment of a vocational-technical school in the Milford area has been exhibited by many groups including members of the industrial community, educators and students.

Projected enrollments for the towns of Orange, Milford, Stratford and West Haven appear large enough to support a vocational-technical school in the Milford area. Assuming the same percentage of students were to attend this school, as that experienced statewide (6%), a vocational-technical school in the Milford area would have an enrollment of five hundred and ninety-three students by 1973.

IDENTIFICATION OF TOWNS WHICH WOULD SERVE AS POTENTIAL FEEDER TOWNS FOR THE NEW VOCATIONAL-TECHNICAL SCHOOL

The existence of vocational-technical schools in Hamden and Bridgeport delimit the East-West boundaries of primary feeding towns for the proposed school. The North-South boundaries are formed by the location of the Emmett O'Brien Regional Vocational-Technical School in Ansonia (presently under construction) and Long Island Sound.

Since the area has a comparatively even population distribution, no natural geographical barriers and possesses favorable highway patterns, towns which might support a regional vocational-technical school may be easily identified.

Selecting a geographical mid-point between these boundaries allows identification of potential "Primary feeder towns" for the proposed school. This geographical mid-point falls in an area near the Milford-Orange boundary, between routes, Conn. 15 and U. S. 1.

Assuming location of the proposed school in this general vicinity we may identify the primary feeder towns as; Orange, Milford, Stratford and West Haven, (see Figure 1).

Existing highway service to the area appears to provide ready access to the proposed school location from any point in the towns identified as "primary feeder towns".

Distances shown in Table 1, may vary slightly from those which would actually be experienced in highway travel, since they reflect straight line distances from points as indicated.

TABLE 1

TOWNS IN MILFORD-STRATFORD AREA WHICH SERVE AS PRIMARY FEEDER TOWNS FOR A PROPOSED VOCATIONAL-TECHNICAL SCHOOL *

Towns	Nearest Existing Voc. Technical School	Distance to Nearest Existing Voc.-Tech. School	Distance to Ansonia Voc.-Tech. School	Distance to Proposed Milford-Stratford Voc.-Tech. School
Orange	Eli Whitney Regional Vocational-Technical School - Hamden	6	5	2
Milford	Bullard-Havens Reg. Vocational-Technical School - Bridgeport	7	7	2
Stratford	Bullard-Havens Reg. Vocational-Technical School - Bridgeport	3	9	5
West Haven	Eli Whitney Reg. Vocational-Technical School - Hamden	5	7	5

* All mileages represent straight line distances between existing schools and geographical centers of towns as shown on "Map of Connecticut" published by Connecticut Highway Department, 1965.

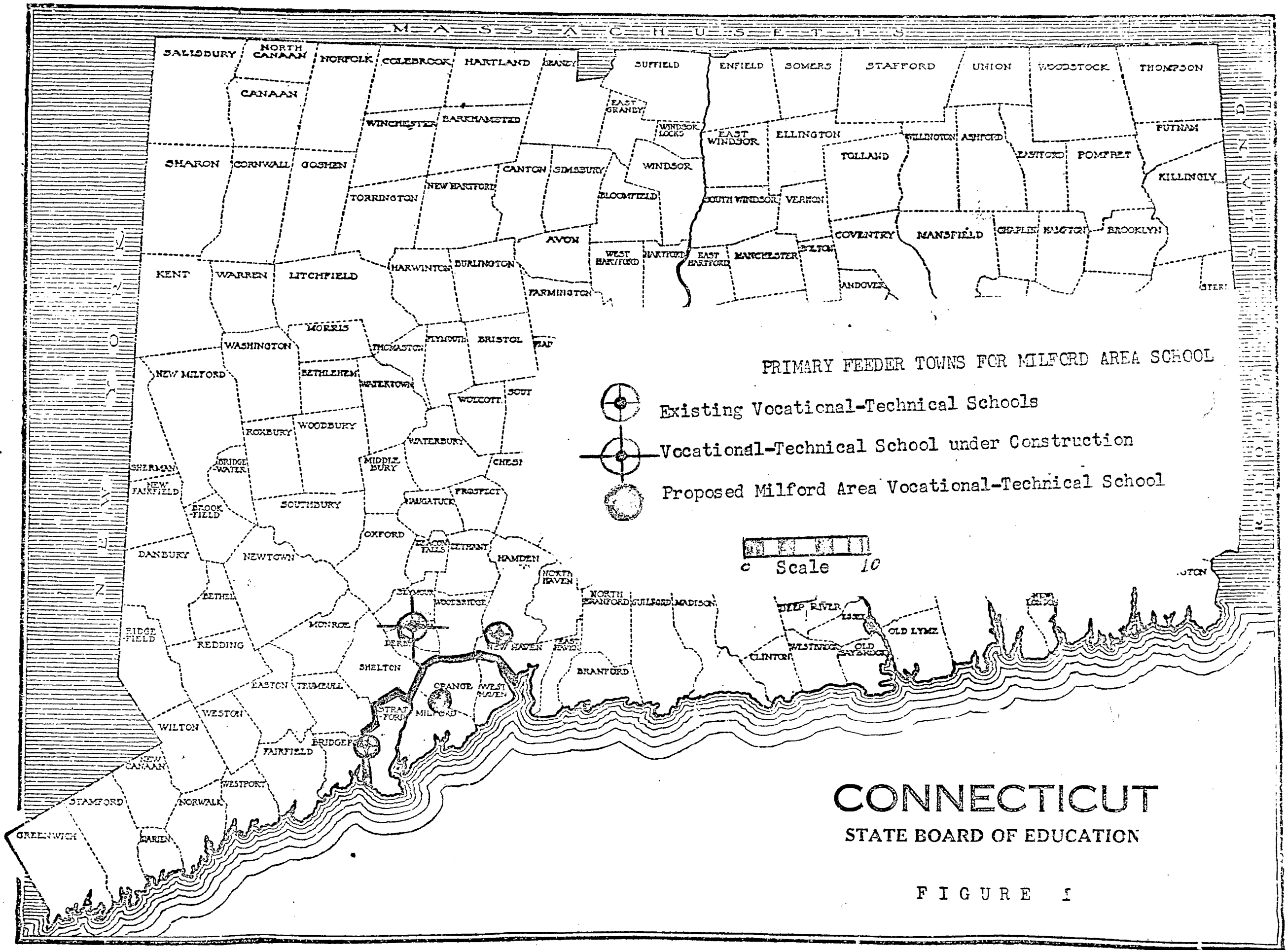

MASSACHUSETTS
RHODE ISLAND
SALISBURY
NORTH CANAAN
NORFOLK
COLEBROOK
HARTLAND
GRANBY
SUFFIELD
ENFIELD
SOMERS
STAFFORD
UNION
WOODSTOCK
THOMPSON
CANAAN
EAST GRANBY
WINCHESTER
BARKHAMSTED
WINDSOR LOCKS
EAST WINDSOR
ELLINGTON
TOLLAND
WILLINGTON
ASHFORD
EASTFORD
POMFRET
PUTNAM
KILLINGLY
SHARON
CORNWALL
GOSHEN
CANTON
SIMSBURY
WINDSOR
TORRINGTON
NEW HARTFORD
BLOOMFIELD
SOUTH WINDSOR
VERNON
COVENTRY
MANSFIELD
CHAPLIN
HAMPTON
BROOKLYN
AVON
WEST HARTFORD
HARTFORD
EAST HARTFORD
MANCHESTER
BOLTON
ANDOVER
KENT
WARREN
LITCHFIELD
HARWINTON
BURLINGTON
FARMINGTON
MORRIS
WASHINGTON
THOMASTON
PLYMOUTH
BRISTOL
PLAINVILLE
NEW MILFORD
BETHLEHEM
WATERTOWN
WOLCOTT
SOUTHINGTON
ROXBURY
WOODBURY
WATERBURY
CHESHIRE
SHERMAN
BRIDGEWATER
MIDDLEBURY
NEW FAIRFIELD
BROOKFIELD
SOUTHBURY
NAUGATUCK
PROSPECT
OXFORD
BEACON FALLS
ANSONIA
DERBY
HAMDEN
NORTH HAVEN
DANBURY
NEWTOWN
SEYMOUR
WOODBRIDGE
NORTH BRANFORD
GUILFORD
MADISON
DEEP RIVER
ESSEX
OLD LYME
BETHEL
RIDGEFIELD
REDDING
MONROE
NEW HAVEN
EAST HAVEN
WESTBROOK
OLD SAYBROOK
CLINTON
SHELTON
BRANFORD
EASTON
TRUMBULL
ORANGE
WEST HAVEN
STRATFORD
MILFORD
WESTON
WILTON
FAIRFIELD
BRIDGEPORT
NEW CANAAN
WESTPORT
STAMFORD
NORWALK
GREENWICH
DARIEN
PRIMARY FEEDER TOWNS FOR MILFORD AREA SCHOOL
Existing Vocational-Technical Schools
Vocational-Technical School under Construction
Proposed Milford Area Vocational-Technical School
Scale 10
CONNECTICUT
STATE BOARD OF EDUCATION

FIGURE 1

ANALYSIS AND PROJECTION OF STUDENT ENROLLMENT IN PRIMARY FEEDER TOWNS

Preliminary survey results for this proposed vocational-technical school were based on enrollment figures for the towns identified as primary feeder towns supplied by the Bureau of Research, Statistics and Finance, Connecticut State Department of Education for October 1, 1965.

At the December meeting of the superintendents of schools from the primary feeder towns the enrollment statistics obtained from the Bureau of Research Statistics and Finance were discussed. All superintendents agreed to send their projections of enrollment for the school years 1970 through 1974.

It was decided to draw an average or "Constructed Enrollment" for those years on which the study was to be based, using the statistics provided by the school superintendents and the Bureau of Research, Statistics and Finance.

Table 2

CONSTRUCTED ENROLLMENT MILFORD AREA VOCATIONAL-TECHNICAL SCHOOL

Year Entering Ninth Grade	1970	1971	1972	1973
Orange	322	321	334	329
Milford	1045	1055	1123	1094
Stratford	838	843	850	844
West Haven	812	813	816	890
TOTAL	3017	3032	3123	3157

NUMBER ENTERING VOCATIONAL-TECHNICAL SCHOOL (6% of eighth grade classes)

181	182	187	189

PROJECTION OF NEW VOCATIONAL-TECHNICAL SCHOOL ENROLLMENT BASED ON EXISTING AND ANTICIPATED ENROLLMENTS IN PRIMARY FEEDER TOWNS

Using the enrollment statistics provided in Table 2. It is possible to construct estimated enrollments of a vocational-technical school in the Milford area for the years 1970 through 1976.

Tenth, eleventh and twelfth grade class sizes reflect the previous years ninth grade class corrected for normal attrition experienced in the vocational-technical schools (85% of the vocational-technical school students continue in their program each year).

Table 3 reflects the projected enrollments for a vocational-technical school based on a Constructed Enrollment provided in Table 2.

TABLE 3

PROJECTED ENROLLMENTS FOR YEARS 1970-76 OF A MILFORD AREA VOCATIONAL-TECHNICAL SCHOOL (Based on Table 2, Constructed Enrollment).

YEAR	Grade 9	Grade 10	Grade 11	Grade 12	TOTAL
1970	181				181
1971	182	154			336
1972	187	155	131		473
1973	189	161	132	111	593
1974	*185	161	137	112	595
1975	*185	*157	137	116	595
1976	*185	*157	*133	116	591

* Grade enrollments projected on basis of average enrollments predicted in previous four years.

It may be seen from the statistics in tables two and three that the enrollment for a vocational-technical school in the Milford area may equal approximately 600 students.

Another factor which may tend to swell the projected enrollment will be the trades offered. If trades are included in the proposed Milford area regional vocational-technical school which are not offered in other existing vocational-technical schools, students from various parts of the state may wish to attend.

SUMMARY

It is evident, from the action of the 1965 Session of the General Assembly, representatives of education, industry and the community, that many feel the need for a regional vocational-technical school in the Milford-Stratford area.

In view of the location of presently operating regional vocational-technical schools (Bullard-Havens Regional Vocational-Technical School, Bridgeport and Eli Whitney Regional Vocational-Technical School, Hamden) a potential site located between these school locations would appear most favorable. A further determinant is the location of the Emmett O'Brien Regional Vocational-Technical School, Ansonia, presently in the construction stage. This school along with the natural boundary provided by Long Island Sound help identify the geographical area in which a school might be located. All indications seem to point to a locale near the Milford-Orange Line, between routes Conn. 15 and U. S. 1, as the approximate geographic area most centrally located.

This proposed vocational-technical school would serve the towns of Orange, Milford, Stratford and West Haven. In addition students from other parts of the state may be interested in learning a trade included in the curriculum of this school, but not offered in a regional vocational-technical school in their community.

Actual enrollments as of October 1, 1965 and predicted 8th grade enrollment for 1970-1973 from the towns of Orange, Milford, Stratford and West Haven show 8th grade classes of a size sufficient to support a regional vocational-technical school in the Milford-Stratford area. This school could anticipate an enrollment of approximately 600 students.

This potential enrollment is based on the assumption that the same percentage of students would attend this school, as that experienced statewide (6%).

If a decision is made to construct a regional vocational-technical school in the Milford-Stratford area additional research must be initiated. This additional research should include an evaluation of both student interest in terms of vocational courses and the needs of the various industries in the respective communities.

VT 002 368

VT 002 368
Roadmap for a Decade of Progress in Industrial Education.

California State Dept. of Education, Sacramento. Bureau of Industrial Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 40p.

*INDUSTRIAL EDUCATION; *GUIDELINES; *EDUCATIONAL PLANNING; INDUSTRIAL ARTS; TRADE AND INDUSTRIAL EDUCATION

As a result of a decision made at the 28th Annual Conference on Industrial Education, a central planning committee and eight ad hoc subcommittees of 80 recognized California experts designed these guidelines for industrial education during the next decade. General information and specific recommendations are given for the areas: (1) Advisory Committees, (2) Communications Systems and Public Information, (3) Evaluation which includes planning the evaluation, methods, general criteria, and instruments, (4) Industrial Arts Education which includes recommended areas of study, (5) Industrial Clubs which covers organization and objectives, (6) Occupational Guidance, Placement, and Followup, (7) Program Articulation, (8) Resource Centers, and (9) Teacher Education which includes preservice and inservice training. In general, there appears to be a major need for instructional improvements, instructional materials, use of community resources, and an information and an evaluation program. (EM)

ED027441

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40 pp

ROADMAP FOR A DECADE OF PROGRESS IN INDUSTRIAL EDUCATION

VT002368

CALIFORNIA STATE DEPARTMENT OF EDUCATION
BUREAU OF INDUSTRIAL EDUCATION
Max Rafferty, Superintendent of Public Instruction

SACRAMENTO, 1966

ROADMAP
FOR A DECADE OF PROGRESS
IN
INDUSTRIAL EDUCATION.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CALIFORNIA STATE DEPARTMENT OF EDUCATION

BUREAU OF INDUSTRIAL EDUCATION

Sacramento, California

1966

FOREWORD

Those responsible for programs of industrial education in California continuously seek the advice and counsel of persons from industry -- both management and labor -- and of education. With the impact of technological change upon industrial education, impetus was given to the Bureau of Industrial Education at its 28th Annual Conference on Industrial Education to discuss the goals and direction of industrial education in the next decade.

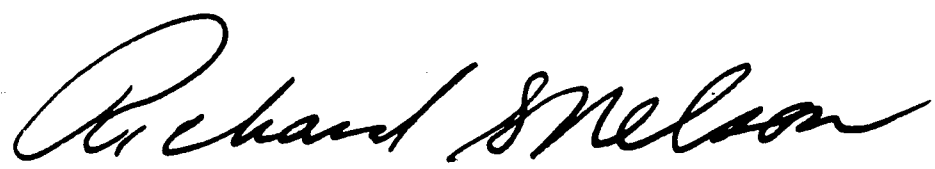
Almost immediately, a central planning committee and eight ad hoc subcommittees were organized to initiate and implement a "Roadmap for a Decade of Progress in Industrial Education." All members of the Central Planning Committee served as chairmen of subcommittee meetings and were responsible for compiling a consensus report.

The Bureau of Industrial Education is greatly indebted to the Central Planning Committee and the members of the eight ad hoc subcommittees for their time and effort, which made this report a reality.

Appreciation is expressed to Lee W. Ralston, Los Angeles County Schools, for his time and efforts over and above the normal call of duty.

Special acknowledgment is given to James A. Herman, Assistant Chief, Bureau of Industrial Education, who served as overall coordinator for this report, giving leadership, guidance, and organization to the committees and bureau staff.

I sincerely hope that this publication will result in a better understanding of the purpose, the program, and the service of Industrial Education in California.



RICHARD S. NELSON
Chief, Bureau of Industrial Education

PREFACE

Continued progress and prosperity of our democratic society depend largely on the quantity and quality of the manpower which can be allocated to our technical and industrial programs. Throughout our nation, and particularly in California, the traditionally essential elements of land and capital are available in abundance. However, there is a "scarce resource" -- trained manpower. A genuine threat is posed to our entire society by this shortage, which may become acute unless positive, constructive action is taken. Clearly, this demand for trained manpower places a heavy responsibility upon the educational leaders who must design and supervise the many programs of industrial education.*

Eighty recognized California experts, representing the entire spectrum of industrial education throughout California, were invited to accept the charge of designing the guidelines for industrial education in the next decade. A central planning committee, working in Sacramento with representatives of the California State Bureau of Industrial Education, carefully designed the format used for this unusual study of industrial education. Through an interlocking system of eight subcommittees, the committee members, including both teachers and administrators, attacked the multiple problems that had previously defied resolution, and completed their work in ninety days. The following individuals served as members of the Central Planning Committee:

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California State College at Long Beach

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Laney College, Oakland

E. D. Goldman
San Francisco Unified School District

J. Lyman Goldsmith
Los Angeles City School District

Curtis E. Lackey
Fresno City College

D. W. Moseley
Jefferson High School, Daly City

Lee W. Ralston, Chairman
Los Angeles County Schools

*For purposes of this report, "industrial education" is defined as an all-inclusive term, including industrial arts education, industrial occupational education, and trade and technical education.

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Kenneth O. Smith, Special Consultant
University of California, Los Angeles

Richard S. Nelson
Chief, Bureau of Industrial Education

James A. Herman
Assistant Chief, Bureau of Industrial Education

The results of this landmark study, and specific recommendations of the committee, are presented in the following report. The reader of this report should review the recommendations within the parameters of the study, and test these recommendations against the pressing needs of allied educational areas. It will become clear during a review of the recommendations that five principal areas of concern emerged from the hundreds of hours of research, discussion, and group resolution of conflicts.

In summary, it may be said that there appears to be major need for:

. . . instruction improvement
. . . instructional materials
. . . use of community resources
. . . an information program
. . . an evaluation program

In many of the specific recommendations, more than one of these primary problems is treated. It must be emphasized that the recommendations for action presented here represent the conclusions of exceptionally well-qualified men and women now personally engaged in industrial education. In a very real sense, these people are offering a plan for their own future -- and yours. They have prepared a "roadmap for a decade of progress."

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ADVISORY COMMITTEES

ADVISORY COMMITTEES

Advisory committees have played a vital role in the success of industrial education programs for many years. They have proved to be of great value on state, regional, and local levels. As increasing technological demands and changing industrial patterns necessitate a constant revision of the instructional program, the value of such committees is becoming greater. Plans must be made well in advance in order to put such revisions into effect in time to meet the needs.

Industrial educators need assistance in determining the many significant factors that affect training programs. They must have direct lines of communication with the industry they seek to serve. In order to maintain programs in industrial education that meet current occupational manpower needs, industrial educators have found it important to consult representatives of labor and management.

General advisory committees serve important functions; however, specific craft or occupational advisory committees are perhaps more widely used. Regardless of the type of advisory committee, the techniques of working with them are essentially the same.

In industrial education, the values of a local craft or occupational area advisory committee are a well-accepted fact. Since there are many people now entering the industrial education field that have had a limited opportunity to take advantage of these values, the following points should be considered:

1. Selection and appointment of members
2. Organizing the committee personnel
3. Outlining the duties and responsibilities of the committee
4. Providing information and requesting specific assistance
5. Follow-up of meetings with minutes and reports, also appropriate action as the result of committee recommendations

RECOMMENDATIONS

At present, there is a need for more extensive and effective use of such advisory committees at all levels. Therefore, it is recommended that the Bureau of Industrial Education, California State Department of Education:

. . . Establish a general advisory committee for industrial education, whose membership should consist of representatives of labor, management, education, employment, service clubs, parent groups and other interested and appropriate groups. Members should be recommended by the Chief of the Bureau of Industrial Education and appointed by the State Superintendent of Public Instruction. Provision for rotation and continuity of the membership should be provided. The functions of this committee would include providing advice and

recommendations on such activities as:

* Developing policies affecting industrial education
* Developing industrial education programs that provide for the employment opportunities
* Interpreting industrial education to the several publics
* Assisting in the establishment of local advisory committees
* Promoting and supporting beneficial and constructive legislation for industrial education at the local, state, and federal level



James A. Herman, coordinator of the ad-hoc committee activities, reviews the agenda with Lee W. Ralston, Chairman, Central Planning Committee and with Richard S. Nelson, Chief, Bureau of Industrial Education.

COMMUNICATIONS SYSTEMS AND PUBLIC INFORMATION

COMMUNICATIONS SYSTEMS AND PUBLIC INFORMATION

The values of industrial education should be clearly understood by those who are reached and attracted to the training, and by the community which must support it with their votes, their taxes, and their active participation. Public support, an essential ingredient for the success of any education program, can be assured only when the program, its objectives, and its accomplishments are well publicized. All industrial education administrators and staff members must use every available means of communications to reach the various groups affected.

Teachers and supervisors should also remember that if a communications system is to function effectively, they must make every effort to obtain information concerning the needs of the community and the type of training the public desires.

An effective communications program, providing timely, accurate, and complete information to all concerned, is necessary if a feeling of trust and respect is to be maintained and if suggestions are to be met with acceptance rather than with opposition. Realistic, understandable reasons for actions should be given. Stimulating and effective programs of communication can provide motivation to take action and result in full cooperation and valuable interchange of information.

RECOMMENDATIONS

The value of such a program of communications and public information to industrial education has been established. It is recommended that the Bureau of Industrial Education give consideration to the following suggestions:

. . . Keep all personnel in industrial education informed
. . . Collect and disseminate information
. . . Eliminate duplication of effort
. . . Promote two-way channels of communication
. . . Identify, expand, and modernize communications and public information
. . . Develop (or collect) job descriptions and specifications
. . . Develop budget requirements
. . . Organize staff and/or supplementary personnel

Establishing an Educational Communications Clearing House to:

. . . Collect information and promotional and instructional materials
. . . Publish an industrial education newsletter
. . . Organize a speakers' bureau
. . . Develop specific brochures for students, parents, service clubs, etc.
. . . Develop recognition programs for displays, awards, scholarships, etc.
. . . Develop a Teaching Aids Library (films, slides, etc.)

. . . Enlist the aid of TV and radio educational time slots
. . . Develop mobile instructional units
. . . Promote and organize student industrial education clubs
. . . Promote a "California Industrial Education Week"

Developing a standard operating manual for industrial education communications which would:

. . . Establish guidelines for communications and public information
. . . Parallel and expand specifically the Public Relations Manual of the American Vocational Association.



Members of subcommittee receive information on procedure.

EVALUATION

EVALUATION

As the spotlight has been turned on all areas of vocational education by the added emphasis on the national need for manpower resources, it has become more important than ever that those responsible for industrial education review program objectives. This review should be made in light of two factors, quantity and quality. As these objectives are reconsidered, effort must also be placed on the planning of evaluation.

Evaluation is a continuous process that should be an integral part of the planning and developing of an industrial education program. It is a necessary factor in determining the strengths and weaknesses that should be sustained and corrected. Industrial education is constantly being evaluated in many ways on an informal basis. However, such evaluation is subjective and is merely a by-product. Some activities in industrial education, such as the placement record of a vocational class or the completed project from an industrial arts class, are in themselves factors that are being used to judge the effectiveness of the program.

PLANNING THE EVALUATION

Planning the evaluation should be done with the same insight and vigor used for planning other portions of the industrial education program. The planning for evaluation of an industrial education program must take into account many variables. Some of these variables can be measured in finite units. Others depend upon a subjective judgment based on their relationship to generally acceptable conditions.

METHODS OF EVALUATION

Several methods of evaluation may be used. Among those that have proved successful are:

1. Observation and recording by one individual who systematically works through the total industrial education program.

2. The team approach, which can be used very effectively to reduce the total overall span of time consumed by the evaluation.

3. The self-evaluation procedure, following a prescribed program and procedure.

4. A combination of the above to provide for detailed information and for acceptance through participation.

The personnel that are to be involved in an evaluation should have a thorough understanding of the process. This applies to students, teachers, supervisors, administrators, and to those assigned specifically to the evaluation process. A general understanding of the process should prevent a build-up of tensions or frustrations that could result from lack of information or misinfor-

mation. It is suggested that, during evaluation, every effort be made to maintain operating conditions that are as close to normal as possible in order to assure the most valid assessment possible.

GENERAL CRITERIA

The following list of criteria was developed. No attempt has been made to determine priority or relative value of the several factors. An effective evaluation program should consider the following criteria:

. . . An educational philosophy that provides realistic objectives or goals and the establishment of the functions and purpose of the industrial education program.

. . . An understanding of the employment opportunities in the geographical area, recognizing the short term and the long term needs of industry.

. . . Effective utilization of an advisory group that encompasses representatives of management, labor, and other interested and affected groups within an occupational area.

. . . A guidance and counseling program that provides current occupational information and a system of recruitment and selection of students that can profit from the instruction.

. . . Teachers that are occupationally competent, professionally qualified, and properly credentialed.

. . . Courses of instruction that are occupationally centered, that provide manipulative experiences in a logical sequence, and that emphasize basic education skills.

. . . An effective safety program with safety policies and practices that are enforced.

. . . Administrative and supervisory support for the industrial education program.

. . . Adequate and ample tools, equipment, supplies, utilities, services, and building facilities.

. . . An instructional program that provides for the development of good work and study habits, effective planning, useful student personnel organization, and effective relationships between the instructor and the student, and the parent, the entire school staff, and the community.

. . . Area planning that has provided needed programs for the entire area, without duplication of effort.

. . . Recognition of the importance of articulation with other programs at all levels.

. . . An effective system of placement that provides for a smooth transition from the instructional program in the school to the production program in employment.

. . . In-service education that helps to keep the instructors technically up-to-date in their occupational field.

. . . Other detailed information such as:

* Cost per student hour
* Follow-up of students
* Effectiveness of training
* Suggested improvements

EVALUATION INSTRUMENTS

After the basic criteria above have been established, the specific evaluation instruments for each area of vocational education should be developed. In the evaluation instruments, appropriate specific items will be included for effective appraisal of each criterion. Evaluation instruments should be developed by groups that are familiar with each of the several levels of industrial education. These several instruments should be developed as soon as possible. Provision should be made to restudy and possibly modify these instruments after they have been used.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Provide a set of criteria for measuring the quality and quantity of the industrial education program.

. . . Develop and utilize specific instruments for the several levels of industrial education, including industrial arts education, industrial occupational education, and trade and technical education.

A written report of the evaluation should be prepared. Such a report would be helpful in planning new programs, modifying existing programs, and retaining effective programs.

INDUSTRIAL ARTS EDUCATION

INDUSTRIAL ARTS EDUCATION

Industrial arts is readily recognized as an integral part of the total education program in the California public schools. It is an important segment of the total industrial education picture and is found at all levels from kindergarten through college. At present, the primary emphasis in industrial arts is placed at the upper elementary, junior high school, and senior high school levels. However, there are indications that more emphasis should be placed in the future at the other levels and thereby strengthen the total program.

Industrial arts programs are designed to provide a general orientation to industry rather than to develop a high level of competence in specific industrial skills. This orientation is accomplished by:

1. Providing for the use and understanding of the tools, materials, and processes of industry.

2. Creating the ability to select, care for, and use industrial products wisely.

3. Developing an appreciation for good design and workmanship.

4. Providing for the feeling of pride of workmanship.

5. Developing vocational interests.

6. Providing for an opportunity for youth to explore and participate in several occupational areas.

7. Participating in industrial arts programs may assist the student in the selection of a wise occupational choice.

In this manner, industrial arts can provide a medium for youth to develop desirable skills, understandings and knowledges, appreciations and attitudes regarding the industrial nature of the society in which we live.

RECOMMENDED AREAS FOR STUDY

As consideration is given to the decade ahead, it is felt that the following areas of concern should be analyzed and studied with the primary objective of advancing industrial arts.

. . . The development of more realistic objectives for the program.

. . . The development of a closer relationship with industry and the general publics.

. . . An analysis of the various patterns of industrial arts at different educational levels.

. . . The development of curricular materials that are up-to-date and realistic.

. . . The development of a strong teacher recruitment program.

. . . The development of a more sophisticated teacher education program.

. . . Provision for pre-service and in-service teacher education.

. . . Better articulation between all education areas and the various levels of industrial arts.

. . . The design of facilities that are flexible, meet the needs of the total program, and provide for multiple use of these facilities.

. . . Working actively for legislation that will provide adequate credentials for the profession.

. . . Evaluation of the place of industrial arts in the total educational program.

. . . Development of a better image for industrial arts.

Industrial arts in the decade ahead faces many challenges, most of which are included either directly or indirectly in the twelve points listed above.

RECOMMENDATIONS

In reviewing the materials submitted by other subcommittees, the industrial arts committee found a considerable amount of overlap in recommendations. After considerable evaluation of materials included within the reports of other areas, the industrial arts committee recommends that the Bureau of Industrial Education:

. . . Work with the industrial arts department in the State colleges to implement action-type research in the field of industrial arts through foundation and government grants.

. . . Provide leadership in promoting the expansion of elementary industrial arts programs in local school districts throughout the state.

. . . Provide leadership in promoting the point of view that industrial arts is an identifiable discipline or body of knowledge with definite content and skills that are essential for every individual.

. . . Activate representative committees to revise and update existing state guides relating to industrial arts in the California schools.

INDUSTRIAL CLUBS

INDUSTRIAL CLUBS

In recent years, many local school districts in California, under the leadership of enthusiastic industrial education teachers, have planned and organized a variety of industrial clubs for youth throughout the state. Many of the youth clubs have had outstanding success and have provided students with enriched experiences not normally available in the regular curriculum. To date, no concerted effort to organize these clubs has been made on a state level. Leaders in industrial education have visualized the value of a youth organization that would provide leadership opportunities and activities similar to those in operation in other fields of vocational education. When such a program is to be initiated, it seems advisable that some group or individual in the Bureau of Industrial Education should provide the leadership and the impetus for getting the program under way.

ORGANIZATION

Industrial clubs in California should be organized at the secondary level and should provide for all areas of industrial education. Membership in the club should be made up of students enrolled in industrial arts or trade and technical classes, or it could be planned around a specific subject area. The initiation of such clubs should be optional with local schools.

OBJECTIVES

Through a self-governing and democratic organization, industrial education students are afforded an opportunity for individual accomplishment and recognition that cannot easily be derived from the regular school curriculum. Benefits that may result from the establishment of industrial youth organizations include:

1. Opportunities for students to work together.
2. Good public relations.
3. A basis for a teacher recruitment system for industrial education.
4. Leadership opportunities.
5. Opportunities for students to be identified with a group.
6. Knowledge of the contributions of our industrial culture to our nation's heritage and the practice of democracy.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Encourage, organize, and develop a program of industrial clubs in California.

. . . Encourage youth organizations related to industrial education by working closely and cooperatively with all interested or professional organizations.

. . . Encourage the establishment of a statewide industrial youth club advisory committee whose membership would include labor and management; teachers, supervisors, administrators of industrial education; and representatives of interested and appropriate groups.

. . . Encourage an organizational pattern that is developed and carried out in such a way as to assure local, regional, and state membership participation.

. . . Encourage the state association to develop guidelines and brochures that will assist schools in planning, initiating, and operating industrial clubs.

. . . Encourage the industrial youth clubs in California to affiliate, through the state association, with the Vocational Industrial Clubs of America.



Chairman of a subcommittee presents a problem for consideration.

OCCUPATIONAL GUIDANCE PLACEMENT AND FOLLOW-UP

OCCUPATIONAL GUIDANCE, PLACEMENT, AND FOLLOW-UP

Job selection in the world of work has become a complicated process, often subject to wildest chance and equally often unrelated to young job seekers' aptitudes and abilities. Most young people are unaware of the range of occupational opportunities and have had little chance to observe work in the setting in which it is performed. Although the need has already been established for guidance, placement, and follow-up, research indicates that a wide gap exists between goals and accomplishment.

The guidance program is basically a shared responsibility of the counselor, the teacher, and the administrator. Although the counselor is responsible for providing technical guidance services, it is the industrial education teacher who has the day-to-day contact with the student as well as a background of occupational experience. The administrator is responsible for the leadership and for making the time and facilities of the guidance program available to all students.

Occupational information should provide a central theme for the guidance program. Although the guidance services within the school include a testing program, individual counseling, and assistance to the student in the development of his educational program, the concentration and distribution of effort in the guidance program will be determined by the leadership, personnel, and resources that are available.

Attention must be devoted to a placement program that provides for an effective transition from school to work. This would include providing students with training in filling out application forms, in taking employment tests, in conduct during interviews, and in job orientation. Since the first few days on the job are most crucial, the development of a check-back procedure could be helpful to the new worker.

The development and operation of an effective follow-up system for all students is more important to industrial education than the attention that it has been afforded. Since follow-up is a neglected aspect of the industrial education program, more thought and effort must be devoted to it. An effective follow-up system will provide much information that we need and presently do not have.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Promote the establishment of vocational guidance seminars as an integral and significant part of in-service training for counselors, and as a part of the training of future counselors and industrial education teachers.

. . . Develop vocational guidance handbooks to cover each of the following levels: junior high school, senior high school, adult school, and junior college.

. . . Promote procedures that will provide a continuous flow of current occupational information in such a form that it can be readily used in the guidance program.

. . . Assist schools in the establishment of a continuous program of vocational guidance.

. . . Implement an in-service seminar program for counselors to be sponsored by the Bureau.

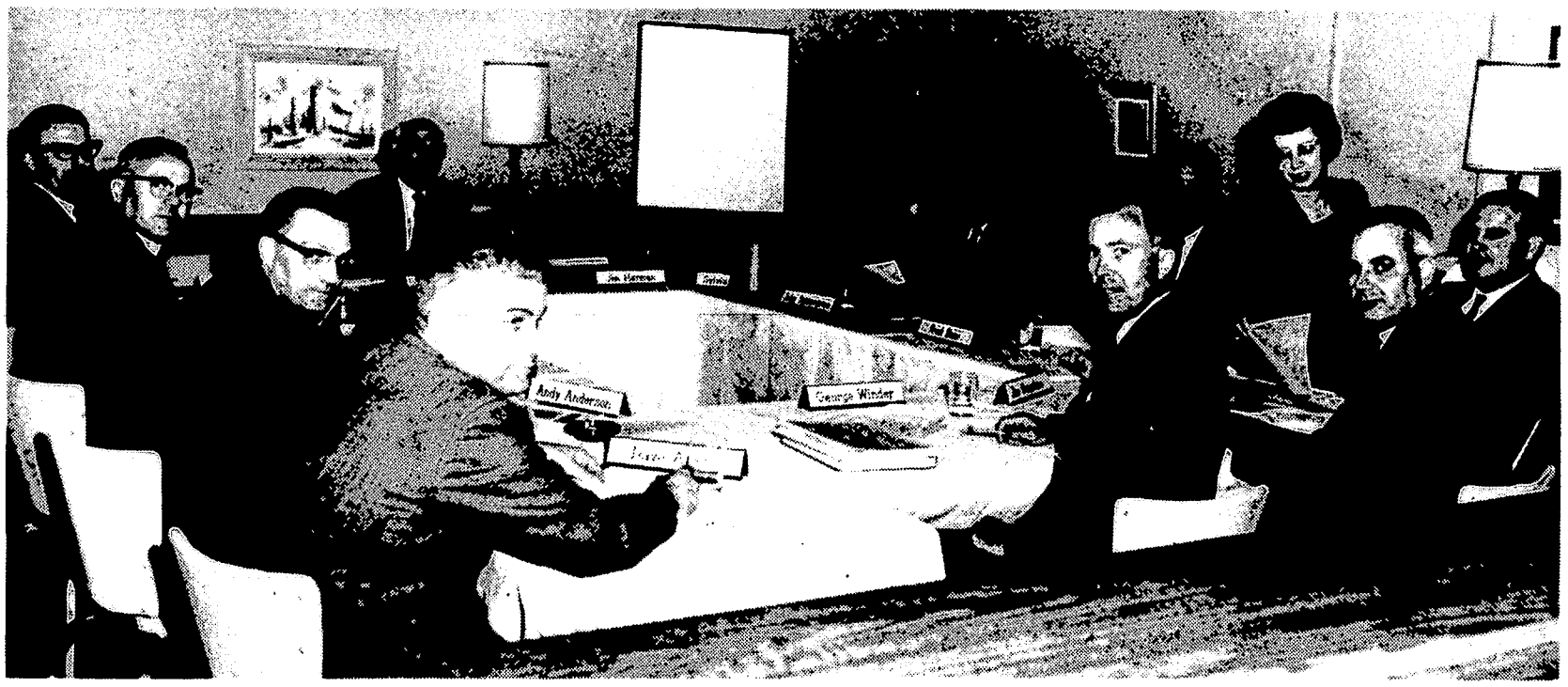
. . . Appoint an advisory committee to assist in the development of an across-the-board, coordinated program of student follow-up.

. . . Establish a well-coordinated and integrated program of student follow-up.

. . . Provide financial support for the implementation of practical, feasible follow-up studies.

. . . Make available to school districts the information obtained through follow-up studies.

. . . Publicize the results of follow-up studies.



Informal round table discussions were utilized extensively.

PROGRAM ARTICULATION

PROGRAM ARTICULATION

Program articulation is a functional part of all industrial education programs. Emphasis should be directed toward developing plans for the articulation patterns among the many industrial education programs located in the intermediate grades, junior high schools, high schools, adult schools, and junior colleges. A plan is needed that will assure industrial educators and students a program that moves smoothly from one level to the next, no matter at what level it begins and ends.

Articulation must provide for the entrance of students into the industrial education program at any level. The maturity of the student should have full consideration. The background of the student is another major factor. The program should be sufficiently stable to provide a basis for sound planning. It should also have the basic flexibility necessary to serve the needs of students of varied backgrounds and abilities. Ideally, the student should be allowed to enter the program at a level commensurate with his knowledge and ability. Then he should progress through the program at the rate of which he is capable and thus pursue his own objective. It is recognized that in the operation of any program, there are administrative limitations and related problems that must be solved. It is also recognized that both interdisciplinary and intradisciplinary articulation are needed in educational circles. Problems arise because the "school publics" may not understand the articulation of the industrial education program, and further that industrial education must be articulated with business, industry, and community groups.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Consider articulation as a logical interrelation of all levels and phases of the industrial education program.

. . . Encourage consideration of articulation as a flexible rather than a fixed concept.

. . . Survey local school districts in an effort to discover successfully articulated programs of industrial education and encourage the use of this information in other school districts.

. . . Formulate and publish uniform standard course titles and catalog descriptions.

. . . Encourage giving credit by examination or credit for course work completed in industrial education programs in the junior and senior high school, adult education programs, and in junior colleges.

. . . Develop additional occupational information about the world of work for elementary, junior high, senior high, adult, and junior college levels.

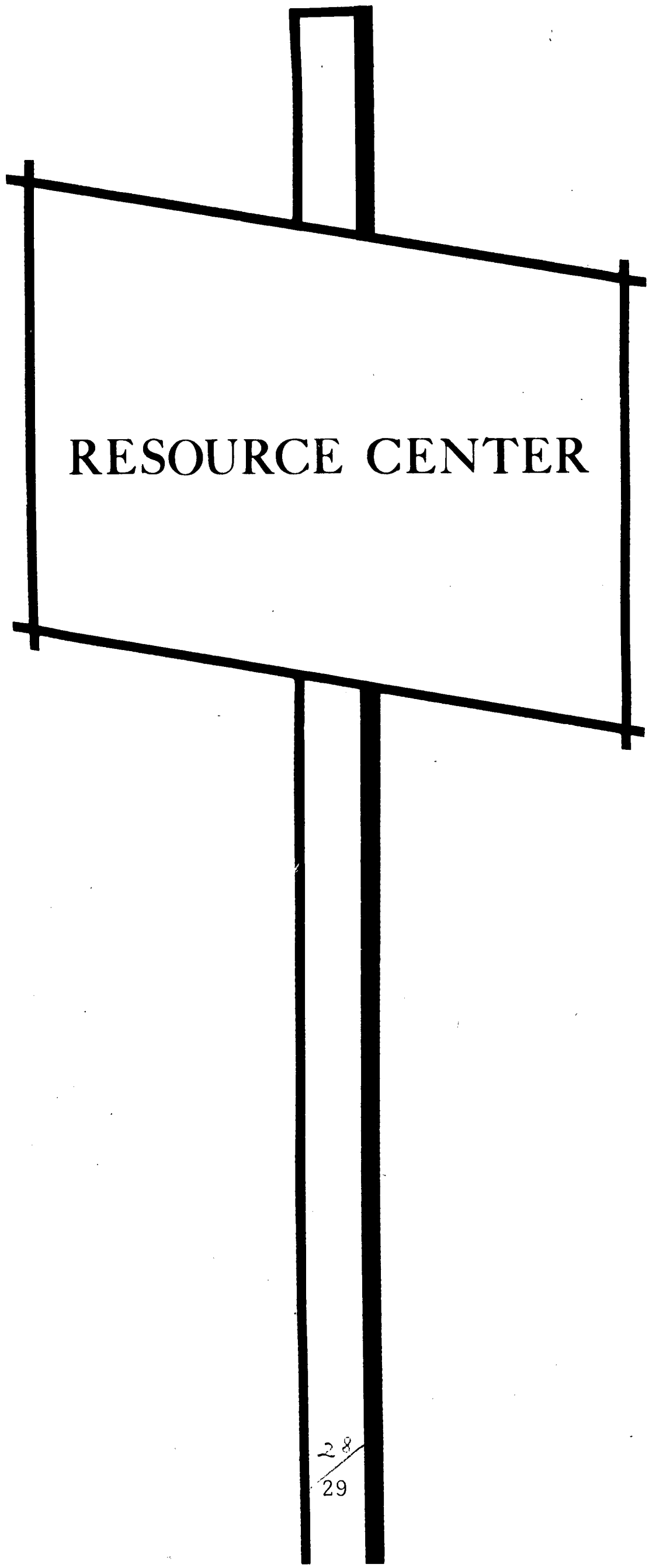
. . . Prepare for presentation to differing audiences programs using visual aids indicating appropriate articulation from "K" through 12 and into college and adult education.

. . . Initiate an informational program for teachers, counselors, administrators, and others indicating articulation of the total industrial education program and their relationship to this program.

. . . Encourage core programs in technical education, health occupations, and other public service occupations, beginning in high school and carrying on through junior college.



Bureau Chief outlines a topic for discussion to a subcommittee.


RESOURCE CENTER

RESOURCE CENTER

It is recognized that curriculum development and revision is a vital part of an active, forward moving industrial education program, that the techniques of curriculum construction must be developed as personal skills by all industrial education personnel, and that the dissemination and exchange of information related to the curriculum field is a necessity if industrial education programs are to be implemented effectively.

Industrial education is in urgent need of ways and means of developing and providing curriculum materials and related information for use by our teachers, coordinators, supervisors, administrators, etc. This information can be drawn together by several methods, but guidelines are necessary for developing a center at which information will be gathered and curriculum materials developed, edited, printed, and distributed.

As rapidly advancing technology has made necessary continuous adjustment in the curriculum of the courses of instruction in industrial education, much effort has been expended by individual instructors to develop teaching aids and auxiliary material. Much of this material is directed toward the same goals, and represents a duplication of effort. If it could be made available to all schools, this material could serve as an invaluable resource for teachers throughout the state. A resource center could provide this service and could do much to minimize duplication. Innovations and improvements could be created that would result in many advances in instructional programs in industrial education.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Plan, develop, and establish a statewide industrial education instructional materials center.

. . . Provide an industrial education instructional materials center that is adequately housed, financed, and staffed to provide statewide and regional services to industrial education teachers and administrators.

. . . Provide services through the industrial education instructional materials center by inventorying, collecting, listing, and loaning existing instructional materials and developing and distributing new instructional materials.

. . . Organize the industrial education instructional materials center so that provisions are built into its organizational procedures and policies which provide for cooperation with all agencies administering state and federal legislative acts and with all related professional agencies and associations.

. . . Authorize the industrial education instructional materials center staff to:

* Survey what is now being done, what is needed, and what should be planned for the future in terms of instructional materials.

* Recognize and utilize talents of individuals, groups, districts, and organizational units that can contribute to the industrial education instructional materials center through appropriate special interest and subject field committee work.

* Collect and catalog instructional materials available from all local, state, and national sources.

* Work with others in development of informational pamphlets describing industrial education programs in general and at specific levels.

* Prepare a catalog listing curriculum resources available for loan through the industrial education instructional materials center.

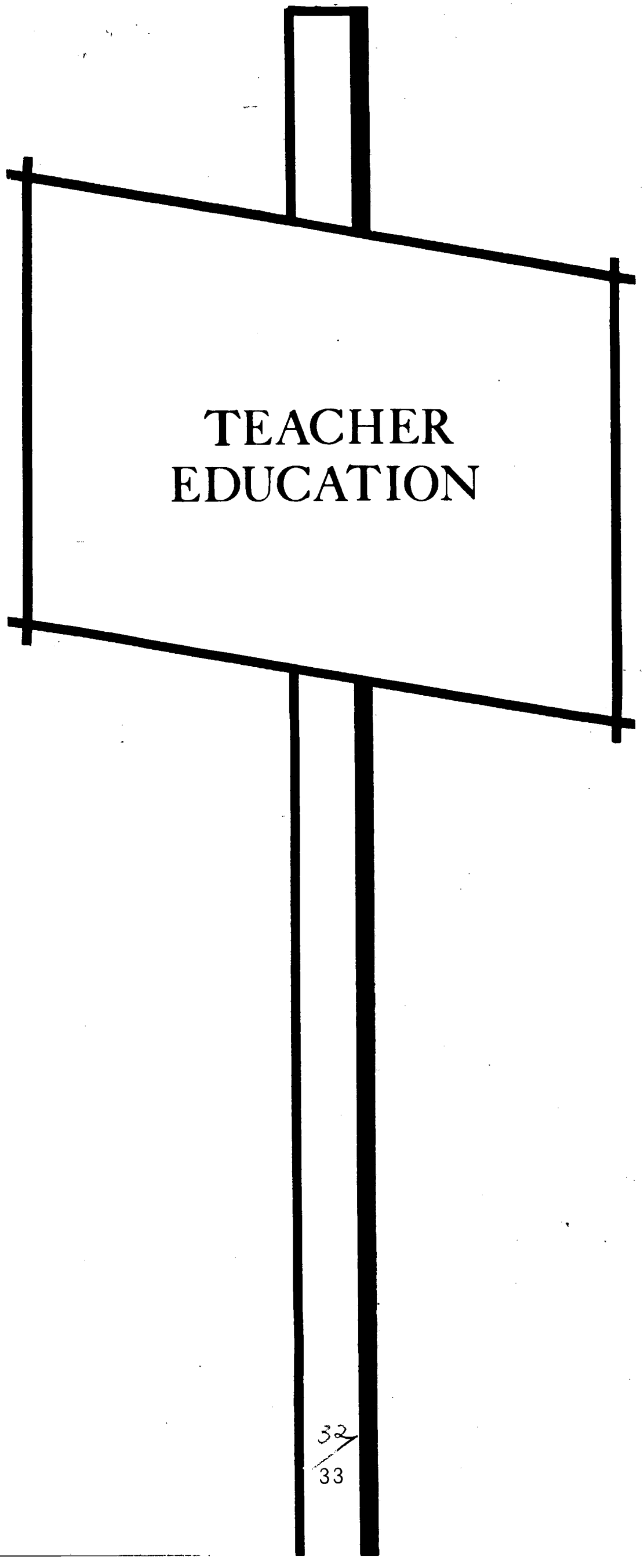
* Survey available commercial and teacher-made instructional aids and prepare a list of those available for distribution.

* Develop a program of furnishing microfilmed copies and production copies of instructional aids and curriculum resource materials.

* Identify and publicize new instructional media, techniques, concepts, and areas or fields.



Suggestions are listed by chairman for subcommittee action.


TEACHER
EDUCATION

TEACHER EDUCATION

The continuance, improvement, and expansion of industrial education is directly related to the need for innovation in pre-service and in-service education. Teacher education programs require continuous critical evaluation and revision to keep pace with developing professional standards, advancing certification requirements, and a rapidly changing educational technology. In order to establish valid criteria for teacher education curriculum revision, it is necessary to identify and define competencies needed to perform successfully the functions expected of a qualified teacher. The identified competencies form the foundation for evaluation and improvement for the teacher education curriculums. Likewise, these identified competencies form the basis for developing the curriculum for the teacher education programs. In the revision of the teacher education curriculum, provision must be made to develop the identified competencies in selected individuals, through education, training, and experience prior to employment as a teacher and on an in-service, continuing basis after placement as a teacher in an industrial education program.

Industrial education will be only as effective as those who teach and administer it. Only through more and better pre-service and in-service education can teachers, supervisors, and administrators be adequately prepared and kept continually up-to-date. Skills, knowledge, attitudes, and appreciations acquired by students arise from the teacher's influence; therefore, the first measure of quality in industrial education must be at the instructor level.

Information concerning such education should be made available to potential and employed teachers, supervisors, and administrators of industrial education. The future role of shop and lab-oriented instruction and the potentialities of a work experience program of teacher preparation suggest that cooperatively education and industry should bring about important breakthroughs in the teaching, supervision, and administration in industrial education.

RECOMMENDATIONS

It is recommended that the Bureau of Industrial Education:

. . . Continue the advisory committee on pre-service and in-service education with representatives of local school districts, teacher training institutions, and labor and management to advise the Bureau of Industrial Education as to occupational competency and professional preparation, professional needs that are related to occupational opportunities, industrial skills and techniques, technical development and equipment.

1. <u>For pre-service training</u>

   Establish and implement the following policies and actions of <u>pre-service training:</u>

   . . . Promote on-the-job experience for college students enrolled in

industrial arts and trade and technical teacher education programs.

. . . Appoint a committee to develop a basic industrial education credential (industrial arts, occupational preparation, industrial, service, trade and technical) with basic requirements for occupational competency and professional preparation related directly to the area and level to be taught.

. . . Develop course content to meet the needs of industrial education teachers.

2. For in-service training

Establish and implement the following policies and actions of in-service training:

. . . Initiate summer workshops at all levels of industrial education to improve both occupational competency and professional preparation.

. . . Promote sabbatical industrial leaves for teachers during which they would work in industry and also receive salary increment credit from their school district.

. . . Promote salary increment credit for teachers who work in their occupational field during the summer.

. . . Establish standards for in-service teacher education workshops.

. . . Adopt programs of the type offered by the National Science Foundation to fit the needs of industrial education programs.



Members of Central Planning Committee discuss subcommittee recommendations.

VT 002 432

VT 002 432
Evaluation Results for Leadership Development Seminars I, II, III, Vocational-Technical Education.

Maryland Univ., College Park
MF AVAILABLE IN VT-ERIC SET.

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08

Pub Date - 66 5p.

*PROGRAM EVALUATION; *LEADERSHIP TRAINING; *SEMINARS; CHANGING ATTITDUDES; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION

An inventory-evaluation sheet was developed to measure changes in attitudes and understandings of participants in three leadership development seminars for vocational and technical personnel, two held at the University of Maryland (reported in ED 010 629 and ED 010 630) and the third at Tahoe, California, (reported in ED 010 631) 1966. The instrument was used as a pre and a post test and the differences in mean scores were calculated for each item for each seminar. An increase was found for each item. The greatest change occurred on the item, "My understanding of the leadership development process," with the most change occurring during Seminar II. Participants completing open ended evaluation forms at the end of each semester judged as most worthwhile (1) learning different conference procedure methods, better knowledge of conference tools and techniques, and leadership skills, and (2) meeting in informal sessions outside the scheduled day. They judged the Task Force to be least worthwhile because too much time was spent on it, the situation was artificial, and too few materials were available. Tabular data give the mean pre- and post-test scores and mean difference for each item for all three seminars. (EM)

ED027441

EVALUATION RESULTS
FOR
LEADERSHIP DEVELOPMENT SEMINARS I, II, III,

Vocational - Technical Education,

For the Leadership Development Seminars I, II, and III - Vocational - Technical Education, held during May, June, July and August 1966, an Inventory/ Evaluation Sheet was developed (attached). This instrument was designed mainly to evaluate changes in attitudes and understandings of the participants as it concerned the leadership development process. It was comprised of two parts: (1) General and (2) Specific Understandings/Skills.

The instrument was mailed to the participants, prior to each conference. Each person was asked to fill it in and return it when he registered for the conference. The same instrument was administered at the end of the conference.

There were five different scales or degrees which a participant might check to indicate his attitude or understanding, these were: much, fair amount, some, small amount, and none. Each scale or degree was given a weight, thus: much (5), fair amount (4), some (3), small amount (2), none (1). The results of the pre-tests and post-tests were calculated separately. The difference in the mean scores were also calculated. This difference shows increase in every item listed in the instrument. All mean scores and differences in mean scores are shown in the attached table.

The results of the findings were noted. For Seminars I, II, and III, the greatest change occurred in "My understanding of the Leadership development process", with the most change being shown during Seminar II. The second greatest change occurring varied wtth each seminar, thus: for Seminar I, "My understanding of Leadership - Administrative - Supervisory Implications of Vocational - Technical Education Legislation"; for Seminar II, "My own experience with the leadership development process"; and for Seminar III, "My interest to help instruct others in the leadership development process."

The least change occurred in the following according to the Inventory/ Evaluation: for Seminar I, "My interest to help, instruct others in the leadership development process" and "My curiosity to find out more about some of the more obscure elements of the leadership process"; for Seminars II, and III "My curiosity to find out more about some of the more obscure elements of the leadership process."

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VT 02432

A one-page evaluation sheet was also presented to the conference participants at the end of the conference. There were three questions to be answered: (1) What has been most worthwhile to you in this seminar? Why?; (2) What has been least worthwhile to you in this seminar? Why?; and (3) What suggestions do you have for the improvement of future seminars? The participants were asked to give their reactions to each of the above in "order of importance" and were also instructed to "be brief".

Since these questions were "open-ended", the results were summarized rather than tabulated. Each question is treated independently.

To the first question concerned with "most worthwhile", two points stand out: (1) learning of different conference procedure methods, better knowledge of conference tools and techniques and the opportunity to learn leadership skills; and (2) the informal sessions outside the scheduled day, an opportunity to make new contacts and to learn what others are doing both in H.E.W. and in other states. Other points mentioned were: (1) the opportunity for involvement, the task force experience, living facilities, meeting with vocational and technical educators, wide variety of speakers with knowledge of their subject, greater respect for the evaluation process.

To the second question, "What has been least worthwhile?", the Task Force received the greatest amount of criticism. Such points given were: too much time spent on task force, artificial situation, and too few materials available. However, many persons reported that the task force idea was excellent but lacked refinement.

The suggestions for improvement comprise a long list, however, a few stand out because of having been mentioned most often. These are: (1) more planned social and recreational activities or meetings of an informal nature; (2) change in task force; topics, structure, etc.; (3) more conferences as this one but for a shorter period of time; (4) shorter sessions, shorter scheduled days; and (5) more adequate physical equipment, such as typewriters, ditto, etc. Some suggestions which may be worth noting but were mentioned less frequently are: (1) support personnel be available; (2) more research materials available; (3) more time on other leadership techniques; (4) include participants' name, addresses, and positions with materials given out the first day of the conference; (5) inform participants of extra assignments in advance of conference; (6) strict rules concerning use of library materials; and (7) have orientation session.

In summary, the data indicates that the conferences contributed most in helping participants to understand the leadership development process. This is shown through the use of both instruments. The data from the Inventory/Evaluation instrument shows a high degree of curiosity and interest at the beginning of each conference; according to the same data, the interest and curiosity continued to remain at a high level, in fact, increase in these areas is shown. On the other end of the scale, the suggestions for improvement are mainly concerned with the equipment and structure of the conference, i.e. more typewriters, etc. or shorter scheduled days.

All Evaluation Sheets and Inventory/Evaluation Materials used for this report, together with tabulations, have been filed in the office of Dr. Clodus R. Smith, Project Director, University of Maryland.

Respectfully submitted,

Leda Amick Wilson

Associate Professor
University of Maryland

TABLE I

MEAN SCORE RESULTS: Pre-test, Post-test, Difference Inventory/Evaluation

	Seminar I Univ. of Maryland			Seminar II Univ. of Maryland			Seminar III Tahoe, California		
	Pre-test Score	Post-test Score	Difference	Pre-test Score	Post-test Score	Difference	Pre-test Score	Post-test Score	Difference
GENERAL									
1. My own present ability as a leadership development person	3.13	3.92	.79	3.22	3.82	.60	3.26	3.88	.62
2. My own experience with the leadership development process	2.81	3.69	.88	2.63	3.72	1.10	3.10	3.72	.62
3. My understanding of the leadership development process	2.89	4.14	1.25	2.78	4.12	1.34	2.98	4.09	1.11
4. My skill in the use of the leadership development process	2.66	3.47	.81	2.69	3.51	.82	2.87	3.47	.60
5. My interest to help instruct others in the leadership development process	4.20	4.23	.03	3.72	4.25	.53	3.20	4.29	1.09
6. My curiosity to find out more about some of the more obscure elements of the leadership process	4.66	4.69	.03	4.47	4.53	.06	4.28	4.32	.04
7. My present intent to use leadership development processes in my everday work . .	4.20	4.83	.63	4.31	4.53	.22	4.43	4.52	.09
8. The ability of "educators", in general, is to learn and use the leadership development process	3.13	3.16	.03	3.11	3.45	.34	3.47	3.82	.35
9. The extent of security I have in using the leadership development process	3.17	3.80	.63	3.03	3.76	.73	3.28	3.93	.65
10. The degree to which my interest in the leadership development process may help overcome any insecurity I feel	3.98	4.38	.40	3.72	4.23	.51	3.83	4.13	.30

SPECIFIC UNDERSTANDINGS/SKILLS	Seminar I			Seminar II			Seminar III		
	Pre-test Score	Post test Score	Difference	Pre-test Score	Post test Score	Difference	Pre-test Score	Post Score	Difference
1. My own understanding of our heritage in Vocational-Technical Education	3.43	4.23	.80	3.62	4.08	.46	3.57	4.16	.59
2. My understanding of Leadership-Administrative Supervisory Implications of Vocational-Technical Education Legislation	3.11	4.12	1.01	3.16	3.92	.76	3.28	4.02	.74
3. My understanding of the place of Vocational-Technical Education in Today's "World of Work"	3.86	4.43	.57	3.81	4.29	.48	3.83	4.25	.42
4. My understanding of State plans and programs in Vocational-Technical Education in my own state	3.56	3.85	.29	3.54	3.80	.26	3.75	4.04	.29
5. My understanding of counseling and other supportive services in Vocational-Technical Education	3.49	4.02	.53	3.45	3.86	.41	3.36	3.88	.52
6. My understanding of programs of pre- and in-service teacher education in Vocational Technical Education	3.45	3.85	.40	3.43	3.57	.14	3.04	3.70	.66
7. My experience in working with/in programs of pre- and in-service teacher education in the area of Vocational-Technical Education	2.92	3.52	.60	2.76	3.19	.43	2.67	3.48	.81
8. My understanding of research and experimental programs now in progress in Vocational-Technical Education	2.73	3.28	.55	2.49	3.15	.66	2.38	3.43	1.05
9. My experience in working with research and experimental programs in Vocational Technical Education	2.30	2.71	.41	2.14	2.43	.29	2.20	2.77	.57
10. My experience in coordinating Vocational-Technical Education program activities with other agencies	2.49	2.88	.39	2.87	3.02	.15	3.02	3.59	.57
11. My understanding of the evaluative process and its relationship to Vocational-Technical Education	2.83	3.81	.98	2.67	3.29	.62	3.04	3.59	.55
12. My skill in evaluating progress in	2.62	3.45	.83	2.87	3.08	.21	3.04	3.48	.44

VT 002 477

VT 002 477
Dufty, Norman F., Ed.
Essays on Apprenticeship.

Wisconsin Univ., Madison. Center for Studies in Vocational and Technical Education
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*APPRENTICESHIPS; EDUCATIONAL NEEDS; *LABOR UNIONS; BUILDING TRADES; EDUCATIONAL PROGRAMS; LABOR MARKET; RECRUITMENT; MODELS; FOREIGN COUNTRIES; *SKILLED OCCUPATIONS; EMPLOYMENT OPPORTUNITIES; *TRADE AND INDUSTRIAL EDUCATION; COMMITTEES; CURRICULUM; HOME STUDY
AUSTRALIA; WISCONSIN

A companion volume to "Research in Apprenticeship" (VT 003 555), the proceedings of a conference sponsored by the Center for Studies in Vocational and Technical Education of the University of Wisconsin and the Office of Manpower Policy, Evaluation, and Research, these essays on apprenticeship contain material of interest to those who attended the conference and to others concerned with this problem area. Section I contains: (1) "Apprenticeship, An Evaluation of the Need" by George Strauss which discusses the role of the apprenticeship in the contemporary American labor market, and (2) "Union Interests in Apprenticeship and Other Training Forms" by Jack Barbash, which discusses apprenticeship as a union tactic to control the entry of new workers in specific unions and occupations. Section II contains: (1) "A Survey of Wisconsin Building Trades Joint Apprenticeship Committees" by Kad O. Magnusen which covers the internal structure and functions of apprenticeship committees, and (2) "The Structure of Related Instruction in Wisconsin Apprenticeship Programs" by James S. Crabtree which discusses enrollment policy, size of class, credit for previous work, credit for homework, and kind of credit for related class instruction in all Wisconsin apprenticeship programs. Section III, concerned with the labor market aspects of apprenticeship, contains papers by Norman F. Dufty: (1) "Apprenticeship: A Theoretical Model," (2) "Recruitment to The Skilled Trades: A Study of a Segment of a Skilled Labor Market," and (3) "A Model of Choice in Labor Markets" which discuss apprenticeship in Australia. (HC)

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ESSAYS ON APPRENTICESHIP

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Center for Studies in Vocational and Technical Education
The University of Wisconsin
1967

ESSAYS ON APPRENTICESHIP

Edited by Norman F. Dufty

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FOREWORD

The Center for Studies in Vocational and Technical Education was established at the University of Wisconsin with the assistance of a grant from The Ford Foundation in October, 1964. The objective of the Center are to stimulate needed interdisciplinary research on basic problems related to vocational and technical education, to establish a clearing-house of information in this field and disseminate it to research workers and practitioners in the field, to hold seminars, conferences, and institutes at which key problems and issues are discussed, and to assist in the recruitment and preparation of persons for leadership positions in vocational-technical education.

The Center engages specialists from many disciplines and interests in its studies and activities and considers vocational education in its broadest terms--economic, sociological, psychological, philosophical, as well as educational. This report centers on the nature, status and contribution of apprenticeship programs as a form of vocational and technical education.

J. Kenneth Little
Co-Director
Center for Studies in
Vocational and Technical Education

Madison, Wisconsin
July 1967

PREFACE

In September 1966 the Center for Studies in Vocational and Technical Education of the University of Wisconsin and the Office of Manpower Policy, Evaluation, and Research of the U. S. Department of Labor held a conference on research in apprenticeship training in Madison. The Proceedings were published in the following year. The codirectors of the Center, Professor Gerald G. Somers and J. Kenneth Little, feel that it would be appropriate to publish a companion volume of essays on apprenticeship which would contain material of interest to those who attended the Conference and to others concerned with this problem area. The authors of all the papers in this volume were present at the Conference.

The papers fall logically into three sections. Section I contains papers by Professors George Strauss and Jack Barbash which raise general issues. Professor Strauss discusses the role of apprenticeship in the contemporary American labor market. He questions a number of commonly held assumptions about apprenticeship, particularly the necessity for training large numbers of skilled workers by this method. Professor Barbash deals with apprenticeship as a union tactic to control the entry of new workers to specific unions and occupations. He implies that so far as the unions are concerned, the educational aspects of apprenticeship are of secondary importance, the primary factor being control over admission.

Much of the writing on apprenticeship which does not use official statistics on numbers of apprentices, etc., is confined to highly generalized statements about related class instruction, joint apprenticeship committees, and so on.

The aim of Section II of this volume is to provide a body of factual material, at least so far as Wisconsin is concerned. Mr. Magnusen's paper provides detailed information on the joint apprenticeship committees in the Wisconsin construction trades. Professor Crabtree's paper covers related class instruction in all Wisconsin apprenticeship programs.

Section III is concerned with the labor market aspects of apprenticeship. There are three papers by Professor Dufty, all of which deal with the institution of apprenticeship in an Australian setting. The first of these is a short note which examines a capital stock adjustment model of apprenticeship based on the assumption of a relatively stable ratio of apprentices to workers in a particular industry and a low dropout rate during training. The second paper outlines something of the labor market adjustment process under conditions where the price system is

not effective in resource allocation. Finally, the last paper examines the problem of occupational choice with particular reference to the choice of an apprenticeship but also extends the model to cover the more general case.

We are grateful to the University of California Press for permission to reproduce "Apprenticeship: An Evaluation of the Need," by George Strauss, this originally appeared in A. M. Ross, ed., *Employment Policy and the Labor Market* (Berkeley and Los Angeles: University of California Press, 1965); to *The Journal of Human Resources* for permission to reproduce "Union Interests in Apprenticeship and Other Training Forms" by Jack Barbash and "A Model of Choice in Labor Markets" by Norman F. Dufty; to the *Industrial Relations Research Institute Report* for permission to reproduce "Recruitment to the Skilled Trades: A Study of a Segment of the Skilled Labor Market," by Norman F. Dufty; and to the *British Journal of Industrial Relations* for permission to reproduce "Apprenticeship - A Theoretical Model" by Norman F. Dufty. Our thanks are also due to Professors Crabtree and Strauss and to Mr. Magnusen for preparing papers specially for this volume, to Miss Ann Beckmann for correcting our numerous errors of style, and Mrs. Mary Ann Sveum for her competent typing of the text for offset reproduction.

This report was prepared under contract with the Office of Manpower Policy, Evaluation, and Research, U.S. Department of Labor, under the authority of Title I of the Manpower Development and Training Act of 1962, as amended. Researchers undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor.

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SECTION I

George Strauss
Jack Barbash

APPRENTICESHIP: AN EVALUATION OF THE NEED

George Strauss
University of California in Berkeley

Apprenticeship has been much in the news in recent years, along with other forms of training. The need for an expanded apprenticeship program has been urged on two grounds: (1) as a means of reducing our tragically excessive unemployment rate, and (2) as a means of training the skilled tradesmen needed to win the cold war and to meet the requirements of an age of automation. The case was stated well by Charles F. Hanna, chief of the California State Division of Apprenticeship Standards:

> The question is whether through training we can mesh the needs of industry with those of the new labor market entrant and the worker displaced by technological advance... It can be said without any hesitation that the challenge will not be met unless we are willing to triple our present efforts in developing apprenticeship and other forms of on-the-job training. [1]

Union officials sometimes feel ambivalent, however. For example on January 19, 1963, the AFL-CIO *News* reported the following:

> The nation is faced with a "dangerous" shortage of apprentices and must marshal its resources to train up to 2 million more skilled workers by 1970, Pres. C. J. Haggerty of the AFL-CIO Building and Construction Trades Department has warned. To assure continuing national prosperity and security, the country must have an adequate supply of skilled workers--and these can come only from apprentice training programs, Haggerty [said that the] theme of the conference... was "The United States Needs 1 Million Apprentices." Haggerty told the delegates that the figure is "probably an understatement rather than an exaggeration of the need." Labor wants to wipe out this danger quickly and effectively. [2]

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1. *The Nation's Manpower Revolution,* hearings before the Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare, U.S. Senate, 88th Cong., 1st sess., October 18, 1963, p. 1968.

2. P. 3.

Yet eleven months later Haggerty introduced and endorsed a report by his department which concluded that "The present level of apprenticeship is just about right to meet the expected need for new workers in the construction industry by 1970."[3]

The purpose of this paper is to examine certain facets of the alleged need for a vastly expanded apprenticeship training program (and, incidentally, to seek an explanation in the apparent ambivalence in the Building Trades Department's position).[4] I shall concentrate my attention on the building trades, since this is the field where the largest amount of current apprentice training occurs.[5] (As of January 1, 1963, out of 158,616 registered apprentices in the United States,

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3. "Manpower Needs in the Construction Industry: A Summary Statement Prepared for the Building and Construction Trades Department Executive Council, November 1963," in *The Role of Apprenticeship and Manpower Development: United States and Western Europe*, U.S. Senate, Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare, Vol. III of *Selected Readings in Employment and Manpower*, 88th Cong., 2nd sess. (Washington, 1964), p. 1179.

4. My findings are based primarily on recent field work in northern California and partly on a study undertaken in 1952-56 in an upstate New York community which I call "Rockville." For a report on the earlier study see my *Unions in the Building Trades: A Case Study* (Buffalo: University of Buffalo, 1958). I am now writing a monograph dealing with the apprenticeship problem generally.

5. It may be argued, and with some justice, that my emphasis on the building trades gives a biased picture, since the building trades are a special case and automation is proceeding faster in other industries. My primary reason for emphasizing the building trades is ease of research. Difficult as it is to define questions and collect data in the building trades, it is even more difficult to do so in manufacturing, where it is very hard to draw a distinction between the skilled and unskilled trades and between apprenticeship and other forms of training. The larger report will deal with trades outside construction, to the extent that data are available.

103, 046 were in construction.)[6] I shall suggest that the building trades require that only a small proportion of their craftsmen by highly skilled and that there exists today a number of means, other than apprenticeship, by which potential journeymen can gain training, experience, and an opportunity to enter the trades. I shall conclude that though apprentice training, like any other form of education, is highly desirable both for the individual who takes such training and for society generally, the urgency of a vastly expanded apprenticeship program should not be exaggerated. In the full report, of which this paper is a part, I shall also argue that there is little realistic likelihood of the program being greatly expanded beyond its present size.

"INADEQUACY" OF THE PRESENT PROGRAM

Among other things, table 10-1 summarizes the statistics which are available as to the adequacy of the apprenticeship programs. An examination of this table indicates that (1) apprenticeship programs generally are not turning out enough trained journeymen to replace those who are retiring or leaving the industry for other reasons and to meet the demands of possible expansion, (2) these "inadequancies" have persisted for a long time, and (3) there are substantial differences among the trades in the "adequacy" of their programs. In later sections I shall suggest that these "inadequacies" may not be as serious as they may seem at first.

REPRODUCTION RATE

The 1963 *Manpower Report of the President* presented estimates as to the "extent to which present apprenticeship programs will meet the need for journeymen during the period 1959-70."[7] This *reproduction rate*, as it will be called here, was based on 1959 calculations, and took into account the then current size of the apprentice program, the

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6. *Manpower Report of the President*, 1964, p. 255. The available data relate only to apprentices registered with state or federal agencies. In addition, according to a recent estimate, there are approximately fifty to fifty-five thousand unregistered apprentices. See Phyllis Groom, "An Assessment of Apprenticeship: III. Statistics on Apprenticeship and Their Limitations," *Monthly Labor Review*, Vol. 87, No. 4 (April 1964), p. 392.

7. P. 198.

percentage of apprentices who actually complete their program, the rate by which journeymen die, retire, and leave the industry for other causes, as well as the estimated openings for additional journeymen based on projected manpower needs in construction as of 1970. To meet all these needs, an estimated 2,387,000 additional journeymen would be required over the decade.

A quick glance at table 10-1 suggests that for none of the trades is the reproduction rate even near 100 per cent. The electricians have the highest rate, 36 per cent, the bricklayers and sheet metal workers have 22 and 21 per cent, respectively, but none of the rest of the trades is producing as many as one fifth of the number of apprentice-trained journeymen required for estimated future needs.

The projection in the 1963 *Manpower Report* may well be high. It was obviously based on a previous study published by the Department of Labor in 1959.[8] This study projected a need for an additional 2,300,000 journeymen in the building trades over the decade, as follows:

Increase in construction activity	1,200,000
Replacement for death and retirement	700,000
Replacement for journeymen who switch into other occupations	400,000
Total	2,300,000

Thus to meet this need would require an additional 230,000 new journeymen each year (compared with 16,477 construction apprentices who completed their training in 1962) and that 70 apprentices per 1,000 journeymen complete their training each year.

These firgures were attacked by C. J. Haggerty, President of the AFL-CIO Building and Construction Trades Department, as a "deception on the public," "unrealistically high," "inexcusable," "astronomical," and "a gross hoax that should cause the Labor Department to re-examine the functions of and the methodology used by its staff."[9] After requesting a retraction of these figures by Secretary Wirtz, Mr. Haggerty presented his own data, developed by a private consulting firm. These estimated the need for additional journeymen

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8. U.S. Department of Labor, *Manpower Requirements and Training Needs in Construction Occupations, 1960-1970* (Washington, 1959).

9. New York *Times*, November 6, 1963.

TABLE 10-1

Selected Apprenticeship Statistics

Trade	Reproduction rate		Active apprentices		Entered program,	Completed program	Completion rate of those who enter[d]	Related Instruction	
	1920[a]	1960-70[b]	1920[c]	1960[d]	1960[d]	1960[d]		Enrollment rate[e]	Attendance rate[f]
	Per cent	Per cent	- - - - - Per 1,000 journeymen - - - - -				Per cent	Per cent	Per cent
Electrician	32	36	45	142	47	30	64	116	93.5
Pipe trades (steamfitter and plumber)	27	17	36	66	18	11	62	102	92.7
Sheet metal worker	n.a.	21	n.a.	76	20	14	53	99	86.1
Bricklayer	8	22	11	35	10	6	59	77	81.5
Ironworker	n.a.	15	n.a.	50	21	8	39	74	76.8
Plasterer	8	15	10	25	7	3	50	68	83.3
Painter	5	3	7	12	5	2	35	84	79.5
Carpenter	4	6	5	18	7	2	33	92	78.7

SOURCES OF DATA: [a] Computed from data in Fredrick Horridge, *The Problem of Apprenticeship in Six Building Trades*, Division Bulletin 19 (Berkeley: University of California, Division of Vocational Education, and State Board of Education, 1926), table 4, p. 42. [b] *Manpower Report of the President, 1963*, p. 198. [c] Horridge, *op.cit.*, p. 42. [d] Computed from *Manpower Report of the President, 1963*, pp. 196-198. [e] *Percentages of Registered Apprentices Enrolled in School Classes, Joint Report of the Division of Apprenticeship Standards and the Bureau of Industrial Education* (mimeo., n.d., as of October 31, 1962). These data may be somewhat unreliable (see enrollment rates by electricians and the pipe trades of more than 100 per cent). The raw apprenticeship and enrollment data are collected by different agencies. In some cases persons who are not registered apprentices may enroll in schools, and sometimes registered apprentices may enroll in two different schools. In addition the data are gathered at different times of the year. [f] *Report of Enrollment of Apprentices in Related Technical Classes in California Public Schools* (Sacramento: Department of Education, Bureau of Industrial Education, 1963). The figures reported cover one designated week in October. Normally attendance rates begin to drop off thereafter.

over the decade as only 456,000.[10] As previously mentioned, this report concluded that "the present level of apprenticeship is just about right."[11] Perhaps as a reaction to this denunciation, the 1963 projections were not reprinted in the 1964 *Manpower Report*.

The Labor Department's 1959 study called for an increase in the number of journeymen by 1,200,000-from 3,074,000 in 1959 to 4,274,000 in 1970. Such a projection obviously assumed a rate of economic growth considerably greater than that we have enjoyed so far in this decade. Data as to the number of *journeymen* are not easily available; however, with four years of the decade gone, *annual average employment* in construction has increased from 2,538,000 in 1959 to 2,579,000 in 1963, an increase of less than 0.5 per cent per year.[12]

The Bureau of Labor Statistics estimated that during the decade 1940-50 the building trades suffered an annual rate of separation owing to death and retirement of 2.2 per cent.[13] The 1940-50 data are probably

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10. "Manpower Needs in the Construction Industry," *op. cit.*, p. 1179. The Building and Construction Trades Department forecast predicted a considerably lower level of economic growth in the construction industry and considerably higher rate of productivity increase than did the Department of Labor. It assumes that by 1970 there will be zero unemployment of any kind and that the number of those who change jobs and leave construction will be exactly counterbalanced by those who enter construction from other industries (though, presumably, this latter group will consist of "Joe McGees" without any apprenticeship). It also assumed (contrary to other authorities) that in construction there are as many unregistered apprentices as registered. In addition, the Labor Department report assumes that *all* journeymen vacancies will be filled by graduate apprentices; the Building and Construction Trades Department's report assumes that only a small proportion of these vacancies will be so filled. An impartial reading would suggest that both reports contain distortions.

11. *Ibid.*

12. *Manpower Report of the President, 1964*, p. 227. As late as February, 1963, the Labor Department was projecting employment for 1970 in contract construction (assuming full employment generally) at "about 4 million." "Employment Projections in 1975," *Monthly Labor Review*, Vol. 86, No. 3 (March, 1963), p. 243.

13. U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1001, *Tables of Working Life*, table 16, p. 50. Another study estimates separations from the building trades owing to death and retirement in 1954 as 1.7 per cent, with rates ranging among the trades from 1.2 per cent among the carpenters to 2.8 per cent among roofers. John S. McCauley, "Apprentice Training in the Building Trades," *Construction Review*, Vol. I, No. 10 (October, 1955), p. 11.

abnormally low, and make no allowance for those who left construction for other forms of employment. Haber and Levinson estimate that

> . . . allowing for a minimum rate of growth in the size of the construction industry labor force, as well as for a slowly declining death rate, it may be estimated that new persons would have to enter the industry at a rate of 2.5 to 3.0 per cent a year to provide adequate replacements plus a margin for long-run expansion. [14]

Haber and Levinson's estimated requirement of a 2.5-3.0 per cent rate of new entry is much more modest than that proposed in the 1963 *Manpower Report* yet only the electricians' apprenticeship program, with a completion rate of 30 per 1,000, seems to be satisfactory by this standard. [15] The pipe trades' and sheet metal programs may provide half the craftsmen needed. At first glance, all the other programs seem grossly inadequate. There is, however, as I shall argue later, no need to assume that *every* journeyman needs three to five years of formal apprenticeship training.

A PERSISTING PROBLEM

Contrary to the impression given by some current commentators, the apparent shortage of apprentices is not a new phenomenon. Back in 1921 Paul Douglas spoke of the "downfall of the apprenticeship system" and of "this system of apprenticeship, once so prevalent, now decayed." [16] The alarmist conclusions of a 1926 study seem remarkably up to date:

> From the foregoing evidence it seems obvious that if . . . the present laissez-faire attitude towards apprentice training continues, together with the growing demands of an increasing

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14. William Haber and Harold Levinson, *Labor Relations and Productivity in the Building Trades* (Ann Arbor: University of Michigan, Bureau of Industrial Relations, 1956), p. 83.

15. Since trades are growing at unequal rates, some trades should have a new entry rate somewhat above 3 per cent.

16. Paul H. Douglas, *American Apprenticeship and Industrial Education* (New York: Columbia University Press, 1921), p. 83. A decade later William Haber was writing of the "breakdown of the apprenticeship system." *Industrial Relations in the Building Industry* (Cambridge, Mass.: Harvard University Press, 1930), pp. 131-132.

> population, the future supply of trained workers for the constructive [*sic*] industry is in a precarious state from the standpoint of quantity and quality.[17]

Statistics as to apprenticeship are notoriously unreliable.[18] Nevertheless, the evidence suggests that, taking a fifty-year view, the proportion of apprentices in manufacturing is declining, while in construction it is at least holding its own.

On the other hand, even in construction, except at the time of the peak impact of the G. I. Bill, none of the trades has been able to reproduce itself through apprenticeship in recent history. Haber and Levinson conclude:

> There is a reasonable possibility that the skilled labor force was being replaced, though probably not expanded, during the two years of the greatest apprenticeship activity in the history of the construction industry. At all other times it is very likely that the training programs, registered and unregistered together, fell substantially short of replacing those retiring from the labor force, let alone increasing it in the long run.[19]

A glance at table 10-1 suggests that in 1920 apprenticeship programs in the building trades operated on a somewhat smaller scale than they do now.[20] There was a considerable revival of interest in

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17. Fredrick Horridge, *The Problem of Apprenticeship in the Six Basic Building Trades*, Division of Vocational Education Bulletin No. 19 (Berkeley: University of California and the State Board of Education, 1926), p. 55.

18. Census reports do include data as to apprentices, but this data does not correspond with data obtained through other means. The 1950 census reports 43,044 apprentices in the basic building trades, though the U. S. Bureau of Apprenticeship reported 108,000 *registered* apprentices in the same trades, as of June 30, 1950. See Haber and Levinson, *op. cit.*, p. 79, Groom *op. cit.* Some statistics lump apprentices with helpers, though the distinction is important. Only since 1937 have we had the concept of a "registered" apprentice in a government-approved program.

19. *Op. cit.*, p. 85.

20. Let me repeat my warning about the inadequacy of the census data.

the middle and late 1920's.[21] In 1929, for instance, there were 1,500 carpentry apprentices registered in New York City[22] (compared with 188 reported in the 1920 census for the city[23] and 2,375 registered in 1960 in all of New York State[24]).

Apprenticeship declined dramatically during the depression, but revived somewhat with the passage in 1937 of the Fitzgerald Act, which provided for a federally promoted program. Progress ceased, of course, during World War II. The present phase in apprenticeship began with the G. I. Bill, which provided subsistence allowances for many sorts of on-the-job training, including apprenticeship. As is shown in table 10-2, the number of registered apprentices in all trades reached a peak in 1949, when 54 per cent of the apprentices enjoyed the "Bill."[25] More than half of these apprentices were in fields other than construction. Apprenticeship dropped sharply as the G. I. benefits ran out and the Korean war depleted manpower. After 1953, though, there was a climb to a second peak in 1957 and a slow drop since then. The building trades programs have been generally more stable than those outside of the building trades. In view of the expiration of the G. I. Bill and the slowdown in the growth of construction employment, the remarkable thing is not that the number of apprentices has dropped since 1949, but that the decline has been relatively so slight.

Though the number of apprentices being trained today is slightly declining, there is little question that the quality of the programs, at least in northern California, is higher than it ever was. As I will discuss in my final report, in recent years most of the major trades have taken significant steps to upgrade their standards.

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21. Haber, *Industrial Relations in the Building Industry*, chap. v.

22. *Ibid.*, p. 150.

23. Horridge, *op. cit.*, p. 95.

24. *Apprenticeship and Training in Carpentry Construction*, U.S. Department of Labor, Bureau of Apprenticeship and Training, Bulletin T-153 (June, 1962), p. 48.

25. Joseph H. Schuster, "Union-Management Cooperation in the Organization and Administration of Job-Skill Training Programs in the Contract Construction Industry of the United States" (unpublished Ph. D. thesis, Georgetown University, 1959), p. 191.

TABLE 10-2

Registered Apprentices in Selected Trades
(In thousands)

Year	All trades	Non-building trades	Building trades	Carpentry	Electrician	Pipe trades	Sheet metal
1949	234.7	118.6	116.2	38.4	17.7	23.0	9.7
1953	158.5	81.7	76.8	20.8	13.9	16.1	7.1
1957	188.1	75.5	112.6	26.7	18.7	22.4	11.8
1961	161.1	58.2	102.9	22.3	18.3	20.7	10.7
1963	158.6	55.0	103.0	22.1	19.5	20.4	9.9

SOURCES OF DATA: For 1949--Joseph H. Schuster, "Union-Management Cooperation in the Organization and Administration of Job-Skill Training Programs in the Contract Construction Industry of the United States" (unpublished Ph. D. thesis, Georgetown University, 1959), pp. 196-197.
For 1953-63--*The Role of Apprenticeship in Manpower Development: United States and Western Europe*, U.S. Senate, Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare, Vol. III of *Selected Readings in Employment and Manpower*, 88th Cong., 2d sess. (Washington, 1964), pp. 1216-18.

DIFFERENCES AMONG PROGRAMS

School and apprenticeship officials almost unanimously agree that the three best "programs" are those of the so-called "mechanical" trades, that is, the electricians, the pipe trades, and the sheet metal workers. Interestingly, table 10-1 seems to bear these evaluations out. The mechanical trades have the largest number of apprentices per number of journeymen, the largest number of *completed* apprentices per thousand journeymen, and (along with the bricklayers) the highest reproduction rate. Their apprentices excelled in terms of their attendance record in their related training classes in the California schools--an indicator both of class morale and of the extent to which the trade joint apprenticeship committees are able to exert discipline among apprentices. They also do well in terms of the percentage of apprentices enrolled in such classes. Table 10-3 indicates that the mechanical trades did better than the other trades in terms of their average education before entering apprenticeship and in terms of the average General Classification Test scores of their journeymen entering the army during the war. Finally, the fact that the apprenticeship programs of these trades are longer than the others' and that new apprentices must start at lower-than-average starting wages suggests that these trades need not raise wages in order to attract more applicants.

A rough scanning of the data will suggest that the bricklayers and ironworkers occupy something of an intermediate position, while plasterers, carpenters, and painters belong at the bottom, perhaps in the order listed.

Why this hierarchy among programs? Certainly there is no clear explanation, but a number of hypotheses may be suggested.

In the first place, the three "good" trades are all subcontracting or specialty trades, as contrasted to general contracting trades. Specialty firms are on the whole smaller than general contracting firms, and in many communities the turnover among employees in those trades is less.[26] While laborers, carpenters, and bricklayers, for example, normally move from firm to firm as the demands of business require, most subcontracting firms try to retain a sizable core of regular employees to work for them on a permanent basis. The fact that a core of skilled men is retained by a firm means that there is a greater likelihood that a contractor will retain a journeyman once he has trained him--

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26. Table 10-3 suggests that the three "good" trades have a substantially higher level of continuous employment (50-52 weeks a year) than the others.

TABLE 10-3

Selected Statistics, Building Trades in the United States

Building-trades occupations	Number of persons in given occupations[a]			Median earnings, 1959[b]	Worked 50-52 weeks (per cent), 1959[b]	Median school years completed, 1960[c]	AGCT score[d]
	1950	1960	Per cent change				
Electricians	323,883	352,806	8.9	$5,959	70	11.8	109
Pipe trades	295,732	329,983	11.6	5,593	61	10.7	103
Sheet metal workers	128,838	143,777	11.6	5,485	68	10.8	107
Bricklayers	175,561	206,821	17.8	4,793	30	9.7	102
Ironworkers	55,087	65,885	19.6	5,543	46	10.0	104
Plasterers	63,957	52,686	-17.6	4,646	33	9.0	n.a.
Painters	424,567	407,599	- 4.0	3,727	42	9.1	101
Carpenters	987,365	920,862	- 6.7	4,164	41	9.3	104

SOURCES OF DATA: [a] *The Role of Apprenticeship in Manpower Development: United States and Western Europe*, U.S. Senate, Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare, Vol. III of *Selected Readings in Employment and Manpower*, 88th Cong., 2d sess., 1964, pp. 1222-23--male craftsmen, foremen, and kindred workers in the experienced civilian labor force, United States, 1960 and 1950. [b] *United States Census of Population*, U.S. Summary, *Detailed Characteristics*, table 208, "Earnings in 1959 of Persons in the Experienced Labor Force, by Occupation, Color, and Sex, for the United States," pp. 1-553. [c] *Ibid.*, table 205, "Occupation of the Experienced Civilian Labor Force and of the Employed, and Unemployment Rate, by Color and Sex, for the United States, 1960, pp. 1-544. [d] Army general classification scores by civilian occupation of soldier, in Naomi Stewart, "AGCT Scores of Army Personnel," *Occupations*, Vol. XXVI, No. 1 (October, 1947), pp. 11-17.

and this provides the employer with greater motivation to engage in training. Further, the fact that the subcontracting firms are smaller means that each man may be required to handle a wider range of skills.

Second, the three "good" trades (particularly the electricians) require a fair amount of intellectual ability--and table 10-3 suggests that these groups are, in fact, better educated and have demonstrated higher average ability on the army tests. In spite of these statistics one might argue that plumbers and sheet metal workers are not noted for high mentality (after all, in some circles to be a "plumber" is slang for being dumb); yet technological changes in these trades are rapid and journeymen must keep alert to new developments. Further, the type of work is such that journeymen must be prepared to understand intricate instruction and determine what techniques are necessary to carry these out. Members of these trades are often required to work on jobs alone without close supervision. Consequently a higher level of training is required.

The skills of the bricklayers, plasterers, and painters are to a far larger extent manual. True, one cannot become accomplished in any of these trades overnight, but the element of intellectual demand is rather low. Furthermore, bricklayers are not as likely as electricians (for example) to run into unexpected problems which call for some understanding of theory if they are to be solved. To be a really skilled carpenter does require a wide range of abilities, including those of making estimates and reading blueprints. Carpenters, however, are more likely to work under close supervision than are electricians, plumbers, or sheet metal men--while the demand for really skilled carpenters is quite limited. The carpentry apprenticeship program in practice trains foremen, not journeymen.

The position of the ironworker is somewhat akin to that of the bricklayer. Structural ironworkers normally work under the close supervision of engineers and foremen and so exercise little independent judgment on the job. The erection of steel beams requires great skill (and courage), but most of the skill is manual; in any case, the majority of ironworkers are but "rod busters"; that is, they place reinforcing rods in concrete forms. Ornamental ironwork does involve a high level of skill, but this seems to be a dying craft.

Certain sectors of the engineers' trade (particularly heavy-duty maintenance work) do require considerable skill and some intellectual ability. Until recently however, the engineers did not have an apprenticeship program, and they are not listed in this comparative table.

Finally, as table 10-3 indicates, the three "good" trades and the two "intermediate" ones all enjoy expanding employment, while the three poorer trades are contracting. The data for median earnings are also consistent with this relationship. The better trades are expanding,

and so need more skilled men. They also can attract such men through offering higher annual earnings.[27]

THE FUNCTION OF APPRENTICESHIP

In this section I shall suggest the hypothesis that--desirable as apprenticeship may be--the skilled trades have learned to adjust to only imperfect programs and that in fact most journeymen do not learn their trades through apprenticeship. As a consequence, the picture may be less serious than the foregoing statistics would lead us to believe.

Apprenticeship training is obviously of value to the men who undertake it. I have seen no statistical data which demonstrate that journeymen who have gone through apprenticeship are better off than those who have not, but union and apprenticeship officials insist that the men who have graduated from these programs are less likely to suffer unemployment and more likely to advance into supervisory positions. Common sense suggests that these claims are justified.

The evidence does suggest, however, that the construction and metal trades industries have room for a large number of men who are less skilled than apprenticeship programs turn out. The fact is that many jobs do not require journeymen with the complete, all-round training which a good apprenticeship program presumably provides.[28] Most building trades firms maintain a core of highly skilled men who are offered relatively full time employment;[29] when demand is good

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27. The relationship is far less clear-cut when one looks at hourly earnings in the unionized sector. In 1962 the bricklayers, for example, enjoyed the highest hourly earnings of the eight trades under consideration; yet according to table 10-3 they ranked only fifth in median *annual* earnings.

28. For a good discussion see Abraham Belitsky, Hiring Problems in the Building Trades, With Special Reference to the Boston Area (unpublished Ph. D. thesis, Harvard University, 1960). In Rockville it was not uncommon for such key men to be given premium pay or vacations during the winter; during inclement weather, when other men would be out of work, work was found for these men in the shack maintaining tools, sweeping the floor, or doing similar make-work.

29. Haber and Levinson make an arbitrary guess that a "nucleus" of 1,500,000 "highly skilled men" is required. *Op. cit.*, p. 82.

these men are supplemented by partly trained men who will work under the key men's direction. The key men are needed to provide supervision and perform the difficult parts of the job; particularly on large projects there is usually enough routine work to keep the unskilled men busy. (As suggested earlier, specialty contractors may have a greater need for key men than do general contractors.)

Much the same condition prevails outside the building trades. Though work volume may fluctuate less rapidly in machine shops than in construction, not all machinists must be highly trained. The personnel director of a large machine shop, which employed more than 250 journeymen and did an unusually large number of varied operations, insisted that he needed "true all-round craftsmen": "We can't use production men because we don't do production work." And yet, even in his operations he felt that perhaps only a quarter of his journeymen needed to be masters in every phase of machine shop work. "We don't want excessive flexibility," he commented. "If you have a really all-round, flexible man, he is going to be bored because we can't give him enough variety. We need a large number of men who are specialists only on a small range of equipment."

To a considerable extent the function of the apprenticeship program is to train the cadre and the leadership, the core of really skilled men who provide guidance to the others. Thus, a federal study of apprentices who completed their programs in 1950 found that by 1956, 19 per cent were working as supervisors and another 8 per cent as contractors.[30] A California study of those who completed programs in 1950 showed even more striking results: by 1955 more than 30 per cent were working as foremen or supervisors and another 13 per cent had become contractors or employers.[31] A later California study tends to confirm the first one: by 1960, 41 per cent of those apprentices who completed their programs in 1955 had advanced to "positions of supervisory work such as supervisor, superintendent, estimator, or

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30. U.S. Bureau of Apprenticeship and Training, *Career Patterns of Former Apprentices*, Bulletin T-147 (1959).

31. *Survey of Completed Apprentices Certified by the California Apprenticeship Council in 1950* (Sacramento: California Division of Apprenticeship Standards, June 1957), p. 7.

employer."[32] A study of 340 journeymen machinists who completed their apprenticeship in 1940 indicated that by 1955 there were 43 per cent holding management positions.[33] In fact, a surprisingly high percentage of apprentices become foremen even before completing their apprenticeship training.

Apprenticeship officials defend the intensity of their training programs on the grounds that they are training future members of management. Thus, the carpentry training program provides training in cost estimating, building and safety codes, and aspects of masonry, plumbing, and electrical work--and seem designed to turn out general contractors as well as journeymen carpenters.

A SHORTAGE OF SKILLED CRAFTSMEN?

It is difficult to determine whether there is a shortage of highly skilled craftsmen. Apprenticeship officials insist that there is one. As we have seen, union leaders are sometimes inconsistent in their position. Employers sometimes talk of such shortages, but there is a normal tendency for all employers to complain that their employees are not skilled enough and that things were better in the old days. In one sense there is always a shortage of really well trained people in any organization. On the other hand, there is no compelling evidence that a skill shortage is holding up construction.[34]

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32. *Survey of Completed Apprentices Certified by the California Apprenticeship Council in 1955* (Sacremento: California Division of Apprenticeship Standards, no date), p. 3. This same survey indicated that 64 percent of completed journeymen had no lost time in 1960. "Excluding the vacation time the percentage of respondents who work full time... would be approximately 90 percent" *Ibid.* (p. 6).

33. Charles E. Eberle, "An Appraisal of Machinist Apprenticeship Training Programs by Means of a Follow-up Study of Trainees" (unpublished doctoral dissertation, University of Wisconsin, 1955).

34. The economist's test of a shortage is the upward movement of wages. Certainly, wage rates in the building trades have tended to move up quite rapidly. But anyone acquainted with the dynamics of wage determination in the building trades must conclude that labor shortage had relatively little to do with recent large wage increases, particularly in northern California.

Perhaps it is more meaningful to look at changes over time. Assuming that there always has been a shortage, is it becoming more severe? We have seen that during the postwar years the *supply* of apprentices in the building trades has remained relatively constant. What has been happening to skill *demands* in the building trades?

Traditionally, most journeymen could perform practically every type of work which fell within the jurisdiction of their craft. The situation, however, has been changing for some time. In some trades only a few old-timers can handle every branch of the trade. A bricklayer's business agent remarked, "I never thought the day would come when I would have to ask a contractor what *kind* of bricklayer he wanted."

More than forty years ago Paul Douglas noticed a tendency for crafts to splinter. A more recent commentator has remarked:

> The division of labor was the real destroyer of apprenticeship. Industry developed so many subdivisions that all-around training was expensive and useless. Modern industry does not require a large percentage of all-around skilled men.[35]

Many new construction techniques make use of relatively unskilled men. Tract houses are built on what approaches an assembly-line basis. Since lumber can be precut and the nails driven by nail-driving machines, a man may work as a carpenter without knowing how to use a hammer or saw. Electricians can do standardized ("dingbat") wiring of tract houses with only a minimum of training; since all houses are wired in the same simple fashion, they need exercise no judgment and only simple manual skills. In discussing the types of skills required by operating engineers, an employer in the heavy-construction field concluded that, as earth-moving equipment becomes more complex and sophisticated, it also becomes easier to handle. (But the heavy-duty mechanic, who repairs this equipment, requires increasing skills.)

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35. Schuster, *op.cit.*, p.109. R. F. Hoxie's description of what happened in manufacturing is to some extent also applicable to construction today. "The workman no longer knows his trade [because] modern capitalistic and machine industry has progressively specialized him, and with this specialization has progressively abolished the system of apprenticeship by which formerly he acquired knowledge of a whole trade or craft, till now the average workman knows only one or a few minute processes." *Trade Unionism in the United States* (New York: Appleton, 1926), pp. 220-221.

And, to cite an example outside the construction industry, auto repair shops are able to get by with only a few skilled "trouble shooters"; the majority of mechanics follow standard operating procedures laid down in the manufacturers' manuals.

To be sure, some new skills are being developed, and others are becoming more complex (as in the case of heavy-duty mechanics). The laborers, for example, are learning to use so many pieces of power equipment that the use of these is becoming almost an apprenticeable trade. For the most part, these new skills are highly specialized and are far less broad than the traditional crafts. Some of these new crafts (or subcrafts, as they might be more aptly called)--such as the electronic subcraft among the electricians and the calibration subcraft among the steamfitters--do require a high order of skill, but skill which is more intellectual rather than manual in nature and which can, perhaps, be taught more effectively in the school than on the job. The old, high manual-skill jobs--such as ornamental ironwork, circular-stair building, stained-glass glazing, stonemasonry, and fine-finish carpentry--seem to have declined markedly in demand. Many of the new skills outside the mechanical trades--skills such as drywell installation among carpenters and sheet-rock taping among painters--do not require a four-year apprenticeship to learn.

It is difficult to separate cause and effect in this area. Have employers resorted to the new, specialized techniques because of the shortage of well-rounded journeymen? Or is just the reverse true--have over-all skills declined because employers no longer have any need for them? One thing is reasonably clear: the construction industry has adjusted itself reasonably well to the present (short?) supply of skills. And, on balance, it does not seem that in recent years there has been a substantial rise in demands for the types of skills which apprenticeship can develop.

ENTRY INTO THE TRADE

If only a small proportion of journeymen ever serve an apprenticeship, how do those without such training gain entry into the trade? As is well known, employment in the building trades fluctuates rapidly. A governmental study relates the process whereby partly skilled men enter and leave the trade to the

> . . . ability of the construction industry, through its attractive wage scale, to obtain workers from other industries and from new entrants into the labor market. . . .
> The industry is so flexible that in times of great demand large numbers of skilled workers appear to fill the need, and in times

> of less demand, the workers disappear. This is due in large measure to the commonness of skill requirements that construction work shares with other industries; significant numbers of men pick up construction skills over the years, yet for various reasons work in other occupations, perhaps operate farms part of the time or move around the country as the demand for workers shifts.
>
> The disposition of those thrown out of work during slack periods in the industry follows somewhat the reverse pattern ... instead of picking up workers, those not needed are spun off to other industries and to the ranks of the unemployed. The underqualified construction worker is often fully qualified in another field but works at construction where high rates of pay are available.[36]

The above description may over simplify matters a bit. Entry and exit into the industry is not accomplished as smoothly and regularly as the ebb and flow of tides. The labor construction market is not self-equilibrating. The union plays an important role. To gain a little clearer picture, let us look first at the process by which craftsmen gain entry into the union and then at the means by which they get their training.

ENTRY INTO THE UNION

The "normal" means of entry into the building trades is through apprenticeship. But, as we have seen, only a small proportion of journeymen have been apprentices. Since, however, apprenticeship is the "normal," "legitimate" means of entry into the trade, all other means are in a sense "abnormal" or even "illegitimate."

Clark Kerr has pointed out that just as the company personnel office functions as the "port of entry" into manufacturing jobs, so the union functions as the port of entry for jobs in construction.[37] If, to continue his analogy, apprenticeship is the official, clear channel

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36. *Technological Change in Construction*, Automation and Manpower Development Project No. 18, Utah State Employment Service (Salt Lake City, 1963), pp. 16, 27.

37. "The Balkanization of Labor Markets," in E. Wight Bakke *et al.*, *Labor Mobility and Economic Opportunity* (Cambridge, Mass.: Technology Press, 1954), p. 102.

into this port of entry, there are also, however, numerous constantly shifting estuaries over which a good deal of officially winked-upon smuggling occures. Because these less legitimate channels of entry into the trade are even less clearly marked than apprenticeship it becomes quite difficult to generalize about the means by which non-apprentices learn their trade, or how they join the union.

Yet, through the murk, in addition to apprenticeship two other main channels of entry into skilled trades locals can be distinguished (with various degrees of clarity, depending on the union). These are: (1) transfers from other locals and (2) what might be called "direct admission" of those who have obtained their training (if any) outside the union's jurisdiction.[38] In addition, men are often permitted to work on a temporary or "permit" basis.

TRANSFERS

The American tradition of high inter-area mobility seems to be particularly strong in the building trades. A high percentage of the building tradesmen in northern California have obtained their training in other parts of the country.[39] Many of these newcomers entered their union back home and transferred their membership upon coming to California. Even the locals in Rockville, in upstate New York (see note 4), acquired a considerable part of their membership in this way.

Looked at from a nationwide point of view, transfers merely redistribute the number of skilled men.[40] Yet in most trades the rural locals have lower standards than do those in the big cities. As a consequence, men with only rudimentary training gain admittance to rural locals and then migrate to the big cities, where they are accepted for membership on a transfer basis during the peak season when there

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38. The discussion in the next few pages is based largely on my *Unions in the Building Trades*, pp. 92-96.

39. Several apprenticeship officials stated that this immigration reduced employers' interest in apprenticeship programs.

40. In past years, of course, European immigrants provided a substantial number of skilled workers, and some of these were admitted to American unions on the basis of transfer cards from European unions.

is plenty of work available for everyone.[41] It is sometimes suggested that in several northern California trades a farily sizable number of men have entered "sideways" through the rural areas of Oregon. In these areas, where the union was quite weak, employers would often hire nonunion men, and then the union would have to accept these men as members if they were to organize the jobs. Once accepted as members, these men would gradually work their way into more strongly unionized areas.

DIRECT ADMISSIONS

The process by which journeymen are directly admitted to the union varies substantially among locals (and with changes in economic conditions). At times admission to a local will be closed tight or closed except for sons. On other occasions everyone who can find an employer to give him a job will be admitted without question. Locals often say that they will admit everyone who is "qualified," but the degree of qualification required seems to vary with the labor market.

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41. "The building mechanic is primarily a product of the small town or the small city, rather than the great metropolitan center . . . Indeed the typical tradesman received his early training and experience as a general handyman employed by a small contractor in a relatively small community. Of the 263 skilled building workers interviewed in Detroit, less than one-seventh (13.3 per cent) had begun building work in a metropolitan center. An additional 22.0 per cent had begun work in a medium-sized city (15,000 to 100,000 population). The great majority of building workers reported entry into the industry in the small cities and towns." Richard R. Myers, "The Building Workers: A Study of an Industrial Sub-Culture," unpublished Ph.D. thesis, University of Michigan, 1945, p. 420.

    Since big-city locals in general have more adequate apprenship programs than do smaller towns and nonunion areas (see Haber and Levinson, *op.cit.*, pp. 98-100), may I suggest the untested hypothesis that the skilled men in craft locals come primarily from the city, while the lesser skilled men come from rural areas? (On the other hand, small-town work requires craftsmen to be more versatile.)

In some circumstances the business agent determines qualification through a brief interview. In many instances an applicant must be sponsored by a current member. Some locals (particularly of electricians and plumbers) require prospective members to take a written examination.[42] In a well-publicized civil rights case, three Negro plumbers failed such a test in New York. In some instances the applicant must give practical evidence of his ability. Thus, in one local, if the applicant convinces the business agent that he has had some experience, he is sent on the job with a two-week permit. During this time the business agent confers with the employer and the applicant's coworkers. If the report is favorable, the man is called before the local examining board, which asks him to demonstrate his tools in its presence. One bricklayers local requires each applicant to complete a three-to-four-hour project. The demonstration is given in the presence of a five-man examining board, and the applicant is charged a $50 fee to pay for the cost of materials and the examining board's time.

Of course, there is a good deal of opposition to permitting men to enter the union without apprenticeship. Entry in this fashion is often called back-door entry, and those who "steal the trade" in this way are called "Joe McGees." Yet, in spite of this opposition, the short-run advantages of direct admission to the union are many. Direct admission enables the union to take on men when they are needed; apprenticeship involves a forecast as to the future, and many unions fear to expand their apprenticeship program too fast, not knowing what business conditions will be three to five years later when the men finish their course. Men who are directly admitted come into the union only during the busy season when all the regular members are working. (True, these men will have a claim to share in the work during the slack season.) In many instances the only way to organize a nonunion firm is through taking its employees into the union.

Most business agents recognize that from a long-run point of view direct admissions are unwise and should not be encouraged. The union's

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42. It should be noted that men who fail to pass these examinations are sometimes permitted to work, if they can find employers who will give them jobs, but they do so only on a second-class basis. Presumably, when work slacks off, these men can be dispatched only after all fully qualified members are at work. Thus, the Alameda County (Calif.) electricians' agreement provides that those who have not passed the examination will be placed in Group IV on the union's employment registry, to be dispatched only after all those in Groups I, II, and III have had their chance.

ability to control its jurisdiction depends in part on the skill of its members: if the business agent is unable to send competent men to the employer, the employer may be tempted to work on a nonunion basis. Further, the presence of unskilled men in the union makes the business agent's life more difficult: unskilled men are harder to place, unskilled men are far more likely than skilled men to insist on various types of featherbedding, and internal schisms develop in the union as the unskilled insist that job opportunities be shared equally. "Almost all my troubles I get from poorly trained mechanics," a business agent commented, and his was a typical view. Finally, poorly trained men threaten the craft's sense of pride and identification.

The tensions between these long- and short-term factors may explain why most craft unions have a strong *formal* commitment to apprenticeship as the primary means of entry, but in *practice* obtain the bulk of their membership through other channels. Thus, under some conditions, one hears union officials talk about the need for strengthening and expanding the apprenticeship system, yet under other circumstances these same men insist that their own trades have a more than adequate supply of skilled men. (At last, we have some explanation of the apparent inconsistencies in the position taken by the Building Trades Department.)

TRAINING OTHER THAN APPRENTICESHIP

How do Joe McGees learn their trade? There seems to be little evidence available; to some apprenticeship people, who believe that satisfactory training can be obtained only through apprenticeship, the whole matter seems a mystery. There is reason to believe, however, that in addition to completion of formal apprenticeship there are at least five other channels through which men can obtain training for skilled, apprenticeable occupations. These are: (1) completion of part of formal apprenticeship; (2) informal apprenticeship; (3) learning the trade in a nonunion sector of the industry or a related industry; (4) vocational schools; and (5) working one's way up from an unskilled or helper classification through a step-by-step process of "stealing" the trade.[43] These five categories overlap a good deal and, it should be emphasized, there seems to be little evidence as to their relative importance.

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43. In the 1920's, according to Haber (*Industrial Relations in the Building Industry*, p. 140), "drifters, relatives of building trades workers, helpers and improvers" were the chief sources of building tradesmen. The situation is little changed today.

The research staff of the National Manpower Council has provided estimates of the "means by which replacement needs for skilled workers in trades having apprentices are met each year." These are as follows, expressed as percentages:[44]

Formal training		32.4 to 38.4
Registered apprentices		
Completed training	12.0 to 16.0	
Leaving without completing	6.0 to 8.0	
Unregistered apprentices	14.0	
Vocational school graduates	0.4	
Immigrants, trained abroad		4.0
No formal training		57.6 to 63.6

The above estimates relate to all apprenticeable trades, but would seem to indicate the order of magnitude prevailing in the building trades.

DROPOUTS FROM APPRENTICESHIP

A large proportion of the so-called dropouts from apprenticeship programs are still working in the field in which they trained, and many now have journeymen classifications. In fact, some trades have machinery which permits apprentices to become journeymen directly without completing their training.

Though the figures vary from year to year and trade to trade, about one half of all apprentices do not complete their formal training. A 1954 survey indicated that 39 per cent of the canceled apprentices (the dropouts) were still working at their trades (29 per cent as journeymen, 4 per cent as foremen, and 5 per cent as helpers).[45] Indeed, when questioned, 12 per cent of the men gave as their reasons for dropout "opportunity to receive a journeyman's wages."[46] An additional 12 per cent of the dropouts were working at trades closely related to the ones in which they were trained.

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44. Cited in James R. Watson, "Apprenticeship and Youth Employment in Western Europe: An Economic Study," in *The Role of Apprenticeship in Manpower Development, op.cit.*, p. 1337.

45. U.S. Bureau of Apprentices, *Follow-up Study of Former Apprentices*, Technical Bulletin T-143 (December, 1956), p. 6. (Figures rounded.)

46. *Ibid.*, p. 14.

Many dropouts complete a substantial portion of their training before they leave the program. The 1954 survey indicates that at least half complete two years or more of work.[47] Two years is a substantial amount of training, in most cases probably all that is needed for routine operations of the trade. Furthermore, it is the better-trained dropouts who stay on in the trade. Indeed, 32 per cent of the dropouts become journeymen after serving two years of their apprenticeship.[48]

To summarize, of every 200 men who enter apprenticeship, about 100 complete their work. Of the 100 who drop out, 39 stay in the trade, and 33 eventually get jobs as journeymen, foremen, or contractors. Of the 39 dropouts who stay on, 32 have completed at least two years of apprentice training.

How can a man make the switch-over from apprentice to journeymen without finishing his formal training? In some cases there are formal procedures. Thus, among the San Francisco Bay area carpenters, any man with two years' apprenticeship can ask to take an examination and upon passing it will be automatically certified as a journeyman (though by short-circuiting his training in this way he loses his right to a "certificate of completion"). In addition, "over-age apprentices," who start at the age of twenty-five years or older, become journeymen automatically after two years of training, just as long as they have completed their regular schoolwork (again, they get no certificate). During the period 1957-61 there were 402 apprentice carpenters in the San Francisco Bay area who became journeymen without completing their work (327 through taking the examination and 75 as over-age apprentices). This 402 figure compares with 430 carpenters who completed their program and won certificates.

The Alameda County, California, electricians' local conducts examinations every six months which *any* member can take.[49] If the member passes, he becomes certified as a journeyman. Some trades permit employers to pay journeymen's wages to apprentices in order

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47. *Ibid.* Roughly similar data are reported by other studies. See U.S. Bureau of Apprentices, *Apprenticeship Completion: or Cancellation*, Technical Bulletin T-130 (undated, but approximately 1950), p. 2, and U.S. Bureau of Apprenticeship and Training, *Apprentice Dropouts in the Construction Industry*, December 1960, p. 3.

48. Computations based on U.S. Bureau of Apprenticeship, *Follow-up Study of Former Apprentices*, *op.cit.*, p. 6.

49. This is a true-false test of about 75 items.

to attract them during the rush season. Often these men can continue to find work as journeymen, so they never revert to the apprenticeship status (after all, partly trained apprentices may be better trained than Joe McGees who never developed any training at all).

Most trades accept apprentices as union members after a few months of apprenticeship. Once a man becomes a union members, he is fairly well asured of continued employment in the trade and often at the journeyman's rate regardless of whether he completes his apprenticeship. An official of an employers' association commented to me concerning his trade:

> An apprentice who has been in for three months is a member of the union. Even if he drops out of his course, he is available for work. So he may be sent to the shipyard. And then, during the summer peak, he may be sent out to a contractor. At that time he gets dispatched as a journeyman at journeyman's wages. For example, we had one apprentice who "told off" an employer. We warned him, and when he did it again we dropped him from the program. But when the summer came, he gets dispatched to a contractor and he does such a good job that the contractor makes him a foreman.

Roughly the same problem exists in some other trades. Thus, in discussing the possibility of disciplining an apprentice who had failed to keep up his schoolwork, members of a Joint Apprenticeship Committee mentioned the possibility that if he were dropped as an apprentice, his employer might keep him on as a journeyman. In discussing the automotive-mechanics' program, one study comments: "Those who can't pass the school phase are either washed out of the program, or the employer may choose to pay the man journeymen's wages, in which case he may continue working."[50] In some such cases being dropped from an apprenticeship may be a short cut to becoming a journeyman and being rewarded with a pay increase. To eliminate this problem, the Northern California Engineers Committee is seeking to establish a program whereby those who are eliminated from the apprenticeship program are automatically dropped from the union.

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50. Donald L. Kennady, "The Apprenticeship Program for Automobile Mechanics," unpublished seminar paper, University of California, 1963, p. 26.

INFORMAL APPRENTICESHIP

A number of Joe McGees have gone through some kind of informal, unregistered apprenticeship without an indenture and with little or no schoolroom training. According to a recent estimate, there are fifty to fifty-five thousand unregistered apprentices.[51]

Estimates of this sort are somewhat suspicious because of the semantic problem of deciding what is an apprentice. Is he anyone who is learning a skilled job? Or does the program in which he is learning have to meet certain standards? If so, what kinds of standards? Or is an apprentice anyone who is called an apprentice by his boss? Since there are no generally accepted operational standards as to what is an apprentice, we must be somewhat suspicious of censuses and similar data based on the number of individuals who report themselves as apprentices.

Regardless of these problems of definition and measurement, there certainly is a great deal of unregistered apprenticeship and quasi-apprenticeship training, particularly in manufacturing and among non-union firms generally, Harber and Levinson conclude that, for construction,

> In non-union areas the quantity of men being trained (almost all without formal apprenticeship) was normally somewhat larger (relative to the number of journeymen) than in the union areas, due, of course, to the shorter duration, lower costs and lesser responsibility resulting from the more specialized type of training.[52]

In some cases the unregistered programs are every bit as thorough as those which are registered; on the other hand, there are few external pressures to compel unregistered programs to maintain standards. There are relatively few advantages obtained by registering a program, and registration involves paperwork and the possibility of government "interference."[53]

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51. Groom, *op.cit.*

52. *Op. cit.*, p. 101.

53. In addition, the built-in presumption that programs will be supervised by union-management committees may well make companies hesitate to register programs over which they wish to retain unilateral control.

The 1964 *Manpower Report* indicates that 43.9 per cent of construction craftsmen received their training through apprenticeship, as did 30.6 per cent of compositors and typesetters.[54] Similarly, the *Six Cities* study reports 43 per cent of the skilled tradesmen in construction and 70 per cent of those in printing as having had apprenticeship.[55] Obviously, far fewer than these numbers of craftsmen have participated in *formal* apprentice programs. These figures must include a high percentage of those whose apprentice training was informal--in many cases, very informal.

NONUNION OR RELATED SECTORS

Many Joe McGees have obtained their training in nonunion sectors of the industry or in related industries. In some cases they have participated in a training program or some kind of informal apprenticeship; in other cases they have had to "steal" their trade (as discussed below).

Certainly, many Joe McGees were trained in the armed services (service training is generally recognized as good, though of necessity not so broad as civilian apprenticeship). Many carpenters learned the rudiments of their trade on a farm. Some construction craftsmen learned their jobs as maintenance men in manufacturing plants or in shipyards (indeed, a fair number of construction craftsmen in the Bay area learned their occupation in the shipyards during World War II and have since "worked up").

Other craftsmen worked originally for nonunion firms. "Country printers" (nonunion) provide a high percentage of the typographers in California, and perhaps generally. The listing of new members in the *Typographical Journal* gives a good idea of the kind of background a typical member has:

> Andrew A. Aiezza, age 43, learned trade and worked Albany, New York; never a member; Richard Orton Moore, at trade 9 1/2 years; learned trade in Columbus, Ohio; worked in Columbus, Ohio; never a member; Charles E. Benson, age 30; at trade 7

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54. Table F-9.

55. Gladys Palmer, *Labor Mobility in Six Cities* (New York: Social Science Research Council, 1954), p. 118.

> years; learned trade in Harbor Beach, Michigan; worked in Brookings, S. D., Carmichael, California, and Harbor Beach; never a member . . .[56]

The bulk of the men listed seem to have worked at the trade for years, presumably on nonunion jobs, before they became members. Indeed, only 25 per cent of the newly-admitted typographical journeymen come through formal apprenticeship.[57] (It should be noted that in some trades a fair proportion of journeymen have entered the union through the process of having their employer organized; the only way the union can organize some employers is through promising his employees the right to union membership.)

HELPERS AND THE TRADE HIERARCHY

In a number of trades it is possible to work one's way up through the ranks to the journeyman's classification. Thus, a man might start as a production worker on a very simple piece of equipment in a machine shop, then gradually work his way up to more complicated tools, and, as he moved in a haphazard fashion from one sort of an operation to another, become what is sometimes called a "homemade" machinist. This man may not have the versatility or the background knowledge which a graduate apprentice might possess, but he may be sufficiently good for the employer's purpose.

The engineer's trade provides another example. Here a man starts as an oiler. If he is lucky and finds friends on the job to teach him, he may gradually acquire skills on more complex equipment. Union rules often forbid a man to get "bootleg" experience of this sort. Thus, an oiler is supposed never to handle the controls on a heavy-duty shovel. If, however, the oiler has developed good relations with his engineer, he may get a chance to try his hand when the going is easy.

Considerable skill can be picked up through observation. Laborers can pick up a good deal about carpentry and bricklaying merely by watching (though they learn much more if they are allowed to "spell" a journeyman). Electricians' and plumbers' helpers--where these classifications exist--are in a position to learn a great deal, particularly when a given helper is assigned to a given journeyman and the two are

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56. Vol. 141, No. 3 (September, 1962), p. 140.

57. *Ibid.*, p. 80*c*.

assigned to a job alone.[58] Men who work in supply houses acquire knowledge through osmosis.

A worker's chance to gain experience on more complicated equipment may depend on (1) his ability to make friends and, particularly, to find a "sponsor" who will help him out; (2) his relationship to his first-line supervisor, who is in a position to assign him to jobs on which he can gain experience, or at least to look the other way while he performs these; and (3) fortuitous circumstances, such as an emergency or rush order, when usual occupational barriers are let down.[59]

Often a man gets ahead by exaggerating his experience when he applies for work with a new employer. He may claim to be an experienced hand on a piece of equipment which he has handled only briefly before. Once placed on the more demanding job, he hopes to "bull" his way through until he learns the job. Of course, the employer may be suspicious of his claims, but in times of labor shortage, when skilled men are not available, the employer must take what he can get.[60] By the time the peak period is over, the new man may have learned his job well enough to keep it.

Thus, in informal even underhanded fashion men learn (or "steal") a craft bit by bit without going through any period of formal training.

VOCATIONAL SCHOOLS

A few men move into the journeyman's classification directly on completion of a full-time course in a vocational school. At least in

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58. Sometimes the helper is a Negro, and this makes it difficult for him to cash in on his knowledge.

59. For an excellent discussion of the social relationships involved in informal training of this sort see Bennie Graves, "'Breaking Out': An Apprenticeship System among Pipeline Construction Workers," *Human Organization*, Vol. 17, No. 3 (Fall, 1958), p. 9-13.

60. Why must a man change jobs in order to get himself classified upwards? Why can't he make the jump at a time when his original employer is short of men? At times, of course, this is exactly what happens. But Graves (note 59) suggests that, since the older journeymen know that the "young bronc" has little legitimate claim for his higher status, they refuse to accept him as one of their own, and so he must find a job elsewhere.

northern California, the number who gain journeyman status in unionized occupations through this channel is small. There is some felling among employers that the trade-school product is of inferior quality. Unions in northern California have been fairly successful in preventing school or junior-college systems from offering courses in unionized apprenticeable occupations, except in conjunction with the unions' own apprenticeship and journeyman training programs. A few schools offer "pre-apprenticeship" classes, designed to lead to apprenticeship, not journeyman, status. These, too, are closely controlled by the union.

Vocational schools may have provided an appreciable number of partly trained journeymen in years gone by. For example, a union-oriented report of 1938 denounced vocational schools for producing

> . . . a group of marginal workers who cannot work on heavy construction or meet the requirements for mechanics in metropolitan areas, but who set themselves up as "carpet-baggers," in the trade union parlance, or who drift into the "sticks" and "steal their trade."[61]

Only a few years ago, according to one report, a group of employers from the Pacific Northwest sponsored a school to train operating engineers. Eventually the engineers union had to accept many, if not most of these men in order to protect its jurisdiction.

CONCLUSION

CONTRAST BETWEEN CONSTRUCTION AND MANUFACTURING

The term *apprenticeship* is used both loosely and strictly. According to one dictionary, an apprentice is "(1) One bound by legal agreement (indenture) to serve another for a certain time with a view to learning an art or craft in consideration for instruction . . . [or] (2) A beginner, a tyro, novice." If we adopt the stricter definition, which implies that there is a formal agreement to follow a course of on-the-job training for

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61. John Dale Russell *et al.*, *Vocational Education*, Staff Study No. 8, Advisory Committee on Education (Washington: Government Printing Office, 1938), pp. 269-270.

a specified number of years,[62] then we find that formal (registered) apprenticeship programs are much more common in construction than they are in manufacturing (other than machine shops and printing). Supposedly, the reason for this is that less training goes on in manufacturing firms than in construction. But most large manufacturing companies do have extensive training programs of all sorts. The better explanation for the fact that apprenticeship is largely a building-trades phenomenon lies in the nature of the building-trades labor market.

The occupations in which apprenticeship is most common--construction, printing, machinists, auto mechanics, and barbering--are largely associated with strong unions, distinct crafts, small firms, high turnover of employees among firms, and, consequently, attachment of the worker to the labor market as a whole rather than to a particular firm.[63] Individual employers are often too small to provide adequate training programs by themselves, and they have relatively little incentive to undergo the expense of providing such training, since there is little point in training men who may soon have to work for another employer. Further, the gains from such training are much higher from the point of view of the industry as a whole than from that of the individual firm. Thus, the industry-wide apprenticeship program represents an attempt to do collectively what the individual firms are unwilling or unable to do alone.

A very different kind of labor market structure exists in most of manufacturing. Through devices such as seniority, employees become attached strongly to the individual firm and, consequently, employers have less reason to fear that an employee, once trained, will leave. Further, individual employers (particularly the larger ones) find it in their economic interest to train their own men. Thus there is less need for external agencies to promote training. (True, there is a certain amount of apprenticeship in large manufacturing firms,[64] but

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62. The agreements which apprentices sign are no longer legally enforceable, but in California such agreements are legal documents in the sense that they are filed with the state.

63. The machinists are a possible exception to this statement. In 1962 about half the registered machinist and tool and die apprentices worked in establishments with 500 employees or more. Groom, *op. cit.*, p. 394.

64. Statistics as to the extent of apprenticeship in manufacturing are difficult to get (and, because of the difficulty of defining what is an apprenticeship, of doubtful reliability). A Michigan study indicates that apprenticeship programs exist in 3.6 per cent of the small firms (with less than 100 employees) and 12.9 per cent of the larger ones. Richard H. Hagemeyer, *Apprenticeship Selection Practices in Michigan Manufacturing Companies* (Dearborn, Mich.: Henry Ford Community College, 1961), p. 2.

usually such programs are not registerd and, not being registered, they do not require "legal agreements." They are rarely organized on an industry-wide basis, and they are often less formal than those in construction. Indeed, some are quite short.)

In the building trades, the institutional arrangements assume that all craftsmen are fully skilled, that all are paid on the same wage-scale, and (in many trades) that all are provided equal opportunities to do the work. There is no *formal* provision for partly trained men. There are strong emotional, traditional, and, even economic reasons for the construction unions' refusal to make formal, institutional accommodations to the existence of large numbers of partly skilled men or to the fact that there are many jobs on which fully skilled men are unnecessary. The myth that every journeyman should be fully trained makes it impossible to develop training programs leading to semi-skills--the only acceptable training program is one which brings a man to the top skill as quickly as possible.

By contrast, the typical factory has a hierarchy of jobs at increasing levels of skill, which the employee can ascend step by step, learning each job in turn. There is little need for a man to learn the highest skill all at once. And so the employee proceeds along his career through a number of short (and sometimes very informal) training programs rather than through a single lengthy course of training as formalized as apprenticeship.

ADEQUACY OF APPRENTICESHIP

In theory, as we have seen, apprenticeship provides the legitimate channel of entry into the building trades; in practice, only among the electricians does this program provide replacements for even half of those who die, retire, or leave the trade (with no provisions for expansion). And yet the construction industry has apparently learned to adjust to this situation through making use of a large number of partly trained men. Indeed, the function of apprenticeship today seems largely to be that of training skilled key men, and the proportion of job entrants provided by each trade's apprenticeship program seems to be quite closely related to the skill mix which that trade requires.

Barring a sharp upturn in building activity, there seems to be little likelihood of any sharp increase in skill demands (though it is hard for one without long experience in the construction industry to make judgments of this sort). On the other hand, the supply of apprentice-trained journeymen has declined only slightly, and the over-all quality of the training programs has improved. Thus, there is little reason to anticipate any immediate "crisis" owing to an inadequate number of apprentices.

This conclusion that there is no immediate shortage of apprentices does not mean that our apprenticeship program is adequate in any absolute sense. Clearly, better training will increase job opportunities for those who receive it. (That it will increase the over-all number of job opportunities may be doubted; to the extent that better-trained men may do the work more efficiently better training may lead to fewer jobs.) As a nation we ought not to be satisfied with any training program which is adequate only by minimum standards of quality. Certainly, universities do not accept such standards in their personnel programs; the typical university professor is overtrained in the sense that he is required to get a Ph. D., though most professors do little teaching above the undergraduate level. This overtraining is justified on the grounds that it makes professors more flexible and better able to adjust to new knowledge. The same argument can be made for overtraining craftsmen and providing them with greater skills than are needed on their present jobs. In this light, the efforts of agencies such as the Federal Bureau of Apprenticeship and Training and the California Division of Apprenticeship Standards deserve public support as modest but useful parts of our over-all national unemployment program.

On the other hand, it should be recognized that though the apprenticeship program serves its function moderately well in a few trades, it is essentially an anachronism. Except for the introduction of "related training" (the 144 hours a year which most apprentices spend taking evening classes in vocational schools or junior colleges), apprenticeship is little changed from the Middle Ages. Many of the older skills are becoming obsolete. The newer skills (in electronics, for example) are increasingly intellectual, rather than manual. A hundred years ago clerical work, accounting, and even law and medicine were learned largely on an apprenticeship basis. Today these occupations are learned in schools and universities. There is every reason to believe the same sort of development will eventually occur among the few remaining occupations now considered apprenticeable.

Nevertheless, it may be shortsighted to look upon apprenticeship purely in terms of its adequacy as a means of providing craftsmen for particular trades. As a nation we are now re-examining our educational and manpower policies. Our college-oriented school system seems not to be meeting the needs of a large part of our youth. A glance at the European experience suggests the social desirability of giving apprenticeship a substantially more important role than it now occupies in this country. My own opinion is a pessimistic one: though socially desirable, a substantial expansion of apprenticeship is not realistically likely.

UNION INTERESTS IN APPRENTICESHIP AND OTHER TRAINING FORMS

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This is an exploratory formulation of the union interest in apprenticeship and other forms of training. * The major focus is on the three main environments for the union training interest: craft union apprenticeship,[1] the industrial union interest in training concurrent with employment, and the labor movement's social policy interests in training.

APPRENTICESHIP DEFINED

Apprenticeship represents the major training interest of the craft unions. For the purposes of this paper, apprenticeship is a system of standards regulating the apprentice's training, experience, and admission to journeyman status in the union.[2] The standards are variously found in the "laws" of the union, the union-management collective agreement, and, in the case of registered apprentices, in the rules of federal and state apprenticeship agencies.

A craft union is one which limits its members to established crafts or trades. The classic craft unions are in the building trades, printing trades, metal trades, and the railroads. In important respects the union of licensed maritime personnel are craft unions. The industrial union, as the term is used here, is one which includes all or almost all classes of workers

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1. U.S., Bureau of Labor Statistics, *Glossary of Current Industrial Relations and Wage Terms*, Bulletin 1438 (Washington: U.S. Government Printing Office, 1965), p. 5.

2. For formal definition see U.S., Congress, Senate, Committee on Labor and Public Welfare, Subcommittee on Employment and Manpower, *Selected Readings in Employment and Manpower*, Vol. 3: *The Role of Apprenticeship in Manpower Development: United States and Western Europe*, 88th Congress, 2d Sess., 1964, pp. 1133-34. Cited hereafter as *Selected Readings*.

> at a given workplace in an industry or in several industries. When craft and industrial are defined in work rather than institutional terms, one can distinguish between "vocational specialization among workers in occupations which require substantial amounts of specialized knowledge and skill and... the division of labor which stems from differentiated organization of work."[3]

Apprenticeship is an ancient institution. The union interest in apprenticeship begins somewhere in the early years of the nineteenth century, when under the guise of apprenticeship "boys... labor.... The desire to regulate apprenticeship was indeed one of the prime causes for the creation and growth of our early trade unions."[4] Apprenticeship was first regulated by public law, then by rules established by each trade, and still later by rules or "laws" promulgated unilaterally by the union. In the present period apprenticeship is regulated both by union law embodied in constitutions and, probably more importantly, by collective bargaining. Legal regulation has become important once again, this time in the context of an "active manpower policy" and civil rights. Accordingly modern apprenticeship functions on three planes: (1) internal craft union law, (2) collective bargaining, and (3) public policy.

At least forty-two national unions deal with apprenticeship through their constitutions and bylaws. The constitutional provisions on apprentices commonly set (or authorize local unions to set) the number of apprentices per employer and the term of apprenticeship. Also prescribed are requirements for admission into the union as an apprentice and, after completion of apprenticeship, admission as a journeyman. Admission to journeyman status may be made contingent on passing a test of technical skill.[5]

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3. Helen Wood, "Trends in the Specialization of Occupational Requirements," *Manpower in the U.S.*, eds. William Haber and others (Madison, Wis.: Industrial Relations Research Association, 1954), p. 103; for other definitions see Jack Barbash, *American Unions: Government, Structure and Politics* (New York: Random House, 1967), Ch. II.

4. Paul H. Douglas, "American Apprenticeship and Industrial Education" (Ph. D. dissertation, Columbia University, 1921), p. 62. See also Alfred Kahler and Ernest Hamburger, *Education for an Industrial Age* (Ithaca, N. Y.: Cornell University Press, 1948); James M. Motley, *Apprenticeship in American Trade Unions* (Johns Hopkins University Studies in Historical and Political Science, Series XXV, Nos. 11-12; Baltimore, Md.: Johns Hopkins Press, 1907); Beatrice and Sidney Webb, *Industrial Democracy*, Vol. II, (London: Longmans Green, 1897), Ch. X.

5. James J. Bambrick, Jr., and George H. Haas, *Handbook of Union Government Structure and Procedures* (New York: National Industrial Conference Board, 1955), pp. 54-61.

The collective bargaining provisions on apprenticeship can be grouped under five main headings:

(1) conditions of entry which commonly include age requirements, (18-25) education (ranging from the 3 "r's" to high school graduation), and occasionally preference to sons of members and to veterans;
(2) joint apprenticeship committees composed equally of union and employer representatives;[6]
(3) the number of apprentices, controlled by the apprentice-journeyman ratio and duration (4-5 years);
(4) training, divided between on-the-job training--a schedule of machines and processes in which work competence is to be acquired--and related instruction in the technical trade subjects, commonly on "paid" time;
(5) working conditions, including a wage scale fixed as a percentage of the journeyman's rate rising by stated increments at six-month intervals until satisfactory completion of the apprenticeship, a probationary period before acquiring permanent apprenticeship status, supervision by journeyman "at all times," special provisions regarding layoff, working hours, obligations to the employer, and certification of trade competence.[7]

Apprenticeship is given additional sanction by the Bureau of Apprenticeship and Training of the U.S. Department of Labor, which registers and promotes apprenticeship according to established minimum standards. There are in addition 28 states and the District of Columbia, Puerto Rico, and the Virgin Islands with apprenticeship agencies.[8]

The superiority of apprenticeship over other forms of skill training is commonly attributed to (1) the better training made possible by the combination of on-the-job training and related classroom instruction, (2) the opportunity to earn wages while learning and producing, and (3) the "built-in machinery" for matching training to demand and technological change.[9]

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6. U.S. Bureau of Apprenticeship and Training, *Setting Up an Apprenticeship Program* (Washington: U.S. Government Printing Office, 1966), p. 14.
7. Bureau of National Affairs, "Training and Apprenticeship," *Collective Bargaining Negotiations and Contracts* (Washington: Bureau of National Affairs, 1965); Bambrick and Haas, *op.cit.*
8. *Setting Up an Apprenticeship Program*, pp. 34-35.
9. C. F. Hanna, "Expanding Apprenticeship Opportunities," *Selected Readings*, pp. 1109-10.

The main trends in apprenticeship are summarized as follows:

1. Of the active craftsmen and foremen, 40.6% and about the same number of construction craftsmen, have received formal training of some kind. Formal training among construction craftsmen has been most common for the electricians (72.9%), plumbers and pipefitters (55%), sheet metal workers (70.9%) and least common for the carpenters (31.1%), excavating, grading and road machinery operators (11.2%), painters (27.8%), cranemen, etc., (17%).[10]

2. Apprenticeship has been the main type of formal training for carpenters, painters, plumbers and steamfitters, and meatcutters.[11]

3. Of the craftsmen, foremen, and kindred occupations, 8.3% selected apprenticeship as the "most helpful way of learning" their craft. On the high side were: tool and die makers (32.6%), compositors and typesetters (25.7%), electricians (20.5%), and machinists (19.7%). On the low side were: stationary engineers (1.2%), excavating, grading and road machinery operators (.6%), construction craftsmen as a class (11%).[12]

4. Of the 183,955 registered apprentices in training on January 1, 1966, 114,932 or 62.5% were in the construction trades, 34,099 or 18.5% in the metal working trades, and 11,682 or 6.5% in the printing trades.[13]

5. Estimates of unregistered apprentices vary wildly. Enrollees in vocational school apprentice classes came to about 200,000 in 1961, of which about 156,000 were registered. A USDL sample survey seems to indicate that there were over 650,000 persons who reported themselves as taking apprenticeship training in 1963. There were 158,887 registered apprentices in training by the end of that year.[14]

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10. U.S., Department of Labor, Manpower Administration, *Formal Occupational Training of Adult Workers* (Washington: U.S. Government Printing Office, 1964), Table 11, p. 43.

11. *Ibid.*, p. 12.

12. *Ibid.*, Table 11, p. 43.

13. U.S.. Bureau of Apprenticeship and Training, *Trends in Apprenticeship Registration, 1941-1965*, Bulletin 626 (Washington: U.S. Government Printing Office, 1966).

14. USDL, *Foraml Occupational Training of Adult Workers, op.cit.*, pp. 11, 36; *Selected Readings*, p. 1338; *Trends in Apprenticeship Registration, 1941-1965*.

6. The largest incidence of apprentices, as measured by active journeyman per apprentice, is in the following trades: roofers (7.9), sheet metal workers (8.0), electricians (8.5), news pressmen (8.9), book and job pressmen (9.3). The lowest incidence is to be found among book and job mailers (41.8), news mailers (28.1), painters, paperhangers, and glaziers (25.8), ironworkers (23.0), carpenters (20.9), bricklayers (19.5).[15]

7. There is a "direct association between changes in the completion rates of apprentices and unemployment . . . [and] an inverse relationship between the number of new apprentices and the level of employment."[16]

8. The number of registered apprentices in training reached a peak in 1950 (239,000). Registered apprenticeship has not been able to recapture this momentum in the subsequent years, although a temporary spurt developed in the late 1950's, and there appears to be a spurt in the making. The year 1966 recorded the largest number in training (207,000) since 1950, and the largest number of new registrations since 1948.[17]

9. "The function of apprenticeship today seems largely to be that of training skilled key men."[18]

APPRENTICESHIP IN PRACTICE

The common practice of apprenticeship departs from the ideal as set out in the official documents at several critical points. First, most journeymen have acquired their status without completing an accepted apprenticeship. These are the "Joe McGees" who "pick up" the trade as helpers, as lower-rated specialists, and who are admitted

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15. John F. Henning, "Apprentice Data; Questions and Answers," *Selected Readings*, p. 1187.

16. U.S., Bureau of Apprenticeship and Training, *Apprenticeship and Economic Change* (Washington: U.S. Government Printing Office, 1964), p. 21.

17. *Trends in Apprenticeship Registration, 1941-1965;* U.S. Department of Labor, *Number of Registered Apprentices Reaches 18-Year High* (Release, USCL-8218, April 17, 1967).

18. George Strauss, "Apprenticeship: An Evaluation of the Need," *Employment Policy and the Labor Market*, ed. A. M. Ross (Berkeley: University of California Press, 1965), p. 331.

directly into the local union. Admission to a craft local is not infrequently treated as a form of patronage dispensed to relatives of members. Admittance to apprenticeship or membership may be denied on grounds which have nothing go do with formal qualifications: discrimination against Negroes as apprentices is an example here.

Second, the training objectives of apprenticeship is unevenly and indifferently implemented; related instruction is completely absent in a major proportion of apprenticeship, and even where it is formally offered its "relatedness" is questionable. Nor does the journeyman's role as a teacher to the apprentice have significant meaning beyond simple exposure to work.

Third, the nominally joint apprenticeship committee is often dominated by the union which is mainly preoccupied with regulating the supply of labor in the craft.

Fourth, the contractual ratio of apprentices to journeymen is characteristically not operative, but it is nevertheless true that "apprenticeship openings in specific trades are scarce compared to the numbers of workers desiring them."[19] Within this last constraint the

> . . . problem has not been to keep employers from hiring apprentices, but to encourage them to do so. With only a few exceptions like some of the printing trades and the diesinkers actual restrictions of the numbers of apprentices have been rare . . . . Employers . . . have more frequently not favored apprenticeship but rather upgrading or the other informal means by which workers secure skills without direct, obvious cost to the employer.[20]

Fifth, there is typically no evaluation or test of trade ability after completion of apprenticeship.[21]

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19. George Strauss and Sidney Ingerman, "Public Policy and Discrimination in Apprenticeship," *Hastings Law Journal* (Hastings College of Law, San Francisco; Vol. 16, No. 3, February 1965), p. 297.

20. J. R. Wason, "Apprenticeship Practices Abroad," *Selected Readings*, p. 1342.

21. For supporting data in this section see Strauss, "Apprenticeship: An Evaluation of the Need," pp. 316 ff.; "A Report of the New York Advisory Committee to the U.S. Commission on Civil Rights," *Selected Readings*, p. 1249-57; Felician F. Foltman,

The "ideal type" apprenticeship programs in the craft union are marked by a serious attempt to carry out the *training* function of apprenticeship and are likely to include some or all of the following features: (1) adequate financing, jointly through the collective agreement or unilaterally through the union; (2) training departments and/or co-ordinators in the national union and subordinate bodies or in the joint agencies; (3) systematic development of programs adapting training to new technologies, with emphasis on preparation of instructional materials and instructor training; and (4) "coupled" (i.e., coupled with apprenticeship) preapprenticeship programs designed expressly to qualify for entry young men who might otherwise be rejected.[22] There are above all in these ideal types signs of an apprenticeship *program* which goes beyond simple restriction. But these programs have however not been immune to charges of Negro discrimination.

"Apprenticeship and Skill Training: A Trial Balance," *Monthly Labor Review* (January 1964), pp. 29 ff.; J. R. Wason, *Selected Readings*, pp. 134 ff.; G. Sourdara Rajan, *A Study of the Registered Apprenticeship Programs in Wisconsin*, Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966; Strauss and Ingerman, "Public Policy and Discrimination in Apprenship, p. 297; Felician F. Foltman, "National and State Apprenticeship, 1960-66: Up-to-date or Out-of-Date?" (unpublished manuscript), *Conference on Research in Apprenticeship Training*, Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966; George Strauss, "Related Instruction: Basic Problems and Issues (unpublished manuscript), *Conference on Research in Apprenticeship Training*, Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966; Sumner Slichter, *et al.*, *The Impact of Collective Bargaining on Management* (Washington: Brookings Institution, 1960), pp. 72 ff., pp. 80 ff.; William Haber and Harold M. Levinson, *Laobr Relations and Productivity in the Building Trades* (Ann Arbor: Bureau of Industrial Relations, University of Michigan, 1956), Ch. VI.

22. International Training Fund, *Facing the Craft Challenges of Tomorrow* (Washington: United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the U.S. and Canada, n.c. [1966?]; Buck Baker, "Training in the Electrical Contracting Industry," *Selected Readings*, pp. 1144-52; Sumner Slichter *et al.*, *The Impact of Collective Bargaining on Management*, pp. 79 ff.; International Association of Machinists, *Training for Tomorrow* (Washington: IAM, 1965), p. 21; John McCauley, "Increas-

Singled out for their higher quality are the apprenticeship programs in the "mechanical" trades, i.e., electrical, pipe trades and sheet metal. The "hypotheses" offered by one investigator to explain the comparatively favorable position of apprenticeship in these trades are: (1) The greater likelihood of permanent employment enhances the motivation of the firm to engage in training. (2) The firms' smaller scale requires each craftsman to handle a wider range of skills. (3) The work entails a higher level of training, and in the case of the electricians "a fair amount of intellectual ability"; journeymen must be prepared to understand intricate instruction and determine what techniques are necessary to carry these out. (4) The expanding employment and higher annual earnings in these trades attracts workers of this higher intellectual ability and skill.[23] It is possible, in addition, that a substantial proportion of employment in these crafts is in factory establishments where many of the characteristic instabilities of apprentices are minimized.

Other forms of training of interest to craft unions may be classified as to whether the training is prior or concurrent with employment. Examples of the former are the programs of pre-employment trade and industrial training carried on by the public vocational schools under the system of federal aid, and more recently preapprenticeship programs established under Manpower and Development Training Act funds primarily to help Negro youth qualify for entry into apprenticeship.

Training concurrent with employment is directed toward upgrading and retraining. These programs are conducted in the regular federally aided public vocational schools in the Manpower and Development Training Act on-the-job training programs and in a smaller number of instances by the union or by joint union-management effort. The ITU[24] and the Pressmen each runs central schools and prepares correspondence courses for local use in apprentice-related instruction and for upgrading. The Lithographers and Photoengravers Union is developing an instructional-materials program to be used in schools organized by local

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ing Apprenticeship Opportunities through Pre-employment Training" (unpublished manuscript), *Conference on Research in Apprenticeship Training*, Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966; Fred B. Irwin, "The Scope of Training in the Electrical Industry," *Selected Readings*, pp. 1153-56; "[Plasterers] Training Expansion Announced," *Index to Labor Union Periodicals* (Bureau of Industrial Relations, University of Michigan, 1963), p. 19.

23. Strauss, "Apprenticeship: An Evaluation of the Need," pp. 310-11.

24. Most unions have such unwieldy full names that either their common short forms or initials will be used in the body of the test. A glossary is appended with the full names of all cited unions.

unions.[25] The Plumbers and Steamfitters Union and the IBEW carry on extensive training programs for apprentices and upgrading, both in their own programs and in collaboration with employers.[26]

Craft unions with active apprenticeship prgorams have tended to resist public pre-employment programs on the ground that the superficiality of these other programs will turn out narrow specialists who compete for employment with and impair the wage standards of the full-fledged, all-around journeyman.[27] By contrast the craft unions respond favorably and even enthusiastically to publicly funded upgrading.

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25. International Typographical Union, *Modern Printing* (Colorado Springs, Colo.: ITU, n.d. [1965?]: International Typographical Union, *Facts About the International Typograhpical Union*(Colorado Springs, Colo.: ITU, 1965); International Typographical Union, *The ITU Training Center* (Colorado Springs, Colo.: ITU, n.d.); International Printing Pressmen and Assistants' Union of North America, *Technical Trade School Education Training Service* (Pressmen's Home, Tenn.: IPP&AU, 1964); International Printing Pressmen and Assistants' Union of North America, *Home Study Courses of the Technical Trades School* (Pressmen's Home, Tenn.: IPP&AU, n.d.); International Printing Pressmen and Assistants' Union of North America, *Apprenticeship Training Program* (Pressmen's Home, Tenn.: IPP&AU, n.d.); International Printing Pressmen and Assistants' Union of North America, *Evaluation Survey Report of the IPP&AU Training Program* (Pressmen's Home, Tenn.: IPP&AU, 1964); U.S., Bureau of Apprenticeship and Training, *Tomorrow's Pressmen: Joint Apprenticeship Committee Project* (Washington: U.S. Government Printing Office, 1965); Lithographers and Photoengravers International Union, *International Educational Training and Retraining Program* (New York: LPIU, n.d. [1966?]); Amalgamated Lithographers of America, *Proceedings of 1962 International Policy and Educational Conference* (New York: 1962).

26. See footnote 22.

27. *Facing the Craft Challenges of Tomorrow*, p. 3; "MDTA Program Heartless Misleading of Unemployed," *ITU Review* (October 29, 1964), p. 2; Circular letter from Gordon M. Freeman, President, International Brotherhood of Electrical Workers, Washington, D.C., March 3, 1964; National Institute of Labor Education, *Final Report to the Secretary of Labor on OMAT Project P3-63* (Washington: NILE, 1965), pp. 67 ff; International Association of Machinists, *op.cit.*, p. 30, fn. 11.

and retraining programs.[28] "In 1964, there were over 340 training programs for journeymen plumbers and pipefitters resulting from the plan established by the . . . union in 1955 to retrain older craftsmen in new techniques."[29] The Operating Engineers union has received "more than half of the federal on-the-job training money granted to all the building trades unions" involving 17 contracts totaling about $3.3 million and 2,168 trainees. Other building trades unions utilizing federal on-the-job training grants are painters, carpenters, roofers and sheet metal workers.[30]

The conversion of a long-run surplus of merchant marine seamen and officers into an acute shortage as a result of Vietnam has stimulated a major maritime union interest in supplementary training. Virtually all of the maritime unions are active in promoting training to (1) enable the existing labor force to work on the new types of ship equipment, (2) upgrade the men in the unlicensed categories to licensed ratings, (3) accelerate the officer output of the various merchant marine academies.

NMU carries on a program in its own modern training center. The pursers have secured management financing for a training program "to give pursers additional skills as pharmacists' mates" to offset redundancy on the highly mechanized vessels. The Seafarers, jointly with the MEBA, and the American Radio Association have developed their own programs to train or upgrade members for licensed ratings in the merchant marine.[31]

The maritime unions are sectional unions but not strictly speaking all "craft" unions--especially NMU and SIU, the unions of unlicensed personnel. The unions of licensed personnel are literally craft unions in which both union membership and a federal license are the effective conditions for entry into the craft.[32]

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28. David Christian, *An Assessment of Apprenticeship*, U.S., Bureau of Labor Statistics (Washington: U.S. Government Printing Office, 1964), p. 628.

29. U.S., Department of Labor, *Technological Trends in Major American Industries* (Washington: Government Printing Office, 1966), p. 37.

30. "Operating Engineers Grab a Major Share of Federal Largesse," *Wall Street Journal*, October 20, 1966, p. 1.

31. National Maritime Union, *Health, Training and Recreation Center* (New York: NMU, n.d. [1966?]); "What a Union Does to Fill a Shortage," *Business Week*, April 2, 1966, pp. 105-6; *New York Times* May 22, 1966; Ida R. Hoos, "Retraining in the United States, Problems and Progress," *International Labour Review* (Geneva: November 1965), pp. 419 ff.

32. Aaron Warner, "Technology and the Labor Force in the Offshore Maritime Industry" (unpublished manuscript), Industrial Relations Research Association Proceedings, 1965.

CRAFT UNION INTERESTS IN APPRENTICESHIP

Training, including apprenticeship, serves two interdependent sets of interests for the craft union: (1) the maintenance of a high wage position and of employment opportunities for its permanent membership, and (2) the conservation of the union's power as an institution to advance these ends.

An important leverage for the craft union in maintaining its high wage position is the regulation of the supply of craft labor against the contingencies of (a) widely fluctuating cyclical variations in the demand for craftsmen, and (b) increases in the labor supply due to the attraction of the craft's high wages to other employed workers. As Kerr has noted, "Control over supply is used more to preserve the integrity of the wage rate rather than to create it."[33]

Apprenticeship is one of the means which craft unions use to regulate the supply of craftsmen. Regulation is achieved by adjustments in the apprentice-journeyman ratio, educational requirements, the apprenticeship term, the scope and duration of training, and the apprentice wage. Other techniques for what the Webbs called "the restriction of numbers" are the "closed shop," the regulation of union admission. and public licensing laws for entry into the craft. The closed shop, illegal under the Taft-Hartley law but still essentially operative in many craft labor markets, is the requirement that workers be members of the union prior to employment. In effect the union undertakes as part of its labor supply control function to operate an employment agency or hiring hall which becomes the major source of referral to employment in the craft. Not all hiring hall unions are craft unions, but all craft unions operate hiring halls subject only to the exception of craft employment in integrated factories.

When the closed shop union ceases to admit new members or surrounds union admission with insurmountable requirements it becomes a "closed union." Short of closing membership rolls outright, the union may issue temporary work permits either to new entrants or to union members from areas of slack employment. The craft union

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33. Clark Kerr, "Balkanization of Labor Markets," *Labor Mobility and Economic Opportunity* (Cambridge: Technology Press of Massachusetts Institute of Technology, 1954), p. 107. In addition to the works cited, this section has profited from the following: Lloyd Ulman, *The Rise of the National Trade Union* (Cambridge: Harvard University Press, 1955), Ch. 11; Lloyd Reynolds, *Labor Economics and Labor Relations* (4th Edition, Englewood, N. J.: Prentice-Hall, 1964), pp. 188 ff.; M. W. Reder, *Labor in a Growing Economy* (New York: Wiley, 1957), pp. 340-56; Albert Rees, *Economics of Trade Unions* (Chicago: University of Chicago Press, 1962), pp. 123 ff.

prefers the permit man over the apprentice, because the former is expendable when demand slackens; the apprentice represents a permanent obligation for the employment regardless of demand. The union's own efforts in regulating the labor supply are augmented by apprenticeship requirements under state licensing laws for several occupations.[34]

Apprenticeship helps the craft union to make the high wage supportable for the employer by producing a supply of skilled workers in the craft who, in varying degrees, are capable of earning their high wages, the theory being that the all-around education of the apprentice makes him a better mechanic than the nonunion man.[35] By contrast the failure of apprenticeship to develop in most of the repair trades has been held responsible for deficiencies in the quality of workmanship.[36] Apprenticeship helps make the standard rate "just" to the employer, as Motley observed a half-century ago, by reducing "inequalities as to individual workmanship . . . [and securing] a force of workmen of uniform abilities."[37]

Apprenticeship strengthens the craftsman's security of employment and income by making "effective through a wide area, preferably nationwide, a definition of occupational content (with the necessary training schedules and required achievement levels) which will give wide marketability to the skills."[38] Apprenticeship thus enables the craftsman to qualify technically for employment at his craft in an

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34. Simon Rottenberg, "The Economics of Occupational Licensing," *Aspects of Labor Economics*, National Bureau of Economic Research (Princeton, N.J.: Princeton University Press, 1962).

35. John R. Commons, *Labor and Administration* (New York: Macmillan, 1923), p. 123.

36. David Christian, *op.cit.*, p. 626.

37. James M. Motley, "Apprenticeship in the Building Trades," *Studies in American Trade Unionism*, eds. Jacob H. Hollander and George E. Barnett (New York: Henry Holt, 1906), p. 268. See also Ulman, *The Rise of the National Trade Union;* Commons, *Labor and Administration*, Ch. LX.

38. David Christian, *An Assessment of Apprenticeship*, p. 631.

extensive network of labor markets; the factory worker moves with comparable mobility only within the "internal" labor market of the enterprise. "Once fully in the market the craft worker can move anywhere within it .... The worker gets his security not from the individual employer but from his skill."[39]

In order for the craft union to be effective in asserting the interests of its constituents, it must be concerned with its power as an organization. In fact the power of the craft union as an organization is probably indispensable in maintaining an occupation as a craft. Without the craft union most craft occupations would cease being crafts; that is, the skill content of the craft would be diluted and standards of entry weakened. The converse is also true. If an occupation is diminished in its craft qualities by a lowering of standards, the union based on the craft is diminished in power as a craft union. If union interest were absent, most employers would not on their own retain apprenticeship and the other standards of entry that go into the making of a craft. It was this control over craft standards which Taylor's scientific management sought to eliminate by shifting work control from the worker and his craft union to the management industrial engineer.[40] In the British cotton textile industry "workers are 'skilled' or 'unskilled' according to whether or not entry to their occupations is deliberately restricted and not in the first place according to the occupation itself."[41] The Die Sinkers union converted the Detroit tool and die industry labor force

> ... from a highly specialized work force, made up partly of all-around skilled men into a labor force where further entry was possible only through apprenticeship. By refusing to work with green hands the union was able to force many non-journeymen with partial skills out of the industry.[42]

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39. Clark Kerr, *Balkanization of Labor Markets*, pp. 97-98.

40. Milton J. Nadworny, *Scientific Management and the Unions* (Cambridge: Harvard University Press, 1955), p. 5.

41. H. A. Turner, *Trade Union Growth, Structure and Policy* (Toronto, Can.: University of Toronto Press, 1962), p. 114. See also E. M. Kassalow, "The Prospects for White Collar Growth," *Industrial Relations* (Vol. 5, No. 1, October 1962), p. 43.

42. Sumner Slichter *et al.*, *The Impact of Collective Bargaining on Management*, p. 74n.

The 80% concentration of registered apprentices in 21 of the 90 apprenticeable trades may be due to the fact that "there was no craft union--or other organization with appropriate jurisdiction and authority--to define, organize and enforce craft standards."[43]

Craft unions use training, including apprenticeship, to support their institutional power by organizing the instructional program around the job specifications of the jurisdictional claim. The ITU justifies its heavy emphasis on training and retraining programs on the ground that its jurisdiction, which is the "lifeblood" of the union, can only be maintained and expanded if the union is "able to provide craftsmen skilled in all the operations of both conventional and new processes composing rooms."[44] A major motivation of the Lithographer and Photoengravers Union in starting a training program was a visit to the ITU school where a committee found that "the ITU has a school teaching our skills and we don't have an educational training program."[45] "Essentially our union is an employment agency," President Brown of LPIU observed, "and if we lose the right to provide the industry with the best men, the most highly trained, then we are going to lose the right to the exclusive sale of our product which is our own skills."[46]

There is an interdependence, we have said, between the craft union's effectiveness as an institution and its capability in maintaining craft standards, including apprenticeship. These craft standards, it should now be added, must be enforced marketwide because of the characteristic high competitiveness of the employer market and the labor intensity in factor proportions.[47]

The craft union has several assets in implementing its strategy of labor supply regulation in the market. To begin with the essential core of intrinsic skill required for the jobs which the craft is commonly called on to do, limits the number of workers who can actually do the work, even though this skill core is something less than the union is

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43. David Christian, *An Assessment of Apprenticeship*, p. 627.

44. *Modern Printing*, p. 4.

45. Lithographers and Photoengravers International Union, *Convention Proceedings*, New York, 1965, p. 205.

46. *Ibid.*, p. 234.

47. Van Dusen Kennedy, *Non-Factory Unionism*, Institute of Industrial Relations (Berkeley: University of California, 1955).

wont to claim. Second, the dominance of *local* factors in the market structure shelters the union's employers from competition and narrows the geographic area which the union needs to police. Third, the small scale of the enterprise which the craft union commonly deals with injects "an element of unilateralism in the relations between these unions and the individual employer."[48] In sum, once the system for regulating entry into the market for the craft has been perfected there is little need for the union to persuade workers to join. On the contrary it is the workers who must persuade the union that they be allowed to join.

Apprenticeship is favored over other forms of pre-employment training by the craft union, not only because apprenticeship provides a more rounded skill experience, but, more importantly, because apprenticeship lends itself more efficiently to direct regulation by the union. Both as an administrative mechanism and as a schedule of entry requirements, apprenticeship can be managed by the union in a way that is not possible to manage other forms of pre-employment training. The craft union criticism that these other forms of training flood the market with narrowly trained workers can be only partly valid if it is recalled that most journeymen have neither completed an apprenticeship nor indeed had any formal training at all.

The craft union's position of dominance, in the labor market for its craft, which it uses to enforce standards of entry, including apprenticeship, is made viable for its employers, as Bertram and Maisel observe in respect to the construction industry, by

> (1) the development of uniform wage rates for all firms in the bargaining area;
> (2) reduction of uncertainty through stabilization of wage rates and other costs for an agreed period of time;
> (3) regulation of entry and policing of the fringe of small firms in the industry;
> (4) provisions of a skilled and experienced supply of labor; and
> (5) discipline of the work force.[49]

In addition the building trades unions promote business for their employers through their aggressive support of "contracting-out" of

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48. *Ibid.*, p. 31.

49. Gordon W. Bertram and Sherman J. Maisel, *Industrial Relations in the Construction Industry*, Institute of Industrial Relations (Berkeley: University of California, 1955), p. 2.

maintenance work in integrated plants and, what comes to the same thing, the Bacon-Davis requirement in federal law that major construction work in government installations must be let to outside contractors.

The craft union uses its power to establish an orderly labor market and in the present setting is almost indispensable in this role. To be sure, the union is rather more responsive to the restrictive side of its role, but it is nevertheless sensitive--even if not as much--to the need for expansion. "The basic parameters [of apprenticeship] . . . are in fact fundamentally responsive to particularistic forces of supply and demand in the job market."[50]

TENDENCIES IN APPRENTICESHIP

Apprenticeship is in a state of long-run decline or stagnation. Measured by new apprentice registrants or apprenticeship completion, it has never recovered the spurt immediately following World War II, generated by the "G.I. Bill of Rights."[51] The decline cannot be explained by downward employment trends for craftsmen generally or the construction industry, the largest user of apprentices. While not among the fastest growing, these sectors have nevertheless maintained modest rates of increase in employment.[52] Nor has the decline in apprenticeship resulted in a shortage of craftsmen.

> Frequent dire predictions of past years that shortages of craftsmen were imminent because apprenticeship was not training enough craftsmen to replace those who were leaving the labor force have proven false. If employers had a job to do, they always somehow found enough bodies to do it.[53]

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50. David J. Farber, "Apprenticeship in the United States, Labor Market Forces and Social Policy" (unpublished manuscript), Conference on Research in Apprenticeship Training, Center for Studies in Vocational and Technical Education, University of Wisconsin, 1966, p. 9.

51. *Ibid.*, Table I; U.S. Department of Labor, *Manpower Report of the President* (Washington: U.S. Government Printing Office, 1966), Table C-3, p. 200, Table A-10; *Trends in Apprenticeship Registration, 1941-1965*, p. 164; *Apprenticeship and Economic Change*, pp. 6 ff.

52. *Technological Trends in Major American Industries*, pp. 36 ff.

53. "Promoting Apprenticeship and On-the-Job Training in the United States," *Selected Readings*, p. 1368.

The National Association of Manufacturers predicts a "bottleneck" shortage of skilled construction workers which apprenticeship is contributing to but does not now apparently claim such a shortage exists.[54] The Building and Construction Trades Department of the AFL-CIO stated categorically, "With our high mobility rate no job in years has suffered from lack of available skilled labor."[55]

In the absence of authoritative data the reasons for the arrested development of apprenticeship can only be conjectured. The conjectures offered here as the simplest explanation and the one most consistent with what is otherwise known is that apprenticeship as a general practice is declining or stagnating, because it has become obsolete for union purposes even though the unions may cling to apprenticeship as ideology. The craft union can meet the employers' demand for workers through less cumbersome and more flexible means. In periods of expansion many workers are admitted as journeymen into the union without having completed an apprenticeship, and without noticeably bad effects on work performance; short-run needs are met through temporary transfers of union members from other areas or through "permit men" who are expendable once the job is over.[56]

Supplementary training, that is, training which supplements or reorients the existing skills of journeymen craftsmen and is concurrent with employment, is viewed by the craft union as a means to influence wages *directly* by improving the quality of the craftsmen. In this training setting the craft union outlook is characteristically expansive rather than restrictive or protectionist.

INDUSTRIAL UNION INTERESTS IN TRAINING

The major training concerns of industrial type or non-craft unions are in training forms other than apprenticeship. The industrial-type unions in heavy industry have an apprenticeship interest, but it is sufficiently different as to warrant separate treatment.

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54. "Prediction of 'Bottleneck' in Craft Workers Shortage," *Labor Relations Reporter*, Dec. 26, 1966, p. 340.

55. Quoted in *Selected Readings*, p. 1158.

56. "A Report of the New York Advisory Committee, etc.," pp. 1251-52; Strauss, "Apprenticeship: An Evaluation of the Need," pp. 317 ff.

Industrial-type unions deal with training other than apprenticeship in two large contexts: (a) through collective bargaining provisions, and (b) through union-administered training programs funded by employers and/or government. The collective bargaining provisions related to training serve the wage-determination interest of the union by: (1) protecting the wage standards of regular employees from attrition by trainees, illustrated in the contractual minimums for learners; (2) making institutional opportunities available as a form of wage supplement or fringe benefit, demonstrated in the provisions in professional employee contracts wherein the employer agrees to pay all or part of the fees for outside courses; and (3) conferring a right to training on incumbent employees as one way of minimizing wage and job loss caused by technological change, mergers, relocation and shifts in consumer demand.

The right to training may be tied to seniority provisions giving priority to long-service employees or to transfer opportunities making training a condition of relocation to other plants of the same employer.[57] In a few situations the training is for re-employment outside of the enterprise.[58]

The liberal availability of federal training funds has produced the relatively new context of union training to meet shortages for "entry-level" jobs. At approximately full employment a major source of manpower for shortages at this job level lies in the disadvantaged ethnic groups otherwise out of the labor market or only in it on the margin. Training in this situation is aimed as much at the work discipline essential for holding a job as it is at acquiring specific skills. Prominently identified with this use of training have been local units of the Building Service Employees, Hotel and Restaurant Workers, Laborers, and the National IUE and UAW. Previously noted has been the training for manpower shortages by the maritime unions. The union associated with this type of training aims at maintaining

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57. International Association of Machinists, *Meeting the Problems of Automation Through Collective Bargaining* (Washington: IAM, 1960), pp. 17-20.

58. George P. Shultz and Arnold R. Weber, *Strategies for the Displaced Worker Confronting Economic Change* (New York: Harper and Row, 1966), Ch. 6.

employment in the industry, thereby maintaining union membership and conserving its power as an institution.[59]

There is a special case in which the industrial union seeks to restrict training. This is where a government program appears to subsidize training for a "runaway" nonunion employer competitive with union employers. Making the training of a new work force virtually costless for the runaway employer government-financed training, the union argues, undermines union standards. Two apparel trades unions, the Ladies' Garment Workers and the men's clothing workers (ACWA), have been especially critical of MDTA programs on this count, but an amendment to the law seems to have met the criticism.[60]

Apprenticeship is not uncommon in industrial unions or in factories. There are in fact more apprentices in manufacturing (of course, there are also more employees) than there are in contract construction, although there are more establishments with apprentices in contract construction.[61] It is just possible--the facts are not available--that the dynamic growth section of *craft union* apprenticeship is to be found in the integrated establishment, as the high apprenticeship activity in the electrical, pipe-fitting, and machinists' trades suggests. But the emphasis and purposes of apprenticeship in the craft and industrial union situations are rather different. In the craft union, apprenticeship as we have seen is essentially--even if not exclusively--a method of regulating the labor supply for the craft. By contrast the industrial union is not suited for a market-wide, labor supply control function because:

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59. "Unions Widen Direct Role as Job Training Sponsors," *AFL-CIO News*, December 17, 1966; U.S. Department of Labor, *Trade Unions and the MDTA* (Manpower Administration, Washington: U.S. Government Printing Office, 1966); "1500 Construction Laborers Up-Grade Skills," U.S. Department of Labor Release 7445, October 17, 1966; "Auto Workers Union Sponsors On-the-Job Training for 2000 Unemployed," U.S. Department of Labor Release 8014, December 5, 1966; Robert R. Cooney, "Arming the Unemployed with Skills," *AFL-CIO American Federationist* (May 1966), pp. 14-15; "Training Program Finds Better Jobs for Workers," *Catering Industry Employee* (Hotel & Restaurant Employees and Bartenders International Union, August 1966), p. 17.

60. *Justice* (International Ladies' Garment Workers' Union), September 15, 1963, p. 10; International Ladies' Garment Workers' Union, *Convention Proceedings* (New York: ILGWU, 1965), pp. 81 ff.

61. U. S., Bureau of Apprenticeship and Training, *Training of Workers in American Industry* (Washington: U.S. Government Printing Office, 1962), pp. 63, 65.

(1) Its members commonly work at jobs which require little training.
(2) The factory industrial union does not operate a closed shop--the workers join the *union* after employment.
(3) Industrial union apprenticeship is integrated into the *internal* labor market of the firm through seniority and job rights in lower-rated jobs. Craft union apprenticeship is integrated into the *external* labor market of competitive firms.
(4) The industrial union takes the employer's job structure as given, whereas the employers of craftsmen take the union-imposed job structure as given.
(5) While the initiative for establishing apprenticeships for particular jobs is likely to come from the union, the subsequent administration of the apprenticeship is under the direction of management.

The upshot is that apprenticeship in the factory industrial union environment is primarily a training program; apprenticeship in the craft union serves primarily a labor supply control function and only secondarily a significant training function.[62]

The industrial union deals with training in the first instance as a problem in the direct control of wages and not as in the craft union through control of the labor supply. The industrial union has neither the resources nor the interest to control the labor supply--with the exceptions noted. It seeks to fix the price of labor "leaving supply and demand to adjust themselves,"[63] and accordingly approaches

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62. This section owes much to: George H. Hildebrand, "External Influence and the Determination of the Internal Wage Structure," *The Internal Wage Structure*, by J. L. Meij (Amsterdam, The Netherlands: North-Holland Publishing Co., 1963); George W. Taylor, "Wage Determination Process," *New Concepts in Wage Determination*, by George W. Taylor and Frank C. Pierson (New York: McGraw-Hill, 1957). See also Industrial Relations Research Association, *Proceedings*, Session on "Information, Mobility and Adjustments in a Changing Labor Market: (Madison, Wis., 1965). On industrial union apprenticeship specifically see: Bureau of National Affairs, *op.cit.*, "Douglas Upgrades Apprenticeship," *Business Week*, January 8, 1965, p. 80; Report of Skilled Trades Department, United Automobile Workers, *Convention Proceedings*, 1966, Part 3, p. 138.

63. Turner, *Trade Union Growth, Structure and Policy*, p. 138.

training primarily as a problem affecting the price of labor, not as a mechanism for the control of supply. Industrial union "control contemplates," as Solomon Barkin, an industrial unionist, says, "the regulation of the rate of pay."[64]

There are minor ways in which the industrial union pursues a labor supply control policy. Already noted is the special case of training for the runaway shop employer. In addition the union will adopt policies with immediate labor supply effect, as in the regulation of overtime. If the industrial union forces the employer to incur uneconomical training costs, as, for example, setting too high a wage for learners, this too will have labor supply consequences. But, on balance, the industrial union does not seem to have used training in this way.

In the factory-industrial union environment the primary responsibility for training lies with management. The union employs a defensive strategy surrounding training with restrictions, if its effect appears to downgrade jobs and rates, and encouraging training if its effect appears to upgrade earnings opportunities.

The non-factory industrial union, as in hotels and restaurants and building service, is differentiated from the factory industrial union because: (1) the non-factory union is likely to assume the principal role in training especially for manpower shortages in the characteristic entry-level jobs which predominate in its jurisdiction, and (2) the training is aimed at a multi-employer local labor market rather than for a single employer. The union training interest in this case is in large part centered on maintaining employment opportunities in its jurisdiction and in the process maintaining itself as a going concern.

SOCIAL POLICY

The discussion thus far has centered on training in the union's scheme of sectional economic interests. But the union in every country of the world and the United States specifically is also a social movement with social policy interests that reflect a conception of the good society. It is essential to recognize that union policy on training takes its direction from both social policy interests and pressure group economics. In the words of the chairman of the AFL-CIO's Committee on Education,

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64. Solomon Barkin, "Trade Union Attitudes and Their Effect Upon Productivity," *Industrial Productivity* (Champaign, Illinois: Industrial Relations Research Association, 1951)--a very instructive article.

> Labor's concern is not only to act as the spokesman for the millions of men and women who are in need of a system of vocational training that can adequately meet the changing job requirements, but, moreover to act as responsible citizens who clearly recognize that training for work is indispensable for attaining the economic and social goals of our democratic society.[65]

The labor movement sees education and training in the context of full employment as instruments of a "rational labor market policy" which also include "an effective employment service oriented to the needs of a labor market that is not just local in character," a system of adequate unemployment compensation, relocation allowances and area redevelopment activities.[66] The problems which education and training will have to solve are:

> How to train youth for entering employment in a rapidly changing economy; How to teach new skills to workers whose jobs are lost because of technological changes; How to prepare inexperienced and untrained young workers who have not completed school; How to improve teacher training; How to keep abreast of ever-changing technical progress.[67]

AFL-CIO policy on education and training figure in its interest in "equality of opportunity for all citizens, regardless of race, color, creed, or national origin."[68] The AFL-CIO has supported legislation to outlaw trade union discrimination and discrimination in apprenticeship opportunities. A Civil Rights Department in the federation implements this objective directly with affiliated unions.[69]

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65. Peter Schoemann, *Changing Needs of Vocational Education* (mimeo, Washington: AFL-CIO, 1962), p. 1.

66. Andrew J. Biemiller, Statement to U.S. Senate Committee on Labor and Public Welfare, Subcommittee on Employment and Manpower (mimeo), June 19, 1963, p. 15.

67. Schoemann, *Changing Needs of Vocational Education*, p. 3.

68. George Meany, Statement to U.S. House of Representatives Committee on Education and Labor, Special Subcommittee on Labor (mimeo), August 21, 1961, p. 1.

69. American Federation of Labor-Congress of Industrial Organizations, *A Common Goal--Equal Opportunity* (Pub. No. 8D, Washington: AFL-CIO, 1966). See also "Equal Opportunity in Apprenticeship," *Selected Readings*.

"American labor has played an important role in the democratization of education since the 1830's,"[70] and has been one of the historically significant factors in the establishment of a system of public education for young people preparing for work. Economic interest and social policy were both asserted in an AFL convention report in 1911 which Paul Douglas later judged to be of

> . . . really epoch-making significance because it caused the labor forces of the country to use their influence for a constructive program of vocational education . . . instead of confining their efforts to the negative and sterile policy of opposition.[71]

The report saw vocational education as the best investment which taxpayers could make "if the American workman is to maintain the high standard of efficiency."[72]

The Smith-Hughes Act providing for federal aid to the states for vocational education was passed in 1917, and by common consent the AFL "was one of the most important forces in the enactment."[73] But the labor movement soon became disenchanted with the administration of the act and maintained such an unremitting criticism as to prompt the appointment by President Roosevelt of an advisory committee to study the administration of vocational education before giving effect to the George-Deen Act passed in 1937 to complement the Smith-Hughes Act. The defects which the unions found in federally aided vocational education were enumerated in the course of the Advisory Committee's investigation as follows:

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70. Kahler and Hamburger, *Education for an Industrial Age*, p. 210.

71. Douglas, "American Apprenticeship and Industrial Education, p. 321.

72. *Ibid.*

73. Lloyd E. Blauch, *Federal Cooperation in Agricultural Extension Work, Vocational Education, and Vocational Rehabilitation*, U. S. Office of Education Bulletin No. 15, 1933 (Washington: U. S. Government Printing Office, 1935), pp. 60-61; see also Paul H. Douglas, *op.cit.*, p. 293; Kahler and Hamburger, *op.cit.*, p. 212.

Failure to encourage or allow labor participation in the development of the program.

Disregard of the apprentice method of training and, hence, creation of substandard craftsmen.

Failure to balance trade training programs to personnel needs of the industry, thus creating an artificial surplus.

Disregard of proper labor standards as to wages in placing trade school students and graduates.

Unconcern as to whether such placements displaced adult workers.

Domination of many vocational training systems by "chiseling" employers.

Participation of the vocational training system in strike-breaking activities for fugitive employers.

Complaisance on the part of educators toward the use of Federal funds to train new sources of labor for migratory industries.

Training workers under so-called vocational education plans for mere routine processes.

Permitting student employees to work on a production basis without wages.

Encouraging boys to go into trade courses to the detriment of their general education.

Lack of co-operation with union apprentice training programs.

Failure to supply trade extension classes for union journeymen already employed and seeking to keep abreast of technical changes in a trade.

Susceptibility of vocational educators to employer propaganda, such as the cry of labor shortage, without regard to the real facts as to shortage or whether the schools can actually do anything about it, or whether another depression will hit us before the "shortage" could be met.

Failure to give trade school students any instruction on subjects which would prepare them for a proper understanding of industrial life.

Inculcation of anti-union propaganda and fostering of employer-dominated philosophies that tend toward company unionism, such as seen in movements such as the Future Craftsmen of America.[74]

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74 John Dale Russell and Assoc., *Vocational Education*, The Advisory Committee on Education, Staff Study Number 8 (Washington: U.S. Government Printing Office, 1938), pp. 258-59.

The labor movement continued to disparage vocational education up to the Kennedy-Johnson active manpower policy but in somewhat more moderate terms as the changing political environment and union growth made it possible for the unions to have a direct say in local vocational education programs. Singled out for criticism in the current period have been the fractionalization of skills, the training of surplus workers, the insensitivity to labor market trends, the obsolescense of curricula, teachers, teaching methods and facilities, the inadequacy of labor representation and consultation, the disparity between vocational and general education to the disadvantage of the former and the inferior quality of civic education in the vocational education curriculum. Significantly missing from the later criticism are the charges of employer domination, anti-unionism, and working at production work without pay.[75]

Not only the AFL-CIO but particular unions assert and act on social policy interests. The Ladies' Garment Workers' Union has been active in promoting vocational schools in New York and Philadelphia to train skilled workers for the industry. The Hotel and Restaurant Workers have sponsored a food trades vocational school in New York City.[76] The IUE in undertaking a Labor Department contract for on-the-job training for 1500 "disadvantaged persons" said, "The IUE is in the war against poverty, ignorance, discrimination with a total commitment."[77] The UAW has undertaken a similar contract in which one-fourth of the trainees "will be selected from the severely disadvantaged."[78] The "main purpose" of the Building Service Employees in its Custodial Training Project "is to secure jobs for unemployed workers."[79]

When the union recruits trainees for entry-level job shortages in its jurisdiction from marginal participants in the labor force, it is serving both a social policy interest in the anti-poverty program and a sectional interest in maintaining employment and union membership.

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75. Michigan State University, *Labor and Vocational Education*, Conference Proceedings, East Lansing, September 8-10, 1965.

76. Slichter *et al.*, *The Impact of Collective Bargaining on Management*, p. 71.

77. U.S. Department of Labor Release 7224, May 23, 1966.

78. U.S. Department of Labor Release 8014, December 5, 1966.

79. Robert B. Cooney, "Arming the Unemployed with Skills," p. 14.

CONCLUSIONS

Union interests in training are shaped by interplay among the following factors: (1) union type, i. e., craft or industrial; (2) the level of union government, i. e., local, national or federation; (3) scope of the interest, i. e., sectional or social policy; (4) employment status of trainees, i. e., prior to or concurrent with employment; (5) the channel through which the union interest is asserted, i. e., collective bargaining, unilateral union action, or legislative enactment; (6) the problems of the labor market and the economy and the public policy thrust up by these problems.

The major training interest of craft unions is in apprenticeship which is utilized primarily to regulate the labor supply in order to preserve its high wage structure from attrition. There is an important secondary interest in training concurrent with employment utilized to upgrade earning opportunities. The industrial unions or the non-craft unions have no primary interest in apprenticeship, and their interest in other forms of training is to increase earnings opportunities or to mitigate wage and job losses.

The craft union is as likely to utilize government to enforce its interests as is the industrial union. It is however more likely to utilize local and state government. The industrial union is likely to put greater emphasis on social policy than is the craft union. But both give priority to their sectional interests.

Historically the distance between craft and industrial unionists, while it still exists, has been norrowed by the industrialization of many of the former craft-dominated national unions and by the pervasiveness of the government role in the society. The craft and industrial union interests are conditioned by differences in the ethnic composition of their membership. The Negro union member is an important political force in virtually all of the industrial unions; he is politically insignificant in most craft unions.

The closer the union interest is to the workplace, the more restrictive is the outlook on training. Thus the craft union rank-and-file membership and local union officers are more likely to take a restrictive position on training than is the national union leader. The pressure to relax restrictions on admission to the union or to apprenticeship, or to plan training in relation to demand comes from the national and the federation--rarely from local union groups. The federation view of training is the most expansive, both in liberalizing restrictions and in stressing social policy over sectionalsim. Craft union restrictiveness is almost exclusively directed toward limiting pre-employment training. Training in the crafts concurrent with employment is vigorously supported.

The problems of structural unemployment, poverty, civil rights, and economic growth, combined with the availability of public funds for training have generated virtually new union interests in training. On balance, these interests are expansionary. Specific examples have already been alluded to. Here it may be sufficient simply to enumerate the broad categories of training that have recently become more significant in a union context and are worth further study:

1. Apprenticeship training for new work technologies in factory employment;
2. Training for workers' readjustment as a result of displacement;
3. Training disadvantaged groups to meet shortages in entry-level jobs;
4. Training to upgrade skilled craftsmen for new technolgies; and
5. Training for upgrading in maritime offshore employment.

GLOSSARY OF UNION NAMES CITED IN TEXT

ACWA: Amalgamated Clothing Workers of America

AFL-CIO: American Federation of Labor--Congress of Industrial Organizations

American Radio Association: same

Building Service: Building Service Employees' International Union

Carpenters: United Brotherhood of Carpenters and Joiners

Die Sinkers: International Die Sinkers' Conference

Hotel and Restaurant: Hotel & Restaurant Employees and Bartenders International Union

IBEW: International Brotherhood of Electrical Workers

ITU: International Typographical Union

IUE: International Union of Electrical, Radio and Machine Workers

Laborers: Laborers' International Union of North America

Ladies' Garment Workers' Union: International Ladies' Garment Workers' Union

Lithographers and Photoengravers: Lithographers and Photoengravers International Union

MEBA: National Marine Engineers' Beneficial Association

NMU: National Maritime Union of America

Operating Engineers: International Union of Operating Engineers

Painters: Brotherhood of Painters, Decorators and Paperhangers of America

Plumbers and Steamfitters: United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada

Pressmen: International Printing Pressmen and Assistants' Union of North America

Roofers: United Slate, Tile and Composition Roofers, Damp and Waterproof Workers' Association

Seafarers: Seafarers' International Union of North America

Sheet Metal Workers: Sheet Metal Workers' International Association

SIU: Seafarers' International Union of North America

UAW: International Union, United Automobile, Aerospace and Agricultural Implement Workers of America

SECTION II

Karl Magnusen
James Crabtree

A SURVEY OF WISCONSIN BUILDING TRADES JOINT APPRENTICESHIP COMMITTEES

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While the general role of apprenticeship committees is well known there is little information concerning the internal structure and functions of such committees. In an attempt to remedy this situation, a mailed questionnaire survey was conducted among building trades committees registered with the Apprenticeship Division of the Wisconsin Industrial Commission. Only these committees were surveyed because they represented a majority of apprenticeship committees in Wisconsin and because such a limitation increased the homogeneity of the study. Details of the responding committees compared to the total population of building trades committees are shown in Table 1.

Table 1: Distribution of the Survey Population and Responding Committees by Trade [a]

	All Committees		Responding Committees	
	(1)	(2)	(3)	(4)
Trade	Number	Per Cent (of N=131)	Number	Per Cent (3) of (1)
Carpentry	20	15	12	60
Electrical construction	18	14	13	72
Painting (and decorating)	13	10	11	85
Plumbing	30	23	25	83
Sheet metal	17	13	16	94
Steamfitting	10	8	7	70
Trowel trades (bricklaying, plastering, cement finishing)	17	13	12	71
Miscellaneous construction trades (glazing, iron working, lathing)	6	4	5	83
Totals	131	100	101	77

[a] All percentages in this table, and subsequent tables, have been rounded to the nearest whole per cent.

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The survey provided information concerning the following subject areas: (1) committee structure; (2) member perceptions of committee functions; (3) apprentice-journeyman ratios; (4) committee selection procedures; (5) committee supervision of apprentices; (6) committee activities in influencing related instruction; and (7) judgments by committee members about changes in apprenticeship programs. Unless otherwise specified, the percentage figures cited in the text are based on a total N of 101 committees. There was no significant variation in reponse by trade.

COMMITTEE STRUCTURE

The data in Table 2 indicate that the most frequent committee size at the time of the survey was six members. The predominance of six-member committees corresponds very closely to the "ideal"

Table 2: Distribution of Committees by Membership Size

Membership Size	Committees	
	Number	Per Cent
4	27	27
6	58	58
8 or more	16	16
Totals	101	100

committee size of five members and seems to be a natural solution for the formation of a committee which must be equally represented by labor and management subgroups.[1] As might be expected, union and employer association membership were dominating variables in committee organization. In ninety-six per cent of the committees, the employee members belonged to a union, and in seventy-nine per cent the employer members belonged to some type of contractors' association. According to the data in Table 3, committee originated primarily through the efforts of union or employer groups or through the efforts of vocational school representatives.

1. For a summary of studies concerning the effect of group size on committee effectiveness refer to Alan C. Filley, "Committees in Organization," (Madison: The University of Wisconsin, School of Business, 1966). (Mimeographed.)

Table 3: Distribution of Committees by Source of Idea for Committee Formation

Source of Idea	Committees	
	Number	Per Cent
Employer and union together	37	37
Vocational school representatives	21	21
Industrial Commission	10	10
Union	8	8
Industrial Commission and a vocational school representative	6	6
Employer	4	4
Not ascertained	15	15
	101	100

In no case was the Wisconsin Industrial Commission mentioned as the major source of committee formation, although this is consistent with the Commission's policy of utilizing school advisory committees as joint apprenticeship committees. [2]

2. Public schools in Wisconsin are required by statute to cooperate with the state's Industrial Commission and employers of apprentices to furnish such related instruction for apprentices as may be found necessary by a joint labor-management advisory committee. These advisory committees are not mentioned in Wisconsin's apprenticeship law but are mentioned in the state's vocational education legislation. However, there is no statute which requires the Commission to be limited solely to school advisory committees for recommendations concerning apprenticeship. In fact, the Commission may encourage the development of joint apprenticeship committees advisory to itself. It might be expected that the apparent administrative cloverleaf between school advisory committees and joint apprenticeship committees could become unwieldy and promote duplicate efforts between the Commission and school boards. However, the Commission does not create new committees if those which exist in the schools meet its requirements. As of July, 1966, apart from a General Apprenticeship Policy Advisory Committee which reports only to the Industrial Commission, all state and area joint apprenticeship committees were also school advisory committees. (There are, of course, school advisory committees which represent nonapprenticeable occupations, which report only to the vocational schools, and are not joint apprenticeship committees).

Committees in operation at the time of the survey had been in existence for a relatively long period of time, most frequently nineteen or twenty years. Thus, most of the formation activity took place at the end of World War II in response to the post-war boom in apprenticeship training. Only thirteen per cent of the committees were formed in the last ten years, probably reflecting the secular decline in new registrations during that time.

The jurisdictional size of the committees in terms of journeymen and apprentices was not particularly large. At any one time during the year preceding the survey, most committees represented fewer than 100 journeymen and, as the data in Table 4 indicate, fewer than fifteen

Table 4: Distribution of Committees by Numbers of Apprentices Which Committees Reported in Their Jurisdictions at the Time of The Survey

Number of Apprentices	Committees	
	Number	Per Cent
1 to 4	21	21
5 to 9	24	24
10 to 14	14	14
15 to 19	19	19
20 or more	16	16
Not ascertained	7	7
Totals	101	100

apprentices. The most frequent (modal) number of apprentices per committee fell in a range between five and nine. With the exception of the plumbing trade, most apprentices were indentured to the committee itself and then subindentured to individual employers.

A majority (sixty-six per cent) of the committees elected employer members to be committee chairmen. As the data in Table 5 indicate, these chairmanships were semi-permanent; that is, once elected to such a position, the chairman enjoyed a certain longevity of office. Aside from this, however, ninety-six per cent of the committees reported that the chairman held no special power or privileges. It should be mentioned that although meetings may be called either by the chairman or by the local vocational school director, the vocational school directors only infrequently requested meetings to be held despite the fact that most (seventy per cent) of the committees met in vocational school facilities.

Table 5: Distribution of Committees by Term of Office for Chairmen

Term of Office	Committees	
	Number	Per Cent
1 year	27	27
2 years	8	8
3 years	3	3
Semipermanent; no definite term of office	51	51
Not ascertained	11	11
Totals	101	100

Joint apprenticeship committee meetings were, in any case, held reather infrequently. According to the data in Table 6, only thirteen per cent of the committees met monthly whereas sixty-eight per cent met fewer than seven time per year. Similarly, the data in Table 7 show that committees generally averaged only 4.7 meetings during the year preceding the survey. Committees in the sheet metal trade averaged the most meetings (6.0) and the trowel trades the least (2.4). Several observers have mentioned that a measure of committee effectiveness

Table 6: Distribution of Committees by Numbers of Meetings Which Committees Reported Held During the Year Preceding the Survey

Number of Meetings Held	Committees	
	Number	Per Cent
0 to 3	16	16
4 to 6	52	52
7 to 9	8	8
10 to 11	9	9
12 or more	13	13
Totals	101	100

is the number of meetings which it has per year. Yet, a comparison of completion rates with meetings per year and meetings per apprentice indicated that the latter may be a better measure of committee effectiveness.

Table 7: Total Numbers of Meetings Held During the Year Preceding the Survey as Reported by Committees, and Meetings per Committee, by Trade[a]

	Number of Committees	Number of Meetings	Per Cent of Meetings	Meetings Per Committee
Plumbing	30	164	26	5.5
Sheet metal	17	102	16	6.0
Electrical construction	18	100	16	5.6
Carpentry	20	75	12	3.8
Painting	13	65	10	5.0
Steamfitting	10	45	7	4.5
Trowel trades	17	44	7	2.4
Miscellaneous trades	6	28	4	4.7
Totals	131	623	100	4.7

[a]Compiled from survey data and Industrial Commission records.

The meetings themselves seem to have been rather informal. Most of the committees used either the nominal procedures outlined in the *Apprenticeship Manual* or some form of Roberts Rules of Order as guidelines for organizing their meetings. However, more than one-fourth (twenty-seven per cent) of the committees used no particular meeting rules at all. In terms of voting procedures, the committees used a simple majority system which was quite flexible. If a member was absent from a meeting, the other persons in his subgroup could generally speak and vote for him.

In order to determine the communication which committees had with outside sources of information, committees were asked to report visitations by consultants from state agencies or by persons generally interested in apprenticeship. During the year preceding the survey, sixty-seven per cent of all committees were visited at least once by persons who were not regular committee members. The Wisconsin Industrial Commission was most active in this respect; its six field men contacted approximately one-half (forty-eight per cent) of the committees. A representative of the Federal Bureau of Apprenticeship and Training visited one-third of the committees, while representatives of the vocational schools visited less than one-fourth (twenty-three per cent) of

the committees. The latter is surprising in view of the advisory function of the committees in the local vocational schools.

It is also interesting to note that committees which had fewer than four meetings per year were proportionately more likely to have had visitors than those committees which met more than seven times per year. Perhaps the committees which meet infrequently are in the greatest need of advice. At least the consultants did not seem to be visiting only those committees which had convenient meeting schedules. Although it would seem useful for committees in the same trade to pay visits to each other or to invite persons who could give them new ideas or information, only one committee reported that it had been visited by a representative of another joint apprenticeship committee. Since committee members serve without pay and on their own time, they may not want to visit other committees.[3] Or, the establishment in 1962 of the practice of bienniel state apprenticeship conferences may have reduced the need for visitors from similar committees.

Committees seldom had financial support. In fact, according to the data in Table 8, seventy-eight per cent completely lacked a source of financing. Those committees with finances used the money to cover basic costs of committee operation. Promotional programs such as "best apprentice" contests were virtually nonexistent; however, some attention was given to the purchase of special educational materials.

Table 8: Distribution of Committees by Whether or Not They Had a Source of Finances.

Had a Source of Finances	Committees	
	Number	Per Cent
Yes	22	22
No	79	78
Totals	101	100

The source of committee funds was varied. Joint employer-union contributions were common in the electrical and steamfitting trades, while employer contributions alone were more typical in the carpentry, painting, and sheet metal trades. The union was most apt to carry the burden of

3. It would be of interest to know the precise method of member attachment to the committees, as well as the motivations for committee participation. The pretest questionnaire attempted to obtain such information but the relevant items received too high a level of non-response to be included in the final questionnaire form.

committee financing in the plumbing trade. The lack of consistency in providing financial assistance, and for that matter, the entire question of committee finances, has led some committees to suggest that a joint contribution should be required by the union and all employers in a committee's jurisdiction who might hire apprentices--whether or not they actually do so. Committees posing this suggestion seem to feel that not only would the committees obtain financial support through such a method, but that employers who do not train apprentices would have an incentive to do so if they wanted a return on their money ontribution.

Although the committees supposedly play a vital labor narket function, they did not seem to possess detailed records or information in that area. While committees could give specific figures on the numbers of active apprentices they had and how far along the apprentices were in their indentures, they had less information on journeymen.[4] Furthermore, the committees apparently had little knowledge of completion rates or the amount of "back door" entry into their trades. For example, a ninety per cent majority of the committees (N=98) estimated that more than eighty per cent of the apprentices who had been in their jurisdictions had completed a full period of training. However, the completion rates for individual building trades in Wisconsin seem to indicate that the committees have overstated the actual completion rates. Similarly, a sixty-eight per cent majority of the committees (N=98) estimated that more than one-half of all journeymen in their jurisdictions had been through apprenticeship training. However, this also appears imprecise because apprenticeship in Wisconsin has provided less than one-half of its skilled labor.[5] Finally, and perhaps most importantly, the committees did not usually have information on employers who: (1) were training apprentices; (2) had in the past trained apprentices; or, (3) had never trained apprentices. This basic type of labor market information would probably be helpful to the committees in estimating future demands for apprentices.

That committees need better labor market information may be emphasized in the finding that, despite general excesses of apprenticeship applications, a substantial twenty-seven per cent of all committees (N=73) which reported openings stated that they had not filled all available

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4. The numbers of journeymen accounted for by the committees are given in Table 10.

5. G. Soundara Rajan, *A Study of Registered Apprenticeship Programs in Wisconsin*, (Madison: Center for Studies in Vocational and Technical Education, 1966), p. 223.

positions.[6] The reasons for this imbalance and its extent over time could not be obtained from the data. The demands for better labor market information have not, however, gone unheeded. For example, the Wisconsin Industrial Commission currently has a data-processing project under way that will provide the committees with better employer information.[7]

COMMITTEE FUNCTIONS

Although committee functions are stated in the of the Wisconsin Industrial Commission, one goal of the study was to ask the committees how they perceived the relative importance of the functions in order to develop an over-all ranking of such functions and to identify committee differences by trade. The results indicated, however, that the perceptions that committees had of their functions varied little by individual trade, by number of meetings held, or by the number of apprentices per committee. The data in Table 9 indicate a composite ranking, by all trades, of the functions which the committees felt to be their most and least important. Although the two sets of rankings are not perfectly reversed, there is generally a close agreement between what does and does not seem to be perceived as relatively important.

As a general pattern, committees tended to think of their most important functions as: (1) selecting and recommending men who want to apprentice; (2) determining qualifications of employers who want apprentices; (3) interviewing the apprentice in front of the committee to check on his progress; (4) reviewing work standards and recommending changes in related instruction; and (5) deciding whether time-credit should be given to an apprentice applicant for past training or experience.[8]

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6. While it may be hypothesized that apprenticeship openings were unfilled for lack of qualified applicants, the Rajan study found that employers generally felt applicants to be qualified. See Rajan, *op. cit.*, p. 203.

7. Although one can point to a number of problems with apprenticeship training in Wisconsin, one must also be impressed with the approach taken by Mr. Charles T. Nye, the present Director of the Industrial Commission's Apprenticeship Division. Mr. Nye became Director in 1960.

8. *Apprenticeship Credit for Previous Experience*, United States Department of Labor, Apprenticeship Training Service (Washington: Government Printing Office, 1948).

Table 9: Ranked Numbers of Times Committees Mentioned a Particular Function as One of Their Five Most Important or Three Least Important Functions.

Functions	Most Important		Least Important	
	Number of Responses[a]	Rank	Number of Responses[a]	Rank
Selecting and recommending men who want to apprentice	78	1	9	8
Determining qualifications of employers who want apprentices	63	2	7	10
Interviewing the apprentice in front of the committee to check on his progress	53	3	6	11
Reviewing work standards and recommending changes in related instruction	47	4	6	11
Deciding whether time-credit should be given for past training	41	5	9	8
Placing apprentices who have been laid off	38	6	16	7
Checking to see that indentures are correctly written and enforced	34	7	29	3
Settling grievances	33	8	19	5
Reviewing apprentice work records	29	9	2	13
Estimating the future demand for skilled workers in the trade	28	10	17	6
Determining what percentage of the journeyman rate should be paid to apprentices	15	11	47	1
Enforcing the apprentice-journeyman ratio	14	12	20	4
Rotating apprentices between shops according to some schedule	7	13	35	2

(a) One hundred committees cited most important functions and seventy-eight committees cited least important functions. Not all of these committees necessarily mentioned five most or three least important functions.

Functions that seemed to fall into the middle range of importance included: (6) placing apprentices who have been laid off; (7) reviewing apprentice work records; (8) estimating the future demand for skilled workers in the trade; (9) settling grievances; and, (10) enforcing the apprentice-journeyman ratio. Finally, the committees thought of their least important functions as: (11) checking to see that the indentures are correctly written and enforced; (12) rotating apprentices between shops according to some schedule;[9] and (12) determining what percentage of the journeyman rate should be paid to apprentices.

If it is assumed that perceived functions correspond to accomplished functions, then the above ordering provides some initial insights into committee operations. To begin with, the fact that the committees apparently considered their most important functions as dealing with the selection of apprentice candidates and employers is consistent with the Wisconsin Industrial Commission's statement in the *Apprenticeship Manual* that the most important committee function is to recommend approval or disapproval of each new apprenticeship. Similarly, the committees and the Commission also seem to have agreed that detecting needed changes in related instruction is important. On the other hand, whereas the Commission feels that committees could be of particular service in the supervision of apprentices to ensure quality training, the committees have reported that checking to see that indentures are correctly written in the first place, and then subsequently enforced, was not one of their major activities. This is particularly surprising because, it will be recalled, a majority of the apprentices are indentured directly to these joint apprenticeship committees. Additional information concerning committee supervision of apprentices will be discussed in a later section.

An initial view of the committees, then, indicates that their functional scope has been limited for the most part to the selection of persons wanting to participate in the apprenticeship program. Little seems to have been accomplished in the way of apprentice supervision or promotional activity. Additional evidence relating to committee operations will be cited following a discussion of the apprentice-journeyman ratio.

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9. Eighty-seven per cent of the committees (N=98) stated that they did not have an apprentice rotation system. Of the few committees that did have such a system, a majority did not follow any fixed rotation schedule. The lack of rotation plans probably stems from the administrative difficulties involved; or, as one committee reported, "Job rotation is not encouraged because trade secrets are communicated to competitors."

APPRENTICE-JOURNEYMAN RATIOS

The apprentice-journeyman ratio, found in most building trade agreements, is a device used to protect the jobs and wages of craftsmen by limiting the number of journeymen entering the trade. The ratio is usually applied to individual employing establishments instead of over-all bargaining areas. Committees (N=88) most commonly designated the ratio as 1 to 3 (twenty-six per cent) or 1 to 5 (twenty-two per cent).

A surprising degree of controversy has surrounded the use of the ratios. Unions have claimed that employers use fewer apprentices than the ratios allow whereas employers have claimed that the ratios prevent them from hiring apprentices. Interestingly, both such arguments may be appropriate depending upon how one chooses to interpret the ratio. On the one hand, since very few Wisconsin employers have trained any apprentices, it is clear that most employers have not had as many apprentices as the ratios would potentially allow.[10] On the other hand, as applied to individual shops having apprentices, the ratios may actually be quite restrictive. This, again, depends on the interpretation of precisely how the ratio should be applied. As examples, a 1 to 5 ratio may mean that any employer with one legal apprentice and five journeymen must wait until he has ten journeymen before obtaining a second apprentice; or, a 1 to 5 ratio may mean that when an employer has one apprentice and five journeymen he may then hire a second apprentice *before* hiring additional journeymen. While the latter example would not necessarily be restrictive, the former example most certainly would.

However, not all of the problems with ratios can be attributed to difficulties of interpretation. Other difficulties may exist as well. For one thing, ratios have not consistently accounted for differences in employer abilities to train apprentices. That is, employers having conditions appropriately suited for the training of apprentices and possessing journeymen skilled in teaching the trade to apprentices, generally have been treated no differently by ratios than employers having conditions less suited to training. In this respect, when committees were asked whether or not an employer could ever have more

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10. State officials estimate that between eight and twenty per cent of Wisconsin employers train apprentices. The Industrial Commission currently has underway a project which will allow refinements of such estimates. It might also be mentioned that sixty-seven per cent of the committees (N=88) reported that most employers in their jurisdictions had fewer apprentices than the ratios allowed.

apprentices than the ratios allowed, one-half of the committees (N=88) said they would make such an allowance and one-half said they would not.[11] However, not even a single committee reported that an employer in its jurisdiction actually had more apprentices than the applicable ratio allowed.

Furthermore, the ratios typically have not been changed to reflect or anticipate changes in the labor market. A fifty-eight per cent majority of the committees (N=72) reported that they had never changed their apprentice-journeyman ratios during the entire existence of their committees. Apparently committees have kept the same ratios and merely attempted to make adjustments in the rate of apprenticeship after a labor shortage or surplus developed.

Table 10: Ratios of Total Numbers of Apprentices and Journeymen in Committee Jurisdictions by Trade(a)

Trade	Number of Apprentices(b)	Number of Journeymen	Ratio of Apprentices to Journeymen
Carpentry	100	1,575	1-16
Electrical construction	365	2,289	1-6
Painting	158	1,839	1-12
Plumbing	323	2,516	1-8
Sheet metal	302	2,144	1-7
Steamfitting	202	1,230	1-6
Trowel trades	73	1,072	1-15
Miscellaneous trades	40	512	1-13
Totals	1,563	13,177	1-8.5

(a)Data are based on figures reported by the committees on the questionnaires. Ninety-three per cent of the committees (n=101) gave specific numerical reports on apprentices while only seventy-four per cent of the committees (N=97) gave specific numerical reports on journeymen.

(b)According to Industrial Records dated November 1, 1965, there were 2,447 apprentices in the above trades.

11. Committees which said they would allow an employer to have more apprentices than allowed by the ratio, most frequently cited the following condition as prerequisite: "If there is much work and a shortage of journeymen."

Finally, the ratios have not necessarily affected the rate of "back door" entry into the trades. As the data in Table 10 indicate, the *actual* ratio of apprentices to journeymen in this survey was 1 to 8.5. This actual ratio and the apprenticeship supply rates reported earlier suggest that either more journeymen have entered the trades than bargaining ratios allow or, alternatively, that fewer apprenticeships have been utilized than might actually be permitted. In reality, both conditions probably have been operating.

It is difficult to generalize about apprentice-journeyman ratios. However, recalling that "back door" entry may be substantial, that few employers train apprentices, and that ratios are usually applied to individual shops, it would appear that ratios may unfortunately restrict only those employers who formally *agree* to train apprentices. If one assumes the superiority of apprenticeship as a training device, then the ratios may hamper the efforts of committees to promote the use of that device.

COMMITTEE SELECTION PROCEDURES

The description of the selection activities used by committees points to some curious inconsistencies. The data in Table 11 indicate that committees reported an average of 4.8 apprenticeship openings per committee during the year preceding the study. Furthermore, of the committees (N=90) reporting openings, sixty-seven per cent had excesses of applicants.[12] At the same time, however, committees most frequently reported that selection occurred by an employer hiring a man he sent to the joint committee and which the committee then approved. Only eleven per cent of the committees (N=90) refused to grant an apprentice to an employer during the year preceding the survey and, at that, the refusals involved only ten employers.[13] It appears, therefore, that committees have merely been approving employer-selected applicants rather than utilizing established screening procedures. It must be recognized, to be sure, that committees frequently receive applications from persons

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12. Committees explained excess applications by the equally frequent replies that: (1) "The apprentice-journeyman ratio was filled;" and (2) "Business is good but employers just do not seem to want to hire more apprentices even when they could." As an administrative point, sixty-five per cent of the committees used some type of formal waiting lists for excess applications.

13. An employer who was deemed "unqualified" for an apprentice simply was one which did not operate primarily in the trade for which he wanted the apprentice.

Table 11: Number of Apprenticeship Openings Reported by the Committee During the Year Preceding the Survey, and Openings per Committee, by Trade.[a]

Trade	Number of Openings	Number of Committees	Openings per Committee	Rank
Carpentry	42	10	4.2	5
Electrical construction	66	12	5.5	2
Painting	37	9	4.1	6
Plumbing	93	19	4.4	4
Sheet metal	86	16	5.3	3
Steamfitting	33	5	6.6	1[b]
Trowel trades	39	10	3.9	7
Miscellaneous trades	18	5	3.6	8
Totals	414	86	4.8	

[a]Ninety committees actually reported having apprenticeship openings; however, four of the committees did not report the number of openings available. Those four committees were not included in the total number of committees in this table.

[b]This may be misleading in that one of the steamfitting committees, the Central Fox River Valley committee, represented a merger of six other committees not consequently included in the survey. Had these other committees been included instead of the CFRV committee, then the number of openings per committee for the steamfitting trade would be 3.3, or the *lowest* among the trades.

who apply indiscriminately to a number of trades at the same time. But, this practice does not free the committees from the obligation of properly screening all applicants.

Considering the selection procedure itself, committees relied primarily upon a personal interview before the committee and upon a testing program, according to the data in Table 12. However, the exact meaning of each of these primary devices varied greatly among committees.[14] For example, a majority (fifty-eight per cent) did not

14. Any selection device may be used provided it is applied consistently to all applicants.

Table 12: Ranked Numbers of Times Committees Mentioned Use of a Particular Apprentice Selection Factor

Factor	Number of Responses[a]	Rank
Personal interview before the committee	78	1
Written test scores	54	2
Years of education	43	3
Physical capability as judged by the committee	36	4
Application blank	26	5
Seniority on a waiting list	21	6
References	19	7
Subjects taken in school	19	7
Other, e.g., previous experience	12	9

[a]Ninety-six committees reported this information. Because some committees gave several responses, the numbers will not total ninety-six.

use any particular device to rate the apprentice or guide the interview. On the other hand, thirty-eight per cent of the committees reported that they used a standardized apprentice candidate evaluation chart provided by the Wisconsin Industrial Commission. The latter charts are based on a point system and each committee member rates the candidates on such factors as age, physical condition, education, test scores, and general impressions of ability. A majority of the committees did not use such charts because they felt that there was no objective method of awarding point values on the various factors. Given the obvious weaknesses in most rating devices, personnel experts point out that: (1) systematic rating devices are generally superior to informal impressions by raters; and, (2) training in the use of rating devices improves the skill of the rater.

The use of tests in apprenticeship selection enjoyed a much greater popularity than the use of evaluation charts. Seventy-seven per cent of all committees used test scores as one basis for selection, according to the data in Table 13, even though testing in the building trades did not become popular until 1958. Of the committees using tests, fifty-five per cent had them administered by the local vocational schools and thirty-three per cent used the Wisconsin State Employment Service for testing.

Table 13: Distribution of Committees by Whether or Not They Used Written Tests to Select Apprentices

Used Tests	Committees	
	Number	Per Cent
Yes	78	77
No	23	23
Totals	101	100

Unfortunately, there has been no unified system of apprenticeship testing in the state. For one thing, there has existed no single policy on the reporting of test scores. The Employment Service gives no actual test scores, reporting to the committees merely whether the candidate passed or failed the tests. The Commission has preferred this type of reporting on the grounds that committee members have not been trained in the interpretation of specific test scores; however, the Commission has not issued a formal written directive based on its feelings. In contrast, many of the local vocational schools have actually reported specific test results to the committees. In fact, the State Board of Vocational and Adult Education has, for some years, published a pamphlet entitled *Apprentice Testing* to aid committee members in interpreting test results.[15] Interestingly, the Commission did not know until recently that such a booklet was available to committees.

Survey results indicated that there also has been no single standardized battery of tests in use for apprentice selection. The Employment Service has typically used the General Aptitude Tests Battery, while the vocational school have used several types. For the categories below, the indicated tests currently are popular:

1. *Mental Maturity:* The tests used is the "New California Short Form Tests of Mental Maturity, Advanced '50 S Form." This is basically an intelligence test measuring verbal and numerical ability.

15. *Apprentice Testing,* Wisconsin State Board of Vocational and Adult Education (Madison, 1959).

2. *Mechanical Aptitude--Visualization:* The test used is the "Revised Minnesota Paper Form Board Test."
3. *Mechanical Aptitude--Comprehension:* The test used is the "Test of Mechanical Comprehension, Form AA."
4. *Manual Dexterity:* The test used is the "Purdue Peg Board."
5. *Vocational Interests:* The test used is the "Occupational Interest Inventory, Advanced Form A."

Other tests have been used as well, with the range covering the spectrum measures of "skill" to "aptitude" to "vocational interest" to "personality." Examples of these tests include: (1) the Otis Intelligence Test--Short Form; (2) the Wechsler Adult Intelligence Scale; (3) the Prognostic Test of Mechanical Abilities; (4) the Differential Aptitude Series; (5) the California Arithmetic Test; (6) the Ishihara Test for Color-Blindness; (7) the Kuder Preference Test; (8) the Minnesota Multiphasic Personality Inventory; (9) the Thurstone Temperament Schedule; and (10) the Humm-Wadsworth Temperament Scale. It should be noted that some of these devices are probably inappropriate as measures of apprenticeship ability in the first place; that some types--notably interest and personality tests--have been subjected to severe criticism as selection devices; that tests are of questionable value unless their results are properly interpreted; and, finally, that no test should be used without information on its validity in selecting from a particular group of applicants.

The variety of tests and the difference in reporting test results may not have helped the committees to understand their own testing programs. According to the data in Table 14, only twenty per cent of the committees using tests could list the specific tests which they required applicants to take. Consequently, one may speculate on the

Table 14: Distribution of Committees by Their Statements of Tests Required of Apprentice Candidates.

Statement of Tests	Committee	
	Number	Per Cent
"Aptitude"	36	40
"Interest"	7	8
"Standard Battery"	9	10
Listed specific tests	18	20
Not ascertained	19	21
Totals	89	100

degree to which committees can make a judgment regarding the candidates' performance on the tests. In addition, one might ask if a committee can appropriately decide whether a candidate has passed his Minnesota Multiphasic Personality Inventory?

Finally, there have existed no state-wide norms to provide validating information on all of the tests used. Norms which have been used include: (1) a national set of apprentice test norms used by the Employment Service; (2) norms developed in 1959 by Stout State College for tests cited in the *Apprentice Testing* booklet; and (3) miscellaneous norms developed by individual vocational schools. However, these norms may not be adequate themselves. For example, while individual vocational schools depend on the norms developed by Stout State College, such norms are currently seven to eight years old and may consequently be out of date.[16] Also, there is some reason to believe that Employment Service tests norms are lower than norms used by Wisconsin vocational schools on the same tests.[17] That is, a differential in the norms may exist because the former are based on data from all regions of the United States, including the South, while the latter are based only on certain Wisconsin data. Thus, it may be conceivable that a man might pass his tests at the Employment Service which he would fail at the vocational schools.

If tests are to be given at all, it would seem that their use should be much improved. Because of the "scientism" which surrounds selection tests, there is a real danger that inappropriate test results could become a substitute for more appropriate devices of a less "scientific" nature. At present, nonetheless, there is good reason to believe that tests, while popular, have not been particularly significant as selection devices in the committees. A majority (seventy-two per cent) of all joint committees using tests allowed a candidate to take the tests a second time if for some reason he failed them the first time.

COMMITTEE SUPERVISION OF APPRENTICES

Once an apprentice candidate is selected and formally indentured, the committee supervision of that individual does not, in theory, abruptly cease. In fact, an eighty-one per cent majority of the committees (N=98) reported making periodic evaluations of apprentices. Such

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16. *Counselor Handbook: Apprenticeship Testing--Norms and Profile Charts*, Wisconsin State Board of Vocational and Adult Education (Madison, 1959).

17. Interview with Mr. C. T. Nye, Director of the Apprenticeship Division of the Wisconsin Industrial Commission, at his office in Madison, July 14, 1966.

evaluations were reportedly made twice per year for each apprentice. According to the data in Table 15, the methods most frequently used to evaluate apprentices involved the review of time cards and grade reports from the related instruction program. Committee interviews with the apprentices ranked second as a means of evaluation; unfortunately, however, the questionnaire did not ask whether *all* apprentices were interviewed or only those having exceptional difficulty with the trade. Given the relatively few meetings held per year by joint committees, the latter interpretation seems most feasible.

Table 15: Ranked Numbers of Times Committees Mentioned Use of a Particular Apprentice Evaluation Device

Device	Number of Responses[a]	Rank
Time cards and grade reports from related instruction	63	1
Committee interviews with the apprentice	59	2
Informal reports by the employer	47	3
Informal reports by the journeymen who know the apprentice	46	4
Written check-tests given to the apprentice by the joint committee	15	5
Committee visits to see the apprentice while he is on the job	6	6

[a]Seventy-nine committees reported this information. Because some committees gave several responses, the numbers will not total seventy-nine.

Directly related to progress reports is the decision for a committee to recommend that an indenture be cancelled. However, only thirty-one per cent of the committees (N=88) reported making such a recommendation during the year preceding the survey. Rarely did the committees involved have to face such a task in more than one case per year. A degree of natural selection undoubtedly is at work in this respect; that is, individuals who are uninterested or not doing well in a particular trade probably leave voluntarily before being asked to do so by the committee. The data in Table 16 would seem to verify this.

Table 16: Ranked Numbers of Times Committees Mentioned a Particular Reason for Indenture Cancellation.

Reason	Number of Responses[a]	Rank
VOLUNTARY SEPARATIONS:		
Apprentice had no interest in the trade and quit	13	1
Apprentice dropped out of the trade and went back to other employment, to school, or went into the military service	10	2
INVOLUNTARY SEPARATIONS:		
Apprentice had a poor record of attending or completing related instruction	10	2
Apprentice had a behavior problem	9	4
Apprentice was a poor worker	5	5
Employer went out of business or otherwise laid off the apprentice	3	6
Employer did not work the apprentice at the trade for which the apprentice was indentured	1	7

[a]Thirty committees reported this information. Because some committees gave several responses, the numbers will not total thirty.

The reasons why apprentices become uninterested and drop out of a trade have been reported in the Rajan study.[18]

18. Rajan, *op. cit.*, pp. 180-197. The Rajan study found that apprentice dropouts left the program for the following reasons. One-third of the 269 respondents stated that they did so for reasons relating to their working conditions. "Employer bankruptcy" and "lay-offs" were cited by almost a fourth. Only one-sixth gave as their reason "low wages." Among the reasons relating to working conditions, the following were most common: "The apprentice had to work at jobs other than his indentured one; he had to do 'dirty work;' working conditions or the employer-employee relationships were poor; the job was boring and the apprentice found more interesting work; on-the-job instruction was poor; the apprentice did not think the job had any future; and, poor or irregular hours."

The research also sought to identify the final determinants of journeyman status for those apprentices who had made satisfactory progress throughout their years of indentured training. According to the data in Table 17, when committees were asked about this, they most frequently reported that the determinants involved a recommendation from the respective employer and a final interview given the apprentice by the committee. Observation of the final interview procedure suggested that it was somewhat informal and probably not meant

Table 17: Ranked Numbers of Times Committees Mentioned a Particular Determinant of Journeyman Status.

Determinant[a]	Number of Responses[b]	Rank
A recommendation by the employer	23	1
A final interview by the joint committee	22	2
A final written test given by the joint committee	18	3
A recommendation from union members other than those on the joint committee	14	4
A final test given by the journeymen's education committee	10	5
A final verbal test given by the joint committee	7	6
A test given by the vocational school or circuit instructors	6	7

[a]A state licensing examination is required prior to journeyman certification in the plumbing trade. The examination is also perceived by plumbing trade committees as the most important determinant of journeyman status for the apprentice plumber. Because such an examination did not apply to the other trades in the study, the licensing examination category was eliminated from the table.

[b]Seventy-five committees reported this information. Because some committees gave several responses the numbers will not total seventy-five.

to represent any sort of final testing of the apprentice. Although the category alternative of mere "completion of required hours of related instruction and years of training" was not included in the questionnaire

as a possibility from which the committees could choose, such alone may be the most important determinant of journeyman status for many apprentices. To the extent that this is true, and if one recalls the relatively large percentage of apprentices who have not completed their training, then it would seem that the committee supervisory function might need re-examination.

RELATED INSTRUCTION: DEVELOPMENT AND IMPROVEMENT

As noted above, committees felt that recommending changes in related instruction was one of their five most important functions. However, there is some evidence to suggest that the committees actually have had little apparent effect on vocational school programs of related instruction. For example, at the time of the survey, a fifty-seven per cent majority of the committees (N=98) had not developed local apprenticeship training standards to supplement their use of state standards. Given the relative scarcity of local standards and the fact that state standards typically do not specify a particular type of instruction to be followed in vocational school apprenticeship training, it would appear that joint apprenticeship committees have assumed limited responsibility for developing related instruction programs. In fact, when committees were asked "Who usually detects that a change in related instruction is needed?" only thirty per cent of the area committees (N=98) reported that they usually initiated independent recommendations about the apprenticeship curriculum. Another twenty per cent usually consulted with vocational school administrators in making such recommendations, while an additional thirty per cent relied entirely upon vocational school administrators or other organizations, such as state or national joint apprenticeship committees, to develop or assess instructional materials for apprentices.

It is not clear, however, that the committees actually are unconcerned about related instruction. Perhaps the dual nature of committee responsibility to both the vocational schools and the Wisconsin Industrial Commission has forced committees to de-emphasize certain important functions which could lead to overt conflict between the participating agencies. Specifically, vocational schools may have their own notions of what should be taught to apprentices and resist influences of other agencies in the development of an apprenticeship curriculum. In this respect, an electrical committee stated that "The schools don't know what is required for a construction electrician. When the committee does recommend a change in instruction, the schools run to all the state agencies for protection to dominate the teaching material."

That the committees may have developed a deferential role to the vocational schools over matters concerning related instruction may be evidenced by one additional finding. Although an eighty-five per cent majority of the committees (N=98) reported having no plans to change their current standards governing apprenticeship and related instruction, forty-two per cent indicated varying amounts of dissatisfaction with current instructional programs by specifically mentioning changes which they felt ought to be made. These suggestions fell into six general categories, indicated in Table 18.

Table 18: Ranked Numbers of Times Committees Mentioned a Particular Suggestion for Improving Related Instruction

Suggestion	Number of Responses[a]	Rank
Provide better related instruction and facilities	18	1
Require more hours of related instruction	16	2
Provide more journeymen circuit instructors	13	3
Add new courses to the curriculum	10	4
Develop better communication between participating agencies	9	5
Teach more practical related instruction	8	6

[a]Forty-two committees reported this information. Because some committees gave several responses, the numbers will not total forty-two.

There was a certain variation by trade as to which suggestions were emphasized by the committees. Carpentry committees felt that additional related instruction and more practical instruction were the major changes needed. Electrical construction committees were evenly divided on four of the areas of suggestions. Committees in the painting trade felt that new instructional courses were needed and, like the carpentry committees, noted that the curriculum should be more practical. Plumbing committees most often cited the need for more hours of related instruction. This probably is due to the necessity for plumbing apprentices

to become thoroughly familiar with the state plumbing code. The sheet metal and steamfitting committees generally felt that better quality instruction and better school facilities were needed; in addition, the sheet metal committees thought that increased numbers of journeyman circuit instructors would be helpful. Committees in the trowel trades mentioned that there should be better communication between the participating agencies and persons involved in apprenticeship. Finally, the committees in the miscellaneous construction trades, like those in the sheet metal trade, suggested that more circuit instructors should be employed.

COMMITTEE OPINIONS ON CURRENT APPRENTICESHIP ISSUES

Apart from preapprenticeship training, a number of other issues have been discussed by manpower experts as possible means of improving apprenticeship programs. The committees were asked for their opinions regarding a number of such issues.

According to the data in Table 19, more committees favored than opposed the idea that employers who train apprentices should be allowed tax-credits for their efforts. Committees also favored the use of federal subsidies similar to the G. I. Bill to encourage young men to apprentice. (This probably reflects the knowledge that most apprentices in the United States are in their middle twenties and married, with the consequent difficulty of living on apprentice wages during the first two years of training.) Interestingly, although the Manpower Development and Training Act may provide employers with federal funds to support on-the-job apprentice training for up to one full year, not one Wisconsin employer in the building trades had utilized such assistance as of July, 1966. This may be partially accounted for because of the time lag on federal approval of such programs and because "Lack of information on funds available to Wisconsin makes the establishment of each program a gamble."[19]

Not unexpectedly, the committees did not favor direct government involvement in other trade matters. Thus, committees more frequently opposed than favored a procedure which would require government contractors to train a specified number of apprentices in order to gain such contracts initially.

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19. Reported in a letter dated January 19, 1965, which was sent to Mr. Carl Lauri by Mr. Charles T. Nye, Director of the Apprenticeship Division of the Wisconsin Industrial Commission.

Table 19: Percentage Distribution of Committees by Particular Apprenticeship Issues and the Direction of Committee Opinion on Those Issues.[a]

Issue	Direction of Opinion: Agree	Uncertain	Disagree	Don't Know	Totals	Number of Cases
Giving tax-credits to employers who train apprentices	45	11	20	23	100%	98
Adding the requirement that employers with government contracts must agree to train x-number of apprentices in order to initially receive the contract	17	22	44	15	100%	98
Reducing apprentice training time by providing more intensive related instruction	9	17	64	9	100%	98
Giving young men federal subsidies (similar to the G. I. Bill) to encourage them to apprentice	48	11	35	6	100%	98
Eliminating the requirement that employers must pay wages to apprentices while the apprentices are attending school during the day	15	6	67	11	100%	98
Having apprentices attend night school and pay for their own related instruction instead of going to school during the day	13	4	71	11	100%	98

[a]There was little variation by trade in the pattern of opinion. However, electrical construction, plumbing, and steamfitting committees were in disagreement, rather than agreement, with the issue concerning federal subsidies to encourage men to apprentice.

Committees also disagreed with the idea of reducing the length of apprenticeship training by providing more intensive related instruction. Several possible explanations exist for this disagreement. Employers dislike the fact that new journeymen sometimes leave the shop in which they were trained in favor of another employer. (This may also explain employer reluctance to support the rotation of apprentices between shops.) Unions, on the other hand, may not want training periods reduced because this might increase the number of men entering the trades. The reluctance to intensify related instruction may also reflect a disenchantment with such instruction itself.[20]

Finally, the committees disagreed with statements which suggested that: (1) the requirement that employers pay wages to apprentices while they are in school should be eliminated; and, (2) apprentices should attend night school and pay for their own related instruction instead of going to day school at all. This result is intriguing since one often hears complaints in Wisconsin about the requirement that employers must pay wages to apprentices while they are attending school. Perhaps the union members of the committees influenced the response on this question or, perhaps the actual objection to this requirement is more imagined than real. In any case, the cost considerations in hiring and training apprentices have yet to be clarified. It would seem that, for some employers at least, it would be quite economical to employ apprentices, particularly where journeymen and operations are attuned to such training; in other cases, it may be less expensive for the employer to hire only journeymen or, for that matter, to substitute labor-saving devices and eliminate some manpower altogether.

CONCLUSIONS AND RECOMMENDATIONS

The research on joint apprenticeship committees did not distinguish between the practices and opinions of good versus poor committees, nor did it reflect the relatively high stature of the Wisconsin program or the recent efforts by the Industrial Commission and other state and federal

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20. Criticisms of related instruction abound. Yet it is not altogether clear that these should be leveled at the vocational schools themselves or, for that matter, that they are entirely justified. It is possible, for example, that apprentices with a trade objective as a career are not happy with the idea of going back to school. The study of related instruction programs in Wisconsin, now in process at the Industrial Relations Research Institute and Center for Studies in Vocational Education, should provide some answers to this question.

agencies to improve the present program. However, the study did suggest some areas which warrant further investigation and possible improvement. The following seem worthy of consideration:

1. Joint apprenticeship committees should be given legislative recognition and their dual responsibility to the vocational schools and the Wisconsin Industrial Commission should be clarified.
2. The structure and administrative procedures of the committees should be outlined in a committee manual published by a state agency and explained in a training program for committee members.
   (a) A committee description should be prepared much like the job description used in industry.
   (b) The chairman and membership should be changed periodically.
   (c) Committee members should be given training in apprentice selection and evaluation procedures.
3. Committees need better information on apprenticeship practices within and outside the state. Committees might benefit by having local vocational counselors, vocational school officials, local university faculty, and members of the state apprenticeship committees participate more frequently in committee meetings. Also, state apprenticeship committees might consider developing a regularly scheduled newsletter for distribution to members of area committees. Such a publication could be designed to encourage return comments from the area committees.
4. Committees need better information on labor market conditions, particularly on skill shortages and on employers who could train apprentices but do not.
5. The traditional limitation of apprentice-journeyman ratios should be modified to reflect changes in the labor market, unique local conditions, and individual differences between employers in ability to train apprentices.
6. Committees need at least a modest budget. Funds might come from unions and employers or from the local vocational schools.
7. Evaluation is needed so that recruiting efforts may be directed to the most productive sources. In particular, high school vocational counselors should be apprised of apprenticeship opportunities.
8. The testing program for apprentice selection should be studied by a state agency, and standards for testing developed. Tests need to be validated, norms need to be established, and

committee members need to have information on the meaning or interpretation of test results.

9. An accreditation plan might be developed for those persons who have learned a trade without formal training.
10. Creative new programs should be considered such as: tax credits for employers training apprentices; preapprenticeship training; apprenticeship in new skill areas not now apprenticeable; revision of joint apprenticeship committee jurisdictions; new approaches to the teaching of related instruction; or, refresher courses for journeymen in areas of changing technology.

Perhaps the greatest single impression that one receives in studying joint apprenticeship committees in Wisconsin is that isolated groups of men serve with dedication and little personal reward, while many sources of information and support remain unknown and unused.

THE STRUCTURE OF RELATED INSTRUCTION IN WISCONSIN APPRENTICESHIP PROGRAMS

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Much has been said and written about the related class instruction given to apprentices but there is a dearth of factual material on the subject. The purpose of this investigation was to remedy this deficiency, at least so far as the State of Wisconsin was concerned.

The major sources of data were the Apprenticeship Division of the Wisconsin Industrial Commission, the Wisconsin State Board of Vocational, Technical and Adult Schools, the Vocational Schools and the Office of the Occupational Extension Co-ordinator. Interviews were held with administrators, directors of schools and the appropriate personnel within the schools.

CLASSES IN RELATED INSTRUCTION

A number of factors help to shape the structure of related instruction classes. Enrollment policy has an important effect on the instruction process in related instruction classes. In a majority of schools, the apprentice can enter school at any time during the academic year with the exception of the last few weeks. In some schools, entry is restricted to the beginning of a semester or quarter.

Size of apprentice enrollment in trade programs, more than any other single factor, is instrumental in structuring the composition of related instruction classes. As a general rule, a relatively large enrollment makes class homogeneity by trade possible. Under a semester enrollment policy, it is also possible to extend this homogeneity and establish classes based on progress or completion such as first and second semester arrangements. Small enrollments and resulting small

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classes create special problems and frequently make it necessary to mix trades. An enrollment policy allowing entry at any time contributes to these problems.

A third factor affecting class structure involves credit for previous work and/or education experience. The allowing of credit for previous education is not particularly unusual in academic programs, however, credit for previous work experience is quite a different matter. School policies vary on this subject, some schools allow credit for both work and education, others allow only credit for education, while still others allow no credit.

A fourth factor is the granting of related instruction credit for home assignments. Credit given varies between schools and programs with some allowing one hour per week and others up to four hours.

A final factor is the aspect of credit itself. What kind of credit is given for related instruction? How is it different than other programs in vocational schools? What does the credit mean, not only in relation to other programs, but to the apprentice and employer? Each of the above areas will be described and analyzed in some detail.

THE EFFECT OF ENROLLMENT POLICY ON CLASS STRUCTURE

Traditionally, the apprentice has been allowed to enter a majority of programs of related instruction at any time during the academic year. School interest in serving the community is the primary reason for this policy. Indenture contracts can be made at any time during the year depending on the needs of the industry involved. The employer is generally interested in having the school instruction commence as soon as possible, at a time when it is felt that the apprentice is least productive. In recent years, a number of schools have started to restrict apprentice entry to the beginning of a quarter or semester which is more in line with other academic programs.

Twenty-one schools or 56.8 per cent of those offering day classes at the beginning of the fall term, 1966, allowed the apprentice to enroll in all trade programs at any time during the academic year. Eight schools (21.6 per cent) restricted enrollment to the beginning of the fall or spring semester while eight (21.6 per cent) others placed semester or quarter restrictions on some trade programs. For those that have changed to a semester policy, either in whole or part, the most frequent reason given was to improve the teaching process. Theoretically, some improvement in trade enrollment would probably occur by restricting entry to two points in time each year, however, the schools could not state whether any such improvements had actually occurred. These two major approaches to the beginning of school-training have

important and considerably different implications for the structure of classes and the entire related instruction education process.

ENTRY AT ANY TIME

When the apprentice is allowed to begin his related instruction studies at any time during the school year, a way must be found to place him in a class so that he will not be at a disadvantage and so that class progress will not be disrupted. This arrangement is accomplished by structuring the class so that each apprentice learns on his own quite apart from his classmates. Only if two or more apprentices enter class at the same time will they be working on the same subject materials.

To make this procedure function, a subject is broken down into a number of instructional units. Each unit is structured to include a number of reading and workbook assignments. The apprentice will generally be required to complete an assignment in a specified period of time. For example, in barbering the subject of diseases is broken into two major parts. The first part has twelve assignments and the second has seventeen. Each assisgnment is composed of a number of questions that tie directly to the required reading. Answers must be worked out from the reading materials. The barber school graduate is given four weeks to complete this subject area while the non-graduate has five weeks. Scalp treatments represent another subject area. Here, the barber school graduate has eight weeks to complete the work and the non-school graduate ten weeks. [1]

Upon entering a class, the apprentice commences on the first unit of a particular subject. Other members will be working concurrently on different subject units. This procedure leads to a placing of beginning and advanced students together in the same class. Another effect is to isolate the apprentice from his classmates, from a learning standpoint, with the exception of those times when class discussion may take place. This will generally occur when certain problems or points are raised either by a class member or the teacher. If the discussion concerns elementary materials or information, the probability is high that the more advanced apprentice will have already covered the subject, thus providing little benefit as a learning experience. If more advanced

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1. Wisconsin Schools of Vocational and Adult Education. *Barber Science*, Assignments for Book Two. LaCrosse, Wisconsin: Coleman Technical Institute, 1966.

points or problems are discussed, the beginner is confused and his time wasted. When a discussion is carried on among only a few of the class members with the others trying to concentrate on assignments, confusion and distraction creep into the instruction process. The predominant pattern is an individual learning orientation with group or class interaction held to a minimum.

The role of the teacher in this situation is complex. If the apprentices are all from the same trade, the teacher's responsibility is to teach different parts of a trade curriculum to a number of different students at the same time. If, on the other hand, the class is mixed with apprentices from more than one trade, the teacher's role is to teach different parts of several trades to a number of different apprentices at the same time. As is evident, little planning and continuity of presenting materials can be achieved. It is also understandable that there can be only very limited interaction between the teacher and the class as a whole. The teacher is available to answer questions and assist the individual apprentice on specific problems as well as provide general direction for learning.

SEMESTER ENROLLMENT

Under a semester enrollment policy, the apprentice enters class only at two points in each academic year. If enrollment for a particular trade is sufficient, classes can be structured in such a way that homogeneity is achieved by both trade and extent of completion of required time. Beginning and advanced materials can also be separated and presented in different classes and even semesters if desired. Under the assumption that homogeneity by trade and extent of completion can be achieved in a class, all apprentices commence work on the same materials at the same time. Subject materials are prepared and presented to the entire class simultaneously. Flexibility of instruction is increased with the teacher being able to use both the lecture and individual approach where relevant.[2] The individual instruction technique

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2. Potentially, other group instructional techniques can also be considered. These might include closed circuit television and use of the Victor Electrowriter Remote Blackboard. The remote blackboard system is currently being used by the University of Wisconsin to teach home economics courses from its main campus in Madison to students enrolled at the Milwaukee Extension Center. Also, Cummins Diesel Engine Company of Columbus, Indiana, has been receiving engineering courses via the system from the University

in this situation is quite different from the method where the apprentice works alone throughout his entire training period. Here, individual assignments and projects complement the group learning process.

Although a number of schools have changed their enrollment policy to a semester basis, most have continued to utilize the individual instructional orientation for classes with small enrollments. Primarily, the reasons are based on economic considerations. Where trades cannot be combined for instruction purposes or a cooperative program between schools is not feasible, insufficient enrollments may force the school to maintain class heterogeneity by extent of completion (time in the program) while maintaining homogeneity by trade. To do otherwise would require hiring several teachers for classes of one or two apprentices at various stages of completion of their instruction. It is evident, therefore, that while entry at any time virtually requires the use of the individual orientation for learning in all trade classes, the semester policy potentially allows group instruction if classes are sufficient in size. If they are not, the school may change to a semester basis, but still be required to use the individual instruction technique where each apprentice learns on his own rather than as a class.[3] Despite those trade classes where small enrollments required a continuation of an instructional posture that emphasized the individual rather than group, the schools that have changed to a semester policy felt that the benefits for those trade programs with sufficient enrollments made a return to a policy of entry at any time very unlikely.[4]

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of Wisconsin in Madison. In the latter case, the program is part of Cummins continuing education series for employees. *Victor Electrowriter Systems*, Victor Comptometer Company, Chicago, Illinois.

3. The schools that have changed to a semester enrollment policy for all trades are also those with relatively larger apprentice enrollments.

4. Apprentice attitudes toward the alternative approaches could not be determined. The schools that have changed policies reported that no surveys have been conducted to ascertain student reaction. In most cases they pointed out that comparison would not be possible as the apprentice would be exposed to only one or the other policy, not both.

OBSERVATIONS ON ENROLLMENT POLICY

Enrollment policy is probably the most pervasive factor influencing the comprehensive structure of related instruction. Even size of enrollment, which is so important in shaping class composition, is affected by the kind of enrollment policy of a particular school. If related instruction is to be improved as an education process, it must begin with this factor for it is the heart of the subject. Any consideration to alter the instruction process is integrally tied to a change in this policy. Since its inception in Wisconsin, the teaching of related instruction has reflected the one-room school approach. Teacher and apprentice alike have been required to live with an instruction process that stresses individual rather than group learning. While the effects of this approach are difficult to evaluate, one can assume that a sense of group belonging or cohesiveness in a class would have little opportunity to develop. In all probability, learning through group process could not have much meaning for the apprentice. Isolation from fellow classmates creates a kind of social loneliness. Whether a semester enrollment policy can improve the teaching of related instruction depends on more than the policy itself, however, the policy must precede all other considerations for change.

SIZE AND COMPOSITION OF CLASSES

Size of trade program enrollment is a critical factor for determining apprentice class composition. A large trade enrollment almost always makes it possible to have homogeneous classes in that trade.[5] Trade homogeneity for small enrollments, however, frequently depends on kind of subject matter to be taught. Trade technology classes are maintained on a homogeneous basis if at all possible. Related subjects classes may be mixed or heterogeneous by trade if the trade enrollments are small and have reasonably common or related technologies, for example, the metal trades. In some related subjects such as communication skills or economic relations (where offered), classes may contain apprentices from several unrelated trades. In a number of schools, all classes were homogeneous by trade regardless of size of enrollment. This is not uncommon in the building trades where the circuit teacher frequently teaches all of the program curriculum.

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5. The terms large and small have no fixed definitions as used by the schools. Less than six or eight apprentices generally was interpreted as small.

In the large classes the problems are less pronounced and homogeneity by trade can prevail. In the smaller classes ways must be found to make it economically feasible to carry on the education process. The mixing of classes from more than one trade has become one of those strategies for trade programs with enrollments too small to justify being taught as a separate trade.

For the schools, the mixing of trades is a pragmatic response to a difficult problem. They feel responsible to the demands of the community for this kind of education, but cannot maintain a teacher for very small classes. The schools that mix trades could not say whether this approach was disadvantageous for the individual apprentice. Their guess was probably not in some of the related subjects classes which are more conducive to student heterogeneity, that is, those that are not so highly trade-oriented. In others, particularly the trade technology classes, every effort is made to keep the trades separate. Where this is not possible, the mixing is based on trades with common technologies except where there is no other alternative but to mix the trades simply to increase the class size to one that can be taught within the framework of budgets and economic reality.

As indicated in the previous section, enrollment policy also contributes to class size and composition. Where the apprentice can enter school at any time, classes will contain both beginning and more advanced students, thus, while homogeneity is maintained by trade, there is apprentice heterogeneity by extent of progress through a program of related instruction. With a semester enrollment policy, it is potentially possible to reduce or eliminate heterogeneity by extent of progress if enrollment is of sufficient size. Instead of having all math students for a trade grouped together they can be separated by different courses and semesters if desired. Small trade enrollments are not amenable to this approach unless some way is found to combine or mix trades for instruction purposes. In practice considerable mixing does take place, thus supporting the potential possibilities of a semester plan even for trades with relatively small enrollments.

CREDIT FOR PREVIOUS EDUCATION AND/OR WORK EXPERIENCE

When credit for previous education and/or work experience is allowed to reduce related instruction requirements, it has implications for the structure of trade programs. Depending on the evaluation of such experience, an apprentice can receive full credit for his related instruction without attending any classes so designated. In other instances an apprentice may be placed in related instruction classes at a beginning or more advanced level.

There is no state policy on allowing credit for previous education or work experience. A number of communities, however, have developed local policy on the subject. A number of interested groups, in addition to the vocational schools, frequently participate in evaluating such credit allowances.

In 1966, fifteen schools allowed both previous education and work experience to reduce related instruction requirements while seventeen others only allowed previous education to be evaluated for such purposes; four schools allowed no credit and one had no policy or experience on the subject.

Criteria used in evaluating the approximate amount of credit to be given varied considerably among the thirty-two schools. Only five of the thirty-two indicated any specific criteria. The remaining twenty-seven schools stated that each request is evaluated based on the extent to which the previous education and/or work appeared to be related to the field the apprentice was entering. This procedure did not include standards on amount of credit. The specific amount of credit allowed is based on the merits of each individual case. The five schools that indicated specific criteria are outlined below along with the statement of evaluative guidelines:

1. Green Bay-previous education credit given only where the apprentice has completed courses determined to be at a higher level than related instruction requirements for the particular trade involved.
2. Milwaukee-Semester test results and satisfactory grades (at least C) in all courses being evaluated. Tests are given by the school and consist of regular end of semester exams.
3. Oshkosh-Courses, grades and regular trade tests are evaluated. Tests are those that are normally given the apprentice after the first 100, 200, 300, etc. hours of related instruction course work.
4. Wausau-The major teacher for the particular trade evaluates all previous courses and grades and makes a recommendation. and
5. West Allis-Tests are administered along with an evaluation of previous courses.

For those schools that allowed credit, eight different combinations of various groups were involved in evaluating and deciding whether credit should be allowed and the extent of that credit. They are presented below followed by the schools falling into each category:

1. Advisory Committees-Antigo, Appleton, Beloit, Cudahy (Bldg. Trades), Ft. Atkinson, Green Bay, Janesville, Kenosha,

LaCrosse, Manitowoc, Marinette, Marshfield, Racine, Rhinelander, Sheboygan, South Milwaukee (Electricians), Sturgeon Bay.

2. Advisory Committees and School-Neenah, Oshkosh, Superior, Wausau.
3. Advisory Committees, School and Employer-Beaver Dam (all programs except Plumbing), Watertown, West Allis, Wisconsin Rapids.
4. Advisory Committees Recommend to Apprenticeship Division-Stevens Point, Waukesha.
5. Employer and Union-Cudahy (Individual firms), Fond du Lac, Madison.
6. Employer and School Recommend to Apprenticeship Division-South Milwaukee, Two Rivers.
7. Employer and School-Beaver Dam (Plumbing).
8. School-Milwaukee, West Bend.

The above description raises a number of questions regarding credit. Is there an apparent need for statewide standards? Who is "best" qualified to evaluate credit if it is to be allowed? Does the allowing of such credit negatively affect the value of related instruction requirements?

In the absence of any statewide policy on allowing credit for previous education and work experience, subjective and questionable procedures have emerged at the local level out of the experience of being confronted with this kind of problem. Subjective in the sense that few standards have been developed at the local level to assist in making credit evaluations. Questionable in that two apprentices in the same trade with similar experience could be treated quite differently depedning on the evaluating group. Also this kind of evaluation technique is wide open to abuse and favoritism. Serious consideration should be given to the establishment of standards that would have statewide application for all trades.

Question two above requires a separation of education and work experience. The schools, subject to the approval of the local boards, would probably be most qualified to evaluate previous education experience. At present, some have assumed this responsibility and others have not. Recommendations from other groups that participate in apprenticeship would appear to be meaningful to the decision process. For work experience, there is a problem in deciding who is "best" qualified to make the evaluation. In any ranking of the participating groups, probably the employer would be at the top with the employer-union or advisory committees ranked next. Since twenty-one schools do not allow such credit to reduce related instruction requirements, it is worth asking whether it should be allowed at all. The logic that such

evaluations are based on is questionable, that is, any reduction in total indenture time should reduce related instruction proportionately. This logic takes the proportion of school time to total indenture time as an absolute set of values when it should be viewed relatively. The loophole that allows the credit in the first place is the term "equivalent" in the hours section of the apprenticeship law. This term needs clarification and definition.

The question of whether previous education and/or work experience credit is detrimental to apprenticeship is difficult to answer within the framework of available information. Again, it would seem necessary to treat education and work experience separately in any judgments made. There is little or no precedent for allowing work experience to reduce formal education requirements. This is a dubious practice and probably lowers the value of related instruction when compared to other vocational school programs. There is considerable precedent favorable to the practice of allowing credit for educational experience. Much of course, depends on the nature of the previous training, that is, where taken, grades, courses, and other pertinent data.

A number of the vocational schools have developed one and two year vocational programs which parallel some of the related instruction classes offered at the schools. The programs are designed to provide interested students with good comprehensive general and technical knowledge in the respective occupational fields. Table 1 presents such programs for seventeen schools and indicates whether parallel apprentice trade programs are also offered at the school.

Table 1--One, and Two Year Vocational Programs in Seventeen Schools of Vocational, Technical and Adult Education, Fall 1966.

School and Programs	Duration of Programs (years)	Apprentice Trade Programs Offered in the Same Occupation (1966)
Appleton		
Auto Mechanics	2	
Auto-Body Mechanics	2	
Machine Shop	2	X
Printing	2	
Eau Claire		
Barbering	1	X

Table 1--Continued

School and Programs	Duration of Programs (years)	Apprentice Trade Programs Offered in the Same Occupation (1966)
Fond du Lac		
Auto Mechanics	2	X
Machine Shop	2	X
Green Bay		
Machine Shop	1	X
Auto Mechanics	1	
Barbering	1	X
Cabinetmaking	1	
Carpentry	1	X
Electricity	1	X
Janesville		
Machine Shop	1	X
Cabinetmaking	1	
Madison		
Auto Mechanics	1	
Barbering	1	X
Marinette		
Auto Mechanics	1	
Welding	1	
Milwaukee		
Barbering	1	X
Printing and Publishing	2	X
Oshkosh		
Auto Mechanics	2	X
Electronics	2	
Machine Trades	2	X
Racine		
Automotive Servicing	1	
Upholstry	1	
Welding	1	
Sheboygan		
Tool and Die Tech.	2	X
Machine Assembly	2	
Machine Tool Tech.	2	

Table 1--Continued

School and Programs	Duration of Programs (years)	Apprentice Trade Programs Offered in the Same Occupation (1966)
So. Milwaukee		
Machine Shop Tech.	1	X
Mechanical Drafting	1	
Welding Tech.	1	X
Stevens Point		
Auto Mechanics	2	
Electronics	2	
Machine Shop	2	X
Welding	1	
Superior		
Electronics Technician	2	
Machine Tool Operator	2	
Mill Work	1	
Welding	2	
Watertown		
Machine Shop	1	X
Machine Drafting	1	
Welding	1	
Wausau		
Agricultural Equipment and Power Mechanics	2	
Auto Mechanics	2	
Machine Shop	2	X
Printing	2	X
Welding	1	
Wisconsin Rapids		
Auto Mechanics	2	
Machine Tool	2	
Welding	1	

Source: Interviews with Seventeen Schools of Vocational, Technical and Adult Education, Fall 1966. Vocational programs were listed in School Bulletins.

No figures were available on the number of vocational graduates who go into apprenticeable trades. Several of the schools, however, give partial or full credit toward related instruction requirements if the graduate does become indentured. At Wausau, for example, any student who completes the two year machine shop program automatically has the machinist trade related instruction requirements waived. This is also true at a number of other schools. At Appleton, those completing the two years auto mechanic program meet the related instruction requirements if they later become indentured in this trade. All four barbering programs are specifically designed as preapprenticeship for the barbering trade.

These kinds of vocational programs have long been looked upon suspiciously by unions and in some instances with good cause particularly where attempts have been made to substitute them for trade training. The intent of the schools with such programs is not to offer them as substitutes for trade experience leading to journeyman status. Instead, they are designed to provide the student who has not taken a job with sufficient formal education in an occupation to be able to handle some aspects of it, although not all as with the journeyman. In addition, they offer formalized trade information which can be most valuable to the student if he does become indentured.

The programs described above have demonstrated past and present value for apprenticeship. They have even greater potential for the future. It is during the student's schooling period that the opportunity is available to acquaint him with apprenticeship and the meaning of learning the full trade through such training. It is at this time that visits to plants and additional knowledge of occupations can be meaningful in strengthening and deepening his interest in becoming a skilled craftsman.

CREDIT FOR HOME ASSIGNMENTS

Eleven of the thirty-seven vocational schools that offered day programs of related instruction in the fall of 1966 gave varying amounts of credit for home assignments.[6] Table 2 shows these schools and amount of credit given by program.

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6. This number does not include those schools and programs that supervise home study correspondence courses. These programs will be discussed in the chapter on curriculum as they do not involve class structure.

Table 2--Schools of Vocational, Technical and Adult Education That Gave Hours of Credit For Home Assignments, Fall 1966.

School	Courses	Amount of Credit Given
Antigo	Barbering	Varies with circumstances.
Beaver Dam	Auto Mechanic	Depends on assignments and
	Auto Body	adv. committee approval.
Beloit	Barbering	4 hrs. every other wk.
	Cosmetology	2 hrs. every other wk.
Eau Claire	Barbering	4 hrs. every other wk.
	Cosmetology	4 hrs. every other wk.
LaCrosse	All	1 hr. credit for each 7 hrs. in class.
Madison	Barbering	4 hrs. every other wk.
Marinette	All	Depends on the assignment.
Rhinelander[1]	Barbering	Varies with circumstances.
	Plumbing	Varies with circumstances.
Sheboygan	Cosmetology	4 hrs. every other wk.
Waukesha	All	1 hr. credit for 7 in school.
West Allis	Barbering	Half of all related instruction.

[1]One apprentice must travel 160 miles to school.

Source: Interviews with Directors and/or Trade and Industry Coordinators of Thirty-seven Schools of Vocational, Technical and Adult Education, Fall 1966.

Credit for home assignments points to another peculiarity of apprentice related instruction that does not exist in any other vocational school program. The circuit programs of barbering and cosmetology give such credit more than any other apprentice trades. An inherited tradition is the reason given for this practice. In 1966, two schools, LaCrosse and Waukesha allowed all apprentices one hour credit for every seven in class. Twenty-six schools did not allow any credit for home assignments, although all reported that home assignments are frequently made and are considered to be an important part of related instruction.

Giving such credit has several implications. In the first place, tradition is not a satisfactory reason for allowing the apprentice to meet up to half of all requirements by way of assignments that are normally required in all academic programs as part of over-all education

procedure. Tradition becomes convenient for the teaching staff in these cases and the apprentice suffers in the process. In addition, allowing all apprentices in some schools credit for home assignments is a highly questionable practice, particularly in light of the fact that 400 hours of schooling is not much by any standards. The school and circuit program administrators have a responsibility to provide the apprentice with the best possible education available. It is doubtful that the employer would complain as he is paying for only the time spent in school. We must decide whether we want a first-rate program that can compete with other forms of education in the state or one that is structured to meet with the convenience of those who participate in it at the expense of the apprentice's education.

RELATED INSTRUCTION CREDIT

Credit for course work in apprentice related instruction programs is based upon the number of hours required for those programs. Each hour in class or working on home study assignments constitutes an hour of credit toward completion of the requirements. All thirty-seven schools offering programs of related instruction beginning in the fall of 1966 used this system of crediting completed work toward journeyman status.

The system of credit used in apprentice related instruction programs is unique among vocational, technical, and adult education academic programs. There are several factors which have contributed to this procedure. Perhaps the major one is the apprenticeship law itself. The law was designed in such a way that the minimum requirements for completion of a related instruction program were defined in terms of hours of credit rather than course credits as in other education programs. There was a pragmatic base for this approach. The indenture period was defined as a total number of years which became translated into hours of work. Related instruction, which became part of that total hours requirement, was carried over into the law as a means of identifying the minimum requirements of the formalized schooling.

If related instruction programs were to be evaluated on a similar basis with other education programs in the schools, some translation would be required from hours to units of course credit. In addition, it would be necessary to build curriculum courses rather than subject areas. Under present arrangements, subjects may or may not be separated into distinct pedagogical areas such as mathematics, blueprint reading and sketching, etc. These subject areas may be mixed with other aspects of the trade such as its technology. Much depends on the teaching staff. If only one teacher is involved in all related instruction

he can decide whether to teach the subject areas separately or blended together. When additional faculty are involved in a program, primarily to teach related subjects, the subject matter will generally be taught in separate classes. A second factor is that programs which allow entry at any time, and which stress individual unit study plans rather than group orientation, lend themselves to the present kind of system. Only recently have schools begun to shift to semester and quarter entry policies, both of which are more amenable to a course credit basis for evaluating student progress than an unrestricted entry policy.

Although the apprentice receives a diploma upon graduation, it is not comparable to one earned for a vocational program nor should it be under present conditions. Outside of apprenticeship, the credit means very little and in the schools it ranks very low. Because of its trade orientation, it seldom will stand evaluation for reducing academic requirements in vocational and technical programs should the apprentice desire to switch his educational and occupational direction or pursue such a program in addition to his apprenticeship. The credit earned by the apprentice in related instruction programs should be allowed to count toward a vocational diploma or technical degree. If its quality is not at a sufficiently high academic level to merit this kind of evaluation, we need to find a way to upgrade it so that it is. If the apprentice desires to go beyond journeyman status to supervision or to teach apprenticeship related instruction, the more formal education he has the better are his chances for consideration. Just to qualify as a teaching assistant in vocational education, two years of college, junior college, or an accredited technical program must be completed. Appropriate work experience will substitute for a maximum of one year equivalency. To become a teacher, a college degree is a minimum requirement, however, work experience will substitute if appropriate. The two are by no means equivalent in terms of salary and additional education requirements to meet standard life status.

In summary, it appears that credit for related instruction is out of tune with other vocational school academic programs. We need to evaluate how it can be made more meaningful to the apprentice. One possibility is to shift from an hour of credit for an hour of class to an evaluation method compatible with the course credit system in use for other academic programs. Before this can be done, the schools must take the initiative to recommend changes in enrollment policy in order to place apprentice programs on a semester basis. Trade programs with small enrollments present many problems for semester consideration. This would also be true of any change in crediting related instruction. However, many trades with such enrollments are presently combined, based on common technologies. These are amenable to the semester arrangement. In addition, the related subjects areas, which

need not require an extremely narrow trade orientation can be set up on the basis of a semester course rather than a subject area. As discussed earlier, some improvements in enrollments probably could be expected from restricting entry to twice a year. Working out cooperative teaching arrangements also offers potential beyond present circumstances. Once the area concept has been established, schools in those areas may be able to reduce trade program duplication by increased cooperation. This would do more toward increasing enrollments than any other single change in the structure of related instruction.

CURRICULUM

Apprentice related instruction curriculums can be divided into two major classifications: (1) those for the trades taught in whole or part by teachers who are associated with the circuit program, and (2) those which are taught entirely by resident school teaching staff. The circuit teaching program, administered through the Office of the Occupational Extension Coordinator in Madison, has developed curriculum standards for seven building trades, four industrial trades, and three service trades. Curriculums for these trades are developed and upgraded by the circuit teachers in conjuction with the state and local school advisory committees, the state board, and the various schools. Although not all schools utilize circuit teachers for the fourteen trades, the cirriculums are basically the same throughout the state.[7] The Milwaukee school, which does not utilize circuit teachers, is the one exception to this procedure. For the other schools, while minor differences may occur based on local requirements, the curriculums are fairly standard throughout the state.

Resident trade programs, which include all those not considered part of the circuit program, lack curriculum standards. To date, even

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7. It sometimes happens that a school either does not or cannot secure the services of a circuit teacher for a particular trade program. In these cases, the related instruction is taught by resident faculty. This is more the exception than the rule in those trades normally considered circuit. In 1964-65, for example, seventeen related instruction programs in carpentry, sheet metal, electrical (construction), barbering, and patternmaking were taught by resident faculty. As Table 3 will demonstrate, these trades are considered part of the circuit program.

a standard core has not been developed. Resident program curriculums reflect the thoughts, interests, and perceived trade requirements as seen by local groups more so than circuit program curriculums.

CURRICULUMS FOR CIRCUIT TRADE PROGRAMS

Fourteen of the seventy-nine trades for which related instruction was offered at the beginning of the fall semester 1966, were considered part of the circuit program of apprentice instruction. These fourteen trades accounted for 187 related instruction programs or 46.1 per cent of all programs offered at the beginning of this period. Table 3 presents these trades by industrial classification.

Table 3--Apprentice Trades Which Were Part of the Circuit Teaching Program at the Beginning of the Fall Semester 1966, by Major Industrial Classification.

Industrial Classification and Trade	Number of Related Instruction Programs Represented	Per cent of Total Programs for Each Class.
Building Trades (N=144)		
Plumbing	28	
Electrical	26	
Carpentry	22	
Sheet Metal	19	
Bricklaying and Masonry	15	
Steamfitting	11	
Painting and Decorating	7	
	128	88.9
Service Trades (N=75)		
Barbering	21	
Cosmetology	16	
Electrical Lineman	2	
	39	52.0
Industrial Trades (N=169)		
Patternmaker	9	
Foundry	8	
Molder	2	
Coremaking	1	
	20	11.8

Source: Thirty-seven Schools of Vocational, Technical, and Adult Education that Offered Day Programs of Related Instruction, Fall Semester, 1966.

In the building trades, 88. 9 per cent of all the related instruction programs offered utilized circuit curriculums. Although enrollment figures were not available for these programs, data for the five year period 1960-65 showed that a major portion of total enrollment for this classification was in the seven trades represented. The three service trades accounted for slightly over one-half of all programs in that classification. Two of these, barbering and cosmetology, have consistently had a majority of all apprentice enrollees. The four industrial trades made up a relatively small percentage of total programs in the classification and also have had rather small apprentice enrollments. The curriculums for these fourteen trades are important for related instruction. They establish a curriculum pattern that assures the apprentice approximately the same related instruction education throughout the state.

The trade curriculums, while different in content, have several structural characteristics which are similar. In the first place, they are all highly trade oriented with a predominate emphasis on trade technology. The related subjects primarily include trade codes and laws, trade mathematics, and blueprint reading and sketching. There is a conspicuous absence of any general education subjects in all programs except barbering. This trade, which will be commented on in more detail later, is unique among apprentice trades in Wisconsin in that one of the avenues for achieving journeyman status involves a one year apprenticeship vocational school program. In many of the trade programs, all subjects are taught by one teacher, narrowly limiting the apprentice's exposure to the school faculty. Table 4 demonstrates this relationship for academic year 1964-65.

A further comment or two are in order for barbering. A person interested in becoming a barber may qualify for a license in one of two ways. One is to enroll in a one year preapprentice accredited vocational school barbering program plus a two year apprenticeship following completion of such a program. The second way is to serve a three year apprenticeship in the employ of a licensed barber or be assigned to a barber by a local apprenticeship committee. This latter plan involves a related instruction program of 800 hours extending over the entire indenture period.

In the first instance, the apprentice completes 1, 248 hours of preapprentice instruction taken on a full time basis in addition to 316 hours of related instruction taken during the indenture period. The one year barbering preapprentice curriculum can be taken at one of rour vocational schools in the state--Eau Claire, Green Bay, Madison, and Milwaukee. The Eau Claire curriculum presented below, is typical of the kind of educational process involved:[8]

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8. Eau Claire School of Vocational Technical and Adult Education, *Training for Tomorrow*, p. 16.

First Semester	Second Semester
Barber Science I	Barber Science II
Barber Laboratory I	Barber Laboratory II
Human Relations I	American Institutions I
Communication Skills I	Small Business Management I

Table 4--Circuit Programs for Fourteen Trades Showing Number of Faculty for Each Program, Academic Year 1964-65.

Trade	Programs With[1]			
	Circuit Teacher Only	Circuit And One Resident Teachers	Circuit And Two Resident Teachers	Circuit And Three Resident Teachers
Building Trades				
Bricklaying and Masonry	7	2	2	-
Carpentry	10	4	2	-
Electrical	13	9	1	-
Painting and Decorating	8	2	-	-
Plumbing	16	7	3	1
Sheet Metal	7	1	-	2
Steamfitting	7	2	-	1
Service Trades				
Barbering	17	-	-	-
Cosmetology	15	-	-	-
Electrical Lineman	1	-	-	-
Industrial Trades				
Coremaking	-	-	-	-
Foundry	1	3	-	-
Molder	-	-	-	-
Patternmaker	-	2	-	1
	102	32	8	5

[1] Due to differences in reporting program data by the schools, the figures represented are considered approximate rather than exact.

Source: State Board of Vocational, Technical and Adult Education. Vocational School Annual Reports, Academic year 1964-65.

The barbering curriculum, where the apprentice attends a full-time vocational program for one year and then proceeds with his regular indenture period, is unique among Wisconsin apprenticeable trades. The nature and extensiveness of the program (1,564 hours of school time) provides the barbering apprentice with not only more education, but by far the most well-rounded of all apprentice programs. The program, however, is praised by some and critized by others.[9] Unions generally have not stressed the development of such programs in Wisconsin. It is doubtful that they will, unless they can be assured of considerable control in administration throughout the education process, including the preapprentice period.

It is safe to state that most of the fourteen curriculums are not designed to produce a well-rounded student, employee, or citizen. As no electives are involved, the apprentice desiring to broaden his learning patterns beyond his trade, would have to do so in the evening on his own time quite apart from his trade training. Evening school subject requirements or recommendations are also highly trade-oriented and tend to reinforce a strong deemphasis of general education philosophy.

Since the circuit program curriculums are developed on a much wider base than a single community, the conclusion would appear to be that a tightly structured trade orientation is preferred. This approach is in direct contrast to the frequently heard concern for a well-rounded individual as well as a skilled craftsman.

RESIDENT TRADE PROGRAM CURRICULUMS

Only eight schools or 21.6 per cent of the thirty-seven offering day apprentice instruction had resident program curriculums available for all trades offered. Twenty-three schools (62.2 per cent) had no curriculums available while four (10.8 per cent) had some curriculums for resident programs.

The absence of curriculum outlines by a number of schools should not be misinterpreted. Subject knowledge of a trade is being imparted to the apprentice. What is lacking is a formalization of that subject

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9. In the 1958 Convention Issue of the *Carpenters Journal*, C. L. Greiber, Director of the Wisconsin State Board of Vocational, Technical and Adult Education emphasized preapprenticeship in an article entitled "How About Pre-Apprenticeship?"

matter in curriculum outline form.[10] When curriculum materials exist only in the minds of one or two faculty members for a particular trade program, it is difficult for the supervisor or other school administrators to evaluate such materials. It is equally difficult to present it to advisory committees and other relevant groups for purposes of determining its meaning for teaching the trade. Formalized, curriculums can be studied, analyzed, and compared to other programs. Sequence of subject matter and time to be spent in various areas can be assessed, debated, challenged, and made more meaningful for the learning process.

The absence of curriculum outlines for apprenticeship was in stark contrast to vocational and technical programs. Curriculums in these academic programs were completed and well presented. Immediate comparisons and evaluations could be made. The student, interested in learning about these programs, could gain insights into subjects and more readily decide if they appealed to him. Apprentice curriculum outlines available to students were conspicuous by their absence in most schools. It is unrealistic to blame local circumstances such as special subject requests by employers or committees for lack of good curriculum outlines. What is lacking is leadership in developing a standardized statewide core curriculum for those trades taught by resident faculty. This lack was the greatest difference between the two major approaches. Lack of so many curriculum outlines for resident programs made comparison of subject matter for the same trade difficult. Available curriculums reflected local emphasis and anything approaching standardization for a trade was not meaningful in the same sense as for the circuit trades.

Curriculums that were available, however, revealed important differences between resident and circuit subject matter. Resident curriculums demonstrated a much improved balance between technical and general education orientation. While the curriculums tend to be trade oriented generally, they are not so tightly structured in this direction as the circuit program curriculums. Whether the fact that circuit teachers, with predominately trade backgrounds as opposed to resident teachers with more college education and academic backgrounds, makes a difference in curriculum structure is difficult to say. It seems quite likely, however, that this may be the case. Both groups

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10. Some schools reported that curriculums were being revised and thus outlines were not available for this reason. In a few of these instances, revised curriculums were forwarded to the researcher at a later date. Although requests were made for revised curriculums in the other cases, no data were received.

participate actively in curriculum development and reevaluation. Their recommendations, no doubt, affect the shape of curriculum subject matter in a most important way.

Resident program curriculums, in contrast to many circuit curriculums, always involve at least one and often several permanent school faculty. Where only one faculty member teaches the entire trade, he is the apprentice's master teacher and is available to assist in solving problems and counsel on a continuous basis. This is considerably different than where the trade is taught by only one circuit teacher. In those instances, as was pointed out earlier, the apprentice can only seek assistance on those days when the circuit schedule brings the circuit teacher to a particular school. In trade programs taught by resident faculty, therefore, the apprentice is relatively less isolated from the school. Even though he may be working during the day, he can telephone his master teacher or related subject teachers or visit the school in the evening, if necessary.

HOME STUDY CURRICULUMS

In five schools, apprentices in cosmetology, photo engraving, and watchmaking study at home. Table 5 presents these schools and the trade programs involved.

Table 5--Schools and Trade Programs Where Home Study Curriculums Were Involved, Fall Semester, 1966.

School	Trade Program	Program Supervision
Eau Claire	Watchmaking	Circuit Teacher
Green Bay	Cosmetology	
	Watchmaking	Circuit Teacher
Neenah	Photo Engraver	Employer & School
Rhinelander	Cosmetology	Circuit Teacher
Two Rivers	Cosmetology	Circuit Teacher

Source: Neenah Vocational School and Office of the Occupational Extension Coordinator for the Circuit Program.

Curriculums for these home study courses are developed in several ways depending on the trade. For photo engraving, the curriculum is developed by the school and employer involved. In cosmetology, the curriculum is the same one used by the circuit teacher for instruction at the various schools. The watchmaking curriculum is developed by a circuit teacher in conjunction with the Wisconsin Board of Examiners in Watchmaking. While the related instruction is administered through the circuit program, it is considered somewhat different than the other trades, thus, explaining its exclusion from the earlier discussion. Five times each year the teacher visits the schools in the community where the watchmaking apprentice is working. At these times he collects and distributes assignments. These home assignments are set up in terms of study units (sometimes called instructional units). The apprentice is expected to complete assigned unit work at home and present these completed units to the teacher during his visits. Visits to the school constitute all day sessions during which the apprentice can ask questions and go over home assignment problems.

Home study is a pragmatic response to extremely small trade enrollments in the state. It is not economically feasible to have a permanent resident faculty for the trade program or even a regular circuit as with other trades. The shortcomings of such programs are well known. The apprentice is isolated from most school contact and must turn in most instances to the employer for assistance in solving problems related to learning the trade. It is the opinion of most educators that home study should never be used where an alternative is present that will allow the related instruction to be given at school. Some fitting into vocational and technical programs may be possible for certain subject materials. With such small enrollments and a highly specialized trade occupation, there is little hope, however, for offering the trade technology at the schools on a regular basis.

SOME OBSERVATIONS ON TRADE CURRICULUMS

The most pressing need for related instruction curriculums is a standardized core for resident trade programs. This would ensure that apprentice throughout the state received approximately the same education. It would also provide an opportunity for considering suggestions made earlier regarding such teaching techniques as closed circuit television and use of the Victor Electrowriter Remote Blackboard.

In the circuit trade programs particularly, serious thought needs to be given to the highly trade-oriented approach with almost complete subject emphasis on technical aspects of the trade. Need we concern ourselves with whether the apprentice is getting a relatively well-rounded education? If a balanced curriculum between the technical

aspects of a trade and more general education is considered desirable, how can we achieve such a balance within the framework of present school requirements? If we cannot, do we need to expand apprentice related instruction to include other subjects taken in the evening or at some other time? These questions and others need further research in order to provide a basis for decision-making.

The Douglas Aircraft Company in Santa Monica and Huntington Beach, California, in conjunction with the International Association of Machinists, recently developed a unique on-the-job and school apprenticeship program for electronics technicians. Apprentices in the program will absorb 8,000 hours of training including 700 hours of related instruction in a four year period. The curriculum is predominately academic and theoretical. Apprentices will attend regular junior college classes in the evening instead of receiving separate instruction. Academic requirements are fulfilled in nine months each year. The curriculum is designed in such a way that all courses will count toward a college degree. In order to qualify for degree status (voluntary commitment) the apprentice need only take social science courses during the summer. The company will pay school costs in both cases.

The significance of such a program has several dimensions. It allows the apprentice to achieve journeyman status while accumulating credit toward a college degree. The curriculum demonstrates, at least in this project, that it is possible to conceive of educating the apprentice without emphasizing a tightly structured trade orientation. Summer courses in the social sciences not only help the apprentice qualify for a degree, but also provide him with a much better education balance. The apprentice who successfully completes the basic requirements for journeyman status and then goes on to summer school and gets his degree, certainly will be a prime candidate for supervision.[11]

The idea of qualifying for a degree while achieving journeyman status has much merit to the highly motivated apprentice who desires to move beyond the ordinary. The broadening experience of general education courses can provide the apprentice with insights about his company, union, and community that will make him more sensitive to the problems and complex relationships that are involved.

The concept of pre-apprenticeship, which is not entirely foreign to Wisconsin's experience, ties closely with some of the ideas expressed above. Many Wisconsin vocational and technical schools have programs that

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11. Douglas Aircraft Company. *Apprenticeship Standards for Electronic Technician* (D.O.T. #67.110), Adopted November 19, 1965.

offer well-rounded training in apprenticeable occupations. The procedures are already established to allow such credit to count toward related instruction requirements. At present, little is being done to encourage vocational and technical program students to consider the value of journeyman status in addition to their diploma or degree. Many compensation plans for beginning apprentices lack the flexibility necessary to take account of additional educational attainments. It is unrealistic to expect such a person to enter into apprenticeship at a lower starting wage than he can make in some non-apprenticeable occupation. Apprenticeable occupations are losing the much needed skills and knowledge that such students can bring to the work environment. Employers, schools and unions should be working hard to improve their counseling techniques for bringing trade occupation opportunities to the attention of these students prior to employment. This might be done in a number of ways: (1) improved counseling, (2) discussion sessions involving employers, unions, students, and school representatives, (3) improvements in quality and quantity of information materials, and (4) summer jobs. Summer jobs, for example, would give the student first-hand experience with a particular occupation. He would be able to gain insights into a trade to determine its meaning for him. In addition, it would bring the student, employer, and union together and provide a realistic feedback system for purposes of evaluating employment opportunities on the part of the student and potential job candidates on the part of the employer and union. All of the above, however, assumes that unions and employers desire the best qualified candidates for the skilled trades.

INSTRUCTIONAL STAFF

An examination was made of the personal histories of the 237 apprentice teachers who taught such classes during academic year 1964-65 in an attempt to determine their characteristics. Data on age, sex composition, employment status, certification status, educational background, years of related teaching experience, years of related work experience, and journeyman status were obtained in various degrees of completeness for all of the 237.[12] These eight dimensions of the

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12. Turnover, records out of file, and incomplete application and other personal data forms prevented obtaining complete information on all those who taught that year. Personnel records were available for 183 of the 237 teachers. Many of the other fifty-four left employment at the end of the academic year and their records had been removed from the file.

apprentice related instruction teaching staff are described and analyzed below.

AGE

Data on age were available for 158 teachers. Ages for the group ranged from twenty-three to seventy-two with a median age of forty-nine years. Table 6 presents ages and frequencies of occurrence for all 158 and also gives a breakdown by circuit and resident groupings.

Table 6--Ages of Apprentice Related Instruction Teachers in Thirty-seven Vocational, Technical and Adult Schools, Academic Year 1964-65.

Age	Circuit Teachers (Frequency) (N=21)	Resident Teachers (Frequency) (N=216)	Combined Totals (Frequency)
20-24		3	3
25-29		12	12
30-34	1	19	20
35-39		12	12
40-44	2	14	16
45-49	4	13	17
50-54	1	21	22
55-59	4	25	29
60-64	4	9	13
65-69		11	11
70-74		3	3
	n=16 (Md=55)	n=142 (Md=49)	n=158 (Md=49)

Source: Wisconsin State Board of Vocational, Technical and Adult Education.

The median age of the circuit teachers was fifty-five compared to forty-nine for resident staff. The range for resident teachers, however, was considerably wider, reflecting the relatively greater ease of entry into teaching apprentice related instruction for young people with a college degree or at least some college and the ability of former teachers to continue teaching primarily on a part-time basis. Although sixty-five is the recommended retirement age, extensions

are allowed on a year to year basis. As a general rule circuit teachers enter apprentice teaching after a number of years of occupational experience which quite likely involved an apprenticeship of several years. As a result, entry age is somewhat higher than for resident staff. It should also be noted that circuit teachers are involved with trade technology as well as related subject areas while the resident teacher may only teach a related subject such as mathematics or blueprint reading. The latter, it will be remembered, requires considerably less work experience to qualify and as a result a person can enter almost immediately after college.[13]

SEX COMPOSITION

As might be expected, teaching apprenticeable trades is almost exclusively a male domain. Two hundred twenty-seven (95.8 per cent) of the 237 related instruction teachers in 1964-65 were male.

In the circuit program, the only exception to the dominant male teaching pattern occurred in cosmetology. In the resident programs, female teachers taught communication skills, English, human relations, related mathematics, and cosmetology (Milwaukee). All of these except the last were related subjects. Present patterns are unlikely to change much in the future. Over time, a few more female teachers will probably move into the related subjects areas and it is possible that some service trades such as cosmetology may utilize females to teach the trade technology. Whether discrimination is involved in hiring female teachers for apprentice related instruction is another question. Most of the trades have been dominated by a male tradition for so long that few females have attempted to enter into training in order to qualify to teach the subject matter.

EMPLOYMENT STATUS

Employment status information was available for 183 teachers. Of this number 157 were full-time and twenty-six part-time. All the circuit teachers and 84 per cent of the resident teachers were full-time.

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13. Related subjects teachers can qualify for provisional status with a B.S. and six months occupational experience while the technology teacher is required to have eighteen months journeyman's status for provisional. A degree will substitute for journeyman status, however, this has not been the path taken by a majority of circuit teachers.

Apprentices in Wisconsin's Vocational Schools are being taught predominately by full-time faculty members. This has advantages for trade programs and apprentices, particularly those in resident programs. The full-time faculty member has relatively more time to spend on the program(s) he teaches. He also has time to make more frequent contacts with industry and labor leaders. In addition, the apprentice benefits by increased availability of the full-time staff member, if needed. The full-time member also is able to participate much more actively in the planning and implementation of activities affecting apprentice related instruction than is the part-time teacher.

The part-time faculty, however, play an important role in apprentice related instruction. Quite often someone is needed to teach some special aspect of a trade. Someone whose full-time occupation is in industry can prove most valuable in filling such a gap. During the 1964-65 academic year the part-time faculty taught both trade technology and related subjects in a number of different occupations. Related welding and mathematics were the most frequent subjects taught by these members. Trade technology taught by part-time people included millwrighting, machine trades, printing, and sheet metal. These people have the advantage of first-hand practical knowledge. Bringing this experience into the classroom means that the apprentice can learn from the integration that takes place between theory and practical problems.

CERTIFICATION STATUS

One of the strong points of all the faculty who teach apprentice related instruction is the large number who are classified as standard life members. In academic year 1964-65, 118 or 64.8 per cent of the 182 for which information was available were classified as standard life with full tenure privileges. Table 7 presents a breakdown of the 182 faculty members by appropriate certification classification.

One of the strengths of the state's certification policy is to continuously move the teacher toward standard life status. To accomplish this, certain education and occupation requirements must be met within specified time limits. This approach encourages progress by the faculty member resulting not only in tenure, but also in a better prepared teaching staff. Summer courses at an approved university or college or occupational experience tend to keep the process of upgrading knowledge very much in the foreground. The apprentice cannot help but benefit from this continual influx of new ideas and experiences by the faculty.

Table 7--Certification Status for 182 Related Instruction Teachers, Academic Year, 1964-65.

Certification Status	Circuit Teachers (N=21)	%	Resident Teachers (N=216)	%
Approval	-	--	25	15.4
Provisional	3	15.8	36	22.0
Standard Life	16	84.2	102	62.6
	n=19	100.0	n=163	100.0

Source: Wisconsin State Board of Vocational, Technical and Adult Education.

EDUCATIONAL BACKGROUND

One hundred-two or 57.0 per cent of the 179 teachers whose educational backgrounds were available, possessed an undergraduate or higher degree. Approximately 17.0 per cent of these teachers had at least a master's degree. Table 8 demonstrates these educational background patterns for circuit and resident instructional staff.

Table 8--Education Background of 179 Related Instruction Teachers, Academic Year, 1964-65.

Education Status	Circuit Teachers (N=21)	%	Resident Teachers (N=216)	%
Less Than High School[1]	4	22.2	2	1.2
High School Plus	11	61.1	60	37.3
Undergraduate Plus	2	11.1	70	43.5
Masters Plus	1	5.6	28	17.4
Ph. D.	-	-	1	.6
	n=18	100.0	n=161	100.0

[1]Although the people in this category lack a high school diploma, they have taken summer courses required by the State Board for certification status. In addition, they must have sufficient occupational experience to qualify them for equivalent standing with those who rank higher in formal education.

Source: Wisconsin State Board of Vocational, Technical and Adult Education.

Apprentice related instruction programs possess a highly qualified teaching staff. While the resident group possessed a relatively greater number with college degrees, the circuit faculty tended to offset this with additional years of occupational experience. The quality of the instructional staff reflects the state-wide certification policy. This policy not only raises overall standards of teaching qualifications, but also demands a high standard regardless of whether a school is large or small. The apprentice is the beneficiary of this excellent policy for requiring teacher competence.

It is worth noting that the college degree is becoming more and more significant as an employment qualification for related instruction teachers. Although the occupational experience route remains open, it is used much less often today for entry into the field of teaching related instruction. The exception to this is in the circuit program which makes an effort to hire journeymen, reflecting the feeling of the building trades unions that apprentice teachers should be skilled craftsmen in order to be qualified to teach the trade. Generally, such a craftsman can make considerably more working his trade than teaching, thus, encouraging the development of a well established pattern to hire more college trained teachers instead of journeymen.

YEARS OF RELATED TEACHING EXPERIENCE

Personal data were available on years of related teaching experience for 178 teachers of related instruction for academic year 1964-65. Circuit teachers had a median of sixteen years of related teaching experience compared to a median of twelve for resident faculty.

Both the circuit and resident groups demonstrated considerable related teaching experience. Relatively larger numbers of young resident teachers tended to reduce the median years of experience for this group; a quarter of them had less than five years of related teaching experience. The significance of this data is that it adds another dimension to the over-all observation that the apprentice instructional staff is well qualified in their respective fields.

YEARS OF RELATED OCCUPATIONAL EXPERIENCE

Related occupational experience was available for 148 teachers. The circuit teaching staff had a median of nine years of experience — compared to seven for resident staff. The pattern reflected here is quite similar to the one for years of teaching experience; 38 per cent of the resident teachers had less than five years of related occupational experience.

It is likely that the median years of experience will decrease somewhat in the future for both circuit and resident full-time staff due to the hiring of more and more college trained people. However, the recruitment of experienced part-time teachers may hold these figures at present levels. Again, the high quality of the teaching staff is emphasized by the years of related work experience held by the group.

JOURNEYMAN STATUS

There is a considerable difference between circuit and resident teachers regarding journeyman status. Eleven circuit teachers (69 per cent) were journeymen. In contrast, only thirty-nine (25 per cent) of the resident teachers had achieved journeyman status.

This confirms earlier statements that relatively fewer teachers of related instruction enter the profession by way of the occupational route. This is particularly true in the resident trade programs where union control has traditionally been diffused. As a result, the schools have taken more initiative in hiring teachers for these programs. In the circuit program, which had its roots in a request by the trade associations representing master and journeymen members, the building trades unions have emphasized the hiring of trade competent instructional staff.[14] This philosophy has been translated into action by active advisory committee participation in recommending potential teachers to the state and local boards of vocational, technical and adult education.

Whether the apprentice teacher should be a journeyman or not cannot be answered here. There is a difference between trade technology and related subject matter and this point is generally considered in the discussion of teacher qualifications. It appears that the resident programs are moving in the direction of college trained people without journeyman status for both trade technology and related subjects. In the circuit programs, it is almost certain that strong pressure will be brought to bear by advisory committees to continue hiring journeymen, at least for the trade technology subjects. This pressure is reduced somewhat, however, by the inability of the schools to meet wage levels that the journeyman can demand in the trade.

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14. Wisconsin State Board of Vocational Education. *Administration and Supervision of the Adult Trade Extension and the Itinerant Instruction Plan*, Administrative Series Bulletin No. 54, August, 1930, p. 8.

In summary, the apprentice teaching staff in Wisconsin for 1964-65 was highly qualified and represented one of the strong points of the entire program. One can assume that, given the high standards and state-wide policies for certification, this level of competence will be maintained and will improve in the future. One of the weaknesses of apprentice related instruction is the limitations placed on the teaching staff by outdated class structure such as the individual study or instructional unit approach. The teacher, except in those schools and trade programs on a semester basis, can rarely use his knowledge effectively. It is fragmented and isolated by the constant necessity for individual counseling and instruction. Effective curriculum planning and group projects are lost arts for want of application. It is likely that complaints by apprentices regarding the need for improved teaching staff probably reflect program structure and not teacher competence. An educational system such as apprentice related instruction can easily make a highly qualified teacher look inept.[15]

CONCLUSIONS AND RECOMMENDATIONS

With the exception of such aspects as state and federal aid policies and procedures, certification of teachers, and statewide standards for circuit curriculum, apprenticeship related instruction in Wisconsin is a local education process. Although there is a loose coordination of this process at the state level, related instruction as an integral part of apprenticeship training suffers from policies, rules, regulations, and codes developed and administered by seven different relatively autonomous organizations or sets of organizations. These include the Apprenticeship Division of the Industrial Commission, State Board of Vocational, Technical and Adult Education, Circuit Relations Committee, Local Boards, Schools, Employers and Local or Area Advisory Committees. The latter two designations almost always include several different employers and advisory committees depending on number of trades and composition of industries involved in the training.

The lack of statewide standards in most aspects of related instruction have encouraged the development and implementation of a whole array of fragmented policies and procedures at the community level.

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15. See, for example, G. Soundara Rajan, *A Study of the Registered Apprenticeship Program In Wisconsin.* (Madison: University of Wisconsin, Center for Studies in Vocational and Technical Education, 1966), p. 175.

Responsibility for administrative functions, while clearly defined in some instances, are ambiguous in others. Coordination at the state level is largely non-existent with the exception of those areas mentioned at the beginning of this section. It is interesting that statewide standards for two of these, aid policies and teacher certification, developed in response to the more general and comprehensive structure of vocational and technical education and represent an important part of the comprehensive laws on this kind of education in the state.

It is highly unlikely that the present structure of related instruction will be drastically changed in the immediate future. Apprenticeship is an institution and as such can be expected to change by evolution rather than by revolution.

It is doubtful whether efforts to legislate changes in the apprenticeship law to provide for statewide standards would receive much support, particularly from employers and labor. This was tried for curriculum at a very early point (1911) in the development of a legal framework for apprenticeship. It failed to stand the barrage of criticism leveled at its intent and was deleted from the law in 1915.

Several points have emerged from this study. These are as follows:

1. If related instruction is to be improved for the state as a whole, it must begin with a consideration of enrollment policy. At a majority of the schools, policies on apprentice enrollment continue to emphasize entry at any time. In large part, these policies have represented a pragmatic effort by the schools to meet the interests and needs of local employers who train apprentices. Entry at any time places constraints on the instructional process that seriously limit the range of alternatives for related instruction trade programs. It requires a system which allows the apprentice to be fitted into a class without disrupting the instructional process and which, at the same time, does not place him at a learning disadvantage.

A number of schools, working in conjuction with employers and committees, have shifted their enrollment policy to a semester basis of entry. This is more in line with other school programs and provides instructional flexibility not available under the other plan. The semester plan is adaptable to both large and small schools and trade programs.

2. A change in enrollment policy is fundamental to providing increased flexibility in instructional techniques. At present, those schools that allow the apprentice to enter at any time are largely restricted to individual rather than a group instructional methods. Each apprentice under this system studies on his own and has little contact with his classmates for learning purposes. Except at specific times, such as the beginning of a class period or when a specific

problem arises that may be relevant to all members of the class, there is little interaction between the teacher and each apprentice on an individual basis. Invariably, beginning and more advanced students are thrown together in the same class. Any class discussion directed to the beginner is boring and repetitious to the more advanced student. Conversely, the beginner is lost when more advanced materials or problems are discussed.

Under the semester plan, it is possible to utilize several instructional approaches including both individual and group orientation. Individual orientation, however, would emphasize work on projects and problems within the framework of the class. This tends to compliment the group method of instruction. Where class enrollments are sufficiently large, beginning and more advanced students can be placed in courses which emphasize a particular stage of development rather than having all apprentices in the same class working on elementary and advanced work.

While a change in enrollment policy may not necessarily allow consideration for providing increased flexibility in instructional techniques, primarily because of small enrollments, it does provide the potential for this flexibility in both large and small classes. In large classes, enrollment presents no problem, thus individual and/or group (class) methods can be used. In those trades with smaller enrollments it is probable that use of the semester plan, where entry periods are restricted to two points in time each year, would result in some enrollment improvement over present circumstances. In addition, enrollments would be considerably more stable, primarily because entry and completion points would be subject to greater control. The present use of cooperative program arrangements between schools and the combining of trades with common technologies provide useful strategies for dealing with these small enrollments and need to be encouraged in the future.

3. There is definite need for a standardized core curriculum for all trade programs in the state. This has already been accomplished for circuit program trades. Such a standardized core would insure each apprentice of receiving approximately the same basic education. Where necessary, local subject or course requirements could be designed to meet any specific industrial circumstances peculiar to a certain community or area of the state.

A standardized core curriculum for a trade would also increase the flexibility of instructional methods. Apprenticeship needs to consider the value of such teaching techniques as closed circuit television and the remote blackboard telelecture approach. These approaches may offer a valuable means of providing certain trade information simultaneously to large numbers of apprentices in the same trade.

Hopefully, evaluation of the need for a core curriculum would encourage an assessment of curriculum content. Currently, many related instruction curriculums display a tightly structured trade orientation. This is particularly true for the building trades. Within the framework of four hundred hours, perhaps it is as much as we can expect with such limited exposure to formal education. The present study pointed out, however, that many trade programs now require more than four hundred hours. In considering curriculum requirements, it is worth examining the philosophy of developing the whole man rather than an employee. Possibilities include an increased emphasis on more general education subjects in trade extension programs and in additional hours beyond the four hundred state minimum requirement. Further, it is worth considering ways of encouraging the highly motivated apprentice to pick up an associate degree or two year vocational diploma by taking additional courses. Ways could be explored to reward such efforts by reimbursement of tuition and books and/or compensation increases beyond those provided under regular employment conditions.

4. The present structure of related instruction credit is based on an hour for hour equivalency. One hour of credit is given for one hour of class time. This approach, which has its roots in the wording of the apprenticeship law is considered out of tune with other vocational school education programs. The crediting means little or nothing outside of apprenticeship training, thus, failing to consider the meaning of this credit to the apprentice. If, for example, he decides to pursue an alternative vocational school program (vocational or technical) his previous time in school is difficult or impossible to evaluate, possibly forcing him to start his education over again.

With the introduction of a semester enrollment policy, courses could be designed as part of the related instruction curriculum and evaluated on a basis quite similar to present arrangements for other education programs. The crediting procedure could be established based on an equivalency evaluation of present hours requirements. This could be done within the framework of the present wording of the apprenticeship law as the term "equivalent" appears in this context.

5. The practice of allowing credit for previous education and/or work experience, home assignments and correspondence courses is in need of review. It is recommended that the entire area of credit be evaluated by the state agencies that coordinate and administer apprenticeship. This should be done in conjunction with local leadership. As part of this assessment, it is urged that statewide standards be developed, approved and implemented regarding the allowing of credit of whatever kind. Credit for previous work experience should not be allowed to reduce related instruction requirements, nor should credit

be allowed for home assignments. For correspondence courses, the present policy of allowing them only when no other alternative is available, should be continued.

Credit for previous education experience should be continued and expanded where possible. In the past apprenticeship has concentrated its recruitment attention on the young working person. It has failed to capitalize on the skills and talents of the post high school full-time vocational and even technical student. Few plans have been laid or effected to acquaint and encourage this group to consider the meaning of becoming a skilled craftsman. Several ideas along these lines were suggested in the present study. These included: (1) improved counseling; (2) discussion sessions involving employers, unions, students, and school representatives; (3) improvements in quality and quantity of information; and (4) summer jobs. It is suggested that summer jobs might provide the student with first-hand experience in an occupation. He would be able to gain insights into a trade to determine its meaning for him. In addition, it would bring the student, employer and union together and provide a feedback system for purposes of evaluation on the part of all concerned. In utilizing this kind of approach, it would not be expected that the student perform as a skilled worker. Instead, he could do valuable, productive work as a helper. There are many ways of encouraging and acquainting a young person with apprenticeable occupations. What is needed is creative leadership to get them implemented.

6. In the course of the present study, it became clear that a few schools in the state are not providing related instruction for certain trades primarily because of very small enrollments. This position is untenable in light of the majority that provide trade instruction for enrollments of one or two people. It is not sufficient to say that ninety-five per cent are receiving training. Our committment under the law is clearly 100 per cent. Anything less should come only after every attempt has been made to fulfill this obligation. If we expect to win the confidence of industry, labor and the apprentice himself we must do everything possible to secure training for those people who are now being deprived of it in certain areas of the state.

7. Finally, there are several aspects of related instruction that need special attention in the form of research at the state level. One of these areas is that of testing the apprentice. At present, some schools require the new apprentice to take a test battery while others do not. The test results frequently serve the dual role of providing information to the committees for selection screening purposes and also a counseling tool to inform the committees of subject areas in which the potential apprentice candidate appears to need refresher or remedial course work, if indentured.

The entire area of testing is in need of review. Standards need to be established on who should be authorized to test, kinds of tests to be offered, and what the purpose of the tests should be. Karl Magnusen, in his recent study of joint apprenticeship committees in the building trades suggested that the entire area of testing needed re-evaluation.[16] This study reaffirms that position.

A second aspect pertains to the requirement of total training time. Related instruction is integrally tied to total training time, although there is evidence from the present investigation that this relationship is gradually changing. Many programs now require several hundred hours of related instruction in excess of 400, however, total training time has remained the same. Frequent comments were heard from many sources during this research that total training time for many trades is excessive and this fact tends to discourage young people from entering apprenticeship. Such comments are quite easily made but what is needed is research on the subject which will provide us with improved information. Perhaps longer training periods may be needed in some trades. The increasing complexity of our industrial base would tend to suggest this possibility for certain occupations. Conversely, increased standardization and new methods of production in others may equally suggest less training time.

A third aspect ties closely with the time requirement, namely, attendance patterns. Presently there are three major attendance patterns: (1) four hours once each week, (2) eight hours once each week, and (3) eight hours every other week. It would be valuable to know more about the implications of these patterns for the apprentice, school and employer.

Finally, in an effort to strengthen the leadership and administrative relationships of related instruction, consideration should be given to expanding the participating members of the local and/or area advisory committees to include representatives from the vocational schools. This could be on the basis of equal or unequal representation with the other groups depending on recommendations from those who would be involved in working out a plan for such a change.

One of the major values to such an extention of the advisory concept would be to bring present committee members and school representatives into a closer working relationship with each other. Most of the literature on the subject of advisory committees stresses the importance of a close working relationship between the committees

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16. Karl O. Magnusen, "A Study of Registered Joint Apprenticeship Committees in Wisconsin Building Trades," unpublished M. S. thesis, University of Wisconsin, 1967.

and schools, yet Magnusen's recent study of the registered apprenticeship committees in the building trades in Wisconsin suggested that interaction between the school and committee representatives was quite low. In part, the criticism leveled at related instruction and the schools may be explained by the absence of a formalized structure within which these representatives can work together.[17] Magnusen's study demonstated possible points of conflict in the area of related instruction by quoting an electrical committee observation that "The schools don't know what is required for a construction electrician. When the committee does recommend a change in instruction, the schools run to all the state agencies for protection to dominate the teaching materials."[18]

While harmony may not result by closer participation of these representatives, it is likely that they would make each other more aware of their interests and values regarding related instruction.

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17. Magnusen, *op. cit.*, p. 85.

18. Magnusen, *op. cit.*, p. 80.

SECTION III

Norman Dufty

APPRENTICESHIP - A THEORETICAL MODEL

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An inquiry into recruitment to the skilled trades in Western Australia through the apprenticeship system showed that the number of apprentices fluctuated more than industrial employment and the number of new apprentices fluctuated more than the total number of apprentices. Over the 1948-58 period the four quarter moving average figure for industrial employment showed one peak, the total number of apprentices had three peaks, and the figure for new apprentices showed nine peaks. Studies of particular industries revealed a similar pattern. In this article an attempt will be made to outline a theoretical model of an apprenticeship system and to discuss the implications of such a model.

THE MODEL

Entrants to the apprenticeship system may be limited by supply or demand and in order to study first the demand side alone it was necessary to select industries in which there was a steady over-supply of entrants over the period in question. Further, in order to obtain comparable employment figures it was essential to select industries whose boundaries coincided as closely as possible with particular occupations. The trades fulfilling these requirements over the 1948-58 decade were those of plumber, carpenter, painter, motor mechanic and tailor. The rank order correlations between the total number of apprentices and employment ranged from 0·85 to 0·94 whereas those between entrants and employment were from 0·36 to 0·81. Other relationships tested, such as earnings, wage rates, etc., showed correlations approximating to zero. On the basis that the stable relationship is between the total number of apprentices, A, and employment in the industry, E, this may be expressed for period t in the form

$$A_t = KE_t$$

when K is the appropriate apprentice/employment ratio. Assuming a stable relationship between the number of tradesmen and industry employment, the upper limit of K will be set by the limiting apprentice/tradesmen ratio determined by the industrial tribunal. In practice this is not a restrictive factor, at least on an industry basis.

The operation of the industrial tribunal is such that it is extremely difficult for an employer to discharge an apprentice. The level of employment relevant to the model will therefore be the sum of all the firms' minimum anticipated employment figures for some years ahead. Employers are unlikely to take the risk of being caught with too many apprentices if economic conditions make it necessary for them to reduce employment. If we take C to be a coefficient of optimism then the relationship becomes

$$A_t = KCE_t$$

The level of intake will be determined by A less the apprentices still in training, the latter being largely dependent on the intake in previous years after allowing for wastage. If I is the annual intake and a, b, c and d are coefficients describing the retention of the intake after 1, 2, 3 and 4 years then

$$I_t = KCE_t - aI_{t-1} - bI_{t-2} - cI_{t-3} - dI_{t-4}$$

In most trades the ability to absorb first year apprentices is limited, this limit being set by technical factors and being high for trades such as woodmachining and low for others such as watch repairing. If the first year apprentice ratio is denoted by K^1 then

$$I_t \leqslant K^1 E_t$$

Finally, the annual intake will not exceed the supply of suitably qualified recruits, S_t that is

$$I_t \leqslant S_t$$

The significant feature of such a model is that even smooth movements in industry employment are likely to generate wide and persistent fluctuations in the annual intake of apprentices. For example, taking c, a, b, c, d, to be unity, K as 0·20 and both K^1 and S as non-limiting, then a rise of employment from 400 to 540 at twenty per annum followed by six years at that figure and a decline back to 400 at the same rate will generate intake fluctuations from twelve to twenty-four and will show three peaks.

THE MODEL IN OPERATION - WESTERN AUSTRALIA

Two industries are taken as examples, both of them with an ample supply of recruits relative to demand, in order to prevent supply becoming a limiting factor. In the first one, the motor vehicle repair industry K = 0·092, K^1 and S are non-limiting, and the intake figures for the four previous years are assumed to be 32, 50, 99 and 67. Actual figures are not used in either example because of the distortion of the

TABLE 1

Employment, Actual and Calculated Apprentice Intake Figures, Motor Vehicle Repair and Clothing Industries, Western Australia, 1948/49 to 1957/58

Year	Motor Vehicle Repair			Clothing		
	Employment	Apprentice Intake		Employment	Apprentice Intake	
		Actual	Calculated		Actual	Calculated
1948/49	2622	47	47	1328	33	33
1949/50	2847	66	66	1351	59	59
1950/51	3132	84	84	1447	34	34
1951/52	3212	93	93	1318	35	35
1952/53	3590	93	105	1068	16	15
1953/54	3839	84	85	1043	19	19
1954/55	4152	104	106	947	10	10
1955/56	4252	108	100	825	10	9
1956/57	4290	63	63	738	20	25
1957/58	4425	91	91	677	7	9

overall picture caused by the training of men from the armed services. The data indicate a wastage rate of 10 per cent per annum, a, b, c and d are therefore taken to be 0·90, 0·80, 0·70 and 0·60 respectively. Values of C are purely subjective estimates, unity for the first eight years of the decade then 0·92 and 0·87 in the last two. The data are shown in Table 1.

Taking a different industry, clothing manufacture, which shows a different employment trend, K = 0·18, K^1 and S are non-limiting, and the intake figures used are 54, 18, 64 and 70 for the four years prior to 1948/49. No resignations were reported, therefore a, b, c and d are taken as unity. After 1951/52 employment in the industry fell heavily due to inter-state competition and the industry suffered severely. Extimates for C are therefore unity for the first four years of the period followed by 0·92, 0·87 and 0·67 for the next three and 0·60 for the rest of the decade. The results are shown in Table 1.

IMPLICATIONS OF THE MODEL

On the evidence presented above, the suggested model of an apprenticeship system approximates to the real situation, at least in the particular labour market under consideration. The implications of the model may be enumerated as follows:

1. Comparatively smooth changes in industry employment can give rise to quite large fluctuations in apprentice intake. These cause organizational difficulties for the authorities responsible for the formal education of apprentices.
2. In occupations which find it difficult to attract recruits, supply limitations prevent 'natural' intake peaks being achieved. This inability to make up for the lean years is likely to result in a chronic shortage of apprentices.[1]
3. The institutional factors involved, principally the virtual impossibility of discharging an apprentice, result in comparatively low values for the coefficient C. Employers with a pessimistic outlook on their future operate on a low C. Although this may be compensated by high values of C for

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1. For a more detailed consideration of this point in a specific employing authority see N. F. Dufty, "The Influence of the Selection Process and Labour Market Pressures on Recruits to the Skilled Trades," *Journal of Industrial Relations*, 7, 1965, 336-340.

other employers in the industry whose future prospects are brighter, K[1] or S may be limiting factors. The net result is a lower level of intake of apprentices into the industry as a whole than an objective consideration of all the factors would justify.

The implications outlined above suggest certain modifications to the system which might help to correct some of the observed unbalances. The most important of these would be the introduction of some flexibility into the arrangements. One way in which this could be done would be to make the first part of the apprenticeship common to a number of related trades, thus enabling transfers to be made, at least in the early stages of training. In order to overcome the reluctance of employers to take reasonable numbers of apprentices (a reluctance which stems from the perceived danger of a reduction in employment) it would also be advisable to indenture apprentices to an Apprenticeship Board rather than to individual employers. This would facilitate inter-employer transfers when a particular industry, or some portion of it, was adversely affected by economic conditions. It may even be feasible for the government to take final responsibility in circumstances where transfers were impossible. Of course, the above comments are no more than tentative ideas which would need further consideration in the institutional context of the labour market concerned. [2]

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2. For a more detailed discussion see N. F. Dufty, "Apprenticeship," *Economic Activity in Western Australia*, 9, 1966, 13-20, also reprinted in W. G. Ford and J. E. Isaac (eds.) *Readings in Australian Industrial Relations* (Sydney: Sun Books, 1967).

RECRUITMENT TO THE SKILLED TRADES: A STUDY OF A SEGMENT OF A SKILLED LABOR MARKET

Norman F. Dufty*

In Western Australia, entry to the skilled trades via a formal apprenticeship is much more common than in the U.S.A. In some years, as many as one-third of the male school leavers (mainly dropouts) enter the apprenticeship system. Some of the characteristics of the Western Australian apprenticeship system include: apprenticeship training commencing at age 15; an average length of five years for virtually all apprenticeships; very low dropout rates (less than 5 per cent); and one day of related classroom instruction every two weeks in paid time. Apprentices in all trades are paid at the same rate, according to the year of apprenticeship, as the interskill differential between trades for adult tradesmen is very small. In these circumstances, the question may well be raised, "How does the labor market operate?" An investigation was made into the process of apprentice selection in the Western Australian Government Railways (WAGR) over the ten year period from 1948 to 1958. This organization, which trains a large percentage of the apprentices in the metal trades in the State, has a clear-cut selection procedure and keeps adequate records. Access to the records for this period was through the courtesy of the late Mr. A. P. Ffarrington, chairman of the Selection Board at that time.

The applications for apprenticeships were solicited by advertisements that listed the trades available and the applicants were tested and interviewed.[1] For the purpose of this article, the interview and test data were combined in an "ability score." This was done by adding the interview score, a numerical expression of the interview board's opinion of the applicant, to the mean of the applicant's test scores

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1. For a full discussion of the testing and interviewing procedures, see N. F. Dufty, "The Recruitment of Apprentices for the Western Australian Government Railways," *Personnel Practice Bulletin*, Vol. XVI (1960), pp. 34-40.

(intelligence, mechanical aptitude, etc.) thus giving both interview and test scores equal weight. Because the interview board had the test scores available when evaluating the applicant, there was obviously a "halo effect."

Owing to the imbalance between the requirements of the organizations and the number of applicants who nominated particular trades as first choices, a large number of interviewees were asked if they would accept an apprenticeship in another trade if they were rejected for their first choice. The pliability of the applicants was reflected in two statistics. Over the period in question, 25 per cent of the applicants ranked *all* the trades mentioned in the advertisement--usually ten or more, and less than 5 per cent nominated a single trade. In addition, less than half the boys who accepted apprenticeships did so in the trade nominated as their first choice.

The purpose of this article is to examine the allocation mechanism in this subsection of the labor market.[2]

EFFECTS OF THE SELECTION PROCEDURE

The effect of the selection procedure in diverting applicants from the trade which they gave as their first choice to some other trade showed several distinct patterns. If the applicants greatly exceeded the number of vacancies, and if the quality of the applicants and the minimum standards for selection were reasonably high, then only a small number of boys wanting apprenticeships in a particular trade would get them. For example, 14.4 per cent of the applicants for electrical fitting apprenticeships received an apprenticeship in this trade, but 36.2 percent received an apprenticeship in another trade. Pattern-makers, auto-mechanics, and carpenters are other examples. On the other hand, when both the minimum selection standards and the quality of the applicants were reasonably high, but the number of applicants did not greatly exceed the number of vacancies, a larger proportion tended to be accepted. Mechanical fitters and machinists were in this class. When available vacancies greatly exceeded the number of applicants, and the quality of applicants relative to the minimum selection standards was high, as in the cases of boilermakers and wagon builders, a large proprotion of the applicants was accepted for their chosen trade.

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2. For a more detailed discussion, see N. F. Dufty, "The Influence of The Selection Process and Labour Market Pressures on Recruits to the Skilled Trades," *Journal of Industrial Relations*, Vol. VII, No. 3 (November 1965), pp. 336-40.

In situations which were similar, except that the quality of applicants was low, the proportion of rejects was high, but those accepted went into the trades they chose. Trimmers, blacksmiths, and painters were in this category.

In general, trades such as electrical fitting, mechanical fitting, and carpentry tended to be overselected and a large number of boys who nominated these trades as first choices eventually ended up with apprenticeships in other trades. Conversely, the main receiving trades were wagon building, painting, boilermaking, sheetmetal working, coppersmithing, blacksmithing, and molding. Over half the boys going into these trades selected some other trade as their first preference (see Table 1).

There seem to be two major reasons for the difference in ability between those boys choosing a trade and those actually selected for it. The rejection of applicants below the set minimum standards obviously raised the average level of ability scores of those remaining. In addition, the excess of applicants over vacancies in the more popular trades meant that many of these boys could not obtain their preferred apprenticeships. These unsuccessful applicants frequently had higher ability scores than those who chose and were accepted for some of the less popular trades. Diversion of some of these applicants to the less popular trades was responsible for some of the difference in the ability scores. Taking specific examples, in the trades of electrical fitting, carpentry, auto-mechanics, and patternmaking, the increment in ability scores was from 12 to 20 (see Table 1). The upward shift was obviously due to the selectivity made possible by the excess of applicants over vacancies. In the trades of coppersmithing and molding, it was 11 and 15, despite the low quality of the applicants and high proportion of those who were selected. This was due to the diversion of rejected applicants of high ability who had nominated the more popular trades as their first choices.

EFFECTS OF LABOR MARKET PRESSURE ON SELECTION

Any increase in the number of applicants relative to the number of vacancies enabled the Selection Board to become more selective and tended to increase the difference between the average ability scores of the boys applying for the trade and those of the boys actually chosen. This difference is called the "ability score increment." Taking the two most popular trades, mechanical and electrical fitting, the rank order correlations between the ability score increments and the percentage of applicants selected were 0.63 and 0.69 respectively.

TABLE 1

ABILITY SCORES AND SELECTION DATA, APPLICANTS FOR WAGR APPRENTICESHIPS

Trade	Number of First Choices	AVERAGE ABILITY SCORES			% Selected		% Selected for Trade Who Gave Other Trade as First Choice*
		First Choices (1)	Those Selected (2)	Difference (2) - (1)	For Chosen Trade	For Other Trade	
Mechanical fitting	631	63	72	9	43.0	18.1	33.0
Electrical fitting	567	65	77	12	14.4	36.2	1.0
Carpentry	199	57	69	12	17.1	36.7	13.0
Machinist	188	62	67	5	43.7	14.9	46.0
Auto Mechanics	186	55	67	12	12.0	47.3	8.0
Wagon Building	170	59	62	3	65.9	4.7	57.0
Plumbing	99	50	65	15	24.2	14.2	17.0
Patternmaking	84	68	88	20	11.9	33.4	20.0
Painting	66	48	59	11	42.5	0	53.0
Boilermaking	64	59	61	2	67.3	3.1	69.0
Blacksmithing	29	56	59	3	34.5	0	75.0
Wood Machinist	24	57	67	10	25.0	20.8	45.0
Trimming	23	44	61	17	30.4	0	50.0
Sheetmetal working	21	50	66	16	10.7	19.1	66.7
Coppersmithing	16	52	63	11	25.0	12.5	72.0
Molding	13	46	61	15	61.5	0	78.0

*As a percentage of those selected for this trade.

It could be hypothesized that as the total number of applicants increased, the total number of boys unable to get apprenticeships in the populator trades would also increase, and that many of these boys would then be diverted to the relatively unpopular trades. Because applicants to the popular trades tended to have higher scores than those choosing the unpopular trades, the diversion of boys to those trades short of applicants tended to raise the average ability scores of the group of boys entering these trades. Taking two of the trades, molding and boilermaking, which received applicants who nominated some other trade as a first choice, the rank order correlations between the average ability scores of the total applicants and the average ability scores of those selected were 0.93 and 0.83 respectively.

The above discussion would seem to indicate that the trades drawing their recruits largely from the unsuccessful applicants to other trades would show larger variations in the ability scores of those selected. In other words, the popular trades could always secure high quality applicants, and although there was a variation with labor market pressure, it was not large in absolute terms. The underselected trades, on the other hand, had a large reservoir of good quality rejectees from the more popular trades when there was a large surplus of applicants, but this diminished markedly as the labor market tightened. Taking the percentage of boys nominating a trade as a first choice and the range of ability scores, i.e., the difference between the highest average ability score of boys selected in any one year and the lowest, as a percentage of the latter, the figures varied from 99.0 per cent and 7.0 per cent in the case of electrical fitters, to 22.0 per cent and 57.8 per cent in the case of molders. This relationship only held when the receiving trade drew rejected applicants from trades such as mechanical and electrical fitting, which attracted large numbers of boys with high ability scores. Within the group of trades fulfilling this condition, the rank order correlation between the two criteria was unity. In trades such as wagon building, which drew its nonfirst-choice selectees from rejected applicants for carpentry, the relationship was completely obscured because the ability scores of the applicants for these two trades were very similar.

WAGE INFLUENCES AND LABOR MARKET PRESSURE

There are three possible alternatives in considering the price mechanism in the labor market for apprentices: (1) the general skill differential relative to the unskilled worker's wage; (2) the apprentice wage ratio, which compares the apprentice's wage rate in the first year of his apprenticeship to the average rate in alternative job

opportunities; and, (3) the ratio of the earnings of the apprentice from the age of 15 to 21, to those of the average semi-skilled worker, which is called the apprentice earnings ratio.[3] In terms of opportunity cost, the other relevant measure is the availability of alternative job opportunities. This measure, termed labor market pressure, is the number of job vacancies for juniors (under 21) in Western Australia minus the applicants for jobs in the same age group. The figures are shown in Table 2.

As noted previously, the Western Australian wage structure is such that virtually all apprentices receive the same rate of pay according to the year of their apprenticeship. A similiar rigidity is apparent in the skill differential, variations between trades being very small. In this context, therefore, it is justifiable to refer to a general skill differential and to regard all apprentice wages as being the same, whatever the trade.

The rank order correlation between the pressure in the junior labor market and the number of applicants for apprenticeships was 0.90 while other correlations were negligible. It may be inferred from this evidence that wage variations of the magnitude which were experienced over the period in question had no impact on the number of boys applying for apprenticeships. This was confirmed in an investigation reported elsewhere which indicated that applicants for apprenticeships had inaccurate knowledge of both the apprentice's wage rate and the wages paid to the skilled worker.[4] On the other hand, a general shortage of jobs for junior workers did affect the actual number of boys applying for apprenticeships.

A recent investigation by D. J. Farber indicates that in the U. S. A. the number of new apprentice registrants varies *inversely* with the average level of unemployment as a whole.[5] The evidence presented above indicates that the number of applicants for apprenticeships varies *directly* with unemployment in the junior labor market. There is no necessary contradiction here. Farber's figures are a pure measure of the demand for apprentices, given the reasonable assumption of excess supply. The figures shown in Table 2 are a pure measure of supply. A more general capital stock adjustment model along the lines

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3. For a detailed discussion of the wage measures, see N. F. Dufty, "On the Significance of Wage Rates," *Journal of Industrial Relations*, Vol. IV, No. 1 (April 1962), pp. 32-42.

4. *Ibid.*

5. D. J. Farber, "Apprenticeship in the United States: Labor Market Forces and Social Policy," *The Journal of Human Resources*, Vol. II, No. 1 (Winter 1967), pp. 70-90.

TABLE 2

EFFECT OF WAGES AND LABOR MARKET PRESSURE ON THE NUMBER OF APPLICANTS FOR WAGR APPRENTICESHIPS

Measure*	1952	1953	1954	1955	1956	1957	1958	1959
Skill Differential	0.22	0.21	0.30	0.30	0.28	0.28	0.27	0.27
Apprentice Wage Ratio	0.57	0.57	0.75	0.75	0.75	0.75	0.84	0.84
Apprentice Earnings Ratio	0.99	0.99	1.10	1.10	1.10	1.10	1.14	1.14
Labor Market Pressure	N/A	340	558	184	-175	-204	-522	-267
Applicants for WAGR Apprenticeships	188	182	123	174	189	247	341	294

*See text for definitions.

suggested by Farber fits the Western Australian data on selected industry groups remarkably well.[6]

As already noted, the inter-skill differentials are quite small between trades, but some observations may be made on their influence. During the period in question, the highest differentials was that paid to the patternmaker, yet patternmaking only ranked eighth in popularity as determined by first choices (see Table 1). Next in the pay hierarchy were the trades of blacksmithing and coppersmithing, which ranked eleventh and fifteenth respectively, presumably because of the negative aspects of the work, such as heat and dirt. In 1952, the trades of carpentry and wagon building did not match the pay increases gained by the metal trades but they did achieve them the following year. Yet in 1952, applicants for these two trades numbered 33 per cent of the total apprenticeship applicants and in the year *after* the pay increase, the number of applicants fell to 30.1 per cent. These two trades gained, relative to the pay increases in the metal trades, in 1955, but their share of first choices fell to 23 per cent. A further gain in pay in 1957 was again accompanied by a reduction in first choices to 16.2 per cent in the same year and to 14.1 per cent in the following year. No reason is advanced for this negative relationship. What is obvious is that a raise in the relative wages paid to the skilled workers in a particular trade did not seem to attract more apprentices into that trade.

CONCLUSIONS

It would seem from this study of one segment of the skilled labor market in a particular institutional setting, that the price mechanism was a relatively insignificant factor in allocating the stream of new labor so far as the supply side was concerned. This does not mean that it *could not* have been effective, but the magnitude of the wage shifts needed to make it so would have probably been politically impractical. The labor market, therefore, operated largely on the demand side for recruits to the skilled trades. Employment in the industry and other factors, through their influence on job vacancies and not wage rates paid, determined the number of new apprentices to be hired.[7]

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6. See N. F. Dufty, "Apprenticeship-A Theoretical Model." *British Journal of Industrial Relations*, Vol. V, No. 1 (March 1967), pp. 87-90.

7. For a more detailed treatment see N. F. Dufty, "The Hiring of Apprentices and Organization Theory," *Journal of Industrial Relations*, Vol. VIII, No. 3 (November 1966), pp. 311-12; and "Apprenticeship-A Theoretical Model,"

Within the segment of the labor market considered, the interaction between the preferences of the applicants, the apprenticeships available, and the selection process used resulted in the market filling from the top downwards. That is, the preferred occupations filled their vacancies first, taking the "cream" of the applicants, while some of the rejected applicants found their way into other apprenticeships. This generally raised the average ability scores of those selected for the less popular trades as the preferred trades attracted a higher quality applicant. The net result was that the preferred trades could always fill their vacancies with high quality recruits. The unpopular trades were more or less at the mercy of the labor market. They could get recruits when the total number of applicants for apprenticeships was high but when the total number dropped, both the quality and the number of applicants rejected from the more popular trades declined. The same phenomenon was observed with respect to applicants for WAGR apprenticeships, *in toto,* the determining factor being alternative job opportunities. When job vacancies, in general, in the junior labor market rose, then the applicants for WAGR apprenticeships declined, and vice versa. Again, the labor market filled from the top downward. If higher status white collar jobs were available, there was a general shortage of apprentices. The most important factor in allowing supply to adjust to demand was the willingness of the applicant to accept an apprenticeship in a trade which was not originally his first choice. It was fortunate that the trades demanding a high level of technical complexity seemed to attract the boys having high ability scores.

Although this study relates to a particular labor market there is every reason to presume that the mechanism operates in other geographic locations and in other occupational areas. Further research along these lines should prove fruitful.

A MODEL OF CHOICE IN LABOR MARKETS

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In this article an attempt is made to construct a model of occupational choice. To some extent the model is specific to the social and economic setting in which it was developed, a concern for understanding the labor market mechanism governing the choice of a skilled trade by adolescent males in Western Australia. However, the limitations imposed on the model by the particular institutions of this submarket are not fundamental. Although the discussion of the model will be in this framework the final two sections of the article will extend the model and examine some of its implications.

Occupational choice is discrete, unlike most economic choices, which are characterized by continuous sets of alternatives. Furthermore, occupational choice in adolescence is frequently sequential in nature, with a choice at one stage having an effect on choices at a later stage. Sequential choice is also common in other areas of economics. However, within the narrower confines of the skilled labor market, jobs requiring a lengthy training period in the form of an apprenticeship, choice tends to be nonsequential; the choice of an apprenticeship is generally a once-for-all choice. This, of course, is not universally true but it is a much closer approximation to the truth in this case than in that of most other nonprofessional occupations. The process of choice has its sequential aspects, but the sequence is usually one of consecutive attempts to get a job, not a sequence of job trials. For this reason formal learning theory models have little or no application.[1] In one sense, however, the models discussed here are learning models because they postulate change through experience.

Another line of attack if it is considered that there are a number of criteria for making occupational choices--expected earnings, job

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1. Most of the learning theory models assume a knowledge of outcomes, a condition not fulfilled with respect to the occupation itself if the job is not obtained. Typical of these models is that of R. R. Bush, F. Mosteller and G. L. Thompson in R. M. Thrall, C. H. Coombs, and R. L. Davis (eds.), *Decision Processes*. (New York: Wiley, 1954), Ch. VIII.

security, etc. --and the subject wishes to avoid choosing alternatives inferior to some other alternative from the point of view of every criterion.[2] These decisions can be considered as choices of vector maxima and since vector maxima can usually be regarded as constrained maxima the theory of zero-sum two-person games could be applied to the problem.[3]

The first part of this article will consist of a discussion of choice models centering around the level of aspiration.[4] This will be followed by a suggested model for the choice of apprenticeship in Western Australia and some more general conclusions are outlined in the final section.

LEVEL OF ASPIRATION AND OCCUPATIONAL CHOICE

Level of aspiration is a concept usually encountered in discussions of goal-directed behavior. It may be defined as the level of future performance which an individual undertakes to reach, knowing his past level of performance in that task.[5] In the discussion here the level of aspiration will be defined as that occupational goal which a person undertakes to reach. Usually it is lower than the maximum desired level of achievement because the individual has come to grips with reality and accepted the fact that he cannot reach this goal. It is also normally higher than the minimum acceptable level of achievement, often, in this context, obtaining a job of any sort.

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2. K. J. Arrow, "Utilities, Attitudes, Choices: A Review Note," *Econometrica*, 26, 1958, p. 7.

3. H. W. Kuhn and A. W. Tucker, "Non-Linear Programming," in J. Neyman (ed.), *Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability*. (Berkeley and Los Angeles: University of California Press, 1951), pp. 481-492.

4. The type of model put forward by Cronbach and Gleser will not be considered as it is felt that this type of decision model is not applicable to decisions made internally on the subject of occupational choice. Cf. L. J. Cronbach and G. C. Gleser, *Psychological Tests and Personnel Decisions* (Urbana: University of Illinois Press, 1957).

5. J. D. Frank: "Individual Differences in Certain Aspects of the Level of Aspiration," *American Journal of Psychology*, 47, 1935, pp. 119-128.

LEWIN'S MODEL

Lewin, *et al* have taken the level of difficulty, x, as the basic reference variable for discrimination between behavior alternatives.[6] "Difficulty" here refers to difficulty in obtaining a particular job. If P(x) is the probability of success, S(x) the utility of success and F(x) the disutility of failure, then the level of aspiration A is defined as the level of difficulty which maximizes the expected utility, U(x), where

$$U(x) = P(x)\ S(x) - [1 - P(x)]\ F(x)$$

Therefore, the level of aspiration is that value of x which satisfies the two conditions

$$\frac{dU(x)}{d(x)} = O \qquad x = A$$

$$\frac{d^2U(x)}{d(x)^2} < O \qquad x = A$$

SIEGAL'S MODEL

Siegal changes the basic reference variable from the level of difficulty to the level of achievement, defining level of aspiration as the higher of the two goals between which the rate of change of the utility function is at a maximum.[7] Siegal views the utility function as a set of discrete points but by allowing it to become continuous the result is

$$\frac{d^2U(x)}{dx^2} = O \qquad x = A$$

$$\frac{d^3U(x)}{dx^3} < O \qquad x = A$$

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6. The resultant weighted valence theory of Escalona described by Lewin *et al* has been empirically tested. See I. E. Alexander, L. B. Macht and B. P. Karon, "The Level of Aspiration Model Applied to Occupational Preference," *Human Relations*, 12, 1959, pp. 163-170.

7. S. Siegal, "Level of Aspiration and Decision Making," *Psychological Review*, 64, 1957, p. 4.

SIMON-STARBUCK MODEL

Simon's concept of level of aspiration differs considerably from that of Lewin *et al* but is implicit in Siegal's definition. The basic assumption of Simon's theory is that the individual has only a limited view of his environment and, therefore, makes only simple discrimination between two behavior alternatives satisfactory and unsatisfactory.[8] The level of aspiration plays a central role in this discrimination, separating the two behavior alternatives. Starbuck has presented this satisficing model in specific terms.[9] The key postulate in his schema is that the utility curve approximates a step function. The individual, instead of assigning utilities to his behavior alternatives, partitions all possible alternatives into two subsets: satisfactory alternatives and unsatisfactory alternatives. The level of aspiration is the point at which partition occurs, i. e.

$$U(x) < O \quad \text{for } x < A$$

$$U(x) > O \quad \text{for } x \geq A$$

The second postulate is that all satisfactory alternatives are equivalent in utility. This is not to infer that the individual is incapable of distinguishing between satisfactory alternatives but that he does not bother to do so. The individual's activity is interpreted as being primarily a search for some satisfactory alternative, as soon as he finds one he stops searching. Only when more than one alternative becomes available at a time does the problem of distinguishing between satisfactory alternatives arise, and this is done by the introduction of a preference ranking. This second postulate may be written

$$U(x_i) - U(x_j) \leq Ds$$

when $U(x_j) \geq A$ and when Ds is the disutility of searching for another satisfactory alternative.

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8. H. A. Simon, "A Behavioral Model of Rational Choice," in *Models of Man.* (New York: Wiley, 1957), pp. 241-260.

9. W. H. Starbuck, "Level of Aspiration Theory and Market Behavior," Working Paper No. 7, Behavioral Theory of the Firm Project, Carnegie Institute of Technology, 1957 (unpublished).

The third postulate is that the individual will set his level of aspiration so as to hold constant his expected utility from finding a satisfactory alternative. If a function $\emptyset$ (x) expresses the probability of finding an alternative corresponding to the level of achievement (x) then

$$K_o \leqslant A \int_{\emptyset}^{\infty} (x). \qquad dx \leqslant K_o + K_1$$

where K_o and K_1 are constants defining the range within which the integral is constant and of desirable magnitude. In the satisficing model U(x) is approximately constant and $\emptyset$ (x) varies with his perception of his environment. Defining U(x) as unity for x = A the postulate becomes

$$K_o \leqslant A \int_{\emptyset}^{\infty} (x). \qquad dx \leqslant K_o + K_1$$

The individual will, therefore, set his level of aspiration so as to hold constant his perceived probability of finding a satisfacory alternative. If it is easy to discover satisfactory alternatives the individual will raise his level of aspiration, conversely, if satisfactory alternatives are difficult to find then the level of aspiration will be lowered. March and Simon have elaborated this model into a system of equations which completely determines the behavior of the system it describes; the system has a stable equilibrium.[10] This model, whilst being the only dynamic model known to the writer, is subject to the same criticisms as those made below of the Simon-Starbuck model.

AN ALTERNATIVE MODEL

Of the three models discussed Starbuck's precise formulation of Simon comes the closest to the requirements of the occupational choice situation. Even so, it is not entirely satisfactory. Simon's satisficing theory has a wide application in models of organizations, particularly when the choice situation is a programmed strategy. In occupational choice, however, the issues at large are particularly

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10. J. March and H. A. Simon, *Organizations*, (New York: Wiley, 1958), pp. 49-50. Also see A. C. Stedry, *Budget Control and Cost Behavior*. (Englewood Cliffs: Prentice-Hall, 1960), Ch. 2.

important to the individual concerned. For this reason, then, it is felt that the dichotomy of satisfactory-unsatisfactory is to some extent an oversimplification.

The discussion here will be in the framework of the choice of an apprenticeship in a particular country, Australia. In other countries the institutional factors may differ. Nevertheless, the principles do not differ in any fundamental way. We may well begin with a quotation from Simon, he says--

> A real life decision involves some goals or values, some facts about the environment, and some inferences drawn from the values and facts. The goals and values may be simple or complex, consistent or contradictory; the facts may be real or supposed, based on observation or the reports of others; the inferences may be valid or spurious. The whole process may be viewed, metaphorically, as a process of 'reasoning,' where the values and facts serve as premises, and the decision that is finally reached is inferred from these premises. The resemblance of decision-making to logical reasoning is only metaphorical, because there are quite different rules in the two cases to determine what constitute 'valid' premises and admissable modes of inference. The metaphor is useful because it leads us to take the initial decision premise as the unit of description, hence to deal with the whole interwoven fabric of influences that bear on a single decision--but without being bound by the assumptions of rationality that limit the classical theory of choice. [11]

Undoubtedly, as must be obvious from the previous discussions on occupational choice, there is an extraordinarily complex matrix of goals, facts and inferences drawn from these which influence the alternatives considered by the individual. The impact of parental opinion, the school, peer groups, etc. on the selection of the alternatives cannot be denied but cannot be considered in this model. Only the selection of the job or occupation will be dealt with, not the determination of which occupations are to be considered.

Each individual is assumed to have a spectrum of occupations in mind, each one must be perceived by him as having certain distinct

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11. H. A. Simon, "Theories of Decision-Making in Economics," *American Economic Review*, 69, 1959, pp. 253-283. Also see M. A. Girshick, "An Elementary Survey of Statistical Decision Theory," *Review of Educational Research*, 24, 1954, pp. 448-466.

features which enable him to evaluate it subjectively. Occupations to which his attention has not been drawn, or which have not been stored in his memory, or to which very low cardinal utilities have been attached, will not be seriously considered. In virtually all cases the assigned utilities will be subjective, as no adequate job experience will have been obtained, e.g., the adolescent male may have done some carpentry but he is very unlikely to have direct objective knowledge of what it is like to be a carpenter. It is necessary for the purpose of this model that utility is assumed to be cardinal. Von Neumann and Morgenstern have shown that if a decision situation is extended to include choices among uncertain prospects, cardinal utilities may be attached to the outcomes in an unequivocal way.[12] This theory could only be tested empirically if objective probabilities were known by the subject or accurately estimated by them. Ramsey, however, has shown that the utilities and subjective probabilities attached to a set of uncertain alternatives can be measured simultaneously.[13] In the model to be discussed here the utilities and probabilities will be subjective.

An adolescent about to leave school or having left school and either not working or engaged in temporary employment will assign subjective or expected utilities $U(x_1)$, $U(x_2)$ . . . . $U(x_n)$ to each of the occupations, x_1, x_2 . . . . x_n, in his job spectrum. In the majority of cases these are not spread at equal intervals on a scale and for this reason the assumption of cardinal rather than ordinal utility is essential. To each of these occupations he also assigns a subjective probability $P(x_1)$, $P(x_2)$ . . . . $P(x_n)$, which is his estimate of his chances of getting the particular type of job.[14] It is reasonable to assume that the

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12. J. von Neumann and O. Morgenstern: *Theory of Games and Economic Behavior*. (Princeton: Princeton University Press, 1947). The second edition contains a rigorous axiomatic demonstration of this point.

13. F. P. Ramsey, "Truth and Probability," in *Foundations of Mathematics and Other Logical Essays*. (London 1931), pp. 156-198, cited by Simon, *American Economic Review*, 1959.

14. N. T. Feather, "Subjective Probability and Decision Under Uncertainty," *Psychological Review*, 66, 1959, pp. 150-164. Feather asserts that the subjective utilities and choices are not independent but his work involves chance-related situations in which personal endeavor cannot affect the external random event on which the outcome depends. This certainly would not be true in the normal

subjective utilities assigned to each occupation will be stable in the short period of, say 6-12 months. The probabilities, however, are likely to be adjusted quite rapidly in the light of each experience. If "job sampling" were feasible, as it is in many unskilled occupations, the subjective utilities would be adjusted to objective utilities in each job or occupation which was tried. In the case of the skilled labor market this "job sampling" is almost impossible. Even though an apprenticeship may be entered into for a probationary period, this is not the occupation itself but only the training process. Such experience would not make the utility assigned objective, but merely decrease the gap between the subjective and objective utilities. In the particular institutional setting under consideration, transfer between apprenticeships is difficult and the decision to abandon an apprenticeship is often tantamount to deciding not to enter any skilled trade.

Taking a hypothetical example a young male with what is popularly known as a "mechanical turn of mind" may assign his subjective utilities and probabilities in the following way:

	U(x)	P(x)
Airline Pilot	50	0
Engineer	40	0
Electrician	20	0.1
Mechanic	18	0.1
Auto Mechanic	16	0.2
Plumber	16	0.1
Molder	12	0.2

Expanding on this it can be envisaged that he chooses airline pilot and engineer as near-fantasy choices in view of his education, family circumstances and the realization that he probably could not successfully undertake the academic courses necessary for engineering. Although those jobs are subjectively very desirable to him he realistically assigns a probability of zero to each of them. His best chance of obtaining the kind of work that he thinks he would like is to look for an apprenticeship in the "mechanical trades" or which he is aware. He knows the local auto shops and plumbers take apprentices and there is a finite probability

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occupational choice situation. See also W. Edwards, "The Theory of Decision-Making," *Psychology Bulletin*, 51, 1954, pp. 380-417. E. L. Tolman, "Principles of Performance," *Psychological Review*, 62, 1955, pp. 315-326. J. B. Rotter, *Social Learning and Clinical Psychology*, (New York: Prentice Hall, 1954).

that he can get one of these. He also knows that the railroad takes apprentices and calls for applications at least once a year. It is also common knowledge that this organization is always short of molding apprentices and he thinks it would be easier to get this type of apprenticeship than one of the other trades. He also has an uncle who is a plumber and who has promised to help him to get an apprenticeship although he can make no definite offer. There will be a number of other jobs of which he is aware, such as clerk, shop assistant, bread carter, etc. but their subjective utility to him is so low that he does not bother to consider them or to assess his chances of getting this type of job. In these circumstances the subjective utilities attached to these occupations may be taken as zero. The first postulate is, therefore, that search behavior will be initiated for all occupations in the individual's job spectrum fulfilling the conditions:

$$U(x) > 0$$

$$P(x) > 0$$

If it could be assumed that knowledge of job opportunities available was detailed, accurate and comprehensive then it may also be assumed that search would be more vigorous for the more highly valued jobs. Symbolically, denoting search activity for occupation x_i by Sx_i, then

$$S(x_i) > S(x_j)$$

$$U(x_i) > U(x_j)$$

or even

$$\frac{S(x_i)}{S(x_j)} = \frac{U(x_i)}{U(x_j)}$$

Except in the case of unusually intelligent persons in a highly organized labor market these assumptions cannot be made.

It would be possible to apply Atkinson's need achievement model to this situation.[15] In the case of efforts to obtain apprenticeships it would be reasonable to assume that the achievement motive is greater than the motivation to avoid failure. According to Atkinson this should lead to maximum effort being made to find that apprenticeship (or other

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15. J. W. Atkinson, "Towards an Experimental Analysis of Human Motivation in Terms of Motivation, Expectations and Incentives," and J. W. Atkinson, "Motivational Determinants of Risk-Taking Behavior," in J. W. Atkinson (ed.) *Motives in Fantasy, Action and Society*, (New York: Van Nostrand, 1958), Chapters 20 and 22.

job) (x_i) for which $P(x_i) = 0.50$. Atkinson's model, however, is in generalized form and neglects certain institutional features of many labor markets. In most large organizations and many smaller ones applications are made for apprenticeships in general and the applicant nominates his order of preference. One single act, therefore, makes application for several apprenticeships with differing subjective utilities and probabilities of success. It is also possible for applications to be made to several organizations simultaneously. It would seem, then, that the model suggested here is more appropriate to the situation in most labor markets of this type than Atkinson's model.

During the search for the jobs already in his job spectrum the individual will often encounter jobs which he knows little or nothing about. In order that they may be evaluated and either placed in the job spectrum or specifically excluded, the perception of such jobs is first followed by a search for clarification. A young male applying for an apprenticeship with the railroad may see such occupations as coppersmith listed in the advertisement. Before any subjective evaluation can be attached to this occupation he may first have to find out what a coppersmith does. Once this is done a nonzero utility may be attached to it or it may be ignored as an undesirable occupation.

Once the concrete offer of a job has been obtained the decision must be made to accept it or reject it. If it is the highest ranked job on the utility scale it will be accepted. If not, the decision must be made to accept it or reject it and continue to search for a better job. This is often made in terms of the highest ranked job on the utility scale *vis-a-vis* the job available. Specifically, the job x_j will be accepted if

$$P(x_i)\ U(x_i) - U(x_j) < Ds_i$$

$$U(x_i) > U(x_j)$$

and if Ds_i is the disutility of continuing the search for x_i after x_j has been obtained.[16] This postulate would not apply to the Simon-Starbuck model where all satisfactory alternatives are equal. On the other hand there will be very many cases when $U(x_i) - U(x_j) = 0$ or where $P(x_i)$ is small. In such cases the Simon-Starbuck model is approached i. e., the first satisfactory job ($U(x) > 0$) is accepted. Alternatively (x_j) may be accepted as a temporary expedient and the search continued, in this

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16. For a rigorous treatment of the search cost concept see G. Stigler, "Information in the Labor Market," *Journal of Political Economy*, 70, 1962, supplement to the October 1962 issue, 94-105.

case the equation would hold except that the decision would be not whether to take (x_j) but whether to stay in (x_j).

Continued failure to find a job in this job spectrum is likely to have three distinct results. First, there will be an acceleration in the search rate. Second, there will be a downward revision of probabilities. Third, other jobs will be considered, evaluated and placed in the job spectrum, jobs which were known but not seriously considered before and which, therefore, had zero utility. This amounts to a downward shift in aspiration level in most cases, particularly if there is complete replacement of the job spectrum of practical alternatives. In such a case the revised situation would appear as follows:

	U(x)	P(x)
Airline Pilot	50	0
Engineer	40	0
Electrician	20	0
Mechanic	18	0
Auto Mechanic	16	0
Plumber	16	0
Molder	12	0
Clerk	6	0.1
Shop Assistant	5	0.1
Bread Carter	3	0.5

The major change has been the revision of the probabilities, all the jobs in the previous job spectrum have allocated zero probabilities, i.e., he feels that it is hopeless trying to get an apprenticeship. Other jobs are now considered and have cardinal utilities attached to them. He was previously conscious of the jobs but did not bother to attach either utilities or probabilities to them. Search behavior continues and more jobs may be added to the list as he becomes aware of them or jobs already in the spectrum may be subdivided and given different utilities. For instance, "clerk" may be broken down into stock clerk, sales clerk, etc.

However, the simple notion of level of aspiration may be inadequate in many cases. Fundamentally the problem seems to be that for most individuals jobs arranged on a cardinal utility scale fall into clusters. Siegal's theory and to some extent Simon's are not incompatible with this notion, except that they see a single step function whereas, in fact, there may be multiple steps. It would, of course, be possible to say that a shift of focus from one step to another was a shift in the level of aspiration. In this model here active search is conducted for jobs fulfilling the condition $U(x)$, $P(x) > 0$ and there is no reason why the jobs in the job spectrum should not encompass one

of the steps. In the two situations cited the levels of aspiration could be taken as the utilities of the lowest occupation in the job spectrum, i. e., 12 and 3 before and after the revision. But another situation is possible. Assume that the individual had been told by the railroad that they may offer him an apprenticeship in molding but that he had been rejected for other trades. If he had also failed in his search for apprenticeships in private industry in the area he would probably begin to consider other jobs. This situation may be represented as follows:

	U(x)	P(x)
Airline Pilot	50	0
Engineer	40	0
Electrician	20	0
Mechanic	18	0
Auto Mechanic	16	0
Plumber	16	0
Molder	12	0.5
Clerk	6	0.1
Shop Assistant	5	0.1
Bread Carter	3	0.5

It would hardly be realistic to take the level of aspiration as 3, nor could it be taken as 12. In cases such as this the decision rule previously mentioned may often give a negative answer. If, for instance, the individual was offered a job as a clerk and held that the disutility of searching for the molding apprenticeship was negligible on the grounds that he merely had to await the railroad selection board's decision, then he would refuse the job. Evaluation the decision rule to accept the job if -

$$P(x_i)\ U(x_i) - U(x_j) < Ds$$

we get $(0.5 \times 12) - 5 < 0$

The job is, therefore, rejected, the individual deeming it worthwhile to wait for the decision on the molding apprenticeship.

EMPIRICAL EVIDENCE

Empirical evidence that jobs are, in fact, allotted subjective utilities is difficult to obtain, but there is ample evidence that jobs are at least ranked in order of preference. Taking the 294 applicants for

apprenticeships with the Western Australian Government Railways in October 1959, it can be seen from the data in Table 1 below, that only one boy in twenty specified a single occupation whereas one in four were willing to enter any one of the ten trades available.

TABLE 1

RANKING SPECIFIED, APPLICANTS FOR W. A. G. R. APPRENTICESHIP, 1959

Number of Occupations Ranked	Number of Applicants	%	Rank of Occupation Accepted	Number of Selectees	%
1	12	4.1	1	45	50.0
2	36	12.3	2	12	13.3
3	49	16.7	3	14	15.6
4	44	15.0	4	6	6.7
5	33	11.3	5	1	1.1
6	23	7.8	6	3	3.3
7	13	5.8	7	5	5.6
8	3	1.0	8	1	1.1
9	1	0.3	9	2	2.2
10	76	25.7	10	1	1.1

This table also shows that only half of the boys selected obtained the job which they nominated as their first preference. No boy refused to take a job which he had ranked on his application form and two boys accepted jobs which they had not included in their preference ranking. Another point brought out by the data was that the less able boys, as assessed by psychological testing or the interview method, had to shift their preference ranking further than the more able ones. This is shown in Table 2 for all occupations for which more than eight apprentices were selected. Looking at the question in terms of the discussion in the previous paragraph the case may be taken in which the boy is offered an apprenticeship in a trade which he did not rank as his first choice. He must, therefore, weigh the subjective utility of the trade offered against the disutility of searching for a more highly valued trade, taking into account the subjective probability of obtaining such a job. For instance, if offered an apprenticeship as a molder, with a subjective utility value of 12 whereas his first choice had been electrician

with a subjective utility of 20, then we would have the acceptance rule:

$$20\ P(x) - 12 < Ds$$

So long as $P(x) < 0.6$ then the molding apprenticeship will be accepted. Whether it will be accepted when $1 \geq P(x) > 0.6$ will depend on the magnitude of Ds. If this is greater than 8 then the molding apprenticeship will be accepted whatever the value of P(x) because $P(x) \leq 1$.

The frequency with which boys accept jobs ranked lower than their first preference is indicative of the small difference between the subjective utilities of the trades ranked, the low estimates of the probability of getting jobs or apprenticeships elsewhere, or the high disutility of the search for other jobs, or some combination of these.

TABLE 2

JOB RANK, TEST SCORES AND INTERVIEW SCORES,
APPLICANTS FOR W. A. G. R. APPRENTICESHIPS 1959

	N	Mean Rank of Trade for Which Selected	Mean Interview Score	Mean Test Score
Electrician	13	1.0	7.9	29.0
Mechanic	19	1.1	7.7	27.2
Machinist	15	1.5	7.5	26.6
Other	23	3.3	6.9	26.2
Car & Wagon Builder	10	4.1	6.8	26.0
Painter	9	5.3	6.3	23.4

EXTENSION OF THE MODEL

The above discussion concentrated on occupational choice with respect to the skilled labor market and the choice of a particular apprenticeship.[17] However, it may be readily applied to occupational choice

17. N. F. Dufty, "On the Significance of Wage Rates," *Journal of Industrial Relations*, 4, 1962, 32-42.

in other fields or when a formal apprenticeship is only one item in the perceived spectrum of occupational choices. When this is done, some differences become apparent but the main framework remains unchanged.

With most occupations not requiring lengthy formal training the possibility of "job shopping" becomes not only feasible but customary.[18] The choice situation is likely to occur more frequently than in the selection of a skilled trade but is also often exercised from an employment position. In this case the chooser considers occupations which have a greater subjective utility than his present position. A youth employed delivering bread may see his choice situation as follows:

	U(x)	P(x)
Clerk	16	0.1
Shop Assistant	12	0.2
Truck Driver's Helper	10	0.2
Bread Carter	8	1.0

In the light of his employment experience what are, for him, near fantasy choices such as airline pilot and engineer will probably have been eliminated from his occupational spectrum. Even if they have not then they will have a probability value of zero assigned to them and active search behavior will only occur with respect to occupations having finite subjective probabilities. Generally speaking, the search will not be as active as it would be if the individual was unemployed. Logically it should be some function of the difference between the subjective utilities of the occupations being considered and his present occupation. The utility of the present occupation, of course, will be objective rather than subjective and if he has had any prior experience of any of the occupations which he now seeks the utilities of these will also be objective, or very nearly so. The rest of the process--the shifiting of aspiration levels in the light of search experience, the revision of the probability estimates, and the inclusion of other occupations--occurs in the same way as outlined above.

Another consequence of the search process involving occupations which do not necessitate long-term training commitments such as formal apprenticeships is that there is a general shortening of the time horizon. This, in turn, shifts the focus of attention from the occupation to the job. In this sense the term "job" includes both the occupational

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18. D. C. Miller and W. H. Form, *Industrial Sociology*, (New York: Harper and Row, 1964).

characteristics and the employment characteristics such as supervisory style, location, working conditions, etc. These employment characteristics are relatively more important in a short-run situation when the individual may not have any long-term commitment to the occupation. The choice of an apprenticeship or a profession, on the other hand, does imply a long-term commitment. There is a strong probability that at this stage in his career the individual will see himself as making a lifetime occupational choice even though employment conditions may change as he moves from job to job. The focus is therefore on the occupation rather than the job.

Following this line of argument, the model could also be applied to job choice within an occupation. Rankings would be those of different job opportunities in various employment situations with the occupation held constant. This is likely to result in smaller differences in subjective utilities as the occupational content of each job is to a considerable degree held constant. In some circumstances such as full employment in that section of the labor market with which we are concerned, many of the probability estimates will approximate to unity and choice will rest largely on comparisons of subjective utilities of the available jobs and the objective utility of the one now held. Moving into the semi-skilled, unskilled and low-level white collar occupational area the choice situation is likely to be mixed, i.e., the choice spectrum will include alternative jobs in the same occupation and alternative jobs in different occupations.[19] The only difference in this case is likely to be that the accuracy of the subjective utilities assigned to jobs in the same occupation will be greater than those assigned to jobs in different occupations.

IMPLICATIONS OF THE MODEL

One of the implications of the model is that labor mobility and the allocation of new workers entering the labor market is largely a "push-pull" mechanism. People may be pulled to some jobs or occupations by their relative attractiveness, i.e., their subjective utilities, and they may also be pushed into less desirable employment because of over supply in their preferred job or occupation. The push mechanism may operate by dismissal or inability to enter. So far as the individual is concerned he is generally faced with the problem of adjusting his level of aspiration as he revises his probability estimates in the light of his

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19. See, for example, H. L. Sheppard and A. H. Belitsky, *The Job Hunt*, (Baltimore: Johns Hopkins Press, 1966), especially Chapter 9.

search experience and seeks to widen his spectrum of jobs and occupations. The selective aspects of the push mechanism lie in the selection criteria imposed by employing organizations. On the demand side the labor market frequently operates by the adjustment of minimum selection criteria or by the use of a ranking of job applicants rather than by the adjustment of money wage rates.[20] In any case there are obvious institutional obstacles to a downward revision of money wage rates in the unionized sector of the market. There is empirical evidence of labor market adjustment in the quality dimension both in the U. S. A. and Australia.[21] There is also evidence of downward adjustment of the level of aspiration by workers searching for jobs.[22]

The use of the technique of sorting out applicants on some quality dimension means that organizations or occupations paying more than the market rate--that rate necessary to attract sufficient labor with objectively determined minimum qualifications--will in fact get people who are more highly qualified, by education or innate ability or both, than is actually necessary, unless some nonfunctional restraint such as race is also imposed. Empirical investigations into this phenomenon is difficult because of supply-demand interdependence. Not only does the supply situation have an influence on the selection criteria levels used but it also affects the "irreducible minimum" standards of acceptance

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20. See S. Rottenberg, "On Choice in Labor Markets," *Industrial and Labor Relations Review*, 9, 1956, 183-199. The "push-pull" mechanism is also consistent with the ideas of P. M. Blau, J. W. Gustad, R. Jessor and R. C. Wilcock, "Occupational Choice: A Conceptual Framework," *Ibid.*, 531-546.

21. C. A. Myers and W. R. Maclaurin, *The Movement of Factory Workers*, (New York: Wiley, 1943) and N. F. Dufty, "The Influence of the Selection Process and Labour Market Pressures on Apprentice Intake," *The Journal of Industrial Relations*, 7, 1965, 336-340. The idea is also used in Bronfenbrenner's analysis of monopsony--see M. Bronfenbrenner, "Potential Monopsony in Labor Markets," *Industrial and Labor Relations Review*, 9, 1956, 577-588.

22. Dufty, *Ibid.*, I. Sobel and H. Folk, "Labor Market Adjustments by Unemployed Older Workers," in A. M. Ross, (ed.), *Employment Policy and the Labor Market*, (Berkeley: University of California Press, 1965); C. A. Myers and G. P. Shultz, *Dynamics of a Labor Market* (New York: Prentice-Hall, 1951); and Sheppard and Belitsky, *op. cit.*

which, whilst they may not be completely irreducible, are extremely rigid,[23] especially when they are embedded in legislative enactments.

By definition, the sorting out of job applicants on some quality dimension results in some of them being rejected and they seek other employment, forming a source of supply for less highly valued jobs and occupations. Depending on the aggregate demand situation and structural rigidities, the labor market may or may not be cleared. If there is an over-all surplus nearly all job vacancies will be filled. If not, vacancies in the less attractive jobs and occupations will not be filled and this will probably result in a rise in labor costs in the form of higher money wages, fringe benefits, or improved working conditions. However, an approximate balance of vacancies and job applicants, neglecting for the moment the problems involved in measuring job vacancies,[24] will not necessarily yield anything approaching a welfare optimum. Some occupations, due to their high rates of return, may be over-supplied with skill (not workers), i.e., they may be recruiting workers whose ability is well beyond the minimum required by the job. The marginal return from these high quality workers may be lower than it would have been in some other job and occupation. This is the result of adjustment to a quasi-equilibrium position by manipulating selection standards. Quasi-equilibria of this sort may occur in labor markets with similar characteristics but with quite different wage structures. For example, under different supply conditions we may find an "adequate" supply of teachers in two school districts with widely differing pay structures. But we are likely to find the better qualified teachers in the districts paying the higher rates. When factors of this nature are taken into account the problems of labor market adjustment to achieve some welfare optimum are well-nigh insuperable.

Another implication of the model stems from the vital role of the subjective utility estimates. Occupational and job choice are perceived by the individual largely in terms of needs satisfaction and his estimate of the ability of a job or occupation to satisfy his particular needs structure on the basis of his utility estimate. The greater the accuracy of these estimates the less likely is it that an individual will search for

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23. See F. Harbison and C. A. Myers, *Education, Manpower and Economic Growth*, (New York: McGraw-Hill, 1964), p. 186; and J. Vaisey, "The Labour Market and the Manpower Forecaster: Some Problems," *International Labor Review*, 89, 1964, 353-370.

24. M. L. Joseph, "Job Vacancy Measurement," *Journal of Human Resources*, 1, 1966, 59-80.

and obtain a job or occupation which will be ultimately rejected as experience converts the subjective estimate into an objective one. Unnecessary labor turnover of this sort is costly to the individual, the employer, and society. There is evidence that the needs set of any individual can be satisfied by a large number of different jobs and occupations.[25] It therefore follows that the more extensive and the more accurate the individual's knowledge of the jobs and occupations open to him the more rational his decision will be and the less likely will he be to shift at some future date.[26] His decision will also be more rational from the labor market standpoint as the greater the breadth and depth of his knowledge of labor market needs, in terms of the number and characteristics of the jobs and occupations available to him, the more likely he is to find a job or occupation which will satisfy both him *and* the labor market.

From what we know of the extent and accuracy of information on jobs and occupations in the possession of job seekers it seems that there is considerable room for improvement in this respect.[27] One interesting suggestion to improve the breadth and accuracy of information available to the job seeker and to generally facilitate labor market adjustment involves using the full potential of the computer to match

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25. G. G. Gonyea, "Job Perceptions in Relation to Vocational Preference," *Journal of Counselling Psychology*, 10, 1963, 20-26; and D. Super, *The Psychology of Careers*, (New York: Harper, 1957). For contrary views, see A. Roe, *The Psychology of Occupations*, (New York: Wiley, 1956); and J. G. Darley and T. Hagenah, *Vocational Interest Measurement: Theory and Practice*, (Minneapolis: University of Minnesota Press, 1955).

26. L. G. Reynolds, *The Structure of Labor Markets*, (New York: Harper and Row, 1951); and J. L. Holland, "A Theory of Vocational Choice," *Journal of Counselling Psychology*, 6, 1959, 35-45.

27. M. Jeffreys, *Mobility in the Labour Market*, (London: Routledge and Kegan Paul, 1954); L. G. Reynolds and J. Shister, *Job Horizons*, (New York: Harper, 1948); Reynolds, *op.cit.*, R. C. Wilcock and W. H. Franke, *Unwanted Workers*, (Glencoe: Free Press, 1962), Chapter 6; L. P. Adams and R. L. Aronson, *Workers and Industrial Change*, (Ithaca: Cornell University Press, 1957), Chapter 5; Myers and Maclaurin, *op.cit.*, and Sheppard and Belitsky, *op.cit.*

jobs and vacancies.[28] This proposal would have the added advantage of improving the accuracy of the individual's estimates of the probability of getting the jobs he is seeking, thus decreasing his search costs--in both monetary and psychic terms. Another avenue of approach is to improve the extent and quality of the vocational and employment counselling and the occupational information available in the employment service and the schools.[29] Because a person's needs are complex he considers many factors which could be classed as extra-occupational when he is making his choice. Most formal sources of occupational information neglect these factors and there seems to be a real need to augment the "economic man" type of information with material on the life-style associated with the occupation, the interpersonal aspects of jobs, etc.[30]

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28. C. C. Holt and G. P. Huber, "A Computer Aided Approach to Employment Service Placement and Counselling," Firm and Market Workshop Paper 6609, Social Systems Research Institute, University of Wisconsin, 12 December 1966, (Mimeographed). Also see V. H. Jensen, "Computer Hiring of Dock Workers in the Port of New York," *Industrial and Labor Relations Review*, 20, 1966/67, 414-432.

29. H. L. Wilensky, "Careers Counselling and the Curriculum," *Journal of Human Resources*, 2, 1967, 19-40.

30. J. Samler, "Psycho-Social Aspects of Work: A Critique of Occupational Information," *Personnel and Guidance Journal*, 34, 1961, 458-465.

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Grigg, Shirlene R.
Pennies Grow on Plans, A Pre-Occupational Education Unit for Educable Mentally Handicapped Girls in Junior High School.

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*EDUCABLE MENTALLY HANDICAPPED; *UNITS OF STUDY (SUBJECT FIELDS); *PREVOCATIONAL EDUCATION; *HOME ECONOMICS EDUCATION; JUNIOR HIGH SCHOOLS; INSTRUCTIONAL MATERIALS; *TEACHING GUIDES

This unit is for teacher use in providing preoccupational learning experiences for educable mentally handicapped girls in junior high school. It was developed as part of an action research project for the Master of Science degree on the basis of the author's experience with her own class, and the completed unit was taught to a home economics class of handicapped by a teacher experienced in teaching educable handicapped girls. Lesson plans are presented to achieve each of the objectives: (1) to identify ways of earning money, (2) to determine personal qualifications needed to secure various jobs, (3) to gain an understanding of work habits designed by employers, (4) to develop work skills of home laundry and housecleaning, (5) to determine methods of securing a job, and (6) to make a personal budget. Each lesson plan includes generalizations, before-class preparation, an interest approach, teaching methods, the main teaching point, an assignment, a summary, a suggestion for evaluation, and a teacher's reaction and evaluation of the lesson. The teacher evaluating the unit felt that the material was meaningfully organized and well prepared but that the words used needed to be simplified, the unit seemed too long, and the programed booklets on laundry and housekeeping and the dramatization on employee characteristics were especially successful. Scores on an objective-type achievement test showed normal distribution, and mother evaluations of home performance tasks judged them to be successful. Supplementary teaching materials include checklists, tests, a skit, programed lessons on laundry and housekeeping, an expense record, a budget form, and a letter to mothers. Selected annotated references are listed. The these, "The Development of a Home Economics Unit for Junior High School Educable Mentally Handicapped Girls in Charlotte, North Carolina" was submitted to Winthrop College, Rock Hill, South Carolina. (FP)

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PENNIES GROW ON PLANS

Shirlene R. Grigg

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PENNIES GROW ON PLANS

A pre-occupational education unit

for educable mentally handicapped

girls in junior high school

By

Shirlene R. Grigg

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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In cooperation with

Home Economics Education
Division of Vocational Education
State Department of Education
Columbia, South Carolina

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FOREWORD

Educators are becoming increasingly aware of the importance of planning programs for people with special needs. The experimental programs developed by home economics teachers in South Carolina have been most successful.

This publication "Pennies Grow On Plans" is a part of the thesis developed by Mrs. Shirlene R. Grigg as a part of the professional fulfillment of the Master's Degree at Winthrop College. We are grateful to Mrs. Grigg for sharing a part of her thesis with other people.

We are also grateful to Dr. Helen Loftis, Head, Home Economics Teacher Education, Winthrop College, for editing the thesis and helping select the portions of the thesis which would be of most value to other teachers. The plans for classes for people with special abilities were developed to meet the needs of a class which Mrs. Grigg taught. These plans can serve as excellent suggestions for other teachers to adapt and change to meet local needs.

Alma Bentley, State Supervisor
Home Economics Education

PREFACE

The unit, Pennies Grow on Plans, was developed to provide pre-occupational learning experiences for junior high school educable mentally handicapped girls in Charlotte, North Carolina. The author, Mrs. Shirlene R. Grigg, used her class of junior high educable girls and boys for the pilot studies which served as a guide in the development of the unit.

The completed unit was taught to a home economics class of educable handicapped girls at Spaugh Junior High School in Charlotte, North Carolina, by a home economics teacher who had taught educable handicapped girls for several years.

The development of the unit was part of an action research project completed in partial fulfillment of requirements for a Master of Science degree. The thesis, The Development of a Home Economics Unit for Junior High School Educable Mentally Handicapped Girls in Charlotte, North Carolina, may be secured from the Carnegie Library at Winthrop College, Rock Hill, South Carolina.

The author is currently teaching home economics at Coulwood Junior High School in Charlotte, North Carolina.

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Objectives and Generalizations

I. To identify ways for earning money.

   A. Home Economics prepares a girl for many employment possibilities.

   B. Selecting and planning now for specific jobs will be rewarding in the future.

II. To determine the personal qualifications needed to secure various jobs.

   A. Good health practices are important to maintain a job.

   B. Certain jobs require more strength to perform than others.

   C. Things that people enjoy doing, they do well.

   D. Various jobs require certain performance skills.

   E. Some jobs involve speed production.

III. To gain an understanding of work habits desired by employers.

   A. Well-groomed persons have more self-confidence than those who are poorly groomed.

   B. Punctuality establishes good relationships with employees.

   C. Cooperation leads to better working conditions and improved relations with employer and fellow workers.

   D. A worker who is industrious is of more worth to the employer than one who is not.

   E. Courtesy promotes lasting friendships.

   F. To possess skill and knowledge about a job leads to self confidence.

   G. Willingness to work affects the advancement of employees.

   H. Carefulness affects your personal safety and the safety of others.

   I. Dependability is an asset which increases the worker's values to the employer and is essential for promotion.

IV. To develop work skills used in home laundry.

A. Correct laundry methods insure a clean and attractive wash.

B. Proper storage of soiled laundry saves time and energy when sorting the wash.

C. Mending a small rip or tear before laundering saves stitches and time.

D. Stains removed before laundering helps prevent permanent spots.

E. Automatic washers may be used safely for garments that are completely washable.

F. If labels are kept on hand and used it is easier to wash the garments successfully.

G. Clothes that are shaken out before hanging on the line have fewer wrinkles and save time and energy.

H. Automatic dryers save time and work, mean less ironing and do away with worry about the weather.

I. Some fabrics need no ironing if they are folded correctly when taken from the dryer or clothesline.

J. Proper dampening and folding of the laundry saves time and energy when ironing.

K. To preserve the smooth finish given by ironing, fabrics and garments should be folded properly or placed on hangers before storing.

V. To develop work skills in house cleaning.

A. If care is given regularly a home may be kept orderly, liveable, and attractive without too much time or hard work.

B. Certain housekeeping jobs must be performed daily, others weekly and some only occasionally.

C. A work plan saves time and energy.

D. Good work habits save time, energy, and often material resources.

VI. To determine methods for securing a job.

A. Ads in daily newspapers provide employment information for the prospective employee and employer.

B. Local employment agencies help wage earners secure jobs.

C. Schools, churches, and community organizations provide assistance in securing jobs for their citizens.

D. Employers prefer to have future employees arrange for an interview when applying for a job.

E. Teachers and school principals will assist students in filling out application forms.

VII. To make a personal budget.

A. Through good planning some people get more for their money than do others.

B. A budget helps you get the things you need as well as many things you want.

C. Planned spending contributes to personal and family well-being.

D. By planning and recording expenditures, personal finances may more easily handle large expenditures.

Lesson Plans

I. Objective: To identify ways for earning money.

Generalization:

A. Home Economics prepares a girl for many employment possibilities.

B. Selecting and planning now for specific jobs will be rewarding in the future.

Before Class Preparations: Hand out sheets, "News Bulletin, Pick Your Job!", prepared by the researcher. The bulletin lists areas of home economics and the specific job for which each area prepares the girl planning for future employment.

Interest Approach: Bulletin Board - Introduction to the Unit, "You'll Score with Home Economics." Arrange Bulletin Board - then cover it with a shade until the girls have orally named as many ways a girl may earn money as they can.

or

Use as a developmental bulletin board by placing one basket ball up at a time as the job possibilities are named.

Teaching Methods for Lesson:

1. The teacher says, "Just for fun, see how many jobs you can name that will help you earn money."[1] Write the jobs on the board as they are named.

2. After the list has been made on the board pass out the News Bulletin - uncover Bulletin Board. Point out each job and read aloud.

3. Now read over the possibilities for future jobs. As the wage earning opportunities are read, check the jobs that have already been named on the board as they are mentioned again. Read aloud.

4. Use want ad section of the newspaper to identify jobs that are available.

Main Teaching Point: Emphasize the large variety of jobs for which Home Economics prepares a girl. Encourage the girls to

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[1]Quotations used under Teaching Methods in several Lesson Plans were written by the researcher for the teacher to use in the lessons.

choose several job possibilities they are interested in and discuss orally.

Assignment: Choose from the News Bulletin three jobs you would most prefer to work toward or prepare for in the future. The assignments are prepared on colored paper by the researcher to be handed out to the girls. "Read over and study the areas and jobs for which each area prepares you. Show the bulletin to your parents."

Summary: Compare the beginning board list of jobs with the News Bulletin.

Evaluation: Q-sort Test - Given a list of areas taught in Home Economics and a list of employment possibilities, place each job under the area that will prepare you for this job.

Teacher Reactions and Evaluation of the Lesson: The introduction to the lesson aroused the interest of the girls. The Q-sort was hard for the girls to understand. The wording seemed too advanced. The test was read to the girls by the teacher.

II. Objective: To determine the personal qualifications needed to secure various jobs.

Generalizations:

A. Good health practices are important to maintain a job.

B. Things that people enjoy doing they do well.

C. Certain jobs require more energy to perform than others.

D. Various jobs require certain performance skills.

E. Some jobs involve speed production.

Before Class Preparations: A flip chart with pictures of good health habits, prepared by the researcher. Below are the contents:

1. Daily bath

2. Brush teeth properly 2-3 times daily.

3. Eat a balanced diet - morning-lunch-dinner. (If you need to lose weight, eat smaller amounts.)

4. Exercise daily.

5. Get adequate rest and sleep.

6. Wash your hair as often as needed to keep it glossy and free from oil.

7. Manicure your nails regularly to keep them clean and well shaped.

Interest Approach: Use posters to display pictures of certain jobs and the performance skills required for each.

Teaching Methods for Lesson:

1. Use flip chart to present good health habits. Reinforce good health habits by involving the students. Have the students complete a check list on "I do now, I need to improve."

2. Use a teacher guided class discussion on special interests: things I like to do; things I do not like to do; things I can do; things I cannot do. Put emphasis on the need for varying abilities. As a

summary have each girl make a list of Home Economics related jobs she would like to perform.

3. Display the posters. Begin class by introducing some of the jobs the girls chose and other job possibilities. Guide them with suggestions and questions. Place the related skills beside the job. Ask questions: (1) At what speed would this job have to be performed? (2) Will you have energy enough to complete the job satisfactorily?

4. As the charts are used put emphasis on the performance skills required to do the job well.

Main Teaching Point:

Emphasize the importance of knowing the kind of appearance that will be expected of a girl for her to get a job. Stress the importance of knowing beforehand the skills that are required to perform the job and complete it satisfactorily.

Assignment:

Teen Guide to Homemaking - Chapter 3, pages 30-47. Give pictures of girls and have the students sort them according to those displaying good health characteristics and those who show they have not practiced good health habits.

Summary:

Have one girl from each group show her two groups of pictures and give the good and bad health characteristics. Let each girl tell what Home Economics job she would prefer to do most and what performance skills she would have to possess to perform the job.

Evaluation:

From the handout sheet on jobs used earlier some jobs have been chosen for this evaluation. Have each girl answer the following questions after each of the six jobs that are on the evaluation sheet: 1. Will I be able to do this job? (Yes or No) 2. What skills are needed to do the job? 3. Could I work fast enough to finish this work satisfactorily?

Teacher Reactions and Evaluation of the Lesson:

The girls enjoyed the flip chart and seemed to understand the lesson. They were able to complete the evaluation sheet.

Lesson Plan

III. Objective: To gain an understanding of work habits desired by employers.

Generalizations:

A. Usually a well-groomed person possesses more self-confidence than one poorly groomed.

B. Punctuality establishes good relationships with employers.

C. Courtesy promotes lasting friendships.

D. Cooperation leads to better working conditions and improved relationships with employer and fellow workers.

E. A worker who is industrious is of more worth to the employer than one who is not.

F. To possess skill and knowledge about a job leads to self-confidence.

G. Willingness to work affects the advancement of employees.

H. Carefulness affects your personal safety and the safety of others.

I. Dependability is an asset which increases the worker's value to the employer and is essential for promotion.

Before Class Preparation:

A sheet of definitions on the good working characteristics of employees, prepared by the investigator. Words or phrases to be defined: 1. Well-groomed; 2. Punctuality; 3. Courtesy; 4. Cooperation; 5. Industrious; 6. Willingness; 7. Carefulness; 8. Dependability; 9. Possession of skills and knowledge about a job.

Interest Approach:

Dramatization: The Soda Shop. Have students volunteer for the three characters: Boss or Employer; Waitress, Unpredictable Polly, who displays poor work habits; and Waitress, Dependable Dolly, who displays all good working characteristics. The setting is the Soda Shop and the two waitresses serve the other students an imaginary snack. A skit and character name signs, prepared by the researcher, are given to the characters before the class meeting.

Teaching Methods for Lesson:	1. Introduce the lesson by asking the question, "If you were an employer what characteristics would **you** want the people who work for you to have?" Allow 2 or 3 girls to answer. If there are no answers, proceed with some characteristics that most employers desire in their employees. Then write the nine words and phrases on the board, one at a time, and ask the girls to give their definition of what the word means. When all nine words have been put on the board and the students have expressed what the words mean to them, distribute the prepared sheet of definitions and go over each. Compare these characteristics with those of a good family member. Near the end of class get the volunteers for the drama to be given at the next class meeting. Give them a copy of the skit.
Assignment:	Study the sheet of definitions on the good characteristics of employees that employers will expect. Chapter 17, page 356, Teen Guide to Homemaking may be used to compare the good employee characteristics with those of a good family member.
Summary:	Present the dramatization - allow 15 to 20 minutes - more or less if it is needed. Then orally summarize the good characteristics displayed by Dependable Dolly. Make a list on the board as they are given. Also list the poor work habits displayed by Unpredictable Polly.
Evaluation:	Multiple choice test - Given an incident, choose which characteristic it displays (3 choices); matching test on the characteristic and its definition.
Teacher Reactions and Evaluation of the Lesson:	The words used to define good working characteristics seemed too difficult for the level of the students. The definitions for the words had been taken from those given by an EMH group of boys and girls in a trial study done in the researcher's class. The students liked and understood the play. They carried it out well. The girls had difficulty reading the multiple choice test so the teacher and her assistant gave help with the reading.

IV. Objective: To develop work skills used in home laundry.

Generalizations:

A. Correct laundry methods insure a clean and attractive wash.

B. Proper storage of soiled laundry saves time and energy when sorting the wash.

C. Mending a small rip or tear before laundering saves stitches and time.

D. Stains removed before laundering helps prevent permanent spots.

E. Automatic washers may be used safely for garments that are completely washable.

F. If labels are kept on hand and used, it is easier to wash the garments successfully.

G. Clothes that are shaken out before hanging on the line have fewer wrinkles and save time and energy.

H. Automatic dryers save time and work, mean less ironing and do away with worry about the weather.

I. Some fabrics need no ironing if they are folded correctly when taken from the dryer or clothesline.

J. Proper dampening and folding of the laundry saves time and energy when ironing.

K. To preserve the smooth finish given by ironing, fabrics and garments should be folded properly or placed on hangers before storing.

Before Class Preparation:

1. Programmed learning booklet, Laundry Lessons, prepared by the researcher.

2. Classroom display of laundry equipment.

3. Surprise package.

Interest Approach:

Surprise package contains laundry supplies. Pull out one at a time and let the girls tell how it may be used in laundering.

Teaching Methods for Lesson:

In the classroom set up a laundry exhibit that has clothes sorted for washing, detergent to be used, large and small equipment to be used and a few items folded for storage plus an item freshly ironed.

Begin work by using the programmed booklet, Laundry Lessons. The booklet is prepared to make learning about laundry easy and exciting. "On each page are important principles about laundry. Under the principle there will be a statement with a word or words left out or a question about the principle. Write the answer in the blank or blanks provided or write the answer at the end of the question.

After writing the answer but not before, turn the page and compare your answer with the correct answer, which is in the box at the left of the next laundry statement. One point is given for each correct answer. Now read the example, answer the question or fill in the blank and turn the page to see if your answer was correct. Continue doing this until you have finished the booklet." The statements and questions may have to be read aloud to the entire class. Have each student write her own answer.

When the booklet has been completed have a laboratory demonstration on preparing and doing a family wash, and preparing the items for ironing or folding them for storing. The teacher may then demonstrate principles involved when ironing efficiently.

Main Teaching Point:

It is important for each girl to be able to do her own laundry. The laundry methods used affect the final appearance of the clothes worn. Helping with the laundry at home in many ways will help strengthen family relations. "You may be able to earn some extra money by hanging out clothes or ironing or even doing the family wash for friends or neighbors."

Assignment:

Read Teen Guide to Homemaking - pages 271-275; pages 94-107, and the pink strips on pages 261-267.

Have each student do her own laundry or help with the family wash at home. Send a note home to each mother giving the assignment, and ask her to write a note concerning the student's achievement.

Summary:

Turn to assignment pages in Teen Guide to Homemaking. Read sections that need to be reinforced and discuss

the other important facts on personal and home laundry.

Evaluation: Give each girl a performance test. Have her iron a blouse. Provide each girl with a score card for evaluating the other students' performances. Go over the score card before the performance tests begin.

Teacher Reactions and Evaluation of the Lesson: The girls' interest was aroused by the surprise package and the display of laundry equipment.

There was some difficulty in reading the booklet and interpreting the material; however, the laundry booklet has been a strong point in the unit. The booklet seemed good for the EMH student. The girls felt rewarded in being able to find the results without having to wait for the teacher to check papers. The girls made high scores on the booklets.

Lesson Plan

V. Objective: To acquire some knowledge about organized house cleaning.

Generalizations:

A. If care is given regularly a home may be kept in order, liveable, and attractive without too much time or hard work.

B. Certain housekeeping jobs must be performed daily, others weekly and some only occasionally.

C. A work plan saves time and energy.

D. Good work habits save time, energy, and often material resources.

Before Class Preparation: The researcher prepared programmed booklet, Housekeeping, score cards to be used by the students for checking on the care of their room, and charts showing how to use dividers in drawers to keep the contents in order and convenient.

Interest Approach: Teacher demonstrations on making a bed, dusting furniture and sweeping or mopping. Chart on good organization of drawers.

Teaching Methods for Lesson:

1. Have the girls complete the programmed instruction booklet first.

2. Give the students the score card for the care of their rooms. Have each student score her room and keep the score card to use again at the end of the study. Ask each girl to see how much improvement she can make before the end of the study on housekeeping.

3. Read orally pages 212-215 in Teen Guide to Homemaking, making sure to read the blue strips.

4. Teacher gives demonstration on making a bed correctly, dusting furniture efficiently and sweeping or mopping with smooth flowing motions. Then let the girls try performing these tasks in the classroom.

5. Display the drawer organization chart. Then read orally pages 207-211 in Teen Guide to Homemaking, stopping at the end of "Using Your Room for Study."

If time permits have each girl make an item for her closet or this may be done at home and brought to class for displaying.

Main Teaching Point: Emphasize the pleasure received from organized housekeeping.

Assignment: "Use pages 212-215 and 207-211 in Teen Guide to Homemaking, to help you make an item for your closet that would help keep items orderly."

Summary: "Score the care of your room again by using the score card you used at the beginning of this study."

Evaluation: Objective test: Matching cleaning tasks with how often the task will be done (daily, weekly, or occassionally), to identify both motion and time, or neither motion nor time.

Teacher Reactions and Evaluation of the Lesson: The programmed booklet on housekeeping was a strong point in the unit. Again the girls had to be assisted with the reading but they seemed to be able to interpret the material. The girls missed very few statements.

VI. Objective: To determine methods for securing a job.

Generalizations:

A. Ads in daily newspapers provide employment information for the prospective employee and employer.

B. Local employment agencies help wage earners secure jobs.

C. Schools, churches, and community organizations provide assistance in securing jobs for their citizens.

D. Employers prefer to have future employees arrange for an interview when applying for a job.

E. Teachers and school principals will assist students in filling out application forms.

Before Class Preparation:

A. Bring want ad section of newspaper for each girl in the class.

B. Contact local employment agency and invite a resource person to talk to the girls on how the agency helps prospective employees secure jobs.

C. The researcher prepared blanks for the teachers or neighbors to fill out when a student had an interview for a job.

D. Developmental bulletin board - You may find a job here: Newspaper; or here: Employment Agency; or here: School, Church and Community Organizations.

Interest Approach:

A. Before class write a thought provoking question on the board, "Now that I'm prepared to work, how may I find a job?"

B. Developmental Bulletin Board

Teaching Methods for Lesson:

1. To introduce the objective write the Thought Provoking Question on the board before the girls come to class. Read the question when class begins and ask the girls to tell of all the ways they may secure a job. Write these on the board and then summarize the list when they are finished.

2. After summarizing the girls' list present the developmental bulletin board.

3. Give each girl a want ad section of the newspaper, and assign them to find as many jobs for women as they can.

4. A resource person, secured by the researcher from a local employment agency was asked to talk to the girls about the jobs employment agencies help people secure and how interviews are arranged. The resource person was asked to bring blanks for securing a social security number, and some application blanks that employees fill in and either leave them to be filled in later or fill in some after class. Have the girls keep the blanks to be reviewed later.

5. Review personal grooming already studied in this unit along with manners and courtesy in connection with interviews. Let the girls do some role-playing in practice for an interview. Have the girls go out and actually interview for a job with a teacher in school or a neighbor. Suggest jobs that the girls may apply for, such as dusting the furniture in a classroom, cleaning the boards or sweeping. They may apply for a job with a neighbor to hang out the clothes, iron, wash dishes, straighten and clean the house, or baby sit. Ask each girl to name some possible jobs for which she may apply. Give each girl a note to present to the teacher or neighbor explaining about the interview. Let the girls tell about their experiences when applying for a job.

6. Distribute the application blanks used by the employment agent and fill in or review the necessary information that will be on all application forms. Add that teachers, principals, and guidance counselors are happy to assist students filling in application forms.

Main Teaching Point: Emphasize the importance of knowing where to secure a job and how to prepare for an interview with possible employers. Encourage the girls to learn how to fill in application forms.

Assignment: To arrange for a job interview with a teacher, neighbor, or friend.

Summary: Review the points brought out by the resource person from the employment agency. Let each girl tell of her experiences when she applied for a job.

Evaluation: Practical problems: Give a want ad section to each girl and have her find a possible job. Ask each girl to write down any other places she may find a job or has already found a job. Give each girl an application blank and have her complete it as best she can.

Teacher Reactions and Evaluation of the Lesson:

The objective was taught last because the girls are accustomed to having a resource person end a unit, and the teacher felt it would be a good summary for the unit.

The interest of the girls was extremely high all through the period. The girls asked for the resource person to come back another day.

Lesson Plan

VII. Objective: To make a personal budget.

Generalizations:

A. Through good planning some people get more for their money than do others.

B. A budget helps you get the things you need as well as many things you want.

C. Planned spending contributes to personal and family well-being.

D. By planning and recording expenditures, personal finances may more easily handle large expenditures.

Before Class Preparation:

Duplicated sheets to give the students, Your Sample Expense Record for One Week, prepared by the researcher.
Bulletin Board: How to Pocket Your Money.
Duplicated review sheet.

Interest Approach:

Bulletin Board: How to Pocket Your Money.
An apron with 6 pockets, a pocket for savings, clothing, snacks, daily expenses, gifts and recreation.
Thought question - What is the real purpose of MONEY?

Teaching Methods for Lesson:

1. Introduce the lesson by having the title of the bulletin board, How to Pocket Your Money, already on the bulletin board. Have the thought question on the board - Ask the girls what they think is the real purpose of money. As they answer, write the answers on the board and conclude with the answer, "It is only a means by which we exchange our work or the work of others for food, clothes, homes, recreation and other daily expenses."

2. "Now, if we are to be able to get the things we need as well as the things we want we must plan how we will use our money. People who make good plans for spending their money usually get more for their money than do others."

3. "The first step in making a good plan for using your money is to keep a record of the way you are spending your money now." At this time hang the money manager's apron on the bulletin board. Ask how many girls actually put aside some of their allowance or earnings for savings. Discuss the amounts the various class members spend on snacks, daily expenses, gifts, recreation and clothing. "All of you will know exactly where you are spending your money in keeping a record of your spendings. Then you can look at the record and determine where you have spent too much and why you do not have money for some of the things you would like to have or do."

4. Give out duplicated sheets, Your Sample Expense Record for One Week. Go over the record and give instructions on how to keep the record for one week (7 days).

5. During this week study pages 196-203, Teen Guide to Homemaking. During this study emphasize the importance of setting aside some money for savings, no matter how small.
Suggest they save for a definite goal and ask them to write it on their plans. Make sure they understand the differences between wants and needs. Make a list of needs on the board and a list of some wants.
Stress practicing good buymanship practices:

1. Knowing exactly what you want and what you can afford to pay.
2. Know where to buy and when to shop.
3. Know how to judge sales and bargains.
4. Know the various methods used to pay for items and study their strengths and weaknesses. (Cash, installment plan, and charge accounts.)

"Management or being able to get the most for your money and time does not end when the items are bought because taking good care of the articles you have will help you to stretch your dollars." Have some discussion on how they may better care for their personal belongings. You may use the blue strip on page 202, Teen Guide to Homemaking, as a guide for the girls.

6. When the records of spending come in, help the girls to develop a plan for spending their present allowance or income being sure to allow some money for regular savings.

7. Bring in assignment - page 192 - top of page 196, Teen Guide to Homemaking. Stress the fact that planned spending not only contributes to personal satisfaction but also to family well-being. "When family members keep

a record of their spendings it helps the head of the family determine where their money is going. By keeping records of everyday expenditures, the family's income may more easily accommodate large expenditures."

Main Teaching Point: No matter how much or how little money you have it is very important to plan carefully the ways you will use it.

Assignment: Pages 196-203 and pages 192-196, Teen Guide to Homemaking.

Summary: Hand out a summary duplicated sheet and go over it in class. Students may attach this to their expense records and spending plans.

Evaluation: "Given $10.00 to spend this week, plan how you will spend this money by placing the amount you will spend for certain items under the following areas. Daily expenses; snacks; clothing; gifts; recreation; and savings. Be sure to add up your spendings, making sure you do not spend over $10.00.

Teacher Reactions and Evaluation of the Lesson: The apron bulletin board was a thrill for the girls because it was made so that the teacher or they could wear it. The girls grasped the ideas of allowing a certain amount of money for all expenses and actually began a savings account, some in a local bank. The adding and subtracting in the budgeting was difficult for the girls.

Summary Evaluation of the Unit by the Teacher

The organization of the materials used in the unit was arranged in a meaningful sequence. Introductions to the lessons aroused the interest of the girls. Materials used in the unit were prepared well. The words used in the unit need to be simplified and brought down on a lower vocabulary level, if possible.

The unit seemed too long because the girls grew restless before the entire unit was completed. The EMH girls met in the home economics class every other day, which made the unit seem longer than it actually is. Suggestions for shortening the unit may be to leave out the grooming section because it is usually taught in the clothing unit. The room improvement and laundry lessons may be reviewed instead of taught in detail. However, the booklets used to teach laundry and housekeeping seemed valuable for the EMH student. The lessons on budgeting were difficult for the EMH girls, perhaps because of their limited mathematical ability. However, due to their interest and determination they seemed to recognize the worth of having a plan for spending money.

The unit has several features which strengthened its use with the EMH girls. Among the strong points were the two programmed booklets on laundry and housekeeping. These booklets seemed appropriate for the EMH students because the girls felt rewarded in being able to determine immediately their success. The News Bulletin was an excellent idea but it would be even better if the wording could be simplified. The surprise box in the laundry lesson and the apron bulletin board used in budgeting were effective learning experiences because no reading was involved, yet the interest was high and the girls grasped the ideas quickly. The dramatization used to display desired and undesired characteristics of employees was a joy for the girls. The students did an excellent job dramatizing the characteristics and all of the girls in the skit and in the class enjoyed and understood the lesson. The closing of the unit was strengthened by having the resource person from the local employment agency.

The scores on the objective test given to the EMH girls to evaluate their achievement in the prepared lessons formed a normal distribution curve. The results on the programmed booklets were skewed to the right when the distribution was examined. The performance tests were done at home because there was not enough time available for them to be done at school. The evaluations written by the mothers revealed that the girls could successfully perform the activities they had studied in school. The activities dealt with doing the family wash, ironing a blouse or other garments, and cleaning and organizing a clothing closet and dresser drawers.

Teaching Materials

Used in Unit

"NEWS BULLETIN"*

PICK YOUR JOB

Employment Opportunities

related to

CLOTHING

1. Alterations girl in a department store
2. Dressmaking and altering clothing at home
3. Selling:
   a. Clothing
   b. Yard goods and notions
4. Making draperies and curtains
5. Cover buttons, make belts
6. Sewing machine demonstrator
7. Making children's clothing
8. Making specialty items at home such as aprons, stuffed animals, place mats, and holiday table cloths
9. Dry cleaning and laundry aid who may work as a sorter, spotter, presser or inspector
10. Attendant in a self-service laundry
11. Performing a laundering service at home
12. Helper in a hospital linen room---counting, handing out and repairing

*This page was duplicated, using a Red Gold Label, Kee Lox Spirit Duplicator Master Unit.

Employment Opportunities*

related to

CHILD CARE

1. Helper in children's hospital ward
2. Caring for children in a private home
3. Helper in children's orphanage or home
4. Helper in a child day-care center
5. Nursery school aide
6. Baby sitter
7. Assistant in children's library room
8. Sales clerk for children's toys, books
9. Assistant on playgrounds
10. Nursemaid in wealthy families
11. Caring for infants in a private home
12. Caring for children in your home

*This page was duplicated, using a Green Gold Label, Kee Lox Spirit Duplicator Master Unit.

Employment Opportunities*

related to

HOME FURNISHINGS

1. Helper in a factory--making rugs, curtains, slipcovers, lamp shades and many other home furnishings
2. Sales girl or stock girl in a home furnishings store or department
3. Assistant helper in a flower or gift shop
4. Making specialty items at home such as candles, dried or articicial flower arrangements, chair and table mats, decorative pillows
5. Assistant helper to an interior decorator

Employment Opportunities

related to

HOUSEKEEPING AND FAMILY RELATIONS

1. Helper in a hospital ward
2. Visiting homemaker for an elderly person
3. Institutional housekeeping
4. Visiting housekeeper for handicapped homemaker
5. Hotel and motel housekeeping aide
6. Companion to an elderly one
7. Visiting homemaker
8. Homemaker's assistant
9. Housekeeper's assistant in a dormitory, nursing home, or children's home
10. Attendant for the aging

*This page was duplicated, using a Blue Gold Label, Kee Lox Spirit Duplicator Master Unit.

Employment Opportunities*

related to

FOODS

1. Helper in lunchroom
2. Bakery helper or sales clerk
3. Hostess in a restaurant
4. Soda fountain girl
5. Helper in a foods testing laboratory
6. Food service helper
7. Helper in a hospital, nursing home or other institutions
8. Household assistant and cook for a full-time employed homemaker
9. Food store helper (wrapper, salesgirl, checker, stockgirl)
10. Making specialty items in the home (cakes, cookies, candy, tea sandwiches)
11. Family dinner service specialist

*This page was duplicated, using a Purple White Label, Kee Lox Spirit Duplicator Master Unit.

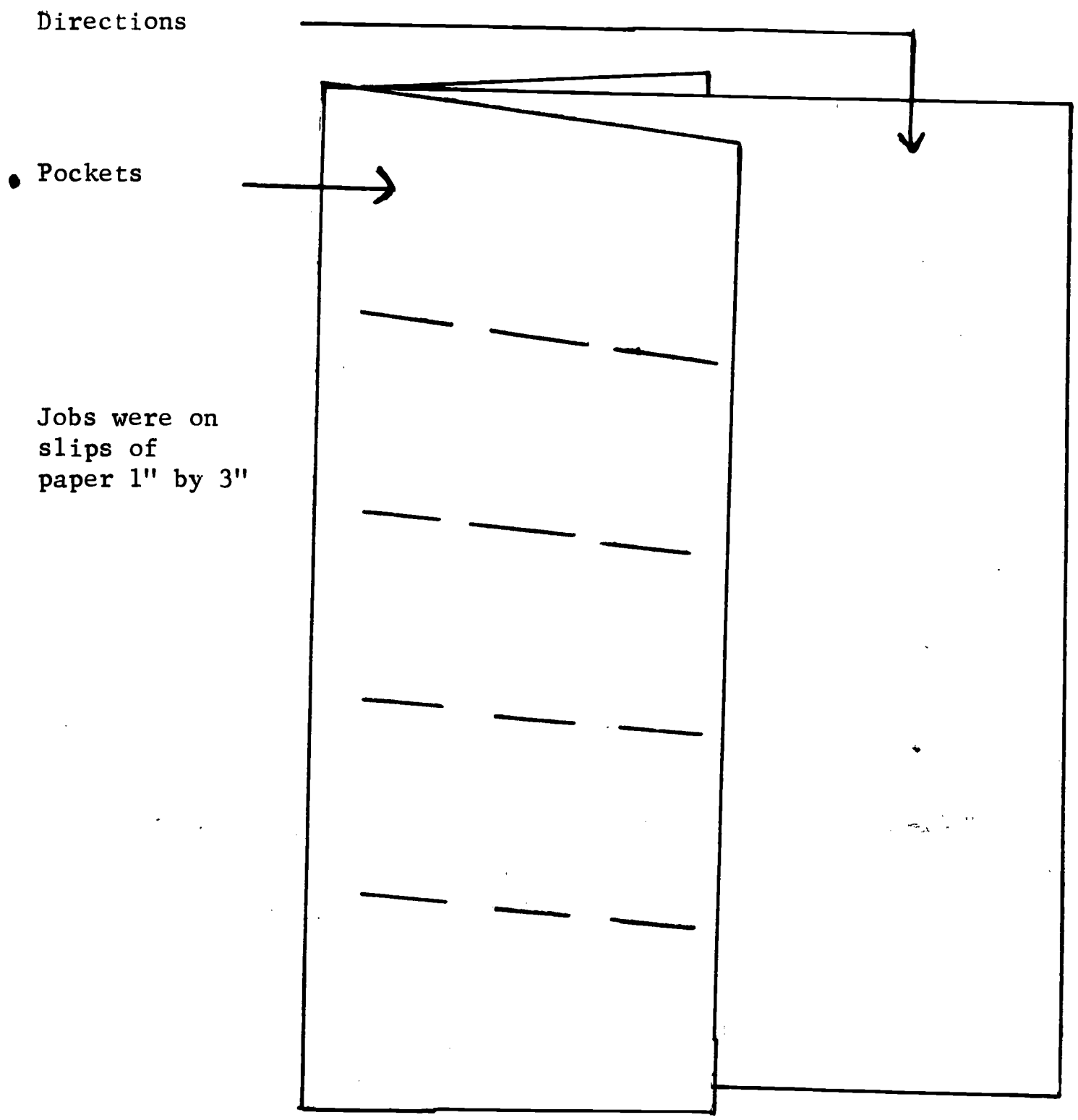
Assignment*

Choose from the "News Bulletin" I gave you three jobs you would most prefer to work toward or prepare for in the future.

Read over and study the areas and jobs that each Home Economics unit prepares you for in the future.

*The assignment was duplicated on a 4" by 8½" pink paper using a Purple White Label Kee Lox Spirit Duplicator Master Unit.

Q SORT*



*The Q sort had a Home Economics area on each of the five pockets. Job possibilities from each area were given to the students on slips of paper 1" by 3". The students were instructed to place each job inside the related Home Economics area pocket.

Q sort Pockets

POCKET #1

5 EMPLOYMENT OPPORTUNITIES RELATED

TO CLOTHING

POCKET #2

5 EMPLOYMENT OPPORTUNITIES RELATED

TO CHILD CARE

POCKET #3

5 EMPLOYMENT OPPORTUNITIES RELATED

TO FOODS

POCKET #4

3 EMPLOYMENT OPPORTUNITIES RELATED

TO FAMILY RELATIONS AND HOUSEKEEPING

POCKET #5

2 EMPLOYMENT OPPORTUNITIES RELATED

TO HOME FURNISHINGS

Q sort Directions

Home Economics prepares girls for many different ways to earn money now and in the future.

Directions: Across from these instructions are 5 pockets with different areas of Home Economics you study each year. Each pocket has the number of jobs you will place inside.

There will be 20 job possibilities given to you.

Place 5 jobs that a study in clothing will prepare you for inside pocket #1.

Place 5 jobs inside pocket #2 that studying child care prepares you for in the future.

Place 5 jobs inside pocket #3 that studying foods prepares you for in the future.

Place 3 jobs inside pocket #4 that studying Family Relations and Housekeeping prepares you for in the future.

Place 2 jobs inside pocket #5 that studying Home Furnishings prepares you for in the future.

When you finish recount all cards to be sure each pocket contains the correct number of jobs.

You will get 1 point for each statement you have placed in the correct pocket. There are 20 points.

Fold this sheet over the pockets and write your name on the outside.

Jobs Used in Q Sort

1. Dressmaking and altering clothes at home
2. Performing a laundering service at home
3. Making children's clothing
4. Selling yard goods and notions
5. Alterations girl in a department store
6. Caring for infants in a private home
7. Assistant on playgrounds
8. Helper in children's hospital ward
9. Baby sitter
10. Helper in a child day-care center
11. Bakery helper or sales clerk
12. Soda fountain girl
13. Household assistant and cook
14. Helper in hospitals or nursing homes' kitchen and dining room
15. Food service helper
16. Attendant for the aging
17. Homemaker's assistant
18. Hotel and motel housekeeper
19. Helper in a factory--making rugs, curtains, or slip covers
20. Assistant helper in a flower or gift shop

CHECK LIST

GOOD HEALTH AND GROOMING HABITS

Directions: Place a check _____ under the correct statement after reading each good health habit.

	I do now	I need to improve
1. Shower or bathe every day		
2. Wash my face morning and night		
3. Brush my teeth 2 or 3 times a day		
4. Clean my nails every day		
5. Brush my hair thoroughly morning and night		
6. Do some exercising every day		
7. Shampoo my hair every week and more often if it is oily		
8. Manicure my nails every week and more often if needed		
9. Get 8 to 10 hours of sleep every night		
10. Eat a balanced diet every day		

Directions: Below are some jobs you saw on your "News Bulletin." Beside each job are 3 questions. Answer each question.

Job	Will I be able to do this job? answer yes or no	What skills are needed to do the job?	Could I work fast enough to finish the work satisfactorily? yes or no
1. Waitress or Soda Fountain girl		1. 2. 3.	
2. Dressmaking and Alterations		1. 2. 3.	
3. Housekeeping aide in hospitals, motels, and homes		1. 2. 3.	
4. Caring for children		1. 2. 3.	
5. Household assistant and cook		1. 2. 3.	
6. Laundering		1. 2. 3.	

GOOD WORKING CHARACTERISTICS

OF EMPLOYEES

WORDS AND DEFINITIONS*

1. Well-groomed - clean; neat
2. Punctual - Be on time
3. Courteous - nice; have good manners
4. Cooperative - Getting along with others; doing what you are told to do
5. Industrious - Keep busy; do your work as well as you can
6. Willingness - Ready to do your job; not slow or lazy
7. Carefulness - Watch what you are doing
8. Dependability - Trustworthy; loyal
9. Have skills and knowledge about the job - Train yourself for the job you plan to do
10. Friendly - Be able to make friends easily

*Definitions were derived from discussions with EMH students in the researcher's special education class.

SKIT

IT HAPPENED IN THE SODA SHOP

SETTING: Soda Shop - manager talks to two new waitresses, then girls come in and sit at 2 tables. One table of girls is waited on immediately by Dependable Dolly.

CHARACTERS:
1. 1 manager
2. 2 waitresses
3. girls (any number) to sit at 2 tables

MATERIALS NEEDED: napkins, paper cups, straws

SKIT

MANAGER: (talks to Dependable Dolly and Unpredictable Polly) - "Girls I want you to be sure to serve customers as soon as possible after they are seated. Make sure to get the orders correct and try to remember who ordered each item. Always be friendly and courteous to the customers. Be careful when you are carrying orders and when you serve them."

1 GROUP OF GIRLS COME IN AND SEAT THEMSELVES

DEPENDABLE DOLLY: (as soon as girls are seated Dolly walks over to her table) "Good afternoon girls, what will you have today?"

GIRLS: 1 vanilla shake, 1 chocolate shake, 1 vanilla shake.

DOLLY: "That's 2 vanilla shakes and 1 chocolate. Thank you." (Dolly gives order to manager) "2 vanilla shakes and 1 chocolate." (While Dolly waits for the order to be made she takes napkins and straws to the girls at her table.)

MANAGER: "Dolly, order ready."

DOLLY: (Dolly serves the shakes carefully--remembering which flavor goes to each girl.) "I hope you enjoy your shakes, and if you want anything else I will be happy to get it for you."

GIRLS: (The other group of girls come in and seat themselves.)

UNPREDICTABLE POLLY: (Polly waits about 3 to 5 minutes before going over to get the order. During this time she sits on a stool and files her nails as if no one is waiting for her service.) Polly finally goes over to take the order - she greets the girls with - "WHAT DO YOU WANT?"

GIRLS: "1 chocolate shake, 1 vanilla shake, 1 chocolate shake."

POLLY: (to manager) 2 vanilla shakes and 1 chocolate. While waiting for the order, Polly combs her hair.

MANAGER: "Polly, order ready."

POLLY: (serves shakes carelessly and tips over 1 shake. Serves wrong flavor to the girls.)

GIRLS: "I ordered vanilla, not chocolate, yes and I ordered chocolate not vanilla." They discover Polly gave their order in wrong and tell her. Polly argues with them. They become dissatisfied with the service and leave.

POLLY: (Just stands with hands on her hips and stares)

MANAGER: "Polly!! You did everything wrong!!"

GOOD WORKING CHARACTERISTICS

OF EMPLOYEES

1. Directions: Below are some things employees have done. They display certain good characteristics that employees have. Choose the characteristic that the actions display from the 3 given. Underline the correct characteristic.

   Example: Pat offered to help the new waitress find an apartment.

   A. Industrious B. Courteous C. Dependability

1. Ann, the new secretary, had a neat simple hair style and was wearing a lovely A-line jumper and white blouse.

   A. Courteous B. Well-groomed C. Dependability

2. Betty showed Ann where to hang her coat and the ladies lounge. She invited her to have lunch with the girls in the office.

   A. Courteous B. Industrious C. Willingness

3. Ann began her new job and did not stop until lunch except to ask her boss if he had other work he would like her to do.

   A. Industrious B. Punctual C. Carefulness

4. Ann's job begins at 8:00 a.m. and she gets off work at 5:00 p.m. The first day she arrived at 7:45 a.m.

   A. Cooperative B. Willingness C. Punctual

5. Betty asked Ann to help file some of her work. Ann agreed to help as soon as she finished the typing she was told to do.

   A. Industrious B. Cooperative C. Carefulness

6. Ann was well prepared for her job typing and filing since she had taken Typing 4 years in school and Business 2 years.

   A. Industrious B. Skills C. Punctual

7. Ann became sick in the night. Since she was too sick to report to work the next morning she called her employer before 8:00 a.m. to let him know she would not be there.

   A. Skills B. Carefulness C. Dependability

8. A stack of bills were placed in the basket to be typed. Ann had typed all the bills given her so she offered to begin this stack.

A. Willingness B. Punctual C. Dependability

9. Ann saw sparks coming from an electrical outlet. She quickly unplugged the cord.

A. Willingness B. Cooperative C. Carefulness

10. Ann quickly b came well liked by all the girls in the office.

A. Willingness B. Industrious C. Friendly

11. Match the word numbered 1-10 with their definitions A-K. Place the letter that matches the number on the line to your left.

Example: B 25. Employer

A. teacher
B. boss

_____1. Carefulness	A. Clean; neat
_____2. Cooperative	B. Intelligent
_____3. Courteous	C. Doing what you are told
_____4. Dependability	D. Keeping busy
_____5. Friendly	E. Have good manners
_____6. Industrious	F. Ready to do the job
_____7. Punctual	G. Watching what you do
_____8. Skills	H. Trustworthy; loyal
_____9. Well-groomed	I. You have trained for the job
_____10. Willingness	J. Make friends easily
	K. On time

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PROGRAMMED BOOKLET*

LAUNDRY METHODS

NAME_____

This booklet has been prepared to help you learn more about performing laundry tasks. On each page you will find some important facts and then you will be asked to complete a blank or blanks with the important facts you learned from the statement. After you have written the answer and not before turn the page and you will find the correct word in the left margin beside the next statement.

Try to write the correct word in each blank. You will get 1 point for each blank correctly answered.

- - - -

correct

1. A small rip or tear should be mended before the garment is washed to prevent larger rips and tears.

   If a small rip or tear is not _____ before the garment is washed, the rips and tears may become larger.

- -

mended

2. When sorting the wash separate light and dark clothes to keep the light clothing from becoming grayed and to keep lint off the dark items.

   Light and dark clothes should be _____ before washing to prevent grayed light clothing and to keep lint off dark clothes.

- -

separated

3. As you sort the clothes group those that are to be washed in the same way and that have similar amounts of soil together.

   Clothes with similar amounts of soil that are washed the same way may be grouped _____ when sorting the clothes before washing.

- -

together

4. When getting the wash ready empty all pockets to prevent kleenex bits or chewing gum from getting on the entire wash.

   All pockets should be _____ before placing the article in the washer.

- -

emptied

5. Close the zippers and fasten the hooks on all articles before placing them in the washer to keep them from being caught in other items and tearing the garment or breaking the fastener.

   Before washing be sure to close the _____ and fasten the hooks on all garments to prevent the breakage of the fasteners and unnecessary tearing of clothing.

- -

zipper

6. Roll sleeves down and unbutton cuffs before washing to insure cleaner blouses and skirts.

Before washing skirts and blouses roll the _____ down and unbutton the cuffs.

---

sleeves

7. Clothing of infants or of sick persons should be washed separately for sanitary reasons.

To provide sanitary clothes for the whole family wash infants or sick persons clothing_____.

---

separately

8. Many times stains cannot be removed from clothes because they are set by hot water or detergent. The stains should be treated with cold water and mild soap before washing and when the stain is still fresh if possible.

Some stains are easy to remove if they are treated while the stain is still fresh or before the garment is _____.

---

washed

9. Twenty minutes is as long as heavily soiled clothes need to be soaked in plain water or in water with detergent added.

The soaking process need not extend beyond _____ minutes for heavily soiled clothes.

---

twenty

10. Automatic washers may be used safely for completely washable garments. If labels from all garments are kept on hand and used for washing and drying directions, it will be easier to wash garments successfully.

Garments that are _____ washable may be laundered in an automatic washer successfully.

---

completely

11. Similar light or dark items that require the same water temperature, the same length of washing time and the same kind of soap or detergent may be placed in the washer together.

Items requiring the same water temperature, the same length of washing time and the same kind of soap or detergent may be placed in the washer _____.

- -

together or at the same time

12. Clothes dried on a clothes line look better and have fewer wrinkles if they are shaken out and hung properly.

Clothes will have fewer _____ if you shake them out before they are hung on the clothesline.

- -

wrinkles

13. If you plan to iron clothes immediately after removing them from the automatic dryer or clothesline remove them while they are still damp so they will be easier to iron.

Clothes that are to be ironed immediately after removal from the dryer or clothesline iron easier and better if they are removed while they are still _____.

- -

damp or moist

14. Dampening or sprinkling makes articles made of cotton or linen iron smoother and easier.

Articles made of cotton and linen are easier to iron smoothly when they are_____.

- -

damp

15. When preparing clothes for easier, quicker ironing use warm water for dampening.

Use _____ water for dampening clothes to make ironing quicker and easier.

- -

warm

16. After clothes are dampened fold them loosely and as nearly as they will be folded for storage to save ironing time.

Fold clothes _____ and as nearly as they will be folded for storage after they are dampened.

- -

loosely

17. Place the dampened, loosely folded clothes in a plastic bag and let them stand for one or two hours before ironing.

Before ironing clothes dampen them and let them remain in a plastic bag for _____ or _____ hours.

- -

one or two

18. To keep the smooth finish given by ironing, some garments should be carefully folded such as slips, nightgowns, pajamas, shorts, and mens' shirts. Observe the way each garment is folded when it is new and try to refold it in the same way.

To fold garments so they keep their smooth finish observe how they are folded when they were _____.

- -

new

19. Do not fold dresses, skirts, pants and blouses but place them on hangers to preserve the smooth finish given by ironing.

Place dresses, skirts, pants, and blouses on _____ to best preserve the smooth finish given by ironing.

- -

hangers

20. Household linens that are ironed and should be folded with care include pillowcases, dresser scarves, table cloths, place mats, and napkins.

Carefully _____ household linens such as table cloths, napkins, pillowcases, and place mats to preserve a smooth appearance.

- -

fold

21. Some articles need no ironing if care is taken in drying and folding after the items are dry. Most wash-and-wear garments, bath towels, wash cloths, diapers and even sheets may be dried almost free from wrinkles.

Ironing time is shortened by carefully _____ and _____ such items as diapers, sheets, bath towels and wash-and-wear garments.

- - - -

dirty

26. Before hanging clothes on the line shake them well to avoid wrinkling and to fluff Turkish towels and throw rugs.

To avoid wrinkling and to fluff Turkish towels, _____ clothes well before hanging them on the line.

- -

shake

27. Linen towels and pillowcases look better if they are folded one-third over the line. Do not hang these items by the corners.

Fold linen towels and pillowcases _____ over the line. These items should not be hung by the _____.

- -

one-third and corners

28. When hanging trousers or pants place them on pants stretchers to save ironing time.

To save ironing time place pants on _____ before hanging them on the line.

- -

stretchers

29. To help dresses keep an attractive appearance over a longer period of time and to save time and energy in ironing or folding, hang dresses on the line by the shoulder.

When hanging dresses on the line hang them by the _____ for best results.

- -

shoulder

30. Hang sundresses, shorts and skirts on the line by the waistline to keep their good appearance longer and to save time and energy when ironing.

For best results hang shorts, sundresses, and skirts by the _____.

- -

waistline

31. Shirts or blouses may be hung by the tail to preserve their appearance and save time and energy.

Hang shirts and blouses by the _____ for best results.

- -

tail

32. Hang knit underwear over the line to prevent stretching.

Knit underwear may be hung _____ the line to prevent stretching.

- -

over

33. Socks should be hung on the line by the toes to keep a nice appearance and to prevent stretching.

Hang socks by the _____ to prevent stretching and to keep a nice appearance longer.

- -

toes

34. Count the number of blanks you correctly answered. This will be your score.

MY SCORE_____
PERFECT SCORE 37

LETTER TO MOTHERS*

Mother,

In Home Economics class we are learning to do the laundry. I have been assigned to help you with our family laundry or to do all of my own wash.

I want you to judge my work: proper sorting of the wash; mending items to be mended before washing; removing stains before washing; hanging the clothes correctly on the line; folding items to be folded; and ironing.

Please write a note to my teacher concerning the success of my wash.

Thank you.

*The letter was duplicated on a 6" by 8½" white paper using a Purple White Label Kee Lox Spirit Duplicator Master Unit.

Ironing Score Card

Directions: When each girl begins to iron, record the time on the score card in the appropriate column. Record each lift of the iron on the score card by placing a straight mark ( ). Record the time finished on the card. Record the ironing time by subtracting the time began from the time finished. Judge the appearance of each finished product and check under the appropriate description.

Name	Time Began	Lifts of iron	Time Finished	Ironing Time*	Product 1. Excellent 2. Good 3. Poor

*Subtract time began from time finished.

PROGRAMMED BOOKLET*

HOUSEKEEPING

NAME_____

This booklet has been prepared to help you learn more about performing housekeeping tasks. On each page you will find some important facts and then you will be asked to complete a blank or blanks with the important facts you learned from the statement. After you have written the answer and not before turn the page and you will find the correct word in the left margin beside the next statement.

Try to write the correct word in each blank. You will get 1 point for each blank correctly answered.

- - - -

both hands

Any home is more attractive and liveable if it is kept clean and in order. This is not hard to do and does not take much time if care is given regularly.

1. Daily care must be given to certain areas of the home for it to be kept in order and looking attractive.

   If you want your home to stay in order and look attractive _____ care must be given to certain areas.

- -

daily

2. Each morning small jobs such as making beds, hanging up sleeping garments, putting away toilet articles and arranging items left on the dresser will give the bedroom area an orderly appearance.

   What can one do each morning in the bedroom to give it an orderly appearance? One can hang up _____ garments, make the _____, put away toilet articles and straighten the items left on the dresser.

- -

sleeping; beds

3. Papers, magazines, books and other recreational materials clutter the home and should be picked up and stored in their own special place.

   In every home there should be a special place for everything and everything should be in its own special _____.

- -

place

4. When items are wanted by a family member they can be found without wasting time searching if they have been put away in their own place.

   Family members save _____ in locating an item that is stored in its own place.

- -

time

5. Bedrooms, closets, and bathroom floors should be dry mopped or vacuumed daily to save a longer job on other days.

What daily care can one give the bathroom and bedroom floors to prevent a bigger and longer job on other days? One can _____ or _____ the floors daily to keep them clean and prevent a big job later.

- -

dry mop or vacuum

6. To prevent a cluttered appearance be sure to hang up clothes that will be worn again.

Clothes that you plan to wear again should be _____ _____ to prevent a cluttered look in your home.

- -

hung up

7. Place soiled clothes in a laundry bag or basket until they are washed.

Where may one keep soiled clothes until they are washed so they will not clutter the house? One may place soiled clothes in a _____.

- -

laundry bag or basket

8. If each person straightens up her room before going to bed the time for cleaning in the morning will be reduced.

What can one do the night before to save time in the morning? One can _____ her room before going to bed.

- -

straighten

9. The sinks in the bathroom and kitchen are easy to keep clean if all persons clean the area after they have used it.

How may the family keep the sinks in the home clean? Each family member should clean the sinks _____.

- -

after using them

10. Some jobs are done weekly because they do not need to be done daily and other jobs are done weekly to prevent extra heavy jobs in housecleaning such as the "spring and fall cleaning" everyone dreads.

Each week bed linens should be changed. Fitted bottom sheets save time in caring for the bed.
Bed linens are changed each _____.

- -

week

11. It is a good practice to vacuum the mattress before putting on clean sheets. This provides a more dust free area for one to sleep.

An extra precaution to keep down dust is to _____ the mattress before applying clean sheets.

- -

vacuum

12. Every week all the floors in the home especially under furniture should have a thorough cleaning with a broom, dust mop, or vacuum cleaner. Kitchen and bathroom floors may be cleaned with a damp mop.

All the floors need a thorough cleaning and the bath and kitchen floors need to be damp mopped _____.

- -

weekly or every week

13. All the furniture, light fixtures, mirrors and window sills need to be dusted at least once every week and more often if possible. Dust with a lint free cloth or the vacuum dust attachment.

How often should furniture, light fixtures, mirrors and window sills be dusted? They should be dusted _____.

- -

at least once a week and more often if possible

14. The contents of dresser drawers and closets need straightening each week. This is easier to do if the storage areas have been well arranged with a place for all items.

To keep a neat closet and clean, convenient dresser drawers _____ them well by having a place for everything.

arrange

15. Spills in refrigerators and ranges should be wiped up when they occur and weekly clean the refrigerator with warm soda water or a mild detergent. The spill pans under the burners and the oven will need to be cleaned with a stronger cleaning agent.

The _____ and _____ need to have spills cleaned when they occur and need also to have thorough weekly cleanings.

---

refrigerator and range

16. Occasional cleaning jobs are done when they are needed and not necessarily all at one time.

Windows usually need washing four to six times a year. They may be cleaned easily with water to which household detergent or ammonia has been added.

Clean windows four or six times a year with water to which _____ or _____ has been added.

---

detergent, ammonia

17. It is a good practice to wash curtains and clean the blinds or shades when the windows are cleaned. The job will not be so tiring if the windows and curtains are cleaned in one room at a time.

A good time to wash curtains and clean blinds is when the _____ are clean.

---

windows

18. Lamps and their shades, light bulbs and lighting fixtures may be dusted or washed with mild suds every few weeks. Better light is given off by a clean bulb or fixture.

To obtain better light wash bulbs and light fixtures every few weeks with _____. The lamps and their shades may be dusted.

---

mild suds

19. Most dirty spots on painted and papered walls and and woodwork may be washed with mild suds. This task should be done every few weeks before the job gets so big it requires a long cleaning time to complete.

Walls and woodwork may be cleaned by _____ with mild suds every few weeks.

---

washing

20. To keep furniture looking its best, wash with a damp soft cloth, dry the area and then apply furniture wax every few weeks.

Every few weeks, wash furniture with a _____ soft cloth and dry the area before applying_____.

---

damp; furniture wax

21. Wood floors, tile or linoleum require occasional washing and waxing. There are commercial cleaners and waxes that are recommended for each type of floor or floor covering.

To have attractive floors, clean and _____ them occasionally.

---

wax

22. Many draperies have to be dry cleaned when they become dirty. This may be done at a self-service dry cleaners if you are willing to do the ironing.

When many draperies become dirty they must be _____.

---

dry cleaned

23. Occasionally large rugs or carpets need to be cleaned. They may be cleaned by hiring a professional carpet cleaner to come out and do the job or by applying a dry rug shampoo and vacuuming.

To clean rugs and carpets you may hire someone to do the job or you may clean them yourself by applying a _____ and vacuuming.

---

dry rug shampoo

24. Seasonal cleaning becomes unnecessary if care is given daily, weekly, or occasionally to all cleaning jobs.

If care is given daily, weekly, or occasionally to all cleaning jobs_____becomes unnecessary.

---

seasonal

25. All house cleaning jobs combined with other necessary chores take up a great amount of the homemaker's time. By making a work plan before performing the necessary chores large amounts of time may be saved.

Time may be saved in housekeeping by first making a _____ _____ .

- -

work plan

26. To have a good work plan first make a list of the most important jobs that should be performed just in case part of the plan has to be left undone until later.

When making your work plan place the _____ jobs at the top of the plan.

- -

most important

27. In your work plan decide on a time when each task may be performed best and with the least amount of interruptions.

As you make a work plan set a _____ when each task may be performed best.

- -

time

28. Keep in mind that all plans may have to be changed when unexpected occasions arise.

All plans may be _____ when it seems necessary.

- -

changed

29. If a work plan is made realistically and followed as closely as possible time is saved that may be used for those things you enjoy doing.

Make a _____ plan and follow it as closely as possible in order to have time for those things you enjoy doing.

- -

realistic

30. After the work plan is made then good work habits must be applied. By developing good work habits time and energy are saved.

To save time and energy when actually performing each job develop good _____ _____.

---

work habits

31. Because making a bed is a daily task you will want to know how to make it in the shortest time possible. Time will be saved by tucking all covers in on one side before moving to the opposite side and by avoiding useless pats.

How may one save time and energy when making a bed? One may tuck all covers in on _____ _____ before moving to the opposite side.

---

one side

32. To save time and energy when sweeping, sweep with rhythm and use flowing motions as when you are dancing.

When sweeping you may save time and energy by using _____ motions.

---

flowing

33. Arrange all cleaning aids in a basket or container that may easily be carried from room to room. This will save running back and forth for cleaning supplies.

Cleaning aids may be placed in a _____ so they may be carried from room to room, thus saving time and energy.

---

basket or container

34. Using both hands to do jobs such as washing walls, dusting, and putting away dishes saves time.

Time may be saved when doing such jobs as washing walls and dusting by using _____ _____ to do the job.

---

both hands

35. You will receive 1 point for each question you answered correctly.

YOUR SCORE _____
PERFECT SCORE 38

SCORE CARD FOR CARE OF YOUR ROOM

Give 10 points for each item.

Daily:	Points
1. Bed properly made	_____
2. Dresser top in order	_____
3. Drawers in order	_____
4. Clothes properly hung	_____
5. Shoes in proper place	_____
Total points	_____

Weekly:	
6. Floor swept, mopped, or waxed as needed	_____
7. Furniture and woodwork dusted, scrubbed, or waxed as needed	_____
8. Bed linen changed	_____
9. Closet and drawers nicely arranged and in order	_____
10. Room thoroughly aired	_____
Total points	_____

Average daily score plus average weekly score equals total score.

TEST

ORGANIZED HOUSECLEANING

To keep a house attractive and in order one has to perform daily tasks, weekly jobs and some jobs only occasionally.

Below you will see the words: A. Daily; B. Weekly; C. Occasionally. Place the letter of these items for doing housecleaning task on the blank in front of each housecleaning task according to when the job should be done. Example: __A__ 1. Food preparation and eating. (because this job is performed everyday.)

Part I. Times when cleaning task should be performed

A. Daily B. Weekly C. Occasionally

Cleaning Task

_____1. Make your bed

_____2. Change bed linen

_____3. Arrange items left on top of dresser

_____4. Clean and wax floors

_____5. Dry mop or vacuum bedroom, closet and bathroom floors

_____6. Damp mop or vacuum all floors including under furniture

_____7. Wash dirty spots off walls

_____8. Put away papers, magazines, books and other recreational materials in their place

_____9. Wash light bulbs and light fixtures

_____10. Straighten and arrange contents of dresser drawers and closets

_____11. Clean windows

_____12. Vacuum the mattress

_____13. Wash the curtains or dry clean draperies

_____14. Clean the sinks in the bathroom and kitchen

_____15. Wash furniture with a damp cloth and apply furniture wax

Part II. Each of the following statements either saves a person energy or time or both energy and time. Determine if the statement saves: A. Time; B. Energy; or C. Both Time and Energy; then write the letter on the blank beside the statement. Example: C 1. Clean the spills in the oven when they occur.

Use the list below; place the letter of your choice in the blank to the left of the statement.

A. Saves energy B. Saves time C. Saves both time and energy

_____1. Two hands are better than one for washing windows and dusting.

_____2. Have a place to keep all cleaning tools and supplies.

_____3. Work out a routine for jobs performed every day.

_____4. Work should proceed in a straight line; retracing steps back and forth should be reduced.

_____5. Make a plan to follow for doing housecleaning tasks.

_____6. Carry a basket of cleaning tools and supplies from room to room when cleaning house.

_____7. Make one side of bed before moving to the other side.

_____8. Sweep with rhythm.

_____9. Make a place for everything and keep everything in its place.

_____10. Spot clean walls often.

INTERVIEW

Student's Name_____

In Home Economics class we have been studying wage earning. As part of our study we want to prepare for future job interviews. We have an assignment to schedule and have an interview with a teacher or neighbor.

If there is a small job* that you may hire me to perform I will appreciate the opportunity to work for you.

Below are some characteristics I would like for you to check concerning this interview. Place an (X) under the appropriate word.

This prospective employee was:	YES	PARTIALLY	NO
1. Neat in appearance			
2. Courteous			
3. Punctual			
4. Friendly			

Name of prospective employer_____

*Possible Jobs

1. Dust furniture
2. Clean boards
3. Dust and clean book shelves
4. Hang out wash
5. Fold and bring in wash
6. Iron
7. Wash dishes
8. Rake yard

EXPENSE RECORD

Record of Expenses	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
I. INCOME							
Allowance							
Earnings							
Gifts, loans, etc.							
Total income							
II. FIXED EXPENSES							
Lunch							
Transportation							
School supplies							
Clothes							
Church							
Contributions							
III. FLEXIBLE EXPENSES							
Entertainment							
Snacks							
Cosmetics							
Personal grooming							
Bicycle repairs							
Gifts							
Club dues							
Others							
Total expenses							
IV. SAVINGS							

LET'S REVIEW

HOW WE HANDLE OUR RESOURCES

HOW DO YOU SPEND YOUR MONEY?

1. Make a list of how you have spent your recent resources.
2. Compare these expenses with your present income.
3. Be sure to set aside some money for savings.

DO YOU WANT TO GET MORE FOR YOUR MONEY?

1. Make and keep a spending plan.
2. Reconsider your needs and wants.
3. Learn good buying practices.
4. Keep a list of items needed.
5. Avoid buying items not on the list.
6. Plan purchases when <u>desired</u> goods are on sale.
7. Remember that an item's price does not always indicate its quality.
8. Care for your purchases wisely.
9. Consider a plan for <u>savings</u> as a <u>need</u>. (Make it a fixed expense.)
10. By setting aside savings one can purchase big items without having to use installment buying where you pay service charges over and above the original price of the item.

MAKE A PERSONAL BUDGET

Pretend you have $10.00 to spend this week, plan how you will spend this money. Place the amount you will spend for certain items under the following areas:

Daily Expenses

Snacks

Clothing

Gifts

Recreation

Savings

Be sure to add your spendings making sure you do not spend over $10.00.

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The curriculum guide contains educational goals; primary and secondary characteristics of the EMH child; the sections termed Life Functions with objectives for each section; and objectives for academic areas with suggested learning experiences. Procedures in the organization and administration of special classes with suggested daily schedules and lists of equipment conclude the guide.

Home Economics Service. State Dept. of Education, Columbus and Ohio University School of Home Economics. Teaching home economics to the slow learning student. Unpublished Bulletin, Ohio University, Athens, Ohio. June, 1961.

Units on shelter and management were planned for regular home economics classes with some slow learners enrolled. A unit on Money in Family Relationships was planned for use with slow learners only.

Kennedy, Jerline. Programs for students with special needs. Nat. Ass. Sec. Scho. Prin. Bull., 1964, 48, pp. 38-44.

A home making program for seventh and eighth graders in two Dallas, Texas, schools focused on helping develop potentialities for family living and holding the girls in school.

Liggett, Margaret & Sellers, Beulah. They can learn. . .if taught. J. of Home Econ., 1962, 54, pp. 357-360.

The importance of teachers understanding the problems and characteristics of slow learners was stressed. Over all goals and specific goals that have their base in home economics were included.

Philadelphia Public Schools. The key to teaching slow learners in the high school. School District of Philadelphia, Pennsylvania, 1959.

The contents included qualifications of a successful teacher of slow learners; suggestions for ideas for using the guides for English, mathematics and social studies; and suggestions for establishing and maintaining a well-ordered classroom.

State Department of Public Instruction. A curriculum guide for teachers of the educable mentally retarded. Raleigh, North Carolina, March, 1963.

The guide provides an outline of concepts and suggestions for learning activities.

Strickland, C. G. Job training placement for retarded youth. Except. Child., 1964, 31, pp. 83-86.

This report is on the first year operation of the Texas statewide Cooperative Program of Special Education - Vocational Rehabilitation in the public schools. The survey to determine types of jobs to which educable retarded youth could be assigned indicated that there is little limitation of opportunity for job training as far as the type of jobs is concerned.

VT 002 522

VT 002 522
Freier, Ernest E.
The Minnesota Agricultural Off-Farm Occupational Opportunities and Training Needs. Preliminary Summary of Anoka, Fillmore, Kandiyohi and Yellow Medicine Counties.

Mankato Area Vocational-Technical School, Minnesota
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*OFF FARM AGRICULTURAL OCCUPATIONS; VOCATIONAL AGRICULTURE; *CURRICULUM DEVELOPMENT; *EDUCATIONAL NEEDS; *OCCUPATIONAL SURVEYS; *EMPLOYMENT OPPORTUNITIES; EMPLOYER ATTITUDES
MINNESOTA

Vocational agriculture teachers interviewed the employers in 327 off-farm agricultural businesses providing marketing, processing, distribution, or services to production agriculture in four southern Minnesota counties to obtain information for developing educational programs in occupations serving production agriculture. Among the specific purposes of the study were to (1) identify present and emerging off-farm agricultural occupations, (2) determine opportunities for employment, (3) determine competencies required for entrance into these occupations, and (4) list the needs for occupational training or retraining of present or potential employees. Some of the findings were (1) A total of 2,028 of the 5,590 employees in the firms interviewed needed agricultural competencies, (2) The number of employees needing agricultural competencies was considerably higher in the rural areas than in the urban areas, and (3) Customer relations was the competency given the highest emphasis by most of the employers. The estimated need for employees having agricultural competencies was 218 for the following year and 566 during the next 5 years. Included in the report are 25 pages of assembled data from the study and a list of occupational families. (WB)

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[illegible] SUMMARY

[illegible] Practices Data - Non-Res Correspondence

[illegible] OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS

[illegible] Survey of [illegible]
Berkeley and Fallon Counties

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

This study, "The Minnesota Agricultural Off-Farm Occupational Opportunities and Training Needs," is a joint effort of the Agriculture Education Service of the Minnesota State Department of Education, The Agriculture Education Department of the University of Minnesota, and the Mankato Area Vocational-Technical School.

The study was initiated by the Mankato Area Vocational-Technical School with Ernest E. Freier, Project Coordinator. Consultants: Dr. Milo J. Peterson, Mr. G. R. Cochran and Staff of the Mankato Area Vocational-Technical School.

Interviews were conducted by the following Teachers of Vocational Agriculture--Anoka County: Al Lauer, St. Francis. Kandiyohi County: Ed Hartog, Willmar. Fillmore County: Joe Trammel, Byron; John Maier, Caledonia; Ronald Harder, Canton; Luverne Bushlock, Chatfield; Herbert Hanson, Dodge Center; Ed Harms, Harmony; Burton Fuller, Hayfield; Loren Nelson, Houston; Laverne Sorenson, Lanesboro; Donald Haugland, LeRoy; Travis Nelson, Lewiston; James Schroeder, Mable; Morris Titrud, Preston; Stan Novlan, Rushford; Hilbert Hoff, West Concord; Gordon Ferguson, Winona. Yellow Medicine: Norman Haugaard and Luther Severtson, Canby..

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INTRODUCTION

The economy of Minnesota has developed primarily around two central factors, (1) the natural resources of the State, and (2) its strategic position relative to the industrial centers and the northwestern market area. Of these two, the natural resources have been controlling since the early years of the century. Chief among the state's resources are soil suitable for agriculture, rich deposits of iron ore, and great stands of timber suitable for lumber as well as pulp manufacturing.

The State of Minnesota, unlike most of the other states, is made up of several distinctly different geographic designations. (1) The Northeastern area with its forest products and iron ore. (2) The Red River Valley, one of the most productive agricultural areas of the United States. (3) The Twin Cities Metropolitan area is primarily an industrial center of the State. (4) The Southern agricultural region which ranks ahead of the Red River Valley in value of agricultural products produced within the State. The four counties in this preliminary report fall in this area.

Human Resources

According to Miscellaneous Report 45, published by the University of Minnesota, in March 1961, the population for the State of Minnesota was 3,391,349 in 1960. Of this group, 1,339,631 or 39.5% were classified rural, and 2,051,718 or 60.5% were classified urban. This was an increase of 13.7% for the state as a whole from 1950 to 1960, whereas on a national scale the increase was slightly greater, 18.5%.

Anoka County was the fastest growing county in the State from 1950 to 1960. With a population of 35,579 in 1950, to a population of 85,819 in 1960, or an increase of 141.2%. Kandiyohi County had a small increase of 4.3%, 28,644 to 29,871. Fillmore & Yellow Medicine both showed a slight decrease in population. Fillmore from 24,465 in 1950, to 23,652 in 1960. Yellow Medicine from 16,279 in 1950, to 15,407 in 1960.

Agricultural Resources

The Southern Countie; studied are one of the major agricultural sections of the nation. They derive a major portion of the income from the production of grain for feed for meat and dairy animals. The major crop in this area is corn, although considerable amounts of other grains are also grown in the area.

This area has seen the development of meat industry, including both beef cattle and hogs. The growth of the meat animals is increasing, while the number of dairy herds is decreasing as the price shift has moved to favor beef as compared to milk and milk products. The hog industry has increased at a rapid rate in this area, much faster than the U. S. average.

Most farm income is derived from livestock and livestock products, making up about 70% of the total income. The sale of crops constitutes the other 30%. This somewhat under-estimates the value of crops in total production, as they are raised primarily for livestock feed on the farms where they are produced. Crops such as soybeans, flax and wheat are produced primarily for sale as cash crops.*

Importance of Farming and Non-Farm Agricultural Business in Minnesota

Many farmers have quit farming because some of the jobs have left the farm. Jobs that have left the farm are the basis for agricultural off-farm occupations. The agricultural off-farm economy supplies farmers with the inputs they need in production, processing and distribution of farm products.

Early farmers grew their own feed and seed, made much of their own machinery, and provided their own power and transportation with horses and oxen. They even hauled the extra products to town and sold them themselves. Most of these jobs are not considered by some as part of what is called agriculture today.

Over the last century the farmer has delegated these tasks and has specialized

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* Minnesota Department of Employment Security, Economic Guidelines for Unemployment Insurance, page 171.

in the all important process of producing food and fiber. Such specialization has been made possible by advanced technology.

As a result of specialization and advanced technology, the output per worker on the farm has risen at a rapid rate. In 1820, one farm worker provided enough food and fiber for four people including himself. By 1940, the same worker produced enough for eleven, and today enough for twenty-eight people. So since 1820, the farm laborer provides for seven times as many people as he did then. The greatest increase has been in the last twenty-three years, increasing the production to provide for 4-1/4 times as many people as in 1820, while in the preceeding 120 years, 1820 to 1940, the increase was only 2-3/4.

Because of this change in productivity, the shift away from the farm and into off-farm agricultural occupations and non-agricultural industry has taken place. Fewer farmers are needed to provide the necessary output.

Agricultural off-farm occupations make up a large segment of our economy. In 1954, nearly forty percent of the labor force in Minnesota was in some phase of agri-business. From 1939 to 1948, employment declined in farming. This was offset by increased employment in agricultural off-farm occupations, but from 1948 to 1958, the employment rate was not large enough to compensate the rapid decline in farm labor.

Farm employment has decreased twenty-eight percent during the last twenty years, while the off-farm agricultural group has increased fifty-two percent. This indicates the shift in job opportunities within the agricultural sector of Minnesota. The largest shift is toward continued expansion of employment in the service and trade areas. To meet this need our education curriculum must be adjusted. Some adjustment of curriculum has been made on the college level and most certainly suggests some changes in the vocational agriculture programs. Vo-Ag will have to focus more emphasis on off-farm agricultural occupation opportunities and supply these training needs.

Area vocational schools should also provide courses in the training of people with emphasis on special competencies to train post-high school students to enter agricultural off-farm occupations, as well as retraining, or giving in-service training, to people who need these competencies for successful employment and advancement.

There is also a state of confusion in counselling in the area of the occupations in agriculture. Most of the confusion is that a lack exists of a clear concept of the term agriculture. Agriculture, in its broadest definition, includes not only the occupation of farming, but the agricultural service and processing as well as professions requiring a knowledge of agriculture. Much of this exists because of the tarnished image of agriculture, declining farm population, parents guiding sons to non-agricultural occupations, lack of enthusiasm and confidence of persons engaged in agriculture, and lack of accurate and adequate information concerning agriculture.

Diminishing Demand for Unskilled Workers

There have been some major changes in agriculture since 1940. Some of these changes have been taking place for many years, but due to the world situation and total economy these factors have accelerated at a much faster pace. One of these factors is the decrease in total farm population and farm employment. Some of this decrease is caused by some of the jobs leaving the farm and are now taken care of by certain segments of industry which have developed to handle the farm products.

Another factor which has affected farm population is the output per man hour. Since 1940, the output per man hour in agriculture has increased 99%, while in manufacturing the increase during the same period was only 40%.* Most of the increased output is due to more emphasis on mechanization and technology.

This has increased the capital investment per worker substantially since 1940. The size of the farm business has grown and this requires more capital investments

*J. R. Warmbrod, New Dimensions in Public School Education in Agriculture. Danville, Illinois: Interstate Printers & Publishers, Inc., 1962, page 68

in extra land, machinery, buildings and livestock units to develop the farm business to where it will fully employ the human resources available and make it a profitable business unit.

With the mechanization of farm operations and the new technology, it has become essential, with present economic conditions, to utilize modern techniques in the operation of farm enterprises in order to improve the efficiency level of production. With these advancements the farm operator will rely more on specialized services to perform these technical tasks which were not required before. Therefore, trained personnel will have to be available to the farmer to perform these services as his needs arise.

These same basic patterns are developing throughout all segments of industry, which indicates the need for more skilled and technically trained personnel.

According to Employment Security figures, we find that employment shifts in the last decade in the U.S.A. show 1.5 million new jobs were provided for in manufacturing, about 15% of the total; 2.4 million new jobs at all levels of government, about 25% of the total; services account for 20% and wholesale and retail provide another 20% of the new jobs during the period of 1950 to 1960.

In Minnesota, excluding the Twin Cities, the fastest growing sectors were as follows:

	New Jobs
Services and Miscellaneous	9200
Retail Trade	8500
Self-employed, etc.	8000
Federal Government	7350
Local Government	6200
Construction	4350
Finance, Insurance and Real Estate	3400
Electrical Machinery	3100
Machinery (Excluding Electrical)	3000
State Government	2900

These areas of new job opportunities in the last ten years are in a major portion jobs which require skill, technical or professional training, which gives an indication that the need for unskilled labor is steadily declining.

With this transition that has taken place in our total economy and the shift to mechanization and technology, the job opportunities for unskilled are diminishing. In its place more jobs have been created which require certain skills and/or technology. In order to shift these unskilled people into the changing industry they must be trained or retrained in the skills and technology required. To accomplish this, new educational programs must be developed to serve this segment of our population which is employed or will be employed in these areas.

Emerging Changes in the Programs of Education in Agriculture

To determine the educational needs in agriculture it is necessary to consider the technological revolution in farming and how it is affecting other sectors of the total economy. Special conferences have been held to determine some of these needs and changes to be made.

There is a general feeling that there have been certain areas of agriculture which have been overlooked as being a responsibility of vocational agriculture. There are five forms which are being considered as a part of Agricultural Education:*

1. Vocational education in farming.
2. Vocational education in agricultural occupations other than farming.
3. Non-vocational education in agriculture.
4. General agriculture.
5. Agricultural education provided throughout a school system by teachers other than teachers of agriculture.

Many states have developed pilot programs in high schools to determine the changes that could be made in the curriculum to better serve its students. More emphasis will be directed in the area of agricultural off-farm occupations in the regular high school courses to offer the students an opportunity to see the potential occupations in agriculture. This will also lead to the development of curriculums to develop competencies for farming as well as for off-farm agriculture occupations.

* J. R. Warmbrod, New Dimensions in Public School Education in Agriculture. Danville, Illinois: Interstate Printers & Publishers, Inc., 1962, page 68

Research and development for post high school courses to train students for agricultural off-farm occupations are emerging. Area surveys must be taken to determine the area of instruction to offer. In many cases these will be offered in Area schools rather than the high school because the number of individuals and job opportunities are not great enough in the district to warrant the expenditures for specialized courses. Minnesota as well as other states already have Area Technical Vocational Schools where the courses may be developed and taught.

In the Young Farmer and Adult Farmer programs only a small percentage of the farmers are reached. More emphasis is being placed on farm management. As the number of farmers decreases, the management ability of the individuals remaining will need to be improved. The need exists for more and better agricultural education rather than less.

There also exists a need for institutions where farm boys and farmers can go for agricultural instruction of a more specialized nature than can or should be provided at the secondary school level. Programs are also being developed in some community colleges and area levels that provide former vocational agriculture pupils and others an opportunity to prepare specifically for the many different types of jobs in agricultural off-farm occupations. California and other states are offering some agricultural technician training in Junior Colleges. A course in applied agriculture science was indicated by their survey. A curriculum was developed for plant, animal, and engineering technicians and was intended to furnish the student with enough background from which to enter and advance in an agricultural off-farm occupation. With agricultural technology advancing as rapidly as it is, they indicated it was unwise to develop individual curricula for each type of technician.

They feel that with this type of program, agricultural industry will be able to hire technicians to handle routine work under the supervision of professional people. Businessmen must be informed and able to recognize the value of these people as agriculturally trained personnel for employment on a technical level.

New legislation, New Dimensions of Vocational Education in Agriculture

The search for ways of helping people solve their problems is a never-ending process. Counseling and designing programs for our youth are the major activities that help them find their place in our complex society. Counseling is essential to successfully provide agricultural education as well as develop successful individuals. Counseling is an important part of an ag teacher's duties to help students, as well as keeping regular counselors, other teachers, parents, and the general public informed of the job opportunities in agriculture as well as agricultural off-farm opportunities. Thus the Vo-Ag teacher must keep abreast with the changing farm and off-farm agriculture occupations and opportunities as they develop.

Statistics indicate a total labor force of 86.7 million, of which 21.7 million are employed in agriculture. Of those employed in agriculture, 10 million are in distribution, 6 million in service or producing for farmers, and 5.7 million are farming.

Thus agriculture is made up of much more than farming. It includes the provision of supplying technical services to those who produce farm products. It includes processing and marketing farm products.

With the specialization trend, the farm population depends more and more on off the farm agricultural industry for ready-to-use technical supplies and complicated machinery. Farming, with a potential for greatly increased productivity even with reduced need for labor, must have readily available supplies and machinery. In order for these to be efficiently introduced, used, and maintained on farms, better trained farmers and increased numbers of trained agricultural business and industry workers will be required. This means potential job opportunities for those workers not needed in farm production. Some people predict that, in the near future, for every farmer, there will be four to six people in agricultural business or industry to service the farmer.

Due to these changing needs that have developed in recent years, many states are taking a new look at these Vo-Ag programs. These changes have produced new areas of concern because it has brought about a change in the needs which affect our Vo-Ag programs which have not been keeping pace with these changes and needs. In many programs the teaching has been vocational farming rather than vocational agriculture. We must accept the responsibility of teaching vocational agriculture which has been changing in various areas at a rate faster than we have adapted ourselves.

Many states are developing, or have already developed, new programs in certain areas and are trying to evaluate their potential by pilot studies.

George-Barden funds were increased by three-quarter million dollars in the central region due to the 1960 census which indicates the relative importance of farming.*

An outline of Harold F. Duis, Program Specialist in Agricultural Education, U. S. Office of Education, gave this outline for new dimensions of agricultural education:

A. Expansion of Program

1. Young Farmer needs to be greatly expanded--year round programs, young farmer associations.
2. Adult farmer training more important today then ever before.
3. Larger schools provide more opportunity for ag training, multiple teacher departments, special adult teachers, teachers with specialities.
4. New Areas--ARA, Manpower Training Act. New titles may be needed for special training for off-farm agriculture occupations and farm specialities.
5. Area schools supplement high school education--13th and 14th years--agriculture technology.

B. Public Relations--Promotions by all in Agriculture

1. Agricultural Development Committee--opportunities, placement finance.
2. Counseling--Agricultural opportunities and follow-up, leadership with facts.

* J. R. Warmbrod, New Dimensions in Public School Education in Arriculture. Danville, Illinois: Interstate Printers & Publishers, Inc., 1962, page 108.

C. Improving Instruction

1. Farm management approach in teaching--changing role of vocational agriculture teacher.
2. More science of agriculture included in vocational agriculture--depth, more rigorous.
3. Upgrading teachers. Recruiting more and better candidates for teaching. Pre-service and in-service training emphasis: farm management philosophy, technical agriculture.

Role of Vocational Education in Preparing Workers to Meet Entry Requirements into Skilled Occupations

Vocational-Technical education is not limited to specific subjects or activities nor is it confined to training for manual dexterity. It has both cultural and utilitarian values and includes the knowledge, skills and attitudes that prepare an individual for entering into and progressing in a socially useful vocation.

The need for expanded vocational-technical training programs is becoming more acute with every passing day. The changes in employment patterns brought about by the current technological revolution require that a greater emphasis be placed upon the preparation and training of employees for all occupations including agriculture, business and distributive education, homemaking, trades, technical, industrial and public service areas. The shrinking opportunities for the unskilled workers point toward the necessity to provide pre-employment training for high school and post-high school youth and retraining programs for unemployed adults. Instructional programs for employed workers must also be expanded to enable workers to keep up with the technological changes affecting their jobs.

Vocational education should make youth and others aware of the many skills needed in a highly integrated economic society for successful employment. Agriculture and agri-business require an ever increasing amount of skill and knowledge.

Existing programs must be evaluated and their curriculums up-dated in accordance with the latest knowledge and information available.

Through constant evaluation and research, the Mankato Area Vocational-Technical School is endeavoring to meet the challenge of change.

Responsibility of the Mankato Area Vocational-Technical School

The most valuable resource of the State of Minnesota is its people. The productivity of its citizens contributes to the welfare of all its people. The technological age in which we live requires more skill and training for jobs in all types of industry including agriculture. The Minnesota Area Vocational Technical School Law passed in 1945, is evidence of the faith which the citizens of Minnesota placed in the future industrial development of this state. The Mankato School District applied for and was granted approval to establish an Area Vocational-Technical School and became the first such school to be established under the Area Vocational-Technical School Law.

With its approval for establishment the Mankato Area Vocational-Technical School accepted certain responsibility to provide preparatory training as well as retraining and up-grading the skills of older workers in occupational areas including trade, industrial, technical, business, distributive, and agriculture according to the needs of the area served.

Mankato is situated in what is considered to be part of the best agricultural area of the state. A significant farm to town migration of young people and adults does exist. It is the responsibility of the Mankato Area Vocational-Technical School to provide training for these people to qualify them for jobs in the larger communities. This responsibility entails determining what the employment opportunities are, what competencies are necessary for employment, the number of available trainees, and to develop training programs in the school.

The Area Vocational-Technical School should furnish the leadership in establishing these programs for off-farm agricultural programs.

PURPOSE OF THE STUDY

The general purpose of this study is to obtain information relative to off farm agricultural occupations. This information is to be utilized as a basis for developing educational programs designed to prepare individuals for gainful employment in occupations serving production Agriculture in processing and distribution where knowledge and skills in agriculture are desirable or essential.

Specifically, the purpose may be stated as follows:

1. To identify present and emerging off-farm agricultural occupations.
2. To determine opportunities for employment in off-farm agricultural occupations.
3. To determine the competencies required for entrance into these occupations.
4. To determine the need for occupational training and/or retraining to increase the vocational competence of present and potential employees.
5. To determine the need for pre-employment vocational education in off-farm agricultural occupations.
6. To list competencies needed to enter and job title characteristics.
7. To group job titles into occupational groups for which there are common technical educational needs.

Survey Procedure

An Off-farm Agricultural Occupation is one in which the worker does not work on a farm or ranch, but needs competencies in one or more of the primary areas of animal science, plant and soil science, farm management and agricultural mechanization.

An Off-farm Agricultural Business is any business providing marketing, processing, distribution, or services to production agriculture.

Using these definitions as a basis, the Vocational Agriculture instructors of these counties developed a list of businesses within the county which qualified according to these requirements. If any questions developed as to definition, the firm was contacted and the employer would qualify or disqualify the firm on the basis of whether the employees needed any ag competencies.

The employers were all personally contacted and interviewed at that time or another convenient time was arranged. Every attempt was made to interview all of these firms. The survey was overwhelmingly accepted, indicating a positive need for this type of training for their employees and future employees.

ANALYSIS OF DATA

Data assembled in the following tables was obtained by Vocational Agriculture Instructors from personal interviews. A further analysis of this data is still being conducted. There are several explanations and observations that can be presented now.

TABLE I, Part 1, is a distribution of firms interviewed by major function of the firm. Anoka and Kandiyohi have a large number of firms which fall into the service group. Both of these counties have a higher percentage of urban population than either Fillmore or Yellow Medicine.

In TABLE I, Part 3, the total number of employees in relation to the employees needing Agricultural Competencies is considerably higher in rural counties. Anoka, a suburban metropolitan county, has 22.3% of employees needing agricultural competencies, while the three rural counties average 62.2% of the people employed by these firms need agricultural competencies.

TABLE II is a grouping of businesses into occupational families. The grouping is made by major function or service of the business. Appendix I gives the grouping of major function or service by occupational families.

In TABLE III, the anticipated number of employees needed next year and the next five years are conservative estimates of the employees needed. In interviewing the employers we found that very few have kept a record of the number of employees hired during the past.

In TABLE III, the anticipated employment needs for next year are 218.

In these four counties there are thirteen Vo-Ag Departments. This would mean about sixteen persons could find employment, if qualified, per Vo-Ag Department in these counties, not accounting for any to replace farm workers or to establish as farmers. If we use the conservative Iowa figure of 1-1/2 percent, which accounts for a decrease in number of farms as well as replacement, we would need another one hundred twenty-five people or just about ten more for a total of twenty-six per Vo-Ag Department yearly.

TABLE IV groups the present employees into level of employment as indicated by employer. This is not necessarily by the degree of competency needed by the individual. In the weighted frequency distribution of competence we find that some of the so-called lower levels have higher competence than those indicated at higher levels. So judgment of employees will differ.

TABLE V is a grouping of job titles into levels by Occupational Families. This is the title given by the employer and in certain cases a title was rather vague. They indicated that at times, in their small business, the employee may have to assume different responsibilities.

TABLE VI is a composite summary of all job titles in the manner the questionnaire was checked. In TABLE VI, Part 5, we indicated a weighted frequency of competency which is computed in the following manner. The survey instrument listed a competency in which the interviewer could respond by checking - essential, highly desirable, useful or not important. A value of 4-3-2-1 was given respectively. This value was given to each response and totaled, then divided by total interviews. We find that of all competencies listed, customer relations is given highest emphasis by most employers interviewed. Therefore, personal ability of an employee to work with people becomes very important. This may also imply the need for teaching basic attitudes.

TABLE I

FOUR COUNTY SUMMARY - 1964

	ANOKA	FILLMORE	KANDIYOHI	YELLOW MEDICINE	TOTAL
Part I. Classification by Major Function of Business or Firm Interviewed					
Retailing	29	60	18	31	138
Wholesaling	4	1	5	2	12
Manufacturing	6	-	5	-	11
Processing	3	13	7	8	31
Purchasing	-	1	15	8	24
Construction	1	-	-	-	1
Contractor	3	-	-	-	3
Service	37	9	17	17	80
Transportation	-	3	-	1	4
Warehouse	1	-	2	-	3
Financing	2	6	6	-	14
Governmental Regulatory	1	2	1	1	6
TOTAL	86	98	73	68	327
Part II: Groupings of Businesses or Firms by Percentage of Gross Income Agriculturally Oriented					
90-100%	10	60	56	39	165
80-89%	3	4	3	7	17
70-79%	4	12	1	8	25
60-69%	-	7	-	3	10
50-59%	6	11	1	2	17
40-49%	3	3	1	-	7
30-39%	3	-	-	1	4
20-29%	9	-	3	3	15
10-19%	11	-	1	1	13
0-9%	42	1	7	4	54
TOTAL	88	98	73	68	327
Part III: Total Number of Employees Working in Businesses or Firms					
Full Time Male	2091	460	408	303	3262
Full Time Female	1056	118	101	56	1331
Half to Full Time Male	130	70	15	27	242
Half to Full Time Female	24	9	2	12	47
Less-than Half Time Male	284	78	25	106	493
Less-than Half Time Female	143	24	36	12	215
Sub-total	3728	759	587	516	5590
TOTAL MALE EMPLOYEES					3997
TOTAL FEMALE EMPLOYEES					1593

TABLE II

NUMBER OF AGRICULTURAL BUSINESSES AND NUMBER OF EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY
FOUR COUNTY SUMMARY - 1964

Occupational Family	No. Businesses	Employees Needing Agricultural Competencies		
		Total	Full-time	Part-time
1. Animal & Poultry Science	84	500	434	66
2. Plant & Soil Science	35	212	176	36
3. Mechanized Agriculture	116	842	720	122
4. Agriculture Service	78	355	229	126
5. Forestry	2	-	-	-
6. Horticulture	7	100	31	69
7. Recreation	4	16	8	8
8. Wildlife	1	3	2	1
TOTALS	327	2028	1600	428

TABLE III

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER BY OCCUPATIONAL FAMILY

FOUR COUNTY SUMMARY - 1964

Occupational Families	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
1. Animal & Poultry Science	388	46	59	7	79	21	53	5.3
2. Plant & Soil Science	174	2	35	1	18	7	48	5.7
3. Mechanized Agriculture	613	107	105	17	216	160	372	10.
4. Agriculture Service	207	22	118	8	43	26	81	7.8
5. Forestry	-	-	-	-	-	-	-	-
6. Horticulture	29	2	30	39	3	4	12	13.2
7. Recreation	3	5	5	3	-	-	-	-
8. Wildlife	2	-	1	-	-	-	-	-
TOTAL	1416	184	353	75	359	218	566	8.4

TABLE IV

NUMBER OF PERSONS EMPLOYED NEEDING AGRICULTURAL COMPETENCIES IN EIGHT OCCUPATIONAL FAMILIES BY LEVEL OF EMPLOYMENT

FOUR COUNTY SUMMARY - 1984

Occupational Family	Occupational Level of Employment									
	Professional	Technical	Managerial	Supervisory	Sales	Clerical	Skilled	Semi-skilled	Unskilled	Total
Animal & Poultry Science	24	30	77	23	29	26	70	122	99	500
Plant & Soil Science	-	1	48	5	32	8	14	79	25	212
Agriculture Mechanization	1	21	88	10	136	37	161	207	181	842
Agriculture Service	35	17	70	9	51	14	71	62	26	355
Forestry	-	-	-	-	-	-	-	-	-	---
Horticulture	-	-	10	1	4	-	57	20	8	100
Recreation	-	-	1	-	-	-	14	1	-	16
Wildlife	-	-	1	-	-	-	-	2	-	3
TOTALS	60	69	295	48	252	85	387	493	339	2028

TABLE V - 1

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN ANIMAL AND POULTRY SCIENCE OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1964

Professional Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Veterinarian	16	2	-	-	3	-	1	-
Geneticist	1	-	-	-	-	-	-	-
Veterinarian Supply Manager	2	-	-	-	-	-	-	3%
Bacteriologist	2	-	-	-	-	-	1	-
Pathologist	1	-	-	-	-	-	1	-
Technical Level:								
Artificial Inseminator	2	-	-	-	-	-	-	11%
Dairy Lab. Technician	3	1	-	-	4	-	-	-
Dairy Sire Analysist	1	-	-	-	-	-	-	-
Buttermaker	4	-	-	-	1	-	-	-
Engineering Technician	2	-	-	-	-	-	-	-
Dairy Field Technician	1	-	-	-	-	-	-	-
Dairy Product Foreman	1	-	-	-	-	-	-	11%
Dairy Processor	1	-	-	-	1	-	-	7%
Poultry Technician	11	-	-	-	1	-	3	8%
Livestock Buyer	2	-	-	-	-	-	-	-
Poultry Products Inspector	1	-	-	-	-	-	-	-
Managerial Level:								
Insemination Stud Manager	2	-	-	-	-	-	-	-
Dairy Products Asst. Manager	2	-	2	-	1	-	1	10%
Dairy Products Manager	16	-	-	-	-	-	-	7%
Feed Store Asst. Manager	2	-	-	-	-	1	1	6%
Feed Store Manager	12	-	1	-	-	-	1	-

Managerial Level Cont'd.	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed Now Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Feed, Seed & Fert. Asst. Manager	1	-	-	-	-	-	-	-
Feed, Seed & Fert. Manager	6	-	-	-	-	-	-	-
Hatchery Asst. Manager	3	-	-	-	-	-	-	7%
Hatchery Manager	8	-	1	-	-	-	-	5%
Livestock Farm Asst. Manager	1	-	-	-	-	-	-	-
Livestock Farm Manager	3	1	-	-	-	-	-	7%
Livestock Buyer	1	-	-	-	-	-	1	7%
Meat Product Manager	1	-	-	-	-	-	-	4%
Meat Product Head Clerk	4	-	-	-	-	-	-	-
Poultry Products Asst. Manager	1	-	-	-	-	-	-	-
Poultry Products Manager	9	-	-	-	-	-	-	-
Supervisory Level:								
Artificial Insemination Foreman	1	-	-	-	-	-	-	-
Dairy Product Fieldman	5	-	-	-	-	-	-	-
Dairy Products Foreman	7	-	-	-	-	-	-	-
Dairy Products Supervisor-Supt.	1	-	-	-	-	-	-	10%
Feed, Seed & Fert. Foreman	1	-	-	-	-	-	-	-
Hatchery Supervisor-Supt.	3	-	-	-	-	1	2	-
Poultry Products Foreman	5	-	-	-	-	-	-	-
Sales Level:								
Dairy Products Deliveryman	1	-	-	-	1	-	-	15%
Dairy Products Salesman	3	-	-	-	-	-	-	17%
Dairy Products Truck Driver	3	-	-	-	-	-	-	18%
Feed Salesman	5	-	-	-	1	1	2	10%
Sales Manager	1	-	-	-	-	-	-	-
Feed, Seed & Fert. Salesman	2	-	-	-	-	-	-	-
Hatchery Salesman	2	-	-	-	-	-	-	10%
Auctioneer	2	-	-	-	-	-	-	-
Livestock Buyer	2	-	-	-	1	-	-	-
Livestock Salesman	1	-	1	-	1	-	1	-
Poultry Products Salesman	5	-	-	-	1	1	2	25%
Vet. Supply Sales Clerk	-	1	-	-	-	-	1	10%
Receptionist	-	2	-	-	1	-	1	-
Bookkeeper	3	3	-	1	1	-	-	7%
Clerical	5	4	-	6	1	-	-	-
Office Manager	1	1	-	-	-	-	1	-

Skilled Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Printer	1	-	-	-	1	-	-	-
Bottle Machine Operator	2	-	-	-	-	-	-	-
Butcher	2	-	-	-	-	-	-	-
Dairy Products Foreman	1	-	-	-	-	-	-	-
Milk Drier Machine Operator	8	-	-	-	1	-	-	-
Dairy Products Processor	7	-	1	-	2	-	2	-
Dairy Products Truck Driver	7	-	4	-	11	-	-	-
Feed Mill Operator	3	-	3	-	1	-	4	-
Shipping Clerk	1	-	-	-	-	-	-	-
Livestock Buyer	3	-	-	-	1	-	1	-
Butcher	2	-	-	-	1	-	-	7%
Meat Cutter	2	-	-	-	1	-	-	10%
Poultry Truck Driver	2	-	-	-	-	-	-	-
Egg Candler	-	21	-	-	2	1	5	12%
Semi-skilled Level:								
Artificial Stud Worker	5	-	1	-	1	1	-	20%
Buttermaker	2	-	-	-	-	-	-	-
Dairy Products Foreman	1	-	-	-	-	-	-	-
Dairy Products Processor	10	2	-	-	-	-	-	5%
Dairy Products Assistant	1	-	-	-	-	-	-	-
Truck Driver	14	-	2	-	1	1	4	25%
Feed Mill Employee	6	-	2	-	-	-	-	-
Feed Mill Operator	10	-	-	-	-	-	3	-
Auctioneer	-	-	4	-	-	-	-	-
Livestock Worker	1	-	16	-	5	-	-	30%
Meat Products Worker	2	-	1	-	-	-	-	-
Meat Cutter	10	-	3	-	1	-	4	20%
Meat Wrapper	-	1	1	-	-	-	-	-
Hatchery Employee	4	1	1	-	-	-	1	25%
Poultry Product Worker	14	-	3	-	8	-	-	-
Poultry Truck Driver	3	-	-	-	1	1	3	33%
Receptionist	-	1	-	-	-	-	-	-

Unskilled	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Artificial Inseminator Worker	1	-	-	-	1	-	-	-
Dairy Product Worker	14	-	-	-	2	1	3	7%
Dairy Product Truck Driver	9	-	-	-	7	-	-	-
Feed Store Worker	3	-	1	-	-	-	-	-
Feed Processor	5	-	-	-	2	2	-	40%
Sprayer Operator	-	-	1	-	-	-	-	20%
Hatchery Employee	5	-	-	-	-	-	-	-
Livestock Yardman	2	-	-	-	-	-	1	-
Poultry Produce Worker	43	5	10	-	10	10	2	19%

TABLE V - 2

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN PLANT AND SOIL SCIENCE OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1964

Technical Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed Now Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Fert. & Chemical Prod. Cement Finisher	1	-	-	-	-	-	-	-
Managerial Level:								
Fert. & Chemical Products Mgr.	5	-	-	-	1	1	2	25%
Grain, Feed & Seed Asst. Mgr.	10	-	-	-	1	-	1	10%
Grain, Feed & Seed Manager	32	-	-	-	-	1	4	8%
Seed Products Manager	1	-	-	-	-	-	-	-
Supervisory Level:								
Fert. & Chemical Products Foreman	2	-	-	-	-	-	-	-
Grain, Feed & Seed Foreman	2	-	-	-	-	-	-	10%
Grain, Feed & Seed Supervisor-Supt.	-	-	1	-	-	-	-	-
Sales Level:								
Fert. & Chemical Products Salesman	5	-	-	-	1	2	5	15%
Grain, Feed & Seed Purchasing Agent	4	-	-	-	-	-	2	20%
Grain, Feed & Seed Salesman	7	-	1	-	2	-	6	26%
Seed Products Salesman	3	-	12	-	-	-	-	-
Clerical Level:								
Bookkeeper	3	1	1	1	-	-	1	-
Clerical Workers	1	1	-	-	-	-	-	-

Skilled Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Fert. & Chemical Products Foreman	-	-	1	-	-	-	-	-
Fert. & Chemical Products Mechanic	1	-	-	-	-	-	-	-
Fert. & Chemical Prod. Heavy Equip.Op.	3	-	-	-	-	-	-	-
Grain, Feed & Seed Mill Employee	2	-	-	-	1	-	-	-
Grain, Feed & Seed Mill Operator	2	-	-	-	-	-	1	20%
Grain, Feed & Seed Processor	3	-	-	-	1	-	1	-
Grain, Feed & Seed Purchasing Agent	2	-	-	-	-	-	10	-
Semi-skilled Level:								
Fert. & Chemical Products Worker	2	-	10	-	-	-	-	-
Fert. & Chemcial Prod. Truck Driver	2	-	-	-	2	-	1	11%
Fert. & Chemical Products Welder	2	-	-	-	-	-	-	-
Grain, Feed & Seed Asst. Manager	2	-	-	-	-	-	-	-
Grain, Feed & Seed Bulk Tank Driver	4	-	-	-	-	-	-	-
Grain, Feed & Seed Worker	1	-	-	-	-	-	-	-
Grain, Feed & Seed Mill Employee	14	-	6	-	3	3	10	39%
Grain, Feed & Seed Mill Operator	11	-	-	-	3	-	3	20%
Grain, Feed & Seed Processor	2	-	-	-	-	-	-	-
Unskilled Level:								
Fert. & Chemical Products Worker	-	-	2	-	-	-	-	-
Grain, Feed & Seed Truck Driver	3	-	1	-	-	-	-	22%
Grain, Feed & Seed Mill Employee	9	-	-	-	2	-	1	-
Grain, Feed & Seed Worker	10	-	-	-	1	-	-	2%

TABLE V - 3

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCY, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN AGRICULTURAL MECHANIZATION OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1964

	Full-Time		Part-Time		Employed New Last	Anticipated New Next	Anticipated New Employees	% Annual
Professional Level:	Male	Female	Male	Female	Year	Year	In 5 Years	Turnover
Farm Machinery Accountant	-	-	1	-	-	-	-	-
Technical Level:								
Auto & Farm Machinery Sales Superv.	1	-	-	-	1	-	-	10%
Farm Machinery Eng. Technician	1	-	-	-	1	-	-	-
Farm Machinery Mechanic	8	-	-	-	1	-	3	23%
Farm Machinery Parts Man	-	1	-	-	-	-	1	13%
Farm Machinery Supervisor	1	-	-	-	1	-	-	-
Farm Supplies Lab. Technician	1	-	-	-	-	-	3	-
Hardware Store Servicemn.	1	-	-	-	-	-	-	20%
Heating & Plumbing Manager	1	-	-	-	-	-	-	5%
Heating & Plumbing Plumber	2	-	-	-	-	-	-	5%
Lbr. & Bldg. Supplies - Planner	1	-	-	-	-	-	-	-
Transportation Mechanic	2	-	1	-	-	-	-	-
Managerial Level:								
Auto & Farm Machinery Sales Mgr.	3	-	-	-	-	-	-	-
Auto Sales & Service Manager	2	-	-	-	-	-	-	7%
Farm Machinery Asst. Manager	1	-	-	-	-	-	-	13%
Farm Machinery Manager	27	-	-	-	-	-	4	3%
Farm Supplies Asst. Manager	3	-	-	-	-	-	-	-
Farm Supplies Manager	5	-	-	-	-	-	-	19%
Gas Service Sta. & Bulk Del. Driver	1	-	1	-	1	-	1	-
Gas Service Sta. & Bulk Del. Mgr.	5	-	-	-	-	1	2	25%
Hardware Store Asst. Manager	1	-	-	-	-	-	-	3%
Hardware Store Manager	1	-	-	-	1	-	-	-

Managerial Level Cont'd.	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Heating & Plumbing Office Mgr.	1	-	-	-	-	-	-	5%
Lbr. & Bldg. Supplies Asst. Mgr.	8	-	-	-	-	1	-	14%
Lbr. & Bldg. Supplies Manager	19	-	-	-	1	-	-	9.3%
Petr. & Farm Sup. (Coop.) Cr. Mgr.	1	-	-	-	-	-	-	3%
Petr. & Farm Sup. (Coop.) Manager	5	-	-	-	-	-	-	3%
Petr. & Farm Sup. (Coop.) Off. Mgr.	1	-	-	-	-	-	1	10%
Petr. & Farm Sup. (Coop.) Processor	1	-	-	-	-	-	-	10%
Metal Work Manager	2	-	-	-	1	-	1	-
Supervisory Level:								
Farm Machinery - Chief Clerk	-	1	-	-	-	-	-	3%
Farm Machinery Foreman	1	-	-	-	1	-	-	-
Farm Machinery Head Clerk	-	3	-	-	-	-	2	12%
Farm Machinery Laborer	1	-	-	-	1	-	-	5%
Lbr. & Bldg. Supply Foreman	1	-	-	-	-	-	-	-
Petr. & Farm Sup. (Coop.) Supv-Supt.	2	-	-	-	-	-	-	-
Utilities Foreman	1	-	-	-	-	1	-	-
Sales Level:								
Auto & Farm Mach. Sales Parts Man	2	-	-	-	1	-	-	22.5%
Auto & Farm Mach. Salesman	4	-	-	-	-	1	3	50%
Auto Sales & Service Salesman	1	-	-	-	-	-	-	-
Farm Machinery - Office Personnel	1	-	-	-	-	-	1	5%
Farm Machinery Parts Man	2	-	-	-	-	1	1	12.6%
Farm Machinery Salesman	24	-	1	-	10	5	16	25%
Farm Supplies - Sales Clerk	5	-	1	2	-	-	-	-
Farm Supplies - Salesman	19	-	1	-	6	-	2	-
Gas Serv. Sta. & Bulk Del. Driver	4	-	2	-	-	2	1	50%
Gas Serv. Sta. & Bulk Del. Salesman	1	-	-	-	-	-	-	-
Hardware Store Sales Clerk	7	5	2	3	5	1	11	20%
Hardware Store Salesman	9	2	5	2	3	3	4	50.7%
Lbr. & Bldg. Supply Sales Clerk	1	-	-	-	-	-	-	20%
Lbr. & Bldg. Supply Salesman	5	-	-	-	1	-	1	-
Petr. & Farm Sup. (Coop.) Bulk Tank Dr.	3	-	-	-	-	-	-	10%
Petr. & Farm Sup. Pub. Relations Dir.	1	-	-	-	-	-	-	-

Sales Level Cont'd.	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Petr. & Farm Supplies Salesman	19	-	-	-	3	3	11	18%
Metal Work Salesman	1	-	-	-	-	-	1	-
Transportation Maintenance Superv.	1	-	-	-	-	-	-	-
Clerical Level:								
Bookkeeper	-	9	-	-	2	-	3	15%
Receptionist	-	2	-	-	-	-	-	7%
Clerical	1	1	1	9	6	6	30	32%
Auto Sales & Service Parts Man	4	-	1	-	1	1	2	-
Farm Machinery Program Clerk	-	1	-	-	-	-	-	-
Farm Supplies Purchasing Agent	2	-	-	-	-	-	-	-
Hardware Store Clerk	1	-	-	1	1	-	1	-
Skilled Level:								
Auto & Farm Machinery Sales Mechanic	6	-	-	-	2	-	4	33%
Auto & Farm Machinery Parts Man	2	-	1	-	-	-	-	10%
Auto & Farm Machinery Serviceman	4	-	-	-	-	-	-	-
Auto Sales & Service Mechanic	22	-	-	-	7	2	5	7%
Farm Machinery Deliveryman	1	-	-	-	-	-	-	-
Farm Machinery Mechanic	40	-	3	-	9	3	15	22.7%
Farm Machinery - Parts Man	8	-	-	-	3	1	2	12.6%
Farm Machinery Set-up Man	4	-	-	-	1	-	1	41.6%
Gas Serv. Sta. & Bulk Del. Driver(Tank)	3	-	2	-	3	-	-	-
Gas Serv. Sta. & Bulk Del. Truck Dr.	-	-	1	-	-	-	-	-
Lbr. & Bldg. Supply Carpenter	17	-	4	-	1	5	22	33%
Lbr. & Bldg. Supply Foreman	3	-	3	-	-	-	-	-
Lbr. & Bldg. Supply Truck Driver	5	-	-	-	-	-	2	-
Lbr. & Bldg. Supply Yardman	2	-	8	-	-	-	-	-
Lbr. & Bldg. Supply Cement Finisher	1	-	-	-	-	-	-	-
Lbr. & Bldg. Sup. Block/Brick Layer	2	-	1	-	1	-	-	-
Petr. & Farm Supp. (Coop.) Mechanic	4	-	-	-	4	1	2	5%
Utilities Caretaker	1	-	1	-	1	1	6	99%
Metal Work Worker	5	-	1	-	1	2	5	-
Transportation Mechanic	10	-	-	-	1	2	11	-

Semi-Skilled Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Auto & Farm Mach. Sales Deliveryman	2	-	-	-	-	-	-	-
Auto & Farm Mach. Set-up Man	2	-	1	-	-	-	1	17%
Farm Machinery Deliveryman	2	-	-	-	1	1	1	99%
Farm Machinery Worker	-	-	29	-	-	-	-	-
Farm Machinery Mechanic	2	-	-	-	1	-	-	22.7%
Farm Machinery Mechanic Assistant	-	-	3	-	-	-	-	-
Farm Machinery Parts Man	2	-	1	-	-	-	-	12.6%
Farm Machinery Serviceman	1	-	-	-	-	-	-	-
Farm Machinery Truck Driver	1	-	-	-	-	-	-	-
Farm Machinery Set-up Man	17	-	6	-	5	4	9	41.6%
Gas Serv.Sta. & Bulk Del. Sprayer Opr.	-	-	1	-	-	-	-	-
Hardware Store Serviceman	1	-	-	-	-	-	-	99%
Lbr. & Bldg. Supply Carpenter	-	-	4	-	-	-	-	-
Lbr. & Bldg. Supply Deliveryman	1	-	-	-	-	-	1	10%
Lbr. & Bldg. Supply Truck Driver	7	-	-	-	1	1	-	10%
Lbr. & Bldg. Supply Yardman	8	-	1	-	-	-	3	14%
Petr. & Farm Sup. Bulk Tank Tr. Driver	3	-	-	-	-	-	10	-
Petr. & Farm Supply Worker	-	-	4	-	-	-	-	-
Petr. & Farm Supply Mill Employee	1	-	-	-	1	-	1	50%
Petr. & Farm Supply Sprayer Opr.	-	-	4	-	-	-	-	-
Petr. & Farm Supply Station Attendant	3	-	-	-	-	-	-	20%
Utilities Worker	3	-	3	-	2	1	3	50%
Metal Work Worker	16	2	1	-	20	10	60	33%
Metal Work Machinist	75	-	-	-	1	1	2	4%
Unskilled Level:								
Farm Machinery Worker	1	-	-	-	-	-	-	-
Lbr. & Bldg. Supply Worker	4	-	4	-	-	-	-	-
Lbr. & Bldg. Supply Yardman	-	-	1	-	-	-	-	-
Utilities Worker	2	-	-	-	2	-	1	50%
Metal Work Worker	89	80	-	-	99	99	99	44%

TABLE V - 4

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NOW LAST YEAR, ANTICIPATED NOW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN AGRICULTURAL SERVICE OCCUPATIONS, TOTAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SURVEY - 1994

Professional Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed Now Last Year	Anticipated Now Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Education Service County Agent	5	-	-	-	1	1	1	-
Education Service Soil Scientist	1	-	-	-	1	-	-	-
Education Service Teachers	12	5	-	-	3	-	3	13%
S. C. S. Work Unit Conserv.	2	-	-	-	-	-	1	-
Accountant	1	-	-	-	-	-	-	-
Agronomist	2	-	-	-	-	-	-	-
Research Engineering Technician	1	-	-	-	1	-	1	33%
Biologist	4	-	1	-	4	-	3	33%
Teacher	-	-	1	-	-	-	-	-
Technical Level:								
Farm Service Electrician	1	-	1	-	-	-	-	-
S. C. S. Aid	1	-	-	-	-	-	-	20%
S. C. S. Engineering Aids	2	-	-	-	-	-	1	20%
S. C. S. Soil Conservationist	2	-	1	-	-	-	-	-
S. C. S. Work Unit Conservationist	1	-	-	-	-	-	-	-
Research Engineering Aid	3	-	1	-	1	1	2	33%
Research Engineering Technician	2	2	-	-	1	2	8	25%
Managerial Level:								
A. S. C. Service	3	-	-	-	-	-	-	-
Banking Service Asst. Manager	6	-	-	-	-	-	-	10%
Banking Service Cashier	3	2	-	-	1	-	1	10%

Managerial Level Cont'd.	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipaced New Employees In 5 Years	% Annual Turnover
Banking Service Manager	14	-	-	-	1	-	1	5%
Banking Service Ag Repr.	2	-	-	-	-	-	-	-
Banking Service Loan Officer	3	-	-	-	-	-	-	-
Education Service Manager	2	-	-	-	1	-	-	-
General Store Manager	1	-	-	-	-	-	-	-
Insurance Asst. Manager	1	-	-	-	-	-	1	4%
Insurance Manager	8	-	-	1	-	-	4	2%
Insurance Office Manager	1	-	-	-	-	-	-	-
Insurance Tax Consultant	-	-	2	-	-	-	-	-
Loan Agency Asst. Manager	2	-	1	-	1	-	-	-
Loan Agency Fieldman	-	-	1	-	-	-	-	-
Loan Agency Manager	7	-	-	-	-	-	-	5%
Management Service Manager	4	-	-	-	-	-	1	-
Real Estate Manager	2	1	-	-	-	-	-	-
Real Estate Appraiser	1	-	-	-	-	-	-	-
Research Manager	2	-	-	-	-	-	2	-
Supervisory Level:								
A. S. C. Service	1	-	-	-	-	-	-	-
Banking Service Cashier	3	-	-	-	-	-	-	-
Education Service Herdsman	1	-	-	-	-	-	-	-
Loan Agency Asst. Manager	2	-	-	-	1	-	2	-
Loan Agency Fieldman	1	-	-	-	1	-	-	-
Research Foreman	1	-	-	-	-	-	-	-
Sales Level:								
Banking Service Salesman	1	1	-	-	1	-	1	-
Food Products Merchandiser	4	1	2	-	1	1	5	37.5%
Food Products Sales Clerk	1	-	6	2	1	-	-	-
General Store Foreman	1	-	-	-	-	-	-	-
Insurance Salesman	15	-	5	1	4	9	10	41.5%
Real Estate Salesman	8	-	-	2	2	1	1	10%
Real Estate Appraiser	1	-	-	-	-	-	-	-
Clerical Level:								
A. S. C. Service	-	2	-	1	-	-	1	-
Banking Service Bookkeeper	1	-	-	-	1	-	3	-

Clerical Level Cont'd.	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Banking Service Cashier	3	-	-	-	-	-	-	-
Banking Service Clerical	-	1	-	-	-	-	-	-
Receptionist	-	3	-	-	1	-	-	-
Loan Agency Clerical	-	2	-	-	-	-	-	5%
S. C. S. Clerk	-	-	-	1	-	-	-	-
Skilled Level:								
Education Service Worker	2	-	-	-	-	-	-	-
Education Service Maintenance Superv.	1	-	-	-	-	-	-	-
Farm Service Deliveryman	3	-	1	-	3	1	2	66%
Farm Service Surveying Technician	4	-	1	-	2	1	3	50%
Food Products Merchandiser	2	1	-	-	-	-	-	-
Food Products Processor	3	1	-	-	-	-	-	-
Hwy. Dept. Service-Heavy Equip. Opr.	-	-	26	-	-	-	-	-
Real Estate Carpenter	20	-	-	-	3	5	15	25%
S. C. S. Aid	-	-	1	-	-	-	-	-
S. C. S. District Aids	3	-	-	-	1	1	2	20%
Research Hardsman	1	-	-	-	-	-	-	-
Research Lab. Technician	1	-	-	-	-	-	1	-
Semi-skilled Level:								
A. S. C. Clerical	-	-	19	-	-	-	-	-
A. S. C. Field Reporter	-	-	4	-	-	-	-	-
A. S. C. Worker	4	-	29	-	-	-	-	-
Education Service Worker	1	-	-	-	-	-	-	-
Management Service Groundskeeper	1	-	-	-	-	1	-	-
Management Service Worker	4	-	-	-	-	-	2	-
Unskilled Level:								
Farm Service Worker	2	-	-	-	1	1	2	50%
Hwy. Dept. Service Worker	8	-	15	-	3	-	-	-
Research Worker	1	-	-	-	1	1	2	99%

TABLE V - 5

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN HORTICULTURE SCIENCE OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1964

	Full-Time		Part-Time		Employed New Last	Anticipated New Next	Anticipated New Employees	% Annual
Managerial Level:	Male	Female	Male	Female	Year	Year	In 5 Years	Turnover
Fresh Fruits & Veg. Manager	1	-	-	-	-	-	-	-
Nursery Service Manager	5	-	-	1	-	1	1	17%
Parks & Ground Maintenance Manager	3	-	-	-	-	-	-	-
Supervisory Level:								
Nursery Service Foreman	1	-	-	-	-	-	1	-
Sales Level:								
Fresh Fruits & Veg. Sales Clerk	1	2	-	1	-	1	2	33%
Skilled Level:								
Nursery Service Worker	-	-	10	32	-	-	-	-
Nursery Service Mechanic	1	-	-	-	-	-	-	-
Nursery Service Planner	-	-	-	3	-	-	-	-
Parks & Ground Maint. Greenskeeper	5	-	4	-	1	1	2	20%
Parks & Ground Maint. Mechanic	2	-	-	-	-	-	-	-
Semi-skilled Level:								
Parks & Ground Maint. Tree Trimmer	8	-	12	-	-	1	4	-
Unskilled Level:								
Nursery Service Worker	-	-	2	2	-	-	-	-
Parks & Ground Maint. Groundskeeper	2	-	2	-	2	-	2	50%

TABLE V - 6

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN RECREATION OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1974

Managerial Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Public Recreation Service Manager	-	-	1	-	-	-	-	-
Skilled Level:								
Public Recreation Service Herdsman	3	5	3	3	-	-	-	-
Semi-skilled Level:								
Golf Course Greenskeeper	-	-	1	-	-	-	-	-

TABLE V - 7

NUMBER OF FULL-TIME AND PART-TIME EMPLOYEES NEEDING AGRICULTURAL COMPETENCIES, EMPLOYED NEW LAST YEAR, ANTICIPATED NEW NEXT YEAR, DURING NEXT FIVE YEARS AND PERCENTAGE OF ANNUAL TURNOVER IN WILDLIFE OCCUPATIONAL FAMILY BY LEVEL AND JOB TITLE

FOUR COUNTY SUMMARY - 1964

Managerial Level:	Full-Time Male	Full-Time Female	Part-Time Male	Part-Time Female	Employed New Last Year	Anticipated New Next Year	Anticipated New Employees In 5 Years	% Annual Turnover
Wildlife & Fish Manager	1	-	-	-	-	-	-	-
Semi-skilled Level:								
Wildlife & Fish Worker	1	-	1	-	-	-	-	-

TABLE VI

SUMMARY OF DATA USING ALL JOB TITLES

FOUR COUNTY SUMMARY - 1964

PART I - EMPLOYERS SALARY MODE:

Monthly Salary full-time employees - starting mode	$300-399
Monthly Salary full-time employees - maximum mode	$400-499
Monthly Salary part-time employees - starting mode	$200-299
Monthly Salary part-time employees - maximum mode	$300-399

PART II - EMPLOYMENT	Percentage
A. Source	
State Employment Service	4.3
Advertisements	14.2
Friend's Recommendation	27.4
Present Employer Recommendation	8.0
College Placement Bureaus	6.4
Public School	5.9
Persons Dropping in Seeking Employment	15.6
Area Vocational School	3.8
Other	5.9
B. Methods	
Personal Interview	65.9
Written Application	19.0

PART III - MAJOR JOB TITLE ANALYSIS:	% Indicating Yes
A. Activities and Duties	
1. Work with people outside the firm	76
2. Work with people within the firm	53
3. Work with production, materials, etc.	73
4. Work with firms' or customers' equipment	68
5. Work with business problems	82
B. Associated Agriculture Enterprises	
1. Animal Husbandry	46
2. Crops	35
3. Horticulture	15
4. Soils	37
5. Forestry	12

Summary of Data Using All Job Titles

C. Kinds of Competencies	% Indicating Yes
1. Agricultural Mechanics	78
2. Agri-business Management	67
3. Animal Science	57
4. Plant Science	53
5. Soil Science	45
6. Supporting Business & Distributive Education Competencies	86
7. Supporting Trade & Industrial Competencies	58

D. Entrance Requirements	Percentage
1. Education	
a. College or better	7.7
b. High School Graduate or better	75.
c. Less than 12th Grade	12.9
d. No Response or Preferance	12.

	Percentage		
	No Response	Very Important	Not Important
2. Background Information			
a. Farm Background	1.05	89.1	9.9
b. Previous Work Experience	1.4	87.1	11.4
c. High School Vo-Ag Training	1.3	65.5	33.1
d. College Degree in Ag	1.8	24.2	73.9

3. Age	Age Mode
a. Minimum Age	19-24
b. Maximum Age	45-54
c. Preferred Age	25-34

PART IV - ACTIVITIES AND DUTIES ASSOCIATED WITH JOB TITLE:

A. Those Working with People Outside the Firm	% Indicating Yes
1. Meeting farm people	88.7
2. Meeting off-farm people	64.8
3. Buying	35.0
4. Selling	58.0
5. Advising, consulting	51.4
6. Cost estimating	50.6

Activities Which Are Associated with Job Title

	% Indicating Yes
B. Those Working With People Within the Firm	
1. Personnel work	38.4
2. Foreman or supervisory work	19.3
3. Appraising work of others	36.0
4. Training others	43.0
5. Inducting new personnel	32.5
C. Those Working With Production Products, Materials Services	
1. Mixing	20.3
2. Assembling	19.3
3. Making and/or Building	10.9
4. Sketching and/or drawing	10.9
5. Designing	9.4
6. Developing techniques	16.9
7. Planning Production or Service	33.4
8. Calculating Cost	38.0
9. Inspecting	37.1
10. Testing	43.5
11. Using technical & service manual, parts' lists, etc.	36.2
12. Other	1.0
D. Those Working With Firm's or Customer's Equipment, Tools, Supplies and Instruments	
1. Construction	11.8
2. Designing	9.1
3. Repairing	42.6
4. Operating	49.4
5. Assembling	26.5
6. Calibrating	22.6
7. Remodeling	17.1
8. Adjusting	42.4
9. Maintaining	45.4
10. Inspecting, Testing, Trouble-shooting	40.1
11. Installing	23.7
12. Selecting	24.1
E. Those Working With Business Problems	
1. Policy Making	33.1
2. Planning	47.5
3. Promoting	43.5
4. Keeping records & accounts	60.7
5. Filing	39.7
6. Inventory	48.7
7. Handling Money	60.7
8. Making Technical Reports	36.4
9. Evaluating Technical Reports	25.4
10. Writing Articles, Copy, Etc.	15.2
11. Making speeches	14.6
12. Decision Making	46.5

56

	% Indicating Yes
F. Job Titles Associated with Animal Husbandry	
1. Beef Cattle	32.5
2. Dairy Cattle	38.7
3. Swine	31.7
4. Sheep	26.9
5. Goats	4.5
6. Horses	12.6
7. Poultry	33.1
G. Crops	
1. Corn	32.3
2. Soybeans	27.7
3. Wheat	20.9
4. Barley	21.9
5. Oats	23.4
6. Rye	13.9
7. Sorghum	14.6
8. Alfalfa & Sweet Clover	28.3
9. Flax	15.9
10. Grasses	28.1
11. Clover	25.4
H. Job Titles Associated With Horticulture	
1. Fruits	6.7
2. Vegetables	8.6
3. Nursery Management	3.1
4. Landscaping	5.2
5. Flowers	5.2
6. Turf Management	6.6
7. Food Handling and Processing	3.1
I. Job Titles Associated With Soils	
1. Fertilizers	29.7
2. Soil Testing	18.3
3. Soil Conservation	15.1
4. Soil Classification	13.1
5. Cropping Practices	21.7
6. Chemicals	27.2
J. Job Titles Associated With Forestry	
1. Wildlife and Recreation Management	4.5
2. Lumber Yard Management	5.0
3. Structural Design	4.7
4. Farm Wood Lot Management	2.7
5. Christmas Tree Production	1.8
6. Forestry Science	1.7
7. Forestry Products	5.4
8. Forest Products Engineering	2.2
9. Pulp Wood	1.2

PART V: AVERAGES OF RANKS AND DEGREE OF COMPETENCIES:

		Weighted Frequency of Competencies
A. Agricultural Mechanics		
1.	Building & Construction	1.7720
2.	Power, Equipment, Tractors & Motors	2.1697
3.	Machinery & Equipment	2.2911
4.	Electricity	1.7009
5.	Welding	1.5125
6.	Plumbing	1.4255
7.	Concrete	1.4584
8.	Carpentry	1.5243
9.	Ventilation	1.5507
10.	Heating	1.4611
11.	Hydraulics	1.5309
12.	Metallurgy	1.1910
13.	Soil & Water Management	1.4084
	Average	1.6166
B. Agri-business Management		
1.	Records & Analysis	2.041
2.	Credit Instruments	2.092
3.	Insurance	1.755
4.	Taxes	1.625
5.	Farm Planning	1.619
6.	Farm Layout	1.553
7.	Labor Management	1.582
8.	Farm Law	1.475
9.	Marketing	1.745
10.	Agricultural Policy	1.690
11.	Economic Principles	1.810
	Average	1.726
C. Animal Science		
1.	Animal Breeding	1.467
2.	Livestock Production	1.625
3.	Nutrition	1.783
4.	Health and Sanitation	1.830
5.	Livestock Marketing	1.434
6.	Processing Livestock Products	1.440
7.	Marketing Livestock Products	1.422
8.	Housing and Equipment	1.613
9.	Dairying	1.733
10.	Marketing Dairy Products	1.443
11.	Processing Dairy Products	[illegible]
12.	Artificial Insemination	[illegible]
13.	Marketing Poultry Products	[illegible]
14.	Processing Poultry Products	[illegible]
	Average	1.513

		Weighted Frequency of Competencies
E. Plant Science		
1. Plant Breeding		1.286
2. Plant Nutrition		1.450
3. Chemicals		1.632
4. Processing Crop Products		1.501
5. Crop Harvesting, Drying, Storing		1.776
6. Crop Equipment		1.741
7. Crop Marketing		1.505
8. Horticulture		1.225
9. Floriculture		1.169
10. Forestry		1.218
	Average	1.453
F. Soil Science		
1. Soil Structure & Management		1.493
2. Water Management		1.450
3. Chemicals		1.726
4. Fertilizers		1.777
5. Soil Testing		1.622
	Average	1.613
F. Supporting Business & Distributive [illegible] Competencies		
1. Salesmanship		2.733
2. Accounting		1.906
3. Bookkeeping		2.346
4. Customer Relations		2.198
5. Buying		2.109
6. Displaying		1.991
7. Financing		2.222
8. Advertising		1.999
9. Government Regulations		2.091
10. Supervisory Training		1.959
11. Management Training		1.918
	Average	2.224
G. Supporting Trade and Industrial Competencies		
1. Electronics		1.221
2. Auto Mechanics		1.464
3. Plumbing & Pipe-fitting		1.334
4. Mechanical Drafting & Design		1.297
5. Mechanical Operation & Repair		1.722
6. Sheet Metal		1.237
7. Refrigeration		1.243
8. Building Trades		1.285
9. Industrial Chemistry		1.170
10. Transportation		1.331
11. Heating & Ventilation		1.372
	Average	1.339

APPENDIX I

OCCUPATIONAL FAMILIES
PRODUCT OR SERVICE CLASSIFICATION

I. ANIMAL & POULTRY SCIENCE

- Artificial Insemination
- Dairy Products
- Feed (Sales, Grinding, Manufacture)
- Feed, Seed and Fertilizer
- Hatchery
- Livestock
- Meat Products
- Poultry Products
- Veterinarian Service & Supply

II. PLANT & SOIL SERVICE

- Fertilizer and/or Chemical Products
- Grain, Feed and Seed (Elevators)
- Seed Houses

III. AGRICULTURAL MECHANIZATION

- Auto & Farm Machinery Sales
- Auto & Truck Sales & Service
- Concrete Products
- Farm Machinery and/or Equipment
- Farm Supplies
- Gasoline Service Stations & Bulk Delivery
- Hardware Store
- Heating & Plumbing
- Lumber & Building Supplies
- Metal Work
- Petroleum & Farm Supplies (Co-op)
- Tire Sales & Service
- Transportation
- Utilities

IV. AGRICULTURAL SERVICE

- Accounting Services
- A. S. C. Service
- Banking Service
- Communications
- D. H. I. A. Service
- Education Service
- Farm Service
- Food Products

Occupational Families Product or Service Classification Cont'd.

General Store
Highway Department Service
Insurance
Loan Agency
Management Service
Real Estate
Research
S. C. S. Service

V. FORESTRY

Christmas Tree Products
Forestry Service
Lumber Product Production
Pulp Wood Products
Sawmilling

VI. HORTICULTURE SCIENCE

Floriculture Service
Fresh Fruits & Vegetables
Greenhouse
Nursery Service
Parks & Ground Maintenance & Tree Trimming

VII. RECREATION

Golf Course
Public Recreation Service

VIII. WILDLIFE

Wildlife & Fish

VT 002 551

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Project REDY, Rural Education-Disadvantaged Youth (A Research Prospectus).

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*VOCATIONAL EDUCATION; *DISADVANTAGED YOUTH; *RURAL YOUTH; *RESEARCH PROJECTS; *EDUCATIONAL PROGRAMS
*PROJECT REDY

The rationale and the proposed procedural steps in conducting project REDY, the informal title of a project, "Development of Human Resources of Youth Through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas" are presented. The purpose of the project is to generate an effective vocationally-oriented educational program for disadvantaged youth so that they might become successfully employed outside their community or improve the economic and social situation in their own depressed rural community. The project proposes to focus on families to create readiness and motivate participation in vocational education programs. The major objectives are to (1) study a selected rural area to identify anthropological, economic, psychological, and sociological conditions and trends, (2) develop a model program, and (3) evaluate the model program. The study is to be conducted in four phases: (1) community study, (2) sample population study, (3) developmental in which the model program is to be tried, analyzed, and evaluated, and (4) experimental in which the model is to be applied in five communities. (JM)

ED027441

(A Research Prospectus)

PROJECT REDY

RURAL EDUCATION – DISADVANTAGED YOUTH

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT02551

FOREWORD

The research described herein is being conducted by the University of Illinois under contract with the Division of Vocational and Technical Education, Office of Education, U. S. Department of Health, Education, and Welfare.

The official project title is:

Development of Human Resources of Youth Through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas.

The short title, more commonly used is:

Rural Education--Disadvantaged Youth (Project REDY)

RURAL EDUCATION--DISADVANTAGED YOUTH

(Development of Human Resources of Youth Through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas)

President Lyndon B. Johnson has indicated the need for a nationwide attack on poverty. The United States has 35 million persons existing under deprived economic conditions, with six of these 35 million living in rural areas.[1] A vocationally oriented educational offensive against poverty in rural areas may produce both social and financial improvements. Economists estimate that by 1980 improved work opportunities for rural people could add 40 billion dollars a year to the gross national product of the United States.[2]

Rural youth migrate daily to urban areas to seek employment and they are often unable to compete successfully for the jobs in these areas. The initial out-migration sometimes becomes a shuttle migration of the unsuccessful, which further complicates the problem in rural areas. Correction of the problem should

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[1] "The Poor Among Us," The Farm Index, Economic Research Service, U.S. Department of Agriculture, November 1964, p. 10.

[2] Ibid.

begin in the depressed rural areas and not be delayed until urban areas are forced to deal directly or indirectly with these dropouts from society. The prospects for an improved society indicate the importance of effective educational programs for rural youth who are socially and economically disadvantaged.

Success in the fight against poverty in rural areas depends on sound educational programs that will bring about desirable changes in attitudes, behaviors and vocational competence. Behavioral scientists need information that will help them develop ways and means by which the present and future wealth of human resources in rural areas can be realized. This research project will provide important anthropological, economic, psychological and sociological data, plus identifying benchmarks for the development of effective educational programs for depressed rural areas.

Purposes of the Project

The purpose of the project defined in its simplest terms is that of generating an effective vocationally oriented educational program that will bring about the full utilization of the present and potential capabilities of rural youth who are economically and socially handicapped. The end result will be that some disadvantaged rural youth will utilize vocational education opportunities to prepare themselves for gainful employment outside their communities, while others will utilize their developing vocational competence to improve the economic and social situation in their depressed rural communities.

Three primary objectives of the project are to:

1. Study in depth a selected depressed rural area to identify the anthropological, economic, psychological and sociological conditions and trends that typify the area.

2. Develop and conduct a "model" preparatory and supplemental vocationally oriented education program, specifically designed for members of disadvantaged rural families, which will lead to the gainful employment of youth.

3. Evaluate through an experimental treatment the "model" program in terms of the processes used and the results obtained and develop guidelines for a vocationally oriented education program that various types of communities may use to attack the educational problems of disadvantaged rural youth.

Conduct of the Study

The project proposes, through a focus on families, to create readiness for effective vocational education and to motivate participation in vocational education programs. A "model," family resource development program will be used to generate desirable change in disadvantaged rural youth by obtaining and holding the interest and attention of families. A feeling of "readiness" for change and for vocational education will be developed. Effective freedom and desire will be created to

utilize opportunities provided by the Vocational Education Act of 1963, the Area Redevelopment Act, the Manpower Development and Training Act and the Economic Opportunity Act as they were intended to be utilized when enacted by Congress.

General Design

The study will be conducted in four phases as follows:

Phase I. Community Study

Step 1--Determine the universe of depressed rural communities in the State.

Step 2--Analyze the depressed rural areas in Illinois and select a typical depressed rural area for further study.

Step 3--Study in depth the depressed rural area selected to obtain data about the area and its inhabitants.

Phase II. Study of Sample Population

Step 1--Identify the disadvantaged families living on an acreage of land in the selected depressed rural area.

Step 2--Select by random the families to be involved in the study.

Step 3--Collect anthropological, economic, psychological, and sociological data from the sample.

Phase III. Developmental

Step 1--Randomize families in Phase II into one experimental and two control groups.

Step 2--Define and try-out the "model" vocationally oriented, family-centered educational program.

Step 3--Analyze and evaluate the results of the "model" program developed during this phase of the study.

Phase IV. Experimental

Step 1--Select by random five additional depressed rural communities from the total universe and study the characteristics of each of these communities.

Step 2--From the total universe of depressed rural communities match each of the randomly selected communities with another community.

Step 3--Select by random the community in each pair of communities that will serve as the treatment or experimental community.

Step 4--Apply the "model" program developed in Phase III in the five experimental communities.

Step 5--Analyze and evaluate the results to determine implications regarding the use of the "model" program.

Population and Sample. A typical depressed community from the universe of approximately twenty rural, depressed counties in the State will be randomly selected as the population area for Phases I, II, and III of the study. The universe population in this community will be all rural families, regardless of race, living on an acreage of land having incomes of less than $3,000 and whose major potential income producer is less than 55 years of age. In Phase IV, ten disadvantaged rural families meeting the above qualifications in each of ten communities, determined as described in the general design section, will be randomly selected for study.

Analysis and Evaluation. Desired changes do not occur instantly but constitute a continuum. Evaluation will not be limited to determining the success in bringing about a desired final change. Evaluations will be made at different points on the continuum.

A descriptive analysis will be used to report the findings resulting from Phase I and Phase II depth studies of the selected depressed rural community and its inhabitants, and to report many of the observations made during Phase III (Developmental).

The analysis of covariance statistical model will be used in the analysis of interval scale data in Phase III (Developmental) and Phase IV (Experimental). Observations made prior to treatments will be used to describe the sample populations and for appropriate

covariate data.

Chi Square will be used in both Phase III (Developmental) and Phase IV (Experimental) to test significance for noninterval data that change in behavior, as operationally defined by criterion instruments, will be equal between the experimental groups and the control groups.

Advisory Groups. The University of Illinois Center for Instructional Research and Curriculum Evaluation (CIRCE) core staff and research specialists will serve as an over-all advisory group for the project. This group will be supplemented by selected consultants from sociology, clinical psychology, economics, and rural area resource development.

Local program advisory committees will be organized in the communities studied. These local committees will consist of members of the existing local resource development councils in the communities in which the study is conducted.

Local Coordinators. The local coordinators will be teachers in the local schools participating in the developmental and experimental phases of the study and they will be selected on the basis of their knowledge and ability to work with disadvantaged rural families. The coordinators will receive special training provided by the director, associate director, and others. This special training will be provided through individual instruction, meetings, extramural courses, and summer school courses.

PROJECT REDY

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Florida State Dept. of Education, Tallahassee. Agricultural Education Section.
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FLORIDA; *ANNUAL STATE CONFERENCE FOR TEACHERS OF VOCATIONAL AGRICULTURE

A general summary of proceedings, papers delivered, and recommendations of nine work groups are presented for the conference which had the theme "Developing and Implementing Educational Programs for Agricultural Occupations." Speeches included are: (1) "Proposed Guidelines for Supervised Practice Program in Agri-Business" by D. Gaiser, (2) "Experiences in Making Agricultural Survey-Indian River Junior College" by M. King, (3) "Progress of Agricultural Chemicals Safety Program" by F. Myers, (4) "Special Vocational Programs for the Disadvantaged" by C. Lowman, (5) "The Conservation of Human Resources" by E. York, Jr., (6) "Vocational Guidance-The Role of the Local Agricultural Teacher in His School and Community" by E. Montgomery, (7) "Child Labor Laws" by H. Garvin, (8) "Suggested Guidelines for Utilizing Agricultural Mechanics Shops for Occupational Training" by C. Rogers, and (9) "New Dimensions in Rural Areas Development," by M. Watkins. Recommendations submitted by conference work groups concerned: (1) patterns for agricultural instruction, (2) guidelines for agri-business, agricultural occupations, and patterns of instruction, (3) local program evaluation, (4) teacher qualifications, (5) methods of disseminating program information, (6) Future Farmers of America organizations, (7) responsibilities for conferences, and (8) agricultural mechanics competencies. (WB)

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Bulletin 72 E-6 October, 1965

Agriculture Education

SUMMARY OF THE ANNUAL STATE CONFERENCE

FOR TEACHERS OF VOCATIONAL AGRICULTURE

Division of Vocational, Technical, and Adult Education
THE STATE DEPARTMENT OF EDUCATION
Floyd T. Christian, Superintendent
Tallahassee, Florida

ERIC

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AGRICULTURAL EDUCATION

Bulletin 72E-6

October, 1965

SUMMARY OF THE ANNUAL STATE CONFERENCE FOR TEACHERS OF VOCATIONAL AGRICULTURE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT002620

Division of Vocational, Technical, and Adult Education
Walter R. Williams, Jr., Director

Agricultural Education Section
Harry E. Wood, Supervisor

F O R E W O R D

The 1965 Annual State Conference for Teachers of Vocational Agriculture was held at the Langford Hotel in Winter Park, Florida, July 19 through July 23, 1965.

A program committee, consisting of the Executive Committee of the Florida Vocational Agriculture Teachers' Association and the staff, planned the conference program and selected the theme for the conference - "Developing and Implementing Educational Programs for Agricultural Occupations."

This summary is divided into three parts; namely, a section, or general summary of the proceedings of the conference, a section of papers read before the conference, and the section on the recommendations of the nine conference "work groups" is included as a part of this report.

Acknowledgment and appreciation are expressed for the services and contributions of those who planned and participated in the program, and to the secretaries, and office personnel and state staff members who assisted in making the report possible.

K. M. Eaddy
Conference Secretary

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SECTION I

CONFERENCE PROCEEDINGS

Monday, July 19

Chairman - Herbert Henley, Orlando; Secretary - J. A. Barge, DeFuniak Springs

Introduction

The initial session of the 40th Annual State Conference opened with an invocation given by Alton Howard and a welcome to Orange County by Walton O. Walker, Superintendent of Public Instruction.

Allen Trovillian, Jr. welcomed the teachers to Winter Park and Mr. Langford expressed his delight to have the teachers of vocational agriculture conduct the 1965 conference in the Langford Hotel, Winter Park, Florida.

Florida Vocational Agriculture Teachers' Association President, Herbert Henley introduced guests of the conference and Mr. W. T. Loften introduced new teachers of vocational agriculture.

Plans for the Conference were given by Mr. H.E. Wood, State Supervisor, who stressed the theme, "Developing and Implementing Educational Programs for Agricultural Occupations". He read, and placed emphasis upon the statement found on the back cover of the official program; namely, . . . The new Vocational Education Act of 1963 provides for a national evaluation of vocational education in the immediate years ahead. When this evaluation is made it is imperative that vocational educators be able to provide information indicating that graduates of vocational program were employable. Congress will continue supporting "vocational and technical education and the true image of vocational education will be illuminated permanently" if this objective is reached. Vocational education today needs people who are dedicated, willing to work, to explore, to be creative, to listen, to contribute, to adjust and with it all to stay humble . . . out of a good argument can come a new idea if the "hearts" are right. Vocational education people are beginning to take a new look at themselves and are not afraid to do so - where, perhaps, there has been some "little thinking" there may now be some "big thinking".

Mr. Wood noted that the conference was integrated for first time since its initial meeting in 1925. Mr. Wood's sincere desire for the conference was expressed as a trust in each teacher and other agricultural leaders present to work in such a way to produce "a firm and substantial foundation" for future meetings of agricultural teachers and Future Farmers.

Mr. Wood then introduced Mr. Floyd Johnson, consultant for the conference for the second consecutive year.

Dr. M. C. Gaar, Program Specialist, U. S. Office of Education, was then introduced to the group of assembled teachers. He discussed Project Co-ordination Under the 1963 Vocational Education Act. The following is an outline account of his presentation.

Introduction - We are living in a changed and changing world..... Change can only be made in proportion to the rate at which teachers are able to make changes in their frame of references.

Suggested Course Content by Grade - Ninth grade - exploring occupations, agriculture and others, to give students first hand experiences.

Tenth and eleventh grades - Plant and Animal Science and some Farm Mechanics.

Twelfth grade; option - Work closely with personnel actually giving the training to students.

Drop-out - Interested in production agriculture and/or agricultural services. Use high school personnel to help with the problems, or use counselors, special teachers and T & I, D. E. specialist.

Post high school - Training of pupils in specialized areas. Use specialized teachers.

Adults - How to reach the adults who need help -

1. Use the Economic Opportunity Program
2. Use the ACP

Handicapped - Meeting the needs of the handicapped - Coordinating the activities of all programs to meeting their need.

Program of Florida State Board for Vocational Education for Fiscal Year 1965-66

Dr. W. R. Williams, Jr., State Director, Vocational, Technical and Adult Education, State Department of Education, Tallahassee, Florida

Dr. Williams expressed, in his brief presentation, a conviction that leaders in vocational agricultural education must have a philosophy broad and flexible enough to meet the needs of our age; an age characterized by change, if we are to cope with the multitudinous problems of our society.

He would place emphasis upon the teacher of agriculture earning prestige -- prestige thought of as an earned increment through service. "He who serves best is the one who is the happiest". Many opportunities are present today for individual and group service since human need exists in all areas of human endeavor. As teachers of agriculture, we are dealing with human needs; the poor and the disadvantaged as relates to physical, social, emotional, financial, and cultural relationships.

We must have a growing and successful economy if human needs are to be solved most effectively, and the strength of the farm production is the basis of success to the total economy. We can no longer think of ourselves as specialists interested in agriculture; rather we should think of ourselves as "educators" specialized in agriculture.

Factors relevant to our work are:

1. Reflection of employment needs and demands

2. Growth: 1.6 male employment
   1.9 female employment

3. Projecting the ways and means of meeting the need of the future. Reflecting the broad opportunities of new horizons.

4. State Board Advisory Council to be organized through a modification of the revision of the Vocational Departments.

5. $8 million for non-junior colleges
   $8 million for junior college
   $4 million for federal matching funds

   Total of $20 million to be used for construction purposes.

We need to be assured that:

1. Administrative and supervisory organizations work to help secure and hold good teachers in vocational education.

2. Research and developmental programs are instigated to assure improvement - for where there is no vision, people perish.

3. Quality education must be made our eternal struggle and evaluation must be a part of our functional programs if we are to discover our weaknesses and strengths.

Status of Vocational Training Needs

Dr. G. W. Neubauer, Assistant Director, Program Services, Division of Vocational, Technical, and Adult Education

Dr. Neubauer discussed the status of vocational training needs. The following is a summary of selected needs.

1. Money for construction, equipment and operation

2. Expansion of business and distributive preparatory programs

3. More intensive development of agri-business education

4. More emphasis on home economics for gainful employment

5. More pre-occupational orientation in junior high schools - (industrial arts)

6. Identification of basic supportive-education needed for employment in selected occupations

7. More qualified guidance counselors

8. More training for guidance counselors in vocational counseling.

Basic Educational Needs for Occupational Training

Mr. J. H. Fling, Acting Assistant Director,
Adult and Veteran Education

The pertinence of the remarks made by Mr. Fling are summarized below:

..."In closing, we feel that Florida is one of the leading states in providing opportunities for its citizens to receive the training and retraining required for employment. In basic education we have made a good start but still have a long way to go to meet the needs of our people, when you consider that there are over three-quarters of a million people eighteen years of age and older who have less than eighth grade education and over 1,600,000 who have less than a high school diploma."

Implications of the Manpower Training Program to Vocational Agriculture

Mr. M. T. Capo, Project Coordinator,
Manpower Development Training Act

Mr. Capo discussed the following points:

What is M. D. T. A.? - Its aim; the administration - a joint venture.

Why M. D. T. A.? - Selected groups not normally reached; sharing responsibility.

Need in vocational agriculture - relatively few agriculture programs. Vocational agriculture could render some worthwhile programs.

Areas to be developed: Service, production, distribution, processing, farm market workers, farm foremen, crew leaders, horticulture, multiple programs, mechanics multiple programs, artificial inseminators.

Types of training projects - Institutional projects, on-the-job training, couple projects, experimental and demonstration projects.

Eligibility limited to those who are: Unemployed, working below their skill capacities, working less than full-time, workers whose

skills are obsolete, under-employed.

Selection of trainees is based upon testing and counseling.

Setting up a project:

The local employment office is responsible for:

1. Project justification - MT-1
2. Application for training - MT-2
3. Selection of trainees
4. Placement of trainees

The Superintendent of Public Instruction, through the local Director of Vocational Education, is responsible for:

1. The training plan
2. Facilities
3. Supplies and equipment
4. Supervision
5. Teacher qualifications

The Advisory Committee is very important to the planning of the project, especially on decisions related to:

1. Course outline
2. Supplies and equipment
3. Proper training facilities
4. Public relations

After development the project must be reviewed, approved and funded.

Conclusions:

Accomplishments to date under the M. D. T. A. Program have been sufficiently encouraging to warrant greater effort to meet our challenging manpower problems.

A placement record of almost 70 percent in Florida is a strong indication that manpower training has been a success and has demonstrated that the unemployed can be trained to fill today's jobs.

Should you desire to plan a project contact the Project Coordinator for your area or the office of Dr. Charles Crumpton, State Supervisor of M. D. T. A. Someone will be available to help you with the formation of your project.

Inter-Relationship Between Academic and Vocational Agriculture Teachers

Dr. Fred Turner, Director
Division of Instructional Services

Dr. Turner discussed the importance of cooperative efforts on the

part of vocational education and general education. He emphasized the similarity of objectives for both academic and vocational education. His point of view encompassed both aspects of education as necessary and needed in our present world society.

Vocational Guidance - Role of the Local Agriculture Teacher in His School and Community

Eddith Montgomery
(See Section II for a review of this presentation)

National Progress in Research and Developmental Activities in Vocational Education

Dr. Duane M. Nielsen, Director of Educational Resources Development, Division of Adult and Vocational Research of the U.S. Office of Education

Dr. Nielsen discussed briefly the above topic. His explanations dealt primarily with needs for research in vocational education and ways of working effectively with people, occupations, and instructions in such a way to utilize the strengths of each in establishing an effective vocational education program.

Tuesday, July 20

Chairman - Carl Rehwinkel, Ocala; Secretary - E. M. Kinsler, Ocala

The general session opened at 8:20 a.m. with a devotional service given by Al Whitmore, who spoke on The Four Freedoms and made many pertinent points that were directly relevant to the role of the vocational agriculture teacher in the changed and changing American society.

Projects and Recent Developments as Summarized from Rural Area Development Reports

Dr. M. O. Watkins, Director of the Florida Agricultural Extension Service

(Statements by Dr. Watkins are included in Section II of this report)

The Conservation of Human Resources

Dr. E. T. York, Jr., Provost of Agriculture, University of Florida

Dr. York's remarks were timely and seemingly of considerable interest to many of the teachers and guests. The topic is presented in Section II of this summary.

Industrial Training Under the 1963 Vocational Education Act

Mr. E. B. Heiny, Area Supervisor of Industrial Education
Tampa, Florida

An outline of Mr. Heiny's talk follows.

Definition: Trade and Industrial occupations shall include any craft, skilled trade, or semi-skilled occupation which directly functions in the designing, producing, processing, fabricating, assembling, testing, modifying, maintaining, servicing, or repairing of any product or commodity; or any other occupation, including a service occupation which is generally considered to be technical or trade and industrial in nature. Trade and Industrial Education shall include any subject which is necessary to develop the manipulative skills, technical knowledge, and related information necessary for employment in a trade and industrial occupation.

Background information on Trade and Industry in Florida - Sponsored all vocational programs except Agriculture and Home Economics - Cooperative Education (DCT and BE); Vocational Business Education; D.E.; and Technical Education.

Now sponsoring administration and supervision, Trade and Industrial examples: Health occupations - Licensed Practical Nurse, Dental Assistant, Optometric Assistant, Laboratory Assistant. Fishery occupations of a T & I nature, examples: Commercial vehicle driver training; RE A job training and safety; Supervisory occupations - crosses sectional lines; school bus driver training; custodial and maintenance training; Apprenticeship related (JAC) relationships; Peace officer training; Industrial Arts coordination (staff person).

Future curriculum development may include combinations of training never before anticipated due to automation, job obsolescence, and new knowledge and skills required.

Guidelines for Supervised Practice Program in Agri-Business

Mr. Dean Gaiser, Consultant in Distributive Education,
State Department of Education

Mr. Dean Gaiser brought to the group a discussion on the above topic. The proposal presented is included in Section II of this report.

Project Proposal and Grant Requests Under 1963 Vocational Education Act for Vocational Agriculture Programs

Mr. G. C. Norman, Program Specialist,
Agricultural Education

Mr. Norman talked to the assembly on the above topic. His paper is included in Section II of this report.

Technical Training

Dr. T. W. Strickland, Assistant Director, Technical Education
State Department of Education

Dr. Strickland delivered a paper of Technical Education, and pertinent statements from his speech follow.

"Technical Education in some form has been evolving over a period of many years. Half of what men knew in 1963 will be obsolete in 1973, and only half of what they will need to know then in available to them at this time.

Currently, technical education, supported jointly by local, state, and federal funds is provided in 31 institutions. These include 10 high schools, 4 vocational-technical schools, 1 technical institute, and 17 junior colleges employing 334 teachers with a combined enrollment in excess of 10,000 students. Combined, their facilities make technical education available to well over eighty-five percent of the state's population. Among the principal areas of instruction were drafting and designing, electronics, civil engineering, electronic data processing, microminiaturization, mechanical technology, and instrumentation.

It will be noted that to this point, technical education has been treated as specific disciplines within the general field of engineering technology. Its basic purpose of course was preparation of technicians to fill the ever widening gap between the skilled craftsman and the professional engineer. This was a logical development since these represented occupational areas reflecting great need in terms of employment opportunity. Furthermore, the engineering technician responsibilities were easily identified and hence provided a basis upon which to develop training programs.

There is an increasing awareness that technical education does, in fact, imply more than a discrete discipline or even a cluster of disciplines limited to the general field of engineering technology. Rather, the term "technical education" is more appropriately used as a generic term to discribe a wide range of curricula each of which represents both an upward and downward extension of vocational and professional educational programs respectively.

The technician is neither engineer nor craftsman. He possesses neither the advanced scientific training of the engineer nor the high level skills of the craftsman. He has, instead, his own peculiar skills which equip him to perform many of the duties formerly assigned to the graduate engineer. It is the function of the technician to design the mechanism, compute the cost, write the specifications, organize the production, and test the finished product."

Dr. Walter R. Williams, Jr., in speaking before the American Vocational Association Convention in 1963, referred to the comprehensiveness of technical education when he said: "Over the years most effort has gone into the preparation of industrial technicians. But the technology of non-industrial pursuits has changed just as the technology

of industry had changed. In the future, more attention will certainly be directed to preparing agricultural technicians, competent specialists in homemaking services, and technicians to expedite the performance of increasingly complex business operations. These are but a few of the specialized personnel for whom demand is growing rapidly. Developments in the design and construction of automobiles and aircraft show further that change is continuing on all fronts." [1]

"The application of science and invention to the technology of Agriculture has created a need for highly skilled technicians. Typical among these are agricultural engineering technicians, agricultural processing technicians, research technicians, landscape and nursery technicians, and soil technicians. Indeed, production and processing are becoming more and more science - and engineering - based, and distribution and marketing, business - based.

Mr. Dougan defines the technician as a highly skilled worker... who provides a semi-professional service to some segments of the agricultural industry. He is responsible for using and disseminating technical information for a particular phase of the production, servicing, processing, or marketing of agricultural products. He performs laboratory tests, collects data, makes computations and analyses. He needs to be informed on management principles, agricultural standards, as well as technical agriculture."

Agricultural Technician Training Program

At this point, it would appear that the agricultural technician training program should

1. Be organized as a two-year post-high school curriculum. Technical education curricula should be included as a part of the high school program only when it is closely articulated with opportunity for post-high school instruction.

2. Emphasize work in the field of science and mathematics.

3. Give attention to technical knowledge and general education but stress practice and skill in the use of tools and instruments where applicable.

4. Lead to competence in one of the technical occupations.

5. Include a core of general education courses, e.g., English, Social Studies.

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[1] An address delivered by Walter R. Williams, Jr., Director of Vocational, Technical, and Adult Education, State Department of Education, Tallahassee, Florida, at the joint meeting of the National Association of State Supervisors of Trade and Industrial Education, National Council of Local Administrators of Vocational and Practical Arts, and American Technical Education Association in Atlantic City, New Jersey, December 8, 1963.

It appears that a satisfactory balance of the foregoing conditions could be achieved by devoting

15% of the time to non-technical subjects
35% of the time to the appropriate basic sciences, and
50% of the time to the technical specialities uniquely identified with the particular technology."

The afternoon session began with a presentation by Mr. Bobby Bennett, a representative from the Florida Farm Bureau. He discussed " The Importance of Farm Records". Emphasis was placed on the various record keeping services provided by the Florida Farm Bureau to various farmers, especially dairy farmers. These services include giving the farmers a financial status of this type of farm relative to assets and liabilities; also a record of their Social Security status and inventory records. It was also pointed out that records on household spending by the farmers' family are provided.

Mr. L. A. Potts, former Dean of Agriculture at Tuskeegee Institute, Alabama, who presently serves with the U.S.D.A., was introduced by Mr. H. E. Wood, State Supervisor of Agricultural Education.

Mr. L. A. Davis, former agriculture teacher at Lincoln High School, Gainesville, now serving in the capacity of Coordinator of Equal Opportunity, Florida Industrial Commission, Tallahassee, was permitted by Mr. Wood to give the group a resume of his new duties.

The rest of the afternoon was devoted to group meetings.

Wednesday, July 21

Chairman - G. C. Norman, Tallahassee; Secretary - David Wyche, Greenville

The devotional service was conducted by Rev. Elbert Wilson, Associate Minister, College Park Methodist Church, Orlando, Florida.

Procedure for Organizing an Agricultural Occupations Program

Dr. Duane Nielsen, Specialist, Teacher Training and Research, U. S. Office of Education, Washington, D.C.

Dr. Nielsen began his discussion by making statements concerning the purpose of the vocational agriculture teacher's work. He gave some background information and examples of different plans used in various states as he explained Pilot Programs. He stated that education has been accused of not stating identification ideas in pilot programs and emphasized the belief that state leadership should provide guidelines for establishing pilot programs and that ideas should be sought from all

levels in setting up pilot programs in education. Best ideas should be sought from all education branches; i.e., sociology, psychology, philosophy, human growth, etc. Kentucky was mentioned as one of the first states to begin work on pilot programs and that information concerning organization may be obtained from the Kentucky State Department of Education.

Plans, he said, should be concentrated on many concrete ideas and materials. He was emphatic in his statements concerning the belief that pilot programs are not to be used as demonstrations, but as experiments. All trials should be evaluated in due time.

When plans have been developed and found through pilot programs, to be sound, they should be passed on to teachers and other vocational agriculture leaders. One of the major purposes of pilot programs is to seek out new and better ways of doing things.

Establishing Training for Golf Course Workers

Dr. M. C. Gaar, Program Specialist,
U.S. Office of Education, Atlanta, Georgia

Dr. Gaar, before talking to the teachers about establishing training for golf course workers, commented upon the recruitment for teachers of agriculture. He urged teachers to recruit new teachers from among their regular vocational agriculture class enrollments.

Opportunities and responsibilities for golf course work were explained as being many and varied. The worker is a skilled person who has scientific knowledge and understanding. To effectively educate persons for these jobs we must work closely with heads of golf courses. The superintendent must be a "grower of grass" and he must have a knowledge of the needs of grass (turf). Golf course workers need training to do a job and there is a need to train for jobs as they occur.

Experiences in Making Agricultural Survey for Indian River Junior College

Dr. Maxwell King, President
Indian River Junior College, Ft. Pierce

Mr. C. M. Lawrence made comments and introduced Dr. King, who discussed the above subject. Dr. King recommended the booklet "Fact Finding", from the State Department of Education as an aid in setting up surveys. A list of items included in Dr. King's speech is included in Section II of this report.

Aerospace Activities at Cape Kennedy

Lt. Raymond J. Cauwet, U. S. Air Force

Mr. G. C. Norman introduced Lt. Cauwet, who discussed the activi-

ties at Cape Kennedy, including aerospace functions for the Cape and its range. The various systems and their launchings were shown on film and explained by Lt. Cauwet.

Thursday, July 22

Chairman - Kenneth Lee, Alachua Secretary - E. R. Scott, Madison

The session was begun with a devotional service given by Mr. Key.

Suggested Guidelines for Utilizing the Agricultural Mechanics Shop for Occupational Training

Clarence Rogers, Assistant Professor,
Agricultural Engineering Department, University of Florida

Mr. Rogers suggested that teachers: (1) Ascertain what employers desire employees to have in the way of skills, knowledge and related skills, etc.; (2) Organize the shop to accomplish the needs of the students. A detailed account of his speech is included in Section II of this report.

Using the Agricultural Shop to Serve the Community in Occupational Training

Mr. Floyd Johnson, Teacher of
Vocational Agriculture, York, North Carolina

Mr. Johnson, Consultant for the Conference, introduced a panel of speakers on the subject above. A summary of comments made follows.

Glynn Key - We must not discard ways and means of teaching we know to be good; however, we must survey needs and expand to meet those needs as they are determined.

V. T. Sewell - Three methods: (1) Student projects; (2) Train for job - specialize; (3) Small group - example: assign 20 students five areas of instruction; i.e., electric welding, oxy-acetylene welding; pipe fitting; painting and glazing; electricity.

Isaac Pittman - Using the agricultural shop to serve the community in occupational training is developed around individual problems, needs and interests.

Programs for the Disadvantaged

Mr. C. L. Lowman, Educational Materials Specialist,
State Department of Education

Mr. Lowman gave a presentation on special vocational programs for the disadvantaged. The speech is included in Section II of this report.

Utilizing Advisory Committees in Setting up Junior College Instructional Program for Agricultural Occupations

Mr. Harry Brinkley, Teacher of Agriculture,
Indian River Junior College, Fort Pierce

Mr. Brinkley, in discussing this topic, said ,... Summing up, we feel that our committees are an important part of our program - even of our faculty. We are teaching their children and their employees or future employees. They know what their employees need to know, and to top it all, they are paying the bills. We are in business to produce a better society through better people. Taking a cue from one of our early heroes , I have but one in mind to give to my department and its needs. Our committees multiply this many times, not only by their numbers but by their varied experience and knowledge.

This being so, we use them - as committees and as individuals. We pick their brains. We use their position of leadership in the community. And, we give them credit - publicly , for it all.

A summary of remarks by Mr. Owen Lee of Polk Junior College, speaking on the same topic, follows.

Use of committees to:

1. Represent major industries in the county
2. Suggest curricular content
3. Suggest course content
4. Meet continuously to revise
5. Work on community occupational surveys
6. Recruit full-time and part-time instructors
7. Procure training equipment
8. Cooperate between school and industry
9. Serve as public relation experts
10. Help mold public opinion
11. Serve on career days in high schools
12. Enhance financial support
13. Improve civic club contacts
14. Support legislation
15. Sell adult training
16. Assist in placement of students
17. Secure summer jobs
18. Locate full-time jobs for graduates
19. Furnish training stations
20. Serve as resource people
21. Set wage scales
22. Recruiting and promoting
23. Instigate scholarship funds

Selection of committee members:

1. Type of person - interested persons
2. Number on committee - 5-7

3. Appointment by school board
4. Terms staggered
5. Certificate issued upon completion of service

Structure of committee:

1. Chairman
2. Secretary
3. School representative
4. Ex-officio members

Evaluation:

1. Is program meeting needs?
2. Are students properly prepared?
3. Are facilities adequate?

Child Labor Law

Mr. Harry Garvin, District Supervisor,
Department of Field Services for the Florida Industrial Commission

Mr. Garvin presented a paper on Child Labor Laws. Material contained in his paper is pertinent to all teachers of vocational education in agriculture and therefore, is reprinted in Section II of this report.

The Environmental Control of Livestock

Mr. S. John Folks, Director of Rural Development,
Florida Power Corporation

Mr. Folks prepared a paper on the above topic. In his paper he treats many of the identifiable factors in the environment of livestock such as temperature, air flow, moisture, space, light, dust, odors, colors, sound and handling techniques. His assumption is that future growth of the livestock industry must come within each individual animal, not from the enlargement of one's farm property. This may indicate a control of the farmstead environment.

Progress of Agricultural Chemicals Safety Program

Mr. James E. Brogdon, Extension Entomologist, University of Florida

Mr. Brogdon delivered the paper prepared by Mr. Forrest E. Myers of the Florida Agricultural Extension Service. The paper is included in Section II of this report.

Mr. Wakeman and Mr. Sparks explained the new score cards for judging dairy and livestock in the F.F.A. judging contests.

Friday, July 23

Chairman - Perry Sistrunk, Miami; Secretary - H. D. Hudson, Sebring

The final regular meeting of the Florida Vocational Agriculture Teachers' Association held during the 1965 Annual Summer Conference was called to order at 8:30 a. m. in the Pavillion Room of the Langford Hotel, Winter Park, Florida. President Herbert Henley presided and Mr. John Maddox led our devotional period.

President Henley called immediately upon Dr. Duane M. Nielsen, one of the special guests appearing several times previously on the program, to voice his parting remarks to the group.

The following men were installed as the leaders of the Florida Vocational Agriculture Teachers' Association for 1966:

Carl Rehwinkel, President-Elect
Dean Griffin, Secretary
Glynn Key, Treasurer

Directors:
J. W. Brown, District II
Glenn Wade, Jr., District V

F.F.A. Advisory Board: George W. Busby, District III, Area II

It should be noted that Darwin Bennett was nominated and installed in a ceremony to fill the vacancy created by election of Carl Rehwinkel in District IV to President-Elect. Darwin Bennett was elected by acclamation.

Leadership by newly installed President:

Mr. Perry Sistrunk, having been duly and properly installed by required ceremony, held earlier, assumed his responsibility. He immediately called for the reports of earlier appointed work groups, beginning with Work Group # 1, and continued through Work Group # 9. Each report was received and adopted according to correct parliamentary law.

Recommendations and reports from the various work groups will be found in Section III.

Comments and Observations: President Perry Sistrunk called on Mr. Floyd Johnson to make any observation that he desired to make. Among many well phrased statements he commended the agriculture teachers on their dedication to their work as a whole, especially as exhibited in the way they carried out their functions and responsibilities at this conference.

Presentation: President Perry Sistrunk called on Mr. Bill West to make a presentation. This presentation, in the form of a gavel substituting for one to come later, was to Mr. Herbert Henley, outgoing President of the Florida Vocational Agriculture Teachers Association. President Sistrunk expressed his gratitude for Mr. Henley.

Final Remarks and Observations: President Sistrunk called on Mr. H. E. Wood to speak to the group in his own way. Mr. Wood complied by

commenting about the work done during the conference by the supervisors, consultants, guest speakers and the vocational agriculture teachers. Statements of praise were made to cooperating businesses and manufacturers.

SECTION II

SPEECHES INCLUDED FOR REFERENCE PURPOSES

PROPOSED GUIDELINES FOR SUPERVISED PRACTICE PROGRAM IN AGRI-BUSINESS

By
Dean Gaiser

The State of Florida, Department of Agriculture, tells us that Florida's agri-business is the State's biggest business. Agricultural economists coined the word "agri-business" to define the income generated by crop and livestock production plus the income of all businesses associated with or dependent on agriculture. We are talking about a business with annual sales of more than three billion dollars and a total investment of 10 billion dollars.

The vastness of this business points up the need for a relationship between Vocational Agriculture and Distributive Education. Distributive Education is a program of instruction in distribution, marketing, and management. We currently limit instruction to those who are employed in a distributive occupation. These occupations are those followed by proprietors, managers, or employees engaged primarily in marketing or merchandising goods and services. Such occupations may be found in various business establishments including retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing.

In view of the employment restriction, the program operates in the high school and in the post-high school on a cooperative basis which involves a combination of classroom instruction and supervised on-the-job training. The curriculum is directed to the occupational objectives of the students. This objective may be in a product area such as food merchandising; it may be in a service area such as housing in the hotel and motel industry; or it may be in a function such as retailing or wholesaling. The high school is generally found to have an objective such as retailing; while in the post-high school program, product or service objective may be found.

A student youth activity known as the Distributive Education Clubs of America is an important part of both the high school and the post-high school program. This youth activity takes the form on local chapters which become part of a local program. These chapters are organized in 50 of the states as State Associations. These state groups form the national organization which carries on a varied program of youth activities.

A large segment of the enrollment in the distributive education program is in adult education which is designed primarily for upgrading adults employed in a wide range of distributive occupations. These courses are generally specific in their objectives and range in serving employees, supervisors, managers, and proprietors.

Following this brief description of the distributive education program, it might be pertinent to point out certain fundamental approaches which seem to be common to both Vocational Agriculture and Distributive Education.

1. Both programs appear to have a basic belief in career development. The distributive education program recognizes that the job entry is only the first of a series of consecutive experiences which workers in this field perform as they progress in their careers. In the same sense, you in vocational agriculture are preparing young men for careers in rural communities.

2. There is evidence of a kind of entrepreneur approach in both programs. Distribution particularly has been for years a kind of activity in which an individual can engage as a proprietor even though he does not own a business in the literal sense. He has an opportunity to achieve success in relation to his motivation and willingness to work and apply himself. You are educating young men to become farm operators.

3. The club movements in both programs, DECA and FFA, emphasize a common interest in developing both leadership and followership.

4. In the training of teachers, distributive education finds it advantageous to use the facilities of a school of business to develop technical competencies and a school of education to develop professional education. In like manner, your teachers are prepared through combined efforts of the school of agriculture and a school of education.

5. I will not attempt to review in great detail the many activities that were undertaken in a cooperative relationship of some of the states; but I would like to indicate that they have been undertaken in California, Massachusetts, and Pennsylvania with success.

I would like to make some suggestions for your consideration which I believe might result in some cooperative activities which would be helpful in what I believe is our major goal - to develop and extend an improved Vocational Education Program considering each of our specialized fields as part of this major field of education.

1. Initiate relationships at the state level which will improve the State Supervisor of Vocational Agriculture and the Supervisor for Distributive Education for the purpose of determining the state and local situations which might lend themselves to joint activities of the two services. This would be the essential leadership phase of getting underway some joint projects.

2. Undertake some pilot or experimental projects which seem to

lend themselves to the needs of students in a particular community. It is difficult to suggest at this point particular projects for they would suggest that you might like to consider projects in areas which are not being served effectively. For example, the vast agriculture undertakings in Manatee and Dade Counties might be an area of consideration.

3. If cooperative projects are to be undertaken, it would undoubtedly be desirable to consider needed teacher training activities. I do not know how far such activities might go, but it is very possible at some time in the future consideration might be given to preparing teachers who can serve effectively certain communities in both Vocational Agriculture and Distributive Education.

4. The research aspects of this program of cooperation should not be neglected. First of all, any pilot program should be carefully documented and evaluated. Further encouragement can be given to studies which would point up discussions for cooperative projects in Distributive Education and Vocational Agriculture.

5. Some consideration should be given to the development of joint activities among the two youth groups. An interesting development might be to involve the officers of all the youth groups at the Annual State-wide Leadership Conference. Vocational education has never presented the full impact of the worthwhileness of the youth groups which have been organized in the various fields of vocational education. FFA and DECA could take a needed step in this direction.

The following is a proposal for experimental cooperative agriculture distribution program for Florida senior high schools:

1. Training objectives should be employment in the distributive phase of agriculture or in the distribution of goods and services that are closely related to the production of agricultural goods such as farm implement dealers, nursery, feed and/or seed dealers, fertilizer chemical dealers, etc.

2. Prerequisites for entrance into this program shall be a strong foundation in the vocational agriculture at the 9th, 10th, and or 11th grade levels. Seniors only will be enrolled.

3. Students in this program should be approved by the Vocational Agriculture teacher and the Distributive Education teacher-coordinator based on an analysis of the student's interest and potential for success in the distribution aspects of agriculture.

4. The student should be scheduled for one period of instruction with the Vocational Agriculture teacher daily. Content of this period will be devoted to subject matter related to the student's training objectives and his immediate occupational information needs. A subsequent period in the morning would

be conducted by the Distributive Education teacher coordinator. This class would be devoted solely to the agriculture-distribution students. During this period, students would be given instructions in marketing and merchandising methods. Particular emphasis would be placed on the relationship of these disciplines to the area of agricultural products. In addition to credit received for classroom work, a unit of credit would also be given for 540 hours of completed occupational experiences.

5. Placement of the student for on-the-job training would be cooperatively arranged by the Vocational Agriculture teacher and the Distributive Education teacher-coordinator.

6. Both teachers would assume responsibilities for visitation on the job. These visitations would serve to bring into focus the need for specific classroom instruction.

7. The on-the-job supervisor should prepare a report for evaluation of the student's work performance each six weeks in consultation with the Vocational Agriculture and Distributive Education teacher.

8. The elementary responsibility for assigning a letter grade for the occupational experience shall rest with the Distributive Education teacher after consultation with the Vocational Agriculture teacher.

9. The student would be permitted to participate in the co-curricular activities that are provided through both FFA and DECA chapter programs.

10. The state staff of the Vocational Agriculture and the Distributive and Cooperative Education sections of the State Department of Education would provide consultative services to the programs through visitations and in-service training conferences.

11. The teacher-coordinator of Distributive Education and the Vocational Agriculture teacher should prepare an evaluation of the program at the termination of the first year of operation and recommendations for future operation of the program.

In summary, I can assure that we, in the field of Distributive Education, would be pleased to have an opportunity to cooperate with Vocational Agriculture educators in any part of the state in undertaking cooperative projects which would help to further the Vocational Education Program.

EXPERIENCES IN MAKING AGRICULTURAL SURVEY

INDIAN RIVER JUNIOR COLLEGE
By
Dr. Maxwell King

Purpose of Survey --

-- was to determine that need for technically trained persons in agriculture in the 4-county area; to determine opportunities for future employment of trained persons; the specific courses or areas of study deemed essential by the prospective employers; study and recommendations for facilities for the establishment of the desired programs.

Advisory Committee --

Composed of three prominent and knowledgeable men from each of the four counties involved.

-- Chairman was elected.

-- Study Director was member of the college staff.

Techniques of Surveying --

-- Questionnaire - submitted to committee for criticism and constructive reactions -- "Do the questions mean anything to you, and if so, what?"

-- Survey Sample
Firms employing agricultural and agriculture related employers

-- List of firms selected from the Florida State Employment office, telephone directories, as well as contacts from the Advisory Board members.

Questions asked:

1. Would your business needs be met to a greater degree if your employees could obtain additional educational training taught at the college level?

2. What job classifications do you now employ and how many do you anticipate employing in the future?

3. Which agricultural related job positions do you think could profit from additional college training?

4. What courses or subjects do you think would be of the most value to agriculture students?

5. Other comments.

New Survey -- to be conducted this year.

Plan for Survey --

. This time we will not mail questionnaires. We plan to train students (under the College Work Study Program) to go out into the community to conduct the survey. Interview form would be made available to these students.

-- Continue to try to find out what subjects, courses, or techniques should be taught to these agriculture students.

-- Find out job classification needed.

-- Number of employees now employed.

-- Number needed in next five years.

Involve more people including the county teachers of vocational agriculture.

PROGRESS OF AGRICULTURAL CHEMICALS SAFETY PROGRAM

By
Forrest E. Myers

Our objectives in the next few minutes are as follows:

1. To report back to you on some of the responses we have received from people outside of Florida concerning our "Training Guide - Safety Kit for Agricultural Chemicals"

2. To review Florida's latest giant step in the field of chemical education known as the "County Chemical Education Group" effort.

This will take a little scene setting. In short, I feel our cooperation on the above project is paying dividends. Here are some slides.

You will recall that we distributed it to each of you and discussed the background for the training guide at your Annual State Conference last July in Orlando. It had been developed on guidance from your state staff with its main objective being to give agricultural teachers a useful tool for working with students in this vital area of chemicals education.

Your evaluation of it in area conference in September of 1964 indicated we successfully met that objective, and that it would also be useful for working with many other groups, individuals and programs.

This was quite gratifying. You may also be interested that when the training guide was explained to the Florida Rural Health Committee, Dr. L. L. Parks, Director, Bureau of Local Health Services, Florida State Board of Health, requested that we find some way to make a copy available to all county health officers. This we were able to do by holding most of our own staff to one guide per county. This added up to at least three guides in every county, with the bulk of the supply with agricultural teachers.

We sincerely hope you are continuously putting it to the uses indicated by your evaluations. As you know, what we do in the area of chemicals education is watched very closely. We can afford to do only the best job possible. We must pioneer, and proceed on the soundest base possible.

Our other cooperators in the training guide, for example, USDA, FDA, NACA, PHS, FARI, e. g. have expressed great interest in what you are attempting and appreciate your efforts in behalf of chemical education.

What you are doing is also of benefit in helping people in other

states get programs underway. For example, most of you have likely seen the description of the guide in the April 1965 issue of NACA News and Pesticide Review. This goes to about every individual in the country having interest in agricultural chemicals. This article had its origin in getting some of the materials made available for your kit. In fact, NACA took on the job of securing supplies of some of the hard-to-get items because they saw merit in the project, believed in what we were attempting, and asked at that time for a summary for publication when we had some tangible measure of the value. This is good for Florida.

We've had inquiries on it from many other states, yes, even other countries ... e. g. British Columbia, Portugal, Australia, and Philippine Islands. Other U. S. requests have included foreign agricultural advisors, Extension and Vo-Ag workers, Army Medical Laboratory, public health advisors, industry specialists, Ag college instructors, college of pharmacy library, etc. You can readily see that not only you but many others can get good mileage out of what's done in Florida. We must always provide good leadership and sound programs in chemical education.

Now let's move to our second objective, Florida's County Chemical Education Groups.

Another giant step in the field of chemical education is underway right here in Florida today. Some of you are already a part of it as a designated representative of vocational agriculture from your county.

We want the participation of all of you and every key organization necessary to the success of this cooperative undertaking.

First, some background information to set the scene.

You know that Florida's favorable environment is attractive not only to people, but to pests that cause economic and public health problems. Safe use of chemicals has made possible our vital role in the Nation's food supply and healthful indoor and outdoor living. There is, at present, no other practical replacement for chemical pesticides.

We are faced with the need for continuous educational efforts in the proper use, disposal, handling and storage of pesticides. This is a need related to agriculture and to every home in the state.

Florida's agricultural chemical safety educational program is second to none. Through our Experiment Station System, inspection by the State Department of Agriculture and FDA, it is on a sound research and regulatory base. Much of what has been done (Residue research, mobile pesticide labs, information center, pesticide schools, etc.) has been relayed to other states by national groups as a model of what they might adapt or undertake.

Our most recent step is a very significant one, which should be known to especially agricultural teachers. It is building local educational programs, around local people. It is founded on creating better understanding of chemicals thorugh education, rather than an alarmist approach.

About every county in the state now has what is known as a County Chemical Education Group. This is a coordinated effort initiated last fall by the Florida Agricultural Extension Service, the Florida State Board of Health, Florida State Department of Agriculture, Vocational Agricultural Education, and industries' Florida Agricultural Research Institute. Many other interested organizations and individuals are involved in each county. No other state has made such an advancement in the chemicals area.

Here are some slides, covering our rationale, objectives, DARE projections, and some continuing questions these groups face.

The real strength lies in others who are cooperating or are a part of these groups. Some examples are: producers, garden clubs, industry chemists, research and diagnostic workers, salesmen, druggists, veterinarians, medical doctors, nurses, Extension Advisory Committee, Farm Bureau, aerial applicators, lawn spraymen, nurserymen, home pest control operators, caretakers, mass media, community leaders, school lunch workers, Chamber of Commerce, civic clubs, county commissioners, women's clubs, city administrators, agency employees, and many others.

The objectives of these efforts include:

--- improving identification of problems and developing effective solutions.

--- stimulating educational efforts on a local basis around local people.

--- accelerating procurement and use of educational aids, programs, personnel, and activities.

--- increasing awareness and understanding on the part of the public, organizations, interests, etc.

--- directing emphasis to specific audiences or situations including positive side of chemicals and precautions.

The County Chemical Education Group is an excellent resource in terms of trained people, teaching aids, and literature in conducting educational programs.

What do these groups do? One in Collier County recently climaxed a Pesticide Safet Contest with a fish-fry at which winners were honored by the community. Early one Tuesday morning, an Extension Vegetable Specialist met with members of the Putnam County group and some tractor drivers for a session on proper use. That night our Extension Entomologist met with a group of salesmen in the Indian River area at the request of a county group. The next day the Dade County group met to review a new film with possible use to their program.

Here are some other examples of county group efforts:

--- Demonstration to be put on at 4 or 5 locations throughout the

county aimed at the operators of spray equipment...planning to use an English and Spanish speaking team. A more sophisticated program will be for owners, managers, and other key personnel.

--- Check situation re various outlets such as grocery stores, drug stores, and variety stores... put up posters and distribute publications through these retail markets.

--- Assign group members task of developing ways to reach civic clubs, women's clubs, schools, vo-ag classes, 4-H, and scouts.

--- Ask banks to distribute handouts and publications through bank statement mail; handouts and envelope stuffers mailed in monthly statements to customers via industry.

--- Agent secure extra copies of "Chemically Speaking" for key members of County Chemical Education Group; assemble a good library of references for the group.

--- Arrange time on local TV program widely viewed in area where civic panel interviews guest experts; chemicals exhibit at fair. (We've even seen I Love Lucy on prime Thursday, 7:30 PM time, held off the air for a special on pesticides via one county group's efforts.)

--- Members of the group make presentation at series of junior high pesticide educational periods.

--- Home demonstration agents and 4-H clubs to bear down on home storage, medicine cabinet, etc., clean-up, lock-up, and label-up program.

--- Representatives of group to meet with management and offer information and assistance on how they could instruct their customers on safe use.

--- Hold county-wide information meetings of officials, community leaders, group members, and other interested---including discussion by expert on identified problem; develop one-day seminar.

--- "Using Pesticides Safely" color slides (and handouts) from agent to Vo-Ag members for use with students and civic clubs, then to be turned over to another instructor until all have used.

--- Proclaim a County Pesticide Safety Week, show films at all schools, distribute "Dennis the Menace" to students, show films to civic clubs, use envelope stuffers, Garden Clubs and Women's Clubs, distribute material and have Safety Program, use full page ad in newspaper.

--- Locate central storage sites in agricultural areas for highly toxic pesticides, arrange periodic pickup for proper disposal.

--- Utilize home calls of nurses, sanitarians, etc. to include proper use and storage of pesticides information and comments.

--- Organize group for specific functions: screening-, information-, public relations-, safety-, school program- sub groups.

--- Use community approach to form local groups around towns, type of agriculture, etc., supplement and cooperate with county groups.

The message of proper use, disposal, handling and storage of pesticides is one needed throughout every community and home in Florida. The educational challenge is tremendous; all available help and interest is encouraged.

We want each of you to join with us in a continuous cooperative educational program. Help by your individual efforts, find ways to support county groups, lend active assistance to your designated Vo-Ag representative, and keep others informed of your interest at the local level.

Yes, we feel our cooperative projects in chemical education are paying dividends. Thank you for this opportunity of reviewing our progress.

SPECIAL VOCATIONAL PROGRAMS FOR THE DISADVANTAGED

By
C. L. Lowman

The Vocational Education Act of 1963 offers vocational educators along with all educators, the greatest challenge and opportunity yet bestowed on education. On them has been placed the responsibility of providing for the occupational training needs of all people of all ages who want and need education and training for occupations that match their interests and abilities.

Section 4, part (a), item (4) of the Vocational Education Act of 1963 states funds are to be used for vocational education for persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program. Also included in Section 4, part (a), item (6) are ancillary funds which include among other items, funds for special demonstration and experimental programs. Included in Section 13 of the Act are funds to support a program of work-study for youngsters in need of such support to continue or begin their vocational training.

Within the act lies the possibility of providing for the occupational training needs of special groups that have not had adequate vocational education opportunity in the past. Previously, the employment needs of these special groups were met to some degree by the possibility of low-skill level jobs or possible induction into a branch of the Armed Forces. Today automation has done away with most of the entry or low-level types of jobs and higher requirements by the Armed Forces have tended to eliminate the possibility of induction for individuals with little education or skill training.

Who are the Disadvantaged?

The word disadvantaged is an all inclusive word which encompasses many different handicaps possessed by individuals. When we use the word in this content, we are referring to those individuals who have not been able to tune their ways of living to the spirit and practice of modern life. This condition or situation may have been caused by their cultural environment, race, physical condition, mental ability, emotional stability, or any combination of two or more of these factors.

The following list includes some of the groups that are generally considered to fall into the disadvantaged classification.

The Puerto Rican
The Negro
The Mexican-American
The American-Indian
Migrant workers
The sick and/or disabled
Those living in extreme rural areas
Those unable emotionally to meet the strain of our complex indus-

trial system
Those living in economically depressed areas such as certain coal mining areas or where human and natural resources are no longer required by industry

Characteristics of the Disadvantaged

Disadvantaged Americans are characterized by being on the outside of the mainstream of American life and limited as to their opportunities to develop their potentialities to the fullest. These limitations are the result of family income and educational and occupational background and in many cases, local or national origin. These factors set into motion a cycle of cultural, educational, and economic deprivation.

There is strong evidence that the individuals classified as disadvantaged have a tendency to perpetuate their condition from one generation to the next. Those born into such a situation may never find their way out unless society breaks the cycle by providing educational and employment possibilities and adopting a more enlightened attitude in human relationships.

The individuals classified as disadvantaged are often thought of as being part of "the other America", an America that few of our citizens are familiar with. Most citizens have few dealings across ethnic or racial lines or few reasons for relationships with members of "the other America". Their personal experiences would lend little to establish a basis for understanding of their fellow citizens and in many cases they have little concern for the welfare of others. Yet all that many of the disadvantaged need to enter the mainstream of American life is a measure of encouragement and support in their efforts.

The following are some of the characteristics that the disadvantaged display:

Low-level reading ability
Limited formal vocabulary
Poor speech and diction
A negative intellectual attitude
Slow in intellectual performance
Poor health habits
Reluctance to accept responsibility
Apathy and lack of self-confidence
Limited social and cultural experience

These negative characteristics combine into a situation of limited academic talent possessed by the disadvantaged person. These persons in the past were encouraged to leave school at age sixteen or before, and in most cases found employment in some type of unskilled work. Today business and industry does not want this type of person and because of lack of employment opportunity the youngster is forced to stay in school. The resulting situation in school is that of disadvantaged youngsters expect to take a watered-down version of the college-preparatory curriculum, sometimes called "general education". This curriculum is not

compatible with their interests and needs and the result is an unsatisfactory program plus a faculty that is frequently unsympathetic and sometimes hostile.

Elements of Strength of the Disadvantaged

Most of the programs devised for training and education of the disadvantaged tend to attach the weaknesses or deficits while very few attempt to build on the strengths of positive features of these special groups. The fact that an individual is slow in school does not necessarily indicate that it is dull, but may indicate that he is extremely careful, cautious, or meticulous. Much emphasis has been given to speed in our culture and in many cases has caused many persons to be left behind in their education.

The fact that the disadvantaged are not as verbal as other students leads us to believe that they are non-verbal. Yet in many cases they are highly verbal in out-of-school situations. It would seem that advantage could be taken of this kind of verbal ability.

Research has indicated that the disadvantaged have a positive attitude towards education but a negative attitude towards school. They realize that they are second class citizens in the school and react accordingly. It would seem that their positive attitude towards education could be used to an advantage.

Many of the problems of understanding the disadvantaged person stem from the fact that he is not oriented to our middle-class or above type of culture and we in turn are not oriented to his cultural level. Much attention needs to be given to understanding the disadvantaged person before we can actually understand what his problems are and in turn plan programs to assist him in gaining entrance to the mainstream of American life.

Vocational Education's Responsibility to the Disadvantaged

Federal aid to vocational education prior to 1963 was directed to meeting specific occupational needs in specific occupational categories. This prevented vocational education from making on optimum contribution to the economic growth of the country by causing vocational education to set such standards and qualifications as to disqualify many potential students. In most cases the disadvantaged person was eliminated.

The passage of the Vocational Education Act of 1963, with its modification and expansion of previous vocational education legislation, has offered the opportunity for many persons to now have the possibility of occupational training to meet their specific needs that were not met before. Those having special needs such as the handicapped, are specifically identified as one of the groups to be served. This has real meaning in planning different types of training programs geared to the special needs of the socio-economically handicapped, the educationally handicapped, the physically handicapped, the mentally handicapped, or other identifiable handicaps.

The planning of new types of programs to meet the occupational training needs of special groups has real implication for close working relationships with other existing educational agencies having concern for the special needs of individuals. These other agencies may include Special Education Guidance, Vocational Rehabilitation, Research, General Education, and others having a concern for the special needs of people.

Program planning to meet the special needs of the disadvantaged should include concern for the total educational experience of the youngsters including both general education and vocational education. In many cases, basic education will be necessary in order to prepare individuals to take advantage of occupational training. The basic education may be in the form of remedial class or special class work preparatory for special types of occupational training.

Planning for the occupational training needs of special groups should not be limited to the more conventional types of vocational offerings, but should include programs that are geared to meet the special needs of individuals. These may include completely new types of training programs, offered in completely new administrative patterns, with joint responsibility with other existing agencies having concern for the educational needs of individuals. In most cases programs will be experimental in nature and therefore should offer the possibility of trying new approaches and new techniques.

Types of Programs Possible

In spite of the fact that there are many negatives involved in the characteristics of the disadvantaged, there are nevertheless many positive factors in their favor and they can be motivated and can become proficient in situations that interest them. They are willing to do the accepted thing and be rewarded for their efforts. Most important to the disadvantaged person is that someone <u>really cares</u>.

It is felt that programs may be started in the junior high school with youngsters of 14 years of age or older. These programs should emphasize remedial basic education where needed that closely relates to vocational training of a general nature, rather than a specific type of vocational training. It is important to treat each student as an individual case in order that more specific job training can be offered as soon as the student can take advantage of it.

Programs developed for persons having handicaps of a specific nature, such as a physical handicap or for persons with limited mental ability, can be planned with a specific, repetitive type function in mind. Since they are limited as to the function they can best perform, programs can emphasize specific job training. It is still most important that the general education received should relate as closely as possible to the vocational training received.

Programs planned for older youngsters can be more specific in nature depending on the ability of the youngsters to take advantage of the training and also in terms of employment possibilities in the placement area. Consideration should be given to the overall educational

and training experience of the youngster while he is in school. Therefore, planning should include a progressive program including a number of steps that progressively advance a person to full-time employment. An application for funds may include a plan for offering only one of the steps or may include an overall plan of job training for disadvantaged persons.

Funds for program operation for the training of adults classified as disadvantaged may also be obtained. The procedure for a grant request would follow the same pattern as for in-school or out-of-school youth.

Program planning should not be limited to the possibility of conforming to conventional vocational training, but should be in terms of meeting the occupational training needs of individuals. As long as the plan is educationally sound and contributes to the occupational training of individuals, there is a good chance for funding.

Maximum Class Size

Persons having special needs demand more individual attention than the average, therefore it is strongly recommended that classes contain no more than 15 students. This will allow the instructor to get to know the individual student better and therefore plan to better meet his individual needs. The individual needs of a class will vary considerably necessitating instructors to plan on an individual basis in most cases. This would necessitate considerable time in gathering materials, in developing materials, and in planning at a level that the student can best begin and progress in his work.

Classes involving students for physical education or other activities of a large group nature could exceed the recommended 15 maximum. In many cases it would be well to have the students mix with the rest of the school students as much as possible in order to assist them in feeling that they are a part of the total school student body and not an unusual group.

Home Visitations

Home visitations would greatly assist instructors in gaining valuable information about the student's home environment and in turn assist in the individual planning for the student. The home visitation will also give the instructors the opportunity to meet parents and/or guardians and acquaint them with program intent. Group guidance or counseling sessions with parents may very well develop as a result of home visitations. These sessions would not only acquaint parents with the program but could also assist parents in improving their home environment which would make conditions more inducive to learning for the student. The envolvment of parents with students in special projects may greatly enhance the educational process.

Steps in Filing a Project Proposal and Grant Request

Following the identification of a group of individuals having the

need of special vocational training and visualizing a possible plan for providing the needed training, a request for funds to operate the proposed program may be made on form VTAD-2, "Project Proposal and Grant Request". This form includes directions for the completion of the form and the inclusion of attachments covering the nature of the project and people to be served, need for the project, description of the project, and cost factors. Form VTAD-2 is submitted to the State Director of Vocational, Technical, and Adult Education in triplicate along with triplicate copies of all attachments. The grant request is reviewed by the Project Coordinating Committee in terms of the value of the project's contribution to the education and occupational training of the special group. Depending on the judgement of the Project Coordinating Committee and the availability of funds, a grant may be made to the county to assist in support of the project. Notification of the Project Coordinating Committee's action will be made on one copy of the Grant Request and returned to the county. Funding will be for one fiscal year beginning on July 1st and ending June 30th. The project may be renewed subject to Project Coordinating Committee's action based on further review, the success of the project, and the availability of funds.

When completing a request for funds to operate a special vocational program, it is strongly suggested that all details of the project are covered completely in order to give the Project Coordinating Committee a complete picture of the proposed action. The reverse side of the VTAD-2 form contains directions for the completion of all necessary attachments. When the writing of a project is completed, it may be read by a county staff person not familiar with the idea of the project. If that person does not understand a part of the project proposal, that is an indication that sufficient detail has not been included and that portion of the project should be rewritten.

Necessary Information to be Included in the Attachments

1. Nature of Project and People Served

   This portion of the project should include a detailed description of the group to be served including their characteristics and the basis for grouping them for this project. A general overview of the project should be included indicating the courses to be offered in both vocational and general education. The bases for selection of the vocational courses should be given, indicating whether done as a result of research studies, interest inventory, employer survey of job opportunties, etc. The general education courses to be included should also be described with the basis for their inclusion.

2. Need for Project

   Background information should be given pertaining to the county school program in general and more specifically, what is or is not being offered for persons of the type described to be served in this project. Information pertaining to studies made identifying

persons with special needs should be included as well as information concerning other agencies involved in providing for special needs such as Special Education and Vocational Rehabilitation. Any surveys done in the community indicating placement possibilities or employment needs should be described. Attitudes of county staff and teaching personnel as to acceptance of the need for this project should be indicated. Any and all information indicating the need for this project however minute, should be included.

3. Description of Project

The information included in the attachments pertaining to the description of the project should be in detail and describe the organization of the project as to classes in vocational education as well as classes in general education. Information should include how, when, and where the courses are to be offered and how the general education courses support or relate to the vocational training. The details as to how the students will be scheduled that describes how the students will be selected for certain types of vocational training and how that training will progress to eventual employment. Course outlines should be included for each occupation for which training will be offered.

Qualifications of the personnel to be used in the project should be included. This information should include the basic certification requirement of a valid Rank III, Florida Certificate, plus any special competencies that an individual should have in order to instruct the class or training program. Personnel to be used in counseling, testing, supervision, or any supportive role should be included and information as to their expected qualifications should be included. Positions should be described as opposed to describing certain individuals in mind because positions remain constant while personnel change.

Supportive educational competencies needed for each type of occupation training should be outlined. The basic academic skills with their application should be described. The plan for orientation to the world of work should be outlined as well as outlining the simple work-related skills necessary for all employees. Necessary social skills to be developed should be described and related to the gaining and holding of a job. The necessary performance skills to be developed in each occupation for which training is to be received should be outlined in terms of those necessary for job entry.

Included in the attachment pertaining to evaluation should be copies of the instruments to be used in gathering individual information. Any special techniques such as case studies, interviews, or observations should be described. The total evaluation function should be outlined from the beginning evaluation used to select students for the project, the in-program evaluation, to the evaluation to be completed at the end of the training program. Any followup evaluation to be done should also be described.

4. Cost Factors

The attachment including the budget should include a detailed listing of items of equipment and/or supplies requested. The listing should be done by type of occupational training program. If you are to include three different types of occupational training programs in the project, three separate equipment lists should be included. Duplication of items for two or more training programs should be avoided.

Also included in the budget, should be salary and travel items as well as custodial, secretarial, utility, and miscellaneous items. All expenses that are to be paid by the county pertaining to the project should be itemized in detail. Pro-rated portions of supervisors and/or teachers salaries should be included as well as any other pro-rated expenses. Careful consideration should be given to the budget and its items and counties should avoid including items of equipment and/or supplies of less than $10 per item as they will not be approved.

THE CONSERVATION OF HUMAN RESOURCES

By
Dr. E. T. York, Jr.

The conservation and development of our natural resources is a matter of great concern throughout our society. We hear much about the conservation of our soil, water and wildlife, for example. I think we could all agree that these conservation efforts are tremendously important.

But I would like to talk to you about another type of conservation, which in my judgment is far more important--the conservation of our human resources. These are by any measure our most precious resources. This is, in my opinion, our nation's number one conservation problem and need.

In the beginning, I would like to make clear what we mean by conservation. To some, "conservation" means saving or protecting in a rather restricted sense--it means laying something away or putting something "on the shelf", so to speak. This is not a meaningful concept of conservation--whether we are talking about soil, water, or people. To conserve means to avoid waste. This in turn suggests that true conservation involves using resources in such a manner as to avoid waste--using them in such a manner that the greatest good can be derived from them. It is within this context that I want to talk about the conservation of human resources.

Of course, the thing which makes human resources so unique and so valuable, is the human mind and its power to think, reason, and to generate new ideas. The mind is not an exhaustible resource--the mind is enhanced--it becomes more valuable with use.

In this age of great technological development, we tend to overlook or minimize the power of the human mind. In the early days of our space program, there were strong advocates of using machines rather than humans to pilot our space crafts. In pointing out the advantages of using human beings, one of the astronauts made this point: "Where else can you find a device that can make an infinite number of calculations in a short period of time, that weighs less than 180 pounds, and that can be mass produced by unskilled labor."

I am sure I don't have to impress upon you the value of education and its role in developing human resources. We have made great strides in education in recent years, but we yet have a long way to go.

Inadequate education and training are at the root of some of the great problems facing our society today. The poverty problem we hear so much about is in essence an educational problem. More than 1-1/2 million unemployed people today have less than an eighth-grade education. People so ill-prepared are at a great disadvantage in today's highly skilled labor market. And they will become progressively more disad-

vantaged as the nation pushes itself towards even greater technological achievements.

Education is, of course, expensive. Will Rogers once said, however, that the only thing more expensive than education was ignorance. We should recognize that education is an investment which pays handsome dividends to the individual, the state and the nation.

For example, a recent study has shown that a person between 45 and 54 years of age today who had less than an eighth-grade education--would have annual earnings of less than one-half the amount he would have received had he completed high school. Furthermore, the same study showed that with a college education he would be making almost twice as much as he would if he only finished high school.

Our government spent a lot of money in supporting the educational endeavors of veterans of World War II. I recently figured that I have already paid back Uncle Sam through increased income taxes between two and three times the amount he spent on me under the GI Bill (based on the higher income growing out of this education).

A prominent University of Chicago economist has calculated that for each dollar spent for all education, there is a return of about 17¢ per year--a 17 percent return on the investment.

I cite these economic considerations to respond to those who contend that we cannot afford essential education services. We can ill afford not to develop our human resources to the fullest possible extent.

I don't mean to suggest that everyone should get a college degree. However, our goal should be that of providing every individual with the opportunity to secure that education and training which is best suited to his ability, and which can enable him to make the greatest contribution to society.

This may involve Ph.D. training as a theoretical physicist, or may involve training as a specialized mechanic or technician. A rocket may blow up on its launching pad because the designer was incompetent, or because the mechanic who adjusted the last valve was incompetent. Someone has made the observation that we must have excellent plumbers as well as excellent philosophers--otherwise neither our pipes nor our philosophies will hold water.

Of course, our soil, water and other natural resources are all in some respect limited. But we have never yet discovered the power and the potential of the human mind. We can only cultivate it, train it, educate it in a continuing expansion of the one resource on which God has put no limit.

But the conservation of human resources involves much more than education and training. We are experiencing a great loss of human resources today, resulting from factors other than a lack of education.

In the last 30 years, particularly since the great floods and dust storms of the mid 1930's, we have been appropriately concerned about soil erosion and we have done something about it. As a nation, it is high time that we became concerned about a different type of erosion--far more insidious and dangerous. I am speaking of an erosion of our moral fiber, and concepts of honesty, integrity, justice and fair play-the wearing away of many of our basic principles which have contributed to the greatness of our nation, the loss of respect for law and order--an eroding away of our belief in the dignity and worth of the individual.

This is a problem which focuses upon our young people for two reasons--first, because this is where the losses begin and where they are most acute, and second, because we are becoming a world of young people. Over half the people on earth are below the age of 21. In this country by 1966, over half of our population will be below 25.

Let me cite some of the evidence for the type of losses to which I refer--losses which are preventing the full and most fruitful development of these most precious of all our resources.

We see wide-spread disregard if not contempt for law and order. FBI reports that serious crime is increasing in this country at a rate 5 times as fast as the population--and that the greatest increase is occurring among youth under 18. For all serious crimes committed in the United States in 1963, youthful offenders were responsible for a staggering 72 percent of the total arrests for these crimes.

Let me quote J. Edgar Hoover concerning these alarming statistics. Mr. Hoover said: "What a grim and unhappy commentary on the moral climate of this great nation. The moral strength of our nation has decreased alarmingly.

"These shocking statistics together with the publis's apparent indifference to them are indicative of the false morality we are tolerating today .... This breakdown in our moral standards can only render us impotent as a people and as a nation .... We must return to the teachings of God if we are to cure this sickness."

We see growing evidence of this immorality to which Mr. Hoover refers. The Association of University Women Deans and Counselors devoted an entire issue of its publication to "Student Sex Standards and Behavior". The gist of its several articles by some of the most respected authorities in the field was that student sex behavior has become a national problem "unacknowledged, unsavory, and unsolved." Dr. Terry, the Surgeon General, indicated recently that each day 1500 young Americans--mostly teenagers--became new victims of venereal disease. The sale of pornographic material has become a $2 billion annual business in this country--with most of it being directed to teenagers.

There is wide-spread rebellion against many of our basic institutions. Many of the old-fashioned and time-honored concepts of honesty,

loyalty, patriotism, courage and thrift are considered by many to be outmoded, and those who practice them are looked upon as some sort of "odd ball". A recent survey made by Columbia University indicated that of all students questioned in some 99 colleges, more than half of them cheat.

We see a rather wide-spread rebellion in any of our universities against authority. We have in recent months seen a group of young people contribute to complete turmoil and chaos in one of our nation's greatest universities, through their defiance of long-established rules and laws, and their disregard for even reasonable standards of conduct. They express the view that only those rules and laws which they themselves consider to be acceptable would be obeyed.

I could cite many other examples of this type of erosion of our respect for authority, moral principles and basic beliefs, but I doubt if it is necessary. And I want to make it clear that what I am saying is not an indictment of young people generally. We know that many, many of our young people are just as fine today as any who ever lived. Yet no one can dispute some of the serious trends to which I refer.

Why are these things happening? Young people are inherently no different than their parents or grandparents. The only reasonable explanation for this is that young people and their behavior tend to reflect their environment. And those of us who contribute to that environment must accept the responsibility for what it is producing.

Young people do not assimilate values by merely learning the meaning of such words as honesty, morality, and justice. They learn attitudes, habits, and ways of judging in personal relationships with those around them. They do not learn ethical principles, they emulate ethical or unethical people. That is why young people need models of what man at his best can be.

The Swiss philosopher, Amiel, said: "Every life is a profession of faith. Every man's conduct is an unspoken sermon that is forever preaching to others."

It is surprising, therefore, that there should be growing disrespect for authority, law and order by young people, when large groups can, at will, disregard certain laws under the label "righteous civil disobedience", and actually protected if not encouraged in their efforts by some of the highest officials in the land. Is it surprising that young people should ignore rules and laws, when a well-known figure in our country today--the recipient of a Nobel Peace Prize--should openly defy a federal court order, because he thought it "unjust"?

Specific disobedience such as this breeds general disobedience as was evident some months ago in the disasterous riots in New York and New Jersey--when mobs ran wild in the streets--completely unresponsive to law and order. This is completely contrary to the concept of a government of law. There can be no laws to which obedience is optional. Law and order are the foundations under which successful government must stand. Without law and order, society will surely destroy itself.

Is it surprising that there should be cheating and dishonesty by students when the newspapers are full every day of examples of cheating and dishonesty on the part of prominent people in public and private life--a State Supreme Court Justice being sent to prison for evading his income taxes--a man occupying one of the most important positions? Congress, being charged with influence peddling, accepting bribes, and other dishonest and immoral acts--with this man refusing to reply to questions put to him by a congressional committee on the grounds of "possible self incrimination".

These are just some of the "unspoken sermons--forever preaching" to our young people and constantly influencing their behavior.

Our educational institutions have a great responsibility to do something about this--a responsibility to contribute not only to the development of the student's mind but to the development of his character and moral fiber as well.

Our schools must spell out high standards of behavior and let it be known that everyone is expected to abide by these standards. The failure to do this is at the root of some of our problems today. Young people are often not sure what society expects of them--what the standards of behavior are. Contrary to what some believe, I don't think young people want--and I'm sure they don't need--the sort of freedom which too many schools and colleges are providing today.

Of course, rules and regulations will not in themselves solve the problem. The desire to behave morally and ethically must be instilled in these young people. The big task is that of challenging young people to have an intellectual understanding of the place of moral and spiritual values in their lives.

Recently one of the largest religious groups in the nation asked the President to call a White House Conference on public morality "to study ways to halt a weakening of the moral fiber of American Society". And one of the specific actions was an appeal to educators to stress "chastity, honesty, personal goodness, and integrity" in their teachings.

In addition to helping to instill in our young people by precept and by example, a sense of moral, spiritual, and ethical values, our schools and colleges must also do more to give these young people an appreciation of their great American Heritage--to instill in them a feeling of patriotism and loyalty to their country.

Today, I sometimes think that patriotism has gone out of style. Those who express their love of country are often looked upon as right-wing extremists--or to say the least, some sort of "square". Let me quote from an article which appeared in a recent issue of a student publication of one of our Midwestern colleges, entitled "Nix Patriotism". This article stated: "Patriotism is an emotion that is marked by igonrance, stupidity, prejudice, autism, fear, and hostility."

It was a great shock to all of us during the Korean conflict to

see so many of our young men surrender to the enemy without a fight and denounce not only their comrades but their country as well. We have even seen some of these traitors return home after a few years with the gall to petition their government for back-pay--pay for the period in which they were carrying out their treasonable acts.

How and why does this sort of thing happen? I think this is happening because these young people have not been given a knowledge and appreciation of their Heritage--they have not been introduced to the great heroes of American History--they have no knowledge of these men to pattern their own lives after--to guide their own conduct.

Today we see many schools and colleges doing away with American History as required work. And even the courses which are offered are in many cases relatively sterile and ineffective.

This Week magazine made a survey recently of school history books issued before 1920, compared with those issued since. Nathan Hale's classic statement, "I regret that I have but one life to give for my country" was in all of the old texts, and only one of the new texts.

Patrick Henry's ringing declaration, "Give me liberty or give me death", was in twelve of the fourteen earlier texts, and in only two of the forty-five more recent ones.

But John Paul Jones really set the record. He said, "I have not yet begun to fight" in nine of the old books--his historic statement was found in none of the new ones.

Arnold Toynbee, the famous historian, has said that of 20 notable civilizations, 19 perished not from external conquest, but from evaporation of belief within.

"Evaporation of belief from within"--isn't this at the root of many of the difficulties I have discussed?

A University of California sophomore put it this way--"I don't believe in anything--but I believe against a lot of things".

A chaplain in one of our western universities made this observation: "All too prevalent on the college campus today is the teacher who delights in the destruction of traditional ideals and values, without any balanced appraisal in the beginning or replacement of intellectual security at the end of this devastating process."

I don't mean to sound critical of our educational institutions. I am indeed proud to be a part of this great educational mission. What I do say is the form of constructive self-examination. We must always be willing to look at what we are doing and if we have faults, weaknesses or short comings, we must be willing to make whatever adjustments might be called for.

In my judgment, our schools and colleges are doing an excellent

job from the standpoint of academic and technical training. However, I am afraid we have been far less successful in helping to install in our young people the sense of values which might give their lives greater stability and more purposeful direction.

This is by no means the sole responsibility of our educational institutions. It is a responsibility we must all share. This is a type of conservation we all can practice--in trying to avoid the tragic waste of human potential--in providing conditions under which young people can develop mentally, physically, morally, and spiritually in such a way that they can live rich, full lives and make their maximum contribution to society.

This is conservation in its finest and most meaningful form--this is the type of conservation which offers great returns--because, and I close with these familiar words: "Inasmuch as you have done it unto one of the least of these, my brethern, you have done it unto me."

VOCATIONAL GUIDANCE: THE ROLE OF THE LOCAL AGRICULTURAL TEACHER IN HIS SCHOOL AND COMMUNITY

By
Eddith Montgomery

Vocational guidance, the oldest area of the general field of guidance, was developed within the first decade of this century, the idea of the orignators being to help some persons find jobs and to assist others in finding better jobs. These early workers soon came to realize that it was necessary to counsel with the whole person--his hopes, prejudices, aims, and ambitions, as well as with vocational and personal problems. This reference, of course, is to the history of the formal organization of the guidance movement. Informally, parents and teachers have always been important participants in vocational guidance. Wise parents have always sought to help their children to establish themselves as productive members of society. Not all efforts have been wise. Parents have sometimes tried to realize their own ambitions through their children. Nor have teachers always acted wisely. They have been known to place their own interests and subject matter above the individual's interests and welfare. More often than not, however, when a successful person has been asked why he embarked upon his chosen career, he has referred to some significant other, frequently a teacher, who influenced him during the formative years to enter the field which led to ultimate success.

No one sensitive to the occupational trends of this decade can under-rate the importance of the mastery of the basic knowledge and skills of general education to the choice of a vocation. In speaking of vocational education, Mr. Bailey stated in an address to the Chief State School Officers that the best vocational education we can give a student is to teach him to read. I expect each one of you would agree with him from your own experience. Gone is the day when it would suffice merely to teach the agricultural worker the mechanics of hand skills. The worker of today must be able to communicate--to read, to express himself with clarity and to deal effectively with the fundamentals of mathematics and science.

You know far better than I that the expensive equipment in use on most farms today requires considerable mechanical ability for operation and maintenance, and more than the minimum supporting skills of readin', ritin', and 'rithmetic.

The role of the agricultural teacher begins with his role as a classroom teacher with all the responsibilities and opportunities of any classroom teacher. Here I wish to digress to pay respect to the excellent classroom teacher as the single most important influence in the educational structure. The excellent classroom teacher feels the responsibility for every student in this sphere of influence, regards him as a unique individual and has tolerance for his uniquenesses, accepts him as a person of worth, capable of becoming better than he now is, regardless of his present classification. How prone we sometimes are

to categorize--these are the gifted, these the average, these the slow learners, herding human beings, our most precious resource, into groups much as we might our cattle, and consider our job half done now that they are branded. Then we measure out the carefully balanced feed to the gifted, the average to the average, and turn the slow learners out to pasture--or in your county perhaps the tables are turned. It is difficult and time consuming to work effectively with individuals, but I like the way Neil Postman expresses the idea in the Introduction to the Teacher Edition of The Uses of Language:

> "Education in a democratic society, rather than trim all the students to form neat hedgerows, must nurture the growth of widely different and individualistic plants. Of course, this makes for an untidy garden, and it creates all kinds of problems for the gardener. But the resulting brilliance and diversity are worth all the trouble."

As an excellent classroom teacher he has respect for and is master of the subject content of his field. His enthusiasm for his subject is contagious, but he is sensitive to the needs of his students. One of the local agricultural teachers expressed it well when he said:

> "I respect high standard and strive for high standard, but I do not want to hold my standards so high that I leave the boys."

Dr. Harold Benjamin, distinguished visiting professor at University of Southern California, addressing the Conference of School Superintendents last semester on the intriguing subject "Revolution by Education in the Twenty-First Century", spoke as if he were reporting on education in the year 2065, and referring to excellent classroom teachers, he said,

> Professional teachers on all levels of schooling in 1965 thought that education was a matter of changing the learner's attitudes, helping him develop a drive to achievement, and giving him the fullest possible opportunity to acquire his own individual style of learning and living ... The heart of the school process was now a system of studying each lerner to discover his uniqueness, developing his strenths so that they would obliterate his weaknesses, and fostering the drive he required to reach his goals.

In addition to his responsibilities as an excellent classroom teacher, as an agricultural teacher he is the representative of one of the oldest, most honored, and most essential of all vocations. Let him not forget that the vocation is being evaluated through him and the image he gives it. He has met the requirements for certification, but the excellent teacher also represents his profession well--he is able to handle his language--means of communication both written and spoken, with correctness and clarity, and his dress is appropriate to the occasion, the task, and the circumstance. Young people are great imitators and emulators. Each individual's representation of the profession in general may either attract or repel.

The agricultural teacher is a member of a team and has the same responsibility for the effective operation of the team as does the English teacher, the mathematics teacher, or the science teacher. Because the location of the physical facilities of the agricultural department is often removed from the building in which most of the activities of the school take place, either the agricultural teacher or the other members of the staff may tend to operate independently of the other. It is difficult in a large school to foster close relationship with all members of the staff, but education in the secondary school should not be so compartmentalized that there seems to be no relationship between the various subjects and departments. The English department and the agricultural department have much in common. The ability to read, the correct, concise, clear expression of one's language in order to communicate agricultural information and ideas are functions of the agriculture class as well as the English class. Naturally the agricultural teacher is not expected to be an expert in the remedial aspects of teaching, but he can assume his responsibility for teaching reading agriculture, writing agriculture, and performing the necessary number skills which apply to agriculture. Wendell Johnson observed that you can't write writing. Similarly, you can't read reading. Just as different forms of writing require different competencies, different forms of reading require different competencies. The mathematics department and the agricultural department have much in common. The science department and the agricultural department have much in common. If you would aid vocational guidance, let your influence as a strong member of the team be felt on your facilities. Remind them of the changing role of agriculture and acquaint them with the opportunities for members of their specialties in agriculture.

Especially would I urge you to work closely with the guidance department. Few schools in Florida are staffed with guidance counselors in the recommended ratio of students to counselor to permit them to do well all of the responsibilities required of them. The role of guidance is sometimes misunderstood, and improved communication is greatly needed. Guidance counselors really are not all like the plump female outlined in the coloring book published by one of the book companies last year. The caption read:

> This is the Guidance Counselor. She gives all the good students to the teacher down the hall. Color her a vile color.

If you haven't tried it, drop in for a friendly and informative chat with the guidance department. I believe you will find that they want to help you individualize instruction, to help you meet the needs of your students, and to help direct the students to you who have the greatest interest and can profit most from your course of study. And if you find that you have a student who is not responding to your best efforts, you can sometimes get help from the guidance department; if not help, you will have a fine chance to let off steam. If you have a student who is outstanding and needs a scholarship this is a good place to get information. Counselors need to know what is going on in your department in order to know how to help students find what they are seeking. Counselors also identify needs that are not being met, and

and you may furnish the means of finding the solution.

The agricultural teacher as a member of the community finds places of service to the community through church, civic, and service clubs and assumes leadership roles when opportunities present themselves. He serves as consultant to adults of the community either as individuals or in groups as they seek his specialized knowledge.

Mr. Johnson invited me to meet with the Orange County agricultural teachers recently to give me a chance to gather some suggestions to bring to you today. It was a most rewarding experience for me. It gave them a chance to say some things they had wanted to say about guidance personnel, and it gave me an opportunity to see ourselves as others see us. I have also talked with some guidance counselors since that meeting. Some suggestions from the counselor's office include:

1. Be realistic in planning the programs to be offered. In adapting the content to meet present needs, give some thought to changing the designations. For example, it is not uncommon to find young people with high interest in outdoor activities, plants and animals, respond negatively to the course called Agriculture I or Agriculture II, but do respond entusiastically to a course called "Forestry".

2. One of the most difficult problems of the guidance counselor in Orange County is finding a course of study suitable for non-college bound student, one with high interest level and yet not beyond his ability. Because of the nature of your course--laboratory type course and the opportunity to individualize instruction, the agricultural teacher has one of the most important roles in the modern secondary school. This teacher has an unusual opportunity to become the significant other in the lives of young people that others cannot reach. To avoid the pathos revealed in this piece of original writing from a creative writing class composed of less than shining stars in the academic realm. The class assignment was to write the words for a Blues tune. It goes like this:

   Went to see the teacher; gotta pass this test.
   Went to see the teacher; gotta pass this test.
   She said, "Ain't any use, son, you flunk like the rest."

   Today we got report cards; gotta take them home.
   Today we got report cards; gotta take them home.
   Ain't any use to, my old man's always stoned.

   Leaving home forever; 'cause nobody wants me there.
   Leaving home forever; 'cause nobody wants me there.
   Find another family, someone to really care.

3. Work with the administration and department chairman to revise and improve curriculum.

4. Since so many of the vocational opportunities in the broad field of agriculture require college preparation, the agricultural teacher can serve as resource person to other members of the faculty. He

can make his own classroom and laboratory an attractive area to appeal to all students who have an interest in his field and give them individual information. He can furnish specialized professional information to faculty and students. He can sponsor assembly programs. He can maintain a bulletin board with current information about opportunities in agriculture.

5. One of the most effective procedures in vocational guidance is to provide the opportunity for a person to try out on a temporary basis. Through his contacts with the business community he can help place students in part-time or temporary jobs. In short, all that can be done to help students know more about themselves and more about occupations will help them find that most satisfying place to spend the large portion of one's life which is to be devoted to his vocation.

Summary

We have attempted to make some general statements about vocational guidance, about the role of the agricultural teacher as a classroom teacher, as a member of the whole school team and as a participating citizen in his community. Some suggestions were offered for agricultural teachers in working with all members of the school.

CHILD LABOR LAWS

By
Harry Garvin

Thank you, Mr. Wood. I appreciate having been given the opportunity to talk with you all.

I had the occasion to visit with some of the teachers of vocational agriculture this past Monday, and had quite a discussion with them. I believe, one of the facts brought out, was that every county and even the larger cities in a county have different child labor problems. And as many child labor problems as there are! There are that many questions.

A pamphlet was passed out to you, called "The Florida Child Labor Law in a Nutshell". Many questions in your mind are, no doubt, answered in this pamphlet. One of the main purposes of the Florida Child Labor Law, is to keep children in school as long as they can profit by continued education. The uneducated children of today are the unemployed of tomorrow, and children who "follow the crops" are usually more educationally disadvantaged than the boys and girls who attend regularly and follow the school program.

The State Legislature sets a 16 year age minimum for the employment of children working in agriculture during school hours and this applies to migratory workers as well. All states have child labor laws and most have school attendance laws. In many cases the employer is also under the United States Department of Labors Fair Labor Standards Act.

From time to time, survey teams make inspections in the fields, and all employers who are illegally working minors, are in violation of the law and such offense is a misdemeanor, and punishable, as explained in your pamphlet. We, however, take the premises, that it is far better to educate than to eradicate and with it in mind, in making our field surveys, we ask that the employer comply with the law in the future use of minors. We find very few, who are chronic or flagrant violators.

To many, any law implies a deterrent to activities. It is not and never was the intent of the Child Labor Law to do anything other than implement the employment of minors between the ages of 12 and 18.

Minors between these ages, regardless of whether or not they are in school, must secure a work certificate, sometimes called a Work Permit. An original of this certificate, which is issued through the school system, must be in the hands of the employer. The certificate does not constitute a permission of employment or work. Its purpose is to show the age of the minor as shown by school records and also calls to the attention of the employer the hours of legal employment for the minor named. There are very few exceptions to the rule, but one of these exceptions, which I am sure you would be interested in, is minors

employed in agriculture. When so employed, they do not need a certificate and the hour limitations removed, however, no minor under 16 may be employed during school hours, nor is he permitted to do any of the hazardous occupations listed on page 3 of "The Florida Child Labor Law in the Nutshell" pamphlet.

Please note also, the addresses listed on the back of these pamphlets. I assure you that if any time you have a question and will address a letter of call any of the offices, you will receive an immediate response.

While there is no requirement necessitating a certificate for a minor working in agriculture neither is there any law against it. Therefore, we ask the school authority, in the event the employer or the minor, requests such a certificate, that it be issued. An example of such certificate would be, that of the minor working for a citrus packing plant. While this may be agricultural in nature, the packing plant does not necessarily fall in the category of exempt agricultural occupations.

Any employer, whose crops or products, go either directly or indirectly, into interstate or foreign commerce, as in the case of a farmer who sends his product outside the state or delivers his product to a canner, processor, or dealer who he knows or has reason to believe, will send it outside the state, either in its original form or as an ingredient of another product. For example: orange growers, who send their oranges to a cannery within the same state are covered by federal regulations, if the canned orange product made from their oranges, goes out of the state would fall under Federal Rules and Regulations. Under the federal requirements, no minor under 16 may work on a farm during school hours. Now this may seem to be a contradiction between the federal law and the laws of the State of Florida. At the bottom of page 2 in your pamphlet, it states that a minor under 16 may work during school hours, when such employment has been determined as necessary for the maintenance and support of the family. In such cases the county superintendent of schools may issue a certificate to minors 14 or 15 years of age. But such certificate would be valid only to the employer who does not come within the meaning and requirements of the Federal Government's Fair Labor Standards Act. To those of you who may be interested, this is Child Labor Bulletin #101 and #102, revised, February, 1962, and issued by the United States Department of Labor, Regional Office, Atlanta, Georgia.

I would prefer that we do not refer always to the term Child Labor Law, but "Supervision of Employment". Using this phraseology, we very easily will see the reasoning behind the law. I believe, at this time, it would be appropriate to ask if there are questions?

SUGGESTED GUIDELINES FOR UTILIZING AGRICULTURAL MECHANICS SHOPS FOR OCCUPATIONAL TRAINING

By
Clarence J. Rogers

In approaching this subject I think we had better define occupational training. I am assuming that occupational training means training for the off-farm agriculture related occupations or jobs that you have been hearing about this week. All of the occupations are not located off the farm but they are not strictly production activities that you have been training for in the past.

You have been told that Agricultural Machinery, Agricultural Supplies and Ornamental Horticulture shows the probability of hiring the largest number of persons in the next 5 years. To break this down further, let's take agricultural machinery alone and divide it into various segments of jobs. These are Agricultural Machinery mechanics, Agricultural Machinery mechanics helper, Agricultural Machinery parts man, Agricultural Machinery service supervisor, and Agricultural Machinery delivery and set-up man. These are the types of men industry has said they need. There are others that we might name such as Agricultural Machinery operators and maintenance men who would be employed on the farm.

However, the point I want to bring out is that the occupations just named will require a higher degree of skills and competence than has been taught in vocational agriculture in the past. It is estimated that the required time for training might run from 300 hours for a set-up and delivery man to 2000 hours for tractor mechanic.

Now lets get back to the subject at hand, guidelines for utilizing agricultural mechanics shops for occupational training. What are some of the things we are going to have to do if we are going to train our students for some of these occupations. Let me say right here vocational agriculture departments are not ready to train for all of these occupations. Keep this in mind as we go along. Ask yourself which ones you could teach in your department?

The first thing I think you will have to do is study the occupation for which you will be training people. What does this employe r or this segment of industry require, in the way of skills, knowledge, related agriculture, etc.? After all of this has been determined the shop will have to be organized to accomplish the objective.

Perhaps part of the shop can be set up to resemble as close as possible the actual working conditions the student will encounter later. You must bear in mind, however, that you still have other students that will be using the shop. These students that you are training for occupations will probably be 3rd and 4th year students.

Equipment will probably be one of the most important items to con-

sider in this program. In a recent occupational survey a big criticism was that schools training technicians were not using up-to-date equipment. We all know this problem, once a shop is equipped, it is pretty hard to get additional or new equipment. In fact, there are many shops in the state that have never been properly equipped for the strictly agriculture production program we have been teaching. In this program it will not be adequate to teach a student how to lap or grind valves with a piece of string rather than the right tool. Training the students to be proficient in welding cannot be done with the one welding machine most of you have in your shop at present. Study the tools and equipment you will need and teach the student how to use them.

Your reference library will have to be expanded greatly to satisfy the needs of this man. He will have to be able to read blueprints and make drawings. Safety will have to be stressed more than ever. Not that it is anymore important now but this man will have to not only know safety but practice it. All types of visual aids will need to be utilized, film strips, slides, movies, charts, and mock-ups, and visual aids. This is one area which has been greatly neglected. If I may, I would like to demonstrate a new visual aid to be used in teaching small gas engines.

There is one other item I would like to mention. Are you satisfied to teach these off-farm occupations? Some of you are perhaps, others perhaps some part of the occupation. Please do not misunderstand me. This is not a reflection on anyone. You were not trained to do this teaching. What I am trying to say, is approach this with caution, don't jump into it too quick. There will be pilot programs all over the country, Florida included; there are curricula being developed which can be used as a guide. Perhaps our role will be to show the student the opportunities in these occupations and give him some preliminary training for post high school work.

I hope I have not sounded too pessimistic but the avenue opened by the Vocational Act of 1963 for Vocational Agriculture to go into training for off-farm occupations will require a lot of planning and changes in the years just ahead.

NEW DIMENSIONS IN RURAL AREAS DEVELOPMENT

By
Dr. M. O. Watkins

I appreciate very much this opportunity of bringing you up to date on what is happening in Rural Areas Development here in Florida, and nationally, as it affects Florida.

Perhaps, before discussing the present and future in this broad planning effort, it might be helpful to look briefly at the past to refresh our minds on the what and the why of Rural Areas Development.

As most of you know, Rural Development has its beginning in the middle 1950's. The then administration became greatly concerned and viewed as a national problem trends and directions in many of the rural sections of the United States. National leadership was greatly concerned about the fact that many communities and rural areas were drying up, losing population, with resulting deterioration of public school systems, churches, community services and community life in general.

The Rural Development Program, then, had as its original objective a nationwide effort, at first on a pilot basis, to reverse this trend in loss of population from rural areas by attempting to provide additional job opportunities through industry and otherwise for those people who were having to move, the speeding up of agricultural development there so that incomes would not decline, and in general the effort was to reverse the decline in the economies of these rural areas, and to start economic development, economic opportunity, and in fact, advancement on a broad front in rural communities.

Here in Florida, our first state committee was formed in 1957 with membership from some 30 organizations and agencies having concern for rural people and rural programs. Two counties were established on a pilot basis, Suwannee and Washington, in an effort to see what might be done in reversing the trend in economic decline in rural areas.

Later here in Florida additional counties were added as interest grew among people. In 1961, when President Kennedy was inaugurated, his administration felt that the Rural Development program was one of the most successful in the Eisenhower administration and decided to further broaden and expand it. The name was changed to Rural Areas Development. The new administration indicated that, with slight modifications, the original objectives could be changed and expanded so that Rural Development would apply to any county in the United States. A structure of committees and other organizations covering an entire state was envisioned with the objective of planning for the development of resources in each county, of solving problems which limited the development of a county, and through both group action and individual action, work toward the solution of problems involving both rural decline on the one hand and urban expansion on the other. These committees would function on both county and community basis, as well as

statewide, and would develop understanding of potentials and opportunities for the people and development of their resources. Technical assistance would be provided through the Technical Action Panels, made up primarily of USDA people. Rural Areas Development would be a people's program which would work on problems which people themselves were concerned with. It would include work with all organizations and groups in the county interested in this development. It would include work on many different fronts, such as the following:

Development, conservation and use of land and water, forest and wildlife;
Development of human resources;
Development of institutional resources and community services;
Development of business and industrial resources.

Educational and organizational work was pressed upon the Extension Service. However, we need the cooperation of you, Vocational Agriculture teachers, and others like you, in the counties as we continue to expand this effort.

Under the administrations of President Kennedy and President Johnson, the Area Redevelopment Act became a reality providing funds for industrial development expansion. In rural areas, this Act was applicable only where incomes were lowest and unemployment was highest. The Act did give a boost to bringing in new industries into rural areas and to providing new job opportunities for rural people.

In more recent months, the Economic Opportunity Act has been passed and this also has had tremendous implications for enlarging upon the objectives of Rural Areas Development.

A quick rundown on the present situation here in Florida and the developments nationally which are of concern to us here in Florida might be of interest to you. At the present time there are 19 counties in the state with Rural Areas Development committees. These committees may not be called Rural Areas Development committees and this is of no concern to us. Some are called Resource Development committees; others Rural Areas Development committees, and so on. There are 21 counties which have received assistance under the Area Redevelopment Act, two more than we have RAD committees in. These two counties are Franklin and St. Lucie.

We have over 1100 county committee members in the 19 RAD counties, and over 600 people are on subcommittees. Area committees are functioning in two broad areas of the state, one in the Suwannee River Valley area and one in the western part of the state. There are some 60 area committee members.

Some 20 counties have completed an overall economic development plan for their respective counties. Seventeen more are in the process of working on such a plan so you see that overall economic development is being worked on in some counties where there is no overall planning organization. At the last report, some 52 projects in the RAD counties

were in the planning stage. Some 100 projects were being developed as the result of resource development committee activities. At the present time some 45 projects are in the process of being implemented. Some 97 projects have been completed since July 1961. I think we could say that success in terms of meeting original objectives had ranged from excellent to fair.

Quickly let's look at some of the new developments which are taking place which are of direct concern to Rural Areas Development and the philosophy of broad planning for resource development through some organized approach to problem solving.

The Civil Rights Act reminds that all groups in a county should be represented including minority groups. Very recently at the national level the Rural Community Development Service was established. This Service replaced the old office of Rural Areas Development in the Department of Agriculture and the new Service is designed to plan for better coordinated and more closely integrated programs. The objective is to provide more comprehensive solutions to the problems of rural people in rural communities. The thought is that package programs combining the services of not only all USDA agencies, but other branches of the Federal Government as well, would be designed to deal in a very comprehensive fashion with problems of rural citizens in rural communities. The objective here is that through coordination, the various services and programs will reinforce each other. The result will be a multiplying effect beyond what could be expected from the same efforts if each were working in a different manner on the same problem. The new head of the Rural Community Development Service in Washington is Mr. Robert Lewis, who was formerly with the ASCS. It is planned that the Service will have representation in the various states, and the major objective will be an attempt to have within the hands of one individual complete information on all programs which could provide an impact on any given problem. This person in each state would be an implementor. We would be able to not only point to a source of help but also provide contact with that help.

Developments with respect to the Economic Opportunity Act are of considerable significance. Several of the Rural Areas Development counties were proceeding to incorporate their county RAD committees so that these committees could receive funds and disburse them in carrying out a community action program designed to speed up the economy of a community. A ruling by the Office of Economic Opportunity recently in effect said that counties with less than 25,000 population would need to combine with one or more other counties to bring the total number of people involved up to the 25,000 minimum before funding could be provided. Those counties that were in the process of incorporating are now having to back up and take a look at the possibility of combining with others. One such combination has already been effected. Washington, Holmes and Walton counties have organized what they call Walco, Incorporated. Their separate proposals for funding under the Economic Opportunity Act have been combined into one. In the Suwannee County area discussion is now underway on the possible combination into two groups of about eight counties. In the Walco, Incorporated, area of

Holmes, Walton and Washington, I understand that plans are well underway to employ personnel who will devote full time to this planning job. The local people will be responsible for hiring and supervising these planners.

The State Rural Areas Development Committee now includes some 39 different members. It recently added Dean C. E. Walker of Florida A&M University; Dr. S. E. Hand of the Division of Economic Opportunity; Governor's Office; Mr. Charles H. Olgilvie of the Industrial Development Corporation of Florida; and Mr. Robert H. Doyle of the East Central Florida Regional Planning Council to its membership. A meeting this fall is now being planned by the steering committee.

An organization for planning in urban areas has been difficult to develop. In those counties where there is no Rural Areas Development committee, we are now working intensively with county agents on the setting up of an overall planning committee which would deal with problems involving agricultural rural resources. The DARE effort which Provost York initiated here in Florida, and which incidentally has the wide support of both rural and urban groups, will fit into this development very nicely, as we project to 1975 the agricultural development of each county of Florida.

In closing, let me urge those of you in RAD counties to continue your active support and assistance to this overall planning effort there for the development of your community. Those of you in counties not presently organized will be hearing about the overall planning effort within the next few weeks if you have not already done so. I would hope that you would give this your complete support for without it we can certainly not accomplish nearly as much.

Thank you for the opportunity of being with you, and best wishes for a successful meeting.

SECTION III

REPORTS OF WORK GROUPS

Reports of the nine work groups follow. The reports were considered by the total teacher group on Friday morning, and except as indicated in the several reports, all recommendations given were approved.

Work Group 1. What Should be the Pattern of Agricultural Instruction?

Chairman - Carl Rehwinkel, Ocala; Secretary - J.L. Simmons, Plant City
Consultants - W. T. Loften and M. C. Gaar

Recommendations

1. Explore agriculture in 8th, 9th and 10th grades as in agricultural science study, and develop interest so that the student might be prepared to specialize in the 11th and 12th grades, Ag. I - Basic agricultural sciences; Ag II - Basic agricultural sciences.

2. 11th and 12th grades - options of specialization

3. Schedules - double period classes should be scheduled for the 3rd and 4th year

4. One policy when specialization begins - get specialized instructors (three teacher department - have two specialize).

5. Vocational agriculture teachers should be more conscientious and increase public relations with parents

6. No agricultural course should be made compulsory by the administration - only an elective course

7. Laboratory facilities will depend upon type of department - where located, etc. - cities - supervised experiences

8. Equip departments with proper teaching devices that lend themselves to educational uses

9. Serious thought should be given to class enrollment (15 minimum per class)

10. A copy of agriculture teacher's course of study should be presented to guidance counselors in high school

11. Research - teachers should survey the needs and opportunities in the community. (Each department single out a study or area for study and help - have students to help)

12. Students - Those who want and can profit by the instruction.

Do not lower the standards of the course - keep your course on a high level.

Committee members not shown above:

J. B. Green'	Johnny Lockett
Andrew W. Brown, Jr.	Bob Croft
Edward P. Ealy	Richard L. Gavin
Glenn Alexander	George H. Brown
Travis O'Bryan	Gene Bailey
Wayne Trawick	James E. Strickland, Jr.
Herman D. Melvin	L. H. Terrell
Floyd J. Ledbetter	Grover Howell
A. G. Driggers	J. L. Simmons
Alton A. Harrison	Carl Rehwinkel
William C. Prinz	R. E. Jones

Work Group 2. Guidelines for Programs in Agri-Business and Agricultural Occupations

Chairman - Robert Hargrave, Gainesville; Secretary - George Busby, Jacksonville

Consultant - Dean Gaiser

Recommendations

In developing guidelines for program in agri-business and agricultural occupations, we feel that attention must be given to the following aspects of program development.

I. Objectives

A. Thoughtful attention should be given to the selection of the students to be served by the program. This involves a thorough understanding of the agriculture world of work and needed competencies.

B. In addition, attention must be given to how people learn, grow and develop.

II. The experiences selected to prepare students to enter and advance in agri-business and related agricultural occupations should be determined by and related to the identified objectives for the program.

III. Emphasis must be placed upon an organizational structure which will take into consideration all aspects of the total school curriculum and its relationship to the students occupational goals in agri-business and related agricultural occupations.

IV. It should be recognized that the value of a program is determined in a great measure by the effectiveness of a continuous process of evaluation.

It was the feeling of the committee that the program developed will be effective as those who work in the program come to understand in depth the relationships that exist between and among the areas indentified above.

Committee members not shown above:

W. E. Priest
J. R. Meeks
S. L. Brothers
John St. Martin
Bruce Howell
Julius G. Peterson
Elvin B. Williams
Lloyd Stalvey
Jimmy Harrell
John D. White
O. Tucker
Eddie S. Johnson
Ernest O. Washington
Ronald Russell
Alfred Howard
H. A. Henley
L. Warren Harrell
Jack E. Russell
Wm. R. Holbrook
Glenn Wade, Jr.
Robert C. Holley
DeWitt C. Crawford
Otis Bell
Clarence W. Walker
Robert Hargrave
George W. Busby

Consultants:

L. A. Sims
Dean Gaiser
L. Warren Harrell
Stephen Dimond
Raymond Lee

Work Group 3. What Should be the Guidelines for Agricultural Patterns of Instruction to Young Farmers, Adult Farmers, and Post-High School Students

Chairman - Vincent Jones, Live Oak; Secretary - John Wetmore, Ft. Pierce
Consultants - Owen Lee, H. E. Wood, Larry Sutton

Recommendations

It was first decided to classify the various types of adult classes to be taught in agriculture. They are:

1. Adult classes for pre-employment as well as in-service training
2. Young Farmer Classes
3. A. V. A. Classes and
4. Post-school, which would include junior college training

The objectives discussed for Adult Classes are:

1. To meet the needs for individual improvement
2. To improve the image of vocational agriculture in the community
3. To improve the standards of living.

It was generally felt that one of the greatest needs for instruction was in Farm Management. Mr. Bobby Bennett of Farm Bureau stated that his office would be glad to schedule Adult Classes and assist in this area. He reiterated that it would probably pay for a farmer grossing $14,000 to use the electronic data processing which Farm Bureau provides.

The committee discussed various ways of making surveys in order to discover problems and to recruit members. Various types of news media and questionnaires were talked about and all helpful, but it was generally agreed that personal contact was the most important way to making a survey.

Mr. Wood reminded the committee that excellent Adult Classes could and had been set up by using specialists through the Agricultural Extension Service. Chairman Jones emphasized that length of meetings were important in holding students - that women liked shorter class times than did men.

Reference was made to the Summary Observations of National Young Farmer Study, found in the February Newsletter.

Work Group 4. Evaluating Local Programs

Chairman - Quentin Duff, Miami; Secretary - J. W. Brown, Sneads
Coordinator - G. C. Norman; Consultant - E. C. Eikman

I. The Objectives

A. To study and analyze local programs of Vocational Agriculture

B. To discover basic problems in local programs

C. To recommend and suggest ways and means of making local programs more effective

D. To make evaluation a continuing process

II. We recommend that the state staff develop criteria or guidelines or instruments along the following lines:

A. Present facilities

1. Classroom
2. Shop
3. Office
4. Land laboratory
5. Other facilities

B. Course of Study (including leadership training in F.F.A.)

C. Student - teacher ratio

D. Attitude of administration

E. Instructional materials (on hand or available)

F. Follow-up records

G. Condition of facilities

H. Use made of facilities

I. Local policies

J. Class schedule (including size of each)

K. Teacher preparation

L. Groups to reach - secondary school, post-high school, adults, disadvantaged youth, drop-outs

M. F.F.A. program

N. Summaries of recent surveys to determine current needs and future outlook

Members not shown above:

L. A. Potts
Frank D. Humphrey
E. C. George
J. H. Elkins, Jr.
J. A. Lawson, Jr.
O. R. Farish
Donald E. Hurst
O. Z. Revell
Roger J. Ussery
Jacques D. Waller
J. W. Brown
Nehemiah Bowers
H. Q. Duff
E. C. Eikman
G. C. Norman

Work Group 5. What Qualification Patterns Should be Set Up for Occupation Teachers on Grants in Regards to Recruitment, In-Service Training, and Certification

Chairman - John Stephens, Bushnell; Secretary - Kenneth Lee, Alachua
Consultants - Dr. Nielsen, L. A. Potts, B. B. Archer, Dr. K. Eaddy

The question directed to group five (Agricultural Education Research) was, "What qualification patterns should be set up for occupation teachers on grants in regard to recruitment, in-service training and certification?"

We interpret this question to mean that we should devote our attention to a consideration of some criteria to be used in the recruitment, certification (or pre-service training) and the in-service educational programs for teachers of agriculturally related occupations.

The committee, under the chairmanship of Mr. John Stephens; and the consultative services of Dr. Nielsen, Dr. Eaddy, Mr. L. A. Potts,

and Mr. B. B. Archer, deliberated at length upon three areas; namely (1) recruitment of teachers, (2) pre-service training programs, and (3) in-service programs.

In regard to the three areas, the secretary in summarizing the numerous comments made by the group, identifies the following pertineht points:

1. In order to establish meaningful programs of related occupations, there should be provided qualified and certified teachers to staff the program.

   a. To secure an adequate staff of well-trained personnel, the present teachers of Agricultural Education, Guidance Counselors, Teacher Educators and others must accept, as a challenge, the responsibility of guiding, informing, acquainting and in every way encouraging promising youth with rural and/or urban background to pursue a college curriculum leading toward full certification for teaching the agriculturally related occupations.

   b. We realize the urgency of obtaining personnel to fill the immediate need of present and pending programs and recommend that careful consideration be given to (1) the use of individuals from business and the professions who are partially certified to teach, work or advise in the needed areas; (2) the use of student assistants in existing agricultural classes --- through the use of student assistants it is anticipated that their interest can be aroused to prepare for the profession of teaching agriculturally related occupations.

   c. Interested teachers and others may be recruited to teach agriculturally related occupation courses and fellowships, scholarships and stipends could be used to help encourage re-training.

   d. In the pre-service education phase of teacher preparation critical thought and careful attention should be given to insure the inclusion of both technical agriculture and professional education course work. The kind and extent of the course work and other experiences are an extremely important consideration. Much attention and emphasis has been and will be placed upon the development of programs founded upon research projects funded through the 1963 Vocational Education Act. Teacher Educators, Administrative and Supervisory Staff members should secure from the following sources available information to be used as guidelines in planning, developing, testing and evaluation of proposed programs. (See attached list of programs.)

   e. In-service programs of education should be provided to keep teachers and other staff members professionally quali-

ified if programs of instruction are to be improved. Departments of teacher education should organize clinics, workshops, courses of study and institutes thorughout the state as a means of providing guidance and opportunity to all vocational agricultural teachers, supervisors, and administrators to continually improve themselves professionally.

In summary we would recommend that consideration be given to the areas of recruitment, pre-service and in-service training programs. We believe that creative thinking on the part of teachers, administrators, supervisors and the lay-public coupled with information available from pilot, experimental and demonstration centers will aid in the development of meaningful programs in the above mentioned areas; which in turn, will enhance the development of effective programs of agriculturally related occupations.

Work Group 6. Guidelines Challenges

Chairman - Jack Millican, Umatilla; Secretary - Curtis Marlowe, Starke
Coordinator - C. M. Lawrence; Consultant - Eddith Montgomery

Problem: What activities can we recommend to better inform all segments of the public in regard to opportunities for employment through various phases of agricultural instruction?

Before embarking upon the specific problem as stated, some general statements concerning guidance shall be stated:

1. The public needs to be educated to the fact that all students do not possess college capabilities or aptitudes.

2. Vocational and technical occupations play a major role in the American way of life and are honorable occupations.

3. Guidance should meet the needs of the student rather than the teacher desires.

4. All educators are a party to guidance.

5. A quality program in agricultural education will attract quality students.

With the foregoing statements in mind, recommendations as to the specific problem follow:

Segments of the public which need to be informed and guided as to the program offered in agricultural education are, in order of importance:

1. Agricultural education teachers

2. Other educators including administrators and guidance personnel

3. Students

4. John Q. Public

It is imperative that the agriculture education teachers keep abreast of the rapid changes taking place in his program. Only by being well informed and competent can the teacher hope to impart the advantages of his program to others. Methods and activities by which the teacher can become informed are:

1. Keeping abreast of agricultural occupation requirements through current publications.

2. By active participation in in-service programs of both professional and technical mature.

3. By travel, observing agricultural businesses in operation and visiting other teachers and departments.

Other educators, including administrators and guidance personnel, must be informed as to the agricultural education program and its important contribution to the overall educational curriculum if students that would benefit from the agriculture program are to be guided into it. Specific methods for informing this group include:

1. Improving the image of agriculture instruction through acceptable dress and professional attitudes of the agriculture teacher.

2. By having a quality instructional program.

3. By showing an interest in other areas of instruction in the school and cooperation with fellow teachers in the total school program.

4. By inviting teachers of other subject matter to agriculture classes in session and providing open house affair for entire school faculty.

5. By sharing information concerning students that would be of mutual benefit to other teachers.

Students must have a knowledge of the offerings in the agriculture program and the occupational opportunities that they might be better qualified for if they are to seek enrollment in the program. Suggestions as to how the information can be imparted to students are:

1. Providing an exploratory program in agriculture at the junior high school level.

2. Placing in possession of prospective students a course of study outline.

3. Sponsoring group orientation programs prior to enrollment.

4. By personal contact with prospective students and home visitation.

The fourth segment of the populace that needs to be informed concerning the agriculture education program is John Q. Public. For any program to succeed, the general public must believe in it and accept it. After all, Johnny's parents exercise considerable influence in his choice of course selections.

Among the activities to inform the public are:

1. An active citizen's Advisory Committee.

2. Improving the personal and professional image of the instructor.

3. Presenting public programs stressing agriculture program, rather than stressing F.F.A.

4. Sponsoring informal functions such as open house, fish fry, barbecue, etc.

5. Expanding home visitation program.

6. Provide information concerning agriculture program to news media; newspapers, radio, TV, etc.

7. By working through agriculture committees of civic clubs.

8. By using community resource people in the agriculture program.

Finally, any activity which favorably publicizes the agriculture education program and its contributions to the welfare of the individual, the community, the state and the nation will assist in guiding more quality students into the program.

The committee wishes to express its appreciation to Miss Eddith Montgomery and Mr. C. M. Lawrence for their valuable contributions as consultants to this report.

Work Group 7-A. What F.F.A. Activities and Calendar of Events Implicating Merger Will Occur During 1965-66

Chairman - Richard F. Kelly, Inverness; Secretary - H. D. Hudson, Sebring

Recommendations

The committee makes the following two recommendations relative to our committee title and job:

1. That all fairs have a current mailing list of those teachers

of Vocational Agriculture within their participation areas, so as to insure that rules and regulations are available to all possible participants.

2. That the Florida Federation of Fairs through its various publications inform their Fair Managers and Advisory Committees that all participation by F. F. A. Chapters is subject to the provisions of the 1963 Civil Rights Act, and be furthermore informed that all N. F. A. Chapters have been re-designated as F. F. A. Chapters.

The meeting was adjourned by Chairman Kelly at 3:40 P.M.

Committee members not shown above:

F. D. McCormick
O. M. Johnson
Alvin Davis
Richard A. Cobb
John C. Woods
Everett L. Pearcey
Paul E. Cade
Nathaniel L. Storms
J. C. Waldron
W. Carroll McElroy
Lamar Jones
Gordon Walther

Work Group 7-B. What Responsibilities are Involved Which Necessitate Guidelines Acceptable to Both Groups?

Chairman - John Maddox, Wauchula; Secretary - Robert Ford, Orlando

Recommendations

1. A member holding a degree in the N. F. A. should start working toward the next higher corresponding F. F. A. degree, with no penalty involved.

2. State N. F. A. money, now in the Treasury, other than scholarship money, be used to purchase F. F. A. paraphernalia for the N. F. A. Chapters being changed to F. F. A.

Committee members not shown above:

Wm. B. West
Harry Lydick
R. E. Jones
M. A. Tucker
Wm. R. Miller
Ray Pigott
Fred L. Body
Hugh R. Mills
Samuel McCaslin

Work Group 7-C. What Provisions Should be Made for Fair and Equitable Participation in Contests, Awards, Dues, Scholarships, and Financial Accounts?

Chairman - James Edwards, Wildwood; Secretary - Irving Roche, Vernon

Possible problems of integration in merging FFA and NFA events.

Sub-district and District Contests biggest area of discussion. No problems on other events.

1. Determine location of Sub-district and District Contests wisely at January Conference.

2. Teachers use discretion in choosing participants in Sub-district contests and other contests.

3. Take only participants to contests.

4. Eliminate Sweetheart Contest, Softball Contest and Horseshoe Contest.

5. The Quiz Contest from N. F. A. be added to F. F. A. Contests.

6. A study to be made by an appointed committee of agriculture teachers to work out a way to combine the N. F. A. Talent Contest with the F. F. A. Musical Contests.

Work Group 7-D. What Procedures Should be Followed at September Conferences to Implement Recommendations Accepted by the Summer Conference Teachers?

Chairman - Dwight Nifong; Plant City; Secretary - W. R. Jeffries, Zephyrhills
Consultant - A. R. Cox

Recommendations

1. That the Scrapbook Contest, Vegetable Judging, Grading, Identification and Demonstration Contest, Delegates and Advisers Luncheon, Fish Fry, and Band Shell Program be continued.

2. That in the Parliamentary Procedure Contest the terminology be the same as used in Stewart's Handbook on Parliamentary Procedure in all contests from sub-district through State and that someone give the correct answers and procedures to questions and abilities following the conclusion of the State Contest.

3. That the Florida Farm Bureau continue to sponsor the Parliamentary Procedure Contest, and that Mid-States Steel and Wire Company continue to award the special certificates and $5.00 check to State Farmer recipients, and Florida Production Credit Association present the keys to State Farmers.

4. That the maintenance record requirement for the Tractor Driving Contest be eliminated.

5. That the F. F. A. - N. F. A. Scholarship funds be combined and scholarships be awarded to University of Florida and Florida A & M Education majors going into teaching and given upon graduation. (Total teacher group moved to refer the recommendation to a commit-

tee composed of: Carl Rehwinkel, Chairman; Bruce Howell, D.H. Hudson, and E. R. Scott, and Manning Carter. The committee has instructed to meet as soon as possible.)

6. That we accept the action taken by State Convention delegates on String Band, allowing any kind of drums, and recommend that in the Quartet Contest they may be accompanied by one instrument.

7. That the committee work assignments at the State Convention be set up the same as this year.

Work Group 8. Responsibilities and Plans for A. V. A. and N. V. A. T. A. Convention; Combined Agricultural Groups

Chairman - Perry Sistrunk, Miami; Secretary - O.T. Stoutamire, Sebring
Coordinators - Floyd Johnson and Elvin Walker
Consultant - L. A. Marshall

Recommended that the September Conferences designate representatives to the AVA-NVATA Convention at Miami Beach, December 4-10, 1965.

Recommended that State Supervisor write County Superintendent and principals requesting selected delegates and representatives be allowed to attend AVA - NVATA Convention, and if possible, to pay per diem and expenses.

Recommended that a poll of agriculture teachers at this conference be taken to determine who would like to go to AVA - NVATA convention, and give these names to Mr. W. T. Loften to use in helping with plans for convention.

Recommended that Perry Sistrunk represent this committee in explaining committee recommendations to the FVATA, here this week, take the poll and work with Mr. Loften in using the poll results for planning work that needs to be accomplished for AVA - NVATA convention.

Work Group 9. Agricultural Mechanics Competencies Needed to Qualify Prospective Employees

Chairman - Glynn Key, Walnut Hill; Secretary - Donald Farrens, Sanford
Coordinator - Clarence Rogers; Consultant - J.K. Privett

Recommendations

1. In order to identify these competencies, a study should be made in the individual community or area.

2. Data should be gathered through prospective employers, and by study of professional literature on these topics to determine those competencies needed both locally and thorughout the state.

3. Guidance should be provided by the State Department in helping to

set up programs to fit the problems that are identified thorugh these surveys.

4. The committee feels that individual problems in advanced skills will have to be determined as stated above. But that continuation of basic Agricultural Mechanics skills in the early years of Vocational Agriculture should always be emphasized. Especially pertinent is the area of preventive maintenance.

5. The state suggested teaching program is an excellent guideline for teaching the above skills.

6. Careful study of pilot programs should be observed by all interested departments in order that feasible programs can be implemented into working order whenever possible.

VT 002 648

VT 002 648
Occupational Exploration Program Manual of Operations.

Champaign Community Unit 4 School District, Illinois
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 21p.

*PREVOCATIONAL EDUCATION; *WORK EXPERIENCE PROGRAMS; HIGH SCHOOLS; PROGRAM DESCRIPTIONS; PROGRAM ADMINISTRATION; *POTENTIAL DROPOUTS; OCCUPATIONAL GUIDANCE; *PROGRAM GUIDES

The occupational exploratory program of special curriculum and services was designed for high school students who, because of social problems, are unable to make constructive use of their school experience and require the provisions of special services designed to promote their educational growth and development. Social problems is interpreted to mean poor social adjustment associated with factors such as cultural deprivation, educational retardation, population mobility, socioeconomic considerations, and inadequate school opportunities. Pupil elegibility is based on observed social maladjustment, academic retardation, and results of a case conference of professional personnel. The maximum class size is 20 pupils, all aspects of each pupil's program must have 10 semester hours of specialized training in courses such as educational and psychological diagnosis, remedial methods, mental health, abnormal psychology, and advanced sociology. The curriculum is vocationally oriented, functional, and tailored to the individual to the extent possible. Course offerings include English, mathematics, social studies, vocations, and electives. The pupil is involved in a work experience program designed to promote his vocational growth and development by his sequential progression through a work experience laboratory, an inschool cooperative work program, a cooperative work-study program, and a progressive work experience program. The pupil is under direct supervision of a prevocational adjustment counselor and has available to him the services of the Division of Vocational Rehabilitation, social agencies, and school psychologists. The appendixes contain copies of the various record forms needed in operating and administering the program. (BS)

ED027441

OCCUPATIONAL EXPLORATIONS PROGRAM

Manual of Operations

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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DEPARTMENT OF SPECIAL SERVICES
Champaign Unit #4 Schools
Champaign, Illinois

VT 026418

OCCUPATIONAL EXPLORATIONS PROGRAM

Definition

The Occupational Explorations Program is a program of curriculum and services designed for pupils who, because of social problems, are unable to make constructive use of their school experience and require the provisions of special services designed to promote their educational growth and development.

Social problems is interpreted to mean poor social adjustment associated with such factors as cultural deprivation, educational retardation, population mobility, socio-economic considerations, and inadequate school opportunities.

Rationale for the Program

There has been a growing body of concern in recent years about the number of youth who fail to complete high school. Current studies reveal that 40 per cent of American youth drop out before completing high school. There is general recognition of the fact that the very security of our nation may well depend upon the full and effective ulitization of human resources.

Many descriptions of the drop-out prone youth have been offered by various people. The fact is however, that such definitions are usually either too broad or too narrow; too broad because they define the drop-out group as a homogeneous one, when it is not; too narrow because they imply that the problem is mostly an educational one, when it is not.

In order to establish some base for common thought and subsequent planning for drop-out prone youth, it is necessary to formulate a picture of the type of youth we are considering. Rohrer describes the drop-out prone as being characterized as follows: "One who has grown to mistrust other individuals; one who has had no significant adult figure to offer him emotional support; one who has been inculcated with the most primitive kinds of social values; one who has had to turn to peer groups in order to find someone to relate to emotionally; one who has developed feelings of isolation that lead to sporatic 'acting out' in attempts to obtain those relationships; one who because of frustration strikes back at the perceived sources of frustration - authority figures who have failed him or peer groups that have snubbed and enraged him; one who has been forced to grow overly dependent upon overcontroling maternal figures who have not permitted him to develop a sense of self-reliance; and finally one who most of all is seeking out, albeit in an inadequate manner, ways of gratifying his need for affection and emotional warmth."[1]

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[1] Rohrer, John H., The School Dropout, Project: School Dropouts, Washington, D. C., National Education Association, 1964. p. 73

To classify a group of youth exhibiting all or part of the above characteristics in varying amounts and degrees as homogeneous is clearly incorrect. Moreover, to conceive of the solution to the problem of drop-out prevention as being strictly educational is equally incorrect. Somewhere within the milieu of the problems of the socially maladjusted or drop-out prone stands the institution of school with both the opportunity and the responsibility to ameliorate some of the predisposing characteristics of such youth.

The rationale for the Occupational Explorations Program is the need for specialized curriculum and services that will help ameliorate the educational, social, and vocational problems of youth who have been judged to be socially maladjusted within the school setting and who, according to our best judgement, are likely to become early school leavers.

Referral Procedures

Teachers wishing to refer a pupil for possible placement in the Occupational Explorations Program should contact the pupil's Guidance Counselor who may refer the pupil to the Office of Special Services, 705 South New Street.

Following receipt of the Psychological Referral Form, the Office of Special Services will review the case relative to previous diagnosis and service and determine if the pupil needs further psychological examination.

Eligibility

Any pupil exhibiting poor social adjustment associated with such factors as cultural deprivation, educational retardation, population mobility, socio-economic considerations, and inadequate school opportunities may be considered for placement in the Occupational Explorations Program.

Generally, such pupils will test from one to two years below mental age expectancy in the areas of reading and arithmetic, will have a long and gradual decline in overall grade patterns, will be exhibiting anti-school or anti-social forms of behavior, and may possibly be openly expressing plans to withdraw from school.

Final eligibility is determined by a case study fully reviewed by professional personnel in a case conference. Such professional personnel should include teachers, a school psychologist, the school social worker, the director of Special Services, a representative of the building administrative staff, and the program supervisor.

Admission and Dismissal

An eligible pupil may be placed in the Occupational Explorations Program at the discretion of the Director of Special Services upon recommendation of the building principal and the program supervisor.

Continued placement in the program is contingent upon continuing evaluation of progress by the professional staff.

In no case may a pupil be continued for more than two years without a full review in staff conference utilizing current diagnostic reports.

Pupil-Teacher Ratio

The maximum size of classes in the Occupational Explorations Program as set forth in the Rules and Regulations manual of the Department of Special Education of the Office of the Superintendent of Public Instruction, State of Illinois, is twenty pupils.

Records

It is mandatory that a folder be kept on each Occupational Explorations pupil which contains educational, health, medical, psychological records, progress reports, and anacdotal records maintained by the special teachers. This folder is to be easily accessible to the special teacher.

Supervision

Provisions for supervision of the Occupational Explorations is mandatory under the regulations of the State Office of the Department of Special Education. Such provisions for supervision must cover all phases of the program including identification, the diagnostic process, the instructional program, evaluation of progress, and parent counseling.

Teacher Qualifications

Teachers in the Occupational Explorations Program must have a valid Illinois Teacher's Certificate and approval from the state office of the Division of Special Education.

Approval is gained through application to the Department of Special Education, Office of the Superintendent of Public Instruction, Box 906, Springfield, Illinois. Approval is granted for a particular teacher, for one school year, for a particular classroom or program.

Currently, all approval is considered temporary due to the developmental aspects of the state-wide program.

Ten semester hours of specialized training is required for temporary approval with a minimum of one course in each of the following categories:

1. Characteristics

    a. The Deviant Child, Psychology of Maladjusted Children, etc.

2. Educational and Psychological Diagnosis

3. Remedial Methods

4. Mental Health and/or Mental Hygiene

5. Elective courses closely related to the area of maladjustment.

   a. Abnormal Psychology

   b. Survey of Expectional Children

   c. Some advanced Sociology dealing with cultural deprivation, minority groups, etc.

Curriculum

The curriculum of the Occupational Explorations Program is vocationally oriented, functional, and tailored to the individual to the extent possible.

Since one, if not the major, problem of drop-out prone youth is motivation to learn, a somewhat different approach is essential to meaningful curriculum planning. The following principles serve as guides by which both the content and methodology of the Occupational Explorations curriculum are determined:

The curriculum should

1. be meaningful to the pupils.

2. take into account the readiness of the individual to successfully engage in the learning activities.

3. insure success and promote a sense of accomplishment.

4. enable pupils to understand themselves better and to accept their strengths and limitations.

5. promote improved mental health which results in positive attitudes toward school and society.

6. focus on real life needs so that school experiences are closely related to community, job and home experiences.

7. utilize a wide variety of teacher and teacher-pupil made instructional materials in preference to leaning heavily on existing textbooks.

8. provide for mastery of materials before new learnings are introduced.

9. use structured materials to insure systematic and sequential learnings.

10. use a physical or motoric approach to insure learning.

11. focus activities on the learner and his experiences rather than on the knowledge, attitudes and habits that are to be taught.

12. provide for immediate feedback as a means of reinforcing conceptualization.

Course offerings in the Occupational Explorations Program differ slightly from school to school, but include English, Mathematics, Social Studies, and Vocations, as well as other elective courses.

In each course the focus is on the individual and his need to acquire improved skills in the subject area. The need for improved skills must be perceived by the pupil as essential to his present involvement in a real life situation.

Progressive Work Experience Program

One of the ways in which such pupil-perceived needs are provided for is by involving the pupil in a progressive work experience program. As the pupil becomes progressively more involved in the work oriented environment of the Occupational Explorations Program, it is expected that he will become more aware of his particular shortcomings in such areas as his work habits and attitudes, personal-social relationships, and basic academic skills. Hopefully, in an atmosphere conducive to the improvement of such deficits and with opportunity to progress toward recognizable and worthwhile goals, the pupil will "reach out" in a more positive and constructive way.

The Progressive Work Experience Program consists of a planned program of pupil involvement in a series of work experience designed to promote his vocational growth and development. It consists of four basic phases, beginning in a closely structured and closely supervised work environment and culminating in a post-school phase in which the pupil is either gainfully employed or involved in a training program leading to gainful employment.

The main objective of the Progressive Work Experience Program is to foster the acquisition of desirable work habits, attitudes and skills, rather than the acquisition of specific job skills.

Phase I of the Progressive Work Experience takes place in the Work Experience Laboratory. Pupils perform as members of a group at such tasks as duplicating, collating and stapling of materials to be distributed within the school system. In this setting, pupils work with their peers on a cooperative basis. The physically familiar surroundings as well as the cooperative association with peers are felt to be important to the structure of this beginning phase of the Progressive Work Experience Program.

Phase II, the In-School Cooperative Work Program, provides an opportunity for the pupil to leave his peer group but work at an assigned work setting

within a school. Such positions as kindergarten helper, custodial aid, food service aid, laboratory aid, etc., are examples of the type of work available to the pupil in Phase II. The significant feature of Phase II is that the pupil leaves the security of his peer group but remains in the non-threatening atmosphere of a school. This is a natural progression from Phase I and establishes a foundation for movement to the next phase.

Phase III is available to the pupil following successful completion of Phases I and II, and is entitled the Cooperative Work-Study Program. Pupils are allowed to leave school for a portion of each school day to work at carefully selected jobs within the community. The progression is from a work setting within the school to that of the community while the direct supervision of the pupil changes from that of a school employee to that of a businessman or his employee.

Significant to Phase III also is that the pupil receives pay for the hours that he works at his job in addition to school credits.

Phase IV of the Progressive Work Experience Program follows the pupil's graduation from high school and involves selection of one of several options available to him. He may elect to secure full-time employment or, if qualified, he is given an opportunity to train for a specific semi-skilled or skilled occupation. Such training could be in the form of an apprenticeship program, on-the-job training or trade school training. Financial assistance is available to the pupil and his family if such training costs are prohibitive.

Prevocational Personnel

Throughout the various phases of the Progressive Work Experience Program the pupil is under the direct supervision of a Prevocational Adjustment Counselor. The degree of contact a pupil has with the Prevocational Adjustment Counselor varies with his need for supervision and/or counseling as it relates to the Progressive Work Experience Program.

The Prevocational Adjustment Counselors are the key to the success of the Progressive Work Experience Program. These counselors are under the supervision of the Coordinator of Prevocational Education, Champaign Unit #4 Schools. Each counselor has academic training in industrial and/or vocational education, has advanced training in guidance, counseling, and special education, has had at least four years successful teaching experience, has had broad industrial work experience and has the emotional stability and maturity essential when working with socially maladjusted pupils.

Prevocational Adjustment Counselors maintain a prevocational file on each of their counselees. Included in this file are the following: a picture of the pupil, his educational history and progress, psychological evaluations, case conference summaries, prevocational counseling summaries, Progressive Work Experience evaluations, vocational test results, Division of Vocational Rehabilitation application, medical and rehabilitation forms,

newspaper publicity, correspondence to or concerning the pupil, social case work summaries, and anecdotal records.

The Division of Vocational Rehabilitation

The Division of Vocational Rehabilitiation participates jointly with the Prevocational Education Department to provide services to the Occupational Explorations pupils. Such service takes the form of medical examinations and treatment, per client reimbursement to Unit #4 Schools, vocational evaluations, and post-school job placement and training. This joint assistance is the vital factor which makes such comprehensive Prevocational services available to the Occupational Explorations Program.

Social Work Services

Any pupil enrolled in the Occupational Explorations Program has available to him the services of a qualified School Social Worker. Such services are vital to the total adjustment of socially maladjusted youth. The School Social Worker not only aids by providing direct service to the pupil, but is invaluable as a consultant to teachers, counselors, and parents.

The case study materials provided by the School Social Worker are available for interpretation to any of the several school personnel who have need to develop a more complete understanding of the pupils whom they serve.

Psychological Services

In addition to a psychological evaluation, qualified school psychologists are available on a consultative basis to any of the staff personnel who are in need of information or advice concerning a particular pupil. Such services would include behavioral problems, learning or motivational problems, teaching methodology or approach, etc.

The Psychology Department provides the valuable backup or depth dimension necessary to other personnel who are more directly involved with the pupils.

APPENDIX

CHAMPAIGN COMMUNITY UNIT SCHOOLS
SPECIAL SERVICES
Referral for Psychological Service
Jr. and Sr. High Form

Name _____

Birthdate _____ Verified _____ How? _____ Age _____

School _____ Grade _____

Address _____ Phone _____ Where born _____

Living with _____ Family Physician _____

Name of Father _____ Occupation _____

Name of Mother _____ Employed? (Where) _____

Known to what social agencies or clinics _____

Person initiating referral form _____

What do you see as the referral problem? _____

_____

Attendance: Irregular Regular Truant

Results of most recent Standardized Tests:

Date Given	Name of Test	Test Results	By Whom Given (Title)

Has this student been seen previously by the school psychologist, social worker, special teacher, speech therapist, other?

Comments regarding student's present achievement, i.e.: doesn't complete assignments, significant deviation from past performance, good in all areas except (indicate), etc.

Special disabilities and limitations (including social, emotional, economic, intellectual, physical).

Special abilities, interests, activities and hobbies (Both in an outside of school)

Unusual mannerism or behaviour characteristics, i.e.: Bites nails, blinks eyes, lisps, twists hair, stutters, tic, hyperactive, lethargic, sex problems.

Home Background: If known, the person referring the child should indicate any positive or negative factors known to school which may contribute to understanding or aiding the child; broken home, poor health, mental instability, poor supervision, strong and reliable parent, parental interest in school program, special interests or achievements of family, sibling relationships:

Person Initiating Referral

Principal's Comments

Signature of Principal

FORM VR-ILL-1 (7/66)

STATE OF ILLINOIS
DIVISION OF VOCATIONAL REHABILITATION

APPLICATION

MR.	MRS.	MISS	LAST NAME	FIRST	MIDDLE

D.V.R. CASE NUMBER

DATE APPLICATION TAKEN

DISTRICT #	AREA	REGION

MAIDEN NAME OR ALIAS

PERMANENT ADDRESS NO. & STREET

SOCIAL SECURITY NUMBER

CITY | ZIP CODE | COUNTY | COUNTY CODE

CLIENT'S PHONE (PERMANENT)

TEMPORARY ADDRESS NO. & STREET | ZIP CODE | COUNTY | COUNTY CODE

BIRTHDATE: MONTH | DAY | YEAR

CITY | SOURCE OF REFERRAL | CODE

VETERAN: YES | NO

AGE

REPORTED DISABILITY | CODE | DATE OF REFERRAL

SELECTIVE SERVICE REJECTEE: 1. YES | 2. NO | 3. NR

PHYSICIAN(S) PREFERRED: NAME(S) & ADDRESS(S)
GENERAL
MEDICAL

SOCIAL SECURITY STATUS AT REFERRAL: 0 ☐ 1 ☐ 2 ☐ 3 ☐

SPECIALIST

PREVIOUS DVR SERVICE ☐ YES ☐ NO

MOBILITY AT APPLICATION: 1. HOMEBOUND ☐ 2. OUTSIDE WITH HELP ☐ 3. OUTSIDE WITHOUT HELP ☐

DOES CLIENT HAVE HOSPITALIZATION OR SURGICAL INSURANCE? NO | YES — IF YES, HAVE CLIENT COMPLETE INSURANCE DATA FORM.

RACE: 1. ☐ WHITE 2. ☐ NEGRO 3. ☐ INDIAN 4. ☐ OTHER

MARITAL STATUS: 1. ☐ MARRIED 2. ☐ WIDOWED 3. ☐ DIVORCED 4. ☐ SEPARATED 5. ☐ NEVER MARRIED

NUMBER OF DEPENDENTS

HIGHEST GRADE COMPLETED

PRIMARY SOURCE OF SUPPORT | CODE | WEEKLY EARNINGS (NEAREST DOLLAR) $ ☐ NONE

OASI TRUST FUND CASE: NO | YES

PROJECT CASE: NO | YES

PUBLIC ASSISTANCE TYPE & AMOUNT PER MONTH

0. NONE	1. OAA	2. BA	3. DA	4. ADC	5. GA
	$	$	$	$	$

6. ADC COMBINED WITH OTHERS $

7. ANY OTHER COMBINATION EXCLUDING ADC $

8. TYPE(S) NOT KNOWN $

MEMBERS OF FAMILY LIVING AT HOME

NAME	AGE	RELATIONSHIP	EMPLOYER	JOB TITLE	WEEKLY EARNINGS

WORK HISTORY

EMPLOYED BY	JOB TITLE	WEEKLY EARNINGS	DATES EMPLOYED MO.	YR.	TO MO.	YR.	REASON FOR LEAVING

NOTIFICATION OF COMPLIANCE — CIVIL RIGHTS ACT OF 1964

Services, assistance, and other benefits of the Division of Vocational Rehabilitation are provided on a non-discriminatory basis, as required by the Civil Rights Act of 196 Applicants, clients, and participants who believe that discrimination on the ground of race, color, or national origin is being practiced by the Division of Vocational Reh bilitation may file a written complaint with the State agency, the Federal agency, or both. Complaints shall be addressed to the State Director, Division of Vocation Rehabilitation, 623 E Adams Street, Springfield, Illinois, and must bear the personal signature of the individual making the complaint.

RELEASE AUTHORITY

I, the undersigned, am hereby applying for services from the Division of Vocational Rehabilitation in order to become (or remain) employed. I authorize the release o medical records or other personal information to other agencies or individuals when it is necessary to help in my rehabilitation.

The client has read the NOTIFICATION OF COMPLIANCE
and I have explained the RELEASE AUTHORITY

APPLICANT'S SIGNATURE

COUNSELOR'S SIGNATURE

PARENT, GUARDIAN OR AGENT'S SIGNATURE

COUNSELOR'S COPY

CASE CONFERENCE

Name of Child:

School:

Teacher:

Date of Staffing:

Persons attending Conference:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Reason for Referral:

Teacher's Summary of Child's Adjustment:

Summary of School Social Worker's Contact with the Child and Family:

Summary of School Nurse's Report:

Summer of Report by Speech Correctionist:

Summary of Report Given by Psychologist:

Additional Information:

Recommendations and Decisions and Persons Responsible for Carrying out Decisions:

_____
(Signature)

FORM VR-ILL.-4 (7-68)

CHARGED TO DIVISION — YES | NO

STATE OF ILLINOIS

DIVISION OF VOCATIONAL REHABILITATION

GENERAL MEDICAL REPORT

DATE FORWARDED TO STATE OFFICE

AREA OUTLINED TO BE COMPLETED BY COUNSELOR

TO: M.D. | DATE

FROM: , REHABILITATION COUNSELOR

COUNSELOR'S ADDRESS | PHONE

PATIENT'S LAST NAME | FIRST | MIDDLE | PATIENT'S AGE | PATIENT'S PHONE

PATIENT'S ADDRESS | OCCUPATION OR OBJECTIVE

PRIOR TREATMENT DATES, HOSPITAL(S) AND DOCTOR'S NAME(S)

INSURANCE: | HOSPITALIZATION (COMPANY AND POLICY NO.) | SURGICAL (COMPANY AND POLICY NO.)

THE FOLLOWING INFORMATION WILL BE USED IN DETERMINING ELIGIBILITY FOR VOCATIONAL REHABILITATION SERVICES AND PROVIDING SAME IF APPLICANT IS ELIGIBLE. THIS IS NOT AN AUTHORIZATION FOR TREATMENT.

(ALL ITEMS ARE REQUIRED)

HEIGHT	WEIGHT	TEMP.	PULSE	BLOOD PRESSURE	SEROLOGY	URINALYSIS ALBUMIN	URINALYSIS SUGAR

PLEASE CHECK FOLLOWING IF NORMAL

SIGHT	HEARING	CARDIO-VAS-CULAR	PULMONARY	GASTRO-IN-TESTINAL	GENITO-URINARY	MUSCULO-SKELETAL	NEUROLOGICAL	DENTAL	EMOTIONAL-MENTAL

DESCRIPTION OF ALL ABNORMALITIES:

DIAGNOSIS:

ETIOLOGY | DATE (OR AGE) AT ONSET

HOW CONDITION INTERFERES WITH WORK

DISABILITY IS: STABLE | SLOWLY PROGRESSIVE | RAPIDLY PROGRESSIVE | RECURRENT | ACUTE

PROGNOSIS FOR RETURN TO WORK: GOOD | FAIR | POOR

WILL TREATMENT SUBSTANTIALLY IMPROVE FUNCTION OR EMPLOYABILITY ?

IS ABOVE OCCUPATION MEDICALLY ADVISABLE ? YES | NO

WORKING CONDITIONS TO BE AVOIDED

RECOMMENDATIONS

NAME OF OPERATION, TREATMENT, OR APPLIANCE | NO. OF SURGERY HOURS | SURGEON | ASST. SURGEON

ANESTHETIST | HOSPITAL | NO. OF DAYS | NO. OF TREATMENTS PER WK. | NO. OF WEEKS

COMMENTS

DATE PATIENT WAS EXAMINED | DATE OF THIS REPORT | SIGNATURE M.

ADDRESS | PHONE

D.V.R. MEDICAL CONSULTANTS REMARKS:

STATE OFFICE COPY

PREVOCATIONAL DEPARTMENT
OFFICE OF SPECIAL SERVICES
CHAMPAIGN SCHOOLS

Prevocational Coordinator
Mr. Guy R. Jones
705 South New Street
Champaign, Illinois
Phone: 359-1723

NOTICE OF IN-SCHOOL EMPLOYMENT

_____
Date

To Whom It May Concern:

Student: _____
Name

_____
Address

_____
Grade

The above named student has secured employment with _____
(Name and School)

as a _____ and agrees to work from _____ to _____
(job title) (time) (time)

on S M T W T F S. He (she) further agrees to attend school during class
(circle days)

hours not included in the above statement, understanding that failure to comply with this agreement will result in automatic termination of this job.

The above named student also agrees to consult the Prevocational Coordinator or a Prevocational Counselor concerning any job difficulties and before voluntarily terminating this job.

_____ _____
(School) (Student's signature)

_____ _____
(Address) (Employer's signature)

_____ _____
(Phone) (Prevocational Coordinator's signature)

PREVOCATIONAL DEPARTMENT
Office of Special Services
Champaign, Illinois

Prevocational Coordinator
Mr. Guy R. Jones
705 South New Street
Champaign, Illinois
Phone: 359-1723

Notice of Work Study Employment

To Whom It May Concern:

_____
Date

Student: _____
Name

_____
Address

_____
Grade

The above named student has secured employment with _____ (Business) _____ as a _____ (job title) and agrees to work from _____ (time) to _____ (time) on S M T W T F S (circle days). He (she) further agrees to attend school during class hours not included in the above statement, understanding that failure to comply with this agreement will result in automatic termination of this job.

The above named student also agrees to consult the Prevocational Coordinator or a Prevocational Counselor concerning any job difficulties and before voluntarily terminating this job.

_____
(Business Name)

_____
(Address)

_____
(Phone)

_____
(Student's signature)

_____
(Employer's signature)

_____
(Prevocational Coordinator's signature)

PREVOCATIONAL DEPARTMENT
OFFICE OF SPECIAL SERVICES
CHAMPAIGN SCHOOLS

WORK-STUDY AGREEMENT

Prevocational Coordinator:
Mr. Guy R. Jones
705 South New Street
Champaign, Ill. 61820
Phone: 359-1723

Employer's Name _____

Company _____ Telephone _____

Address _____ Date _____

In cooperation with the Prevocational Education Program of the Special Education Department, I, _____, as a student-learner trainer agree to abide by the following rules:

1. I will make no change in the agreed upon wage of $_____ per hour without first consulting the Prevocational Coordinator.
2. I will make no major change in jobs without first consulting the Prevocational Coordinator.
3. I will make no change in working hours without first consulting the Prevocational Coordinator.
4. I will make no severe reprimands without first consulting the Prevocational Coordinator.
5. I will make no change in the direct supervisory personnel without first consulting the Prevocational Coordinator.

Employees Name _____ Telephone _____

Address _____

As a student-learner in the Prevocational Program of the Special Education Department, I _____ agree to work for the _____ _____ and abide by the following rules:

1. I agree to work from _____to _____ on the following days each week. S M T W T F S
2. I agree to work at a job best described as _____ _____
3. I agree to attend school from _____ to _____ each school day.
4. I agree to work for the wage of $_____ per hour.
5. I will not quit without first consulting the Prevocational Coordinator.
6. I will contact the Prevocational Coordinator concerning any difficulties I have on the job.

PREVOCATIONAL DEPARTMENT
OFFICE OF SPECIAL SERVICES
CHAMPAIGN SCHOOLS

Return To:
Mr. Guy R. Jones
Prevoc. Coord.
705 South New St.
Champaign, Ill.
Phone: 359-1723

PLACEMENT FOLLOW-UP

_____
Month and Year

Name of Student Worker_____Birthdate_____

Name of Employer_____

Type of Business_____

Job Description (D.O.T. No.)_____

_____

Date of Employment_____Part-time_____Full-time_____

Wage_____

WORKER TRAIT EVALUATION

	Excellent	Good	Fair	Poor	Comments
Dependability					
Honesty					
General Appearance					
Ability to understand directions					
Ability to follow directions					
Ability to get along with supervisor					
Ability to get along with fellow workers					
Motivation					

Attendance_____Days late_____Absent_____Excusable?

Do you feel the half-day instruction has helped the student worker to do a better job? Yes_____No_____Comments if desirable_____

_____

Do you feel this student is making a satisfactory progress in this job?

Yes_____No_____Comments if desirable_____

_____

Areas in which the student needs to improve. (Be specific)_____

_____

PREVOCATIONAL DEPARTMENT
OFFICE OF SPECIAL SERVICES
CHAMPAIGN SCHOOLS

REPORT TO PRINCIPAL ON WORK EXPERIENCE
JOB TERMINATION

_____
Date

TO:

RE: _____
Name

_____
Address

_____
Grade

_____ has been terminated from his work-study job with

_____ as a _____ the following days

each week for the time indicated:

Mon.	Tues.	Wed.	Thurs.	Fri.
_____to_____	_____to_____	_____to_____	_____to_____	_____to_____

The pupil should be expected to attend school each school day for the entire day. An evaluation of the pupil's progress on this job may be obtained from the prevocational office.

Sincerely yours,

Guy R. Jones, Coordinator
Prevocational Education

EVALUATION FORM
TEACHER OF MALADJUSTED CHILDREN

NAME OF TEACHER _____

CURRENT ADDRESS _____

TYPE OF CHILDREN OR CHILD AND PROGRAM FOR WHICH EVALUATION IS MADe

_____ _____

ILLINOIS CERTIFICATE:

Type _____ Number _____ Date Issued _____

EXPERIENCE:

Profressional Teaching	Grade Level or Type	Dates	Location
Regular			
Special			
Substituting or Tutoring			

COURSES CONSIDERED FOR APPROVAL FROM THE TRANSCRIPT FROM THE FOLLOWING AREAS:

Characteristics

Mental Hygiene

Educational and Psychological Diagnosis

Remedial Methods

Elective

CONDITIONS OF APPROVAL:

_____
Consultant, Special Education

VT 002 689

VT 002 689
Pearce, Theodore
Summer Institutes on Fluid Power Education for Vocational and Technical Teachers, 1965.

Fluid Power Society, Thiensville, Wis.
Office of Education (DHEW), Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 15Feb67 25p.
OEG-3-85-093

*FLUID POWER EDUCATION; *SUMMER INSTITUTES; *PILOT PROJECTS; *TEACHER EDUCATION; *PROGRAM EVALUATION; CURRICULUM DEVELOPMENT; INDUSTRIAL EDUCATION

"The Fluid Power Institutes--A Pilot Program for Introducing Emerging Technologies" is summarized. The complete study is available as VT 002 870 or ED 012 396. (EM)

ED027441

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24p

Project No. 5-0019

M. Harris

1965 SUMMER INSTITUTES ON FLUID POWER EDUCATION FOR VOCATIONAL AND TECHNICAL TEACHERS

VT002689

ERIC

#5-0019

1965 SUMMER INSTITUTES ON FLUID POWER EDUCATION FOR VOCATIONAL AND TECHNICAL TEACHERS

Vocational and Technical Education Grant No. OE-5-85-093

Vocational Education Act of 1963, Section 4(c)

Submitted by Theodore Pearce

February 15, 1967

NOTE: This is an abstract of the complete 290-page report on file at the U. S. Office of Education and the Fluid Power Society. The title of the complete report is "The Fluid Power Institutes -- A Pilot Program for Introducing Emerging Technologies."

The research reported herein was performed pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The Fluid Power Society

Thiensville, Wisconsin

THE FLUID POWER INSTITUTES--A PILOT PROGRAM FOR INTRODUCING EMERGING TECHNOLOGIES

ABSTRACT AND SUMMARY OF THE REPORT ON THE 1965 INSTITUTES

Fluid Power emerged during World War II as a new technology. It is defined as the control and transmission of power by means of a pressurized fluid such as air or oil. Sometimes referred to as oil hydraulics and pneumatics, fluid power technology is based upon the laws and theorems that govern the behavior and flow of a fluid under pressure, and includes the design, installation, and maintenance of equipment used in fluid power systems.

For the most part, modern fluid power technology and the systems using it were born in the laboratories and on the drawing boards of factories and defense agencies during World War II. Consequently, and unlike many other technologies, there was little if any academic base. People who designed, maintained, and operated fluid power systems were trained by military agencies and manufacturers of the systems. But by the early 1960's, serious shortages of skilled workers and technicians in fluid power were reported throughout the United States.

Since only a half-dozen schools included fluid power in their curricula, and since no teacher-education institution in the country included fluid power in the curricula of students taking their degrees in vocational, technical, and industrial education, it was apparent that the first step necessary to solve manpower shortages was the development of teacher education programs.

To this end, the Fluid Power Society and the National Fluid Power Association sponsored, with the cooperation of Wayne State University, a Summer Institute on Fluid Power Education during 1964. Twenty carefully chosen college and university teachers attended. They were encouraged to organize, for the summer of 1965, similar institutes for secondary and vocational teachers.

The 1965 Institute plans were brought to the attention of the United States Office of Education, which recognized therein a unique pilot program which could offer solutions to teacher shortages in fluid power, expanded opportunities for employment for young people trained in fluid power, and encouragement to schools and colleges to increase offerings in fluid power. However, the most unique and challenging aspects of the pilot program were possible answers to this question:

<u>What kind of a program could be devised to accelerate the introduction of new technologies into school programs?</u>

The unabridged study, of which this is the abstract and summary, and which details the plans, operation, and evaluation of the 1965 Summer Institutes on Fluid Power Education, offers what is probably the most comprehensive review available. It includes not only the planning, operation, and evaluation results, but also the techniques of evaluation and the survey instruments. These techniques and procedures are readily adaptable to almost any other program whose primary objective is the introduction of a new technology into school programs.

The following summary is confined to the more important conclusions which resulted from the analysis of the operation and evaluation of the Institutes:

The Summer Institute as a Vehicle for Introducing the Technology

The summer institute per se can be a most effective vehicle for introducing a new technology to teachers, since it offers a controlled environment and the efficient means for bringing together, (1) industrial and technological authorities, (2) educational authorities on educational subject matter and curriculum planning, and (3) teachers who are motivated to develop new competencies.

Administering an Institute Pilot Program

The responsibility for planning, administering, and evaluating the Summer Institutes was the primary responsibility of the Fluid Power

Society. It sub-contracted with five institutions to provide the facilities and instruction: Trenton State College (New Jersey), Tuskegee Institute (Alabama), Wayne State University (Michigan), University of Minnesota-Duluth, and California State College at Los Angeles. Administration was judged to be effective.

Conclusion: A new technology should work through the professional society which represents it as the chief coordinating agency of pilot programs involving multiple summer institutes. The professional society can effectively act as the unifying agency in activities involving cooperating educational institutions and participants.

Selection of Participating Institutions

In making the contract grant to the Fluid Power Society, the United States Office of Education allowed the Society wide latitude in selecting those institutions to receive a sub-contract for the Summer Institutes. Aside from meeting the general conditions qualifying them for federal grants and contracts, these criteria guided the Society in selecting the five sub-contractors:

1. A 1964 Summer Institute participant was available to direct the program.

2. The institution gave evidence of interest in fluid power education.

3. Institutions were geographically located to serve all areas of the country.

4. Personnel were available from local industry to serve as guest lecturers and counselors.

Staffing of the Pilot Program

The Fluid Power Society provided the following "overseers" of the institute program: The Principal Investigator who was the Executive Vice President of the Fluid Power Society and chief administrator of the program; the Coordinator who provided liaison between the Society and the five participating institutions; and a Consultant who directed the design of the evaluation instruments and who directed the evaluation.

Each Institute provided a Director. All but one Institute also provided one or more staff instructors. All but one of the Institutes used guest lecturers, mostly from industry, for a significant portion of the instruction.

Conclusion: The more ideal situation was found to exist where the Director had no instructional duties, and where a staff instructor

was responsible for the majority of the instruction and academic content. The least ideal situation was found to be where there was no staff instructor, and where all of the instruction was provided by guest lecturers from industry and other institutions.

Selection of Participants

Participants were required to be (1) teachers of vocational, technical, or industrial education subject matter, and (2) now offering, or planning to offer, a unit or course in fluid power at his home institution. No restrictions were placed on level of insturction. A total of 167 participants were admitted into the Institutes, representing 35 states. Seventy-one per cent were secondary school teachers; 15 per cent were post-secondary level teachers; 12 per cent were four-year college level teachers; and 1 per cent involved teachers not otherwise classified.

Institute Content

Each institute was required to have a minimum of 175 contact hours distributed as follows:

Lecture-Demonstrations	85 hours
Laboratory Work	66
Seminars (Curriculum Development)	7

Examination	3 hours
Field Trips	14
TOTAL	175 hours

One of the stipulations agreed upon by the United States Office of Education and the Society was an evaluation, during the Institutes, of the four commercially-available teaching fluid power demonstration devices on the market. This was accomplished by the use of uniform assignments and evaluation forms provided by the Society, and through participant-team activity under the direction of each Institute director.

In addition to the regular day institute program, each institute provided professional-social activities, including informal meetings with local chapters of the Fluid Power Society, and planned social events. Weekly evening workshops were also held for review of content and for self-help of participants with the cooperation of the instructors and guest lecturers.

Participants were divided into teams for curriculum development. Each team developed a recommended curriculum for the educational level of primary interest to each team (for example, high school, vocational, post secondary school, and teacher-preparation).

A uniform final examination was administered to all participants at the conclusion of the institutes. The results of the final examination were used as a method of discovering which kinds of instructors (guest lecturers, resource persons, or full-time instructor) were most effective.

Conclusions: Commercially available teaching-demonstration units were effective, and provided valuable laboratory experiences. Further, the teacher newly introduced to a technology should not be expected to design such equipment for his own school, but should initially depend on pre-tested devices.

An unexpected benefit resulted from the evaluation of the teaching-demonstration devices. Recommendations for improving the devices were relayed to the manufacturers; subsequently, each manufacturer incorporated improvements into new models.

Seminars were effective because they provided the participants with materials necessary for conferences with their school administrators upon their return to their teaching assignments.

Since participants were offered maintenance allowances for dependents, many were accompanied by their families, and lived "off campus." More of their time was required for family activities than for

those participants who left their families at home. Since the introduction of a new technology requires intensive exposure during an institute, results appear to be best when participants leave their families at home, and live together in campus facilities.

Finally, institute programs of this nature should carry graduate credit, and arrangements should be made whereby participants may earn such credit. The more ideal situation exists where the participant may earn credit without the payment of additional tuition.

Participant Maintenance

Participants were provided with maintenance allowances of $75.00 per week plus $15.00 per week for each dependent to a maximum of four. They also were eligible to receive $.08 per mile for a maximum of 400 miles, representing the round trip distance between their homes and the Institute location.

Conclusion: Since teachers seek fellowship support (such as NSF Institutes) or summer employment, it is necessary to offer some type of participant maintenance to attract qualified candidates. However, both the participant and his home school benefit from Institute attendance, and an attempt should be made to encourage schools to share in participant maintenance.

The Use of Advisory and Evaluation Committees

Initial planning of the Summer Institutes was accomplished with the help of the Council on Fluid Power Education. This group includes representatives of the following organizations: Fluid Power Society, National Fluid Power Association, National Association of Industrial Teacher Educators, American Vocational Association, American Society for Engineering Education, and the American Technical Education Association. Thus, a broad representative base of support was obtained.

Further advisory groups included the Education Committee of the Fluid Power Society and the Education Board of the National Fluid Power Association. These groups provided valuable counsel in the determination of the Institute curriculum.

The evaluation was conducted under the direction of an Evaluation Committee, made up of representatives of State vocational education departments, teacher education institutions, technical institutes, and industry. This Committee met during the month of October following the close of the 1965 Summer Institutes and reviewed all of the data secured through evaluation procedures. Its analysis and recommendations are incorporated in this report.

Conclusion: The use of existing committees in planning Institute activities was proved to be most effective in eliciting support and advice from authorities and national organizations who share interest in the Institutes. The Evaluation Committee functioned unusually effectively. Expense for its meetings and activities were a part of the supporting contract and rightly so, for evaluation is an essential part of an educational activity.

Evaluation Procedures

Six aspects of the Institutes were evaluated; these were:

1. Suitability of laboratory and demonstration devices, workbooks and laboratory manuals.
2. Quality of instructional program.
3. Cooperation of industry.
4. Qualification of participants.
5. Follow-up of participants.
6. Available audio-visual materials.

Uniform evaluation forms were prepared and distributed to the Institute Directors. Both the Directors and participants filled out the various forms. Results were tabulated for the consideration of the Evaluation Committee and for inclusion in detail in this report.

A further evaluation was made by individual members of the Evaluation Committee. Three individual visits to each Institute were made by members of the Committee. They, too, used uniform evaluation forms which were tabulated and the results summarized in this report. Travel and related expenses for the evaluation visits were a part of the supporting contract.

During the Institutes each participant was asked to select up to 17 follow-up activities which he hoped to accomplish when he returned to his home school, ranging from the organization of a curriculum advisory committee to the introduction of courses and curricula in fluid power. The participants named 727 specific activities, an average of 6 or 7 per participant.

In June of 1966 the participants were polled again to ascertain accomplishments. A total of 303 of the initial plans were accomplished; 230 were in the planning stage; 68 had been scheduled for the coming year, and 55 were dropped.

Conclusions: Evaluation is necessary in any effort to introduce a new technology. It must be carefully planned, and uniformly applied. It should include evaluation by the participants themselves, by the

Institute directors, by an Evaluation Committee, and through evaluation visits by members of the Committee to each Institute. A follow-up of participants is essential.

Cooperation of Industry

Through the National Fluid Power Association, which represents the fluid power industry in the United States, manufacturers of fluid power equipment were asked to provide guest lecturers for the Institutes; and to provide technical manuals, laboratory equipment, and training aids.

Industry provided 82 guest lecturers, who lectured a total of 285 contact hours.

Forty-four companies contributed the following materials for use by the Institutes and participants: 14,252 catalogs; 6,335 manuals; 275 components such as cylinders, valves, or pumps; 637 demonstration models; 92 cutaway models; and 32 films.

It is significant that in no way whatsoever did industry attempt to dictate or control the institute activity. Caliber of guest lecturers was high, and their participation created a noticeable esprit-de-corps between participants and the industry.

Conclusions: Industry involved in a new technology should be asked to cooperate and contribute toward educational activities which will be of benefit to it. In the case of the fluid power industry, its response was overwhelmingly generous. In terms of manpower contributions (guest lecturers), the dollar value of time contributed is estimated at a minimum of $100.00 per lecturer, or $8,200.00. The value of catalogs, manuals and training aids contributed is estimated at $40,000.00.

THE FLUID POWER SOCIETY, INC.

P. O. Box 49, Thiensville, Wisconsin 53092

FINAL CONSOLIDATED STATEMENT OF EXPENSES

Contract No. OE-5-85-039

Submitted February 15, 1967

Item	Budget	Actual Expense
DIRECT COSTS:		
Personnel		
T. Pearce (Note 1)	$ 1,050.00	$ 2,175.00
F. Lamb	5,850.00	4,500.00
Secretarial Services	2,500.00	
282 Hrs. @ $2.50/hr		705.00
89 Hrs. @ $2.00/hr		178.00
Clerical Services, Statistics Analysis, 82 hrs. @ $5.00/hr		260.00
	9,400.00	8,018.00
Supplies & Materials		
Office Supplies, paper, stencils	200.00	115.09
Postage	150.00	123.12
Telephone & Telegraph	100.00	382.79
Direct Mail Announcements		
Printing, 13,000 copies	520.00	464.60
Postage	495.00	164.87
Service Charge, Mailing 13,000	259.00	258.11
Printing of Evaluation Report	675.00	-0-
	2,399.00	1,508.58
Travel		
Coordinator, travel & Per Diem	1,436.00	1,111.16
Post-Institute Meeting of Subcontractors, travel & Per Diem	750.00	562.86
Evaluation Committee Meeting, travel & Per Diem	2,340.00	2,104.16
Evaluation Team, travel & Per Diem	2,108.00	2,433.82
	6,338.00	6,212.00

Item	Budget	Actual Expense
Consultative Services, G. Baysinger 30 days @ $50/day (Note 2)	500.00	1,500.00
Instructional Supplies & Manuals	1,294.00	1,154.90
TOTAL DIRECT COSTS		18,393.48
Indirect Costs, Overhead, 20%	3,986.00	3,678.70
Total Cost, Prime Contract	23,917.00	22,072.18

Note 1. Mr. Lamb was unable to fulfill his total commitments in time devoted to the evaluation and follow-up. It was necessary for Mr. Pearce to take over his duties during the compilation of evaluation data, follow-up activities and organization of the project leading to the evaluation.

Note 2. It was found that, because of insufficient time between the awarding of this contract and the beginning of the institutes, the Evaluation Committee was unable to prepare the evaluation instruments and meet the deadline. Mr. Baysinger was therefore employed to draw up the procedures and instruments; hence, the higher consultative costs.

EVALUATION EXPENSES

Under Amendment No. 1 to this Contract, dated March 4, 1966, the Contractor, the Fluid Power Society, was allowed to transfer $3,800.00 from unexpended budgetary items for Participant Maintenance to a budget for evaluation activities, an analysis of the evaluation data, and publication of the final report and evaluation. Following is the breakdown of these expenses:

Item	Actual Expense
Consultative Services, G. Baysinger 22 hrs. @ $10/hr.	$ 220.00
Typing of the Report Draft, under contract	300.00
Typing of Text and Tables on Stencils, and cost of Stencils, under contract	393.95
Printing of 225 copies of the evaluation report, 315 pages, under contract	2,097.90
Collating the Report Pages, under contract	271.80
Consultative Services, W Wolansky, 24 hrs @ $5.00/hr	120.00
Printing covers and binding, packing for mailing, contract	395.00
TOTAL EVALUATION AND PUBLICATION COSTS	$ 3,798.65

SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT

Note: In the original Contract Budget, these items were included in the budgets of the Subcontractors. However, since these items were purchased directly by the Fluid Power Society for assignment to the Subcontractors, they became an item account in the Society's records. The following budget items are consolidated from the Subcontractors' budgets, which were reduced accordingly.

Item	Budget	Actual Expense
Five fluid power teaching demonstration devices, Capital Engineering Co.	$ 14,380.00	$ 17,970.00
Five fluid power teaching demonstration devices, Technical Education & Mfg. Co.	20,200.00	18,275.00
Five fluid power teaching demonstration devices, Electromatic Mfg. Co.	15,796.00	15,804.66
Five fluid power teaching demonstration devices, Brodhead-Garrett Co.	14,750.00	14,950.00
Freight and Crating	2,000.00	(Included in above)
TOTAL	$ 67,126.00	$ 66,999.66

SUB-CONTRACT, WAYNE STATE UNIVERSITY

Item	Budget	Expenses
Personnel	$ 6,288.00	$ 5,949.85
FICA-TIAA	412.00	209.76
Instructional Supplies & Materials	350.00	395.93
Local Transportation & Field Trips	200.00	-0-
Staff Travel & Speaker Expense	100.00	51.63
Telephone	75.00	79.25
Total Direct Costs	$ 7,425.00	$ 6,686.42
Indirect Costs, 20%	1,485.00	1,337.28
Total, Direct & Indirect Costs	$ 8,910.00	$ 8,023.70
Support of Participants		
50 stipends @ $75.00 each	$ 18,750.00	$ 17,625.00
50 Travel Allowances @ average of $48.00 each	2,400.00	2,426.56
Support of Dependants, $15.00 per week, 100 x 5 wks.	7,500.00	2,550.00
Tuition	1,660.00	-0-
Total Support of Participants	$ 30,310.00	$ 22,601.56
TOTAL, SUB-CONTRACT	* $ 39,220.00	$ 30,625.26

* NOTE: THIS AMOUNT IS LESS THAN THE APPROVED BUDGET BECAUSE THE EVALUATION EQUIPMENT BUDGET HAS BEEN DEDUCTED FROM THE SUB-CONTRACTS AND HANDLED AS A SEPARATE BUDGET ITEM COMBINING ALL FIVE SUB-CONTRACTS. SEE PAGE 3, "SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT"

SUB-CONTRACT, UNIVERSITY OF MINNESOTA

Item	Budget	Expenses
Personnel	$ 2,584.00	$ 4,452.36
F.I.C.A.	116.00	278.63
Instructional Supplies & Materials	350.00	1,057.05
Local Transportation & Field Trips	300.00	239.96
Staff Travel & Speaker Expense	100.00	-0-
Office Supplies & Postage	195.00	276.46
Telephone & Telegraph	15.00	161.05
Total Direct Costs	$ 3,660.00	$ 6,465.51
Indirect Costs, 20%	732.00	1,293.11
Total Direct & Indirect Costs	$ 4,392.00	$ 7,758.62
Support of Participants		
70 Stipends @ $75.00 each	$ 26,250.00	$ 24,000.00
70 Travel Allowances @ average of $48.00 each	3,360.00	2,473.44
Support of Dependants, $15.00 per week, 140 x 5 wks.	10,500.00	8,625.00
Total Support of Participants	$ 40,110.00	$ 35,098.44
TOTAL, SUB-CONTRACT	* $ 44,502.00	$ 42,857.06

* NOTE: THIS AMOUNT IS LESS THAN THE APPROVED BUDGET BECAUSE THE EVALUATION EQUIPMENT BUDGET HAS BEEN DEDUCTED FROM THE SUB-CONTRACTS AND HANDLED AS A SEPARATE BUDGET ITEM COMBINING ALL FIVE SUB-CONTRACTS. SEE PAGE 3., "SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT"

SUB-CONTRACT, CALIFORNIA STATE COLLEGE AT LOS ANGELES

Item	Budget	Expenses
Personnel	$ 2,718.00	$ 2,648.32
F.I.C.A. - T.I.A.A.	314.00	156.91
Instructional Supplies & Materials	250.00	240.93
Local Transportation & Field Trips	200.00	164.57
Office Supplies & Postage	75.00	108.32
Staff Travel & Speaker Expense	100.00	-0-
Total Direct Costs	$ 3,657.00	$ 3,319.05
Indirect Costs, 20%	732.00	663.81
Total, Direct & Indirect Costs	$ 4,389.00	$ 3,982.86
Support of Participants		
25 stipends @ $75.00/wk.	$ 9,375.00	$ 7,875.00
25 Travel Allowances @ average of $48.00 each	1,200.00	888.40
Support of Dependants, $15.00 per week 50 x 5 weeks	3,750.00	2,670.00
TOTAL, SUB-CONTRACT	* $ 18,714.00	$ 15,416.26

* NOTE: THIS AMOUNT IS LESS THAN THE APPROVED BUDGET BECAUSE THE EVALUATION EQUIPMENT BUDGET HAS BEEN DEDUCTED FROM THE SUB-CONTRACTS AND HANDLED AS A SEPARATE BUDGET ITEM COMBINING ALL FIVE SUB-CONTRACTS. SEE PAGE 3, "SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT"

SUB-CONTRACT, TUSKEGEE INSTITUTE

Item	Budget	Expenses
Personnel	$ 3,900.00	$ 3,895.83
F.I.C.A. - T.I.A.A.	271.00	111.85
Instructional Supplies & Materials	250.00	484.71
Local Transportation & Field Trips	600.00	347.68
Staff Travel & Speaker Expense	300.00	312.13
Office Supplies & Postage	550.00	683.56
Telephone & Telegraph	100.00	117.90
Total Direct Costs	$ 5,971.00	$ 5,953.66
Indirect Costs, 20%	1,194.00	1,190.73
Total, Direct & Indirect Costs	$ 7,165.00	$ 7,144.39
Support of Participants		
25 Stipends @ $75.00/wk., 6 weeks	$ 11,250.00	$ 6,825.00
25 Travel Allowances @ average of $48.00 each	1,200.00	886.58
Support of Dependants, $15.00/wk., 50 x 6 weeks	4,500.00	1,050.00
Total Support of Participants	$ 16,950.00	$ 8,761.58
TOTAL, SUB-CONTRACT	* $ 24,115.00	$ 15,905.97

* NOTE: THIS AMOUNT IS LESS THAN THE APPROVED BUDGET BECAUSE THE EVALUATION EQUIPMENT BUDGET HAS BEEN DEDUCTED FROM THE SUB-CONTRACTS AND HANDLED AS A SEPARATE BUDGET ITEM COMBINING ALL FIVE SUB-CONTRACTS. SEE PAGE 3, "SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT"

SUB-CONTRACT, TRENTON STATE COLLEGE

Item	Budget	Expenses
Personnel	$ 3,295.00	$ 3,216.60
F.I.C.A - T.I.A.A.	338.00	266.00
Instructional Supplies & Materials	250.00	90.20
Local Transportation & Field Trips	150.00	143.34
Staff Travel & Speaker Expense	50.00	54.25
Office Supplies & Postage	100.00	40.40
Telephone & Telegraph	50.00	-0-
Total Direct Costs	$ 4,233.00	$ 3,810.79
Indirect Costs, 20%	847.00	762.16
Total, Direct & Indirect Costs	$ 5,080.00	$ 4,572.95
Support of Participants		
20 Stipends @ $75.00/wk., 5 weeks	$ 7,500.00	$ 7,500.00
20 Travel Allowances @ average of $48.00 each	960.00	497.76
Support of Dependants, $15.00/wk., 40 x 5 weeks	3,000.00	1,050.00
Total Support of Participants	$ 11,460.00	$ 9,047.76
TOTAL, SUB-CONTRACT	* $ 16,540.00	$ 13,620.71

* NOTE: THIS AMOUNT IS LESS THAN THE APPROVED BUDGET BECAUSE THE EVALUATION EQUIPMENT BUDGET HAS BEEN DEDUCTED FROM THE SUB-CONTRACTS AND HANDLED AS A SEPARATE BUDGET ITEM COMBINING ALL FIVE SUB-CONTRACTS. SEE PAGE 3, "SUPPLIES AND MATERIALS, EVALUATION EQUIPMENT"

EXPENSE SUMMARY

	Budget	Actual Expenses
Prime Contract, Fluid Power Society	$ 23,917.00	$ 22,072.18
Supplies & Materials, Evaluation Equipment	67,126.00	66,999.66
Evaluation Expenses		3,798.65
Sub-Contract, Wayne State University	39,220.00	30,625.26
Sub-Contract, University of Minnesota	44,502.00	42,857.06
Sub-Contract, California State College (LA)	18,714.00	15,416.26
Sub-Contract, Tuskegee Institute	24,115.00	15,905.97
Sub-Contract, Trenton State College	16,540.00	13,620.71
TOTALS	$ 234,134.00	$ 211,295.75

VT 002 708

VT 002 708
Technical-Vocational Education at Diablo Valley College, A Counselor's Guide for the Purpose of Advising Students of Educational Opportunities.

Diablo Valley Coll., Concord, Calif.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 41p.

*VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; VOCATIONAL COUNSELING; *COMMUNITY COLLEGES; *CURRICULUM; *OCCUPATIONAL INFORMATION; ASSOCIATE DEGREE

Counselors, teachers, and administrators may use this guide in counseling students as to the occupational preparation available in Diablo Valley College. Two-year college programs leading to Associate in Arts degrees and employment or transfer to a 4-year college are presented for the areas: (1) business and management which includes curriculums in bookkeeping and accounting, business management, data processing, general office training, restaurant and cafeteria operation, retailing, and secretarial training, (2) applied and graphic arts which includes a curriculum in apparel design, (3) technologies which includes curriculums in architecture, engineering, engineering electronics, industrial electronics, and technical-industrial processes, (3) health services which includes curriculums in dental assisting, dental hygiene, and licensed vocational nursing, and (4) services which includes a course in police science. Each curriculum contains an occupational description, the employment outlook, requirements for admission, a source of additional information, and courses listed by semester. (WB)

ED027441

TECHNICAL-VOCATIONAL EDUCATION

AT

DIABLO VALLEY COLLEGE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A COUNSELORS GUIDE FOR THE PURPOSE OF ADVISING STUDENTS OF EDUCATIONAL OPPORTUNITIES

SPRING, 1966

VT002708

TECHNICAL-VOCATIONAL EDUCATION

AT

DIABLO VALLEY COLLEGE

Technical-Vocational Education is that phase of the instructional program at Diablo Valley College that is concerned with preparing an individual for employment or for a career. This includes preparation for semi-professional, technical and vocational (skill level) occupations.

The curriculums in these categories are characterized by the inclusion of theoretical understandings, skill development and general education.

Upon completion of the program, and receipt of the Associate in Arts degree, the person is prepared for entry into employment. Additionally, it is possible to transfer this lower division work to a four year college and pursue the Bachelor's degree.

This material has been compiled so that counselors, teachers, and administrators will be better able to advise youth as to the occupational preparation available to them at Diablo Valley College. It is recognized that the job is not completed by merely making this material available. It is instead considered to be a starting point from which additional information should be sought from those directly concerned with and knowledgeable of the occupation and the program.

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BOOKKEEPING-ACCOUNTING: A two year program leading to the Associate in Arts Degree.

The Occupation:

Accountants compile and analyze business records and prepare financial reports, such as profit and loss statements, balance sheets, cost studies, and tax reports. Public accountants provide their services on a fee basis to various business enterprises and individuals. Private accountants, often refered to as industrial or management accountants, handle the financial records of a single business firm and [illegible] are subject to government regulation.

Accountants in any field of employment may specialize in such areas as auditing, tax work, cost accounting, budgeting and control, or systems and procedures. Public accountants, however, are most likely to specialize in auditing or tax accounting; private accountants, in management or cost accounting. Many accountants in the federal government are employed as Internal Revenus agents, investigators, and bank examiners.

Employment Outlook:

Employment opportunities for accountants are expected to continue to be good throughout the 1960's. Demand for college trained accountants will rise faster than demand for those without this training.

Over the long run, employment is expected to expand because of: greater use of accounting information in business management, increasing complexity of tax systems, growth in size and number of publicly held corporations that must provide financial reports to stockholders, and rising use of accounting services by small businesses. One of the greatest increases will be in government employment in connection with tax service.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting, ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Recommended Curriculum in

BUSINESS - BOOKKEEPING-ACCOUNTING

The following pattern of courses when successfully completed will lead to the Associate in Arts degree with a Certificate of Achievement in Business-Bookkeeping-Accounting. Some adjustments can be made in the order of courses

FIRST SEMESTER

Course Number	Course Title	Units
Business 109	Introduction to Business	3
Business 102	Business Mathematics	3
English 122	Composition and Reading	3
Psychology 119	Functional Aspects of Psychology	2
Business Elective		3
Physical Education	Activity Course	½
		14½

SECOND SEMESTER

Business 122	*Machine Calculation	2
*English Elective		3
*Natural Science Elective		3
Business 240 or Mathematics 142	Business Statistics Elementary Probability and Statistics	3
Physical Education	Activity Course	½
		14½

THIRD SEMESTER

Business 186	Principles of Accounting	3
*American Institutions Req.		3
Health Education 120	Education for Healthful Living	2
Business Electives		4
Economics 220	Principles of Economics	3
Physical Education	Activity Course	½
		15½

FOURTH SEMESTER

Business 187	Principles of Accounting	3
Business 294	Business Law	3
*Humanities Elective		3
*American Institutions		3
Economics 221	Principles of Economics	3
Physical Education	Activity Course	½
		15½

SUGGESTED ELECTIVES

Business 286	Data Processing	3
Business 191	Small Business Management	3

*See College catalog and/or counselor for choice of courses.

BUSINESS MANAGEMENT: A two year program leading to an Associate in Arts Degree

The Occupation:

The general business manager, within limitations of the power delegated to him by a superior (such as the owner, president, or board of directors), directs, controls, and administers a specific institution, department, or function, and is responsible for the successful outcome of the undertaking. He may work through subordinate managers or foremen, and his degree of responsibility will be determined by his education, training, and experience. Entry into management ordinarily is through trainee positions.

Employment Outlook:

The demand for junior executive or management trainees has been growing in recent years. This trend is expected to continue. Need for competent supervisors and administrators will increase as professional and other white collar workers swell the work force, and the use of automatic devices expands. Automation may, however, diminish opportunities in middle management. One phase of management which offers particular promise is that of systems management studies. Individuals with backgrounds in mathematics, statistics or physics who gain knowledge of data processing, computer programming, form design, and procedural analysis will be in demand.

Opportunities for work in this field exist primarily for youth; the preferred age range is 21 to 30, although some employers occasionally relax the upper age limit. Men are in greater demand than women; government and retail trade accept women most readily.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting, ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Recommended Curriculum in

BUSINESS - MANAGEMENT

The following pattern of courses when successfully completed will lead to the Associate in Arts degree with a Certificate of Achievement in Business-Management. Some adjustments can be made in the order of courses.

FIRST SEMESTER

Course Number	Course Title	Units
Business 101	Business English	3
Business 102	Business Mathematics	3
Business 109	Introduction to Business	3
English 122	Composition and Reading	3
Psychology 119	Functional Aspects of Psychology	2
Physical Education	Activity Course	½
		14½

SECOND SEMESTER

Business 250 or 251	Business Correspondence or Business Report Writing	3
Business 191 or 290	Small Business Management or Business Organization and Management	3
*English Elective		3
Health Education 120	Education for Healthful Living	2
Business Elective		3
Physical Education	Activity Course	½
		14½

THIRD SEMESTER

Economics 220	Principles of Economics	3
Business 186	Principles of Accounting	3
*Science Elective		3
*American Institutions Req.		3
Business Elective		3
Physical Education	Activity Course	½
		15½

FOURTH SEMESTER

Business 187	Principles of Accounting	3
Business 294	Business Law	3
*American Institutions Req.		3
*Humanities Elective		3
Business Elective		3
Physical Education	Activity Course	½
		15½

SUGGESTED ELECTIVES

Course Number	Course Title	Units
Business 110	Elementary Typewriting (or equiv.)	2
Business 190	Office Management	3
Business 286	Data Processing	3
Business 296	Systems Analysis	3
Economics 221	Principles of Economics	3
Mathematics 142 or Business 240	Elementary Probability and Statistics Business Statistics	3 3

*See College catalog and/or counselor for choice of courses.

DATA PROCESSING: A two year program leading to an Associate in Arts Degree.

The Occupation:

Electromechanical and electronic data processing are taking over many clerical, computational, and planning duties for government, business, and industry. Electric, gas, and telephone companies, for example, are using computers to make up monthly bills. Insurance companies prepare notices of premiums due, compute dividends, calculate agents' commissions, do actuarial computations, and prepare statistical tables with this equipment. Computers analyze the market, forecast sales, and estimate production requirements.

Employment Outlook:

Use of electronic data processing equipment is expected to increase very rapidly during the remainder of the 1960's, and the number of jobs for operators will also increase rapidly.

Just as important as the total number of openings likely to occur is the possibility that job requirements may change. Computer systems are constantly being modified and duties of console and auxiliary equipment operators are also changing. Operating a computer console may continue to require special aptitudes, affording employment to comparatively few. On the other hand, changes may simplify the work and newcomers may find it easier to qualify and competition for available jobs may become greater.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

BUSINESS - DATA PROCESSING

FIRST SEMESTER

Course Number	Course Title
Business 109	Introducation to Business
Business 186	Principles of Accounting
Mathematics 118	Elementary Algebra
English 122	Composition and Reading
Psychology 113	Functional Aspects of Psychology
Physical Education	Activities Course

SECOND SEMESTER

Business 190	Office Management
Business 286	Data Processing
Mathematics 120	Intermediate Algebra
Science Elective	
English Elective	
Physical Education	Activities Course

THIRD SEMESTER

Business 187	Principles of Accounting
*Business 287	Computer Coding and Operation I
Business 240	Business Statistics
American Institutions Elective	
Health Education 122	Education for Healthful Living
Humanities Elective	
Physical Education	Activities Course

FOURTH SEMESTER

*Business 288	Computer Coding and Operation II
Business 296	Systems, Analysis
Mathematics 125	Mathematical Analysis for Business
American Institutions Elective	
Humanities Elective	
Physical Education	Activities Course

*Offered Primarily in Evening.

GENERAL OFFICE TRAINING: A two year program leading to an Associate in Arts Degree

The Occupation:

About ten million persons do clerical or some closely related kind of work. Of this group, one out of every four is a secretary, typist, or stenographer. Approximately two million are secretaries and stenographers, those whose work required stenographic skill. The next largest group in the clerical field are the bookkeepers, numbering approximately one million.

Clerical work is the largest of all areas of employment for women. Two-thirds of all clerical workers are women. The number and proportion of women in clerical occupations have been rising steadily over the years. More than 90 percent of the telephone operators, stenographers, typists, and secretaries, and attendants in physicians' and dentists' offices are women. Women also fill more than three-fourths of the jobs as bookkeepers, cashiers, and office machine operators. Only in the latter -- office machine operators -- has the proportion of men risen.

Employment Outlook:

Several hundred thousand openings will occur in clerical and related occupations each year during the remainder of the 1960's. It is estimated that by 1975 approximately four million more people may be doing clerical work than in 1963.

Expanding clerical employment may be attributed to the fact that as modern business organizations grow in size and complexity, the volume of paperwork also expands. Automation in some offices may result in substantial reduction in the number of clerical employees. For the economy as a whole, however, it is expected that the new positions created by growth will outnumber clerical jobs eliminated by mechanization.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting, ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Recommended Curriculum in

BUSINESS - GENERAL OFFICE TRAINING

The following pattern of courses when successfully completed will lead to the Associate in Arts degree with a Certificate of Achievement in Business - General Office Training. Some adjustments can be made in the order of courses.

FIRST SEMESTER

Course Number	Course Title	Units
Business 101	Business English	3
Business 109	Introduction to Business	3
Business 110 (or equiv.)	Beginning Typewriting	2
English 122	Composition and Reading	3
Psychology 119	Functional Aspects of Psychology	2
Health Education 120	Education for Healthful Living	2
Physical Education	Activity Course	½
		15½

SECOND SEMESTER

Business 102	Business Mathematics	3
Business 122	Machine Calculation	2
Business 111	Intermediate Typewriting	2
*English Elective		3
Electives		3
Physical Education	Activity Course	½
		13½

THIRD SEMESTER

Business 112	Advanced Typewriting	2
Business 123	Machine Calculation	2
Business 181	Applied Accounting	3
*American Institutions Req.		3
Natural Science Elective		3
Elective		3
Physical Education	Activity Course	½
		16½

FOURTH SEMESTER

Business 140	Filing Procedures and Systems	2
Business 180	Applied Office Procedures and Business Records	3
*American Institutions Req.		3
*Humanities Elective		3
Elective		3
Physical Education	Activity Course	½
		14½

*See College catalog and/or counselor for choice of courses.

RESTAURANT AND CAFETERIA OPERATION: A two year program leading to an Associate in Arts Degree

The Occupation:

The student will receive training for a career in food service and allied industries with emphasis on management. He will be prepared for employment in hotels, restaurants, clubs, and airlines. Because of the demand for skilled food service personnel in the schools, hospitals and industrial plants of Alameda and Contra Costa County, Diablo Valley College is paying particular attention to education and training in institutional food management.

The many positions for which DVC students may qualify include: assistant restaurant manager, assistant club manager, cook, storeroom supervisor, food salesman, airline steward, kitchen steward, head waiter, hostess, and junior accountant. There are also many positions in hospital and school feeding which have particular appeal for women.

Employment Outlook:

Opportunities for well qualified persons to become managers of restaurants and hotel dining rooms are expected to be good. New college graduates with training in food management will be in demand to fill jobs offering possibilities of promotion.

Many of the new positions will be with the expanding school feeding program and restaurant chains. The mediocre trainee, however, will have difficulty finding placement and getting promotions.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

RESTAURANT AND CAFETERIA OPERATION

FIRST SEMESTER

Course Number	Course Title	Units
Restaurant & Cafeteria Operation 120	Elementary Quantity Food Preparation	2
Nutrition 115	Elements of Nutrition	3
Business 109	Introduction to Business	3
Business 103	Applied Business Mathematics	3
Business 142	Work Experience in Business	1
English 122	Composition and Reading	3
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

SECOND SEMESTER

Restaurant & Cafeteria Operation 121	Quantity Food Preparation	3
Restaurant & Cafeteria Operation 143	Food Service Field Work	1
Restaurant & Cafeteria Operation 152	Sanitation and Safety	1
*Biological Science 112	Human Biology	3
Business 181	Applied Accounting	3
Business 250	Business Correspondence	3
Humanities 110	General Course in the Humanities	3
Physical Education		$\frac{1}{2}$
		$17\frac{1}{2}$

*Biological Science 116 recommended when available.

SUMMER

Restaurant & Cafeteria Operation 200	Summer Work Experience	2
		2

THIRD SEMESTER

Restaurant & Cafeteria Operation 220	Quantity Food Preparation	3
Restaurant & Cafeteria Operation 242	Food Service Field Work	1
Business 191	Small Business Management	3
Economics 220	Principles of Economics	3
*Social Science 110	General Course in Social Science	3
Health Education 122	Education for Healthful Living	2
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

*History 120-121 or 124, or Political Science 120-121 may be substituted.

FOURTH SEMESTER

Restaurant & Cafeteria Operation 221	Restaurant and Cafeteria Management	2
Restaurant & Cafeteria Operation 243	Food Service Field Work	1
Business 294	Business Law	3
Psychology 120	Psychology of Human Behavior	3
*Social Science 111	General Course in Social Science	3
Speech 120	Fundamentals of Speech	3
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

*History 120-121 or 124, or Political Science 120-121 may be substituted.

RETAILING: A two year program leading to an Associate in Arts Degree

The Occupation:

Retail merchandising involves operations starting with the purchase of goods from the wholesaler and ending with the final sales to the customer. In addition to selecting goods to be sold, persons in the merchandising field also handle goods from their receipt at the store to their delivery to the customer, and work with advertising and other phases of sales promotion, plus keeping customer accounts and supervising personnel.

Many of the positions in the merchandising field are filled by the promotion of salespersons. Some are employees with college backgrounds hired as trainees and assigned to sales jobs for practical experience. Although stores with their own training programs ordinarily hire merchandise trainees as such, salespersons who have demonstrated their competence are sometimes selected for this training.

A typical promotional pattern for the salesperson trainee might be to head of stock room, assistant buyer, department manager, and buyer. Those qualified might also aspire to promotion to executive positions in personnel, public relations and other areas of the merchandising field.

Employment Outlook:

The merchandising field will provide thousands of job openings for salespersons and merchandising trainees throughout the rest of the 1960's. More workers will be needed as the volume of sales increases with population growth. However, because of the extension of self-service from food stores to other merchandising fields, it appears likely that sales employment will increase more slowly than the volume of sales.

Admission to the Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Recommended Curriculum in

BUSINESS - RETAILING

The following pattern of courses when successfully completed will lead to the Associate in Arts degree with a Certificate of Achievement in Business-Retailing. Some adjustments can be made in the order of courses.

FIRST SEMESTER

Course Number	Course Title	Units
Business 109	Introduction to Business	3
Business 148	Retailing and Merchandising	3
(1)Business 142	Work Experience in Business	1-3
English 122	Composition and Reading	3
Psychology 119	Functional Aspects of Psychology	2
Business Elective		2-3
Physical Education	Activity Course	$\frac{1}{2}$
		$14\frac{1}{2}$-$17\frac{1}{2}$

SECOND SEMESTER

(1)Business 143	Work Experience in Business	1-3
Business 255	Advertising	3
*English Requirement		3
*Humanities Elective		3
Business Elective		3
Physical Education	Activity Course	$\frac{1}{2}$
		$13\frac{1}{2}$-$15\frac{1}{2}$

THIRD SEMESTER

(2)Business 186	Principles of Accounting	3
Business 158	Salesmanship	3
*American Institutions Req.		3
*Science Elective		3
Business Elective		3
Physical Education	Activity Course	$\frac{1}{2}$
		$15\frac{1}{2}$

FOURTH SEMESTER

(3)Business 191	Small Business Management	3
Business 256	Marketing	3
Health Education 120	Education for Healthful Living	2
*American Institutions Req.		3
Business 294		3
Business Elective		3
Physical Education	Activity Course	$\frac{1}{2}$
		$17\frac{1}{2}$

SUGGESTED ELECTIVES

Course Number	Course Title	Units
Business 187	Principles of Accounting	3
Business 296	Systems Analysis	3
Business 110	Typewriting - Elementary (or equiv.)	2
Psychology 120	General Psychology	3

*See college catalog and/or counselor for choice of courses.
(1)Not required - strongly recommended (1-6 units)
(2)Business 181 - Applied Accounting, may be substituted.
(3)Business 290 - Business Organization and Management, may be substituted.

SECRETARIAL: A two year program leading to the Associate in Arts Degree

The Occupation:

Almost 2 million persons are employed in occupations requiring stenographic skills -- more than 95 percent of them women. They are the stenographers and secretaries whose chief function is the recording and transcription of dictation.

Stenographers take dictation from one or more persons and then transcribe their notes on a typewriter. Most stenographers record their notes in shorthand; a few use machines which print symbols as different keys are pressed. Many stenographers also do other typing, answer telephones, operate various types of office machines and perform other clerical duties. Some called technical stenographers take dictation in medical, legal, or scientific terms.

Secretaries in addition to doing stenographic work, relieve their employers of numerous routine duties, and often handle a variety of business details on their own initiative. They may schedule appointments for their employers, arrange for airline tickets and hotel reservations, answer some kinds of correspondence, and may supervise other clerical personnel. Some secretaries may specialize in legal, medical or other technical work. Both stenographers and secretaries may look forward to promotion to administrative assistant, office supervisor or other responsible positions.

Employment Outlook:

Several hundred thousand openings will occur in clerical and related occupations each year during the remainder of the 1960's. It is estimated that by 1975 approximately four million more people may be doing clerical work than in 1963.

Expanding clerical employment may be attributed to the fact that as modern business organizations grow in size and complexity, the volume of paperwork also expands. Automation in some offices may result in substantial reduction in the number of clerical employees. For the economy as a whole, however, it is expected that the new positions created by growth will outnumber clerical jobs eliminated by mechanization.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Recommended Curriculum in

SECRETARIAL

The following pattern of courses when successfully completed will lead to the Associate in Arts degree with a Certificate of Achievement in Business-Secretarial. Some adjustments can be made in the order of courses.

FIRST SEMESTER

Course Number	Course Title	Units
*Business Area Req.		3
Business 110, 111, or 113	Typewriting	2
Business 130 or 131	Shorthand	4-5
Psychology 119	Functional Aspects of Psychology	2
English 122	Composition and Reading	3
Physical Education	Activity Courses	½
		14½-15½

SECOND SEMESTER

Business 111 or 112	Typewriting	2
Business 131, 230, 231	Shorthand	4-5
Business 122 or 140	Machine Calculation or Filing	2-3
Humanities elective		3
Biological Science 112 or Physical Science 110	Fundamentals of Biological Science or Fundamentals of Physical Science	3
Physical Education	Activity Course	½
		14½-16½

THIRD SEMESTER

*Business Area Req.		6
Business 250	Business Correspondence	3
American Institutions Req.		3
Elective or Mathematics Req.		3
Physical Education	Activity Courses	½
		15½

FOURTH SEMESTER

Health Education 120	Education for Healthful Living	2
Business Electives		9
American Institutions Req.		3
English elective		3
Physical Education	Activity Courses	½
		17½

*See next page for Business Area Requirements

SECRETARIAL (Business)

The secretarial major should complete at least three units in each of the following groups.

AREA #1

Business 101	Business English	3 units
Business 250*	Business Correspondence	3 units
Business 251*	Business Report Writing	3 units

AREA #2

Business 109	Introduction to Business	3 units
Business 180	Applied Office Procedures and Business Records	3 units
Business 190*	Office Management	3 units
Business 290*	Business Organization and Management	3 units

AREA #3

Business 102	Business Mathematics	3 units
Business 181	Applied Accounting	3 units
Business 186*	Principles of Accounting	3 units

*Students are advised to take these courses in their second year at the college rather than in their first year.

APPAREL DESIGN: A two year program leading to the Associate in Arts Degree

The Occupation:

The Apparel Designer is a pattern style artist who can illustrate her ideas on paper. She can develop master patterns and construct original garments. A custom dressmaker or tailor sews, but in addition, has other duties. She designs, cuts, fits, and alters ladies' clothes. The apparel designer and the custom dressmaker or tailor understands textiles, how they are made, their finishes and their serviceabilities.

Employment Outlook:

Custom shops and Alteration departments offer regular employment the year-round for competent workers, despite seasonal variations. Top designers with established reputations are always in demand and can always find jobs. Dressmaking is a field offering self employment in the home or as a part-time occupation; consequently, it is a good field for married women. Indeed, dressmaking is good training for the girl contemplating marriage as it is a skill of lifelong usefulness. A designer or custom dressmaker or tailor may own her own shop and usually employs one or more apprentices. Buying and selling textiles or teaching sewing are excellent fields offering employment opportunities.

Admission to Program:

Applicants for the Diablo Valley College Apparel Design program must meet regular college admission requirements, arrange for a personal interview, and complete an aptitude test designed to give some indication of potential ability. Applicants are also expected to show on their transcripts creative endeavors in one or more areas of art, music, the dance, writing, or garment construction.

Additional Information:

College admission and registration information may be obtained by contacting the ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

APPAREL DESIGN

FIRST SEMESTER

Course Number	Course Title
Apparel Design 120	Apparel Construction
Apparel Design 130	Basic Textiles
English 122	Composition and Reading
Psychology 119	Functional Aspects of Psychology
Health Education 122	Education for Healthful Living
Physical Education	

SECOND SEMESTER

Apparel Design 112	Fashion Drawing
Apparel Design 121	Custom Tailoring
Apparel Design 131	Textile Testing
English Requirement	
Mathematics Requirement or Elective	
Physical Education	

THIRD SEMESTER

Apparel Design 110	History of Costume
Apparel Design 220	Design and Pattern Making
Apparel Design 230	Textile Dyeing and Printing
American Institutions	
Natural Science Requirement	
Physical Education	

FOURTH SEMESTER

Apparel Design 221	Professional Fitting and Management
Apparel Design 231	Care of Textiles
American Institutions	
Humanities Requirement	
Physical Education	
Recommended Elective: Business 180	(Applied Office Procedures and Business Records)

ARCHITECTURAL TECHNOLOGY: A two year program leading to the Associate in Arts Degree

The Occupation:

The Architectural Technician is concerned with the planning stages of construction; technicians may be engaged in estimating costs, purchasing materials, preparing specifications, surveying, draftying, or designing. Once the actual construction work has begun, technicians perform primarily supervisory functions, directing crews engaged on the project.

Employment Outlook:

The growing trend among employers is to hire technicians for much of the routine work formerly performed by experienced foremen and superintendents. This is an attempt to ease the shortage of competent personnel and should increase opportunities in the occupational field.

A growing population and an expanding economy is expected to increase the need for buildings of all kinds in our area. The long-term employment outlook for individuals working in the construction field and allied areas of materials supply, inspection, supervision, and finance is favorable in view of the strength underlying the industry. Continuing growth of population in California ensures a strong demand for housing, commerical facilities, individual plants and public buildings. This growth will create more and more opportunities in the design, construction, and planning stages needed for future construction.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

ARCHITECTURAL-CONSTRUCTION TECHNOLOGY

FIRST SEMESTER

Course Number	Course Title	Units
Architecture 122	Architectural Drawing	3
Art 170	Pencil Sketching	1
Mathematics 120	Intermediate Algebra	3
English Elective		3
Psychology 119	Functional Aspects of Psychology	2
Engineering 244	Materials of Construction and Cost Estimating	3
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

SECOND SEMESTER

Architecture 123	Architectural Drawing	3
Art 172	Pen and Ink Sketching	1
Engineering 245	Materials of Construction and Cost Estimating	3
English 122	Composition Reading	3
American Institutions		3
Health Education 122	Education for Healthful Living	2
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

THIRD SEMESTER

Architecture 135	Construction Processes	4
Business 181	Applied Accounting	3
Engineering 116	Surveying Related to Construction	1
Welding 115	Basic Welding Processes	2
American Institutions		3
Physics 110	Descriptive Physics	3
Physical Education		$\frac{1}{2}$
		$16\frac{1}{2}$

FOURTH SEMESTER

Architecture 136	Construction Processes	4
Business 276	Legal Aspects of the Construction Industry*	2
Electricity 130	Electricity	3
Engineering 299	Special Projects	1
Humanities		3
Elective		3
Physical Education		$\frac{1}{2}$
		$16\frac{1}{2}$

*Extended Day Program

ENGINEERING TECHNOLOGY: Two year Occupational Programs leading to an Associate in Arts Degree

OPTIONS: Drafting, Materials Testing, and Surveying.
Pre-engineering

The Occupation:

Engineering technicians perform many of the planning and supervisory tasks necessary in the construction of highways, railroads, bridges, viaducts, dams, houses, factories, and other structures. In the planning stages of construction, technicians may be engaged in estimating costs, purchasing materials, preparing specifications, surveying, drafting, or designing. Once the actual construction work has begun, technicians perform primarily supervisory functions, directing the crews engaged on the project, They may be responsible for seeing that construction activities are carried forward in proper order and, as work progresses, for inspecting it for conformance with blueprints and specifications.

Employment Outlook:

The growing trend among employers to hire technicians for much of the routine work formerly performed by fledgling civil engineers, which is an attempt to ease the shortage of engineering personnel, should increase opportunities in this occupation.

A growing population and an expanding economy is expected to increase the need for engineering services in various areas. The long-term employment outlook for members of engineering teams is favorable in view of the strength underlying the construction industry. Continuing growth of population in California ensures that the demand for housing, though subject to fluctuations, will continue strong. Construction of commercial, industrial, and public buildings, too, will remain active. In addition, the federal highway program is expected to continue to provide a large number of job opportunities. Other construction that should bring an increased demand for these technicians includes work on dams, power stations, and irrigation projects, and improvements of airport facilities.

Most students completing the two year curriculum will enter employment. It is also possible to transfer to a state college program in Technology leading to the Bachelors degree. San Francisco, San Jose, California Politechnic and Fresno State Colleges offer such programs and will accpet the two years of course work completed at DVC.

Admission to the Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

ENGINEERING TECHNOLOGY

FIRST YEAR: Common Core for the Various Technical Options.

First Semester	Units	Second Semester	Units
Engr. 120 - Engr. Drawing	2	Engr. 121 - Engr. Drawing	2
Math. 120 - Inter. Algebra	3	Math. 121 - Trigonometry	3
Math. 122, 123, 124	3	English 122	3
English Elective	3	American Institutions	3
Psychology 119	2	Chemistry 108	4
Health Education 122	2	Physical Education	½
Physical Education	½		
	15½		15½

SECOND YEAR: Technical Option followed is based upon the students objective.

Third Semester	Units	Fourth Semester	Units
American Institutions	3	Humanities	3
Physical Education	½	Physical Education	½
Technical Option	12	Technical Option	12
	15½		15½

TECHNICAL OPTIONS

Drafting	Units		Units
Engr. 222 - Drafting	2	Engr. 223 - Drafting	2
Engr. 298 - Special Project	1	Engr. 299 - Special Project	1
Engr. 140 - Surveying	3	Physics 121	4
Physics 120	4	Electronics 116	4
Macnine Technology 120	3	Technical Writing	2
	13		13

Materials Testing	Units		Units
Engr. 298	1	Physics 121	4
Engr. 239 - Materials Test.	3	Math. 142 - Statistics	3
Electronics 116	4	Engr. 299 - Special Project	1
Physics 120	4	Technical Writing	2
		Elective	3
	12		13

Surveying	Units		Units
Engr. 140 - Surveying	3	Engr. 141 - Surveying	3
Engr. 298 - Special Project	1	Engr. 299 - Special Project	1
Physics 120	4	Geology 120	3
Electronics 116	4	Technical Writing	2
		Engr. 239 - Materials Test.	3
	12		12

ENGINEERING ELECTRONICS TECHNOLOGY: A two year program leading to an Associate in Arts Degree

The Occupation:

The electronics technicians considered here have a background of electronics theory, physical science, and mathematics that enables them to handle more complex and technical work than routine operating and repair jobs.

The broad field of electronics in which these technicians work includes radio, radar, sonar, telemetering, television, telephone, and other forms of communication; industrial and medical measuring, recording, indicating and controlling instruments; electronic computers and many other types of equipment using vacuum tubes and semiconductor circuits.

Employment Outlook:

Not only will employment grow in existing fields of electronics, but also many new areas are expected to be developed. Opportunities for employment in the field are now and will continue to be excellent.

Engineering electronics technicians are primarily employed in research and development jobs. As members of engineering and scientific teams they are usually given some responsibility in the actual design of equipment. They often construct and evaluate experimental circuitry and devices.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered. This program is designed for the student who has preparation from high school in Trigonometry, Chemistry, Physics and Mechanical Drawing.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

ENGINEERING ELECTRONICS TECHNICIAN

FIRST SEMESTER

Course Number	Course Title	Units
Electronics 120	Electrical Fundamentals of Electronics	4
Electronics 122	Electronics Laboratory	2
Electronics 124	Chassis and Cabinet Fabrication	1
Mathematics 127	Mathematical Analysis	4
General Education and Electives		5½
		16½

SECOND SEMESTER

Electronics 121	Tube and Transistor Fundamentals	4
Electronics 123	Electronics Laboratory	2
Electronics 125	Wired Circuit Fabrication	2
Mathematics 128	Applied Calculus	4
General Education and Electives		5½
		17½

THIRD SEMESTER

Electronics 220	Electronics Circuits	4
Electronics 222	Electronics Laboratory	2
Physics 130	General Physics	4
Engineering 120	Engineering Drawing	2
General Education and Electives		6½
		18½

FOURTH SEMESTER

Electronics 221	Electronics Systems	4
Electronics 223	Electronics Laboratory	2
Physics 230	General Physics	4
Engineering 299	Special Projects	3
Technical Writing 110	Technical Reports I	2
General Education and Electives		3½
		18½

NOTE: This program is designed for the student who has preparation from high school in Trigonometry, Chemistry, Physics and Mechanical Drawing.

INDUSTRIAL ELECTRONICS TECHNICIAN: A two year program leading to an Associate in Arts Degree

The Occupation:

Industrial electronics technicians construct, install, maintain, and repair electronics equipment. Their services are needed in fields such as missile, computer, data processing, and industrial controls. Communications and neucleonics.

Employment Outlook:

Not only will employment grow in existing field of electronics, but also many new areas are expected to be developed. Opportunities for employment in the field are now and will continue to be excellent.

Engineering electronics technicians are primarily employed in research and development jobs. As members of engineering and scientific teams they are usually given some responsibility in the actual design of equipment. They often construct and evaluate experimental circuitry and devices.

Admission to Program:

The program is open to high school graduates or persons over 18 years of age capable of profiting from the instruction offered. This program is designed for the student who has preparation from high school in Mechanical Drawing, Chemistry, and Intermediate Algebra.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

INDUSTRIAL ELECTRONICS TECHNICIAN

FIRST SEMESTER

Course Number	Course Title	Units
Electronics 120	Electrical Fundamentals of Electronics	4
Electronics 122	Electronics Laboratory	2
Electronics 124	Chassis and Cabinet Fabrication	1
Mathematics 121	Trigonometry	3
General Education and Electives		5½
		15½

SECOND SEMESTER

Electronics 121	Tube and Transistor Fundamentals	4
Electronics 123	Electronics Laboratory	2
Electronics 125	Wired Circuit Fabrication	2
General Education and Electives		8½
		16½

THIRD SEMESTER

Electronics 220	Electronics Circuits	4
Electronics 222	Electronics Laboratory	2
Electronics 224	Printed Circuit Fabrication	1
Physics 120	General College Physics	4
General Education and Electives		3½
		14½

FOURTH SEMESTER

Electronics 221	Electronics Systems	4
Electronics 223	Eletronics Laboratory	2
Electronics 225	Electronics Materials Fabrication	2
Physics 121	General College Physics	4
General Education and Electives		3½
		15½

NOTE: The student is expected to have completed in high school: Mechanical Drawing, Chemistry, and Intermediate Algebra. If not, however, he may take them at Diablo Valley College. Mathematics 120, Engineering Drawing 119, and Chemistry 108 may be taken concurrently.

TECHNICAL-INDUSTRIAL PROCESSES: Two year program leading to an Associate in Arts Degree

In order that the college can provide an educational opportunity for students with varied interests and abilities, the Technical-Industrial Processes Program has been developed.

The program is designed to provide the basic knowledges, skills and appreciations needed by persons preparing to enter technical-industrial employment. Emphasis is placed upon the acquiring of mathematics, communications, and scientific principals along with a broad background of technical trade-industrial knowledge and skills.

Upon completion of the first year of the technical-industrial program, the student is prepared to follow various routes:

1. - Obtain entry level employment and continue his studies in the Extended Day program.

2. - Based on his strengthened math-science background, enter one of DVC's Technician programs; Architecture, Engineering, Electronics.

3. - Continue in the Technical-Industrial Program, selecting technical-industrial courses suited to his interests and employment objectives.

Why such a program?

1. - The student has an opportunity to further develop the basic mathematics, communication, and scientific understandings necessary to qualify for employment.

   The motivation to develop these understandings will be centered around the technical-industrial courses.

2. - The technical-industrial courses will provide a basis for flexibility and adaptation to the changing demands of industry.

3. - The general education will better equip the student for community responsibility.

4. - The experience will provide a basis on which the student can develop himself as changing technology demands it.

NOTE: Some of the technical-industrial courses are offered in the Extended Day program. This allows the student flexibility in his program, and an opportunity to gain valuable part-time work experience along with his course work.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

TECHNICAL-INDUSTRIAL PROCESSES

The student completing this program will possess the mathematics, communication and scientific principles as well as certain fundamental technical-industrial skills that will prepare him for entry into a number of allied occupational fields.

FIRST SEMESTER

Course Number	Course Title	Units
Engineering 119	Elementary Drawing	2
Mathematics 110	Principles of numbers	3
*Electricity 130	Electricity	3
*Welding 115	Basic Welding Processes	2
Psychology 119	Functional Aspects of Psychology	2
Health Education 122	Education for Healthful Living	2
Elective		2
Physical Education		$\frac{1}{2}$
		$16\frac{1}{2}$

SECOND SEMESTER

Engineering 120	Engineering Drawing	2
Mathematics 118	Elementary Algebra	3
*Electricity 131	Electricity	3
*Welding 170	Oxyacetylene Welding	1
Communication 116	Reading Development	3
Elective		2
Physical Education		$\frac{1}{2}$
		$14\frac{1}{2}$

THIRD SEMESTER

Mathematics 119	Geometry	3
Machine Technology 120	Machine Processes	3
*Welding 171	Metallic Arc Welding	1
History 120	History of the United States	3
English 122	Composition and Reading	3
Elective		2
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

FOURTH SEMESTER

Machine Technology 121	Machine Processes	3
Physical Science 110	Fundamentals of Physical Science	3
*Welding 172	Metallic Arc Welding	1
History 121	History of the United States	3
Humanities 110	General Courses in the Humanities	3
Elective		2
Physical Education		$\frac{1}{2}$
		$15\frac{1}{2}$

*Extended Day Offering

DENTAL ASSISTING: A two year program leading to an Associate in Arts Degree

The Occupation:

The dentist's assistant prepares patients for examination, treatment, or dental surgery; checks to see that all needed supplies, instruments, and equipment are in readiness; and assists at the dental chair while the dentist performs his tasks. Her duties at the chair include mixing cements, amalgam, silicates, and other filling materials; mixing impression compounds when required; operating the salivation pump; and helping the dentist keep the patient's mouth and lips in proper position for treatment. For these tasks, she is under the supervision of the dentist at all times. Independent work includes instrument sterilization and care of equipment. She also may perform a variety of clerical tasks, such as making appointments, serving as receptionist, maintaining case records, typing and sending bills, receiving payments, and keeping books. In addition, she may do some laboratory or X-ray work.

Employment Outlook:

Openings occur regularly for dental assistants. Employment prospects for a person planning to take a thorough course of training will be excellent for a long time.

Admission to Program:

Applicants must be high school graduates or 18 years of age or older, and show evidence of good health and freedom from communicable diseases. A background in high school chemistry, biology, mathematics, bookkeeping and typing is highly desirable. Application does not mean automatic acceptance, however. Students must qualify on the basis of test scores, high school grades, and personal interviews.

A career in Dental Assisting calls for neatness, a genuine liking for people, patience and tact, a sincere desire to help others, poise and good judgement.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, - Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

DENTAL ASSISTING

FIRST SEMESTER

Course Number	Course Title
Dental Assisting 122	Introduction to Dental Assisting
Dental Assisting 123	Dental Morphology
Dental Assisting 124	Dental Equipment and Instruments
Dental Assisting 125	Oral Anatomy and Physiology
Dental Assisting 126	Pharmocology and Oral Pathology
American Institutions	
Psychology 119	Functional Aspects of Psychology
English 122	Composition and Reading
Physical Education	Activities Course

SECOND SEMESTER

Dental Assisting 142	Dental Assisting in General Dentistry
Dental Assisting 143	Dental Materials
Dental Assisting 144	Chairside Assisting in the General Office
Dental Assisting 145	Nutrition and Oral Hygiene
American Institutions	
Science Requirement	
Health Education 122	Education for Healthful Living
Physical Education	Activities Course

THIRD SEMESTER

Dental Assisting 222	Chairside Assisting in Specialty Offices
Dental Assisting 223	Bacteriology and Sterilization
Dental Assisting 224	Chairside Assisting in Dental Specialties
Dental Assisting 225	Oral Roentgenology
Business 110 (or equiv. or elective)	Typewriting - Beginning
Business 180	Applied Office Procedures and Business Records
Elective	
Physical Education	Activities Course

FOURTH SEMESTER

Dental Assisting 242	Practical Experience
Dental Assisting 243	Dental Office Management
Dental Assisting 244	Projects in Dental Assisting
Dental Assisting 245	Roentgenology Laboratory
Humanities Requirement	
Health Education 130	First Aid
Speech 120	Fundamentals of Speech
Physical Education	Activities Course

DENTAL HYGIENIST: A two year program leading to an Associate in Arts Degree

The Occupation:

Dental Hygienists work under the supervision of dentists. They clean teeth by removing discolorations and deposits, and massage gums. At the same time they chart conditions of decay and disease for diagnosis and treatment by the dentist. They may apply a fluoride solution to children's teeth to aid in preventing decay. They may also engage in dental health education, advising as to techniques of mouth care and proper diet. Those working in private dental offices may also take and develop X-ray pictures, mix filling compounds, prepare solutions, sterilize instruments, and work as chairside assistants to the dentist. Making appointments and keeping records may also be part of their duties.

Employment Outlook:

There is a shortage of dental hygienists which is expected to continue through the 1960's. The American Dental Hygienists Association reported in 1962 that there were twice as many job openings as qualified applicants, despite a sharp rise in the number of graduates in recent years. Over the long run, the demand for dental hygienists is expected to grow, due to such factors as expanding population, higher incomes, growing interest in dental care for children, and increased participation in dental prepayment plans.

Admission to Program:

Mathematics through intermediate algebra and one year each of chemistry and biological science, or equivalents in all three areas, are mandatory. In addition, students must pass the college's usual admissions tests and a National Aptitude Examination by the American Dental Hygienists Association. Because class size is limited, selection is made on previous scholastic achievement and results of the National Dental Hygiene Board Examination.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

Current Curriculum in

DENTAL HYGIENE

FIRST SEMESTER

Course Number	Course Title
Biological Science 120	Anatomy & Physiology
Chemistry 120	General Chemistry
English 122	Composition and Reading
Dental Hygiene 120	Principles of Oral Hygiene
Dental Hygiene 121	Dental Morphology
Dental Hygiene 135	Oral Anatomy & Embryology
Physical Education	Activities Course

SECOND SEMESTER

Dental Hygiene 124	Histology
Psychology 120	General Psychology
Chemistry 225	Organic Chemistry
Nutrition 160	Nutrition
Dental Hygiene 122	Prophylaxis Technique
Dental Hygiene 123	Orientation to Dentistry

THIRD SEMESTER

Biological Science 146	Microbiology
Dental Hygiene 202	Dental Health Education - Individual and community health with special emphasis on community dental health problems
Dental Hygiene 223	Orientation to Dentistry
Dental Hygiene 226	Periodontics
Dental Hygiene 230	Clinical Dental Hygiene
Social Science 110	General Course in Social Science
Physical Education	Activities Course

FOURTH SEMESTER

Humanities	A General Course in Humanities
Speech 120	Fundamentals of Speech
Social Science 111	General Course in Social Science
Dental Hygiene 222	Ethics & Office Practice
Dental Hygiene 224	Orientation to Dentistry
Dental Hygiene 231	Clinical Dental Hygiene
Physical Education	Activities Course

SUMMER SEMESTER

Dental Hygiene 130	Clinical Dental Hygiene
Dental Hygiene 201	Dental Health Education (Patient Education)
Dental Hygiene 220	Pathology (General with emphasis on Oral)
Dental Hygiene 221	Pharmacology
Dental Hygiene 225	Oral Roentgenology

LICENSED VOCATIONAL NURSING: A three semester program

The Occupation:

Licensed vocational nurses also known as licensed practical nurses, usually perform such duties as observing and recording symptoms and reactions of selected patients; giving prescribed treatments and medications; observing the appearance, behavior and conversation of patients; factors causing reaction or changes in the patient's condition; and helping with personal hygiene tasks. Vocational nurses frequently provide most of the nursing care given to newborn babies, mothers, and chronically ill patients. They also may assist professional nurses with acutely ill patients, such as those recovering from major surgery, and with diabetic persons who must be taught how to use insulin.

Vocational nurses in doctors' offices assist physicians or professional nurses in the examination of patients, give simple medications or treatment as directed, carry out routine laboratory tests, and perform some clerical duties. In industrial establishments their duties may vary from first aid and emergency care at the place of business to home - visiting services for workers and their families.

Employment Outlook:

Employment opportunities will be excellent for the licensed vocational nurse throughout the remainder of the 1960's. The demand for practical nurses has continued strong since World War II. The critical shortage of professional nurses that began at that time resulted, in most hospitals and other health organizations, in a redistribution of nursing duties among personnel with different degrees of preparation and training, and stimulation of efforts to train practical nurses. Although the number of practical nurses completing training has risen steadily in recent years to some 18,000 in 1962, the supply has not kept pace with the demand.

The successful use of licensed vocational nurses as members of nursing teams, and the likelihood of continued shortage of professional nurses, are among factors pointing to greater employment for vocational nurses in the long run. The number of people receiving psychiatric care is rising, and more pactical nurses will be needed in mental hospitals. The growing population and increasing health consciousness of the public are among other factors likely to increase the demand for the services of vocational nurses.

Admission to Program:

Applicants must be 18 years of age or older and must file, in person, an Admission Application with the Registrar after January 1 for Fall classes, and after July 1 for Spring classes. New classes begin every third semester. Applicant must complete the College entrance tests and be personally interviewed by both the director of the LVN program and a counselor. Applicant must pass a physical examination, submit proof of U. S. citizenship, or of intent to file for same and give evidence of completion of the tenth grade, or of having the equivalent knowledge or skills.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

VOCATIONAL NURSING

FIRST SEMESTER

Course Number	Course Title
English 122	Composition and Reading
*Vocational Nursing 124	Fundamentals of Nursing
*Vocational Nursing 125	Medical Nursing
Nutrition 110	Basic Nutrition

SECOND SEMESTER

Psychology 119	Functional Aspects of Psychology
*Vocational Nursing 126	Obstetrical Nursing
*Vocational Nursing 127	Pediatric Nursing

THIRD SEMESTER

Family Life Education 124	Child Development and Behavior
*Vocational Nursing 128	Surgical Nursing

*Classes at Selected Hospitals

POLICE SCIENCE: A two year program leading to the Associate in Arts Degree

The Occupation:

Peace officer, regulatory and inspectional officers work for local, state and federal governments. Investigative and security personnel are employed by corporations and other private businesses.

In police and sheriffs' departments male officers start as patrolmen and advance in rank and into specialties through promotional examinations. Some of the specialties are: photography, identification, fingerprint expert, statistician, crime laboratory, traffic, investigation, juvenile work.

Female officers have a broad opportunity as policewoman, juvenile officer, secretary, meter maid, as well as many of the specialties available to male officers.

In view of the fact that persons in the occupation work under a minimum of supervision, good judgement, initiative, reliability and dedication are prime requisites.

Employment Outlook:

Employment opportunities in law enforcement, investigative, regulatory and security work will continue to be good during the 1960's. New positions will arise as populations grow; in addition, it is anticipated that there will be approximately 5,000 openings in California alone as replacements for officers who retire. Retirement rates are relatively high because officers are able to retire earlier than workers in many other occupations. The need for people with specialized training will be highest in view of the increasing challenges and complexity of the work.

Admission to the Program:

The program is open to high school graduates or persons over 18 years of age who are capable of profiting from the instruction offered. People in the latter category must be aware that generally the maximum age for acceptance in the occupation is 29 years.

An applicant must also qualify on the basis of test scores, and personal interview. Excellent physical health, freedom from color blindness and the absence of a criminal record are also necessary.

Additional Information:

College admission and registration information may be obtained by contacting ADMISSIONS OFFICE, Diablo Valley College, Golf Club Road, Concord, California, Telephone: 685-3660. Specific program information may be obtained by contacting the Office of Instruction.

DIABLO VALLEY COLLEGE

Current Curriculum in

POLICE SCIENCE

FIRST SEMESTER

Course Number	Course Title
Police Science 120	Introduction to Law Enforcement
Police Science 121	Criminal Law
English 122	Composition and Reading
Political Science 120	Introduction to Political Institutions
Psychology	
Physical Education 150	Body Building for Men

SECOND SEMESTER

Police Science 122	Administration of Justice
Police Science 140	Traffic Control
Mathematics requirement or elective	
Political Science 121	Introduction to U. S. Government
History 121	History of the United States
Physical Education 151	Body Building for Men

THIRD SEMESTER

Police Science 221	Criminal Evidence
Police Science 230	Juvenile Procedures
Police Science 203	Defensive Tactics
Biological Science 112	Fundamentals of Biological Science
Humanities 110	A General Course in the Humanities
Health Education 122	Education for Healthful Living
Physical Education 147	Tumbling

FOURTH SEMESTER

Police Science 222	Criminal Investigation
Police Science 260	Patrol Procedures
Police Science 270	Defensive Tactics and Firearms
Physical Science 110	Fundamentals of Physical Science
Health Education 130 or equivalent	First Aid
Business 110 or equivalent	Typewriting - Beginning
Elective	
Physical Education 148	Tumbling

Health Education 130 equivalent -- Valid Red Cross First Aid Advanced Course card.

Business 110 equivalent -- Typing test, 40 wpm copy or 30 wpm composing, 5 minutes. 5 errors allowed.

VT 002 746

VT 002 746
Stephens, John F.
Utah Coordinating Unit for Research in Vocational and Technical Education. Interim Report.

Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City
Utah State Dept. of Public Instruction, Salt Lake City
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*RESEARCH COORDINATING UNITS; *EDUCATIONAL RESEARCH; *PROGRAM DESCRIPTIONS; *VOCATIONAL EDUCATION; *STATE PROGRAMS; CRITICAL PATH METHOD

Six research programs supported in whole or part by the Unit were completed since the last quarterly report, and nine are in progress. Those completed were (1) Catalogue of Vocational and Technical Education Scholarships Available to Utah High School Seniors, (2) Survey of Commercial Arts Curriculum, (3) A Study of Utah's Requirements in Eight Paramedical Occupations, (4) Feeder Study of High School Vocational Programs, (5) Office Simulation Project, and (6) Evaluation of the Effectiveness of "Pride and Performance" ETV Program. Programs in progress were: (1) Utah VIEW Program, (2) Study of Appropriate Vocational Programs Applicable to the Utah State Industrial School, (3) An Assessment of Typewriting Skills in the Secondary Schools of Utah in Relation to Entry Job Requirements, (4) The Adequacy of Utah's Distributive Education Graduates, (5) Evaluation of Manpower Schools at Salt Lake City and Ogden, (6) A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Education Scholarships in Tooele County, (7) A Study of Mechanical Jobs Performed by Farmers of Utah, (8) Sevier Valley Tech Curriculum Design Workshop, and (9) Vocational Curriculum Design Workshop, Delta. Unit expenditures from December 1, 1966 through May 31, 1967 totalled $20,815.45 in federal funds and $6,107.54 in state funds. Program Evaluation and Review Technique (PERT) diagrams are included for seven projects. (MM)

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JUL 17 1967

INTERIM REPORT

PROJECT NO. 6-3046

Grant No. OEG-4-7-063046-1612

UTAH COORDINATING UNIT FOR RESEARCH IN VOCATIONAL AND TECHNICAL EDUCATION

1 June 1967

U. S. Department of
Health, Education, and Welfare
Office of Education
Bureau of Research

VT002746

UTAH COORDINATING UNIT FOR RESEARCH IN

VOCATIONAL AND TECHNICAL EDUCATION

Project No. 6-3046
Grant No. OEG-4-7-063046-1612

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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John F. Stephens

1 June 1967

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare

Office of the State Superintendent
of Public Instruction

Salt Lake City, Utah 84111

1. INTRODUCTION

Status of projects introduced in previous reports will be reported herein by PERT charts. New projects initiated since the last previous report will be described by narrative and PERT network. Final reports of projects completed since the last interim report are attached.

2. ORGANIZATION

No change

3. METHOD

No change in the focus of attention or in the technique for selecting follow-on projects.

4. RESULTS

Of the research programs supported in whole or part by the RCU, six have been completed since the last Quarterly Report, and nine are in progress. Details of each project are given in the "Discussion" paragraph below, and in the attached PERT diagrams. Copies of the final reports of the completed projects are attached except for the Office Simulation proposal, which has already been submitted through separate channels.

5. DISCUSSION

a. Utah VIEW Program.

Continuing; see PERT, enclosure 1, for status.

b. Catalogue of Vocational and Technical Education Scholarships Available to Utah High School Seniors.

Completed; see PERT, enclosure 2. Two copies of the final report attached.

c. Study of Appropriate Vocational Programs Applicable to the Utah State Industrial School.

Final report being prepared. See PERT, enclosure 3.

d. An Assessment of Typewriting Skills in the Secondary Schools of Utah in Relation to Entry Job Requirements.

Data now being analyzed, see PERT, enclosure 4.

e. The Adequacy of Utah's Distributive Education Graduates.

Data now being analyzed, see PERT, enclosure 5. The Principal Investigator underwent surgery during the course of the project, which resulted in an approximate 30-day delay in the program.

f. Evaluation of the Manpower Schools at Salt Lake City and Ogden, Utah.

For the past two years, Manpower Schools have been conducted in Ogden and Salt Lake City. At the request of the State Administrator for Vocational and Technical Education, the RCU is engaged in a study of the organization and operation of the two schools to determine their aggregate strengths. If successful, this evaluation will serve as a basis for the organization of more effective schools in the future.

The Project Director is John F. Stephens, Director, RCU, and the Principal Investigator is G. Warren Gaddis. The research design and timing is shown on the PERT network, enclosure 6. An analysis of the data gathered is currently underway.

g. Survey of Commercial Arts Curriculum

At the request of the State Specialist for Post-Secondary Vocational/ Technical Education, the RCU performed a survey to determine what commercial arts curricula are available in other states which could serve as background data for the revision of the Utah curriculum. A basic question to be investigated was whether two-year commercial arts programs were considered appropriate by schools outside the state of Utah.

The study design considered that of the various types of schools offering commercial arts programs, the profit-oriented private school would be most likely to use the minimum length curriculum compatible with adequate employability levels of its graduates. Therefore, the largest part of the sample was randomly selected from the private school category.

The study has now been completed, see PERT network, enclosure 7, and two copies of the final report are attached. This study has been provided to the State Specialist and will be used as background materials in decisions affecting revisions in the non-baccalaureate commercial arts curricula in the state.

In addition to the 4(c) funded studies underway, the RCU has assisted in the planning, conduct and funding of other studies whose titles are listed below. 4(a) funds made available by the State Administrator of Vocational and Technical Education, Mr. Mark Nichols, are used to help defray the Principal Investigators' expenses.

a. A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Education Scholarships in Tooele County, Utah.

Described in last quarterly summary. Final report now being prepared.

b. A Study of Mechanical Jobs Performed by the Farmers of Utah.

Described in last quarterly report. Data now being analyzed. Verbal presentation made to the Vocational Agriculture teachers of the state.

c. A Study of Utah's Requirements in Eight Paramedical Occupations.

Described in last quarterly summary. Final report prepared, and two copies are attached.

d. Feeder Study (High School Vocational Programs)

At the request of the State Vocational Specialist in post-secondary education, the RCU conducted a survey to determine:

a. The extent to which the high school terminal vocational students entered the world of work in the same or related occupations to their fields of study.

b. The extent to which the present students in post-secondary vocational courses had participated in high school vocational courses.

Utah Technical College at Salt Lake and Weber State College cooperated in this study.

This study has been completed, and two copies of the final report are attached.

f. Office Simulation Project.

The RCU cooperated with Utah State University in the preparation of a proposal to the USOE for funds to develop and test an office simulation for 12th grade office practice students. It is generally conceded that cooperative programs provide valuable and realistic training experiences for programs such as business practice. However, in rural areas it is not always feasible to sustain cooperative programs because of a lack of local industry. The purpose of the proposal is to develop a simulated office for use in the 12th grade classroom to provide both realism and a wide variety of work experiences.

The proposal has been completed and submitted to the USOE; it is an excellent proposal.

g. Sevier Valley Tech Curriculum Design Workshop.

The RCU has supported the planning for a workshop in Salt Lake and Richfield this summer to develop curriculum based on entry skill levels in five vocational areas. During the first four weeks of the program, 17 teachers and counselors will work in industry in their own specialties; at the end of this time they will participate in a two-week workshop in Richfield to prepare measurable objectives and classroom tests for the five areas. Dewain Washburn is the Principal Investigator for this program.

h. Evaluation of the Effectiveness of "Pride of Performance" ETV Program.

Through the use of a questionnaire, and with the assistance of Utah's Vocational Directors, the RCU conducted a survey to determine:

a. If vocational students were watching "Pride of Performance".

b. The effect the program was leaving on its student viewers.

c. The extent of the program's integration into the schools' curricula.

Partially as a result of this survey, "Pride of Performance" will not be continued in FY 1968. Two copies of the final report are attached.

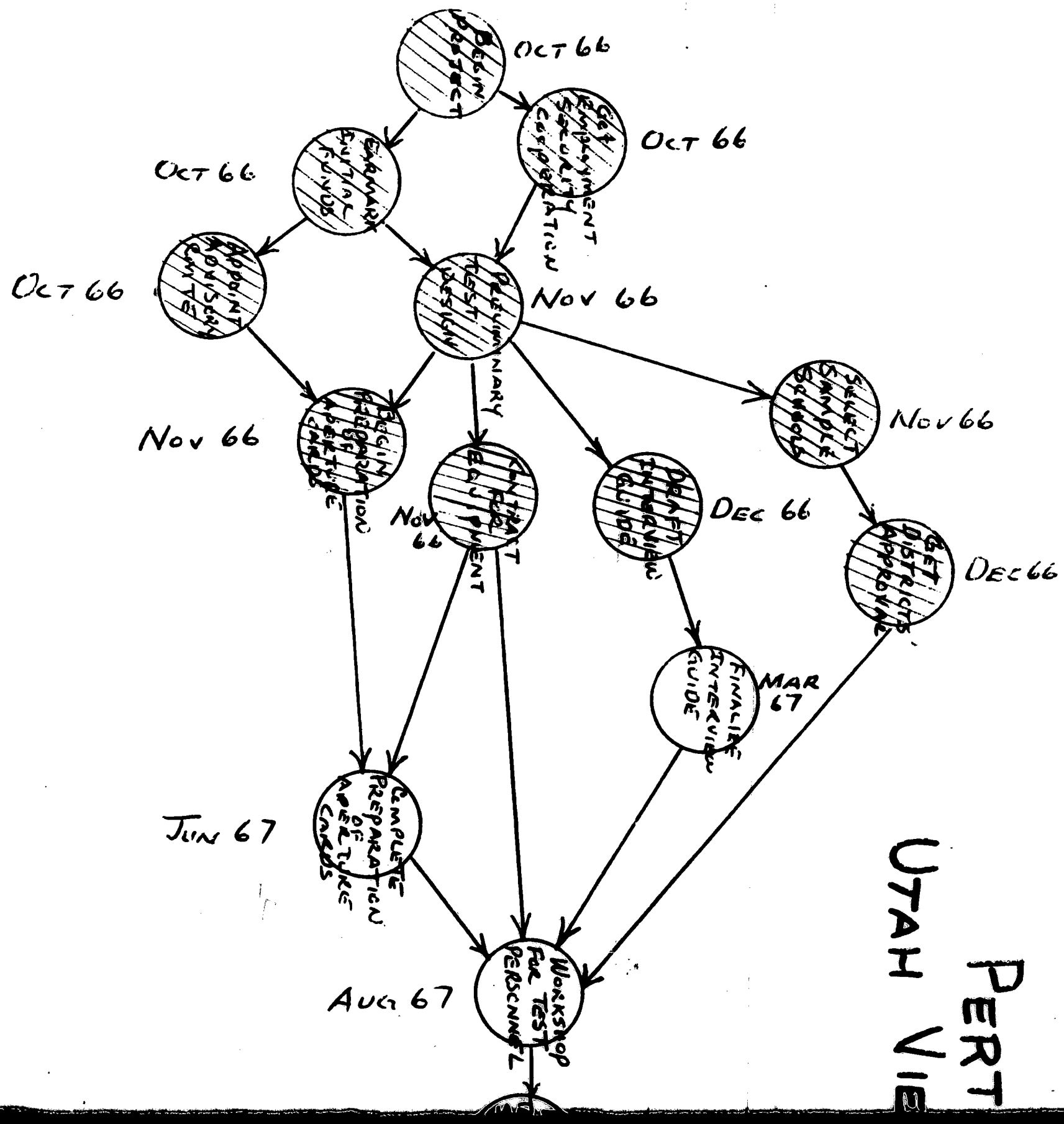
i. Vocational Curriculum Design Workshop, Delta.

The RCU is supporting a workshop sponsored by Millard District to develop a four-year program which will permit broader vocational offerings in the schools of rural districts. The workshop will develop the general outlines of the four-year program, and the details of the first year's (9th grade) course content.

6. FUNDING

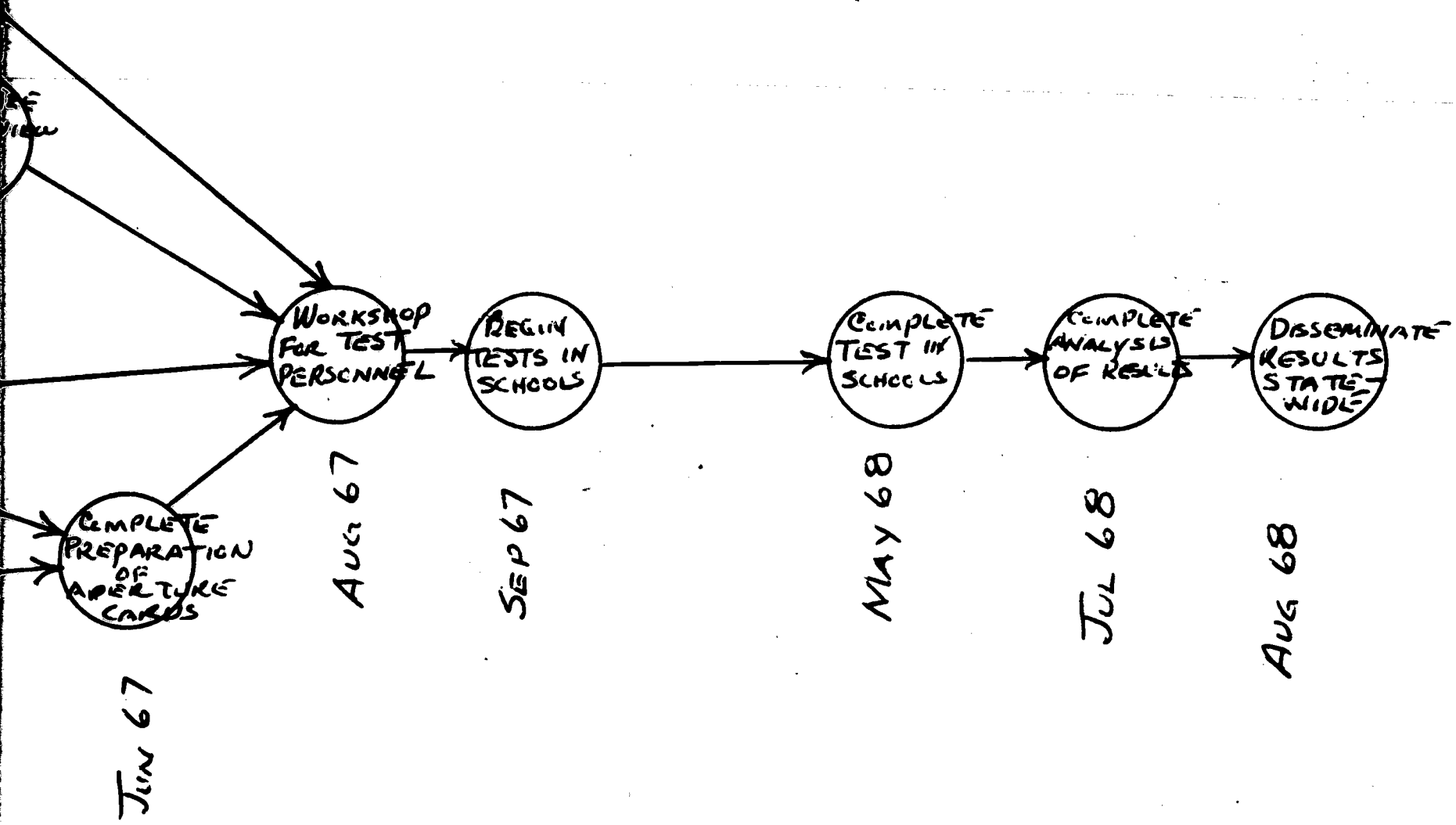
The Federal expenditures through 31 May total $20,815.45, and are within the amounts budgeted. Enclosure 8 lists the expenditures by budget category and by source of funds.

An estimate of the expenditures anticipated for the next quarter, $11,100.00, is reflected on the USOE Form 5141 attached as enclosure 9. Please authorize the withdrawal of the needed funds by letter of credit.


BEGIN PROJECT
OCT 66
SECURITY CLEARANCE
OCT 66
SUMMARY INTERVIEWS
OCT 66
ADDITIONAL INTERVIEWS
OCT 66
PRELIMINARY TEST DESIGN
NOV 66
BEGIN PREPARATION OF APPROPRIATE INSTRUMENTS
NOV 66
INSTRUMENT DEVELOPMENT
NOV 66
PRELIMINARY
DRAFT INTERVIEW GUIDE
DEC 66
SELECT SAMPLE GROUPS
NOV 66
GET DISTRICTS APPROVAL
DEC 66
FINALIZE INTERVIEW GUIDE
MAR 67
COMPLETE PREPARATION OF APPROPRIATE CARDS
JUN 67
WORKSHOP FOR TEST PERSONNEL
AUG 67

PERT
UTAH VI

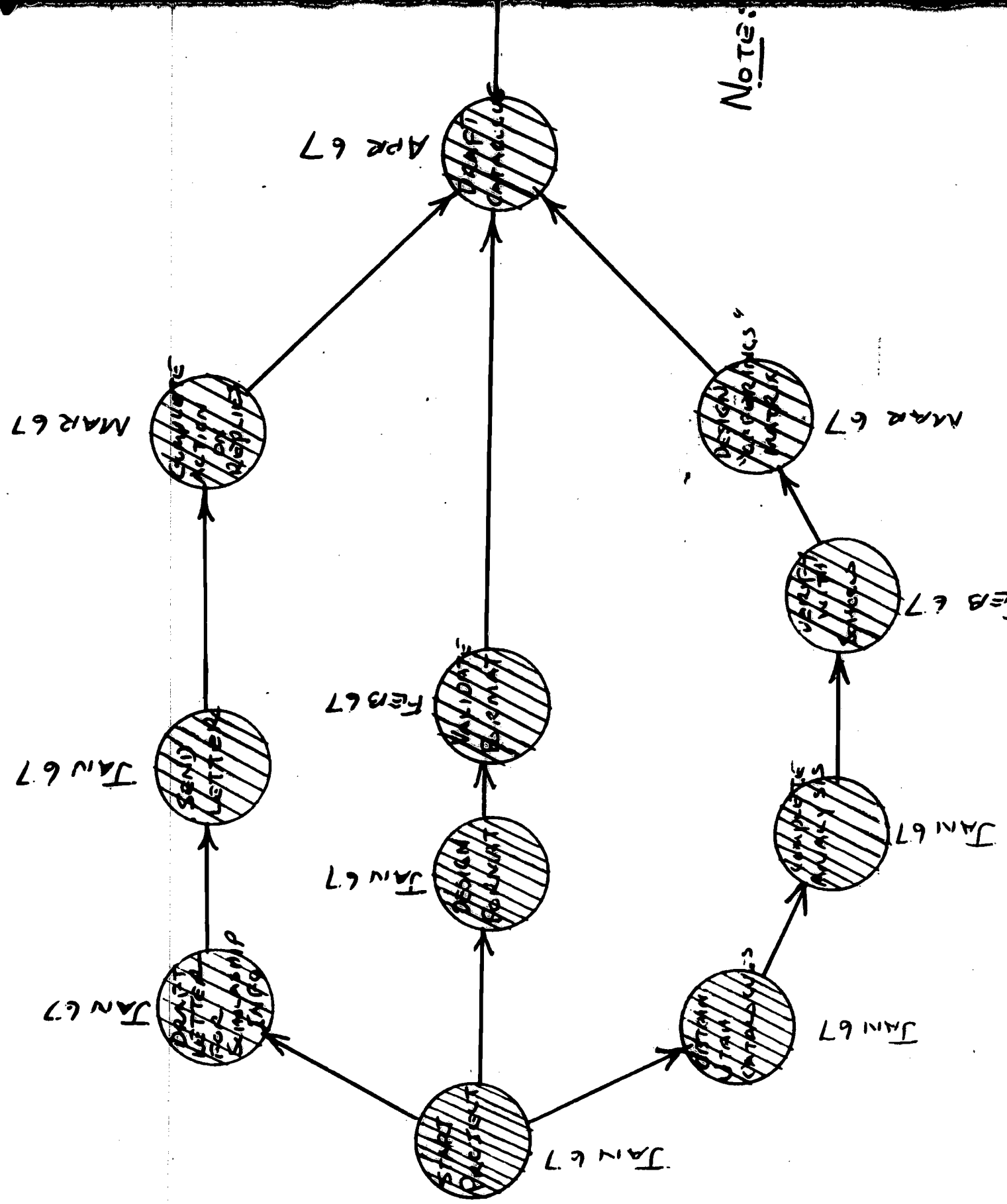
PERT NETWORK
UTAH VIEW PROGRAM



NOTE: CROSS HATCHED EVENTS HAVE BEEN COMPLETED.

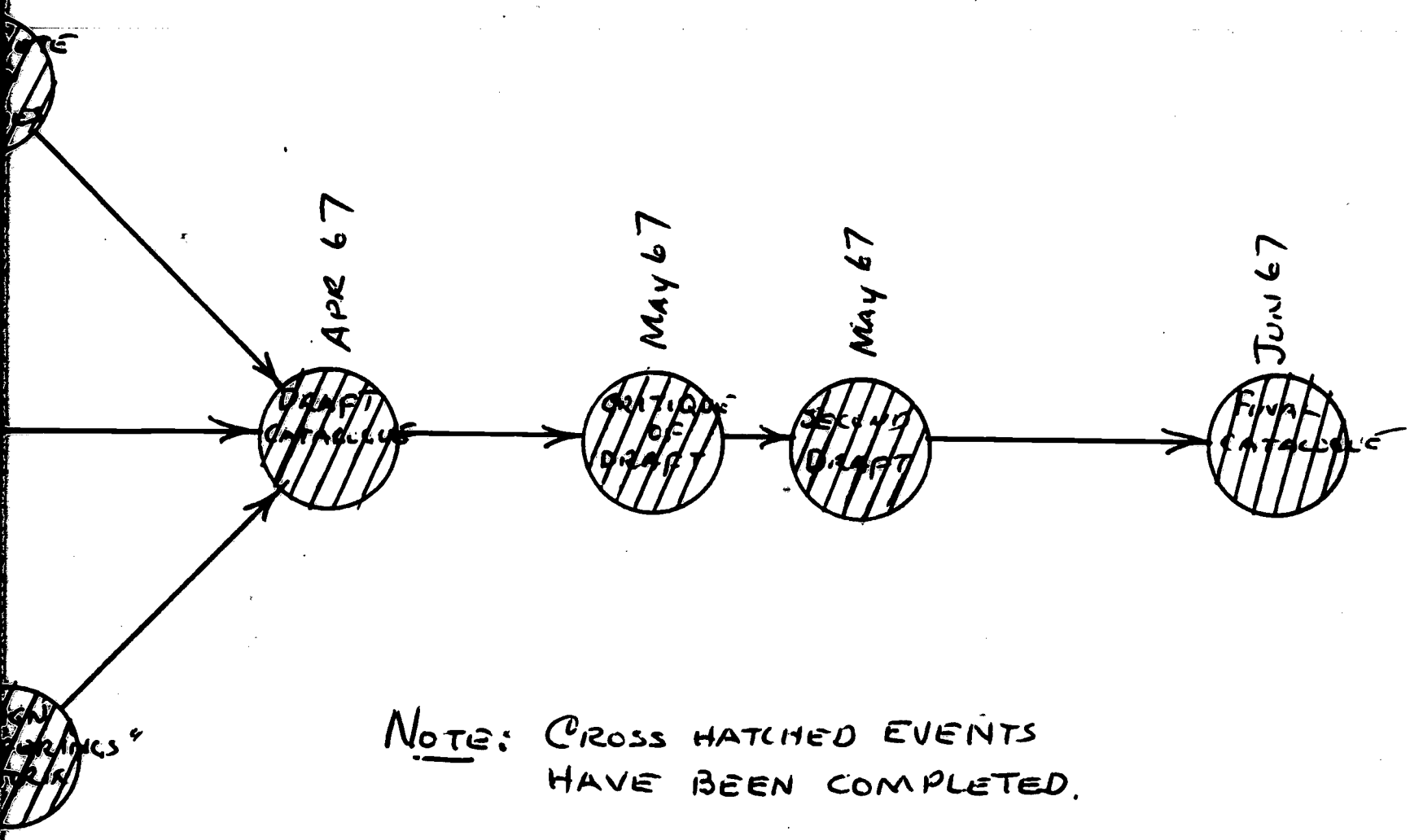
CATALOGUE
SCHOLARSHI

Note:



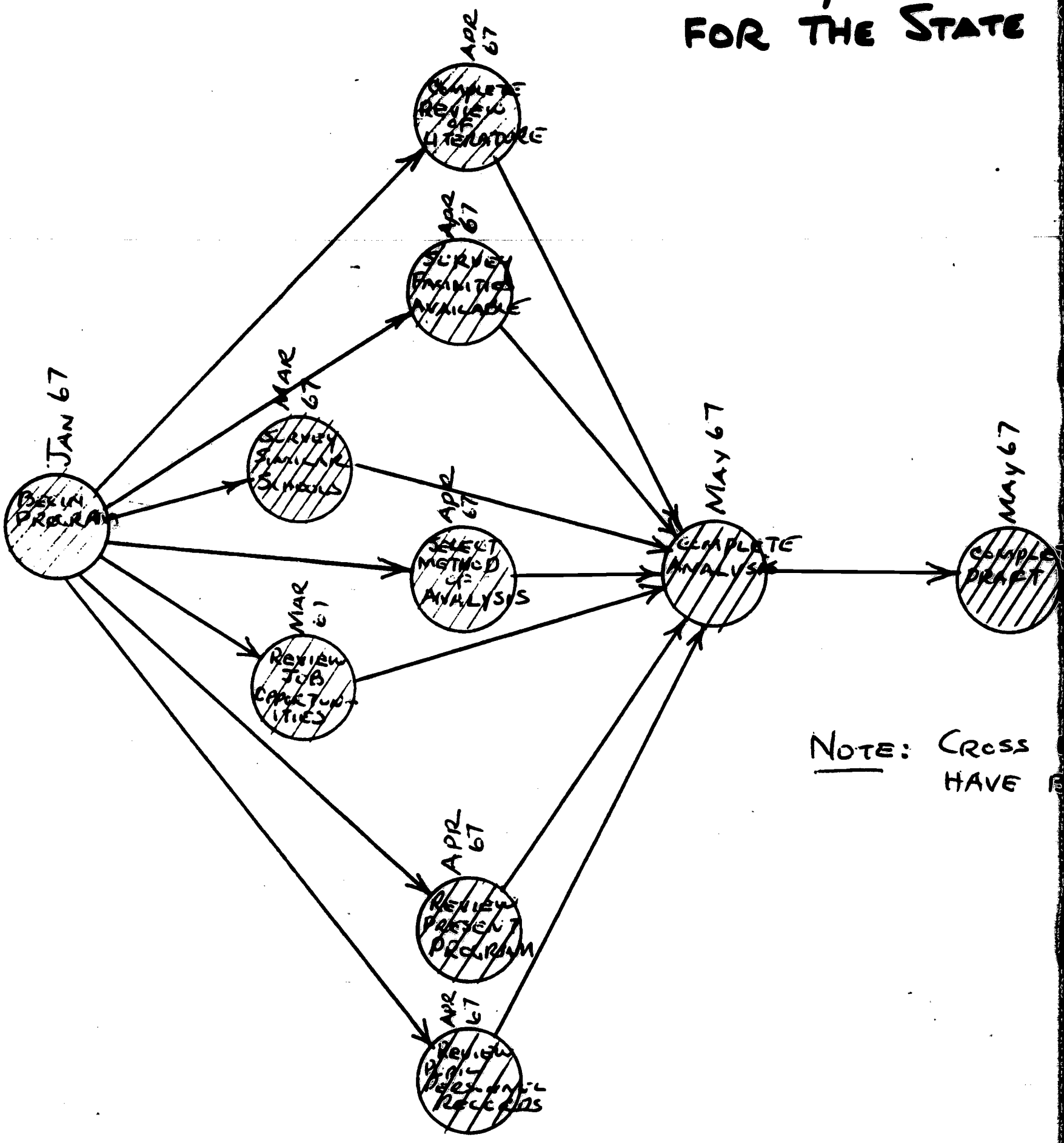
ENCL 2

Catalogue of Vocational and Technical Scholarships Available to Utah High School Seniors



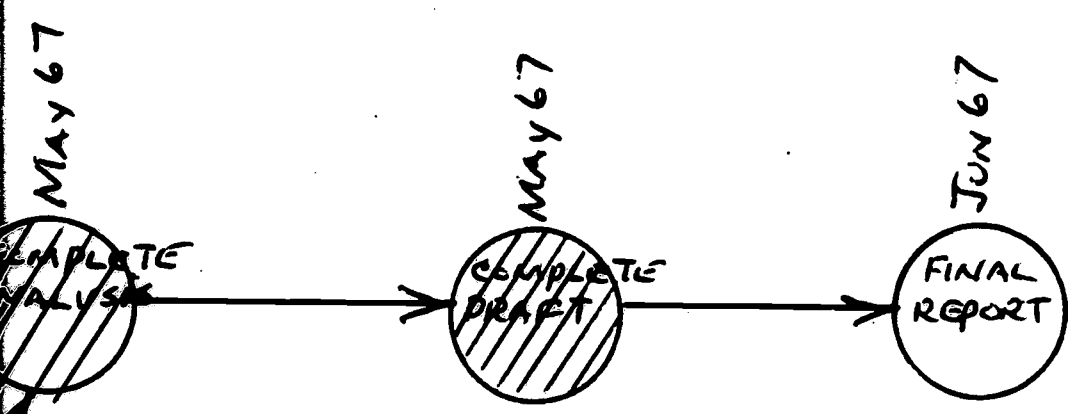
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STUDY OF VOCA
FOR THE STATE



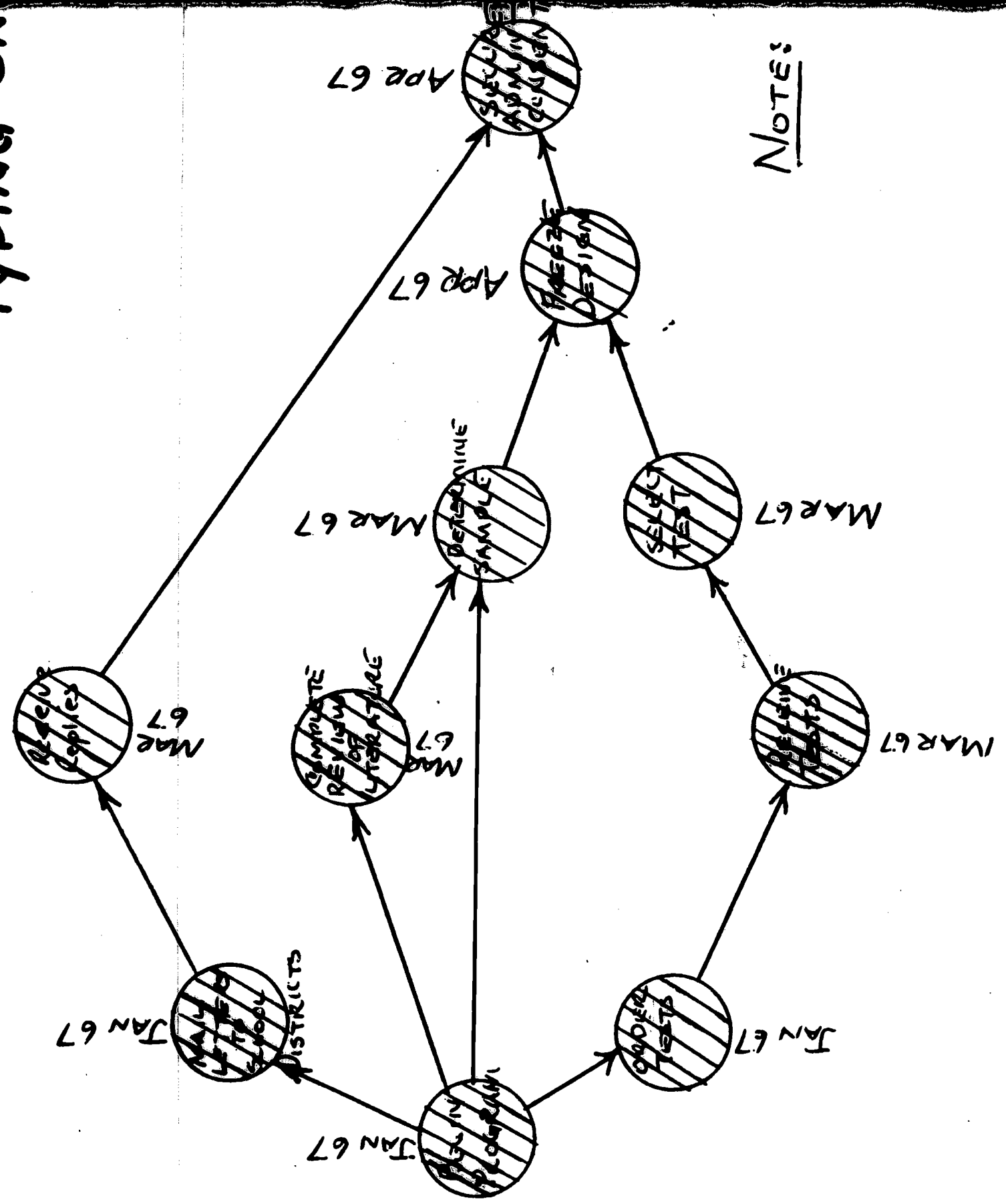
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STUDY OF VOCATIONAL PROGRAMS FOR THE STATE INDUSTRIAL SCHOOL



NOTE: CROSS HATCHED EVENTS HAVE BEEN COMPLETED.

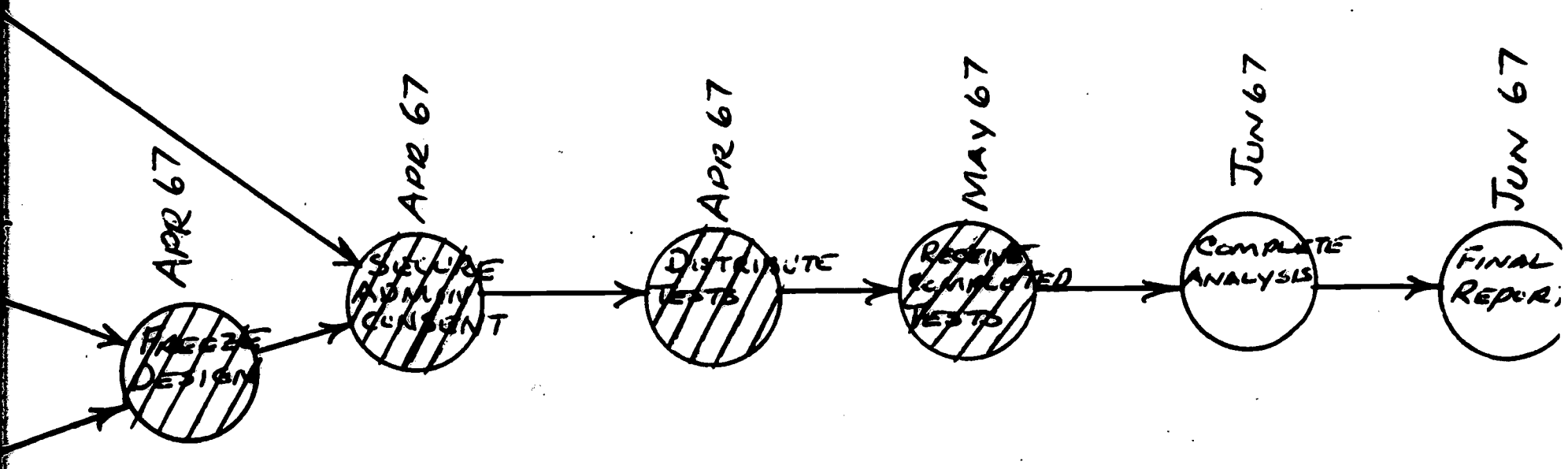
An Assessm
Typing Sk



Notes:

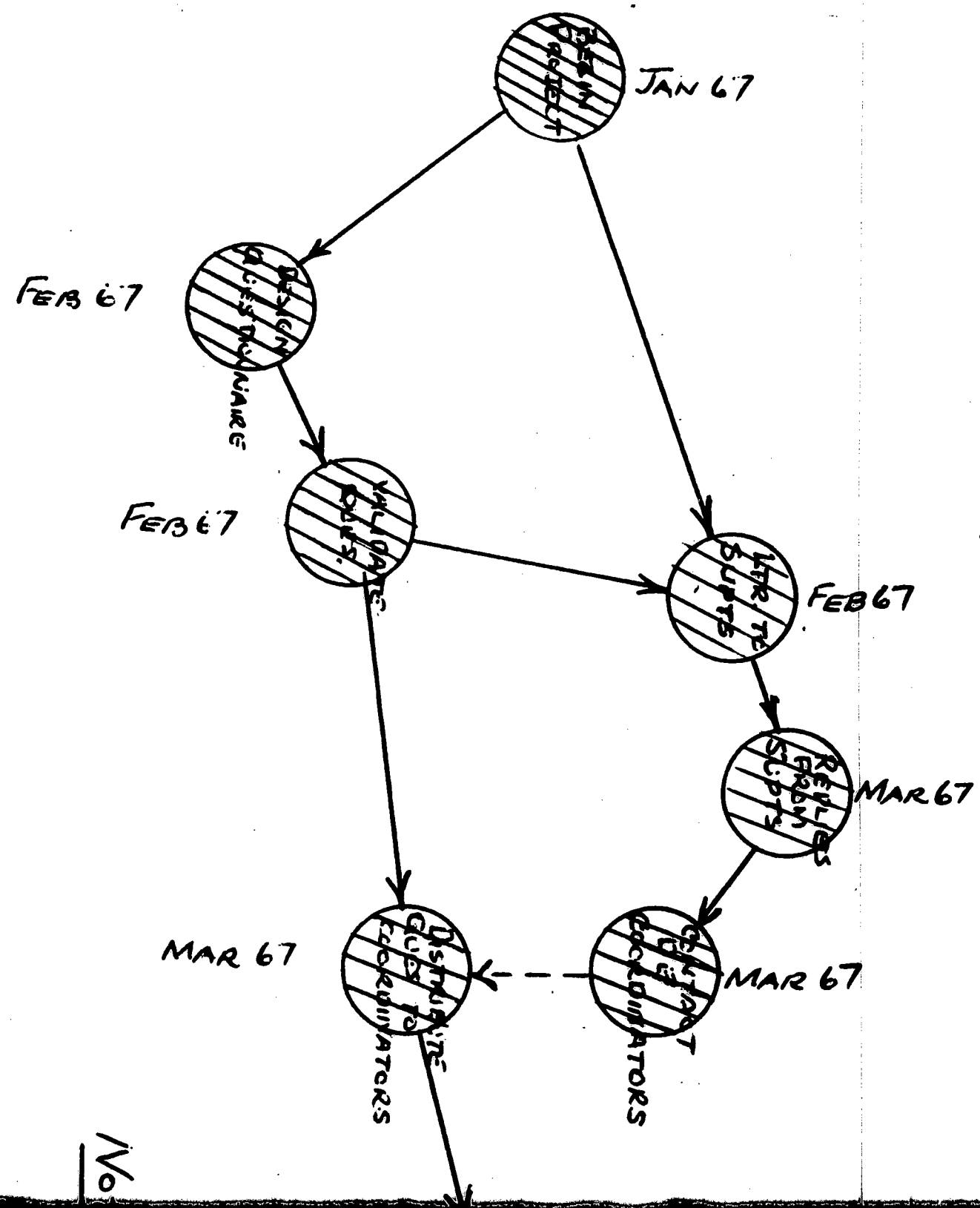
Encl 4

An Assessment of Typing Skills



NOTE: CROSS HATCHED EVENTS HAVE BEEN COMPLETED

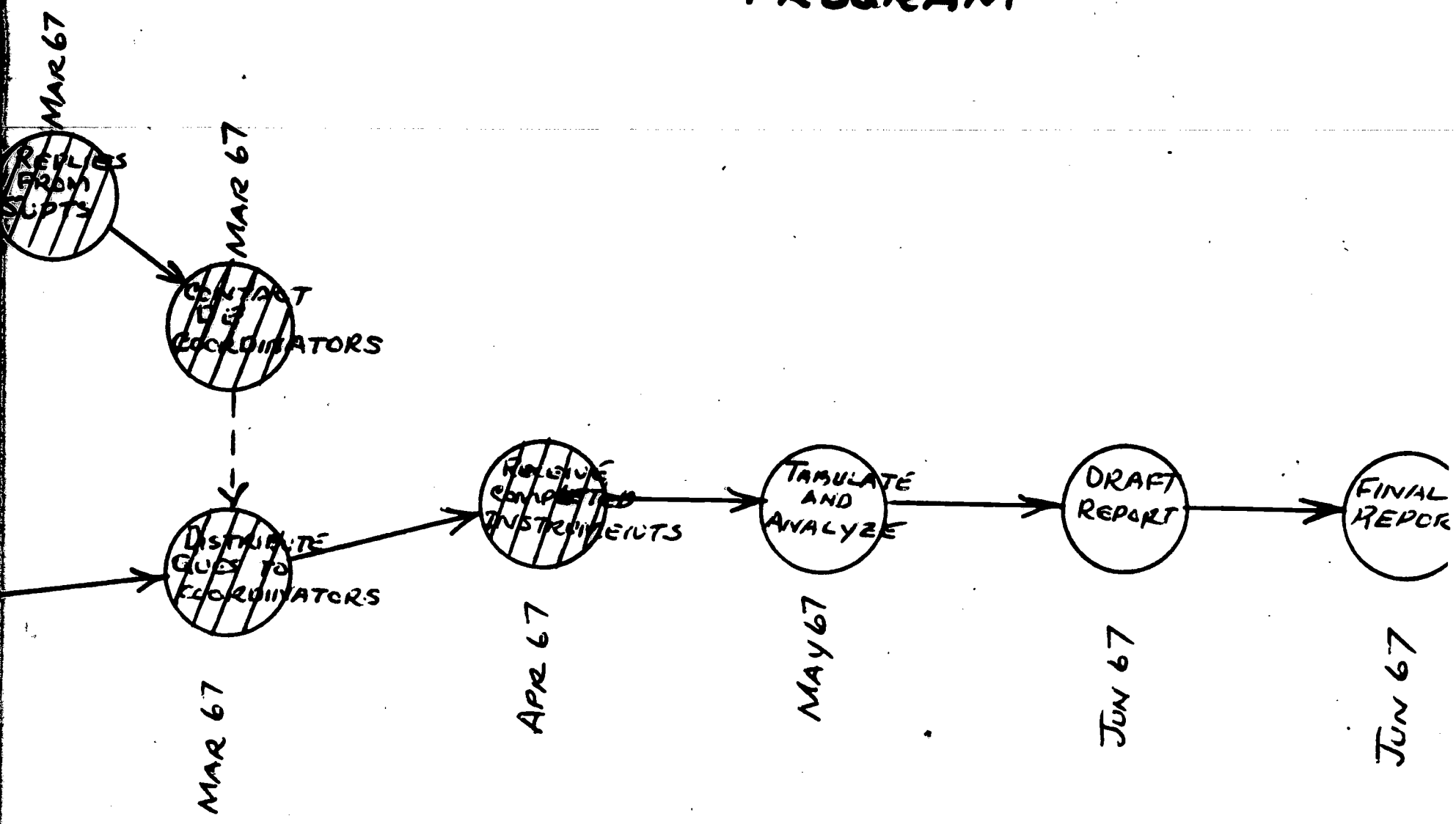
ENCL 5



EVA
L

IV

EVALUATION OF UTAH'S SECONDARY LEVEL DISTRIBUTIVE EDUCATION PROGRAM

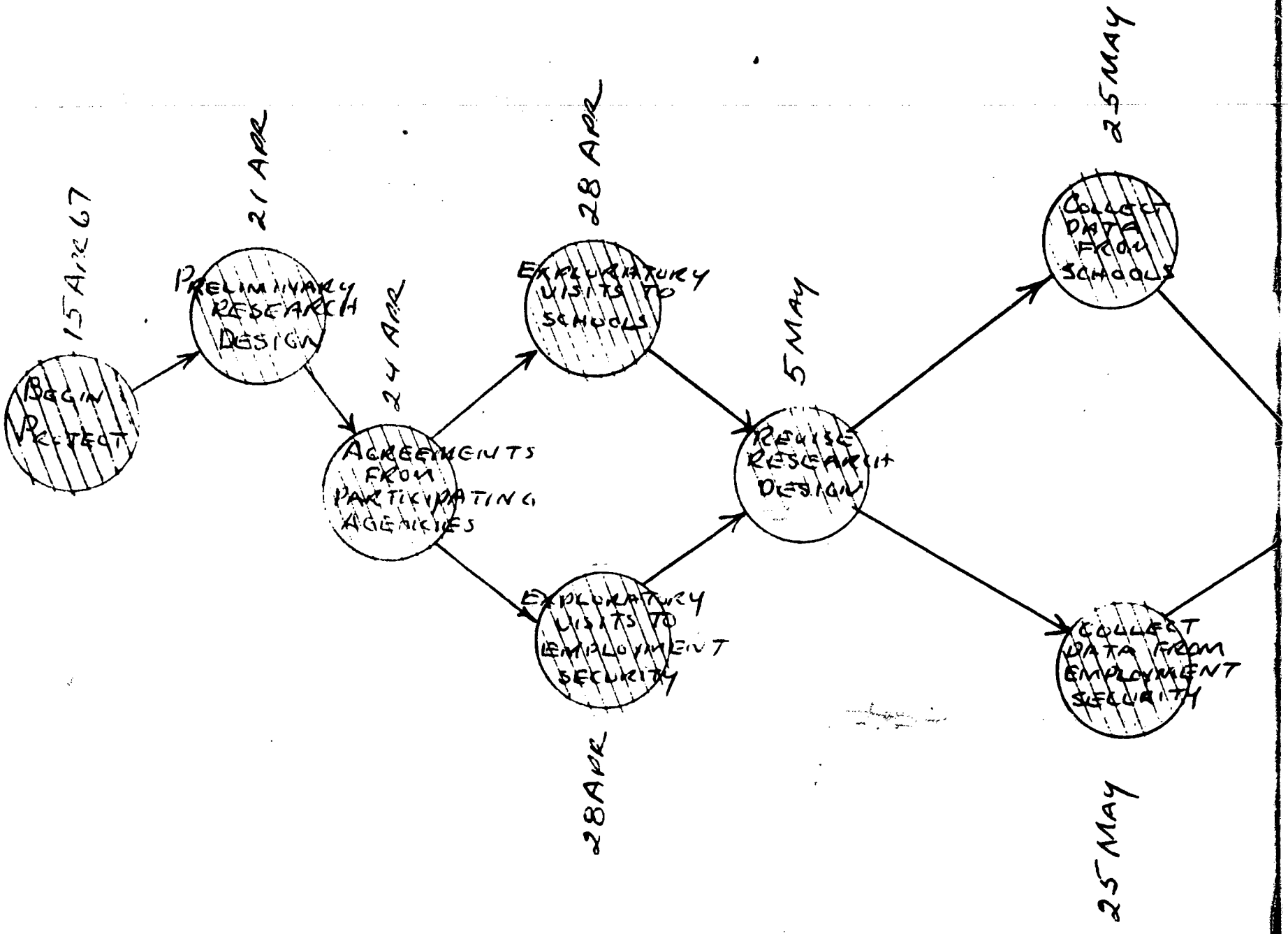


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ENCL 6

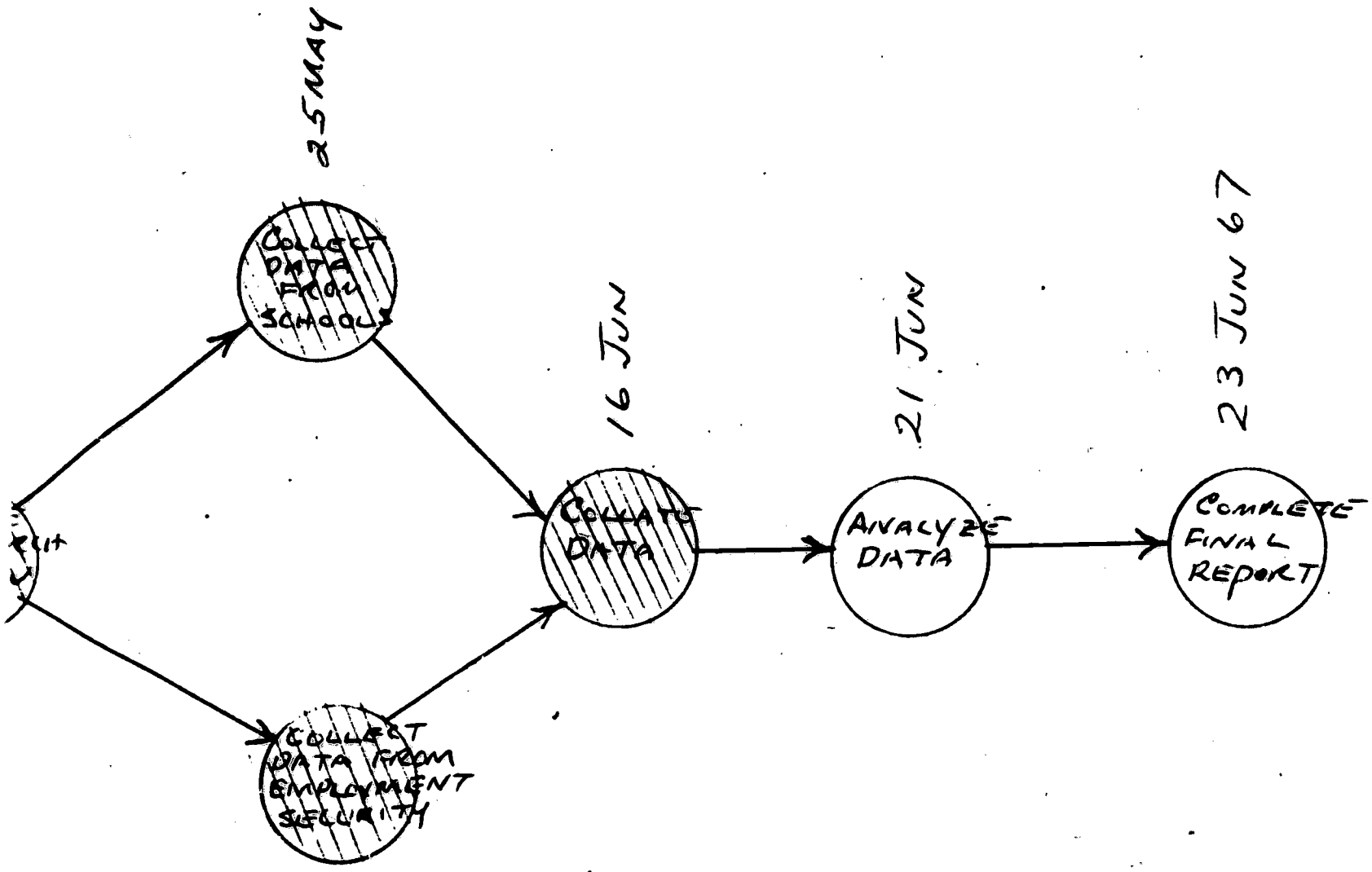
PERT NETWO

EVALUATION OF TWO MANPOWER SCHOO



RT NETWORK

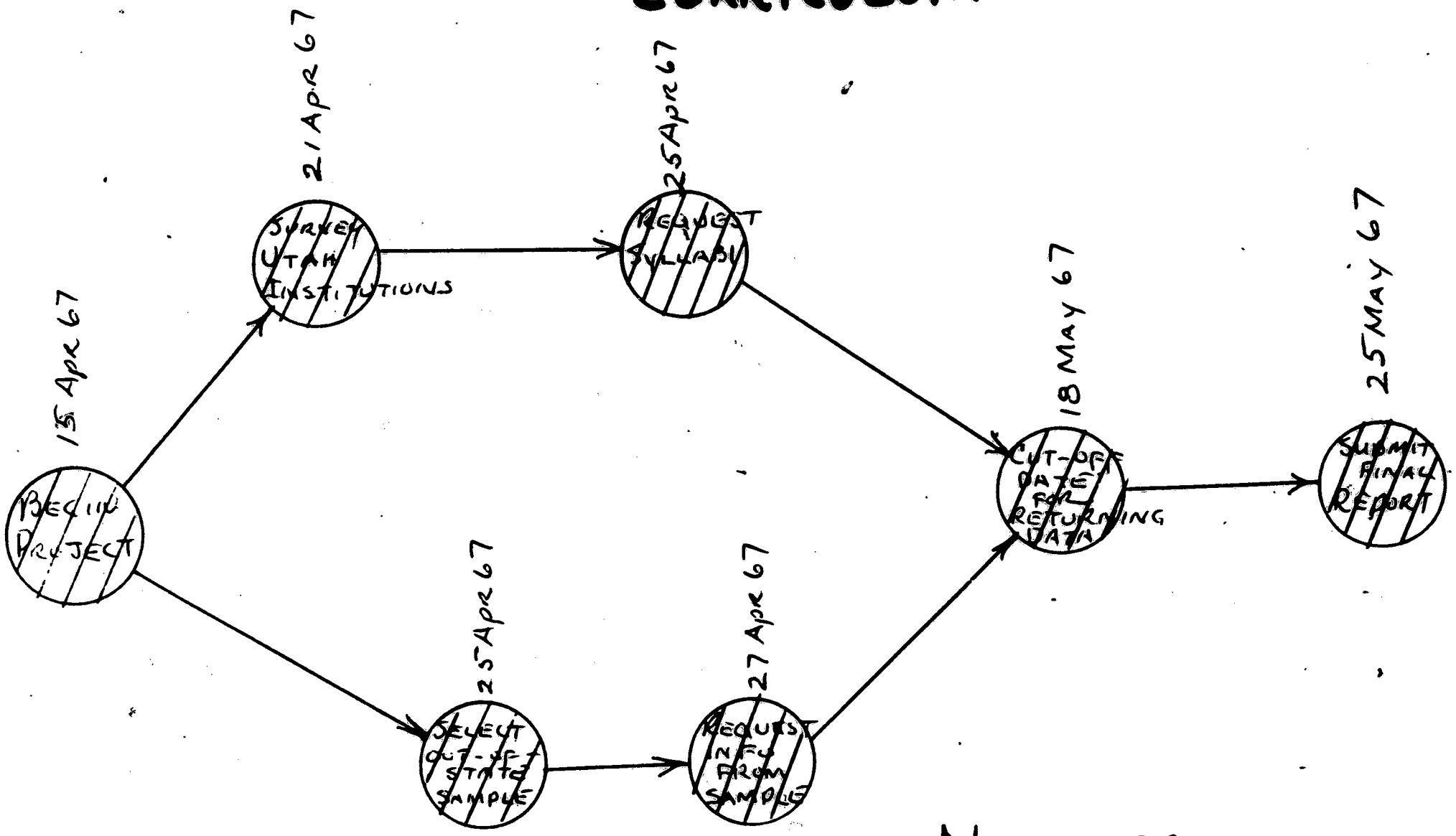
N OF TWO UTAH OWER SCHOOLS



NOTE: CROSS-HATCHED EVENTS HAVE BEEN COMPLETED.

Encl 7

PERT NETWORK
SURVEY OF COMMERCIAL ARTS CURRICULUM



NOTE: CROSS-HATCHED EVENTS HAVE BEEN COMPLETED

RCU EXPENDITURES

1 DEC 1966 - 31 MAY 1967

	Federal	State
Direct Costs		
Personnel		
Salaries	$14,241.54	$ 5,772.00
Benefits	1,046.42	335.54
Consultants	-	-
Travel	1,430.06	-
Supplies, Services Rents, etc.	2,936.64	-
Total Direct Costs	19,654.66	
Indirect Costs		
Overhead	1,160.79	
Total Indirect Costs	1,160.79	
TOTAL COSTS	$20,815.45	6,107.54

Enclosure 8

UTAH RCU
TIME OR EFFORT REPORT

	1966 Dec	1967 Jan	1967 Feb	1967 Mar	1967 Apr	1967 May	1967 Jun	1967 Jul	1967 Aug	1967 Sep	1967 Oct	1967 Nov	1967 Dec
Director													
John F. Stephens	1	1	1	1	1	1							
Associate Director													
Dr. Austin G. Loveless	½	½	½	½	½	½							
Research Assistants													
Fleet Irvine	½	½	½	½	½	½							
Patsy Pehrson		½	½	½	½	½							
George Chournas		½	½	½	½	½							
Ronald Egan		½	½	½	½	½							
Warren Gaddis	½	½	½	½	½	½							
Fred Johnson	½	½	½	½	½	½							
Terry Thatcher	½												
Peter Knoll		½	½	½	½	½							
John Cox				½	½	½							

Enclosure 10

VT 002 800

VT 002 800
Powell, Michael L.
A Study of Employment Opportunities for Chemical Technologists in Northern Idaho.

Idaho Occupational Research Coordinating Unit, Moscow
MF AVAILABLE IN VT-ERIC SET. OEC-5-85-118
Pub Date - Nov66 17p.

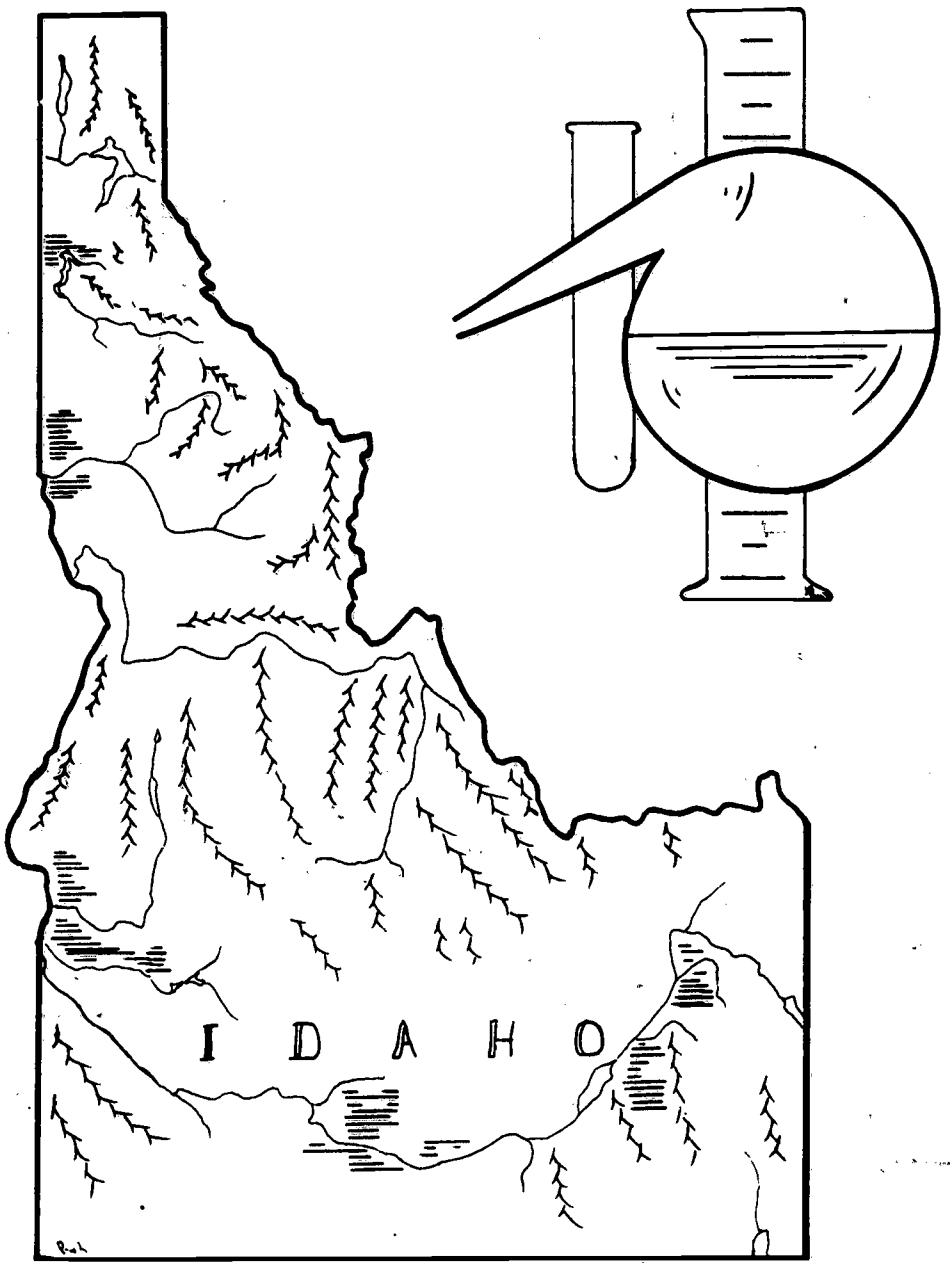
*CHEMICAL TECHNICIANS; *OCCUPATIONAL SURVEYS; *EMPLOYMENT OPPORTUNITIES; *EMPLOYER ATTITUDES; INTERVIEWS; EDUCATIONAL PLANNING; TECHNICAL EDUCATION; CURRICULUM; QUESTIONNAIRES
IDAHO

Employment opportunities for chemical technologists in 10 counties were investigated. Firms likely to employ workers with chemistry-based training were selected from the local telephone directory, and from those named in answer to a question on the interview schedule. In addition, the Standard Industrial Classification manual coding system was used to identify the types of firms likely to be involved in chemical processing and therefore have a possible need for chemical technologists. For study purposes, the chemical technologist was defined as any person who (1) has completed a 2-year post-secondary course with technical training in chemical processing, (2) works between a chemical engineer and production, (3) is able to test, regulate, and control processes, and (4) is capable of managerial level supervision and responsibility for process control. Interviews with the owners, managers, or assistant managers of 56 selected firms revealed that at least 13 firms would have positions for chemical technologists and that they would be interested in hiring workers with this training. A total of 54 potential positions was identified, but the firms indicated that they would not experience an increasing need for these workers during the next few years. Conclusions indicated that sufficient employment opportunities existed in the Northern Idaho Counties to justify instituting training in chemical technology as a program of vocational training. A list of firms which might employ chemical technologists, the interview schedule, and a suggested chemical technology curriculum are given. (HC)

ED027441

CD
17p*

A Study Of Employment Opportunities For Chemical Technologists In Northern Idaho



VT002800

November, 1966

THE STATE OCCUPATIONAL RESEARCH UNIT
COLLEGE OF EDUCATION
UNIVERSITY OF IDAHO
MOSCOW, IDAHO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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The State Occupational Research Unit
College of Education
University of Idaho
Moscow, Idaho

A STUDY OF EMPLOYMENT OPPORTUNITIES FOR CHEMICAL TECHNOLOGISTS IN NORTHERN IDAHO

Kenneth M. Loudermilk, Director
Robert W. Richman, Assistant Director
Eddie D. Cecil, Research Fellow
Robert H. Heger, Research Fellow
Jack C. Pease, Research Fellow

The research reported herein was performed
pursuant to Contract Number OE-5-85-118
with the United States Department of
Health, Education and Welfare,
Office of Education

Former Research Fellow Michael L. Powell Directed
this research project, and completed
most of the research on which
this report is based

November, 1966

FOREWORD

The study reported herein was an outgrowth of two rather convergent areas of activity within the State Occupational Research Unit. First, the Research Fellows were given the responsibility of selecting an individual project on which they would work during the spring semester of 1966. It was deemed important for their training that the Research Fellows experience the entire process of organizing a study, developing the design, collecting and analyzing the data, and preparing the final report. Second, contacts were made with Mr. Marion Shinn, Director of the Vocational-Technical Division of Lewis Clark Normal School, Lewiston, Idaho. During the ensuing interviews, Mr. Shinn suggested several research projects which were needed in planning vocational programs at the Lewiston school. One of these projects, an investigation of the employment opportunities for chemical technologists, was selected for study by Research Fellow Michael L. Powell. The results are presented in this report.

The present study has at least two main values. First, and most apparent, is the immediate value of the results for educational planning. It seems evident that enough employment opportunities exist in northern Idaho that a two-year program for chemical technologists might be instituted, at least on a small scale, in the Vocational-Technical Division of Lewis Clark Normal School. A more general value of the study is the design and methodology which might apply to a variety of other studies of employment opportunities. The study began with an identification of employing establishments in selected industries deemed likely to employ workers with chemistry-based training. This reduced tremendously the number of potential firms to be contacted. The interview schedule contained one question regarding whether the interviewee knew of other firms in his locality which might employ chemical technologists. This latter procedure served to identify sources of employment which might have been missed in the aforementioned narrowing process. The second major step was to define carefully the training program and expected employment role of a chemical technologist. The resulting information was reduced further to a concise description which could easily be communicated to industrial personnel during the interview. The third major step was to construct an interview schedule designed to determine potential employment opportunities and certain related data in the firms contacted. The fourth step involved the field interviewing and analyses of the results.

The State Occupational Research Unit acknowledges the assistance of the Department of Employment, State of Idaho, Boise in identifying employing establishments in a variety of industries. Mr. Marion Shinn, Director of the Vocational-Technical Division of Lewis Clark Normal School, made valuable suggestions regarding the conduct of the study, and supplied materials relating to the training program for chemical technologists. Finally, and equally important, thanks are extended to individual persons and personnel in the following industrial firms who consented to interviews during the study:

Plant Food Center, Inc.	Coeur d'Alene
Charles H. McLain	Coeur d'Alene

FOREWORD (CONT'D)

Coeur d'Alene Dental Lab	Coeur d'Alene
Pendar, Inc.	Coeur d'Alene
Interstate Plastics, Inc.	Coeur d'Alene
Ralph E. Holmberg & Assoc. Printers	Coeur d'Alene
Amex, Inc. Explosives	Coeur d'Alene
Seiter's, Inc.	Coeur d'Alene
Coeur d'Alene Creamery, Inc.	Coeur d'Alene
Central Pre-Mix Concrete	Coeur d'Alene
American National Plastics Corp.	Veradale, Wash.
Pacific Gas Transportation Co.	Sandpoint
Arnold Markstaller	Moscow
Central Pre-Mix Concrete	Moscow
J. R. Simplot Co.	Bovill
A. P. Green Fire Brick	Troy
Idaho Garnet & Abrasive	Fernwood
Grangeville Transit Mix	Grangeville
Grangeville Creamery Co.	Grangeville
Speer Bullet Co.	Lewiston
Clearwater Beverages, Inc.	Lewiston
Morgan Bros. Pickles	Lewiston
Coleman Industries	Lewiston
Carnation Company	Lewiston
North Idaho Chemical Co.	Lewiston
Smith Frozen Foods of Idaho	Lewiston
Seabrook Farms, Inc.	Lewiston
Medical Laboratory	Lewiston
Printcraft Printing	Lewiston
Carroll Naslund Disposal Service	Lewiston
Golden Grain Dairy Products	Lewiston
Cascade Cartridge, Inc.	Lewiston
Potlatch Forests, Inc.	Lewiston
Lewiston Dental Lab, Inc.	Lewiston
Dunclick, Inc.	Lewiston
City of Lewiston	Lewiston
Idaho Beverages	Lewiston
Citizens Utilities	Wallace
Nichols Universal	Wallace
William Zanetti, et al.	Wallace
American Smelting and Refining Co.	Wallace
Day Mines	Wallace
Hecla Mining Co.	Wallace
Spunstrand, Inc.	Wallace
Idaho Water Co.	Kellogg
Edward Bailey	Kellogg
Sunshine Mining Co.	Kellogg
Emerald Creek Garnet Co.	Kellogg
The Bunker Hill Company	Kellogg
Century Construction	Smelterville

A STUDY OF EMPLOYMENT OPPORTUNITIES FOR CHEMICAL TECHNOLOGISTS IN NORTHERN IDAHO

The present study of employment opportunities for chemical technologists was limited to the ten northern counties of Idaho, as follows: Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce and Shoshone. This restriction of area was necessary due to the limited time and personnel of the State Occupational Research Unit. Later in this report possible employment opportunities in other areas of the state and in adjacent states are discussed. The remainder of this report is organized into four divisions. The titles reflect the contents of the divisions, and their order is representative of the major phases of the study: Identification of Industrial Firms, Definition and Expected Role of the Chemical Technologist, Results of Individual Interviews, and Discussion and Conclusions.

I. IDENTIFICATION OF INDUSTRIAL FIRMS

The ten northern counties of Idaho contain several hundred business and industrial firms, most of which employ relatively few (less than ten) employees. It was necessary, therefore, to select from the existing firms only those likely to employ workers with chemistry-based training. The selection was accomplished in three ways:

1. Yellow pages in local telephone directories for this area of the state were examined for firms which logically might employ chemical technologists.

2. The coding system of the Standard Industrial Classification Manual (1957 edition) was used to identify the types of firms likely to have chemical processes and therefore a possible need for chemical technologists. Several four-digit code groups were selected, and these are reproduced as Appendix A (pages ff) of this report. Firms in northern Idaho classified in any of these code groups were selected for interview contacts.

3. The last question on the interview schedule (Appendix C, page 13 ff) asked: "Do you know of any companies in the northern part of the state which might have some need for chemical technologists?" This question was added so that any firms missed in 1 and 2 above might be identified.

The above three procedures seemed to work fairly well. The methods described in 1 and 2 accomplished most of the firm identifications, as few additional firms were identified by interviewees (procedure #3). The resulting list was reduced further by the elimination of all firms employing less than five workers. A total of 56 firms thus was selected for personal interviews.

II. DEFINITION AND EXPECTED ROLE OF THE CHEMICAL TECHNOLOGIST

A chemical technologist was defined initially as any person who has completed a two-year technical course specifically designed for the training of chemical technologists. This somewhat circular definition was further delineated: (1) through discussing with Marion Shinn, Director of the Vocational-Technical Division of Lewis Clark Normal School, his conceptions of program and course content, and (2) by a perusal of of Chemical Technology: A Suggested 2-Year Post High School Curriculum (# OE-80031, #5 of the Technical Education Program Series) a publication of the U. S. Department of Health, Education and Welfare, describing a general program of study. A curricular outline contained in this publication is reproduced in Appendix B (page 11).

The above process of definition was condensed further so that, during personal interviews, a concise description of the training and expected employment role of the chemical technologist could be given to the interviewee. The resulting description is as follows:

1. Two years of training beyond high school.

2. Technical training primarily in chemical processing.

3. Not a chemical engineer.

4. Work activities are intermediary between a chemical engineer and production.

5. Once a production process is designed, the chemical technologist should be able to test, regulate and control processes, as well as make minor changes in production techniques as required to improve production.

6. Should be capable of managerial-level supervision and responsibility for process control.

The above description was placed on a card and carried by the interviewer for use during his field interviews.

III. RESULTS OF INDIVIDUAL INTERVIEWS

An interview schedule, consisting of 10 questions, was prepared and followed during the interviews. The schedule is reproduced in Appendix C (pages 12 ff). The data requested in the heading were obtained from each firm contacted. Questions 1 and 2 also were asked of each interviewee. If question 2 was answered in the negative, this usually rendered questions 3 through 9 unnecessary, and only question 10 was asked. An affirmative answer to question 2 resulted, of course, in the interviewee being asked all of the remaining questions.

Interviews were scheduled in advance by phone. An effort was made to contact the owner, manager, or assistant manager of the firm. Two procedural variations were adopted during the study which resulted from conditions which developed as the interviewing proceeded. Some firms were excluded as a class from further interviews after contacts with several representative firms yielded negative results. For example, firms engaged merely in the distribution of agricultural chemicals were excluded as opposed to manufacturers of these products. Later in the study, as the list of firms grew smaller, it would have proven very time consuming to make personal contacts. Therefore, several firms were contacted by phone and questions were asked following the interview schedule.

The interviews with the 56 firms selected yielded the following results. The firms will not be identified, nor will results for question 1 be presented, in order to maintain anonymity. Questions 2 through 9 are reproduced from the interview schedule, and the results for each are presented. The numbers represent individual companies unless otherwise specified.

2. Would you have any place for a chemical technologist in your operation? Yes--13; No--35; Maybe--2; Unable to Contact--6.

3. Would you actually be interested in hiring a chemical technologist to work in your plant? Yes--12; No--2; Yes, but requires other work also--1.

4. Would a person with a high school education and a course in chemistry fulfill your needs? Yes--1; No--12; Could Train Ourselves--2.

5. Will there be (or still be) a need for a person of the general nature of a chemical technologist in your company in the next 2 or 3 years? Same--10; Increase--3.

6. How many will or would you need? (answer for the above) A total of 54 potential positions were reported for chemical technologists in the companies contacted. The range for individual companies was from 1 to 20 positions.

7. Would a person be able to go to work immediately at a job commensurate with his ability and training or would he have to work up from entry jobs? Immediately--11; Work Up--2.

8. Would you be willing to pay extra (above skilled labor but not at engineering level) for a man of this nature? Yes--12; No--1.

9. Assuming for a minute that a chemical technology course is offered in the near future, are there any areas of competence that you especially would like to see developed? General Knowledge of Chemistry--8; Special Knowledges (agricultural background--1; metals--1; ability to meet the public--2; drafting--1)

IV. DISCUSSION AND CONCLUSIONS

The interview results presented above reveal that at least 13 companies would have positions for chemical technologists, and that about the same number would actually be interested in hiring workers with this training (see responses to questions 2 and 3). It seems evident also that more than a high school education would be required, and that the training probably would not be available on the job (see responses to question 4). Most of the companies needing chemical technologists will not experience an increasing need for these workers during the next few years (see responses to question 5). A total of 54 potential positions for chemical technologists was identified, and it seems apparent that these workers would be able, for the most part, to enter this type of work immediately and at a pay rate above the skilled labor level (see responses to questions 6, 7, and 8). Responses to the last question (number 9) suggest that a general knowledge of chemistry would be desirable, and that the program outlined in Appendix B (page 11) would be fairly satisfactory.

Several of the persons interviewed indicated that, at least in their own minds, the training program for chemical technologists would be appropriate for a variety of jobs. For example, the training seemed appropriate for dental laboratory work and for concrete technology. Due to a shortage of the latter two types of workers, some employers expressed an interest in employing the trained chemical technologist with final specialization to be achieved through on-the-job training.

Although the present study was limited only to northern Idaho, it seems safe to conclude that several additional employment opportunities exist for chemical technology graduates elsewhere in Idaho and in adjacent states. The phosphate industry, the potato processing industry, and certain agri-business jobs should provide employment outlets for workers with this training. The aluminum industry and paper manufacturing--to name only two--should provide additional employment opportunities in states bordering Idaho. It seems safe to conclude, therefore, that sufficient employment opportunities exist in the vicinity of the Lewis Clark Normal School in Lewiston, Idaho, and that training in chemical technology logically could be instituted as a program of vocational training.

APPENDIX A

SICM Codes For Firms Which Might Employ Chemical Technologists

10 METAL MINING

1021 Copper ores
1031 Lead and Zinc ores
1042 Lobe gold
1043 Placer gold
1044 Silver ores
1051 Bauxite and other aluminum ores
1062 Manganese ores
1064 Tungsten ores
1069 Ferroalloy ores, except vanadium, not elsewhere classified
1081 Metal mining stripping services
1082 Metal mining services, except stripping
1092 Mercury ores
1093 Titanium ores
1094 Uranium-radium-vanadium ores
1099 Metallic minerals (ores), not elsewhere classified

supplement:
1081 Metal mining stripping services
1112 Anthracite stripping services

13 CRUDE PETROLEUM AND NATURAL GAS
1311 Crude petroleum and natural gas
1321 Natural gas liquids
1389 Oil and gas field services, not elsewhere classified

14 MINING AND QUARRYING OF NONMETALLIC MINERALS EXCEPT FUELS
1452 Bentonite
1453 Fire clay
1454 Fuller's earth
1455 Kaolin and ball clay
1456 Feldspar
1457 Magnesite and brucite
1459 Clay, ceramic, and refractory minerals, not elsewhere classified
1472 Barite
1473 Fluorspar
1474 Potash, soda, and borate minerals
1475 Phosphate rock
1476 Rock salt
1477 Sulfur
1479 Chemical and fertilizer mineral mining, not elsewhere classified
1481 Nonmetallic mineral stripping services
1482 Nonmetallic minerals (except fuel) services except stripping
1492 Gypsum
1493 Mica
1494 Native asphalt and bitumens

1495 Pumice and pumicite
1496 Talc, soapstone, and pyrophyllite
1497 Natural abrasives, except sand
1498 Peat
1499 Miscellaneous nonmetallic minerals, not elsewhere classified

19 ORDNANCE AND ACCESSORIES
1921 Artillery ammunition
1922 Ammunition loading and assembling

20 FOOD AND KINDRED
2021 Creamery butter
2022 Natural cheese
2023 Condensed and evaporated milk
2024 Ice cream and frozen desserts
2025 Special dairy products
2026 Fluid milk
2032 Canned specialties
2033 Canned fruits, vegetables, preserves, jams, and jellies
2034 Dried and dehydrated fruits and vegetables
2035 Pickled fruits and vegetables; vegetable sauces and seasonings; salad dressings
2036 Fresh or frozen packaged fish
2037 Frozen fruits, fruit juices, vegetables, and specialties
2041 Flour and other grain mill products
2042 Prepared feeds for animals and fowls
2043 Cereal preparations
2044 RRice milling
2045 Blended and prepared flour
2082 Malt liquors
2084 Wines, brandy, and brandy spirits
2085 Distilled, rectified, and blended liquors
2086 Bottled and canned soft drinks and carbonated waters
2087 Flavoring extracts and flavoring syrups, not elsewhere classified
2091 Cottonseed oil mills
2092 Soybean oil mills
2093 Vegetable oil mills, except cottonseed and soybean
2094 Grease and tallow
2095 Animal and marine fats and oils, except grease and tallow
2096 Shortening, table oils, margarine and other edible fats and oils, not elsewhere classified
2097 Manufactured ice

26 PAPER AND ALLIED PRODUCTS
2611 Pulp mills
2621 Paper mills, except building paper mills
2631 Paperboard mills
2641 Paper coating and glazing

27 PRINTING, PUBLISHING, AND ALLIED INDUSTRIES
2751 Commercial printing, except lithographic
2752 Commercial printing, lithographic
2753 Engraving and plate printing
2793 Photoengraving

28 CHEMICAL AND ALLIED PRODUCTS

2812 Alkalies and chlorine
2813 Industrial gases
2814 Cyclic (coal tar) crudes
2815 Dyes, dye (cyclic) intermediates, and organic pigments (lakes and toners)
2816 Inorganic pigments
2818 Industrial organic chemicals, not elsewhere classified
2819 Industrial inorganic chemicals, not elsewhere classified
2821 Plastics materials, synthetic resins, and nonvulcanizable elastomers
2822 Synthetic rubber (vulcanizable elastomers)
2823 Cellulosic man-made fibers
2824 Synthetic organic fibers, except cellulosic
2831 Biological products
2833 Medicinal chemicals and botanical products
2834 Pharmaceutical preparations
2841 Soap and other detergents, except specialty cleaners
2842 Specialty cleaning, polishing, and sanitation preparations, except soap and detergents
2843 Surface active agents, finishing agents, sulfonated oils and assistants
2844 Perfumes, cosmetics, and other toilet preparations
2851 Paints, varnishes, lacquers, and enamels
2852 Putty, calking compounds, and allied products
2861 Gum and wood chemicals
2871 Fertilizers
2872 Fertilizers, mixing only
2873 Agricultural pesticides
2879 Agricultural chemicals, not elsewhere classified
2891 Glue and gelatin
2892 Explosives
2893 Printing ink
2894 Fatty acids
2895 Carbon black
2899 Chemicals and chemical preparations, not elsewhere classified

29 PETROLEUM REFINING
2911 Petroleum refining
2951 Paving mixtures and blocks
2952 Asphalt felts and coatings
2992 Lubricating oils and greases
2999 Products of petroleum and coal, not elsewhere classified

30 RUBBER AND MISCELLANEOUS PLASTICS PRODUCTS
3011 Tires and inner tubes
3021 Rubber footwear
3031 Reclaimed rubber
3069 Fabricated rubber products, not elsewhere classified
3079 Miscellaneous plastics products

32 STONE, CLAY, AND GLASS PRODUCTS
- 3211 Flat glass
- 3221 Glass containers
- 3229 Pressed and blown glass and glassware, not elsewhere classified
- 3231 Glass products, made of purchased glass
- 3241 Cement, hydraulic
- 3251 Brick and structural clay tile
- 3253 Ceramic wall and floor tile
- 3255 Clay refractories
- 3259 Structural clay products, not elsewhere classified
- 3261 Vitreous china plumbing fixtures and china and earthenware fittings and bathroom accessories
- 3262 Vitreous china table and kitchen articles
- 3263 Fine earthenware (whiteware) table and kitchen articles
- 3264 Porcelain electrical supplies
- 3269 Pottery products, not elsewhere classified
- 3271 Concrete brick and block
- 3272 Concrete products, except block and brick
- 3273 Ready mixed concrete
- 3274 Lime
- 3275 Gypsum products
- 3281 Cut stone and stone products
- 3291 Abrasive products
- 3292 Asbestos products
- 3293 Steam and other packing, and pipe and boiler covering
- 3295 Minerals and earths, ground or otherwise treated
- 3296 Mineral wool
- 3297 Nonclay refractories
- 3299 Nonmetallic mineral products, not elsewhere classified

33 PRIMARY METAL INDUSTRY
- 3312 Blast furnaces (including coke ovens), steel works, and rolling mills
- 3313 Electrometallurgical products
- 3315 Steel wire drawing and steel nails and spikes
- 3316 Cold rolled sheet, strip, and bars
- 3317 Steel pipe and tubes
- 3321 Gray iron foundries
- 3322 Malleable iron foundries
- 3333 Primary smelting and refining of zinc
- 3334 Primary production of aluminum
- 3339 Primary smelting and refining of nonferrous metals, not elsewhere classified
- 3341 Secondary smelting, refining, and alloying of nonferrous metals and alloys
- 3351 Rolling, drawing, and extruding of copper
- 3352 Rolling, drawing, and extruding of aluminum
- 3356 Rolling, drawing, and extruding of nonferrous metals, except copper and aluminum
- 3357 Drawing and insulating of nonferrous wire
- 3361 Aluminum castings

3362 Brass, bronze, copper, copper base alloy castings
3369 Nonferrous castings, not elsewhere classified
3391 Iron and steel forgings
3392 Nonferrous forgings
3399 Primary metal industries, not elsewhere classified

34 FABRICATED METAL PRODUCTS, EXCEPT ORDNANCE, MACHINERY, AND TRANSPORTATION EQUIPMENT
3431 Enameled iron and metal sanitary ware
3471 Electroplating, plating, polishing, anodizing and coloring
3479 Coating, engraving, and allied services, not elsewhere classified

36 ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES
3611 Electrical measuring instruments and test equipment
3612 Power, distribution, and specialty transformers
3613 Switchgear and switchboard apparatus
3619 Electric transmission and distribution equipment, not elsewhere classified
3623 Welding apparatus
3624 Carbon and graphite products
3641 Electric lamp
3642 Lighting fixtures
3643 Current carrying wiring devices
3644 Noncurrent carrying wiring devices
3672 Cathode ray picture tubes
3673 Transmitting, industrial, and special purpose electron tubes
3679 Electronic components and accessories, not elsewhere classified
3691 Storage batteries
3692 Primary batteries, dry and wet
3693 Radiographic X-ray, fluoroscopic X-ray, therapeutic X-ray, and other X-ray apparatus and tubes
3694 Electrical eqiupment for internal combustion engines
3699 Electrical machinery, equipment, and supplies, not elsewhere classified

38 PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS; PHOTOGRAPHIC AND OPTICAL GOODS; WATCHES AND CLOCKS
3811 Engineering, laboratory, and scientific and research instruments and associated equipment
3821 Mechanical measuring and controlling instruments, except automatic temperature controls
3822 Automatic temperature controls
3831 Optical instruments and lenses
3841 Surgical and medical instruments and apparatus
3842 Orthopedic, prosthetic, and surgical appliances and supplies
3843 Dental equipment and supplies
3851 Ophthalmic goods
3861 Photographic equipment and supplies
3871 Watches, clocks, and parts except watchcases

39 MISCELLANEOUS MANUFACTURING INDUSTRIES
- 3951 Pens, pen points, fountain pens, ball point pens, mechanical pencils and parts
- 3952 Lead pencils, crayons, and artists' materials
- 3953 Marking devices
- 3955 Carbon paper and inked ribbons
- 3982 Linoleum, asphalted-felt-base, and other hard surface floor coverings, not elsewhere classified
- 3983 Matches
- 3984 Candles
- 3987 Lamp shades
- 3988 Morticians' goods
- 3992 Furs, dressed and dyed

42 MOTOR FREIGHT TRANSPORTATION AND WAREHOUSING
- 4222 Refrigerated warehousing, except food lockers
- 4223 Food lockers, with or without food preparation facilities

49 ELECTRIC, GAS AND SANITARY SERVICES
- 4922 Natural gas transmission
- 4923 Natural gas transmission and distribution
- 4924 Natural gas distribution
- 4925 Mixed, manufactured or L. P. gas production and/or distribution
- 4931 Electric and other services combined
- 4932 Gas and other services combined
- 4941 Water supply
- 4952 Sewerage systems
- 4953 Refuse systems
- 4959 Sanitary services, not elsewhere classified
- 4961 Steam supply
- 4971 Irrigation system operation

50 WHOLESALE TRADE
- 5022 Drugs, drug proprietaries, and druggists' sundries
- 5028 Paints and varnishes
- 5029 Chemicals and allied products, not elsewhere classified
- 5095 Beer, wine, and distilled alcoholic beverages

80 MEDICAL AND OTHER HEALTH SERVICES
- 8061 Hospitals
- 8071 Medical laboratories
- 8072 Dental laboratories

APPENDIX B

2-Year Post High School Curriculum

CHEMICAL TECHNOLOGY CURRICULUM

First Year

	Class hours	Laboratory hours	Outside study	Total hours
First Term				
General Chemistry I.....	4	4	8	16
Mathematics I.....	5	0	10	15
Communication Skills.....	3	0	6	9
Physics I (Mechanics, Heat)...	4	2	8	14
Chemical Technology Seminar...	1	0	2	3
Total.....	17	6	34	57
Second Term				
General Chemistry II.....	4	4	8	16
Mathematics II.....	4	0	8	12
Technical Reporting.....	2	2	4	8
Physics II (Electricity, Light)	4	4	8	16
Total.....	14	10	28	52

Second Year

Third Term				
Quantative and Instrumental Analysis I.....	3	6	6	15
Unit Operations I.....	3	4	6	13
Organic Chemistry I.....	3	4	6	13
General and Industrial Economics	3	0	6	9
Total.....	12	14	24	50
Fourth Term				
Quantative and Instrumental Analysis II.....	3	6	6	15
Unit Operations II.....	3	4	6	13
Organic Chemistry II.....	3	4	6	13
Industrial Organization and Institutions.....	3	0	6	9
Total.....	12	14	24	50

APPENDIX C

INTERVIEW SCHEDULE

CHEMICAL TECHNOLOGY STUDY

Name of Company:_____ Phone:_____

Location:_____ Person Interviewed:_____

Company's Major Process:_____

_____

Statement of the goals of the study: To ascertain the needs for chemical technologists in the ten northern counties of Idaho. Etc.....

1. What chemical processes do you have?_____

_____

_____

_____

Statement describing skills of chemical technologists: Training, role, special abilities, services to employer and etc. (see separate form)

2. Would you have any place for a chemical technologist in your operation?

_____

_____

_____

3. Would you actually be interested in hiring a chemical technologist to work in your plant? _____

_____

4. Would a person with a high school education and a course in chemistry fulfill your needs?_____

_____

5. Will there be (or still be) a need for a person of the general nature of a chemical technologist in your company in the next 2 or 3 years?

_____

_____

6. How many will or would you need? (answer for the above)_____

_____

7. Would a person be able to go to work immediately at a job commensurate with his ability and training or would he have to work up from entry jobs?_____

_____

8. Would you be willing to pay extra (above skilled labor but not at engineering level) for a man of this nature?_____
_____
_____(get estimate of salary if possible)___
_____

9. Assuming for a minute that a chemical technology course is offered in the near future, are there any areas of competence that you especially would like to see developed?_____
_____
_____
_____

10. Do you know of any companies in the northern part of the state who might have some need for chemical technologists?_____
_____
_____

ADDITIONAL NOTES:

_____

_____

_____

_____

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NORTH CAROLINA

Major changes and improvement in the vocational agriculture program from July 1, 1965 through June 30, 1966 are reported. Professional group meetings, workshops, and conferences were used by supervisory staff to retrain and upgrade teacher competencies needed to implement new courses of study. Resource personnel, including consultants and advisory committees, were used in inservice education programs for teachers. Publications, teaching guides, and curriculum guides were developed and made available to teachers. Agricultural education was included in the curriculum of 493, about two-thirds, of the State's high schools. An increased number of adults enrolled in unit courses designed to upgrade their knowledge and skills in specific areas of agriculture. A recruitment committee was formed for the purpose of increasing agricultural undergraduate enrollment in teacher education institutions. Research concerned adult educational programs, teacher attitudes, and high school graduates. Pilot programs in agriculture sales and service occupations and in the use of television in adult farmer classes were conducted. The staff worked cooperatively with other vocational services, educational groups, agricultural agencies, and farm organizations in activities such as curriculum development, revision of local programs of vocational agriculture, and local school evaluations. To interpret and promote vocational education in agriculture, the staff held conferences, presented talks, assisted with State Fair exhibits, and sponsored weekly radio and television programs. (EB)

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NORTH CAROLINA

ANNUAL DESCRIPTIVE REPORT

AGRICULTURAL EDUCATION

1965-66

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION

RALEIGH, NORTH CAROLINA

VT 02840

AGRICULTURAL EDUCATION

INTRODUCTION

Major activities of the State Staff in Vocational Education in Agriculture included further development and implementation of the program of studies in agriculture, development and implementation of experimental programs, providing inservice education programs to help retrain teachers, and the procurement of equipment and teaching aids. Considerable time and effort have been spend in further development of a new pattern of course offerings implemented two years ago consistent with the new and broader objectives authorized in the Vocational Education Act of 1963. Program reviews, consultation with local administrators and teachers, and inservice workshops for teachers have consumed an unusual amount of staff time. This report describes some of the highlights of program changes and improvements which have occurred during fiscal year July 1, 1965 through June 30, 1966.

Agricultural education was included in the curriculum of 493 high schools, or approximately two thirds of the State's high schools. A staff of 616 full-time teachers and two half-time teachers were employed to provide agricultural instruction for youth and adults. An additional 181 part-time teachers from business and industry were employed in the adult farmer program. Total enrollment of high school youth was 42,473. In addition, 21,134 adults, an increase of 2,114 compared to a year ago, were enrolled in unit courses designed to upgrade their knowledge and skills in specific areas of agriculture. Interest in and demand for programs of vocational education in agriculture continues to be favorable in the State.

The major impediment to expansion of the program is the critical shortage of qualified teachers.

CURRENT SUPERVISORY SERVICES AT THE STATE LEVEL

The State Supervisory Staff is composed of eleven and one-half professional positions as follows:

State Supervisor - - - - - - - - - - - - - - - one position

Assistant Supervisors (one position assigned as FFA Executive Secretary) - - ten and one-half positions

More adequate consultant and supervisory services have resulted in significant progress in the program of agricultural education conducted in the public schools, in inservice education programs and the procurement of equipment and teaching aids.

Workshops and Inservice Training

Professional group meetings, workshops and conferences were used by the supervisory staff to help employed teachers retrain and upgrade themselves. Special workshops were conducted by the staff and specialists to help teachers develop competencies needed to implement new courses of study. A summary of these activities is shown in Table 1.

Table 1. Inservice Education Activities Sponsored by Supervisory Staff

Kind	Total Number	Total Clock Hours	Total Individuals Participating	Consultants Used
Group Meetings	264	669	2182	41
Workshops (Professional)	27	294	452	21
Workshops (Technical)	25	574	379	27
District Teachers' Conf.	8	25	837	4
Other	22	50	351	2

Use of Consultants and Advisory Committees: Resource personnel from universities, industries and other groups were used in inservice education for teachers and other programs.

A. Consultants: Personnel from North Carolina State University, the University of North Carolina at Greensboro, Pennsylvania State University, A & T College, the Department of Community Colleges, the United States Department of Agriculture, the electric power distributors, the North Carolina Department of Agriculture, park services of cities, and agricultural industries were used in conferences, workshops and credit courses for agriculture teachers. University, industry and park services of cities were used in the development of curriculum guides and planning inservice training programs for teachers.

B. Advisory Committees: Several advisory committees composed of teachers, local school administrators and university personnel were used by the State staff. Advisory committees functioned in several areas. Areas concerned included teacher recruitment, in-service education programs, curriculum development, public information programs, etc. Three hundred and twenty-seven schools used local advisory committees. The local advisory committees were composed of farmers, agricultural business personnel, university personnel, city parks representatives, and school administrators who helped evaluate local programs and identify knowledge and skills which should be developed through the school's program of agricultural education

for youth and adults. The State staff worked closely with fifteen committees in making local studies and redesigning programs.

C. Consultant and Supervisory Services: Consultant and supervisory services of State staff members were much in demand by local boards of education, local school administrators and teachers. A summary of the services provided by the State supervisory staff is shown in Table 2.

Table 2. Consultant Services Provided by Supervisory Staff, 1965-66.

Kind	Number of Visits
Local Boards of Education	13
Local Superintendents (Individual)*	301
Local Principals (Individual)*	637
Local Vo-Ag Teachers (Individual)*	1065
School Accreditations and Program Reviews	73
Other	6

*Some individuals requested and received more than one visit.

· State and Local Conferences Other Than Vocational Agriculture

A majority of the State staff participated in several State and local conferences to interpret the agricultural education program, to improve professionally and to coordinate vocational agriculture's efforts with those of other organizations, agencies and institutions working toward the improvement of educational opportunities and the State's agricultural development. These conferences and workshops are summarized in Table 3.

Table 3. Conferences and Workshops in Which State Supervisory Staff Participated, 1965-66.

Kind	Role	Type Program	Sponsor	Number Attending
Agricultural Workers' Conference	Participant	Technical & Planning	Board of Farm Organizations & Ag. Agencies	217
Leadership Training Conference	Participant	Leadership Development	Division of Vocational Education	120
Superintendents' Conference	Participant	Professional	Department of Public Instruction	250
NCEA & NCTA (District and State)	Participant	Professional	State Teacher Associations	7500
Others	Participant	Cooperative	Governor's State Planning Committee	6200

A. North Carolina Board of Farm Organizations and Agricultural Agencies: This Board is composed of the heads of the farm organizations and agricultural agencies (approximately 25 members). It meets monthly and functions as an agricultural fact-find, direction and coordinating group. The State Supervisor of Vocational Agriculture is an active member of the Board.

B. Rural Area Development: The State Supervisor of Vocational Agriculture is a member of the State Technical Action Panel and attends and participates in all regular meetings of the Panel (approximately 25 members). One teacher of Vocational Agriculture in each county is a member of the Technical Action Panel in his county.

C. North Carolina State Grange: The State Supervisor and the FFA Executive Secretary are participants in and consultants to committees at the Annual Grange State Convention. Approximately 250 persons were in attendance this year.

D. North Carolina Farm Bureau Federation: The State Supervisor is a participant in the Annual Convention. Approximately 300 persons were in attendance this year.

E. Other: The State Supervisor serves as a member of many boards and committees concerned with the further development of agriculture. Included are the North Carolina State University Agricultural Foundation, North Carolina Agricultural Hall of Fame, North Carolina State University Agricultural Institute, and many advisory committees.

Publications and Curriculum Guides

The following publications, teaching aids and curriculum guides were developed during the past year:

-- Introduction to Agriculture, a revision of curriculum guide for course number 701, staff.

-- Agricultural Science and Mechanics, a revision of curriculum guide for course number 702, staff.

-- Swine Judging, a packet containing picture cards, swine judging guide, color film-strip, masters for transparencies, M. O. Phillips and staff.

In addition to the above items, one member of the staff assisted the National Center for Research and Leadership Development in Vocational Education in the writing of curriculum guides.

Cooperation With Other State Educational Department Personnel

The State staff worked cooperatively with other State education department personnel in the following activities:

-- Interpreting publication entitled "The Program of Studies in the Elementary and Secondary Schools of North Carolina," a publication of the Department

of Public Instruction.

-- Reviewing and evaluating local plans for vocational education and recommending allotments of State and Federal resources (funds) for personnel and equipment.

-- Conducting school surveys in administrative units.

-- Promoting post-high school agricultural technology programs in Community Colleges.

-- Evaluating high schools for state accreditation: staff members participated as members of an accreditation team.

-- Evaluating and recommending agricultural books for State adoption. A committee of supervisors, teacher educators, and teachers of agriculture has this responsibility.

-- Providing consultant services to the Division of School Planning in designing vocational education facilities for local schools.

-- Participating in regular weekly and monthly conferences of Department of Public Instruction professional personnel.

-- Participating in workshop for school administrators concerning vocational education programs.

-- Maintaining a liaison with teacher education institutions training vocational teachers.

Adequacy of Teacher Training Facilities

Vocational Agriculture teachers are trained at North Carolina State University at Raleigh and the Agricultural and Technical College, Greensboro, North Carolina.

Facilities at each of these institutions are adequate, in our opinion, for training vocational agriculture teachers.

In the administration of the "Approved Program Approach to Teacher Education," provisions have been made for periodic evaluations and reviews of teacher education programs. Such evaluations and reviews should result in adjustments and improvements as the need arises. At the present time major emphasis is upon recruiting prospective teachers of agriculture and inservice training of employed teachers.

PROGRAM STATUS AT STATE AND LOCAL LEVELS

Vocational Education in Agriculture is concerned with: (1) secondary school preparatory education in agriculture (the high school program), and (2) post-high school supplementary education in agriculture (the young and adult farmer program).

Secondary School Preparatory Education

Activities and achievements in this phase of the program have been further development and implementation of a new design of course offerings developed three years ago.

Statewide Structure

Ninth Grade

Course No. 701 Introduction to Agriculture

Tenth Grade

Course No. 702 Agricultural Science and Mechanics

Eleventh and Twelfth Grades

Options flexible for local adoption.

Course No. 703 Agricultural Production

Course No. 704 Agricultural Management

Course No. 705.1 Agricultural Construction

Course No. 705.2 Agricultural Machinery and Equipment

Course No. 705.3 General Horticulture

Course No. 705.4 Ornamental Horticulture

Course No. 705.5 Forestry

Course No. 705.6 Crop and Soil Technology

Course No. 705.7 Livestock and Poultry Technology

Course No. 705.8 Agricultural Chemicals

Course No. 705.9 Agricultural Business Operation and Management

Experimental Agricultural Sales and Services Occupation

Vocational preparatory education in agriculture was offered in 493 high schools. A teaching staff of 618 was required to serve the needs of 42,473 youth enrolled in the courses offered. A summary of enrollment by occupational classifications, sex and grade level is shown in Table 4.

Table 4. Enrollment in High School Preparatory Courses in Agriculture, 1965-66.

Occupational Classification	Sex	Grade Level				Total
		9	10	11	12	
	M	14,684	10,541	972	472	26,669
1. Basic Agriculture (701, 702)	F	36	63	10	53	162
2. Occupational Courses						
(a) Agricultural Production	M	134	292	4687	4048	9,161
(703, 704, 705.6, 705.7)	F		30	31	34	95
(b) Agricultural Mechanization	M	48	273	1793	1961	4,075
(705.1, 705.2)	F		3	4	13	20
	M	23	91	591	551	1,256
(c) Horticulture (705.3, 705.4)	F	3	28	129	215	375
	M	24	30	164	170	388
(d) Forestry (705.5)	F					
(e) Agricultural Supplies (705.8,	M	3	16	68	146	233
705.9 Experimental Program)	F		3	9	27	39

Post Secondary Education in Agriculture

Full-time post secondary education in agriculture is a responsibility of the Division of Vocational-Technician Training, Department of Community Colleges, and is included in another section of the annual report.

Adult Farmer Education. A new approach to the improvement of vocational education in agriculture for adult farmers was begun in North Carolina four years ago. This approach, along with new innovations, is proving very popular. The new approach implemented four years ago is characterized by: (1) an instructional core in farm business management, and (2) complimentary or specialty unit courses.

An innovation during 1965-66 for the improvement of vocational education in agriculture for adult farmers was an experimental program in the use of television as a means of providing instruction for organized adult classes. Thirty-nine schools participated in the program which was developed as a twelve hour unit course in pesticides. The results and evaluation of the program were encouraging to the extent plans are being developed for expansion of the program for 1966-67 to include twenty telecasts for a total of forty hours of instruction.

Special State funds are budgeted for the employment of special teachers to assist vocational agriculture teachers with unit courses in the adult farmer program. Last year 181 such teachers were employed. Additional resource teachers were secured through the Department of Community Colleges. More than 34,000 clock hours of instruction were offered.

Enrollment and attendance (contact) hours are summarized in Table 5.

Table 5. Enrollment in Supplementary (Young and Adult Farmer) Courses in Agriculture*

Occupational Classification	Number Enrollees			Total Attendance Hours
	Male	Female	Total	
Agricultural Production	19,502	1,632	21,134	336,221

*Unit courses in business, mechanics and horticulture for farmers are reported as agricultural production.

Curriculum Revision and Development: Curriculum guides for courses 701 and 702 were revised and presented to teachers through a series of small group conferences. Also copies were distributed to school administrators. One staff member has been assigned leadership responsibility for revision and development of additional curriculum guides during fiscal year 1966-67. Several copies of course guides developed at the National Center for Research and Leadership Development in Vocational Education were secured and used in revising existing guides.

Special emphasis was placed upon the new concept of supervised practice and its relation to the course of instruction. A pilot program to examine and implement the new concept was developed in two counties with ten teachers participating. Also a new supervised practice plans and record book was developed. Approximately 25,000 students of vocational agriculture are using the book this year.

A pilot program in "Agricultural Sales and Service Occupations" was conducted. Evaluation of the program will result in its expansion and being included in the curriculum of at least one additional school in that administrative unit for 1966-67.

Youth Organizations: The New Farmers of America organization was consolidated with the Future Farmers of America effective July 1, 1965. All activities of the FFA were conducted on an integrated and freedom of choice basis. Former NFA chapters

were issued FFA charters upon receipt of dues from the chapters and all members became eligible to participate in any and all activities. A five-day leadership conference for local chapter officers was conducted at the Tom Browne FFA Camp. Approximately 150 officers participated in the conference.

Preservice and Inservice Teacher Education

Enrollment in preservice education at both teacher education institutions is declining while enrollment at the graduate level is increasing. The decline in enrollment at the undergraduate level is causing a critical shortage of teachers of agriculture. Activities and achievements of the State staff in this area are as follows:

-- The staff is assisting North Carolina State University in an "open house" program for high school students. Approximately 75 teachers of vocational agriculture and 300 students participated in the 1965 "open house."

-- The staff worked with the supervisor of the "Scholarship Fund for Prospective Teachers" in communicating with vocational agriculture teachers.

-- A three-weeks summer school which was initiated at North Carolina State University in 1965 was also conducted in 1966. Three weeks program was provided for teachers at A & T College in 1965-66.

-- Special emphasis is being placed upon more specialized training for teachers at the undergraduate and graduate levels.

-- Seventeen two-weeks workshops were conducted for teachers of agriculture. Approximately 333 teachers participated in these workshops which were designed to meet the requirements for certificate renewal credit. A summary of the two-weeks workshops is shown in Table 6.

Table 6. Summary of Two-Weeks Workshops, 1965-66.

Workshops Subject Area	No. Workshops	Total Attendance
Horticulture	8	177
Agricultural Machinery and Equipment	7	124
Visual Aids	2	32
Rural Electrification (16 hours)	10	191
9th and 10th Grade Programs (8 hours)	31	478

Recruitment and Placement: Prior to recent months there was no organized recruitment program in operation at either teacher education institution. During the Spring of 1966 a recruitment committee for the two institutions was appointed. The committee is composed of seven teachers, two teacher educators and two supervisory staff members. The primary purpose of the committee is to develop a course of action which will aid in increasing the agricultural education enrollment at the undergraduate level in both teacher education institutions. Additional activities in which the staff cooperated and participated are as follows:

1. School of Agriculture "Open House"
2. Student teachers advise about interested students and are followed up by the staff
3. Ag Ed Clubs published annual publications which were mailed to teachers, administrators and sponsors
4. Distributed several thousand brochures at the North Carolina State Fair
5. Advised interested students about agricultural education programs at N. C. State University and A & T College.

In recent years North Carolina State University established an all-college placement service. Since the establishment of the placement service the operational policy has been primarily of cooperation and coordination with the Associate Director of Placement.

Research and Studies

North Carolina State University

A. Masters thesis completed:

L. A. Freeman: An Analysis of Factors Involved in Planning an Educational Program for Adults. May, 1966.

B. Staff studies completed:

T. R. Miller: Teacher Adoption of a New Concept of Supervised Practice in Agriculture. October, 1965.

A Comparison of Teacher Attitudes and Teacher Perceptions of Their Principal's Attitudes. June, 1966.

Agricultural and Technical College

A. Staff Studies:

A. P. Bell: Characteristics and Performances of High School Graduates and Non-Graduates in One Year Programs in the Community College System of Institutions in North Carolina. March, 1966.

A. P. Bell and
C. E. Dean: A Guide for Teacher Aids. April, 1966.

Non-thesis programs under the direction of C. E. Dean and A. P. Bell were conducted by two teachers of agriculture.

Pilot Programs

1. A pilot program in Agricultural Sales and Services Occupations was conducted in the Winterville High School in Pitt County. Twelve

students were enrolled in the programs. Plans are to include the program in the curriculum in several other schools in the County in 1966-67.

2. A pilot program in educational television as a means of providing instruction for adult farmer classes was conducted in thirty-nine schools during 1965-66. Plans are to expand the program to approximately 150 schools during 1966-67.

The status of teacher education in vocational agriculture at North Carolina State University and Agricultural and Technical College is summarized in Table 7.

Table 7. Status of Teacher Education in Vocational Agriculture, 1965-66.

Item			Number
1. Number of Teacher Educators:		Full-Time	6
		Part-Time	
2. Number of Enrollees in Teacher Training:		Pre-Service	167
		In-Service	91
3. Number Completed Minimum State Plan Requirements This Year:		Secondary	24
		Adult	(24)*
4. Number Completed Minimum State Plan Requirements That Were Placed in Field Trained:	Secondary:	In-State	16
		Out-of-State	1
	Adult:	In-State	(16)*
		Out-of-State	(1)*
5. Estimated Number That Will Complete State Plan Requirements:		Secondary	32
		Adult	(32)*
6. Estimated Number of Teachers Needed as Replacements for Next Fiscal Year:		Secondary	65
		Adult	(65)*

*Secondary teachers are trained to teach adults.

Studies Needed

1. Research related directly to the Agricultural Education Program
   (a) Evaluation of the program
   (b) Competency studies
   (c) Early identification of factors associated with success in graduates
2. Research related to the agriculture teacher's job
   (a) Determining needs of teachers for inservice education programs
   (b) Teaching materials needed by teachers of vocational agriculture
   (c) The agriculture teachers role with the part-time farm family
   (d) Department organization in multiple-teacher situations
   (e) The agriculture teacher's role in assisting farm boys prepare for off-farm agricultural occupations
3. Field Research
   (a) Developing a problem-solving approach in teaching programs built around supervised practice
   (b) Developing programs for students with special needs
   (c) Developing programs for low income adult farmers
   (d) A plan for operating a department of vocational agriculture with student teachers
4. Research related to the broad field of agricultural education
   (a) Analysis of socio-economic trends in North as a basis for developing local programs of vocational agriculture

(b) Analysis of research in related fields and implications for vocational agriculture

(c) Role analysis of those involved in a vocational agriculture program.

Joint Activities

The State staff worked cooperatively with other vocational services, with other educational groups, with agricultural agencies and with farm organizations in the following kinds of activities:

Other Vocational Services: These activities involved -

. Developing, producing and interpreting curriculum materials in agriculture This was done in cooperation with the Curriculum Materials Laboratory, Department of Community Colleges

. Study needs for cooperative programs (Agriculture and Distributive Education).

Other Groups, Institutions, Agencies and Organizations: The Staff participated in -

. Open House - School of Agriculture and Life Sciences, North Carolina State University

. Community Development programs

. North Carolina State Fair

. Replanning local programs of vocational agriculture (in cooperation with local boards of education, school administrators and teachers)

. State Soil Conservation Service (State Soil and Water Conservation needs)

. Local school evaluations

. Visual aids workshops for non-vocational education teachers (at request of local school administrators).

Advisory Committees: Advisory Committees were used in the following ways -

. Three hundred and twenty-seven departments of vocational agriculture used a formally organized consulting or advisory committee.

. The State staff used consulting committees in the following activities:

(a) Selecting new staff members

(b) Replanning the high school curriculum

(c) Studying and up-grading the activities of the Future Farmers of America

(d) Planning inservice education workshops

(e) Teacher recruitment

(f) Evaluating and planning district-wide programs

(g) Planning Annual Teachers' Conference

(h) Planning pilot program in educational television for adult farmers.

Program Interpretation and Promotion

Activities used to interpret and promote Vocational Education in Agriculture included the following:

. Held conferences with local school administrators, teachers, local school boards and advisory committees

. Assisted with planning and developing exhibits at the State Fair to depict the Vo Ag program

. Sponsored a weekly radio program in cooperation with Radio Station WPTF, Raleigh, North Carolina

. Sponsored a weekly TV program in cooperation with Station WNCT-TV, Greenville, North Carolina and a bi-weekly program in cooperation with Station WECT-TV, Wilmington, North Carolina

. Several staff members made talks before civic clubs, PTAs, and organizations of school administrators

. Held conferences with leaders of major farm organizations in the State.

Additional Significant Information and Materials

Stories and Photographs: Examples of stories and photographs used to publicize the vocational agriculture program are attached to this report.

Adequacy of Staff for Present and Future Development: The State staff is adequate for present programs, but additional staff is needed for the following functions:

. To develop programs for students (youth and adults) with special needs

. To coordinate inservice education programs for employed teachers of agriculture

Additional teaching positions will be needed at the local level when teaching personnel becomes available in order to extend the program to schools presently not offering any agricultural education and to initiate pilot programs for off-farm agricultural occupations.

Examples of Ways Program Is Being Adjusted: The high school program was redesigned two years ago to provide basic agricultural education for the world of work in agriculture at the 9th and 10th grade levels and to provide specialized courses at the 11th and 12th grade levels for clusters of jobs in agriculture.

The present design of course offerings include two-year specialized courses at the 11th and 12th grade levels. A pilot program in ornamental horticulture offering a total of 940 clock hours of organized instruction will be initiated

in one school in September 1966. In addition to the organized instruction, the students will receive approximately the same amount of time in planned occupational experience programs. Pilot programs are also being conducted in the areas of agricultural machinery and equipment, agricultural sales and service occupations, and agricultural construction.

Adjustment of the course offerings to include training for off-farm agricultural occupations has projected new life into the program and has been received enthusiastically by school administrators and prospective employers. Teachers have accepted the new concept of supervised practice which has resulted in a more effective program of exploratory and occupational work experiences.

Significant changes have been made in North Carolina's approach to the improvement of vocational education in agriculture for adult farmers. Emphasis is being placed upon (1) an instructional core in farm business management, (2) complimentary or specialty unit courses, and (3) new methods and techniques for providing instruction for adult farmer classes.

A. Instructional Core in Farm Business Management. Most farmers realize their need for a better understanding and working ability in principles and practices of management regardless of enterprises which make up their farm businesses. While the instructional program for various groups of farmers might have somewhat different orientation, the basic idea of a core in farm business management is recommended to schools. Units of instruction which make up the core include:

- Farm accounting and records
- Income tax and social security
- Analysis of farm accounts and records

. Credit and its use

. Marketing principles and practices

. Agricultural policies

. Agricultural education and service resources

A vital part of farm business management is the individual on-farm instruction given by the teacher of agriculture.

B. Complimentary or Specialty Unit Courses. Included in the approach to improving the adult farmer education program is an offering of specialty courses to develop certain skills and understandings that are needed immediately by a certain group of adult students. The course offerings vary from group to group depending upon the prevailing agriculture in the area and any new enterprises under development. Some examples of specialty unit courses are:

. Ornamental plant production

. Swine production

. Beef cattle production

. Small gasoline care and maintenance

. Tractor operation, care and maintenance

. Corn production

. Broiler production

. Commercial egg production

The length of the unit courses average approximately twenty hours but may run as high as forty hours or more.

In order to expand and improve adult farmer education, the State provides funds for the employment of special teachers to assist the regular vocational agriculture teacher with instruction in some highly technical unit courses. One hundred and eighty-one special teachers were employed during 1965-66. Forty thousand dollars were budgeted for this purpose for 1965-66.

New Legislation Affecting Vocational Education in Agriculture

National Level: The enactment of the Vocational Education Act of 1963 and the Civil Rights Act of 1964 were the most significant developments at the National level. Additional funds have been provided through the Vocational Education Act of 1963. This has provided for the purchase of much needed equipment in many departments. As a result of the Civil Rights Act of 1964, all FFA activities and professional teacher activities have been on an integrated basis.

State Level: The 1965 General Assembly appropriated State funds to provide a five percent increase in salaries of teachers for each year of the next biennium. This increase, although small, has probably helped reduce the seriousness of the critical teacher shortage.

* * * * *

VT 002 845

VT 002 845
A Follow-Up of Former Students of Vocational Agriculture High Schools of North Carolina (For Fiscal Year Ending June 30, 1966).

North Carolina State Dept. of Public Instruction, Raleigh
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 3p.

*VOCATIONAL AGRICULTURE; GRADUATE SURVEYS; *VOCATIONAL FOLLOWUP; HIGH SCHOOL STUDENTS; GRADE 12; *DATA SHEETS; HIGH SCHOOLS

A form for use in conducting a followup study of former students of vocational agriculture high schools for the 1965-66 school year and instructions for completing it are presented. Information is requested on (1) occupational classification, (2) sex, (3) total number completing program requirements, (4) number not presently available for placement, (5) number in labor force, (6) number unemployed, (7) number with status unknown, and (8) number who left prior to normal completion time with marketable skill. One completed report is to be submitted to the school, the superintendent, and the state supervisor. (WB)

ED027441

1 copy to: NT 02845
School
Superintendent
State Supervisor

FOLLOW-UP OF FORMER STUDENTS OF VOCATIONAL AGRICULTURE
High Schools of North Carolina
(For Fiscal Year Ending June 30, 1966)

Administrative Unit_____ School_____ Teacher(s)_____

Occupational Classification	Sex	Total Number Completed Program Requirements	No. Not Presently Available for Placement			Number Employed and/or Available (Add cols. 5 thru 7 and Subtract from Column 4.)	Number in Labor Force				Number Unemployed (seeking work)	Number Status Unknown	Left Prior to Normal Completion Time With Marketable Skills
			Entered Armed Forces	Continued Full-Time School	Other Reasons Not in Labor Force		Employed Full-Time			Employed Part-Time			
							Occupation Trained	Related Occupation	Other				
2	3	4	5	6	7	8	9	10	11	12	13	14	15
	F												
	M												
	F												
	M												
	F												
	M												
	F												
	M												
	F												
	M												

NOTE: The Sum of Columns 5, 6, 7, and 8 should equal the figure listed in Column 4.

The Sum of Columns 9, 10, 11, 12, 13, and 14 should equal the figure listed in Column 8.

North Carolina State Dept. of Education, Raleigh.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INSTRUCTIONS FOR COMPLETING REPORT ON FOLLOW-UP OF FORMER

STUDENTS IN VOCATIONAL EDUCATION IN AGRICULTURE

This report is to include only senior students enrolled in agriculture during the school year 1965-66, and completed a prescribed program or dropped out of school. Students still enrolled in high school should not be included in this report.

Column 1. You will note Column 1 is omitted from the report form. The information in this column in the report to the U. S. Office of Education does not pertain to agriculture; therefore, we omitted Column 1 but kept the other columns numbered consistent with the report to the U. S. Office of Education.

Column 2. List in this column the courses which were included in the school's curriculum for 1965-66. Do not include courses 701 and 702, but include all of the following courses which were offered in the school last year and in which you had seniors who graduated or dropped out of school.

703	Agricultural Production
704	Agricultural Management
705.1	Agricultural Construction
705.2	Agricultural Machinery and Equipment
705.3	General Horticulture
705.4	Ornamental Horticulture and Landscaping
705.5	Forestry
705.6	Crop and Soil Technology
705.7	Livestock and Poultry Technology
705.8	Agricultural Chemicals
705.9	Agricultural Business Operation and Management

Column 4 List according to sex the number of seniors who completed the courses listed in Column 2.

Column 5. List the number of former students who were included in Column 4 and are now in the armed forces.

Column 6. List the number of former students who were included in Column 4 and are continuing full-time in school.

Column 7. List the number of former students who were included in Column 4 but are not in the armed forces, are not continuing full-time in school, are not employed and for some reason are not available for employment. Reasons might include illness, death, etc.

Column 8. Add the figures in Columns 5, 6, and 7; subtract the sum of these columns from the figure listed in Column 4. This is the figure to list in Column 8.

Column 9. List the number of former students included in Column 8 who are employed full-time in the occupation for which they were trained. (This refers to the occupational classification as listed in Column 2.)

Column 10. List the number of former students included in Column 8 who are employed full-time in an occupation related to that for which they were trained. (This refers to occupations related to the occupational classification as listed in Column 2.)

Column 11. List the number of former students included in Column 8 who are employed full-time in an occupation not related to that for which they were trained. (This refers to occupations not related to the occupational classification as listed in Column 2.)

Column 12. List the number of former students included in Column 8 who are employed only part-time regardless of whether they are employed in an occupation for which they were trained, related to their training or an occupation not related to their training.

Column 13. List the number of former students included in Column 8 who are not employed but are available for employment either part-time or full-time.

Column 14. List in this column those included in Column 8 whose status is unknown.

Column 15. List in this column the number of students (seniors) <u>who did not complete</u> the course but who in your opinion did develop some marketable skills prior to leaving the program.

VT 002 859

VT 002 859
Pollock, Kathryn M.
Continuing Education in Home Economics for Out-of-School Youth and Adults, A Guide for Planning and Organizing Local Programs.

New York State Education Dept., Albany. Bureau of Continuing Education Curriculum Development
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 43p.

CURRICULUM; EMPLOYMENT OPPORTUNITIES; *HOME ECONOMICS EDUCATION; ADULT VOCATIONAL EDUCATION; *ADULT EDUCATION; HOMEMAKING EDUCATION; OCCUPATIONAL HOME ECONOMICS; PROGRAM DEVELOPMENT; *PROGRAM GUIDES

Adult education directors, school principals, supervisors of home economics, and area-center program planners may use this guide in establishing a broad home economics program for out-of-school youth and adults. Major objectives of the program are education for personal and family living and education for occupational competence. Areas discussed are (1) objectives of continuing education in home economics, (2) the scope of the program, (3) identification of local needs, (4) establishment of the local program, (5) promotion of participation, (6) space and facilities, (7) records and reports, and (8) evaluation. The scope of the program is presented by a chart which lists phases of study and suggested topics for curriculum areas relevant to preparation for personal and family living--personal and family relationships, housing, clothing, foods and nutrition, and personal and home management. Another chart outlines curriculum areas relevant to preparation for employment according to job titles and possible places of employment. Sources of information for planning programs in home economics education are listed. (FP)

ED027441

000731

CONTINUING EDUCATION IN HOME ECONOMICS

FOR OUT-OF-SCHOOL YOUTH AND ADULTS

A GUIDE FOR PLANNING AND ORGANIZING LOCAL PROGRAMS

VT002859

THE UNIVERSITY OF THE STATE OF NEW YORK/THE STATE EDUCATION DEPARTMENT
BUREAU OF CONTINUING EDUCATION CURRICULUM DEVELOPMENT / ALBANY / 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CONTINUING EDUCATION IN HOME ECONOMICS

FOR OUT-OF-SCHOOL YOUTH AND ADULTS

A GUIDE FOR PLANNING AND ORGANIZING LOCAL PROGRAMS

VT 002 859

THE UNIVERSITY OF THE STATE OF NEW YORK/THE STATE EDUCATION DEPARTMENT
BUREAU OF CONTINUING EDUCATION CURRICULUM DEVELOPMENT / ALBANY / 1966

THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of the University (with years when terms expire)

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1967	Thad L. Collum, C.E., Vice Chancellor	Syracuse
1978	Alexander J. Allan, Jr., LL.D., Litt.D.	Troy
1973	Charles W. Millard, Jr., A.B., LL.D.	Buffalo
1970	Everett J. Penny, B.C.S., D.C.S.	White Plains
1972	Carl H. Pforzheimer, Jr., A.B., M.B.A., D.C.S.	Purchase
1975	Edward M. M. Warburg, B.S., L.H.D.	New York
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1977	Joseph T. King, A.B., LL.B.	Queens
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1981	George D. Weinstein, LL.B.	Hempstead
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Director of General Occupational Education
John E. Whitcraft

Chief, Bureau of Home Economics Education
Laura M. Ehman

ERIC

FOREWORD

Continuing education in home economics, focused on individual and family living, is becoming increasingly important in the lives of adults. Rapidly changing situations and new developments in technology require new decisions daily for which new understandings and new skills are needed. Home economics now offers a broad program for out-of-school youth and adults with two dimensions: (1) education for personal and family living, and (2) education for occupational competence. Sound local planning is essential to the success of the continuing education program in home economics.

The major purpose of this publication is to guide those who wish to establish such a program. It is intended to replace Homemaking Education for Adults, published by the New York State Education Department in 1956. The new publication is expected to be helpful to adult education directors, school principals, supervisors of home economics, and area-center program planners.

While the course is a common pattern, other forms of instruction might be used in addition, especially when attempting to reach individuals who do not respond to the more formal patterns of education. This publication presents content areas which provide a source from which to draw when designing activities of a more informal nature, such as clinics, discussions, field trips, and exhibitions. Scheduling should also be flexible, designed to meet the circumstances of the various groups.

This bulletin was written by Miss Kathryn M. Pollock, Home Economics Director of the Elmira, New York, school system, under the guidance of Miss Laura M. Ehman, Chief, and Miss Janet E. Popp, Associate, of the Bureau of Home Economics Education. Dr. John H. Thatcher, Chief of the Bureau of General Continuing Education, and other members of that Bureau, gave valuable advice related to continuing education. E. Noah Gould, Associate in the Bureau of Continuing Education Curriculum Development, edited the manuscript and prepared it for publication.

Vivienne Anderson
Chief
Bureau of Continuing
Education Curriculum Development

William E. Young
Director
Curriculum Development Center

PREFACE

An adult home economics program should be planned and developed as an integral part of total community adult education. Local and area schools should make a careful study before developing their programs, to avoid unnecessary duplication of offerings and groups served. Education for family life is the concern of the school, the home, the church, and the community.

The modern world demands homes where adults are concerned with the deeper significance of life. This means that every member of a family must appreciate the unique contribution each makes to family living.

The home should be a place where each family member can find satisfaction in achievement and enjoyment in living, where parents provide education and guidance for children, and where the family fosters attitudes and abilities to help its members participate as responsible citizens in a free society. Home economics education has continually focused on helping individuals and families acquire the knowledge, attitudes, and skills necessary for satisfying family living.

John E. Whitcraft
Director
Division of General
Occupational Education

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Part I

OVERVIEW OF THIS PUBLICATION

Approaches for developing and operating programs of continuing education in home economics are suggested in this bulletin. It is organized into nine parts (in addition to Part I) and should be read completely; every part is vital in developing a sound program. A brief overview of each part follows:

Part II. Objectives of Continuing Education in Home Economics lists objectives for the two aspects of home economics. These are education for personal and family living, and education for occupational competence in jobs which use the knowledge and skills of home economics. These objectives will contribute to an understanding of the scope and possibilities of the adult home economics program.

Part III. Scope of the Continuing Education Program in Home Economics presents an overview of offerings available in the two aspects of the program: (1) Preparation for personal and family living, and (2) Preparation for employment.

Part IV. Identification of Local Needs for a Home Economics Program suggests some ways to determine these needs, such as by analyzing present opportunities for adult learning, collecting information on the characteristics of adults in the community, and collecting data on certain problems faced by adults.

Part V. Establishment of the Local Home Economics Education Program gives suggestions for developing and operating a local program. These suggestions include: planning a balanced program, organizing an advisory committee, using secondary home economics personnel, choosing competent instructors, and planning for needed variations in scheduling.

Part VI. Promotion of Participation in the Adult Home Economics Program emphasizes the importance of interpreting the program properly and gives some suggestions for stimulating people to participate.

Part VII. Space and Facilities for Teaching Home Economics indicates some ways to provide space and facilities which promote learning by adults.

Part VIII. Records and Reports for the Home Economics Program describes the type of financial records, inventories, participant records, course and meeting plans, long-range program plans, and annual reports essential for an efficient adult home economics program.

Part IX. Evaluation of the Local Home Economics Program lists questions to help determine the value of the continuing education program in home economics.

Part X. Sources of Information for Planning Programs in Home Economics Education presents an annotated list of publications which will be useful in planning and developing an adult home economics program.

Part II

OBJECTIVES OF CONTINUING EDUCATION IN HOME ECONOMICS

Education for personal and family living and education for occupational competence, two aspects of the home economics education program, supplement each other. Both contribute to the overall goal of home economics: "Home economics education aims to assist family members of all ages develop attitudes, appreciations, understandings, and abilities for the achievement of satisfying personal, family, and community life."[1]

To be effective parents and cooperative citizens, many adults need help in meeting new and varying situations in their homes, workplaces, communities, and the world. They must be able to recognize and cope with the problems they meet in these places if they are to pass on to the next generation the cultural values to which it is entitled. It is important, therefore, that one part of the school program focus on home economics education.

The objectives of home economics education for out-of-school youth and adults are identified below. A school program of continuing education in home economics in a given community may at one time be more

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[1]The New York State Education Department, Bureau of Home Economics Education: Syllabus for a comprehensive program. The Department, Education Building, Albany, New York 12224. 1965. p. 8.

concerned with one objective than with another. All objectives, however, should be carefully considered in a long-range plan.

A. Preparation for Personal and Family Living

Some of the objectives of the personal and family living aspect of home economics education are common to all education; for example, to clarify self-growth and self-expression. Other objectives, listed below, apply to home economics only, although they may be supported by contributions from other subjects. When the adult student completes this aspect of home economics education, he should:

1. *Understand his behavior and the behavior of others as a basis for improving communication and interaction within the family and relationships between the home and society.* This objective involves understanding the basic needs of individuals and families and the nature of the relation between the home and society. This objective also includes: recognizing the potent influence which the home and family exert on individuals, and knowing how to create a home environment which will encourage each family member to develop his capacities to the utmost--physically, socially, intellectually, and emotionally.

2. *Be adept at managing the human and material resources of the individual and the family so as to attain desired goals and values.* This objective involves recognizing the many resources the individual and family have and the ways to use each wisely. To reach this objective a student must understand the great importance of managerial ability in the home and must know good consumer buying practices.

3. *Be skilled in improving and maintaining the home, thus making it attractive, safe, and healthful*

for the family. This objective involves understanding differences in housing and housing requirements of individuals and families; recognizing ways to express taste in home decoration; knowing how to choose, construct, and renovate accessories for the home; knowing processes, products, and tools for cleaning, conditioning, and repairing in the home.

4. *Have greater ability to clothe family members suitably, thus making them attractive and enhancing their physical, mental, and emotional health.* This objective requires knowing good health and beauty practices, and having skill in making and caring for garments for self and others, and in selecting and altering ready-made clothing.

5. *Have greater efficiency in meal management, and in providing attractive and nutritious food for family and friends.* This objective involves knowing basic nutritional requirements, applying management principles to planning, preparing and serving food, and planning functional and attractive kitchens.

B. Preparation for Employment

The objectives of this aspect of the continuing education program in home economics are aimed at making out-of-school youth and adults employable in certain occupations. These occupations give service to families or individuals in family homes, institutions, and commercial establishments. Success in paid employment helps the individual improve as a family and community member. When the adult student completes this phase of home economics education, he should:

1. *Have improved those personal qualities which make for success on the job.* This objective involves recognizing and improving any personal behavior

which might lessen effectiveness as an employee; understanding the social factors and the family values and goals that affect the individual's competence and ability to carry responsibility on a job.

2. *Have the ability to manage for effective living at home and on the job, thus contributing to the achievement of satisfying personal and family living.* This objective involves comprehending the importance of managerial skill at home and on the job, and knowing the many kinds of resources available at home and on the job and ways to use each wisely.

3. *Develop competences necessary for specific job responsibilities as a means of qualifying for various service-type occupations which utilize the knowledge and skills of home economics.* This objective involves acquiring skill in the use and care of equipment related to the job, and in the utilization of efficient techniques and safe procedures in carrying out assigned tasks; knowing some home economics subject matter related to the area for which training is being given.

Part III

SCOPE OF THE CONTINUING EDUCATION PROGRAM IN HOME ECONOMICS

Each of the objectives stated in the preceding section suggests a wide range of possible learnings and activities. These have been organized into two separate programs: (1) Preparation for Personal and Family Living, and (2) Preparation for Employment. The content presented here provides a source of ideas from which to schedule opportunities for adult learning in a variety of ways as suggested in Part V. The scope of each program is explained below.

It is very unlikely that during any school year a district will offer all the curriculum areas of the two programs of home economics described in this Part. The curriculum areas offered will depend on such factors as the current needs of adults and the availability of competent staff and facilities.

A. Preparation for Personal and Family Living

This program is organized into five curriculum areas: (1) Personal and Family Relationships, (2) Personal and Home Management, (3) Housing for the Individual and the Family, (4) Personal and Family Clothing, and (5) Family Food and Nutrition. Within each area several phases of study have been suggested. Each phase develops information, understanding, and skills for the special needs of class members.

The following chart presents an overview of the five curriculum areas and shows suggested phases of study and possible topics. Helps for local program planning can be found in a publication of the New York State Education Department, Resource Courses for Planning Local Adult Homemaking Programs.

PHASE OF STUDY	SUGGESTED TOPICS
AREA: PERSONAL AND FAMILY RELATIONSHIPS	
Creating a Home Environment for Satisfying Family Living	∘ Influences on family life ∘ Basic needs of individuals and families
The Family in the Community	∘ Importance of family in community ∘ Organizations and groups serving families ∘ Participation in community services
Family Adjustment to Illness in the Home	∘ Adjustment in time of illness ∘ Ways families adjust to illness ∘ Community resources for family health emergencies
Improving Family Unity Through Leisure-Time Activities	∘ Importance of family group activities ∘ Provision for leisure-time activities

PHASE OF STUDY	SUGGESTED TOPICS
AREA: HOUSING FOR THE INDIVIDUAL AND FAMILY	
Selecting a Place for the Family to Live	∘Trends in family living affecting housing ∘Housing for individual and family satisfaction
Home Care and Improvement	∘Importance of maintaining and improving housing ∘Remodeling and renovating housing ∘Maintenance and improvement practices
Choosing, Constructing, and Renovating Accessories for the Home	∘Purchasing versus constructing accessories for the home ∘Planning and constructing accessories for the home
Home Decoration	∘Satisfactions from an attractive home ∘Influences on personal preference and home decoration ∘Resources available for decorating the home ∘Principles of interior decoration
Selection and Care of Home Furnishings	∘ Importance of making wise selections in furnishings ∘ Influences on choice of furnishings ∘ Selection and care of furnishings

PHASE OF STUDY	SUGGESTED TOPICS
AREA: PERSONAL AND FAMILY CLOTHING	
Three Courses Planned in Sequence: Selection, Care, and Construction of Clothing Basic Intermediate Advanced	Clothing construction projects will advance in degree of difficulty as class member progresses from one level to the next. Each course will consider the following content emphases: ° Selection of project, pattern, and fabric ° Selection, use, and care of equipment for clothing construction ° Construction of garments ° Selection of accessories appropriate to garments ° Wardrobe planning for individual and/or family
Children's Clothing	° Selection of clothing for children ° Care of infant's and children's clothing
Two Courses Planned in Sequence:	Tailoring projects will increase in degree of difficulty from basic to advanced course. The following content emphases will be included in each:

(Continued on next page)

PHASE OF STUDY	SUGGESTED TOPICS
PERSONAL AND FAMILY CLOTHING (continued)	
Tailoring Basic Advanced	∘ Selection of project, pattern, fabric, and supplies for garment and lining ∘ Construction of tailored garments ∘ Repair and renovation of tailored garments
Personal Appearance and Grooming	∘ Factors affecting personal appearance ∘ Good grooming practices ∘ Selection and care of clothing and accessories for attractive appearance
Selection and Care of Personal and Family Clothing	∘ Selection of ready-made clothing and accessories ∘ Alteration of ready-made clothing ∘ Care and storage of clothing
Buying Clothing for the Family	∘ Planning for clothing expenditures ∘ Resources to aid in wise clothing purchases ∘ Financing clothing purchases

PHASE OF STUDY	SUGGESTED TOPICS
AREA: FAMILY FOOD AND NUTRITION	
Nutritious Meals that Save Energy, Time, and Money	° Considerations in family meal management ° Management practices in planning, preparing, and serving family meals
Meeting Food Differences of Family Members	° Dietary problems of family members ° Adjustment of family meals to meet special dietary problems
Two Courses Planned in Sequence: Foods and Hospitality	Occasions for which food is prepared increase in complexity from basic to advanced course. Constant emphases in each course include:
Basic Advanced	° Satisfactions from entertaining in or away from home ° Organizing for preparation and service of food, both indoors and outdoors ° Preparation of foods for special occasions
Facilities for Preparing and Serving Family Foods	° Planning functional and attractive kitchens ° Selection, use, and care of kitchen equipment ° Safety in the kitchen

PHASE OF STUDY	SUGGESTED TOPICS
AREA: PERSONAL AND HOME MANAGEMENT	
Management for Satisfying Family Living	∘ Purpose of management in the home ∘ Influences on family management ∘ Improvement of management practices
Personal and Family Economics	∘ Influences on family use of money ∘ Common expenditures ∘ Financial planning ∘ Community resources for family financial management
Consumer Education for the Home	∘ Choice-making for family satisfaction ∘ Consumer buying practices ∘ Financing purchases Consumer Protection

B. Preparation for Employment

There are many service-type occupations in which adults can use their homemaking knowledge and skills. Several occupational areas have been identified in which adults are needed. Training outlines are available from the Bureau of Home Economics Education of the New York State Education Department.

The preparation-for-employment aspect of home economics has seven curriculum areas, each with the opportunity for developing competencies for several jobs. These program areas are listed below with selected job titles and possible places of employment.

SELECTED JOB TITLES	POSSIBLE PLACES OF EMPLOYMENT

AREA: FAMILY AND INSTITUTIONAL MANAGEMENT SERVICES

Companion to the Elderly or Handicapped Home Attendant Homemaker Management Aide	◦ Public or Private Housing Developments ◦ Family Service Agencies ◦ Retirement Communities ◦ Individual Family Homes

AREA: HOME FURNISHING SERVICES

Decorator Aide Seamstress: Drapery, Slipcover, or Upholstery Upholsterer's Helper Salesperson: Flowers, or Household Equipment	◦ Furnishings, Housewares, Decorating, and Gift Departments of Department Stores ◦ Specialty Shops ◦ Decorators' Studios ◦ Florist Shops

AREA: HOME AND INSTITUTIONAL HOUSEKEEPING

Homemaker Assistant Hotel or Motel Housekeeping Aide Home Housekeeper Lodging Facilities Attendant	◦ Hotels and Motels ◦ Hospitals, Nursing Homes, and Other Institutions ◦ Individual Family Homes

SELECTED JOB TITLES	POSSIBLE PLACES OF EMPLOYMENT
AREA: FAMILY AND COMMERCIAL FOOD SERVICES	
Family Dinner Service Specialist Cook Helper Counter Man or Girl Waiter or Waitress Caterer Helper	◦ Hotels, Restaurants, and Lunchrooms ◦ Private Clubs ◦ Catering Services ◦ Cafeterias and School Lunchrooms ◦ Hospitals and Other Institutions ◦ Individual Family Homes
AREA: FAMILY AND COMMERCIAL CLOTHING SERVICES	
Clothing Maintenance Specialist Alterations Seamstress Dry Cleaning Service Attendant Laundry Attendant	◦ Specialty Stores ◦ Cleaning Establishments ◦ Department Stores ◦ Other Private Businesses ◦ Individual Family Homes
AREA: CHILD CARE SERVICES	
School Aide Nursery School Attendant Child Care Leader Cottage Parent House Parent	◦ Day Care Centers (Public and Private) ◦ Nursery Schools ◦ Recreational Centers, Parks ◦ Homes for Children, Family Homes ◦ Hospitals and Pediatric Wards ◦ Centers for Handicapped Children ◦ Camps, Clubs

SELECTED JOB TITLES	POSSIBLE PLACES OF EMPLOYMENT
AREA: FAMILY AND INSTITUTIONAL HEALTH SERVICES	
Home Health Aide Nurse Aide Companion to the Elderly, Convalescent, or Handicapped First Aid Attendant Occupational Therapy Aide Orderly	° Hospitals ° Clinics ° Doctors' Offices ° Sanitariums ° Nursing, Convalescent, and Rest Homes ° Centers for Children, Aged, or Handicapped ° Rehabilitation Centers ° Family Service Agencies ° Retirement Communities ° Individual Family Homes

Part IV

IDENTIFICATION OF LOCAL NEEDS FOR A HOME ECONOMICS PROGRAM

The program director must know the interests of out-of-school youth and adults and what they need to prepare for homemaking or employment. This would help the program director to determine suitable program offerings, course content, and facilities for an adult home economics program. An advisory committee can assist in collecting and analyzing data. Some ways to identify local program needs are:

- *Analyze existing opportunities in the community for adult learning in areas of home economics, before planning the school program.* Sources of information include: local colleges, settlement houses, social agencies, the extension service, and church and community groups.

- *Develop a file of information on adults in the school district.* This could include such data as: observable standards of home life, ethnic and local customs, economic status, occupation, educational background, size of family, leisure pursuits, and marital status. This information may be obtained from: village, city, and town offices; local employment offices; industrial personnel offices; the public library; and offices of other organizations in the community.

- *Collect data on types of problems adults face for which study in home economics can provide assistance.* Sources of information on such problems

are: former class members; parents of present secondary school pupils; officers and members of club groups; local business men such as bankers, realtors, merchants, and lawyers; clergymen; and employment service personnel.

- *Investigate adult needs for employable skills, potential employment opportunities, and existing training programs in or near the local community.* Information can be obtained from school records, from local employment services, and from questionnaires and surveys.

- *Help adults recognize the possibilities within a home economics education program for improvement of homemaking skills and development of competencies for service-type jobs.* Program possibilities can be interpreted through such means as spot announcements on radio or television, attractive flyers or handbills, and interesting descriptions of course possibilities in the general adult education brochure distributed to residents of the area before the adult classes begin.

Part V

ESTABLISHMENT OF THE LOCAL HOME ECONOMICS EDUCATION PROGRAM

The broad scope and content of the continuing education program in home economics require that many individuals take part in planning the program. School administrators, guidance counselors, adult directors, home economics teachers, and people in related work can all contribute in determining the kind of program needed for out-of-school youth and adults.

Suggestions for developing and operating a local program include planning a balanced home economics program, organizing a home economics advisory committee, using secondary school home economics personnel, choosing competent instructors, and planning variations in scheduling. Each suggestion is explained in more detail below.

Plan a Balanced Home Economics Program.

A balanced program may be described as one that offers several phases of home economics, promotes study in both family living and occupational preparation, and serves several groups of people. All three aspects of a balanced program need not be in operation every year, but should be evident in a three to five year projection.

In any community those who would benefit from study of home economics can be classified by age, marital status, family status, and working status. The age groups include the young adults, the middle-aged, and

the senior citizen. Marital status covers the unmarried, the married, the divorced person, and the widowed. Family status includes the person with a beginning family, an expanding family, a family in the middle years, and an aging family.

Work status can include the employed, the unemployed, the part-time worker, the professional employee, the unskilled laborer, and others. Additional classifications include various ethnic, economic and cultural groups, and people with special needs such as physical handicaps, health problems, and weight and figure problems.

Organize a Home Economics Advisory Committee.

Members of an advisory committee can help set program goals, help decide what programs to offer and what space and other facilities to use, and can stimulate people to enroll in adult education offerings.

The members of the committee should be selected from various family types, club groups, businesses, professions, labor unions, and employment agencies. They should represent different economic and social backgrounds. Board of Education members, school administrators, and other school staff should be involved in suggesting committee personnel.

Use Secondary School Home Economics Personnel

Home economics supervisors and teachers can help considerably in this program since they are familiar with the subject matter and with the needs of adults in homemaking and wage-earning. Some ways these supervisors and teachers can assist are:

- Help others recognize the importance of a local program and suggest courses and services

- Assist the teacher of adult classes (who may have little teaching background) to select subject matter and suitable teaching procedures

- Lend teaching aids and tell the inexperienced instructor about other teaching resources

- Plan with the adult instructor for cooperative and effective use of home economics facilities

- Help recruit adult students

- Recommend competent instructors

Choose Competent Instructors.

The success or failure of a program often depends upon the instructor. The best possible teacher available should be chosen. A sense of humor, ability to get along with people, high empathy for adult learners, and competence in the subject matter are essentials for an instructor in home economics.

Instructors may be recruited from secondary home economics teachers, college instructors, and retired home economics teachers. Other possible sources include business and industry.

Plan for Variations in Scheduling.

Number and length of sessions, time and place of meetings, and sequence of courses can vary with circumstances. Tours, trips, demonstrations, clinics, consultations, television study, home study courses, workshops, and single meetings are suggestions for variations in scheduling.

Meetings and other activities can be conducted in the morning, afternoon, or evening during the school year or during the summer months.

Part VI

PROMOTION OF PARTICIPATION IN THE ADULT HOME ECONOMICS PROGRAM

Adults will take part in a program with enthusiasm when they see immediate personal benefits. Therefore, directors of adult programs, teachers, and advisory committee members must publicize the benefits to help in recruiting students. Other ways to attract students are:

- Plan courses and activities which center on the needs and interests of specific groups in the school district. See in Part V "Plan a Balanced Home Economics Program."

- Be specific when giving information about courses and activities. Use descriptive, appealing titles which define content and its importance to the individual. All titles should indicate that the program is worthy of public support. For ideas see Part II "Objectives of Continuing Education in Home Economics," and Part III, "Scope of the Continuing Education Program in Home Economics."

- Appeal to potential students by using several methods and media of promotion. Examples include the following:

  1. Display photographs and other exhibits of the results of class instruction in the school and community.

  2. Get articles and pictures of class

activities on the society page or woman's page of local newspapers.

3. Visit, telephone, or write potential students to describe the program and to learn their training needs.

4. Circulate attractive brochures describing adult education offerings and results.

5. Conduct radio and television interviews about class activities. Also obtain spot announcements.

6. Have an "open house" in the school and invite adults to observe classes.

7. Use "car cards" in local buses to announce registration dates for classes.

Part VII

SPACE AND FACILITIES FOR TEACHING HOME ECONOMICS

The environment in which learning takes place helps determine the kind of growth that will occur. Attractive, well-equipped rooms encourage the use of a variety of teaching procedures. Some ways to provide and maintain space and facilities which promote learning by adults are:

- Use the home economics department in the local school district or in the area occupational center and allocate appropriate storage for adult class use. The secondary school home economics teacher should be helped to recognize the necessity of preparing the department for use by adults. This often means leaving work surfaces free from materials used during the day.

- Use a church, a public library, the YMCA or YWCA, a business place, or a private home, if appropriate school facilities are not available. The place should have good light, heat, and ventilation; chalkboards and storage space; and comfortable seats and tables. It should be near public transportation and have enough parking space.

- Follow a specific plan for obtaining, maintaining, and replacing equipment and supplies for adult class members. When facilities are shared, hold periodic meetings of the people involved to regulate use and care of equipment.

Part VIII

RECORDS AND REPORTS FOR THE HOME ECONOMICS PROGRAM

Certain records and reports are essential for a well-planned and efficient program. As a rule, they include financial records, inventories, participant records, course plans, plans for meetings, long-range program plans, and annual reports.

A. Financial Records

Good business practice requires a budget and a record of expenditures. In some schools special forms are provided. However, any form is suitable if it presents facts clearly, is easy to interpret, and follows generally accepted procedure.

Adult education activities are an approved operating expense under the Diefendorf formula. Instructional supplies, and repair and replacement of equipment are legitimate budget items.

B. Inventories

The administrator and the instructor of the adult program need to know the equipment and supplies, books, and teaching aids for which they are responsible. A physical inventory taken at the beginning of the program and again at the end will usually be enough.

If the place where classes are held has an inventory form, it should be used in the adult program. If there is no established form, one should be designed.

It should contain spaces for name of item, quantity on hand, location of item, date of inventory, and condition of item.

C. Participant Records

The home economics instructor will find it helpful to keep a personnel file on class members. In addition to data already on the school records, the instructor may obtain information from the adults, themselves, or from his own observations. The extent of this information depends upon what the instructor feels is needed to understand the students. A looseleaf binder or a file box can be used for keeping this data.

D. Course and Meeting Plans

The instructor needs to know what is to be accomplished. Objectives to be met, content to be covered, and learning experiences to be used should be written into each course outline and each plan for a meeting. The unit of study should be organized around life problems.

The Bureau of Home Economics Education of the New York State Education Department would welcome copies of course outlines and plans for meetings. This Bureau will evaluate the outlines and plans if asked to do so.

E. Long-Range Program Plans

In developing a program to cover all the interests and needs of adults in a given community, it is necessary to plan for a longer period than one year. A long-range program may be set up in various ways. For example, it may center on one or more of the five areas of personal and family living, and one or more of the seven areas of home economics occupational education. It can also emphasize a different aspect of an area each year for several years.

Another type of program can cover special age groups and deal with the interests and problems of a different age group in each of several courses. Regardless of the kind of program planned, it should be evaluated periodically since changing conditions often lead to new interests and needs.

F. Annual Reports

A report summarizing and evaluating the program of study is required by some local schools. The Bureau of Home Economics Education of the State Education Department requests an annual report each spring on a special form. Information from these forms helps the Bureau to analyze the State continuing education program in home economics and plan for future program needs.

The records and instructional materials for the adult home economics program should be kept on file. Each instructor will need to work out his own filing system; regardless of the system used this material and its files should be carefully labelled. Regular care is needed to keep the files up-to-date and in order.

Part IX

EVALUATION OF THE LOCAL HOME ECONOMICS PROGRAM

Much of the evaluation of the effectiveness of the continuing education program in home economics may be done by the director of the total program. It should consist of appraising standards and practices of the following: organization of the program; administration, supervision and staffing; courses offered; instruction; physical facilities; public and professional relationships; and program evaluation. Answering such questions as those listed below will help in the evaluation.

Organization of the Program

- Does the program reflect offerings in preparation for personal and family living and preparation for employment?
- Is the scope of the program flexible enough to meet the needs of adults of differing marital, family, and work status? Age groups?
- Are sequences of courses offered?
- Are program offerings varied enough?

Administration, Supervision, and Staffing

- Do the secondary home economics teachers

participate in planning and developing the adult home economics program?

- Is an advisory committee organized and functioning?
- Are the instructors well-qualified for the areas they teach?
- Is supervisory assistance given instructors through visits and workshops?
- Are class fees, if any, so big that they keep out interested students?
- Are financial and other records kept in accordance with sound business practices?
- Are adequate inventories taken periodically?
- Is a good filing system used for records and instructional materials?
- Are attendance records on file? Are they used to prevent a student from repeating a course unnecessarily?

Curriculum Offerings

- Are course outlines up to date?
- Do titles and descriptions of courses and activities describe their educational objectives?
- Are offerings flexible enough to meet the needs, convenience, and capabilities of the students?
- Do many students drop out of courses?

Instruction

- Are group and individual objectives defined and clearly understood by students and instructor?
- Does instruction develop skill in adapting basic concepts to everyday situations?
- Is the student helped to identify values and to develop decision-making skill?
- Does the instructor stimulate effective learning?
- Are teaching methods, techniques, and aids varied? Are they used effectively?
- Is group instruction utilized whenever possible?
- Are the students encouraged to experiment on their own?
- Are community resources used to advantage?

Physical Facilities

- Are teaching space and facilities adequate?
- Is equipment kept in good working condition?

Public and Professional Relationships

- Do good relationships exist between administrative and teaching personnel?
- Does the instructor have good rapport with his class?
- Is the adult home economics program effectively

interpreted to teachers, students, and other community members? Does this promotion bring in potential students?

Program Evaluation

- Is a periodic evaluation of the total adult home economics program scheduled?
- Are results of the evaluation used for improving the program?

Part X

SOURCES OF INFORMATION FOR PLANNING PROGRAMS IN HOME ECONOMICS EDUCATION

Selected books, pamphlets, and periodicals are listed below to aid the planners of continuing education programs in home economics.

BOOKS

Bergevin, P.E., Morris, Dwight, & Smith, R.M. Adult education procedures. Greenwich, Conn. Seabury Press. 1963.

Contains suggestions for procedures and programs for adults. The latter part of the book is devoted to teaching techniques and education aids.

Knowles, M.S. The adult education movement in the United States. New York, N.Y. Holt, Rinehart, Winston. 1962.

Explains the history of adult education as background information for those responsible for organizing a total program.

Morgan, B., Holmes, Glenn, & Bundy, Clarence. Methods in adult education. Danville, Illinois. Interstate Printers and Publishers. 1960.

Covers briefly the adult education program, concentrating on principles. Includes ideas for selection and use of a variety of teaching methods.

National Association of Public School Adult Educators. Public school adult education: A guide for administrators; rev. ed., ed. by John H. Thatcher. The Association, 1201 Sixteenth Street, N.W., Washington, D.C. 1963.

Presents the theory of public school adult education and specific action steps for planning, building, and maintaining a program.

PAMPHLETS

Hathorn, E.C., Ladwig, G.M., & Wallis, Josephine. Do teach adults. Lafayette, La. University of Southwestern Louisiana, School of Home Economics. 1965.

Covers selection and use of advisory groups, techniques for publicizing programs, and suggestions for appraising classroom learnings.

New York State Education Department. Bureau of Adult Education. Education Building, Albany, New York, 12224. Continuing education and public responsibility. The Department. 1960.

Contains conference addresses given by Elmo B. Roper, Carroll V. Newsom, and William P. Tolley. Each address states the feeling of the author on public responsibility for the education of adults.

_____Bureau of Adult Education. Continuing education for adults and the State of New York. The Department. 1960.

Gives guidelines for planning and administering adult programs and identifies the services available from various Education Department groups.

_____Bureau of Adult Education. The curriculum in continuing education. The Department. 1962.

Presents recommendations of a conference group for curriculum. It contains information on philosophy and selected areas of instruction including education for family living.

_____Bureau of Adult Education. A platform for continuing education and the State of New York. The Department. 1960.

Deals with the why of adult education and the type of education which adults need.

_____Bureau of Home Economics Education. Resource courses for planning local adult homemaking programs. The Department. 1962.

Outlines 26 courses in five broad areas of personal and family living. Suggested content, methods and techniques, and evidence of possible learning are given for each course.

Wood, M.W. Adult family living education. Phoenix, Arizona. State Department of Vocational Education. 1965.

Focuses on some problems in adult home economics education such as selection of teachers, recruitment of participants, and evaluation of learning.

MAGAZINES

Adult Leadership. Adult Education Association. 1225 19th Street, N.W., Washington, D.C. 20036. Available to members with dues, to non-members for $7.50 a year.

Presents articles on all aspects of adult education.

Illinois Teacher of Home Economics. University of Illinois. Urbana, Illinois. Appears six times a year. $3.00 a year.

Contains articles on specific phases of the adult home economics program.

Journal of Home Economics. American Home Economics Association. 1600 20th Street, N.W., Washington, D.C. Available to members with dues.

Gives program implications for adults.

This booklet is published primarily for use in the schools of New York State, and free copies are available to New York State school personnel when ordered through a school administrator from the Publications Distribution Unit, State Education Building, Albany, New York 12224.

S634-066-6,000

VT 002 905

VT 002 905
Policy and Procedures for Distributive Education Under the State Plan for the Vocational Education Act of 1963.

Colorado State Board for Vocational Education, Denver
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 64 26p.

*DISTRIBUTIVE EDUCATION; *PROGRAM GUIDES; *PROGRAM ADMINISTRATION; PROGRAM PLANNING

This document is designed for use by those administering the distributive education program. Policies and procedures are outlined for (1) objective of instruction, (2) occupations to be served, (3) vocational guidance and counseling, (4) specific standards and requirements for secondary school programs, post-secondary programs, adult programs, and special classes, (5) program approval, (6) duties of local vocational personnel, (7) teacher education--in-service, (8) research, demonstration and experimental programs, (9) reimbursement, and (10) evaluation. (MM)

ED027441

CENTER FOR VOCATIONAL
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FOR DISCUSSION

POLICY AND PROCEDURE
FOR
DISTRIBUTIVE EDUCATION
UNDER
THE STATE PLAN
FOR
THE VOCATIONAL EDUCATION ACT OF 1963

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT 002905

THE STATE BOARD FOR VOCATIONAL EDUCATION
ROOM 510 STATE OFFICE BUILDING
DENVER, COLORADO
80203

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1. Objective of instruction

A. A vocational education in distributive occupations under the State Plan shall de designed to meet the needs of persons over 14 years of age who have entered or are preparing to enter a distributive occupation.

B. The program is designed to increase the skill, technical knowledge, occupational information, understanding, morale, appreciation, and judgment of management and workers.

C. To prepare workers in distribution to transfer to a related kind of work in another distributive occupation, or to move to higher level positions in a given occupation.

II. Occupations to be served

Occupations to be served are those followed by workers directly engaged in marketing activities, or in other activities that involve contacts with buyers and sellers. In such contacts, workers do the following:

1. Distribute farm and industrial products to consumers, retailers, jobbers, wholesalers, and others; or sell services.
2. Manage, operate, or conduct a retail, wholesale, or service business.

III. Vocational guidance and ~~counseling~~ Counseling

The State Department of Employment will supply to local educational agencies occupational information regarding reasonable prospects of employment in the community and elsewhere. The local education agency will make available to the State Department of Employment the occupational qualifications of persons leaving or completing secondard out-of-school, and special classes for vocational distributive training. The local education institution shall provide vocational guidance and counseling personnel and service adequate to:

A. Provide individual students with information necessary for realistic vocational planning:

B. Assist students in carrying out their vocational plans*

C. Aid students in vocational placement

D. Conduct follow-up procedures to determine the effectiveness of the vocational instruction and guidance and counseling programs.

Through a periodical survey of the various businesses, satisfactory training stations are established. The facts of the survey combined with the store attitudes and position in the community determines the type of training station that can be developed based on its present and future potential as a source of placement.

The State staff will also make, or cause to be made, periodic evaluations of local guidance and counseling programs for the purpose of maintaining and improving their effectiveness.

* All students enrolled in the distributive education programs must have an occupational objective which is a matter of record.

IV. Specific standards and requirements for:

A. Secondary school programs

Classes will be offered for selected high school students with stated career objectives leading into a distributive occupation.

1. Advisory Committees

All programs of instruction shall be developed and operated in consultation with a representative advisory committee.

2. Curriculum will be:

a. Directly related to each students needs.

b. Designed to fit individuals for gainful employment.

c. Provide an accurate definite training plan for each student.

d. Systematically organized to provide classroom, laboratory, or work experience.

e. Derived from the function of marketing and a knowledge of products and services in references to occupational objectives of this student.

3. Facilities

Classroom facilities and teaching materials must be adequately provided for all distributive education programs. Classrooms must be well lighted, properly ventilated, with adequate teaching equipment, materials and supplies, and other teaching aids, in order to insure a quality of instruction to enable those who are to be trained to meet their stated vocational objective.

See the Distributive Education Coordinators' Guide available from the State Board for Vocational Education.

4. Minimum class time requirements

Schools operating a high school or junior college program shall follow one of the following scheduling plans or on approval of the State Director of Distributive Education other procedures may be accepted.

1. In preparatory classes not providing cooperative experience and conducted in the full-time school, the following conditions shall prevail:

(1) Utilize individual training plans.

(2) Provide learning experience through incorporating supervised-work experience, or simulated

practices, and a variety of such learning experiences as directed observation, situation analyses, business gains, marketing problems, product promotion, and individualized projects in order to direct and measure the achievement of problem solving and qualifications in occupational objectives.

2. The regular instructional program is designed for full-time students, high school and post-secondary programs whose employment goals represent a group of recognized occupations in a field or function of distribution.

   (1) Preparatory classes utilizing supervised, cooperative training should be organized according to one of the following Plans.

   Plan A - a program covering two (2) school years providing an average of at least one (1) class period per day of the regular schedule for vocational instruction in distribution.

   Plan B - a program covering one (1) school year providing an average of at least two (2) class periods per day of the regular schedule for vocational instruction in distribution.

   Plan C - a program covering one (1) school year providing an average of at least one (1) class period per day of the regular schedule for vocational instruction in distribution in classes limited to the cooperative group enrolling:

(a) Those who have completed one unit (two semesters) of vocational instruction in distributive subjects incorporating participation activities or -

(b) those who have completed at least two (2) units (equivalency of four (4) semesters) of instruction in a vocational program approved under the State Plan.

Note: For each of the above palns the part-time cooperative enrollee shall be employed in the distributive occupation in which he is being trained for an average of no less than fifteen (15) hours per week during the school year.

(2) Preparatory classes incorporating participation activities in individual training plans should be organized according to one of the following plans:

Plan D - a program covering two (2) school years providing an average of at least two (2) class periods per day of the regular schedule for vocational instruction in distribution.

Plam E - a program covering one (1) school year providing an average of at least two (2) class periods per day of the regular schedule for vocational instruction in distribution.

Plan F - a program covering one (1) school year providing an average of at least one (1) class period per day of the regular schedule for vocational instruction in distribution enrolling only those who have completed the equivalent of four (4) semesters of instruction in a vocational program approved under the State Plan.

(3) Instructional Program

A. Cooperative classes shall meet the following conditions:

(1) School approval of on-the-job training activities and training stations.

(2) Credit recognition for proficiency in on-the-job training assignments.

(3) Remuneration for work performed at training stations.

5. Student qualifications

Cooperative classes shall be limited to students who will complete 450 hours of on-the-job training during a 12 month period. The student must fulfill all the requirements of age, class, appearance and intelligence before he is accepted in the the program.

Guidance and counseling shall be utilized in selecting students for the distributive education program. The student is selected on the basis of: interest, aptitudes, ability to learn, personality, health status, past achievement, family background.

6. Qualification of teachers

All reimbursed distributive education programs must be taught by credentialed instructors. Teachers must hold valid certificates covering a specific field in distributive education in order that local Boards of Education may receive State aid and reimbursement on their salaries from vocational education funds. It is the responsibility of the State Director of Distributive Education to evaluate the qualifications of teachers and recommend the issuance of a vocational credential. It is the responsibility of the individual teacher and the local board of education to maintain the validity of the vocational education credential.

The following standards will be maintained:

a. Secondary teachers

1. Occupational experience

Shall have had at least two (2) years of experience as a paid worker in a distributive occupational field applicable to the level and specialization of the program in which employment is sought.

2. Education

Shall have completed a standard four-year college course with emphasis in the area of distribution with a bachelor's degree from an institution approved by the State Board for Vocational Education for training vocational distributive education teachers and shall meet certification requirements to teach distributive education.

7. Conditions of employment

Schools approved to maintain a distributive education program will employ one or more qualified teacher coordinators. A teacher coordinator should be employed for at least ten (10) months a year.

The teacher coordinator should work in a distributive education occupation once every three (3) years during the summer vacation for at least 2 months.

Training station activities are supervised by the teacher coordinator through organized visits and consultation with the immediate training sponsor during school hours.

All established distributive education secondary and junior college programs should be charter members of the Distributive Education Clubs of Colorado. The Club program is an integral part of the Distributive Education Program.

8. Youth organizations

The Colorado Association of the Distributive Education Clubs of America will complement the instructional program; it was developed for the high school and post-high school programs to promote the distributive education objectives.

The student is eligible to be a member of the DECA Club upon entry into the cooperative part-time program. The coordinators role is that of leadership and advisory.

The Club program is a local district, state and national program. It provides scholarship loan awards for deserving students who meet qualifications. The Club

provides the student an opportunity for state and national recognition.

9. Travel

Local boards of education will budget funds for travel to carry on a complete distributive education program. The State Board for Vocational Education may reimburse travel of local personnel when prior approval has been given by the executive director.

10. Reports

The approval of funds for reimbursement will be based upon submission of the following reports.

To be completed by administrator

Official contract

Follow-up of students

Form 100

Financial Summary

To be completed by teacher coordinator

Descriptive annual report

Quarterly Report

See the appendix

B. Post-secondary program

1. Advisory committee

All distributive education programs should utilize advisory committees that are representative of the businesses and the community being served.

Details are available in the distributive education coordinators' handbook.

2. Curriculum

The curriculum will be based upon the knowledge needs of the distributive education occupational area being served. The curriculum will be flexible to meet the vocational objectives of each student enrolled to fit him for gainful employment.

3. Facilities

Teaching equipment, classroom, library facilities, and teaching aids will be adequate to enable those enrolled to meet their occupational objective. Because of the needs, classes may be held in facilities other than that of the school.

4. Time requirements

See Section

5. Student qualifications

Students over the age of 14 may enroll in a distributive education program, and should be selected for the program based upon a written career objective, on file with the school and the students'interest, aptitudes, ability to learn, personality, health status, past achievement, family background.

6. Qualifications of teachers

1. Experience

Shall have had two (2) or more years of teaching experience, and two years of practical work experience in the field of distribution.

2. Education

Shall have completed a standard four-year college course with emphasis in the area of distribution with a bachelor's degree from an institution approved by the State Board for Vocational Education for training vocational distributive education teachers and shall meet certification requirements to teach distributive education.

7. Condition of employment

a. School approved to maintain a cooperative distributive education program will employ one or more qualified teacher coordinators.

b. The teacher coordinator should have a ten-month working contract.

c. Adequate school time must be provided for the teacher coordinator to supervise the activities of the student on the job.

8. Youth organizations

All established distributive education post-sedondary programs should become chartered membets of the Distributive Education Clubs of Colorado. The Club program is an intergral part of the distributive education program. The responsibility for the Club sponsorship is that of the local teacher coordinator.

9. Travel

a. Local boards of education will budget funds for travel to carry on a complete distributive education program.

b. The State Board for Vocational Education may reimburse travel of local personnel when prior approval has been given by the executive director.

10. Reports

See section

C. Adult Programs

1. Advisory committee

Same as A-1-a

2. Curriculum

The adult classes will meet the specific training needs for which they are planned. These classes can consist of short-term courses or a long-term program which is a program made up of carefully planned sequences of coordinated units.

3. Facilities

Teaching equipment, classroom, library facilities, and teaching aids will be adequate to enable those enrolled to meet their occupational objective. Because of the needs, classes may be held in facilities other than that of the school.

4. Time requirements

The duration of the program ill be of sufficient length to meet the training objectives of the class.

5. Student qualifications

Students, who are interested in information for job advancement; may enroll in the adult distributive education program. Pre-employment training will be offered for those looking for a job in the broad area of distribution. Individuals interested in the broad area of management and supervision may be provided programs. All of these classes are designed for persons over the age of 14.

6. Qualification of teachers

a. Experience

Shall have had five (5) years of recent successful experience in the occupational field to which the training is related and be recognized as an expert in the field.

b. Education

Shall have an adequate background of education to enable the person to carry out under supervision the objectives of the training program as determined by the State Board for Vocational Education

7. Condition of employment

Sufficient number of qualified teachers will be employed to adequately conduct the education, instructional program.

8. Travel

See section B-9

9. Reports

See section IV, A, 10.

D. Special classes

1. Special classes offering intensive, modified, or ungraded schedules may be organized full-time for those persons who have acedemic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational program.

2. Instruction designed for persons whose occupational goals also require competencies developed through other vocational programs shall be organized:

   (a) Under plans C or F, or

   (b) as demonstration project, or

   (c) as a separate class taught by a teacher coordinator or special purpose teacher

3. Approval from the State Board for Vocational Education for each special class must be received by each school offering such programs.

4. A person may instruct a special class for persons with educational, socio-economic or other handicaps who is a recognized authority on his subject as determined by the State Board for Vocational Education.

V. Procedures for program approval

The following steps should be taken in securing approval of Programs for reimbursement:

A. Following determination by local school authorities that a given program is desirable, Form VE-100 will be submitted to the State Board for Vocational Education. These forms must be submitted prior to the start of a class (s). One Form VE-100 will be submitted for each program. Expenditures made prior to written State Board approval of a program will not be reimbursed.

B. Programs will be approved for a fiscal year (July 1 to June 30 or for the length of the program, whichever is the shorter period of time.

C. All vocational teachers, supervisors and administrators, upon whose salary reimbursement is requested, must hold a valid vocational credential. The following steps should be taken in securing vocational credentials:

1. The local school administrator will submit to the State Board for Vocational Education two copies of the form, "Application for Vocational Credential" with 1 copy of Form A-2. (See Appendix for examples of these 2 forms.)
2. The first credential will be issued for one year or fractional part of a year. The year shall be from July 1 to June 30.
3. All other credentials are to be issued for a period of three years, or for two years and a fractional part of a year, depending on the date of issuance.

4. Credentials are to be issued to individuals for a particular school district and not for general use either within the State or outside Colorado. It will therefore be necessary for credentials to be issued only on the request of a local school administrator and on the recommendation of the State Director of Distributive Education.

VI. Duties of local vocational personnel

A. Local vocational director

Reimbursement may be provided local educationagencies, for local directors of vocational education when an extensive vocational education program is offered which involves two or more programs.

1. Duties

The local vocational director will have charge under the local school administrator of all reimbursable phases of vocational education organized in the local district, including the promotion, coordination, and supervision of all vocational education programs.

2. Qualifications

a. Experience

A minimum of three (3) years of full-time, successful experience as a teacher of an approved class or classes in one (1) or more of the reccognized vocational fields and a minimum of three (3) years of successful experience as a wage earner in one or more of the vocational fields meeting the standards of the State Plan.

b. Education

A minimum of a bachelor's degree in one of the organized

vocational fieldsmeeting the standards of the State Plan graduating from a n approved teacher education institution.

B. Local Supervision

A school district may employ a local supervisor of distributive education when justified in terms of local needs.

1. Duties

The local supervisor will be responsible to the local school administration for the promotion, supervision, development and improvement of the distributive education program.

2. Qualifications

a. three (3) years of successful teaching experience in the field of distributive education.

b. Education- he/she shall have minimum qualifications of the distributive education teacher coordinator.

C. Instructional personnel

1. Duties

The five major functions of the instructional personnel are: program building, coordinating, supervision, and public relations.

2. Qualifications

Shall meet qualifications specified for area in which teaching.

VII. Teacher education- In-service

The State Board for Vocational Education will be responsible for adequate teacher education programs of pre-service training conducted at designated institutions. The State Board shall be responsible for all such programs in the State.

A. In-service training

In-service teacher education will be offered to distributive education personnel by the teacher educator, State staff, or special consultants. Training will be provided through regular institutional courses, short intensive courses, summer workshops, State, area, and local conferences, and other forms of meetings.

B. Student teaching

Arrangements should be made for a program of student teaching. Student teachers will be assigned to qualified teacher coordinators, or teachers of preparatory and supplementary classes for adults who have had a minimum of two (2) years of experience in a distributive education program, and will be provided a series of planned experiences prescribed by the teacher trainer.

C. Requirements for enrollment in teacher education courses

Individuals preparing to be teacher coordinators, or teachers of preparatory or supplementary classes for adults in a distributive occupation, either before or by the time they have completed the training program, shall have the occupational experience required for teacher coordinators in a distributive occupation, or will obtain such experience as a part of their training at the teacher training institution. This does not preclude the occasional enrollment in teacher training courses of school administrators, and others, who are preparing themselves for responsibilities in vocational education. Students entering this program must be selected students with the proper career objective.

VIII. Research demonstration and experimental programs.

A. Pilot experimental or demonstration programs shall be developed through the recommendation of a local advisory committee and the joint efforts of the school administrators and the State staff for Distributive Education.

B. Pilot programs may be established to demonstrate new or unique and, practices, techniques or other unusual procedures. They must be approved by the State Board for Vocational Education.

C. Pilot programs may also experiment with the use of instructors qualified in other vocational services, specialties and disciplines.

D. Functional distributive subjects helpful to other vocational fields may also be offered through distributive education pilot programs.

E. Complete follow-up records shall be kept of all pilot programs for evaluative purposes. Student success in terms of gainful employment shall determine the continuation of a program as a permanent offering.

F. Research, demonstration, and experimental programs will be submitted to the State Board for approval of each project to be reimbursed prior to the establishment of such program.

IX. Reimbursement

Vocational education funds may be used for programs of instruction, supervision and administration, counseling and guidance services, research, ancillary services; demonstration and experimental programs

may also be reimbursed. T he amount of money to be approved for each project will be dependent upon the amount of State and Federal funds available. Reimbursement will be determined prior to the approval of the project.

A. Vocational funds may be used in a program for:

1. Salaries of credentialed vocational personnel for time spent in activities related to distributive education.
2. Travel meetings approved by the State B oard for Vocational Education and local educational agencies, consultants, advisory committees, and others acting in an advisory capacity to the Distributive Education Division.
3. Equipment

   Acquisition and repair of instructional equipment, supplies, and teaching aids may be reimbursed.
4. Teacher education programs may be reimbursed.
5. Research, deomontration, and experimental programs may be reimbursed with Vocational Education funds.

B. For audits of local agencies, the following specific audit instructions shall be used to verify that:

1. Funds disbursed by the State to the local agency were received and properly accounted for.
2. Payments reported by the local agency were actually made to the vendors, contractors, and employees and that they conform to applicable laws and regulations.
3. Refunds, discounts, etc., were properly credited to the specific programs as reductions of the gross expenditures.
4. Payments are supported by adequate evidence of the delivery of goods or performances of services.

5. Encumbrances or obligations included in the report of expenditures were actually incurred during the fiscal year for which the expenditure was claimed.

6. T he same item is not reported as an expenditure for two (2) or more years, e.g., encumbrances in one year and payment in another.

7. All expenditures claimed for federally supported projects were made for properly approved projects, are easily i dentifiable with these projects, and are the individual items adequately described in the approval and the claim for reimbursement.

8. State and local rules applicable to equipment records and control are followed.

9. Prorated expenditures, such as; salaries, travel, etc., are divided correctly between two or more accounts, and that the basis of such division is reasonable, equitable, and substantiated.

10. The type of funds expended for federally reimbursed projects are stated correctly; that Federal funds from one program are not used for matching purposes under another Federal programs, except as specifically authorized; and that the same expenditures are not claimed for matching purposes under more than one Federal program.

11. Unexpended or unearned Federal funds, advanced or overpaid, are returned promptly, or otherwise correctly accounted for.

12. If the local agency is on a fiscal year different from the Federal fiscal year, the audit report reflects outstanding obligations as of June 30 in sufficient detail to permit

identification of subsequent payments with the applicable obligation and comparison with reports submitted by the local agency to the State agency.

X. Evaluation

To insure quality programs in the field of distributive education, constant evaluations should be made.

Local evaluations

- Frequent evaluations

  directors, supervisor, and teacher.

State evaluation

Supervisory visits to local programs will be made by staff members of the State Board.

Results of all evaluations should be for the improvement of the program.

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Schaefer, Carl J.
What Makes a Master Teacher.

Rutgers, The State Univ., New Brunswick, N.J.
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*TRADE AND INDUSTRIAL TEACHERS; VOCATIONAL DIRECTORS; TEACHER EDUCATORS; *MASTER TEACHERS; *TEACHER CHARACTERISTICS; TEACHER ATTITUDES; ADMINISTRATOR ATTITUDES; SURVEYS

An opinionnaire containing 26 items relative to master teacher characteristics such as knowledge, ability, understanding, and experience was completed by 28 local directors of vocational-technical education and 18 teacher educators. There was a high degree of relationship between the thinking of the two groups as to what makes a master teacher. The groups agreed that the most important items were (1) the ability to motivate students, (2) knowledge and understanding of the objectives of vocational-technical education, (3) knowledge and understanding of the basic principles of learning, (4) experience in the skills of the specialized area being taught, (5) the ability to express ideas adequately, (6) the ability to demonstrate skills, and (7) knowledge and understanding of related technical theory in specialized area. The items on which the groups had the most disagreement were (1) the ability to develop an effective course of study, (2) the ability to develop an appreciation of good workmanship, (3) the ability to select, evaluate, classify, file, and use prepared subject materials, (4) knowledge and understanding of testing and evaluation, (5) knowledge and understanding of child growth and development, and (6) experience in teaching shop and related subjects. Few items were checked as unimportant to the effectiveness of the master teacher. The opinions expressed will be considered in formulating new curriculums. (EM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A REPORT

9/12/63

THE DEPARTMENT OF VOCATIONAL-TECHNICAL EDUCATION
GRADUATE SCHOOL OF EDUCATION
RUTGERS THE STATE UNIVERSITY

WHAT MAKES A MASTER TEACHER

The creation of the new department of vocational-technical education at Rutgers - The State University, provides a unique and important opportunity for the staff to explore its challenge. Unique, because the department represents but the second organized in the nation to encompass all of the fields of vocational-technical education, and the first to be located entirely within a graduate school of education.

Preliminary discussions lead the staff to the conclusion that its energies should be expended in a twofold direction: (1) preparing truly master teachers, and (2) developing coordination, supervision, and administrative talents.

In an attempt to build a master of education curriculum to meet the first objective; that of preparing master teachers, the department faculty was sensitive to the need for defining in rather clear terms, "What Makes A Master Teacher." Certainly it was felt a truly master teacher may be far different than merely a teacher with a master's degree. Indeed, a teacher so identified may not even be a holder of the master's degree; but if the degree is to reflect its true value, the term "master" must become central to the endeavor. Therefore, within the limitations of time and resources, it was decided to study the problem by making an analysis of what is being done at other institutions and what, if anything, in the way of distinguishing master teacher characteristics could be observed by practitioners in the field. The latter is reported herein.

VT 002919

THE PROBLEM

Concisely stated, the problem was to determine what factors could be clearly identified and associated with the individual who was considered a "master" of vocational-technical education pedagogy. The problem, stated in a simple question was: "What makes a master teacher?"

THE PROCEDURE

The procedure was to develop a list of 26 items under the prefixes, the ability to . . . , knowledge and understanding to . . . , and experience in . . . . In this respect the study by Walsh served as the basis for items.[1] These items were screened and added to by members of the staff. A continuum of very important, important, somewhat important, and unimportant was provided for each item.

This opinionnaire type instrument was then circulated to the total population of New Jersey local directors and to a sample of nationally recognized vocational-technical educators. Thirty local directors were included in the study, of which 28 returns were received in time for tabulation. Twenty-three teacher educators were included and 18 returns received.

Scores for each item were ascertained from the weighted continuum, thus permitting ranking of items by order of importance. Separate rankings were made for each of the samples; local directors, and teacher educators. A Spearman-Brown rank order correlation was computed to ascertain the degree of agreement between the two groups.

THE FINDINGS

There is a high degree of relationship between the thinking of local directors and vocational-technical teacher educators relative to what makes a master teacher. A correlation coefficient of .76 was found to exist between the rankings by both groups. This is to say both teacher educators and local directors appear to look with importance on a substantial number of the same factors that constitute a master teacher.

Paramount to a master teacher in both lists is the ability to motivate students. Table 1 shows complete agreement on this point. In ascending order of most important and in close agreement between the two samples the following seven items are of interest:

Item No.	
2	Ability to motivate students.

[1]John P. Walsh, Teacher Competencies in Trade and Industrial Education. Washington, D.C.: U.S. Department of Health, Education, and Welfare. Office of Education, Government Printing Office, 1960.

Item No.

12 Knowledge and understanding of objectives of vocational-technical education.

13 Knowledge and understanding of the basic principles of learning.

24 Experience in the skills of the specialized area being taught.

10 Ability to express ideas adequately.

1 Ability to demonstrate skills.

14 Knowledge and understanding of related technical theory in specialized area.

At the lower end of the ranking, or of less importance and in ascending order, but still in high correlation between the two samples were found the three items of:

Item No.

19 Knowledge and understanding of the history of education.

18 Knowledge and understanding of services provided, types and location of community organizations.

Item No.

16 Knowledge and understanding of keeping records and making reports.

Items on which there appears to be the greatest disagreement in opinion between the two samples are:

Item No.

4 Ability to develop an effective course of study.

8 Ability to develop an appreciation of good workmanship.

9 Ability to select, evaluate, classify, file and use prepared subject materials.

15 Knowledge and understanding of testing and evaluation.

21 Knowledge and understanding of child growth and development.

26 Experience in teaching shop and/or related subjects.

All other items on the list of 26 were in close agreement between the two extremes; top or bottom of the list. It should be mentioned, however, that few of the items were checked by the respondents as unimportant to the effectiveness of the master teacher.

TABLE 1

Items By Rank Order Of Importance[1]

Item No.	Rank by Directors (N = 28)	Rank by Tch. Educators (N = 18)
(1) Ability to demonstrate skills.	6	8.5
(2) Ability to maintain discipline.	8.5	20
(3) Ability to motivate students.	1	1
(4) Ability to develop an effective course of study.	20.5	11.5
(5) Ability to work as a member of a professional team.	14.5	11.5
(6) Ability to organize and manage the shop, lab and classroom.	8.5	6
(7) Ability to use a variety of teaching methods.	16	14
(8) Ability to develop appreciation of good workmanship.	17	8.5
(9) Ability to select, evaluate, classify file and use prepared subject materials.	24	17.5
(10) Ability to express ideas adequately.	5	3
(11) Knowledge and use of philosophy of public education.	18.5	17.5
(12) Knowledge and use of objectives of vocational education.	2.5	4.5
(13) Knowledge and use of the basic principles of learning.	2.5	4.5
(14) Knowledge and use of related technical theory in specialized area.	7	11.5

[1]Source of data -- Responses from local directors and teacher educators.

TABLE 1 (Continued)

Items By Rank Order of Importance

Item No.	Rank by Directors (N = 28)	Rank by Tch. Educators (N = 18)
(15) Knowledge and use of testing and evaluation.	20.5	11.5
(16) Knowledge and use of keeping records and making reports.	22	21
(17) Knowledge and use of industry-school-community relationships.	23	17.5
(18) Knowledge and use of services provided, types, and locations of community organizations.	25	25
(19) Knowledge and use of the history of education.	26	26
(20) Knowledge and use of research and its implications to teaching.	18.5	23
(21) Knowledge and use of the principles and practices of vocational-technical education.	11	17.5
(22) Knowledge and use of child growth and development.	14.5	24
(23) Knowledge and use of psychological and sociological implications of teacher-pupil relations.	12.5	15
(24) Experience in the skills of the specialized area being taught.	4	2
(25) Experience in the preparation of instructional materials.	10	7
(26) Experience in teaching shop and/or related subjects.	12.5	22

DISCUSSION

The study was one of answering the question, "What makes a master teacher in the area of vocational-technical education?" An opinionnaire was developed consisting of 26 items and administered to two independent samples; one composed of local directors of vocational-technical education in New Jersey and the other of nationally recognized teacher educators of vocational-technical education. The local director sample resulted in a return of 28 out of 30 for 93 per cent and 18 out of 23 teacher educators for a 78 per cent return.

The fact that the opinions between the two samples substantially agreed (a correlation of .76 was found) supports the validity of the ranking of the twenty-six items in order of importance. This is to say, both practitioners and those responsible for preparing teachers agree on what "sets apart" a teacher from his colleagues and identifies him as a master of pedagogy.

If these factors, identified within the limitations of this study are to be of value, they must be implemented into action. In this respect, the new department of vocational-technical education at Rutgers - The State University, has been provided the opportunity to incorporate these findings into a new curriculum for preparing teachers at the master's degree level. Obviously, some can be best implemented through formal courses while others through contrived experiences. For example, the paramount factor of a master teacher, according to the study, is the ability to motivate the student to learn. Such teacher ability undoubtedly cannot be taught in a single specific course. However, it may be possible to give the teacher added power to motivate student learning through a contrived experience to make subject matter (or skills) meaningful and viable through his own updating in technology. This is to say, if the teacher himself speaks from recent experiences, the teaching process may become more motivating. Therefore, the Department's Master Teacher Program will include, on a pilot basis, for those who are preparing to be master teachers an opportunity to return to industry and/or the research laboratory to experience "first hand" an updating experience.

It is anticipated this same experience will not only provide a teacher with that "extra spark" of enthusiasm to motivate students to want to learn, but will also give an opportunity to acquire new skills and knowledges which can be achieved only by on-the-job and "doing type" experiences. The externship in science and technology, thus will be a required course as part of the master teacher preparation option of most majors, i.e. vocational agriculture, trade and industrial and others as they are added.

Other items identified as distinguishable and unique to the master teacher carry the prefix "knowledge and understanding of . . . " As such, they exemplify more or less the traditional acquisition of content through formal course work. This is to say, the study of objectives of vocational education and basic principles of learning as well as related subject matter such as mathematics and science, mainly are acquired through classical learning methods. These then, will become courses of a formal nature in

the master teacher preparation program. But, unlike some of the more compartmentalized structures which separate the areas of vocational education, an attempt will be made to synthesize certain common elements into a core for all majors of vocational-technical education. Thus it is hoped, through interaction to broaden the horizons of the master teacher so as to acquire an understanding and appreciation of vocational and technical education.

Little, if anything concrete, can be drawn from this study to implement the role of the Department in preparing coordinators, supervisors, and administrators for vocational-technical education. Other studies of a leadership and administrative nature will have to be relied on to supply direction and content to meet this specific objective.

In summary, the present study focused thinking and attention on the Department's role in developing master teachers. To this end, a number of pertinent opinions were expressed which will be taken into consideration in formulating new and viable courses and curriculums.

Carl J. Schaefer, Chairman

VT 002 921

VT 002 921
Parrish, Edwin H.
A Look at Education for Work in the Omaha Public Schools.

Omaha Board of Education, Nebr.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Sep64 43p.

*COMMUNITY SURVEYS; *VOCATIONAL INTERESTS; *STUDENT INTERESTS; OPINIONS; EDUCATIONAL OPPORTUNITIES; PARENT EDUCATION; *EDUCATIONAL ATTITUDES; *EDUCATIONAL NEEDS; DROPOUT ATTITUDES
OMAHA; NEBRASKA

Students in grades 8, 9, and 12, graduates, dropouts, parents, labor organizations, apprentices, and business and industry were surveyed to gather information about the educational needs of the population for earning a living and to provide aid in establishing guidelines for an educational program of the future. Grade 12 responses indicated that 51.3 percent planned to attend college, 26.6 percent planned to go to work, and 10.6 percent planned to attend vocational school. Of 669 responses from 1,984 questionnaires to graduates of the 1963 class 57 percent were attending college full time. Of 383 responses from the 960 dropouts contacted, 33 percent left school for employment, 13.2 percent to enter the armed forces, 27.9 percent for marriage, and 14.2 percent were expelled. Estimated employment increases from 1963 to 1966 were 8.8 percent in professional and management, 2.8 percent in clerical and sales, 4.3 percent in service, 7.5 percent in skilled, 9.3 percent in semiskilled, and 8.9 percent in unskilled groups. Some of the recommendations were: (1) Business, industry and labor should become more familiar with current school courses, (2) Parents should have a more realistic understanding of the education their children could profit from and jobs they will probably obtain, (3) Schools should modify the emphasis on a preparatory college program, develop a proper balance between academic and vocational curriculums, build prestige and acceptability into every curriculum offered, meet the dropout challenge by providing curriculums to meet the needs, interests, and abilities of all students, establish a complete counseling and guidance program, and continuously evaluate the economy and develop and modify courses to meet current employment standards. (MM)

ED027441

OMAHA PUBLIC SCHOOLS

ED027441



DR. EDWIN H. PARRISH
Director
Vocational and Adult
Education
Omaha Public Schools

THANKS TO THE 20,000 PERSONS WHO WERE DIRECTLY ENGAGED IN THIS SURVEY AND STUDY, TOGETHER WITH THE 77,000 PERSONS REPRESENTED BY THEIR PARTICIPATION



DR. PAUL A. MILLER
Superintendent
Omaha Public Schools

Omaha Public Schools

ADMINISTRATIVE OFFICES
3902 DAVENPORT STREET
OMAHA, NEBRASKA 68131

September 1, 1964

To the Community of Omaha:

I express my appreciation to all the facets of the community for the concern and interest in reviewing and planning for a program of Education for Work. It is evident from the interaction of all the community groups that this concern is not to be construed as a problem, but a challenge for all of us.

The rapidly increasing complexity of our society, in terms of automation and technology, notes a need for a new look at the knowledge and skills our population requires for employment. This is true for the young adults entering the world of work, as well as the adults demanding a need for new occupational skills and knowledge.

This study is an example of the achievements possible when educators, parents, students and representatives of business, industry and labor unite their efforts in studying information required to meet a common challenge.

The study should be of practical value to all facets of the community in planning and developing a program of Education for Work. Such a program would meet the occupational needs of all youth and adults in the Omaha community.

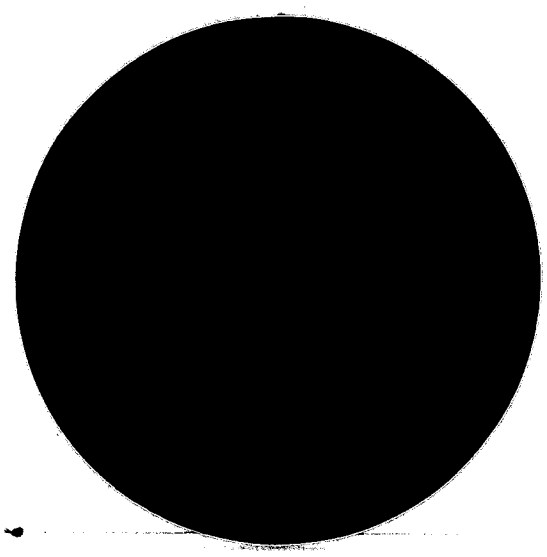
Sincerely yours,

Paul A. Miller

Paul A. Miller
Superintendent of Schools

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EDUCATION

For Work

in the Omaha Public Schools

A study of the community relating to the education needed for successful placement within the occupations to meet the requirements of the economy for Omaha, Nebraska, and the United States.

by

DR. EDWIN H. PARRISH

Director

Department of Vocational and Adult Education

Survey Director

THE OMAHA BOARD OF EDUCATION
SCHOOL DISTRICT OF OMAHA
SEPTEMBER 1964

This Booklet Is a Digest of a 144 *Page Study, completed in September,* 1964.

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Charles A. Peters

Charles W. Beattie, *Secretary*

The writer is grateful to the many people who gave so willingly of their time and effort to aid in making this study possible:

John A. Aita, M. D., *Rotary Club of West Omaha, Omaha*
Don Bastemeyer, *Carpenters District Council, Omaha*
John C. Connelly, *Bureau of Apprenticeship and Training, Omaha*
Robert J. Danze, *President, Central Labor Union, Omaha*
Russell A. Hand, *Nebraska State Department of Labor, Omaha*
Charles McNeil, *President, Building Trades Council, Omaha*
Dr. Floyd A. Miller, *State Department of Education, Lincoln*
Merle M. Musselman, M. D., *Rotary Club of West Omaha, Omaha*
Richard W. Nisely, *President, State Federation of Labor, Omaha*
Charles A. Peters, *Rotary Club of West Omaha, Omaha*
Mrs. E. J. Roberts, *Council of Parent Teacher Association, Omaha*
Cecil E. Stanley, *State Department of Education, Lincoln*
George T. Wruck, *Associated Retailers of Omaha*
James Hanry, *Omaha Chamber of Commerce*

A special thanks to the administrative staff members of the Omaha Public Schools who cooperated so enthusiastically in the performance of the study:

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Dr. Owen A. Knutzen, *Associate Superintendent of Schools*
Dr. Craig K. Fullerton, *Ass't. Superintendent of Schools for Curriculum*
Raymond O. Shelton, *Assistant Superintendent of Schools for Business*
Dr. Paul J. Turnquist, *Assistant Superintendent of Schools for Personnel*
Don Warner, *Assistant Superintendent of Schools for Special Services*
Robert H. Beck, *Director of School Construction*
Bernard R. Gyger, *Administrative Assistant, Community Relations*
Joe Hanna, *Director of Curriculum*
Welcome Bryant, *Coordinator for Compensatory Education*

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Martha Artist, *Supervisor, Homemaking Education*
Mildred Blair, *Supervisor, Business Education*
Homer A. Mattson, *Supervisor, Industrial Education*
John Sheldon, *Supervisor, Adult General Education*

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Edwin H. Parrish

A Community Study . . .

Acknowledgement is given to the community groups in Omaha, Nebraska, who participated in this study, for their sincere interest in encouraging the completion of the research instruments. The writer's deep feeling of appreciation to these groups is not expressed easily through the use of the written word.

American Management Society
American Society of Training Development
Associated General Contractors
Associated Retailers of Omaha
Association of Personnel Directors
National Electrical Contractors Association
Nebraska State Federation of Labor
Omaha Area School Administrators
Omaha Builders Exchange
Omaha Building Trades Council
Omaha Central Labor Union
Omaha Chamber of Commerce
Omaha Home Builders Association
Omaha Plumbing and Heating Contractors Association
Omaha School Administrators Association
Omaha Sheet Metal Contractors Association
Painting and Decorating Contractors of America
Rotary Club of West Omaha
Urban League of Omaha

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The National Picture



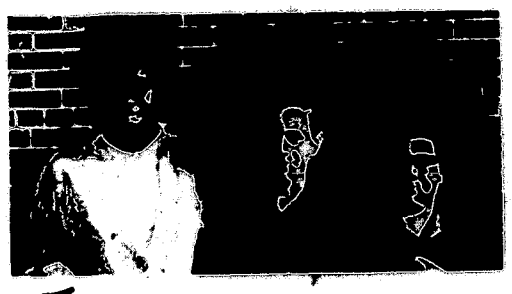
These pictures and others in this booklet posed by Omaha Public School students.

. . . of every 10 youngsters now in grade school - - -



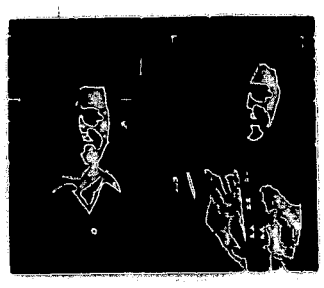
3 Will *NOT* Finish High School!

of the **7** who DO Finish High School



3 Will Go To Work, Some As Homemakers

8 Will *NOT* Complete College



2 Will Continue Their Education . . . But Will *NOT* Finish!

Only



2 Will Finish 4 Years of College

From—*Education for a Changing World of Work*
Summary Report of the Panel of Consultants
on Vocational Education as requested by
The President of the United States
1962

A Community . . .



Survey and Study

to

Determine a Program of Education for the World of Work, in Terms of Youth and Adults, as an Integral Part of the Omaha Public Schools.

In 1970 . . . .

These Omaha Youth and Adults Will Be Numbered Among The 100 Million Workers of the United States.

WHY Did the Omaha Public Schools See the Need for the Study?

*It is becoming increasingly clear that there is no real assurance now that mastery of an occupation, once achieved, will last a worker a lifetime. Although jobs may change, a worker who has mastered the skills of a trade or occupation and who has kept himself abreast of new techniques and developments can reasonably expect to continue in his trade throughtout his working life. Pre-employment training of youth must therefore provide a solid occupational foundation. In addition, the potential member of the labor force must be well aware of his responsibility for his own self-development if he is to continue to keep up to date in his occupation. Since more and more workers will need a program of lifelong learning, continuing educational opportunities must be provided to cope with occupational change. Vocational educators must train more broadly for career patterns, for a lifelong sequence of employment opportunities.

National Study

*Summary Report of the Panel of Consultants on Vocational Education

The Public Schools Look at Omaha... Through These Windows

Board of Education

Superintendent of Schools

Administration

Survey and Study
Education for the Omaha World of Work

Omaha Public Schools

Administration
Supervision
Instruction
Research

Metropolitan Area Schools

Private Public Parochial

Community Advisory Committee

Allied Agricultural Areas
Chamber of Commerce
Civic
Communication
Construction
Culinary Arts
Finance
Government
Health
Higher Education
Insurance
Inter-Cultural Groups
Labor
Lay Public
Manufacturing
Performing Arts
Real Estate
Retail Trade
Service
Transportation
Utilities
Wholesale Trade

Specific Source Groups

WHAT ABOUT OMAHA?

The growth of the Omaha metropolitan area in excess of 500,000 people with a total labor force of more than 201,000 is significant. The number of employable people will increase with the population growth. With this growth will come the need for additional programs of education related to the world of work.

The Common Challenge

THE NATION

This nation must make optimum use of its manpower resources. Its goal must be the best possible education and training that *all* may have a good life and make a good living. In the United States, at the present time, there is an expanding need for an adequate pool of skilled workers with a background of vocational education. The public schools have had the responsibility for vocational education. This occupational preparation should rightfully be made available to all youth and adults. Such vocational preparation must be in balance with the needs of the economy exhibited through business and industry.

THE STATE

Nebraska has had a limited program of education for the world of work. In view of our technical age, it is apparent that an expansion of this segment of education will occur. As such, it is most important to identify certain of the personal and educational characteristics which are the basis for this form of education, as it exists in Nebraska communities. This survey and study is intended to provide recommendations which will result in a realistic approach to education for the world of work.

THE COMMUNITY

Business and industry of Omaha, Nebraska, are challenged by constant change and thus the manpower needs are greatly affected. The methods and techniques for operation of business and industry will require new approaches to work knowledge and skill. The Omaha Public Schools of Nebraska are in a most vital position to help meet this need. A new pattern of education for the world of work is one of the hopes for Omaha's manpower requirements. This is the challenge!



The Common Task

- Determine the present employment possibilities.
- Project job possibilities in relation to the future employment requirements.
- Determine those goals of elementary education for developing a sense of values for the world of work.
- Review the enrichment and exploratory courses of the junior high school in terms of earning a living.
- Determine the school program for high school youth who upon graduation are preparing to directly enter employment.
- Examine the needs of youth with academic, sociological, or economic challenges that prevent success in the regular school program as related to the world of work.
- Ascertain the preparatory work education needed by those youth and adults who have completed or left high school and are available for full-time study.
- Determine the needs, in relation to additional adult education or re-education, for the continuity of employment.
- Plan a program of parent education for interpretation of education for the world of work.
- Determine the facilities needed for executing the program of education for the world of work.

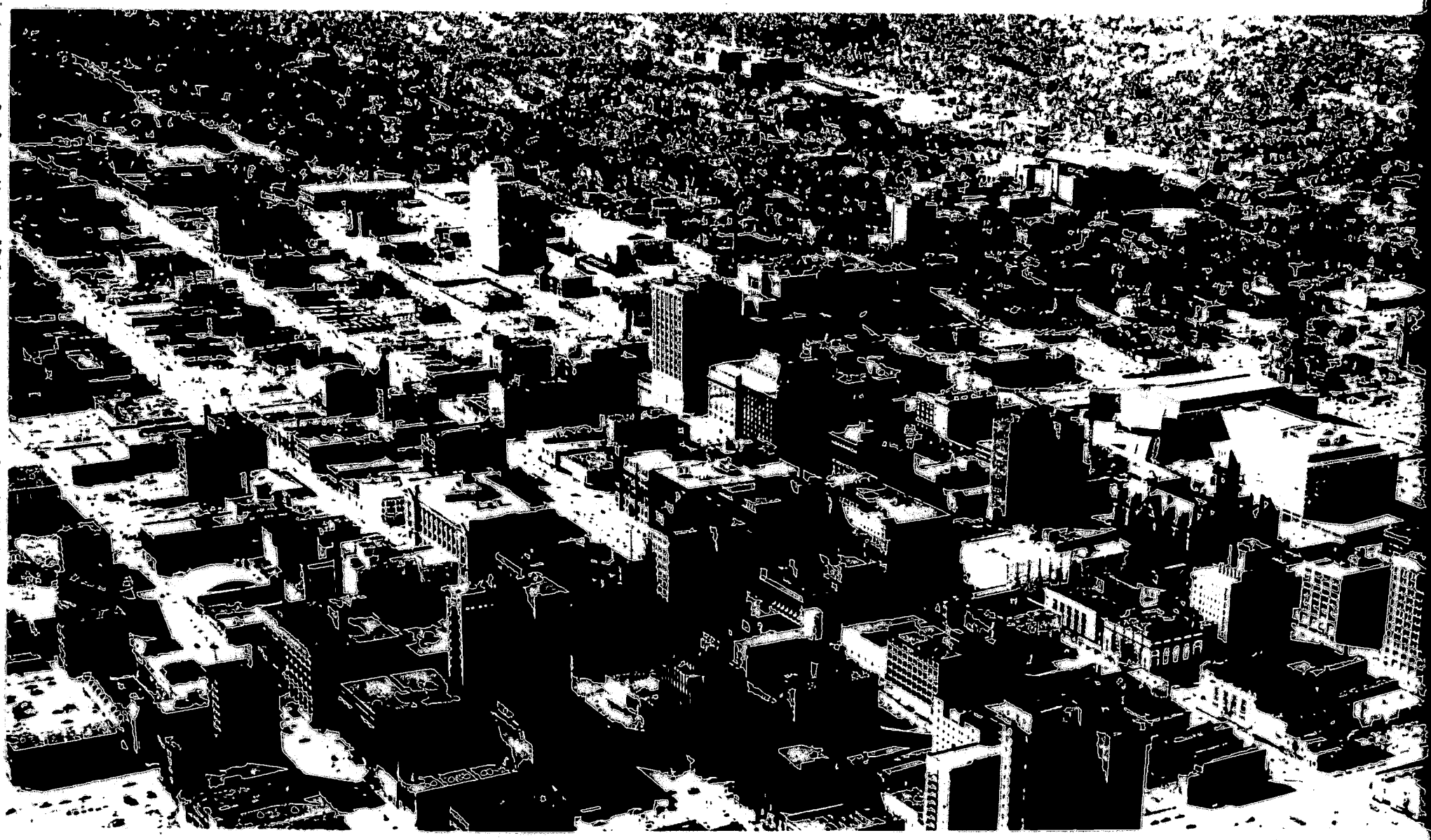


PHOTO COURTESY OMAHA CHAMBER OF COM

The Search

of the Survey and Study

WHY?

The Omaha Public Schools recognized the need to gather and evaluate certain pertinent information concerning the educational needs of the population for earning a living in metropolitan Omaha, Nebraska. Such facts revealed the present status of education for earning a living and thus will provide aid in establishing the guide lines for this educational program of the future.

HOW?

A steering committee composed of the staff of the Department of Vocational and Adult Education acted in an advisory relationship to the Director of the Survey and Study. In turn the results of the survey and study were presented to a community advisory committee. This advisory committee viewed the information and advised regarding the plans for community understanding and participation in this educational program.

WHAT?

The information obtained through the use of questionnaires has been tabulated and a summary of the results prepared for use in this brochure. A detailed summary is available in form of the complete survey and study.

This report has been prepared in order to determine the need of education for the world of work in the Omaha Public Schools.

SOURCES OF INFORMATION

The Eighth Grade Students

The Ninth Grade Students

The High School Seniors

The High School Graduates of One Year Ago

The Dropouts of the 1962-1963 School Year

The Statistical Reports of the School District of Omaha

The Parent Leadership in Schools

The Labor Organizations

The Apprentices

Business and Industry Employers

The Nebraska Department of Labor

Civic Groups and Public Agencies

ABOUT THESE QUESTIONS

Where Are the Jobs in the Community?

What Occupations Support the Economy of This Community?

What Does Labor and Management Desire in Occupational Training?

Does Interest Exist for a School of Continuing Education?

What Are the Educational Plans of Our Students?

Are the Educational Plans of Our Students Realistic?

How Do Parents Feel about the Occupational Plans for Their Children?

What Should Be the Educational Program to Meet Occupational Needs?

How Do the High School Graduates React to the Educational Program?

How Do the Dropouts React to the Educational Program?

EIGHTH GRADE STUDENTS

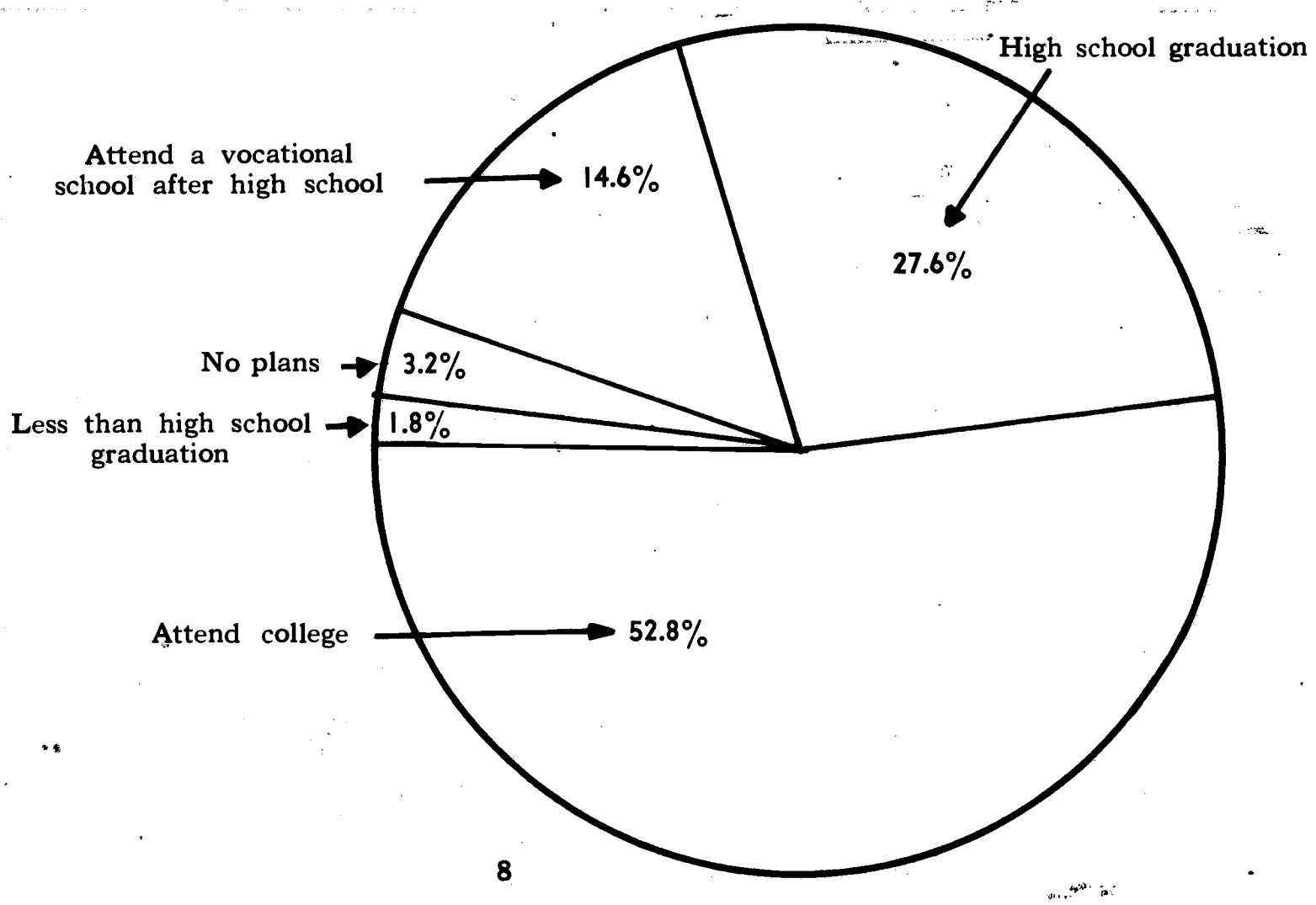


VIEW FUTURE EDUCATIONAL PLANS

1964 EIGHTH GRADE STUDENTS

3,684 Students
- 1,821 Girls
- 1,863 Boys

Their Plans NOW for the Future



Eighth Graders

This Is How They See It Now

	TOTAL FOR BOYS	TOTAL FOR GIRLS
Attend college	55.0%	50.5%
Attend a vocational school after high school	12.7	16.5
High school graduation	26.5	28.6
Less than high school graduation	2.3	1.4
No plans	3.5	3.0

The Eighth Grade . . . Student Plans by Schools

SCHOOL	COLLEGE	SCHOOL OF CONTINUING EDUCATION	HIGH SCHOOL	LESS THAN HIGH SCHOOL	NO PLANS
BEVERIDGE	68.6%	13.9%	15.9%		1.6%
GEORGE W. NORRIS	56.3	22.5	17.0	0.7	3.5
HORACE MANN	41.1	12.4	42.6	3.0	0.9
INDIAN HILL	42.9	12.6	42.2		2.3
LEWIS AND CLARK	81.7	10.9	5.9		1.5
McMILLAN	53.7	13.1	28.5	1.5	3.2
MONROE	69.9	14.6	13.7	0.2	1.6
RALPH MARRS	28.5	17.1	48.8	.6	5.0
TECHNICAL	38.5	20.9	31.1	3.0	6.5
ELEMENTARY	35.6	11.2	42.7	5.1	5.4
AVERAGE	52.8%	14.6%	27.6%	1.8%	3.2%

NINTH GRADE STUDENTS

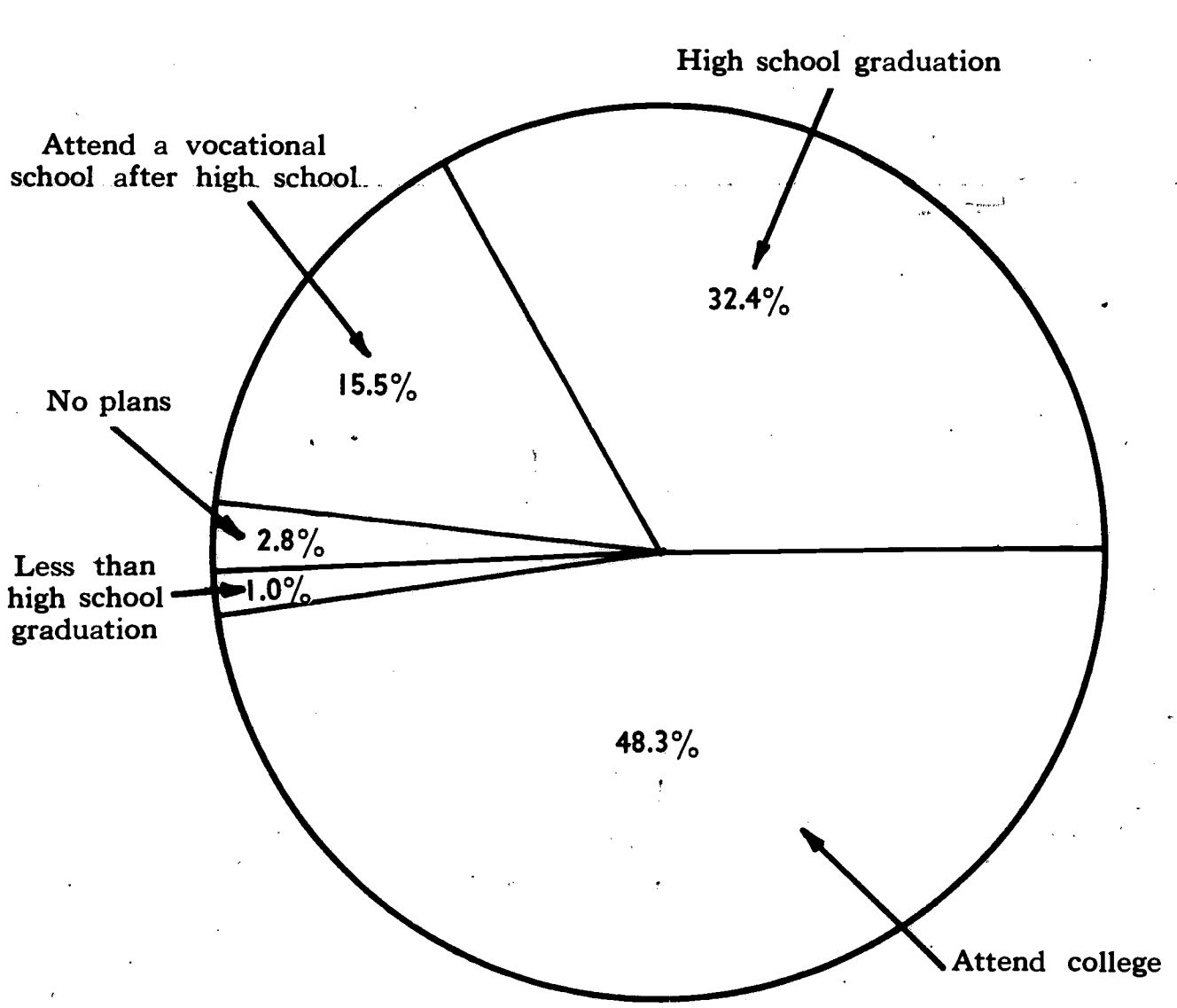


VIEW FUTURE EDUCATIONAL PLANS

1964 NINTH GRADE STUDENTS

3,964 Students
- 1,909 Girls
- 2,055 Boys

Their Plans NOW for the Future



Ninth Graders

This Is How They See It Now

	TOTAL FOR BOYS	TOTAL FOR GIRLS
Attend college	55.3%	40.7%
Attend a vocational school after high school	12.5	18.8
High school graduation	28.0	37.0
Less than high school graduation	.9	1.1
No plans	3.3	2.4

The Ninth Grade . . . Student Plans by Schools

SCHOOL	COLLEGE	SCHOOL OF CONTINUING EDUCATION	HIGH SCHOOL	LESS THAN HIGH SCHOOL	NO PLANS
BENSON HIGH	57.5%	20.0%	21.0%	1.0%	0.5%
CENTRAL HIGH	58.3	10.2	29.2	0.4	1.9
NORTH HIGH	41.5	13.8	38.9	3.2	2.6
SOUTH HIGH	25.9	13.0	54.5	1.0	5.6
TECHNICAL HIGH	26.9	15.8	46.4	1.7	9.2
BEVERIDGE	71.2	10.5	18.3		
GEORGE W. NORRIS	72.1	12.1	15.0	0.3	.5
HORACE MANN	58.6	10.2	30.3	0.9	
INDIAN HILL	40.6	20.3	36.7		2.4
LEWIS AND CLARK	55.5	22.3	21.5	0.2	0.5
RALPH MARRS	33.3	25.5	35.5	2.1	3.6
McMILLAN	52.5	16.9	29.1	0.3	1.2
MONROE	72.5	14.4	11.2		1.9
AVERAGE	48.3%	15.5%	32.4%	1.0%	2.8%

HIGH SCHOOL SENIORS



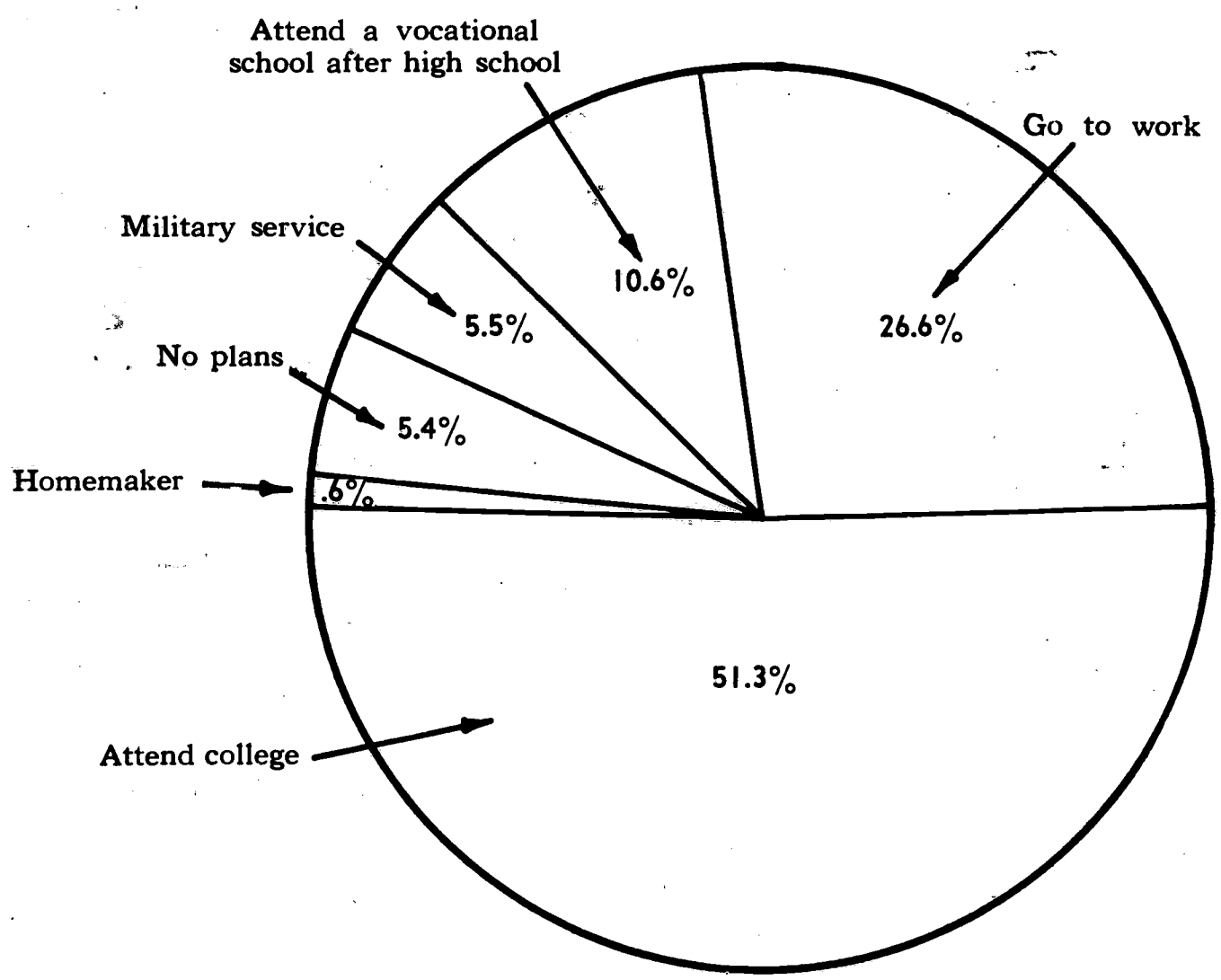
VIEW FUTURE

EDUCATIONAL PLANS

THE 1964 SENIORS

2,423 Students
- 1,190 Girls
- 1,233 Boys

Their Plans NOW for the Future



4,859 SENIORS IN 36 OMAHA AREA HIGH SCHOOLS

LOOK AT

A School of Continuing Education

. . . A Vocational School after High School

Their Interest

	Interest Boys	Interest Girls	Total Interest
● 6 OMAHA PUBLIC HIGH SCHOOLS	511	501	1,012
Benson, Beveridge, Central, North, South, Technical			
● 9 OMAHA PAROCHIAL HIGH SCHOOLS	91	171	262
Archibishop Ryan, Cathedral, Creighton Prep, Holy Name, Marian, Mercy, Notre Dame, Sacred Heart, St. Joseph			
● 21 OMAHA AREA HIGH SCHOOLS	249	231	480
Ashland, Bellevue, Bennington, Blair, Elkhorn, Fort Calhoun, Fremont, Gretna, Mead, Millard, Nebraska City, Papillion, Plattsmouth, Ralston, School for the Deaf, Springfield, Valley, Wahoo, Waterloo, Westside, Yutan			

WHERE IS THIS 1,754 STUDENT INTEREST?

Allied Agriculture	34	Industrial Services	163
Business and Clerical	576	Maintenance and Repair	205
Sales and Distribution	102	Graphic Arts	85
Home Economics	82	Construction and Manufacturing	215
Performing Arts	127	Health and Medical	165

63

The 1963 Graduate...



. . . after one year!

OF 1,984 GRADUATES ASKED
36.8% or 729 Reported

—669 Responses
— 60 No Forward Address

Of the 669 Responses
Concerning College Attendance Now

57.0% Full Time
1.9% Part Time
41.1% None

On Employment Now - 669 answered

- 220 FULL TIME
- 219 PART TIME
- 230 NONE

OF 102 RESPONSES AS UNEMPLOYED NOW

89 Attending College or Business School
13 Unemployed and not in school

THOSE EMPLOYED BY MAJOR OCCUPATIONAL GROUP

Professional	1.1%
Managerial	.3
Clerical	43.6
Sales	12.4
Skilled	9.5
Semi-skilled or Operator	7.3
Service	16.7
Unskilled or Laborer	6.2
Other	2.9

How Many Had How Many Jobs?

No Job	18.8%
1	54.6
2	20.8
3	5.8

The '63 Graduate and

Counseling and Guidance

	AMOUNT OF HELP NEEDED	AMOUNT OF HELP GIVEN		
		All Needed	Some	Little or None
● COLLEGE AND UNIVERSITY INFORMATION				
Great Amount	25.1%	29.2%	34.6%	36.2%
Some	43.7	39.6	39.6	20.8
Little or None	31.2	31.5	22.2	46.3
● VOCATIONAL INFORMATION				
Great Amount	24.1%	29.3%	37.6%	33.1%
Some	43.8	32.7	45.0	22.3
Little or None	32.1	25.4	22.6	52.0
● JOB OPPORTUNITIES				
Great Amount	20.3%	20.9%	31.8%	47.3%
Some	36.9	23.5	34.5	42.0
Little or None	42.8	17.4	10.4	72.2
● FINDING A JOB				
Great Amount	17.1%	18.9%	14.4%	66.7%
Some	23.1	28.9	20.6	50.5
Little or None	59.8	9.5	8.5	82.0



THE SCHOOL DROPOUT

960 OF THE 1963 DROPOUTS ASKED

125 Reported with no forwarding address for mail
197 Reported at 1st request with questionnaire
61 Reported at 2nd request with post card

or

a 39.9% Return

PRESENT EMPLOYMENT STATUS

125 State of Mobility — No forwarding address
197 Reported by questionnaire — 100 Unemployed
61 Reported by post card — 36 Unemployed

THEY WERE STUDENTS IN THESE PROGRAMS

	Industrial Arts and Pre-Vocational		Vocational Day-Trade		Business		Homemaking	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
None	20.0%	74.0%	61.9%	89.1%	62.9%	16.3%	91.4%	22.8%
Less than one year	17.1	8.7	8.6	2.2	13.3	28.3	1.9	15.2
One year	20.0	9.8	13.3	3.3	16.2	22.8	1.9	22.8
Two years	28.6	4.3	12.4	3.3	6.7	21.7	2.9	23.9
Three years	10.5	2.1	3.8	2.1		10.9	1.9	10.9
Four years or more	3.8	1.1			.9			4.4

Why They Left School

	Boys	Girls	Total
Employment	40.9%	23.9%	33.0%
Armed Forces	24.8		13.2
Health	6.7	17.4	11.7
Marriage	3.8	55.4	27.9
Expelled	23.8	3.3	14.2

Some Returned . . .



. . . TO STAY IN SCHOOL

"Education is a vital link in getting a job".
"I am not prepared now".
"No job as lack high school graduation".
"People make great mistakes".
"Help others not to make same mistake".
"No vocational education or experience".
"Thought I had learned all, now I know I was wrong"
"No job because I was a dropout".
"Education improves your job possibility".
"Teachers can help us if we learn to listen".

Some Facts To Ponder

COMPLETION OF HIGH SCHOOL BY THEIR PARENTS

	Boys	Girls	Total
Father	41.0%	37.0%	39.1%
Mother	52.4	41.3	47.2

Pre-Dropout Employment Record

Girls	YES	43.5%	None	56.5%
			Sales	9.8
			Service	33.7
Boys	YES	50.5%	None	49.5%
			Professional	.9
			Sales	5.7
			Skilled	2.9
			Service	36.2
			Laborer	4.8

Education for Work is Here

HIGH SCHOOL VOCATIONAL PROGRAMS IN

AGRICULTURE are offered at South High School.

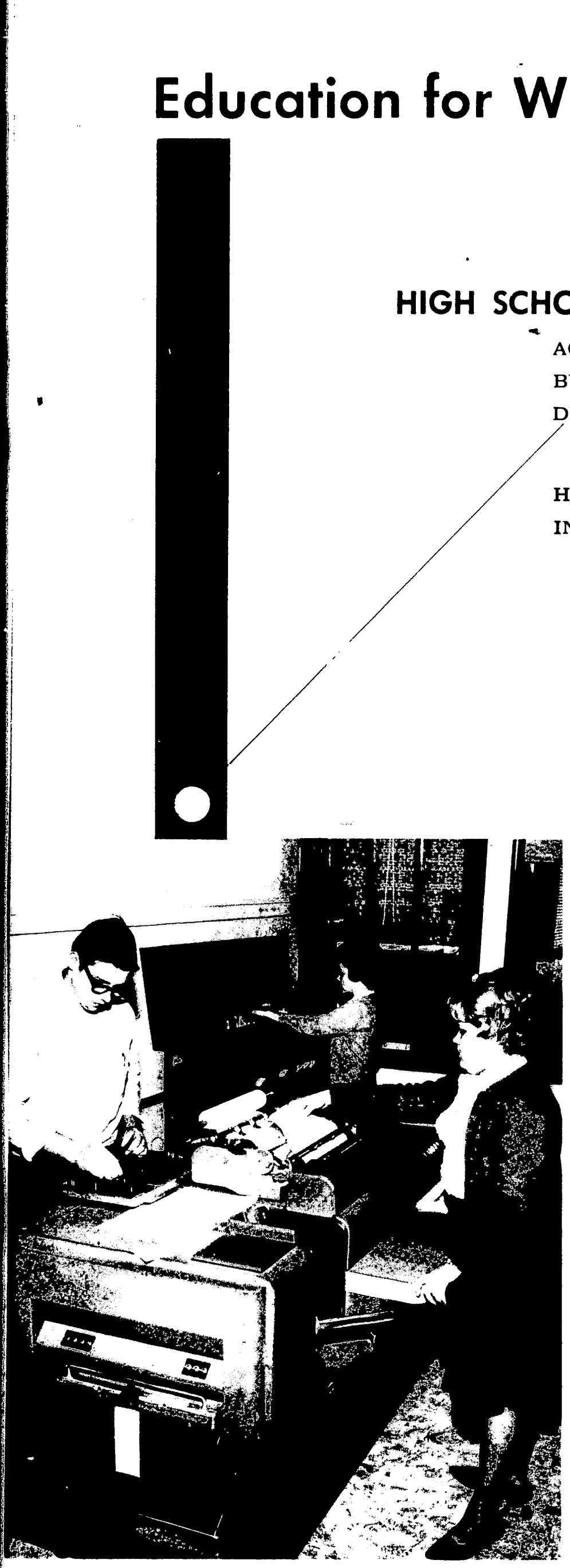
BUSINESS are offered at all 6 High Schools.

DISTRIBUTION and MERCHANDISING are offered at Benson High School, South High School, and Technical High School.

HOMEMAKING are offered at all 6 High Schools.

INDUSTRY are offered at South High School and Technical High School.

THE HIGH SCHOOL SHOULD PROVIDE A BRIDGE BETWEEN YOUTH AND THE WORLD OF WORK. EDUCATION FOR THE WORLD OF WORK IS THIS BRIDGE.



Adult Education Enrollments

	1961-62	1962-63	1963-64
GENERAL EDUCATION			
Business	1,027	1,087	1,248
General	814	459	507
High School	1,447	1,506	1,722
Immigrant	290	273	247
TOTAL	3,578	3,325	3,724
VOCATIONAL EDUCATION			
Distributive	262	183	284
Health	224	254	245
Homemaking	4,007	4,171	3,917
Trade and Industrial	2,078	1,950	1,818
TOTAL	6,571	6,558	6,264
GRAND TOTAL	10,149	9,883	9,988

SENIOR HIGH SCHOOL ENROLLMENT BY SUBJECT
EDUCATION FOR WORK

TOTAL ENROLLMENT FOR HIGH SCHOOLS

	OCTOBER ENROLLMENT		
	1961-1962	1962-1963	1963-1964
*SPECIAL SUBJECTS	10,734	12,034	13,089
GENERAL EDUCATION			
Business			
Shorthand	629	735	879
Typewriting	2,372	2,816	3,395
Bookkeeping and Accounting	637	978	1,100
General Business	990	1,073	1,076
Transcription	76	77	103
Office Practices	448	622	617
Business Law	498	557	561
Sales	105	67	133
Writing		81	
Industrial Arts			
General Shop	703	819	923
Mechanical Drawing	1,138	1,358	1,208
Electricity	95	107	141
Auto Mechanics	312	350	215
Machine Shop	156	164	226
Printing	81	81	72
Sheet Metal	79	107	88
Woodworking	279	197	321
Food Service	88	65	118
VOCATIONAL EDUCATION			
Agriculture	42	53	53
Distributive or Sales	71	75	64
Homemaking	1,407	1,522	1,623
Industrial and Technical			
Drafting	17	19	74
Electricity and Electronics	18	20	38
Instrumentation		12	
Auto Mechanics	96	91	161
Machine Shop	16	20	23
Printing	48	44	44
Sheet Metal	44	28	28
Woodworking	20	21	18
Food Service	31	43	30
Commercial Art	19	14	21

* The Statistical Report of the School District of Omaha

General Education refers to those subjects principally designed for the student's whole education in terms of his life as a responsible citizen. For all practical purposes this is education of non-specialization. Business Education has been noted as General Education.

Vocational Education prepares the individual for effective gainful employment. Based up on the Federal Acts, Business Education has not been included in Vocational Education. This viewpoint has changed since Business Education is in part Vocational Education. The Federal Acts do include Homemaking Education as a vocational program.

1453 FAMILY UNITS

Representing **PARENT LEADERSHIP** in the Community Club and Parent-Teacher Associations for 82 schools.

With these children **ENROLLED**

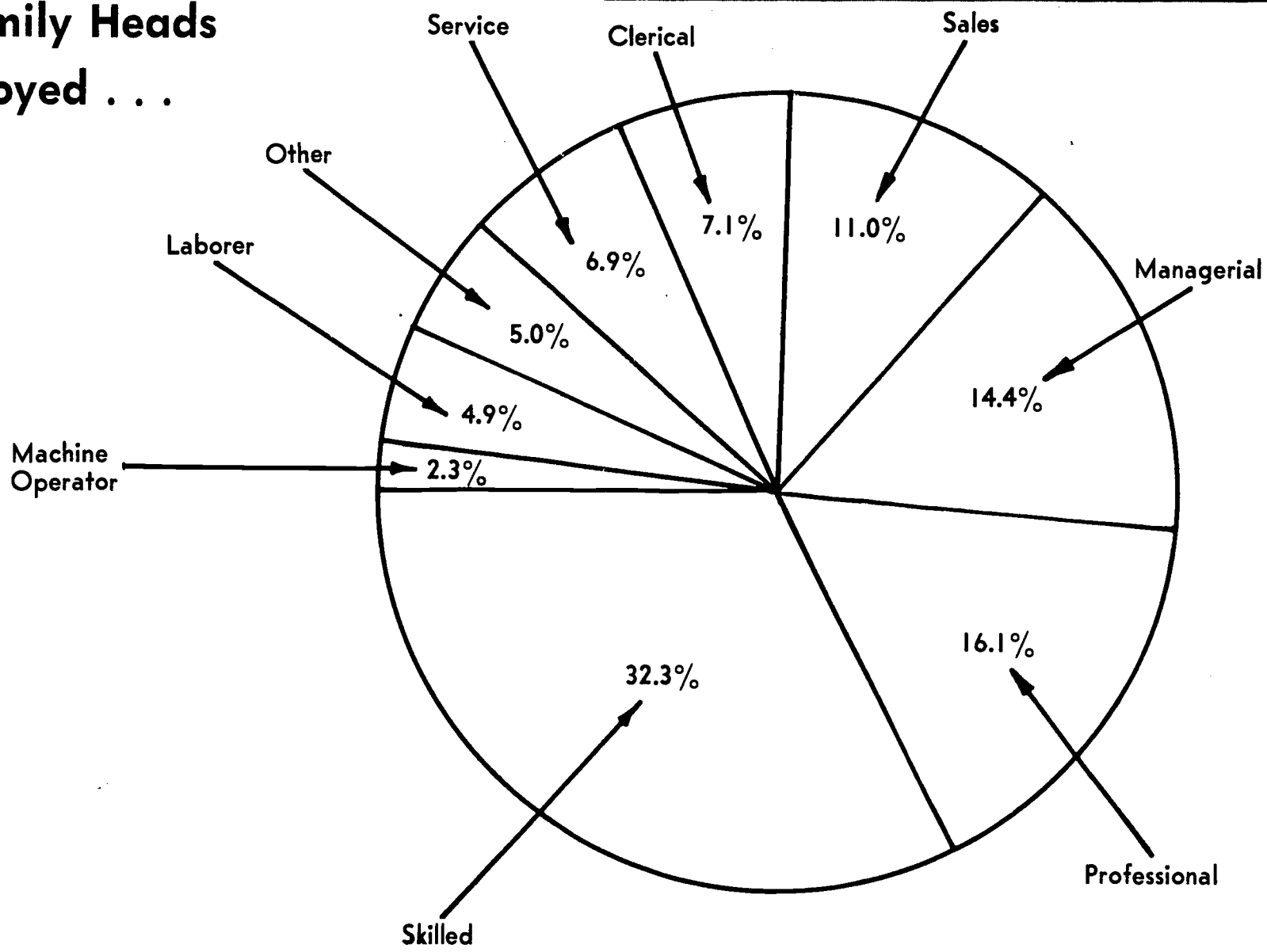
- 2,547 Elementary school
- 572 Junior high school
- 504 High school
- 115 College or university

The average years of residence in the School District of Omaha

- Husband 22.1 years
- Wife 19.8 years



How the Family Heads Are Employed . . .



AS PARENTS

THEY NOTE THIS INTEREST IN HAVING THEIR CHILDREN PREPARE FOR EMPLOYMENT IN THESE OCCUPATIONAL GROUPS

	Interest	No Interest
Unskilled worker	8.5%	91.5%
Semi-skilled worker	16.4	83.6
Skilled worker	55.4	44.6
Service worker	26.4	73.6
Sales	31.6	68.4
Clerical	61.2	38.2
Semi-professional	63.5	36.5
Professional	85.7	14.3

AS PARENTS

THEY NOTE THIS INTEREST IN HAVING THESE NEW COURSES ESTABLISHED FOR EMPLOYMENT OF THEIR CHILDREN.

	Yes	No		Yes	No
Allied Agriculture	22.8%	77.2%	Barbering	15.6%	84.5%
Computer Programming	63.1	36.9	Cosmetology	26.0	74.0
Data Processing	60.1	39.9	*Appliance Repair	40.7	59.3
*Culinary Arts	44.0	56.0	Business Management	66.1	33.9
Electronics	61.7	38.3	*Home Care Assistants	27.1	72.9
Dental Technician	40.7	59.3	*Home Decorating	49.2	50.8
*Custom Housekeeping	28.4	71.6	Business Machine Repair	41.7	58.3
			Medical Secretary	52.3	47.7

*Principally for personal use as a homemaker

AS PARENTS

71.4% RECOMMEND THE ESTABLISHMENT OF A SCHOOL OF CONTINUING EDUCATION FOR OCCUPATIONAL COURSES AT THE 13th AND 14th SCHOOL YEARS.

AS PARENTS

70.1% RECOMMEND HIGH SCHOOL COURSES FOR A BROAD BASIC KNOWLEDGE OF BUSINESS AND INDUSTRY RATHER THAN COURSES FOR THE SPECIFIC OCCUPATIONAL SKILLS.



THESE FACTS AS A SAMPLE OF THE LABOR FORCE

EXPANSION

A six year expansion of approximately 2,485 jobs is noted by 62% of the labor unions. For these unions, this represents an over-all increase of nearly 10.7 percent. This is an annual expansion of 1.7 percent.

REPLACEMENT

A six year replacement of some 1,266 jobs is anticipated as noted by 62% of the labor unions. This represents an over-all increase of nearly 5.5 percent for these unions. This is an annual replacement rate of .9 percent.

62% OF 118 LABOR UNIONS REPORT

FOR THESE MAJOR INDUSTRIAL GROUPS

Mining and Construction	16
Manufacturing	27
Transportation, Communications and Public Utilities	15
Wholesale Trade	2
Retail Trade	1
Finance, Insurance and Real Estate	1
Service	4
Government	7
TOTAL UNION RESPONSE	73

FOR THESE MAJOR OCCUPATIONAL GROUPS

Professional and Managerial	4
Clerical and Sales	9
Service	5
Skilled	32
Semi-Skilled	19
Unskilled	4
TOTAL UNION RESPONSE	73

Labor's Opinion

65.8% State that labor should be actively engaged in advising the public schools concerning the curriculum for industrial education shop courses.

82.2% Recommend a combination of on-the-job training and related instruction classes as the most suitable arrangement for learning an occupation or trade.

49.3% Note a cooperation with management in sponsoring beginner, learner, or apprenticeship programs.

10.9% State that since September 1963 they have participated in adult education classes in cooperation with the public schools.

15.0% Note that since September 1963 they have participated in adult education classes which were sponsored by other than the public schools.

64.3% State an interest in adult education for their membership.

83.6% Note that the present learners or apprentices are high school graduates.

71.2% State that high school graduation should be one of the requirements for entrance into learner or apprenticeship programs.

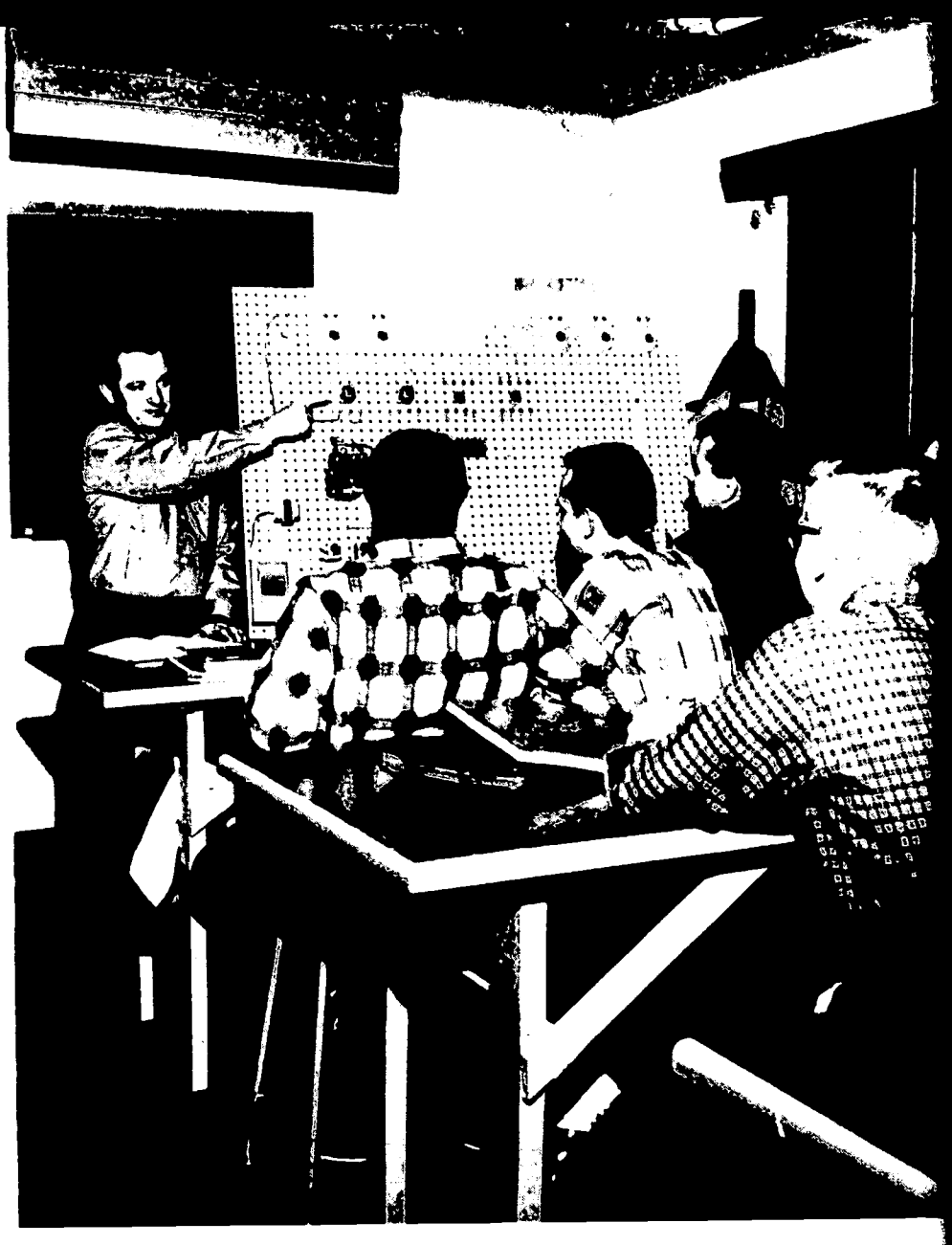
AS LABOR UNIONS

69.9% RECOMMEND THE ESTABLISHMENT OF A SCHOOL OF CONTINUING EDUCATION FOR SPECIAL COURSES FOR THEIR MEMBERSHIP.

AS LABOR UNIONS

71.2% RECOMMEND HIGH SCHOOL COURSES FOR A BROAD BASIC KNOWLEDGE OF BUSINESS AND INDUSTRY RATHER THAN COURSES FOR THE SPECIFIC OCCUPATIONAL SKILLS.





On-the-Job Training
by Labor and Management

PLUS

Related Instruction
by the Omaha Public Schools

Mean Sound Industrial Management

94% OF 331 APPRENTICES FOR THESE TRADES

Bricklayer	Floor Coverer	Plumber
Carpenter	Iron Worker	Sheet Metal Worker
Cement Mason	Machinist	Steamfitter
Electrician	Painter	Truck Mechanic

- Average beginning age for apprenticeship was 21 years.
- 56% were married at time of beginning apprenticeship.
- 50% are now married having family responsibilities.
- 22% are now married having no children.
- 75% state that high school graduation should be a minimum requirement for apprenticeship.

POINTS of information

94% State that apprenticeship is the most suitable arrangement for learning a trade.

85% Were either high school graduates or had attended college or university.

54% Had a family tradition, of relatives as journeymen, within the trade to which indentured.

8% Received information from the high school concerning the apprentice-ship program.

68% Had Algebra as a high school mathematics course.

42% Had Geometry as a high school mathematics course.

31% Had Physics as a high school science course.

14% Had Chemistry as a high school science course.

71% Recommend a cluster of occupations approach, for the high school industrial education curriculum.

66% Had one year or more of high school industrial arts courses.

33% Had one year or more of high school vocational industrial education courses.

55% Had one year or more of high school drafting courses.

51% Place a greater value, in terms of apprenticeship, in the high school courses of Algebra and Geometry as compared to the high school industrial courses.

18% Place a greater value, in terms of apprenticeship, in the high school courses of Physics and Chemistry as compared to the high school industrial education courses.



Business and industry representing 35,000 people in Omaha's 145,000 work force report—

56.6% Are acquainted with the high school courses offered in agriculture, business, distribution and merchandising, homemaking, and trade and industrial.

63.9% Consider the completion of adult education courses as a factor for employee promotion.

13.3% Have since September 1963 engaged in adult education classes in cooperation with the public schools.

38.6% Have since September 1963 engaged in adult education classes which were *not* in cooperation with the public schools.

85.5% Conduct on-the-job training programs.

43.4% Have an interest in participation with a work experience program for high school seniors.

Percentages

Business and Industry Put Great Importance to These Skills and Understanding for Each Class of Workers

	Manipulative	Oral Communication	Written Communication	Materials and Production	Basic Scientific Principles	Basic Mathematics Principles	Drawings and Handbooks
Unskilled workers	11.1%	.4%	3.4%	6.2%	1.9%	3.5%	None
Semi-skilled workers	46.2	17.7	8.4	21.0	7.1	18.6	21.3%
Skilled workers	96.8	60.3	47.8	81.3	39.3	65.0	65.1
Service workers	26.4	30.9	22.6	34.5	6.9	29.8	16.9
Sales Personnel	10.1	91.6	50.0	43.8	30.4	48.2	40.3
Clerical	60.5	47.6	75.0	32.9	9.7	61.3	32.4
Semi-professional	23.0	89.0	86.1	68.6	60.0	80.0	77.5
Professional	24.1	97.4	98.6	84.9	85.3	86.1	84.0

ESTIMATED 1970 EMPLOYMENT NEEDS

Unskilled workers 11%
Semi-skilled workers 14%
Skilled workers 16%
Service workers 11%
Clerical and sales 29%
Professional and managerial 19%



FACTS

Courtesy

Omaha Area Skills Survey

Nebraska Department of Labor

Division of Employment

Lincoln, Nebraska

June, 1964

FORECAST OF EXPANSION AND REPLACEMENT NEEDS BY MAJOR INDUSTRIAL GROUP

Industry	1963 Current Survey Employment		1964				1966			
			Total Expansion & Replacement		Total Estimated Employment		Total Expansion & Replacement		Total Estimated Employment	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mining and Construction	10880	6	1305	17	11844	7	2863	13	12695	7
Manufacturing	35788	22	1449	19	36337	21	4385	20	37431	21
Trans., Commun. and Public Utilities	20287	12	348	5	20074	12	1682	7	20279	12
Wholesale Trade	12403	7	607	8	12722	7	1597	7	13130	7
Retail Trade	25898	16	1189	16	26483	16	3873	17	27947	16
Fin., Ins., and Real Estate	13406	8	265	3	13493	8	1219	5	14083	8
Service	26186	16	1041	13	26729	16	3118	14	27790	16
Government	21446	13	1440	19	22413	13	3732	17	23671	13
Total	166294	100	7644	100	170095	100	22469	100	177026	100

The Forecasts . . .

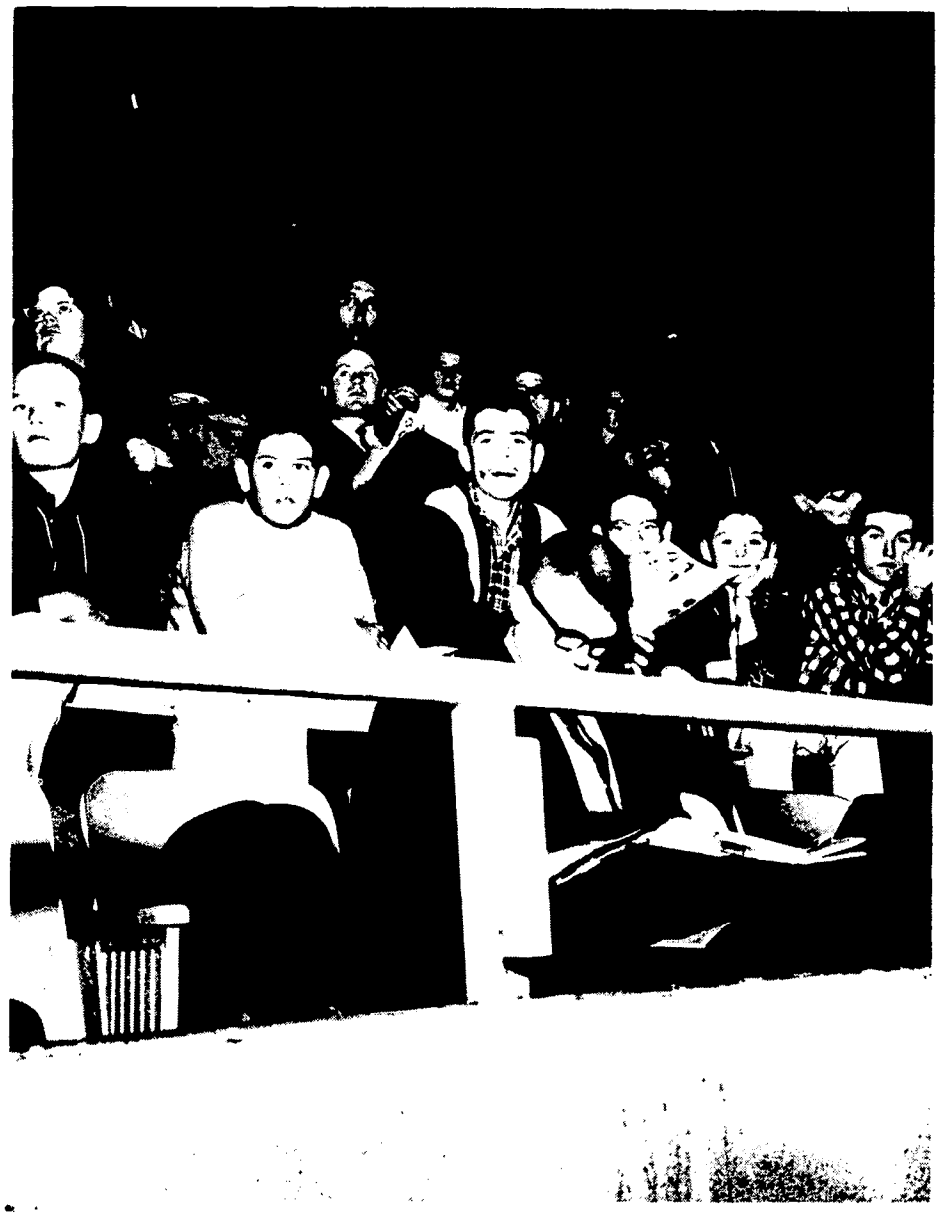
EXPANSION AND REPLACEMENT NEEDS BY MAJOR OCCUPATIONAL GROUP

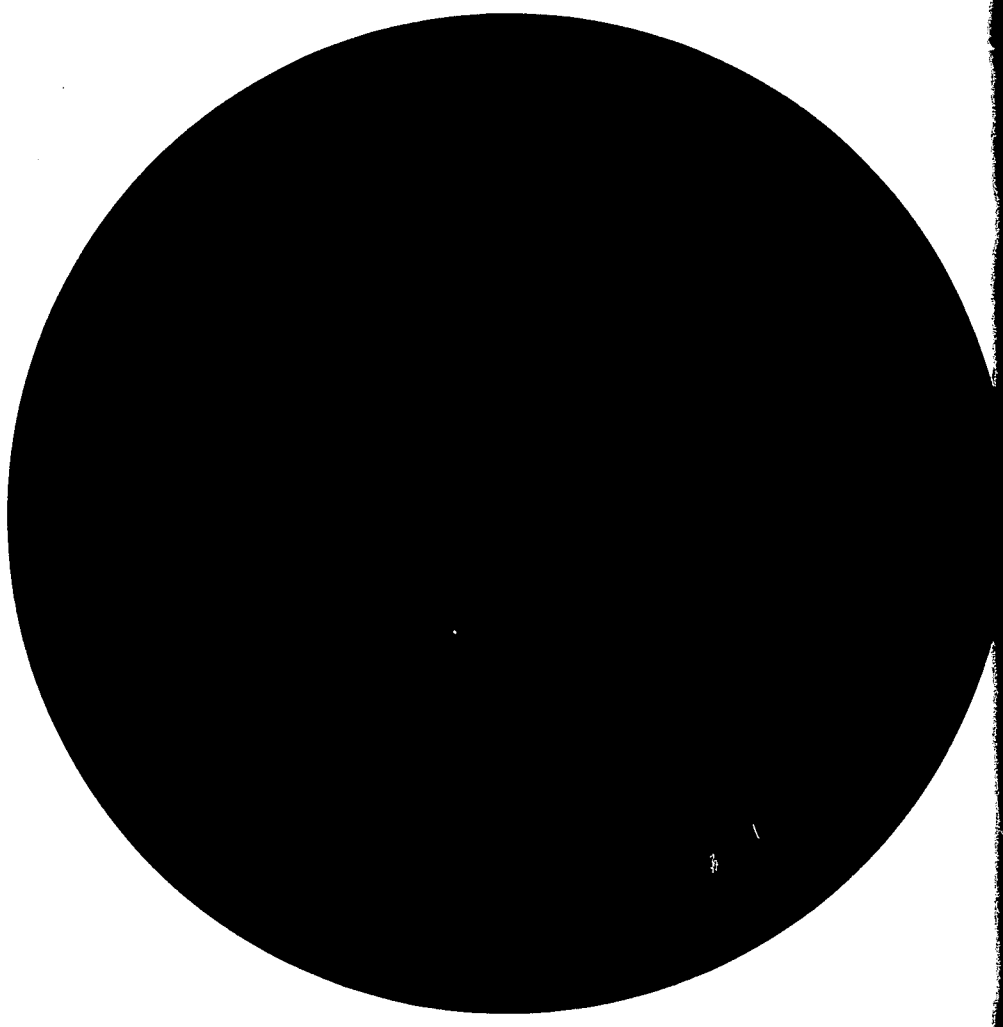
Occupational Skill Level	1963 Current Survey Employment		1964				1966			
			Total Expansion & Replacement		Total Estimated Employment		Total Expansion & Replacement		Total Estimated Employment	
	No.	%	No.	%	No.	%	No.	%	No.	%
Professional & Managerial	32346	20	2026	26	33513	20	5476	24	35192	20
Clerical & Sales	46827	28	545	7	46642	27	3513	16	48115	27
Service	18240	11	608	8	18495	11	1854	8	19022	11
Skilled	26736	16	1801	24	27689	16	4554	20	28728	16
Semi-skilled	17275	10	1206	16	18062	11	2941	13	18888	11
Unskilled	24870	15	1458	19	25694	15	4131	19	27078	15
Total	166294	100	7644	100	170095	100	22469	100	177026	100

ESTIMATED EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP

PERCENT OF INCREASE

	1963 Current Employment	1964		1966	
		Employment	% Increase	Employment	% Increase
Professional and Managerial	32,346	33,513	3.6	35,195	8.8
Clerical and Sales	46,827	46,642	−.6	48,115	2.8
Service	18,240	18,495	1.4	19,022	4.3
Skilled	26,736	27,689	3.6	28,728	7.5
Semi-skilled	17,275	18,062	4.6	18,888	9.3
Unskilled	24,870	25,694	3.3	27,078	8.9
Total	166,294	170,095	2.3	177,026	6.5





BUSINESS, INDUSTRY AND LABOR

- Should become more familiar with the current school courses, particularly in the areas of vocational and technical education.
- Should make definite arrangements with the schools in providing counsel for the addition and modification of the program of education for work.
- Should provide guidance and counseling for its employees in matters of the opportunities of adult education.
- Should assist, through their associations, in strengthening an understanding for the program of vocational and technical education.
- Should be given the opportunity to work more closely with the schools in helping prepare young adults for employment.

PARENTS

- Should have available the information for job opportunities, educational requirements and student interests and capabilities.
- Should have a more realistic understanding of the education from which their children can profit as well as they jobs they probably will be able to obtain.
- Should be influenced to recognize that the number of students preparing to enter college is not realistic. Many students currently preparing for college admission should instead be afforded the opportunity of vocational and technical education.

- Should modify the emphasis on a preparatory program for college or what is thought to be prestige education. No single course or curriculum has the features of status, prestige and recognition. There should be a program planned to the abilities and needs of all students for whom public education has responsibility.

- Should re-evaluate the unrealistic values of prestige attached to academic courses.

- Should develop a proper balance between academic and vocational curricula. This would make possible a truly comprehensive program, thus meeting the needs of all students and the entire society.

- Should build prestige and acceptability into every curriculum offered by the schools. An image for this should be incorporated in both vocational and academic programs.

- Should meet the dropout challenge by making certain that a complete continuum of curricula is offered which meets the needs, interests and abilities of all students.

- Should provide an increase in counseling and guidance services in order to meet adequately the needs of all students. Provision should be considered for a continuum from the elementary grades through the adult education program.

- Should establish a complete counseling and guidance program. This should include counseling for students in schools, as well as students after graduation or leaving school, in terms of follow-up concerning post-high school education and employment.

- Should inform all students of possibilities for job opportunities in relation to their interests and abilities. The students should be more realistic about educational needs and potential for employment.

- Should continuously evaluate the economy of the community with an incorporation into both academic and vocational programs. Changes should motivate business, industry and education to concentrate on practical level training programs.

- Should continuously develop and modify the courses of study to meet current employment standards. The meaning of a course title and a certificate of completion should be so identified as to give common understanding to both students and business and industry.

- Should develop a vocational curricula with a functional literacy required for a job area, and thus provide a base in salable skills.

[redacted]

- Should work with parents to educate and train with a realistic approach to the employment needs of the community.
- Should establish special advisory committees to counsel with the schools in education for work with reference to specified occupational fields.
- Should expand adult education to meet the needs of students and employers more adequately by the establishment of a school of continuing education.
- Should form a business-industry-education council to coordinate employment needs and the school program. This will assist the schools in providing the education which is necessary in our world of technology.
- Should establish a continuous program of research in the area of education for work. The bench marks are established by this survey and study.
- Should consider the development of basic programs which are representative of the common elements for each cluster of closely related occupations.
- Should provide to trade and industrial education the extension of the idea that supervision is at its best when it is vertical through a total field from the in-school program through adult education.

[redacted]

- Should provide a pattern of matching with federal, state and local funds for vocational and technical education, as provided by the Nebraska State Plan for Vocational Education. This would include both expenditures for capital outlay and current operations.

Estimates of Capital and Replacement Costs

A School of Continuing Education		$2,000,000
Trade and Industrial Education		$450,000
Graphic Arts	$200,000	
Electronics	80,000	
Power Mechanics	40,000	
Metals	60,000	
Service	50,000	
Agriculture	20,000	
Homemaking Education		$10,000
Wage earning occupations	$10,000	
Distributive Education		$15,000
Project laboratories	$15,000	
Business Education		$16,000
Office machines	$16,000	

Estimates of Staff Costs

A School of Continuing Education		$600,000
Trade and Industrial Education		$10,000
Assistant Supervisor	$10,000	

ERIC

[redacted]

THANKS

TO THE COMMUNITY

FOR

THE FACTS

[redacted]

Layout
Ralph H. Bradley
Communications
Omaha Public Schools

[redacted]

VT 002 922

VT 002 922
Paramedical and Health-Related Programs in the Junior College, Some Questions and Answers.

American Assn. of Junior Colleges, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 66 18p.

*HEALTH OCCUPATIONS EDUCATION; *JUNIOR COLLEGES; *PROGRAM DEVELOPMENT; TEACHER QUALIFICATIONS; FACULTY RECRUITMENT; ADMINISTRATOR ROLE; ACCREDITATION (INSTITUTIONS); ADMINISTRATIVE ORGANIZATION; STUDENT ENROLLMENT; PUBLIC RELATIONS; CONTRACTS; WORK EXPERIENCE; PHYSICAL FACILITIES; CURRICULUM DEVELOPMENT

As a part of general discussions of the Alabama State Conference on Paramedical Education held in Mobile on May 10-11, 1966, a dean of a junior college nursing program and a junior college president answered questions raised by junior college personnel about organizational structure, the role of the college administrator, faculty qualifications in nursing programs, sources of qualified personnel, accreditation, cost, determination of need, curriculum development, the role of an advisory committee, relationships with professional agencies and personnel, student recruitment, program interpretation, contractual agreements with cooperating agencies, physical facilities and the "extended campus" concept, and short term programs. (JK)

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PARAMEDICAL AND HEALTH RELATED PROGRAMS

IN THE JUNIOR COLLEGE

Some Questions and Answers

AC 002922

ALABAMA STATE CONFERENCE ON PARAMEDICAL EDUCATION

MOBILE, MAY 10 AND 11, 1966

PARAMEDICAL AND HEALTH-RELATED PROGRAMS

IN THE JUNIOR COLLEGE

SOME QUESTIONS AND ANSWERS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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American Association of Junior Colleges
1316 Sixteenth Street, N.W.
Washington, D. C. 20036

Printed in U. S. A.

The following "Questions and Answers" came out of the Alabama State Conference on Paramedical Education held at Mobile on May 10 and 11, 1966, sponsored by the Committee on Paramedical Education of the Health Careers Council of Alabama in cooperation with the American Association of Junior Colleges.

The questions refer to problems raised by junior college personnel in Alabama and furnished the consultants before the Conference. The answers are those given by the consultants as a part of the general discussions of the Conference.

Certainly, many more problems could be identified and questions asked, but there are thirty-seven items identified here, and probably represent a cross-section of concern for the junior colleges and representatives of the various professional bodies in attendance at the Conference. It should be emphasized that the answers given usually reflect the viewpoint of one person, or at most a group of people, and they should not be interpreted as the only answer that could be given to effect sound paramedical programs. The answers should be used, perhaps, as a springboard for discussion among administration, staff, and faculty of a junior college, to suggest, and to encourage creative thinking.

This booklet represents the discussions made by the two major consultants at the conference, Dean Anastasia Hartley, Division of Nursing Education, St. Petersburg Junior College, St. Petersburg, Florida, and Dr. Roy Bergengren, President, Daytona Beach Junior College, Daytona Beach, Florida.

K. G. Skaggs
Staff Specialist in Health Related and Paramedical Programs
American Association of Junior Colleges, Washington, D. C.

June, 1966

1. What is the administrator's role in starting an ADN program?

The decision for inaugurating an Associate Degree Nursing program in a junior college must be made by the administrator. In making his decision to proceed with program development, the administrator must examine carefully the survey of need, be certain that appropriate and satisfactory clinical experiences are available, and that affiliation agreement with hospitals are fully in order, draw up the organizational pattern for planning and for supervision of the program, and determine conclusively sources of financial support and instructional personnel. During the period of development and after the program is underway, the administrator should be closely related to all activities.

2. How do you go about getting qualified personnel? What are the sources available?

Obtaining qualified personnel for all paramedical programs is a major problem at this time. There probably are instances of programs needed but not implemented in junior colleges because adequate instructional personnel could not be found. Start searching for personnel early -- the director or dean should be employed early enough to participate in all planning and development. Sources of personnel are hospitals, universities and four year colleges, and from other institutions. A good source of help may be current directors of programs -- these people may know of competent staff people who would make good directors -- the NLN, the ANA, or the State Boards of Nursing.

3. What kind of accrediting is necessary, and what standards are set up?

Accreditation by the regional accrediting association and approval of your State Board of Nursing so that your graduates may take the Board licensure examination are necessary. For federal funding, NLN accreditation or approval is necessary at this time. See the AAJC Occupational Bulletin No. 2 for further information.

4. Please discuss fully the financing of an ADN program. How much does it cost?

The main cost of an ADN program is salary for competent and able people, and for enough of them to do the job of instruction, guidance, and clinical supervision properly. While a good ADN program requires more financial support than some other programs in the junior colleges, equipment and space need not be a major factor. Instructional media -- library books and periodicals, classroom materials, charts, graphs, illustrative material, slides, films, film strips, and recordings -- must be used for up-to-date and superior instruction. It would be difficult to put a dollar and cents figure to cost -- be assured that such a program may require at least twice the amount per student cost as general education programs.

5. Who is responsible for the curriculum? How do you organize curriculum development?

Curriculum responsibility lies with total staff and faculty. However, there must be a coordinator. In most junior colleges a Dean of Instruction or a Dean of Academic Affairs is responsible for over-all curriculum development, and the

Nursing Education director or dean and her staff is responsible specifically for developing the curriculum and presenting it to the administration.

Several factors may influence curriculum development: (1) State Board of Nursing requirements; (2) State Department of Education requirements; (3) the profession's requirements for adequate and satisfactory teaching programs; (4) the college philosophical requirements of objectives and goals; (5) proven programs of other institutions; (6) local planning factors.

6. What steps do you take in the development of paramedical programs in junior colleges?

(a) Determine need for programs on a realistic -- not a superficial -- basis.
(b) Determine the appropriateness of the program for junior college education.
(c) Determine appropriateness of the program in relation to objectives, goals, and philosophy of the college.
(d) Determine college faculty and high school counseling support for the program.
(e) Determine local professional support for the program.
(f) Determine availability of adequate financial support.
(g) Determine availability of personnel -- both instructional and student.

7. What role should advisory committees play? How do you select members? How do you keep an advisory committee from becoming a "policy" committee?

We feel that advisory committees of lay or professional personnel can be exceedingly helpful, especially as they can represent junior college programs to the professions and to the public. They also may advise on institutional relationships and on curriculums, and may even be an influential aid in obtaining adequate financing.

They should never be a "policy" or governing committee. They can only <u>advise</u> and <u>recommend.</u> The full control of the program must always be in the junior college. Much misunderstanding may be avoided if the college will draw up a guideline statement of responsibility and procedure for the advisory committee before its membership is appointed.

8. What relationships do you develop with medical and health professional agencies and personnel in the community and the state?

One of the major reasons why many paramedical programs are having difficulties in some junior colleges is that the college failed to involve or interest the professional associations or agencies and their personnel on the local level in these programs <u>at the beginning</u>. A community of thinking and planning should be fostered, opportunity for continuing communication, and frequent exchange of ideas, plans, information, and suggestions. Such relationships may be set up on a formal basis, with organized groups and regular times for meeting, or they may be informal in nature with telephone calls and casual visitation. In the latter case, the junior college must take the initiative and keep the liaison and communication frequent and "alive." Perhpas the best way to sustain satisfactory relationships is to make use of both methods.

9. How does the college administration organize recruitment of students for these programs -- the ADN program especially? What are the sources of students?

There are several sources of students for paramedical programs -- but all require various degrees of active recruitment. The college that develops a program and then sits back with doors open waiting for students to come in is doomed to disappointment and frustration.

(a) Our largest source of students is the high school graduate -- but again, the junior college that depends wholly upon high school graduates for its students in health related programs will experience enrollment disappointment. All sources should be explored and, yes, exploited.

(b) Current college students who have been misdirected into other programs, or who have entered programs through false or misunderstood objectives, or who, for many reasons, may be frustrated in their college work, may be re-counseled into the paramedical programs.

(c) Adults who now wish to or find the need to engage in a career may be motivated into programs.

(d) Adults who practised a health profession years ago, and who now wish to re-enter the profession, may need much refresher work.

(e) Adults currently in a health related career who wish to move into another field or upgrade themselves in their present employment may be interested.

However, we emphasize that in order to attract students from any of these categories into the paramedical programs, a dynamic, aggressive, well-planned program of information, encouragement, and counseling must be undertaken.

10. How do you determine the need for paramedical programs -- the ADN program -- in the first place?

Need for paramedical programs should be determined by well-planned surveys in the areas to be served. The survey should concentrate on the users of the product of the proposed program. A survey, based upon a printed questionnaire distributed through the mail with requests for written replies is not effective and frequently may also be inaccurate. Also, to ask a professional "product user" if he "needs help of the kind the program would produce" or "how much help of this kind do you need" is futile for accurate survey purposes. The basic question really is not how many people are needed, but how many people will be employed -- a different approach altogether. A hospital may need fifty more nurses a year, but its budget may permit it to employ only ten. The written answer survey as a part of a survey may be useful. The procedures may be suggested as follows:

(a) Personal conferences with selected key people in the profession in the community.

(b) An informational campaign by newspaper, speeches to clubs and other organizations, TV stations and radio, to acquaint people of the community with what

the junior college can do in organizing programs and offering them.

(c) A broadened personal interview list to see what the reaction of the professional "rank and file" might be to such program development.

(d) Conferences with officials of other levels of the local school system to enlist their support.

(e) A review of similar surveys or reports based upon state, regional, or national surveys.

11. What attempts should administrators make to develop acceptance and approval for these programs? Is this a problem with general education faculty? With high school counselors? With parents and the public?

A continuing forceful program to acquaint the public with the worth and importance of occupational education is necessary. All resources of the college must be used in this never-ending campaign. Basic procedures in such an informational program would lead to:

(a) Emphasizing the attractiveness of such education.

(b) Emphasizing the career prestige of the whole health and medical field.

(c) Emphasizing the career opportunities of such programs.

(d) Emphasizing the objectives of the program that places it in the realm of goals to be sought after, to be coveted, to be worked for.

(e) Emphasizing that there is no magic in the baccalaureate degree as such. Worth, importance, and career dignity will come as quickly to the competent, the able, the skilled as to the "degreed" person.

12. Should administrators of small junior colleges -- less than a thousand students -- plan to develop an ADN program, or any other paramedical program? What should guide them in their decisions?

Generally, they should consider thoroughly and wisely all the problems attendant upon paramedical programs before proceeding with development. A small junior college usually indicates a small or scattered population area, and this in itself may be deterrent to a successful program. Administrators of small junior colleges should examine carefully cost, student resource, and placement opportunities for graduates before starting such programs.

13. Have you given any thought to semantics -- occupational, terminal, semi-professional, technical, vocational -- what is your thinking?

Yes. This is still a very confused field -- and in several professions the words used to describe the various levels bring much anguish. A national trend seems to be developing for using words such as technician, aide, and assistant for graduates of junior college programs.

14. What procedures can be adopted to assure a sound, effective public information program for the occupational programs?

This has been answered to some extent in Item 11 and mentioned briefly in several others. We would emphasize again that any public information program should be well planned, should be a continuing program and not a "now-and-then" or "one-shot" deal, and that it should be given major emphasis by the administration.

15. From the administrator's point of view, what are procedures for good working relationships and contractual arrangements with hospitals, clinics, etc.?

Dr. Robert Kinsinger has developed a sample agreement for use by a hospital and a college. We are copying his suggestion here for you. It should be stressed, however, that agreements should be drawn up to meet the requirements of a local situation. The following is just one way in which it can be done.

Prepared by Dr. Robert Kinsinger

SAMPLE AGREEMENT

Typical College
Anytown, New York

This agreement between Typical College and Healwell Hospital will be effective for a period of one year following the present date (inclusive dates). Prior to the date of termination, (date) the agreement will be reviewed by both parties to the agreement. The agreement shall be automatically renewed for an additional year unless either party requests a change or termination of this agreement.

The Healwell Hospital and the Typical College hereby mutually and informally agree with each other to the following:

Instructional Planning

Students registered in the nursing program at Typical College may utilize for clinical training the various departments of the Healwell Hospital. The days and hours of clinical experiences are to be planned by the faculty of Typical College. The Director of Nursing Service at Healwell Hospital is to be consulted as to the days and hours thus planned.

Specific Responsibilities of Healwell Hospital

A. To supply locker facilities for the above-mentioned students and instructors from Typical College.

B. To X-ray the chest of each of the above-mentioned students in accordance with the hospital medical plan for staff nurses.

C. To provide adequate classroom and conference room space and use of any available instructional materials.

D. To provide practice nursing and/or observational opportunities on the wards and in the various departments of the hospital.

E. To allow the students and instructors, at their own expense, to use the cafeteria facilities in the hospital.

Specific Responsibilities of Typical College

A. To go through the proper hospital channels to make plans for observations and/or practice nursing experience.

B. To provide all supervision and instruction required in the program unless in specific instances other provisions are made.

C. To abide by the existing rules and regulations of Healwell Hospital.

D. To assume responsibility for cost of equipment that is broken or damaged due to negligence (otherwise assumed by Healwell Hospital).

Mutual Responsibilities

The nursing department of Healwell Hospital and the faculty in the nursing department of Typical College to cooperate in the concurrent and terminal evaluation of the program.

Signed_____
(Representative for Typical College)

Signed_____
(Administrator, Healwell Hospital)

Date_____

16. What facility arrangements must be made for ADN programs on the campus? At what hospital? What do you think about the "extended campus" plan where much of the teaching is done off campus?

Our visits to many junior college campuses have shown us a variety of physical facilities for ADN programs, and for other paramedical offerings. Some colleges have accomplished minor remodeling of current spaces to provide very functional and satisfactory facilities for the health programs. Other colleges have constructed well-planned new facilities in new buildings or wings of present buildings.

Whatever is done, facilities should not be cramped -- plan adequately for the program or not at all. Also, it should be remembered that the educational programs in the health areas represent an occupation that must emphasize environment, and students should be aware of this from the beginning. Thus facilities should be ample for the job to be done, pleasant, cheerful, light, and well-ventilated. Another consideration is a careful study of the possible use of facilities also being used by other programs of the college -- laboratories, classrooms, audio-visual auditoriums and the like. Some special facilities will be needed, and these should be planned as an outcome of the curriculum being developed and the objectives of the course.

Facilities for use at the hospital are usually defined in the agreement mutually prepared by the college and the hospital. It has been recommended that facilities at the hospital be used as such are available, and if they provide better teaching media than can be found at the college. Experience has indicated, however, that college controlled facilities should be used as much as is possible.

This, of course, brings us to the matter of the "extended" campus. It is not at all the characteristic of the "extended" campus for the college to give up its control and supervision of facilities used away from the main campus.... rather it is implied by the "extended" campus that there is nothing magic in having all instruction on one physical location or "campus". A good community junior college may very well regard the community or the area as its campus, and facilities may be used wherever they provide the kind of teaching environment and climate conducive to best instructional practices.

17. Please discuss the development of a "core" program in the paramedical areas, required general education, or a common basic program for all paramedical students with specialized courses coming out of the basic program.

In the many discussions and conferences now taking place between professional personnel and the junior college personnel, the professions have asked that the product trained and educated in the paramedical programs be educated people, good citizens, and knowledgeable concerning the society and the culture in which they live. Thus, general education courses, we believe, should be a part of the planned paramedical curriculum. There is always some conflict here in the planning stages as to the amount of general education required in the curriculum. Some junior college directors state that a 40 per cent general education and 60 per cent specialized course distribution be set up; others suggest that 30 semester hours of general education be planned, and about 34 hours of specialized education. We believe that this is a matter for local junior college determination, but we do emphatically believe that a general education core should be a part of the total curriculum.

18. In your opinion should special courses in English, social sciences, mathematics, humanities, etc., be planned for paramedical students different from the courses given transfer students?

Once again we come to a question that requires many answers, depending upon the curricula and the courses of the individual junior college, its philosophy for its students and its objectives and goals. What kind of a product do you wish

to produce in the paramedical programs? What is the degree of selectivity of students, if any, for these programs? At what level are the requirements of the "transfer" courses set, and what is the basic purpose of such courses? In general, most junior college people believe that there should be no special courses in the general education core for the occupational curricula students, but there may be good and valid reasons for developing these. A careful study based upon the questions raised above should be made.

19. Organizationally, should one person, a dean or director, be in charge of a health or paramedical division, or should administration be wholly on the department head level?

The size of the junior college and the number of paramedical programs offered is the determining factor in developing a workable organizational pattern. Generally, if the junior college enrolls several thousand students or more, and if it offers three or more paramedical programs, serious consideration should be given to the division plan with a director or dean giving administrative service to the whole field. In smaller colleges with only one or two programs, the conventional department plan, each with its own director or chairman, perhaps would be effective and efficient.

20. In beginning ADN programs, what is the very first "move" of the administrator?

First, to determine real need; second, to determine support from the professions, the community, and from faculties.

21. What types of paramedical programs are appropriate for junior colleges?

Dr. Robert Kinsinger has defined about forty paramedical programs appropriate to junior college level education. We can do no better than to refer you to the following references:

(a) Technical Education in the Junior Colleges -- New Programs for New Jobs, Norman C. Harris

(b) Education for Health Technicians -- An Overview, Dr. Robert Kinsinger

(c) Health Careers Guidebook, U. S. Department of Labor

22. How do you satisfactorily establish clinical and bedside experience opportunities for ADN students with the hospitals? What are the problems? How are schedules made up? Will you please tell us what you believe a good contact with the hospital would be? What are special things to which we should be alerted?

For an answer to the first part of this question, we would refer you to the sample agreement found in Item 15. Yes, of course there are problems...there always are when several institutions of varying characteristics, policies, and

procedures get together. However, the problems thus raised can be solved through mutual and open communication and a real effort to understand each other's characteristics and qualities. The college must understand that the first job of a hospital is to provide services, either normally or under emergency conditions. The hospital schedule and policies must be accepted and understood. The hospital in turn must accept that it is providing services to a collegiate institution, and the control, supervision, and policies of the college must be observed. The people using the clinical facilities are college students, and they are responsible only to college officials and staff. The supervisor is amember of the college faculty, and is responsible to the college administration, and not to the hospital. With these understandings and acceptance, most other problems are easy to solve.

23. How do you work in your program with professional agencies and personnel? How are lines of communication kept open? What is your approach to advisory committees and what should they do?

The question concerning advisory committees has already been discussed in Item 7. Frequent meetings and discussions with professional people and officers of the local medical and health associations keeps the lines of communication and understanding open. Some junior colleges use the advisory committee to give a major portion of its time and responsibility to this kind of liaison with professional people; others have set up a coordinating council for the programs with the work of the professional agencies on the local level; others have meetings several times during the year bringing in professional people in the community, educational people from the other levels of education in the community, and junior college personnel. Such meetings frequently are somewhat "social" in nature as well as informational and professional. Some entertainment, refreshments, a well-planned program could make these occasions looked forward to by all concerned.

24. What qualifications should a good director of ADN programs have? Where do we find these people? Could you say something about salaries?

A good director of ADN programs hopefully should have had a successful background of "practice" experience, if possible in several kinds of environments; should be well founded in the knowledge areas of the field, a proven record of competency and skill; some knowledge of the educational world, its procedures, activities, and developments, a knowledge of the most current devices of instruction, a forward looking philosophy, a tendency to develop innovative practices and procedures, but a maturity that will allow their sound evaluation, a "practical" approach to the profession and to its education and training, skill to work with people as a good administrator, and a sense of public relations. A person with a master's degree as a minimum is usually required.

Where would we find such a paragon? Universities and four year colleges with programs for preparing such people, hospitals, clinics, laboratories, private practice, and in other institutions. After all, we cannot ignore that junior colleges and other educational institutions are competitive among themselves.

No, a general statement concerning salaries could not be made in fairness. Salary levels differ widely from one part of the country to another, depending somewhat upon cost of living, size of city or area, and local factors. It can safely be said that such people as described above are usually in the higher brackets of the college salary scale.

25. Where do we find people for the nursing education staff? What qualifications should they have? What are salary ranges here? What do you think about using part-time instructors?

I could almost repeat for the qualifications of faculty members in ADN programs or other paramedical programs the qualifications given in Item 24 for a director, with perhaps less emphasis on the administrative qualities and more on educational awareness and classroom teaching know-how. Faculty members should be informed about the junior college as an educational institution, know students and be able to work with them and counsel them effectively and wisely.

26. Will you please discuss the matter of recruiting students? Are young people reluctant to come into paramedical programs -- the ADN program in particular? How do you work with the high school counselors? Who determines which students will enter the courses? How are standards of selectivity determined? How many students drop out? Why? For those who finish, what is the situation with their nursing board examinations for license? Do many fail? What kind of follow-up procedures should be developed?

Some discussion of this problem has been given in some detail in Item 9. Yes, students are reluctant to come into paramedical programs largely because they have not up to this time been well represented to them. Quite frankly, students and their parents and the high school counselors have not had adequate information, encouragement, or stimulus to give these programs the emphasis or attention they should be given. This is also true on the college campus with college level counseling and guidance personnel. College administrators and directors of programs have really not given enough attention and concern to providing the necessary information and "selling" that is required to make any special program of the college successful.

Many colleges practice selectivity of students...to what degree this must be done is a local matter. One junior college averages some three hundred applications for the fifty places each year in its dental hygiene program. Selectivity may be an important factor of enrollment control here. Then one may very well ask the question, "If you're having problems recruiting students for these programs, should selectivity be practiced?" These paramedical programs are very special kinds of programs with unique quality characteristics and demanding certain quality factors of achievement, temperament and character on the part of the student. It would seem to most of us that some degree of selectivity needs to be used. Some colleges use rather elaborate tests and other measurements of quality in determining the students for the program; other colleges use the high school record and other "regular" evaluative instruments, but with emphasis given to a personal interview.

At present, generally speaking, drop-out rates in paramedical programs run about as they do in other programs, perhaps slightly higher. Some junior college officials profess to be discouraged with the drop-out rate in a specialized program. This is an area that needs some careful study -- we are not sure that we are getting the accurate reporting we need to make wise judgments concerning drop-outs.

Again, generally speaking, the students who finish are doing a creditable job. The per cent who pass licensure examinations is satisfactory and somewhat higher than those from some other levels of education. In Dr. Mildred Montag's new book, "Community College Education for Nursing", thorough attention is given to student success in the ADN program, which may have implications for other paramedical program graduates. Also, Bernice Anderson, in her new book, "Nursing Education in Community Junior Colleges", devotes a discussion to this entire matter. By the way, we recommend that these two books be studied by the junior college people concerned with the whole area of health related or paramedical education.

27. What relationships are established with other academic departments of the college? Are there any frustrations or difficulties?

Paramedical programs are a part of the total faculty of a junior college, and their place in the college academic program is the same as any other department. One of the sad situations which has developed in the whole field of occupational education is to imply that it somehow and some way is apart from the "regular" program, or, horrors! the "academic" program of the college. It is not. It is a part, and a very important part, of the total educational endeavor of the college.

Yes, there are problems in this acceptance factor as has been indicated in the preceding paragraph. Too often the college administration has allowed distorted attitudes to grow and flourish through indifference or unawareness of attitudes and feelings on the part of transfer faculty and sometimes even of responsible officials. If we are to be successful in this field as well as in all the occupational fields, we must be aware that full acceptance and understanding of these programs is not an automatic and expected result -- we must actively work to overcome the attitudes and prejudices built up over the last fifty years toward occupational, technical, or vocational programs.

28. Please discuss how short-term expedient needs of the professional community should be met. What can you advise us on the development of short courses, workshops, institutes, etc.? Should facilities at the hospital be used for teaching? What about scheduling?

Although many junior colleges have developed very fine short courses, workshops, and seminar type programs in the health related fields, mainly to meet an expedient objective or to aid a group of professional people with a special education or training problem, generally speaking junior colleges have not taken full advantage of the possibilities of these programs. There is a sort of inherent resistance to think about or plan educational programs within any framework but the conventional semester or quarter, and at the usually accepted "school" schedules.

Times are changing fast, indeed, and we in the educational world must accept that many of the conventional patterns of procedure are now becoming strait jackets to innovative thinking and procedure. At least here is a start we can make...to start planning programs to meet special objectives and goals, to meet special needs and requirements, and to plan these programs in such a way that they may best meet the needs and activities of the students who will enroll. The ways of providing education are many and varied, and encouragement should be given to the colleges to consider the different kinds of programs that may be planned and the new and diverse ways of presenting such programs.

29. What effective new procedures for teaching are being developed and used?

One of the difficulties in defining new procedures for teaching is that so frequently we will make some minor change or modification of a procedure, or we start using some new mechanical device in teaching, and believe that a whole new world of instruction has opened up to us. Frequently we are using the same old techniques with new instruments. However, one of the most rapidly developing new procedures in teaching is independent study and learning on the part of the student, with some supervision from the teacher. Some will say that this really isn't new, that it is the old tutorial system with a new name. True independent study is not this, however, for in the old tutorial system the emphasis was still on the work of the teacher as he imparted knowledge by drill and memory to the student. Independent study has shifted the emphasis to the student, and the teacher has become the guide, the evaluator, the planner...but the work of learning is the student's, as he becomes both teacher, teaching himself, and learner, learning from his own activities. Another shift is evident, too. For a long time learning was information oriented -- knowledge, facts, precepts: these were the stuff of learning, but now we are slowly moving toward learning as activity oriented -- we acquire abilities, skills, competencies to put knowledge, facts, and precepts to work... let the computers store the knowledge...let the computers become our memory banks.

Many new devices have been constructed to make more efficient some of the more conventional teaching methods: the audio and the visual aids, tapes, recordings, and the screen are impressive and important tools to teaching, as is also closed circuit television, or open circuit, when used properly.

30. Will you speak to the subject of accreditation? What is the furore? What is meant by accreditation?

On the subject of specialized accreditation, we would like to refer you to two statements recently made: the position statement of the Board of Directors of the American Association of Junior Colleges, recommending that a nation-wide study be made on junior college accreditation (which study is now underway with a report to be made to the Association and to the National Commission on Accrediting) and emphasizing regional accreditation, and a statement of procedure by the National League for Nursing in Occupational Bulletin No. 2 published by the American Association of Junior Colleges.

The center of discussion is the understood concern of professional associations for acceptable quality control and measurement of programs, but the procedures for doing this have not been worked out, although progress is being made.

Our own personal position is that the junior college itself, through the help of regional accrediting associations, can do an effective job of reporting, given appropriate and acceptable instruments.

31. How is sound curriculum development undertaken, and how is it kept current? Who is responsible?

Sound curriculum development is a "team" effort: college administration, program directors, faculty, professional personnel, and sometimes consultants who may be called in to advise and evaluate. The kind of a curriculum developed comes out of the projected image of the end product of the program -- what kind of a person do you need and with what competencies to do the job that is required properly and successfully, and what kind of teaching is needed and what courses necessary to produce this kind of person? However, past experiences, developments, studies, evaluations, and the current regional and national planning in the same field influences greatly the direction curriculum planning and development will take.

The curriculum of a program is kept up to date and current by constant study and evaluation of the staff. After initial development of curriculum it should be generally the responsibility of the concerned and involved faculty to study its effectiveness, be alert to new developments, and make recommendations for changes or modifications to the appropriate junior college committee or official.

32. Should need always be determined on a local basis, or should junior colleges recognize state, regional, or national needs as well, even if these are not reflected strongly in the local area?

Although local need for paramedical programs usually initiates interest for such programs, we believe that state, regional, and national needs are also a part of the picture. The mobility of our society today does not at all insure that the person we educate in our junior college is going to live and serve in the local area. It is hoped that our junior colleges will never lose their closeness to the local community or their prime objectives to serve the local community's interests, but more and more the truth becomes aware to us that we are a part of a vast societal effort, that what we do is also related to what is done elsewhere, and that the needs that bring pressures to us locally are also needs of society in general.

33. What are the major sources of help for planning and developing paramedical programs?

Major sources of help may be listed as follows:

1. Local professional agencies and organizations.

2. Local health and medical institutions -- hospitals, clinical laboratories, nursing and care homes, state hospitals or sanitaria, or federal institutions.

3. Local or state Health Career Councils.

4. State departments of education, public health service officials.

5. The American Association of Junior Colleges.

6. The National Health Council.

7. The consultative services and information offered by the professional associations, such as the American Dental Association, the American Medical Association, the Council on Education for Medical Technology, the American Hospital Association, the National League for Nursing, and others. Most of the professional Associations have education departments, sections, or councils who maintain information and consultative services.

8. Universities and four year colleges with health programs or centers.

34. What are major problems to be overcome in securing good instructors in paramedical programs? Specifically in the ADN program?

The major problems facing the junior colleges in securing good instructional personnel for the paramedical programs, and this includes the ADN program, is finding competent, experienced people with teaching abilities and an orientation to education, and second, the salaries offered.

35. Do we have major problems with high school counselors for our programs? How can we work best with our high schools?

Frequently we find some frustrations in recruiting students for paramedical programs stemming from attitudes and counseling of high school guidance personnel, and in many cases we have caused these frustrations ourselves. We in the junior colleges have not developed thorough, acceptable techniques of cooperation and coordination with our high school colleagues, and consequently what is finally done on a frantic expedient kind of basis is ineffective and sometimes even distasteful to the high school counselor. We need to set up continuing working relationships with the high school counseling staffs and faculties; we need to start students to thinking about career choices much earlier than the senior year; we need to devise well-planned and prepared programs of information for students as well as for counselors -- not on a "one-shot" career or college day procedure, but a continuing program, beginning early in the high school years.

36. What about the transfer problem? How important is this in occupational education?

We must confess that we are not too concerned with the transfer problem in occupational programs. Our main purpose is to provide educational curriculums for an occupation or a career, complete in itself and producing the worker needed. If a university or four year college perceives in this student a person worthy of further advancement and study that will take him or her into another level of achievement, well and good. Such responsiveness on the part of the universities or four year colleges would be welcomed by the junior colleges -- but in occupational programs, transfer should not be the first concern.

Now, having stated this, we should be aware of a growing attitude on the part of both educators and personnel from the professions that the best interests of both will be served by establishing the principle and concept of the "open-end" curriculum, providing the opportunity and the means for students to move along

the occupational education path as far as motivation, ability, encouragement, and finances will take them. If the open-end curriculum is to be successful, junior colleges must participate as the "middleman", allowing students to come in from the programs in vocational centers, comprehensive high schools, and other less than collegiate grade institutions, and then provide the opportunities for students to move from the junior college program on to the university. It is an interesting concept of the continuity of education, and the never-ceasing opportunity for educational advancement and upgrading.

37. What are the current fears of the professional people for junior college occupational programs? How can we overcome these? How can confidence be built? To what degree are our working relationships with professional agencies the personnel effective? Where do communications fail? Where do we succeed the best?

Current fears from professional people for the junior college paramedical programs seem to be three-fold: fear that the programs will not provide the quality education necessary, that the graduates or the end product will be only half-trained or superficially trained, and that the time of learning is too short; fear of status, that there will be too little demarcation between the baccalaureate degree person and the associate degree person in both public and professional acceptance, areas of responsibility, and opportunities for advancement..in other words, status; the third fear is that the associate degree personnel is by pressure alone moving the baccalaureate degree personnel into new responsibilities, new jobs, demand for new skills and abilities...and these many of the professional people do not want to accept.

The junior college can do little to change or alleviate several of these fears -- only time and the pressures of a new age and a new dimension to society can do that -- but the first fear, that of quality, we can do something about. We must be positively sure and certain that the programs we develop and inaugurate are sound, are effective, are of proven quality, and that the product produced is able and competent.

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Home Economics in the Junior High School.

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The purpose of this article is to give administrators, junior and senior high school teachers, teacher education personnel, and parents of junior high school students an understanding of problems and characteristics of junior high schools. Organization patterns, advantages and disadvantages of various patterns, purposes, problems, and the extent of home economics in junior high schools are discussed. Junior high schools typically encompass grades 7, 8, and 9 or the ages 12 to 15 and may be part of the familiar 6-3-3 plan, or others such as the 6-6, 5-3-4, or 4-4-4 patterns. Historically junior high schools were organized to shorten elementary years and introduce college preparatory subjects earlier. Later reorganization was supported for other reasons such as improving holding power, bridging the gap between elementary and secondary schools, and meeting the needs of early adolescents. Home economics is important in junior high school because of the contributions it can make to the general objectives and because of the number of students enrolled. More are enrolled in home economics at this level than at any other. In 1959, 42 percent of all courses offered in home economics classes were in grades 7, 8, or 9. Home economists differ about how much home economics and what curriculum content should be offered, but home economics instruction for boys is recommended. Conant recommends that all girls in grades 7 and 8 receive home economics instruction. Continuing challenges in articulating junior and senior high level courses, integrating home economics with other subject areas, and preparing junior high home economics teachers. This document contains data from relevant studies, references, and shared ideas for learning experiences, field trips, career opportunities, and integration with other subjects. (FP)

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HOME ECONOMICS IN THE JUNIOR HIGH SCHOOL

Mary Mather and Dorothy M. Groemling

A Word of Introduction

We hope that this issue, Home Economics in the Junior High School, will be of interest and use to several groups:

Administrators and home economics teachers in junior high schools. Perhaps this will be the largest group served.

Home economics teachers in senior high schools. We believe that these teachers need to understand the practices and trends in the grades from which their students come.

Teacher education personnel. Curriculum consultants and home economics supervisors serving teachers in service; and home economics educators at colleges and universities preparing future teachers, should all be concerned with the discussion presented here.

Parents of junior high school students. If teachers and/or administrators share this material with parents perhaps they will be more understanding of some of the complexities in planning programs.

Lest some home economics teacher feel that she has to read much introductory material about junior high schools before she comes to "her" subject, let it be said that this is the authors' intention. It is felt that too many teachers do not have as much understanding as they might about the problems and characteristics of junior high schools.

VIEWPOINTS ABOUT JUNIOR HIGH SCHOOLS

What is meant by "junior high school"? A building? An administrative division of certain grades in the total educational scheme? A transitional school between elementary grades and high school? More than one connotation may come to mind for this little more than fifty-year-old educational institution. Various readers may have quite different concepts.

Variety in the grades designated as junior high school in a given school system or community has come about because of a number of factors. Local regulations, legal decisions and state recommendations have undoubtedly played a large part in defining junior high schools. In addition, the very practical problem of available space has played an important role in areas of rapidly expanding enrollments. As elementary schools and high schools have become crowded, certain grades were moved into new buildings and "junior high schools" were formed. As enrollment pressures become more or less acute in various buildings in a system, grades are sometimes shifted again. Sometimes new buildings are occupied one grade at a time, starting with the lowest grade planned for that unit. At any given time, therefore, in this period of rapidly increasing enrollments, it would be difficult to get a census that showed a great deal of consistency about the grades designated as junior high school.

Junior high schools, however, should not be thought of as merely solving space or enrollment problems. They are considered to have a purpose and function of their own. Whatever the pattern of organization, the junior high grades are commonly thought of as those for the education of the young adolescent. As new information about the characteristics and needs of these young people is made available, new grade arrangements will likely occur.

Organizational Patterns

Grades 7, 8, and 9, encompassing the ages of 12 to 15, are typically regarded as the junior high school years. With a separate junior high school made up of these grades we would have the familiar 6-3-3 organization. This seems to be gaining in number except in cities of about 4000 to 10,000 where the 6-6 plan with a combined junior-senior high school is more popular. Some districts are including the 6th grade in the junior high school and putting the 9th grade "back" in the senior high, thus having a 5-3-4 pattern. A few districts have organized "intermediate" units of grades 5, 6, 7, and 8 followed by a four-year high school. Thus, the total pattern for organization of these school grades would be 4-4-4 (1).

In the May 24, 1964, New York Times the education editor discusses a proposal of the New York State Commissioner's committee on the desegregation of New York City public schools to do away with the 6-3-3 plan of organization and to introduce instead four years each of primary, middle, and high school.

> "The recommendation was made largely for reasons of faster integration. After only four years in neighborhood primary schools, it was hoped, more youngsters could be 'fed' into larger and therefore not as neighborhood-bound middle schools." (2)

Mr. Hechinger goes on to suggest that dissatisfaction with the traditional grade organization for junior high schools is also a reason for this suggested change.

Conant concluded, as a result of his study of junior high schools, that "there appears to be no end to the variety of organizational schemes in which I found grades 7 and 8 (3). ...and no consensus whatever among experienced educators as to the place of grade 9 in the organizational framework" (4).

Advantages and Disadvantages of Various Organizational Patterns

The three-year junior high school for grades 7, 8, and 9 provides a separate environment for young adolescents in a transitional stage of their development. Some people contend, however, that in some sections of the country this preadolescent development starts earlier than grade 7. A three-year school, rather than two, makes for larger enrollments, and hence a greater likelihood of a broader curriculum and special facilities. The three-year period would provide time for young adolescents to establish a feeling of identity with the school, and 9th grade students can have a chance at leadership activities without developing the sophistication associated with senior high school.

On the other hand, there may be danger that the three-year school may become a replica of the senior high school with its attendant social pressures. It would not be serving its unique function as a junior high school when this develops. A second danger may be insufficient attention to the articulation that is necessary between junior and senior high school. Many sequential elective programs will begin in grade 9.

A two-year junior high school, composed of grades 7 and 8, would eliminate the last named possible difficulty--inattention to 9th grade electives which would fit into the senior high school sequences. And some educators argue that there is a social advantage in not having the 9th graders with grades 7 and 8. However, in a two-year school the rapid turnover of students makes it difficult to develop a cohesive student body.

The six-year junior-senior high school, grades 7-12, also has advantages as well as disadvantages. The overhead and original cost of buildings are spread over more grades than if grades 7 and 8 were not included; students in all grades can share special facilities and specialist teachers; and articulation of the entire program of studies in secondary education is facilitated.

But there can be problems in this combination high school. (1) The senior high grades could easily dominate the scene to such an extent that

junior high students have no opportunities to achieve leadership status or to use special facilities when they are needed. (2) An administrator may have to guard against placing the better teachers with senior high students, thus short-changing the younger students or implying some prestige values which should not be there. (3) Mixing 7th graders with 12th graders may be a serious drawback. Some schools try to help this problem by treating grades 7 and 8, or grades 7, 8, and 9, as one social unit and the higher grades as another social unit. (4) Finally, enrollments may grow to such proportions that the combination is not feasible or the teaching may become very impersonal.

The 4-4-4 plan of organization has been used too infrequently to generalize about its usefulness, but it is a possibility that bears watching. Hechinger quotes the New York committee advocating this as saying,

> "Middle school students would begin their exposure to secondary education earlier, yet not be subjected to the undesirable peer models provided by so many ninth graders in the current junior high school system, models of antagonism and indifference toward school induced by the onset of adolescence..." (5).

Whatever the form of organization the decision "will have to be made on practical grounds and on the basis of social and administrative viability. Any pattern is satisfactory that gives identity to youths during early adolescence, includes at least three grades for stability, and brackets these grades in which significant numbers of pupils reach pubescence" (6).

Purposes of Junior High Schools

Historically, as these schools developed, the first byword of the reorganization movement was "economy of time." The idea, advanced by college educators, was to shorten the elementary years and to teach college preparatory subjects earlier. As more public school educators became involved, reorganization was supported for different reasons, and the first idea lost validity.

"Improved holding power" was the second byword of the movement. Studies in the early 1900's showed that less than half of all students reached the 9th grade. Reorganization was advocated for what it could do through a revised and enriched curriculum to keep students in school longer. And it was felt that a new school unit could provide better vocational training for the early school leavers. Conditions have changed markedly since then because of compulsory attendance laws and the inability of youth to enter the labor market until the late teens. This reason, too, has ceased to be of prime importance.

"Bridge the gap" was the third byword. Many educators thought that the high drop-out before the ninth grade was because of the sharp differences in the philosophy, curriculum, and organization in high school as compared to elementary schools. A transitional school was desired. This is still true.

"Meet the needs of early adolescents" was the next byword and has become the theme song of the junior high school movement. Two developments in psychology during the early development of the junior high schools gave impetus to this. The first was the theory that the age of adolescence was of prime concern; and the second was the recognition of wide individual differences, especially among youth likely to be in grades 7, 8, and 9.

If the junior high school has any justification as a distinct level of education or as a separate educational unit that justification must grow out of the nature of early adolescents. According to Lounsbury, "a good junior high school curriculum ought to:

1. Continue and extend the general education program of the elementary schools.

2. Provide for a transition between the elementary school organization and approach and the senior high school organization and approach.

3. Provide for continued development in the basic skills.

4. Introduce new subject areas and additional specialization within basic areas.

5. Provide opportunities to discover and pursue pupils' special interests and aptitudes.

6. Provide appropriate experiences to assist and guide the rapid physical development characteristic of early adolescence.

7. Provide experiences that will help develop the social competence needed as these youths enter young manhood and womanhood.

8. Provide experiences that will assist individuals in developing values and building their philosophy of life.

9. Provide ample opportunities for self management and the development of leadership under supervision" (7).

Another way of looking at the purposes of the junior high school is to examine a statement of the Commission on Secondary Education of the Association for Supervision and Curriculum Development. "Education in the junior high school years should result in young people who have:

1. A sense of positive self-worth and an enhanced understanding of others.

2. A genuine interest and strengthened competence in several areas of learning and acquaintance with the world of work.

3. Mastery of basic skills of inquiry and study so that independent work may be pursued more adequately.

4. An increased capacity to discipline themselves to work, study, and play constructively and with satisfaction to themselves and others.

5. A moral and ethical sense which values the goals and processes of a free society" (8).

Criticisms and Problems of Junior High Schools

Many of the advantages originally expected for junior high schools have only been partially realized at best. There has been a growing belief that many educators are tending to lose sight of the unique character of the functions the junior high was designed to fulfill. What have been, and are now, its weaknesses? How valid are the criticisms?

Like any rapidly developing youngster this institution, too, has had its share of growing pains. Attention to this new organization slackened a bit during the 1930's and '40's when society was concerned with depression and war. Since then, however, junior high schools have grown so rapidly, both in number of schools and in enrollments, that administrators and teachers have barely had time to catch their breaths.

Who shall teach in the junior high schools? The question could also be raised as to who will teach there. A pat answer would be "properly certified teachers" or "adequately trained personnel." However, the lack of qualified teachers for junior high schools has been a continual problem.

Many administrators think it takes a special kind of interest in, and understanding of, the young adolescent on the part of the teacher to do the job in junior high school well. Teachers who have had secondary school education and experience are likely to be oriented, first of all, to their academic disciplines, and perhaps, secondly, to the needs of older adolescents. Being a "specialist" in a subject may make it difficult for some teachers to participate in some of the desired patterns of teaching in junior high schools; i.e., core and block-time programs. Administrators complain that the colleges are not preparing teachers for this kind of teaching, and the colleges say that they are hampered by certification regulations. Much in-service education is necessary.

Lack of prestige. Another reason suggested for lack of qualified teachers in junior high schools is the lack of prestige accorded this level of education. The name itself, "junior," may reflect a subordinate status. In many school systems new teachers, as a matter of policy or practice, are started in junior high schools. The assumption is that transfer to a senior high is to be expected and desired after some experience, and perhaps more study. Salary differences between junior and senior high schools may be present, too, as well as differences in teaching loads, with the junior high teacher usually carrying the heavier.

Conant, recognizing that qualified teachers are hard to find for these important transitional years, makes a strong plea to school boards to stop the exodus of teachers from junior high schools.

> "Recognizing the special competence needed by teachers in these grades, school boards should do all in their power to maintain the status and prestige of the professional staff in grades 7 and 8 and to create working conditions that will make teaching in these grades a satisfactory and rewarding experience" (9).

The use of make-shift or hand-me-down buildings may have been a factor in contributing to a lack of prestige and identity of junior high schools. It would seem, however, that this phase of the problem may be passing.

Is the junior high school a distinct institution? Some say no, that it is little more than a high school for younger boys and girls, or a preparatory school for the senior high school. Many are replicas of senior high schools with similar, if not the same, extra-class activities, organizations, public functions, and competitions. Community interests and pressures may be responsible for this. The dominance of the senior high school may tend to make the junior high school somewhat of a carbon copy. Expectations that the junior high school develop good atheletes for the senior high teams, good debaters, good instrumentalists for the band, good scholars in any special field, contribute to this.

Junior high school administrators who have come up through an elementary school orientation may have one viewpoint about what the junior high school should be; whereas, the junior high school administrators who have had experience in senior high school work may have a very different orientation. This may be more true when the junior high position seems to lack the status and prestige attached to senior high work in the same community.

Previous discussion has suggested that junior high schools are not fulfilling their intended purposes when they are mimicking senior high schools.

One wonders if the frequent shifting of various grades to and from a unit or building designated as junior high school has prevented the development of a cohesive feeling among junior high school personnel. Although this shifting has probably been as much an administrative convenience as an experimental factor, the net result may seem to be that administrators have not treated the junior high school as an institution in its own right.

Lack of formal standards for accreditation of junior high schools on a regional or national basis may have been a factor in preventing these grades achieving identity as a distinct institution. However, guides to assist local schools in evaluating programs are available. In 1960, Trump, calling this fact to the attention of readers of the Bulletin of the National Association of Secondary Principles, said

> "...appraisal is essential in re-affirming the basic purposes of junior high school education, and seeing how these purposes are being achieved. This type of local action is the best guarantee for the continued favorable action of the public to the junior high school and its services to early adolescent youth" (10).

Articulation with other levels. Although the junior high school was designed to be transitional, bridging the gap between elementary and secondary schools some critics feel that rather than doing this, two new gaps have been created. In some cases each educational level-- elementary, junior high, and senior high--may tend to become an "empire builder" and greater division rather than articulation may be even more characteristic. Articulation remains a problem for administrators in planning programs and services to facilitate it; and for teacher in finding out the background from whence her students come, and about the future to which they go.

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EXTENT OF HOME ECONOMICS IN JUNIOR HIGH SCHOOLS

Home economics has great importance in junior high schools because of the contribution it can make to the general objectives of the junior high school, and because of the number of students enrolled. The fact that at this level more students are in home economics than at any other level challenges home economists to make their courses as meaningful as possible; meaningful in the lives of the students at the age they are, and meaningful in terms of awakening interests in home economics as a field of specialization.

Courses and Enrollments in Junior High School Home Economics

Two fairly recent national studies give us information about these facts. One for which data were collected in the spring of 1959, is Home Economics in the Public Secondary Schools (1), conducted by Beulah I. Coon, Research Specialist, Home Economics Education, U.S. Office of Education. A carefully drawn sample of 4303 schools was used. Except for 15 schools in the sparsely populated states of Alaska, Hawaii, and Nevada, schools with enrollments of less than 100 were eliminated from the universe from which the sample was taken. Data were collected for 7th and 8th grades only when these were a part of a junior or junior-senior high school. No data were secured about home economics in grades 7 and 8 which were part of elementary schools.

The second study, The Junior High School (2) was also done by the U.S. Office of Education. This is a survey of grades 7, 8, and 9 in junior and junior-senior high schools in 1959-60. In this study junior high schools which had an enrollment of less than 75, and junior-senior high schools with enrollments of less than 125 were eliminated from the universe from which a sample of 1507 schools was drawn. No grade schools were included.

In Coon's study it was found that home economics was available in 95 percent of all the public secondary schools in the study. When all the courses offered were totaled, it was found that 42 percent of them were offered in grades 7, 8, and 9. More (22 percent) were offered at the 9th grade than at any other level. Twelve percent were found at the 8th grade, while the 7th grade claimed 8 percent of the home economics courses in secondary education (3).

Another way to look at the data is to examine the proportion of courses required and elective at each grade level. The following figures give the percent of courses required and elective for the junior high years (4).

	Required	Elective
7th grade	92.2	7.8
8th grade	79.4	20.6
7th and 8th	71.6	28.4
9th grade	31.5	68.5

In 21 states all home economics offered in the 7th grade was required, and in nine states all 8th grade work in home economics was required. For the study as a whole it was found that large communities (over 25,000) were less likely to require courses than small communities (under 2500). Variations in requirements were also found among the four regions of the United States. Ninety-six percent of the courses at 7th and 8th grade level were required in the North Atlantic region, 89 percent in the Central region, 72 percent in the Pacific region, and 55 percent in the Southern region (5).

Coon says this about variations in requirements:

> "The practice of making a subject a required rather than an elective one is influenced by State requirements, by the general policy of the school regarding required courses, the size of the school faculty, the philosophy of faculty members and administrators, and the pressures of college entrance requirements. Schools with few faculty members may require a certain curriculum because it is impossible to make a variety of courses available" (6).

Data from the second study mentioned, The Junior High School, are shown below. According to this study, how frequently home economics is required and how frequently it is offered as an elective seem to be related to the size of school rather than to the type of school organization.

Judging from the data provided by the schools in this study there is more than a 50 percent chance that home economics will be required in grades 7 and 8 in the larger schools, and be offered as an elective in the 9th grade in the larger schools. A large proportion (62 percent) of the smaller junior-senior high schools also reported home economics as an elective. When special home economics facilities can be shared by several grades, as would be true in a junior-senior high school, it is more likely that elective opportunities would be present than in a small school serving fewer grades.

The data in the table also show that requirements are much more common in grades 7 and 8 than in grade 9. Also, more smaller schools of both types seemed to have required home economics at the 8th grade level than at the 7th grade. This could be because of limitations in facilities and staff in these smaller schools. If only one grade could be served, the 8th grade was chosen. Or this choice could be a reflection of administrative beliefs about the grade level at which it is appropriate to offer instruction in home economics.

Percent* of Schools in 1959-60 Offering Home Economics by Grade Level, Type, and Size of School**

Type and size (enrollment) of school	Required Home Economics	Elective Home Economics
	Grade seven	
Junior high schools		
75 to 299	30.3	8.7
above 300	61.0	9.0
Junior-senior high schools		
125 to 499	29.5	8.1
above 500	52.6	8.2
	Grade eight	
Junior high schools		
75 to 299	40.2	12.0
above 300	61.1	25.1
Junior-senior high schools		
125 to 499	34.6	13.3
above 500	52.7	14.4
	Grade nine	
Junior high schools		
75 to 299	28.2	38.9
above 300	16.1	73.3
Junior-senior high schools		
125 to 499	23.5	62.0
above 500	26.0	65.1

*There are varying totals for these percents since not all items on the original questionnaire were answered by every respondent.

**Taken from Tables 33 and 34 in The Junior High School (7).

The number of students reached is another way to measure the extent of home economics instruction. Coon reported for the United States as a whole and for all the secondary school grades that 49 percent of the girls in secondary schools were enrolled in home economics. The junior high grades had larger proportions of students, however, and there were interesting differences among the regions of the country. This, of course, is influenced by the variations in requirements mentioned earlier.

Percent of girls enrolled in home economics by grade and region (8).

	U.S.	North Atlantic	Southern	Central	Pacific
7th grade	63%	87%	22%	72%	75%
8th grade	73	92	52	82	70
9th grade	60	59	67	55	57

Other figures also highlight the extent to which home economics instruction is serving girls in their early teens as compared with the number reached in later adolescence. Sixty-three percent of all the girls enrolled in home economics in 1959 in the schools in this study were in grades 7, 8, and 9; 18 percent in the 7th grade, 20 percent in the 8th grade, and 25 percent in the 9th (9).

The enrollment of boys in home economics was limited, with only slightly more than two percent of the boys at the 7th grade level enrolled, slightly less than two percent at the 8th grade, and less than one percent at the 9th grade (10). However, the Central region had five percent of the boys in the separate junior high schools enrolled in home economics (11). The proportions of boys enrolled in home economics in the country as a whole were slightly higher in schools in the communities from 10,000 to over 100,000, than in those of less than 10,000 (12).

How Much Home Economics Should Be Offered in Junior High Schools?

There is no one answer which would be equally suitable to all communities. Nor would it be reasonable to expect a uniform program of offerings over the country because of the widely differing needs of the groups to be served. Each school system has to make its choice among the various recommendations offered.

Conant, in Education in the Junior High School Years (13), recommends that all girls in grades 7 and 8 should receive instruction in home economics, and all boys in industrial arts. In the 9th grade these subjects should be elective so that students who wished to could keep up their interest, and, at the same time, some could be commencing an elective sequence that could lead to a marketable skill.

Special facilities for home economics are also recommended by Conant, but he goes on to say,

> "Some of the industrial arts and home economics facilities I have seen go beyond what I term essential. General shops

> and home economics rooms seem adequate.... The nature of the facilities does depend somewhat on the nature of the community and the consequent needs of the pupils. In areas where school drop-outs are high, these departments have a responsibility to start the development of vocational skills" (14).

Class size should also be considered when planning facilities. Poor facilities may mean small classes, and these small classes can spell very high costs. Conant feels that schools ought to provide for classes of 25 in home economics and shop. He feels that the teacher load in grades 7 to 12 should be approximately the same in most subject areas, and that the reasonable limits of this load are five teaching periods involving 125 to 150 pupils a day.

Focusing on the program as such, not on teacher load, members of the staff of the Junior High School Project in the School of Education at Cornell University recommend the following division of instructional time for grades 7, 8, and 9 (15). Fractions listed represent the proportionate amount of the total time available for instruction in any given year.

Subject Area	Grade 7	8	9
English	1/6	1/6	1/6
Social Studies	1/6	1/6	1/6
Mathematics	1/6	1/6	1/6
Science	1/6	1/6	1/6
Physical Education	1/12	1/12	1/12
Fine and Practical Arts	1/6	1/12	0
Electives	1/12	1/6	1/4

It is within the last two areas listed that home economics comes into the picture. As well as naming practical arts as such, this group lists the following as possible electives: foreign language, remedial basic skills, and additional "arts." In this last area they include art as such, music, home economics, industrial arts, typewriting, business, and under certain conditions, agriculture or horticulture. We see some similarity to the Conant recommendation in that there is some requirement in home economics in grades 7 and 8, with opportunity for election in grade 9.

The rationale for the program suggested above is based on two major characteristics of junior high school students. Since they vary considerably in ability, achievement, maturity, and interest, flexibility is desirable; and since these students are in such a period of change their programs might be expected to differ from one grade to another. Balance and priority are other criteria which have been considered in this plan. The way these four criteria are applied is summarized as follows:

Flexibility: through providing for variations within each year in terms of diagnosed needs of individuals.

Transition: by making each grade's program slightly different, proceeding toward increased student option and responsibility.

Priority: by requiring, throughout, those academic studies of most general value to both individual and society.

Balance: by requiring nonacademic work in each of the first two years and permitting it in the third (16).

Home economists have various viewpoints about how much home economics should be offered in junior high schools, especially in grades 7 and 8. Students in these grades are full of enthusiasm and tend to enjoy activities related to homemaking. Some people feel that one should take advantage of this enthusiasm and offer a full year of home economics in both grades. They feel that home economics may not have the same appeal in the upper grades. Another argument presented in favor of home economics in grades 7 and 8 is that the curriculum in the senior high school years will be so crowded that many students will not have opportunity to take any more home economics, so it is wise to give them as much as possible in junior high school.

On the other hand, some people believe that a full year of home economics at both grade 7 and grade 8 may be too much. This may lead students to feel that they have "finished" the subject. However, it would be unfortunate to terminate home economics at the junior high school since concepts developed at the 7th or 8th grade level are unlikely to reach the depth which would be desirable in later adolescence.

Perhaps the most commonly held position is that not more than two semesters of home economics should be offered below the 9th grade (17). This could be one semester each in 7th and 8th grade, or a full year at either level.

Since interests and learning readiness change rapidly between the 7th and 8th grades, perhaps one semester in each of these years may be better than two semesters in the same year. Some people question the readiness of 7th graders, in terms of their eye-hand and eye-eye coordination, for some of the typical home economics experiences usually provided at that level. Careful curriculum planning for 7th graders could, of course, take care of this.

Home Economics for Boys

How much home economics for boys is another issue in planning junior high school home economics. Many people seem to take it for granted that home economics is for girls only, while others think it quite natural that planning for instruction related to family and homemaking responsibilities include boys as well as girls. Gertrude Noar, discussing the

practical arts program in the junior high schools, takes the following viewpoint:

> "A new look at the entire practical arts program is mandatory for the junior high school of tomorrow,...segregation by sex is no longer justified. Patterns of home life, and the roles played by men and women there and in business and industry have changed.... Few families operate with and through a woman alone. It has become essential for boys and girls to study and work together...to talk together, to understand each other's role in family living. This, coming in early adolescence when one of the development tasks is heterosexual adjustment, is a most important way of meeting adolescent needs" (18).

Noar also says in her chapter on discipline in the junior high school:

> "Probably no part of the junior high school curriculum can offer greater opportunity for instruction and guidance in inter-personal relations than the practical arts program, if the practice of segregation by sex in these classes is ended. Both sexes are equally in need of creative industrial arts experiences, of help with personal grooming and etiquette, of guidance in family relations and baby care, and of consumer education, all of which can be incorporated into the practical arts program. While they make useful articles in the shops and good things to eat in the kitchens, boys and girls learn to help each other, to talk together, to plan and work together effectively" (19).

A school principal, contributing to the article "Issues and Developments in Home Economics" in the November 1963 Bulletin of the National Association of Secondary School Principals, has this to say:

> "Since most men and women eventually become homemakers, we should be alert for ways in which to stimulate a realistic interest in the various aspects of home living. While the women may be more directly concerned with certain aspects of family life, the men, too are concerned with foods, clothing, leisure time activities, housing, income management, child growth and development, health and family relations. Principals should encourage boys to take part in the homemaking program" (20).

Whether or not boys would be scheduled for home economics would be influenced by the principal's viewpoints as well as by all the other factors discussed in the following section.

Factors Influencing Home Economics Offerings in the Junior High School

Many factors influence just how much home economics is to be offered, how it will be scheduled, who will take it, and what is to be included. Community attitudes and desires are surely important factors. Do parents

want home economics for their junior high youth, or don't they? Do they want something else more? What kind of home economics do they want? Are they willing to pay for a program that needs special facilities and a specialist teacher?

Community attitudes are, of course, influenced by the past experiences of its members. When it comes to school issues adults often use their own schooling as a point of reference. Sometimes it is useful to remind oneself as to when the parents of junior high school students were likely to have had their own secondary education--and then perhaps reflect about what may have been characteristic of home economics at that time! One may then better understand their viewpoints and wishes.

How much space available, as well as the kind of facilities furnished; the adequacy of staff, both in number and preparation; and how much time is available because of the other subjects offered and required are all factors that will make a difference in junior high school home economics offerings.

Probably as much as anything else the beliefs of the local principal influence the program. His viewpoints, too, naturally reflect his experience. Whether he has worked primarily in junior high schools, or has come from elementary school or a senior high school background is likely to make a difference. If his wife or sister is a home economics graduate he may be quite knowledgeable about the subject. If he had a daughter go through unhappy junior high school experiences in home economics, his attitude may be one of "let's do a better job," or it could be one of discouragement. All the home economics teachers he has had occasion to know in his career of teaching and administration will have made some kind of an impression on him. If you, as a home economics teacher, don't see eye to eye with your principal about your subject, stop and reflect about what acquaintance he may have had with home economics in the past.

Although how frequently the course meets, for how many weeks, when it is required and when it is elective are administrative decisions, the teacher herself actually determines how much and what kind of home economics the students get. The "how much" can be thought of as how much depth may be developed in a given unit or as how much breadth is given because of the number of different areas included in a given term. There are city and state curriculum guides which give suggestions for junior high home economics (unfortunately, however, not as many as for senior high school work), but the local teacher still makes the final choice.

A challenging home economics experience is particularly vital in junior high school, because it is there that lasting impressions may be made. And, as we have seen from Coon's study and the junior high school study quoted earlier, home economics is quite likely to be required in 7th and 8th grades. However, an extensive program at the junior high school level will not necessarily make for positive attitudes. It is the teaching within the program that counts.

A Plea for Modern Home Economics Suited to Junior High School Students

Coon's study reports that three-fourths of the time spent in the 7th and 8th grades and in nonvocational 9th grades was spent in the area of clothing and foods, with clothing taking the larger share (21). About two-thirds of the clothing time was spent on construction in these grades (22), and slightly less than two-thirds of the time in foods was spent on food preparation (23).

With only about a third of the time to be used for foods or clothing remaining for all other aspects of these subjects, one cannot help but raise the question as to whether or not teachers are incorporating the most important aspects of home living for today's society into their courses. According to the figures given, these courses sound more suited to production than to anything else, whereas the family today is primarily a consuming and spending unit, no longer having an emphasis on production.

A question might also be raised as to whether or not too many junior high school courses are simply "miniature" or "junior" versions of senior high school courses. In an article entitled "Too Little? Too Late? Or Both?" Sara C. Green challenges the profession to pay much more attention to courses in the 7th and 8th grades, assuming that is where, at the present time, home economics is usually first introduced.

> "What are we offering there to whet their appetites for a continuance of the acquaintanceship? Although we are aware that the early adolescent has special needs which are different from those of the senior high school student, the homemaking courses offered at 7th and 8th grade levels are generally modifications of senior high school programs" (24).

Data from a study by Broadcorens (25) of the attitudes toward home economics by tenth grade college preparatory girls, indicate that the learning experience in the junior high school vitally affects the high school student's attitude toward home economics. The following guidelines for curriculum planning were set up as a result of her study. These are familiar guidelines to all good teachers, but they may take on different meaning if we think about how they might make a difference if they were really followed in junior high school teaching.

1. Relate experiences to the developmental level of the students.

2. Know your students, both as individuals and in terms of the age group as a whole.

3. Preplan and present several suitable ideas to students and allow them to make choices.

4. Plan activities that will allow for varying abilities. Let students who can go faster and further, do so, perhaps with the additional help of self-teaching aids.

5. Relate home economics class experiences to other classes, particularly science and English.

6. Place major emphasis on the teaching of principles rather than on the teaching of facts and skills, so that there will be a carry over of learning into students' own homes and lives.

7. Work with administrators to upgrade all home economics courses, and then work with, inspire, and challenge students in your classes.

8. Create good public relations in the school and community.

9. Continually evaluate the effectiveness of your home economics program.

The author of the "Too Little? Too Late?" article is particularly concerned that poor teaching in the junior high school will kill the interest of the gifted or more able students, types we should encourage to come into our profession. She characterizes the more able student as follows:

> "She is apt to be advanced in physical as well as intellectual development. She learns quickly and her attention span is longer than that of the average student unless the pace of the learning experience is too slow or filled with monotonous repetition. She wants to know reasons why learnings or activities are necessary, and the principles that apply to them. She sees relationships more easily and will be interested in following through in studying a particular line of thought. She enjoys learning and exploring the unknown. She is apt to be critical of herself and worried about the future" (26).

Though there are differences, these able students are likely to be like their classmates in that they have the same needs for development of skill in handling personal relationships, in understanding self and their place in family, school and community, and in understanding social customs.

Is it any wonder, considering the above description, that some of our students get impatient doing work such as hemming dishtowels or cooking cereal, when they know their mothers don't need or use these skills, and the girls expect their own housekeeping tasks to be even more streamlined and automated? The more able student wants stimulating experiences which have meaning for the world she knows and the one she anticipates.

> "Why not give her some background knowledge of the changing role of women in our society? Lead her to understand why she, especially, is almost sure to combine marriage and a career. Then demonstrate the value of home economics education in this dual role of women by meaningful exploration of its various facets" (27).

The Commission on Secondary Education of the American Association of School Administrators in their report The Junior High School We Need, states that the quest for values should become a prime focus of junior high school education. They feel that if any period of growth lends itself to change through education, the period of early adolescence, with its emphasis on exploration and discovery, is especially amenable to change. The school should deliberately bring students into situations in which they can explore, discuss, and face up to value confusions and contradictions (28).

It is important to have a classroom atmosphere which provides for individual differences, encourages experimentation, and in which there can be flexibility. When the right books and materials are provided, interested and able students can go beyond the main content of the course. As well as having an excellent room library, devices for recording, listening and projecting are desirable, too. In addition, we would suggest some materials from other disciplines such as science and art. When ideas from other disciplines can be incorporated into home economics subjects they help students to recognize the reasons for doing certain things and the principles behind activities, and to relate learnings to one field to another.

Each and every teacher has to plan for and challenge her own students in terms of her own experience, the background of her students, and the community. She must make a constant effort to keep the course content up to date in regard to research, public affairs, the students' needs, and methods of teaching, and to convey to students her enthusiasm and respect for home economics as an intellectually challenging subject.

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IDEAS FROM JUNIOR HIGH SCHOOL PROGRAMS

The first part of this section is presented as a conversation between the two authors as they visit about what was done in one situation, a two-year junior high school in a suburban setting. We hope other teachers see possibilities for their schools.

"You seem to enjoy your junior high teaching so much. You must be getting lots of satisfaction from it, and you must have some convictions about what works and what doesn't."

"Yes I do. I feel we should try to help students develop principles that they can apply to every situation and not teach isolated facts. In junior high, particularly, they need to have information they can use right now, but we want them to carry it over into their later lives, too. One can't teach everything in so short a time, but attitudes and basic skills can be developed. For instance, I feel we should start students on their way to becoming wiser shoppers and consumers. This is one area I stress heavily in each teaching unit."

"So many teachers seem worried about 'covering' everything, I'm glad you are not. Have you had any reaction from the mothers about what you are trying to do?"

"Trying to reach the mothers through their daughters is another of my pet theories. If the community can honestly say that everything being taught in home economics could be taught by the girl's own mother, then our programs surely do need re-evaluation and up-dating. I believe that through a good, up-to-date, current home economics program we not only create interest and enthusiasm in our students, but educate the mothers as well, as the ideas go home. Yes, I've had good reaction from mothers."

"Can you give some 'for instances' in respect to this sharing of information?"

"Does mother know about spandex fibers, spot resistant finishes in upholstery, nonstick coating in muffin pans, self-cleaning ovens, differences in detergents? Does mother use nonfat dry milk to cut down her food costs? Does she wonder about the question of sifting flour, and whether the new flour on the market is easier to use? Does mother know where to write or whom to contact if a product is not satisfactory? Is her kitchen designed with thoughts of work simplification, or only to be pretty?"

"You showed me some pictures of one of your open houses; you must use those for public relations, too."

"We have found holding departmental open-house quite possible at several different times. National Education Week, the Science Fair, or Orientation Night for new students and parents have all been good times for the department to be open to visitors. We have tried to do something other than a style show at many of these."

"Good. What do you do--exhibits?"

"Yes, exhibits and demonstrations (or explanation of exhibit) by the students. They love to participate, and as they do they involve the audience. Visitors usually left with a better insight as to what the students had learned, than if everything had been still exhibits. They probably carried away some new information, too. Here are some exhibits and demonstration ideas we have used and found successful."

Lunch With a Punch	Students prepared sandwich fillings and made sandwiches. Recipes were passed out as well as samples of the sandwiches. Discussion with visitors dealt with such matters as types of wrappings, freezing sandwiches, use of the small spatula for spreading, and what a good school lunch should contain.
What's My Line?	Demonstrators using small mannequins showed the effect of line by dressing them in various styles. They used optical illusions drawn on charts and had actual size hats, handbags, and belts to bring out points on accessories
Home Safe Home	Students gave a short, one minute skit on kitchen safety practices showing both right and wrong ways of doing things.
Organize Your Cupboard	Homemade and commercial storage racks were shown and students explained the principle of "storage at point of first use." Visitors like to peek into cupboards and one kitchen was set up, not as a laboratory type working arrangement, but like a home. Students explained the arrangements and answered questions.
Do You Have That Tired Feeling?	A string chart showing how much a person walked in doing various household activities always interested visitors. In fact, any type of work simplification exhibit or demonstration was well received.
Put a Light on the Subject	A desk was set up with a good study lamp. Above it was a poster illustrating correct placement and height for desk lamps. A student was "studying" and explained why a goose-neck type lamp was not used. Another student sat

in an easy chair reading by the light of a floor lamp that had a diffusing bowl. She explained to the visitors that home lighting was part of their unit on Making My Room Liveable.

To Market, To Market

Two identical menus were posted with the foods shown. One menu was prepared from "scratch" and the other used convenience foods. Comparisons were made for cost and time. Students were available to answer questions.

Are You a Smart Shopper?

A blouse, shirtwaist style, was hung from a bulletin board and 10 questions were posted with strings attached to the parts of the blouse dealing with the question. This could be done for sweaters, dresses, skirts, or hosiery too.

All This From the Same Mix!

Date Bar Mix was used and from it, cookies, coffee cakes, pies, and desserts were made and shown. Another year we showed what could be done with refrigerated biscuits. This was always a well-received demonstration.

"Your program sounds quite varied. How long did you have the girls?"

"The first year I was there both 7th and 8th grades met twice a week for one semester. The continuity of such a program is not good, so after discussion with the principal, the following year we had each grade meet on a daily basis for one semester. The third year a choice had to be made since three of the four semesters in our junior high school were to be devoted to art, music, and industrial arts. I chose to teach the home economics to the 8th grade girls (no boys--it was not part of the philosophy of the school). This class met daily for one semester with periods of 47 minutes."

"Schools surely do have different ways of scheduling 7th and 8th grade home economics. I think many people are recognizing the futility of infrequent meetings over a long period of time and are making changes. But, as the curriculum becomes crowded, other factors enter into the decisions which have to be made. It is not uncommon for the scheduling of the so-called special subjects to have 7th and 8th grade work divided into blocks of twelve weeks each, with one block for home economics and the others for art, music, or other subjects. This way you see one group daily for twelve weeks, then get a new group."

"Just before I went on leave of absence our school was considering planning to schedule the 7th grade students for a nine-week block of home economics, but to keep the 8th grade on the semester schedule."

"Alton has a slightly different arrangement. They have the twelve weeks for home economics in 7th and 8th grades, but it is scheduled to be taught in two six-week blocks, one each semester. They have planned some units with interesting names, too. But tell me what was in your program."

"Since this one semester of home economics would be all that a large share of my girls might have I surely was faced with making choices. I was determined to make it worthwhile, give them opportunity to learn things thoroughly, and at the same time instill positive attitudes about home economics so that, as they had opportunity, they might consider it as a field of specialization for study."

"Worthy goals. What were the expectations and prescriptions for the program?"

"There were expectations, but no prescriptions. I had a great deal of freedom to decide and it was a challenge I liked. Having worked previously with older secondary school students, college students, and adults, it was fun to see just what kind of units and teaching methods appealed to students of junior high age. Considering the girls here in Park Forest, these are the units I decided upon for our one semester course:

Making My Room Livable - 3 to 4 weeks,
Planning My Wardrobe - 7 to 9 weeks,
At Work in the Kitchen - 6 to 8 weeks."

"And I suppose, with your experimental viewpoint, these were never quite the same two years in succession."

"The general framework was, but the emphasis, methods, and kinds of learning experiences changed. I believe it is very important to evaluate your program each year. Situations change as well as your ideas. For instance, in our school we found that much about grooming and nutrition was being taught in other subjects. With only one semester of home economics being offered we couldn't afford to repeat what had been taught in another class."

Teaching Clothing

"I've heard you talk about clothing selection versus clothing construction before, and I know now much you enjoy construction yourself. Tell me more about how you did 'Planning My Wardrobe."

"First of all, notice the title of the unit. We didn't call it 'sewing' or even 'clothing.' I believe that titles make a difference, they contribute to the 'image' of our course. Emphasis in the clothing program had formerly been placed on the construction of a dress for the student to wear to the graduation or promotion exercise. Weeks would be spent on it, and a much handled garment would be the outcome. I think every girl envisioned herself a vision of loveliness in her graduation

dress, and when her sewing experiences had included much ripping and painful redoing, she seldom achieved this. Not a very happy memory for 8th grade home economics, is it?"

"I agree. Your description is very graphic. What did you do to change?"

"The girls made garments that could be finished in a short time and worn to school. Thus they received recognition more quickly, and from their classmates. Peer acceptance, you know, is awfully important. The mothers were happier, too, over this arrangement, so this created a better relationship between the department and the mothers. They were glad to have their daughters make a simple outfit that would receive more wear than a graduation outfit."

"But this is still construction."

"That was just the first change in our program. After doing more reading and working with junior high students longer I became more and more convinced that too much time was spent on construction and more should be spent on selection."

"How did the students react to that?"

"They liked the construction part very much. Sewing was fun, and for many of them it opened a whole new outlet and hobby. They would come in after school and work additional time at home. So spending less time on construction (we haven't eliminated it entirely) was not due to any student disinterest, but because of my feeling that help in becoming an intelligent consumer needed to be given, and that this was more important than sewing."

"How did you 'sell' the idea of emphasis on clothing selection?"

"That wasn't hard. The young adolescent is often complaining that she 'doesn't have a thing to wear' and could easily take the lion's share of the family clothing budget if allowed to do so. We started our clothing selection unit by showing the Household Finance Corporation filmstrip, "Managing Your Clothing Dollars." Then each girl was asked to inventory her wardrobe."

"So far, rather traditional, isn't it?"

"Perhaps, but we put a new twist to it. We tabulated the results of the inventories and published a summary in the school newspaper. When the girls read this and realized that twenty sweaters, for instance, were the exception and not the rule, they accepted their wardrobe size with less complaint. Also, mothers could read the tabulated information and find out if daughter's 'But everybody has a jumper' was true or not. Of course we didn't stop there.

"Our next discussion centered around a basic wardrobe. Dittoed sheets had been prepared that had diagrams of four skirts, two jumpers, a sheath dress, four blouses, and three jackets."

"Sounds somewhat affluent, but probably all right for your girls."

"Yes, their inventories gave me clues. Each teacher would have to do what was best in this respect for her own community. In using our dittoed sheets the assignment was to color these clothes, or use swatches of material, and see how many outfits they could make from such a basic wardrobe. This appealed to them, took them back to paper-doll days. Sometimes junior high girls like to be 'young' again."

"Yes, that is a characteristic of development of this age we don't want to forget."

"The students really worked on their combinations and one girl came up with sixty-seven different possibilities from the basic wardrobe. We decided to use her ideas for a bulletin board display in the entrance hall at school. The title was "Stretch Your Wardrobe" and the student who had figured out the sixty-seven different combinations colored them all and arranged them on the board. It was a lot of work, but she was thrilled to do so. Students really studied this display. Even the junior high boys. I remember one who just didn't think this girl could be right so he tracked down all the combinations to check. This display was also up during a time of our PTA meeting and received many favorable comments from adults."

"You were actually getting participation in this exhibit and not just casual viewing, weren't you?"

"Another method we found useful in the clothing selection unit was an adaptation of a magazine article on "How to Dress Well on Practically Nothing!" After reading this article each girl was told to become a 'fashion writer' and to prepare her own "How to Dress Well on Practically Nothing." The majority of the girls used pictures of patterns to illustrate their articles, but some used ready-made dresses from catalogues, and a few budding artists designed and drew their own."

"Another good principle to remember, allowing for individual differences."

"Writing magazine or newspaper copy was an experience that I found most of my students liked. Maybe this is partly a reflection of the work that some of their parents do. Perhaps it seemed like 'grown-up' work to them. The assignments could be in any subject. The girls soon learned that before they could make up an advertisement they had to know about the subject. When basic information needed to be learned, this was a very effective method of teaching it to them. Writing a TV commercial for a nutrition topic, or preparing a LIFE or LOOK picture on tools needed to do a good job of sewing were fun, and the students remembered the information."

Textiles

"Did you do anything with textile information? Seems that this would be necessary for some of the advertisements."

"Yes, we did some textile study, but not as a separate study. We incorporated it into clothing selection. Textile information did not seem to be a 'felt need' for my girls, at least when we started."

"Why do you say that?"

"Well, I knew from conversations that these girls were often doing clothes shopping with other teenage friends as well as accompanying their mothers. Yet when asked on a questionnaire to list four items they would like to add to their wardrobes, and to tell what they would look for in choosing these items, color and style were the only factors mentioned. Nothing was said about helpful information in relation to fiber content or the kind of care needed."

"What items did they list for their wardrobes?"

"Sweaters, skirts, and blouses showed up most frequently when we tabulated the results. About as I had expected."

"How did you work in the textile information?"

"When studying how to buy a sweater we studied about orlon and wool. Girls brought in favorite sweaters and ones they didn't like. Reasons for liking and disliking sweaters were discussed and an exhibit was prepared for the whole school to see. It was easy to have a discussion on the characteristics of wool when we had an example of a sweater that had been shrunk by improper washing methods. From there was just a step to mention how chemists had developed new fibers, trying to eliminate some of the disadvantages of natural fibers. (Few sweaters other than wool were brought to class.) This led to a discussion of synthetics and a recently advertised orlon Sayelle sweater that could be washed in the washer and should be dried in the drier."

"I imagine this intrigued your girls."

"Yes. And here again I taught for both mother and daughter. The girls could discuss all they had learned with their mother, sharing new information. I had some evidence that discussions like this were leading to easier communication and better understandings between mothers and early teenagers, too.

"That makes me think of the hosiery problem. Students in our junior high school wore hosiery, and the purchase of hose and socks led to many a heated family discussion. The girls and their mothers were extremely interested in learning more about buying hosiery. Helpful in the teaching of this part of the unit were the Dupont teaching film, teacher's handbook and student booklets on hosiery. The study of some of the characteristics of nylon was incorporated at this time."

"Did you have actual materials as well as the other teaching aids you mentioned?"

"Yes, we were fortunate to have many stocking samples of half stockings given us by a local department store. We used them to show full-fashioned, stretch, mesh, and seamless styles. Contacts with the local stores have been invaluable. We even had a display leg for hosiery given us.

"I forgot to mention some of the teaching materials we used when studying sweaters. Articles from Co-Ed were very useful, as were the Sears-Roebuck Hidden Value pamphlets. Then there is a new (fall of 1963) consumer buying guide from J. C. Penny entitled "How to Select a Sweater" which includes a film strip, wall chart, packet of label and hang tags, and a teacher's guide. (Penny's "How to Select Fabrics for Garments" is also very useful.)"

"No study of cotton?"

"When we studied buying a blouse. Nylon came into the picture here, too, but as far as the synthetics went, more attention was paid to the polyester fibers."

"I can't help but wonder if some senior high school teachers might be raising their eyebrows and thinking 'All this in the 8th grade?'"

"Yes, I know senior high teachers worry about articulation with junior high work. Remember I was a senior high teacher, too, at one time. But go back to some of my original ideas about what we are trying to do, and also remember that the entire Wardrobe unit is at the most 9 weeks, and includes one simple garment to be constructed (usually a blouse or jumper; some students do both). I am trying to introduce a few ideas to these students that make sense for their needs now, and to excite them about the need for more information. I also want them to recognize that home economics is a fascinating subject to study."

Clothing Construction

"We've said only a little about clothing construction. Any more ideas?"

"I try to get the consumer viewpoint in there, too. This outline, entitled A SHOPPING TOUR FOR YOU, was used by individuals before we started any clothing study in the 7th grade. I think it could be used with any beginning group."

A SHOPPING TOUR FOR YOU

1. A number of stores in Park Forest handle patterns. Find out where you may buy patterns.

Store	Name of Pattern or Patterns They Sell
_____	_____
_____	_____
_____	_____
_____	_____

2. Check a pattern book to find out the prices of patterns. List prices found in one pattern book for the following:

A. A teen size skirt _____
B. A junior size dress _____
C. A man's shirt _____
D. A sub-teen size dress _____
E. A miss size dress _____

3. Find the zipper counter in the store and look over the zippers. What is their brand name and how many different types of zippers can you find? List the types.

Brand Name	Types

4. Fabric is often sold by a brand name. One example is INDIANHEAD. Find other material sold by a brand name. List at least six.

1.
2.
3.
4.
5.
6.

5. Figure the cost of a wool skirt that needs $1\frac{1}{2}$ yards of 54" width wool fabric that you found while you were on your shopping tour.

Cost

6. Figure the cost of a cotton skirt that requires 3 yards of 36" fabric. This material should not be a blend or a combination of fibers but 100% cotton.

   Cost

7. Did you see any labels on the fabrics in the yard goods department that listed information on cleaning care, pressing instructions, finishes, or dyes used?

   List information found on two labels.

   A. B.

"Perhaps some of the ideas I try to emphasize in clothing construction show up in this fashion show script. No, style shows were not completely eliminated but were given with a special twist. I have very strong feelings against the type of script that reads: 'Mary is modeling a brown, two-piece dress. The blouse is fastened with three bold-size yellow buttons,' etc. The audience can tell, unless color blind, that the dress is brown and the buttons are yellow or that the neck is round or square.

"What the audience doesn't know is that the fabric is wash and wear and doesn't have to be dry-cleaned, or that this is the second dress the girl has made, at a cost of $5.49. Nor do they know she didn't baste it by hand, but used machine basting, and by use of other short cuts, finished it in seven class periods.

"One of our style shows had as its theme MAGIC. Our script for some of the garments follows:

"We feel we have performed some magic this semester during our clothing construction unit, so with a wave of the wand we start our show.

"G_____ B_____ is modeling a dress of glazed cotton with the full sleeves so popular this spring. In order to make the sleeves stand out they are lined with a nonwoven interfacing. Maybe you are familiar with it as Pellon. The black braid, all painstakingly put on by hand, by the way, adds the high fashion touch to G's dress. And the amazing mystery about the dress is that it cost but $7.75. We are positive we couldn't find a dress similar in construction, detail, and high fashion for less than $20.00.

"Though oftentimes magicians can do a number of tricks with just one deck of cards they hold no edge over S_____ L_____. She can do any number of tricks with this basic design sheath dress. One trick is that this pattern was designed with three variations so she can sew four dresses from one pattern. That's a mighty good trick--and watch her vary this dress with her accessories! That's another!

"V____ W____ learned a number of tricky construction processes in making this dress. It has a jacket with a collar and special trim. It takes more than 'sleight of hand' to complete all these details but V____ had the patience necessary to finish this. Such traits as initiative, patience, and tenacity show up in a person when she is sewing.

"Just as an audience gets a thrill from watching a magician turn an ordinary duster into a bouquet of flowers, the girls in our class get a thrill in seeing a piece of cloth turn into a dress they enjoy wearing. Enjoyment is an important part of sewing. R____ T____ enjoys wearing her dress, and takes pride in the fact that this is the very first dress she ever made. And this is no 'hocus-pocus'--the construction of this dress is practically perfection.

"Sewing is no longer the tedious task it once used to be. Almost as fast as we can say 'abra ca dabra' we can assemble a dress. Instead of hand basting we use pin basting or machine basting. G____ B____ finished this shirtwaist dress in record time and went on to make another dress and a coverall apron.

"Some of the new materials on the market have been classified as 'magic' by those of us who hate to iron. B____ P____ has a dacron and cotton dress that will be a breeze to care for. Not only does she have magical material but she performs more magic when she removes the jacket and you see a cool summer dress underneath.

"S____ E____ made this sport outfit during noon hours at school. The shorts can be worn with a variety of blouses and the blouse S____ is wearing tonight was just finished about two hours ago! It's sometimes hard to believe that a magician can pull a rabbit from a hat, but almost as unbelievable is the fact that we can take a paper pattern, a length of material and come up with a costume for tennis or an evening dress for a big dance. Yet all this was done in our class this year. M____ W.'s bouffant party dress will make her the hit of any party. It doesn't take a look into a 'crystal ball' to tell us that she undoubtedly will be making more and more of her party dresses. There is satisfaction from knowing you are the only one in the room with a particular dress, and even more satisfaction when you can answer the question 'Where did you get that lovely dress?' by saying "Oh, I made it myself!'

"In another two weeks we will be graduating from 8th grade and we're all excited about the dress we'll wear that evening. S____ S____ made hers for only $6.45. I'm sure we could call this magic. Not only has S____ learned a skill to help save money but she has learned to appreciate good clothing construction which will make her a better shopper and wiser consumer. M____ H____'s graduation dress has a filmy overskirt of organdy. When she wishes to appear less festive, she can remove the overskirt and--presto--she has a charming sheath dress. M____ H____ can tell you it may be easier to pull a rabbit out of a hat than to get the pleats in a skirt all even. Yet she did a fine job and will be very happy wearing this graduation evening.

"Our show of magic is over, and with a wave of the wand we bring you back from the world of make believe."

Teaching Foods

"Perhaps we better talk about teaching some of the other aspects of home economics for awhile."

"Various methods were used to organize the foods unit, and the last one I tried, with the focus on food for entertaining, was well received. Communities vary, but often, at sometime during junior high school, the party 'bug' bites the girls and they may become hostess at a variety of parties. Each laboratory period during our unit was spent preparing food for a party. This may sound frivolous, but I don't think it was."

"I can easily see how this could, or could not be, so considered."

"We studied snacks and breakfasts in relation to pajama-party food. Birthday parties featured cakes, frostings, and punch. After-the-game or skating parties featured casseroles, hot sandwiches, quick breads, and cookies.

"Prior to the laboratory period the students divided into committees to plan menus, make the market list, design invitations, make a centerpiece or table decoration suitable for the occasion, and use their study sheets to learn more about the food they were to prepare.

"These learning experiences were fun. Other students talked about them and couldn't wait until they took home economics. Along with the fun came learning; knowledge and skill in preparing foods that could be prepared at home for family and friends; and pleasant associations about homemaking classes in their minds."

"What were some of the other experiences in teaching foods?"

"One thing we tried which was very successful was to integrate with some of the content in 8th grade social studies class. Pupils were studying the United States Constitution and how the government protects them as citizens. In home economics we studied the laws the government has to protect us as consumers. We labeled a short unit "Food Additives and the Work of the Federal Food and Drug Agency." You see, we didn't try to teach them all aspects of consumer protection."

"Just what did you do?"

"Teaching materials found helpful were the booklet Food Additives, What They Are, How They Are Used and the accompanying teacher's outlines. This booklet was prepared by the Manufacturing Chemists' Association, Inc., 1825 Connecticut Avenue, N.W., Washington, D.C. They also have two filmstrips for use in schools. Science Tells Why--Food Additives won the blue ribbon award at the American Film Festival. This strip is thirteen minutes long, in color, and has an accompanying 33 1/3 rpm record. The second filmstrip, Through the Ages, is also free from the Association.

"More information that the girls used was from the booklet Food Facts Talk Back prepared by the American Dietetic Association. This material helped reinforce what they had learned in the past and added new insights in nutrition that were fun to learn."

"You are implying that the 8th graders enjoyed this unit?"

"Indeed they did. The material was completely new to them, they made interesting bulletin boards on food additives, became more conscious of labels and made examples of correct labels for food products, discussed what they were learning with their parents, and I feel profited from a speech given at an all-school assembly by the Chicago representative from the Federal Food and Drug Agency."

"I remember you said the length of period you had to work with is 47 minutes. That must pose problems, does it not?"

"To help in the foods work I keep two recipe files. One is of quick, easy, good recipes to prepare in class in a short time, and the other is also of easy, good recipes that take a little longer that the girls can prepare at home. For instance, for cookies in school, any that had to bake 20 minutes, were discarded from the one file and put in the other. School cookies had to be done in 10 to 12 minutes. However, when recipes were distributed I included both on the duplicated form indicating which were 'short' and which were 'long.'

"Favorite sources of recipes were:

Betty Crocker's New Good and Easy Cook Book, 1962, Golden Press

Farm Journal's Time Saving Country Cookbook, Nell B. Nichols, Garden City, New York: Doubleday and Company, Inc., 1961

Easy on the Cook, Chicago Home Economists in Business, 1960

The Cookbook Library's Time-Saving Cookbook, The Cookbook Library Inc., 551 Fifth Avenue, New York 17, New York, 1962

Better Homes and Gardens, Meals in Minutes Vol. VI, Meredith Press, 1963. $1.00

Cooking With Soup, Campbell Soup Company, 1963.

80 Favorites from Oscar Mayer, 1963.

"And of course magazines had excellent ideas. Two articles that were particularly helpful were:

"Creative Cookery from Packaged Food" in the February 1961 Better Homes and Gardens.

"The Magic of Mixes" in the April 1963 Ladies Home Journal."

"I remember that you always were an avid magazine reader."

"Finding none in the department when I arrived I felt a little dismayed. It seemed that teaching would be much harder without the use of magazines, old issues to use for illustrative materials and new ones to read for all types of information. The problem of getting a variety of old issues was solved by making it known at a PTA meeting that we would take old copies during a paper drive, then send them on their way after clipping. The response was wonderful. We had every woman's magazine we could possibly use given to us."

"How did you handle them all?"

"The students helped in clipping and mounting pictures. They were given suggestions for the type of things to look for, then they helped organize the picture files. Many students were introduced to a broader range of magazines than they typically read. Again it was a chance to allow for individual differences. Girls who were interested in decorating looked for pictures of color schemes, and so forth. At times, though, I encouraged looking through magazines that were opposite from their current tastes. For example, some girls that were really too 'tomboyish' were assigned to Vogue or Mademoiselle to clip pictures."

Consumer Buying in Food

"I suppose you tried to get the consumer viewpoint in foods, too."

"Field trips to stores come to mind, but it was not possible to do very much of this. However, the girls seem to profit from a field trip-type assignment. Study sheets were prepared and the students had two weeks time to complete them. In general, merchants were most cooperative in having their merchandise 'inspected' in this way. I made it a point to make as many personal contacts as possible to explain our purposes. Examples of the data the students were supposed to find are as follows:

"On a trip to your favorite grocery store find prices for the following:

Small jar peanut butter _____
Large jar peanut butter, same brand _____
Figure price per ounce for each

Small can frozen orange juice _____
Large can frozen orange juice _____
1 doz. juice oranges _____
1 46 oz. can of canned orange juice _____
Which would you recommend buying? Why?"

"I imagine as the various reports came in you would get some variety in prices from store to store, and variety in prices in the same store depending on the time of the week sales may have been in process."

"Girls were always eager to report what they found out, each felt herself to be rather a specialist, so we had lots of comparisons to make and conclusions to draw."

"Do you have any particular teaching materials to recommend in this area?"

"An excellent resource, I think, is The Blue Goose Buying Guide for Fresh Fruits and Vegetables distributed by the American National Foods, Inc., Advertising Department, 122 East 7th Street, Los Angeles 14, California. Another book used was by Carton E. Wright, Food Buying: Marketing Information for Consumers. This last one was more of a teacher, than student, reference, however."

Other Experiences in Foods

"Everybody loves a contest and we found this to be a way to teach daily menus. Situations were given for which the girls planned menus. Some of the situations were:

Menus for a winter weekend,
A skating party menu,
Five school lunch menus to be carried in sacks,
A dinner menu that could be prepared in 40 minutes or less,
A dinner menu that could be prepared in the oven."

"Were these actually judged, or just graded by the teacher?"

"It was a real contest. We had home economists in the community serve as judges. Regular categories in which a girl could enter were set up, and there were rules to follow. There was recognition by having one's picture as winner in the newspaper, as well as receiving a prize."

"Was this a project carried out in class, or as an outside assignment?"

"Some of both. We used some class time to get them started and introduce resource materials for them to use. Some of the students never had seriously 'read' a cookbook until this time, but they went about it with eagerness. This assignment seemed much more interesting than 'plan three daily menus and hand them in tomorrow.'"

"Did you make use of games at all?"

"Yes indeed. We made up one in the 7th grade where a different recipe was given to each girl. She had to select all the tools and utensils necessary to make the recipe before she could 'win.' The Vitamin Bingo found in the February 1961 Forecast was very good to review vitamins. In fact, there was also an excellent article on "Selling Nutrition to Teens" in that same issue.

"We also used a type of spell-down quiz when we wanted a quick review of a day's lesson. Sometimes the class was arbitrarily divided, sometimes they chose sides. The teacher then asked pertinent questions in spell-down fashion. High school students may not like this, but junior high girls did."

Sharing Ideas with Others

"You have frequently mentioned sharing ideas with mothers, and you have said something about hallway bulletin boards. Were there other aspects of this in your program?"

"We had three projects in relation to elementary school children. One was the preparation of a cookbook for boys and girls. Using the Better Homes and Gardens Junior Cookbook, Betty Crocker's Cookbook for Boys and Girls and Julia Kiene's Step by Step Cook Book for Girls and Boys as guides we prepared our own "Dick and Jane Cook Book." There is no better way to learn basic information than to have to be able to write it in terms so that youngsters can understand."

"Another project came about at the request of a first grade teacher. One 8th grade class took all the necessary materials to the elementary school and helped thirty youngsters make quick pizzas from refrigerated biscuits. It was a wonderful lesson in organization and management for the 8th graders, and a chance to share fun with the first graders."

"I would guess, however, that your girls felt more grown-up than childlike in this project."

"I think so. The junior high student does like to try out grown-up roles, so having her play teacher makes her feel older and gives her some feeling of authority. We have a Future Teachers of America Club in our school, and it seems that many home economics topics could be taught in the grades by use of these Future Teachers. Of course, they can 'play teacher' in your own class, too."

"What was your third project with elementary school children?"

"We have a collection of hand puppets that the students used when reporting on some topic, or sometimes they wrote special skits in relation to baby sitting, home safety, or nutrition. These 'shows' were well received in our classes and someone suggested that elementary pupils would enjoy them, too. We did one on nutrition. The elementary teachers appreciated our doing this, and I feel that the nutrition material presented will stay all the better with the junior high students for their having presented it to others."

"At one time you said something about your Tessie posters. What are they?"

"Tessie was just a name we made up for a stick figure character which was on the posters. Each week we would have either 'Tessie says' or 'Tessie asks.' Then there would be some provocative statement or a question

of general interest illustrated by a colorful picture--remember our wealth of pictures from the magazines."

"Were the posters used for your classes?"

"Indirectly. Class committees were assigned to prepare the posters, and the students were supposed to be able to explain Tessie's viewpoint or answer her questions when other students, or faculty, asked about them. The posters were placed where others could easily see them, and I think people got in the habit of looking for them.

"One statement we had Tessie make appeared under a colorful picture of a cornfield. It was 'Since crops have been grown over and over on this land the soil must be depleted and we should take daily vitamins to help ourselves stay healthy.' We used a great variety of topics in order to show all aspects of home economics."

"It sounds as if you were trying to interest all the school in the work of home economics."

"Yes, that's true. I think we always have to work at the job of interpreting our subject. Another way we did it was by publishing the results of surveys we took. These might have been in the school newspaper, or in graph form on poster. Such things as hours parents expected students to be home, or in bed, or size of allowance were of interest to parents, too. Food surveys on 'Who Eats Breakfast?' or 'How often do you eat at the drive-in or soda fountain?' were most informative."

Field Trips

"Field trips often open the eyes of others about what we are doing in home economics. You have mentioned some individual field trips; did you also have some group ones?"

"Yes, and I remember one when people were surprised at the trip because, to them, home economics meant sewing your own clothes. We went to a ready-to-wear shop to have clothes modeled. We arranged for ten students to go to the store the evening before to be fitted for the outfits they would model. Each girl also had her hair shampooed and set by the beauty shop in the store.

"The next day these girls modeled for their classmates while the store's fashion commentator told students about styles, accepted teen dress, and how to build a wardrobe. The longer I teach the more convinced I become that clothing selection needs emphasis in the junior high school; each semester I have lengthened the unit on selection."

"You are probably located advantageously for a variety of field trips."

"Everyone could walk on the one mentioned earlier. For two years we took a more comprehensive trip by bus, but even then everything was within five miles. These trips were near the end of the year, and we

tried to tie together many phases of our subject. The students were given questionnaires, and at each place visited they found out answers to the questions. (This was not a trip just for the fun of it.) Each of the hosts on the trip had been given a copy of the questions so they knew what points I especially wanted covered. As well as reinforcing some of the ideas that had been learned in class, we used the field trip to broaden students' horizons."

"What type of places did you visit?"

"A furniture store, a dress factory, a large department store, a restaurant and its kitchen, model homes and an electronic range exhibit comprised our stops one year. The girls were fascinated to see one hundred dresses cut out at once with such skill and precision, and stood open-mouthed watching hems put in dresses at the rate of one every forty-five seconds. In the department store they saw dresses being unloaded, marked and priced, pressed and put on display. They also found out about possible jobs open in the field of merchandising. The institutional type kitchen was quite new to them, too, and again they got some ideas for possible kinds of jobs."

Career Opportunities in Home Economics

"When we started this visit I remember you said something about wanting to instill positive attitudes so girls might want to study more home economics. And you have just suggested another way you get in possible career opportunities. Do you do anything more directly?"

"When I found out that the English teacher in our school was assigning a paper on vocations I put up a bulletin board showing the various job possibilities there were when one had a background in home economics. Now a career bulletin board is a feature each semester. I think junior high is a very good time to plant the idea of a career in home economics. They are beginning to think ahead to high school electives and how they may influence college work. We should give them a clear picture of what home economics means."

"I agree, and I suppose you would be willing to add, a clear picture of what the study of home economics means on the professional level. I mean the kinds of supporting and related courses that are necessary to make one a real student in the field. Hearing someone say, 'She ought to go into home economics, she's good at sewing and cooking,' grates the wrong way with me. One needs many other skills, too, including intellectual ones."

"Another way I have approached the career interest is through the resource people who come to give presentations in our classes. For example, when a public utility home economist, some one from a pattern company, an interior designer or a dietitian is invited to speak to the class, I ask each to mention their educational background and the kind of jobs they may have had leading to their present one.

A Last Word

"We have talked about many interesting approaches to home economics, and I'm sure it covers more than one semester of 8th grade work, since, as you said, you like to re-evaluate what you have done, and to try new methods."

"There is one other lesson I would like to tell you about. I teach it twice a year, before Mother's Day and before Christmas. This lesson is on the selection of saucepans for use as gifts. Students had been asking so many questions about the new pyroceram pans that some instruction seemed desirable. We had examples of many different saucepans so the girls could see the materials used and could handle the pans. Students were also given mimeographed forms on which they could note the advantages and disadvantages of each type of material as we discussed it. Some frames from a filmstrip on the selection of pans were also used.

"I know some people might not think it appropriate to teach 'equipment' at the junior high level. But we were not making a big study of equipment, merely trying to learn one thing thoroughly enough so that it could be of immediate usefulness, and learn it in such a way as to develop good principles of buymanship which have broad applicability."

"I believe we forgot to ask about what you included in the unit labeled 'Making My Room Liveable.'"

"Briefly, the girls studied color schemes and furniture arrangements, having drawn a floor plan of their room at home; planned a study area and in doing so worked a bit with home lighting; studied care and cleaning of their rooms and were introduced to some ideas in relation to work simplification; and finally studied wise choice and arrangement of accessories. Remember this was a three to four week unit."

Ideas for you in the above? We hope so, although we know there are many areas of subject matter which were not developed in this conversation.

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A Look at a Program in a Three-Year Junior High School

Recognizing changes in families in today's society, Alton, Illinois, teachers felt it was vitally important to develop a program that would be challenging and thought-provoking to students. A required program in the 7th and 8th grades can give a good foundation for subsequent elective work. Since several junior high schools send their students to one senior high school in Alton, it was particularly important to plan for articulation of the junior high programs with the high school programs. The following program resulted from a special summer workshop.

Students in the 7th and 8th grades are scheduled for a total of twelve weeks of home economics in two six-week blocks, one each semester. Ninth grade students have a full year of home economics.

Seventh grade units are planned in the areas of food and nutrition, housing, management, and clothing.

The Weight of a Snack	4 weeks
The "Type A" Lunch	1 week
Basically You	1 week
Room for Improvement	2 weeks
A Step in the Right Direction	2-3 days
Good Grooming--Plus or Minus?	4 weeks

Eighth grade units are planned in the areas of child development, management, relationships, and clothing.

Child Care Tips for Teens	3 weeks
Penny Wise	1 week
Making and Keeping Friends	1 week
Careers in Home Economics	1 week
The Sew Set	6 weeks

Ninth grade units include the areas of clothing, food and nutrition, housing, management, and relationships.

Miss Teen--The Super Consumer	7 weeks
Sew Easy	11 weeks
Operation Nutrition	2 weeks
Operation Meal Preparation	10 weeks
Sharing in the Care of the Home	2 weeks
Let's Have Fun	2 weeks
A Well-Guided Miss	2 weeks

The last two titles may need a word of explanation. Principles of management are incorporated and emphasized in the entertainment unit as well as work with food. Relationships naturally come into this, too, as they do in "A Well-Guided Miss." This unit emphasizes the girls' opportunities in growth through activities in the Future Homemakers of America, working with others for common purposes, committee responsibilities, and striving for her own achievement.

Home Economics Integrated with Other Subjects

Home economics is typically referred to as a "special" subject and, unfortunately, does not get included as often as it might in integrated courses for junior high school students. One example, however, will be cited to show possibilities.

At Skiles Junior High School in Evanston a plan was in effect to have the allied arts teachers (home arts, fine arts, and manual arts) work cooperatively with the language arts-social studies-homeroom teacher. The building was designed to aid this objective of integration and correlation. The allied arts department is located in the academic section of the building as large open areas directly opposite a bank of classrooms. There is easy movement between these laboratory facilities and the language arts-social studies classrooms.

Time was provided within the school day for regularly scheduled conferences so that teachers might plan together. Certain experiences were planned in the allied arts which could enrich and supplement the learning in the language arts-social studies classes. The teacher who had her homeroom students for a block of two-to-three hours time each day in the aforementioned academic subjects was responsible for the coordination of the planning and making the assignments. The allied arts teachers served as resource persons, estimating possible length of suggested projects and whether or not they were feasible.

An allied arts teacher also served as a resource person during the actual teaching, sometimes sharing the classroom with another teacher, sometimes having the students in his own area with the special facilities. When students were meeting their regular schedule for one of the allied arts classes if no particular integration project was under way, experiences were of an exploratory nature in that field. Knowing the schedule for the integrated projects ahead of time, each teacher could plan other experiences in the time available.

The following is an example of how many subject areas in the school could be integrated with a unit in United States History.

Westward Expansion

I. Time

A. 1800 - 1850
or
B. Post 1812 to 1860

II. Routes

A. Land
1. North
2. South
B. Sea

III. Reasons
A. Farming
1. Oregon
2. Ranch
3. Grain
B. Gold - silver
C. Religion - Utah

IV. Cultural Growth
A. Music
B. Literature
C. Drama

Integration of Departments

Dramatics:
1. Wagon train life
2. Gold discovery
3. Brigham Young
4. Texas War (Alamo)
5. Indian Wars
6. The arts shown
7. Theatre of the time

Art:
1. Series of major incidents in pictures
2. Dioramas
3. Mural of any of the integrated studies

Music:
1. Negro music--early
2. Songs on the trails
3. Earliest hill billy music
4. Dance

Mathematics:
1. Charting travel times of various routes
2. Calculating supplies of specific types for times between supply sources
3. Study of assay reports and projection of mine wealth

V. Communications
   A. Telegraph
   B. Others

VI. Life
   A. Homes
   B. Clothing
   C. Foods
   D. Customs

VII. Inventions

Science:
   1. Study important finds of the time
   2. Comparison of knowledge then and now
   3. Medicines of the time

Home Economics:
   1. Study of clothing styles and sewing methods
   2. Foods of the day
   3. Wagon train foods

In this case the students actually prepared a meal with the type of foods they studied--including buffalo meat!

Another venture was in cooperation with the French Club, when a French banquet was prepared and served after a study of French food. The art department talents were used, too, and the whole affair was entitled by the students as "Le Triomphe des Americains."

Some readers may be thinking "exploitation" of the specialist; we say no, its planned integration which can have real value for students' learning, and can be professionally stimulating to the teachers involved.

Integration as described here does take time to plan as well as time to carry out. The resource person should have free time to be just that when she is needed in that role. Unfortunately, pressures of enrollments resulting in more crowded schedules have curtailed opportunities for some of these integration projects at Skiles.

Another way personnel in Evanston junior high schools are working on integration of subjects is by outlining the scope of health education which they consider important for 7th and 8th grade students, and then delineating the various aspects of it to be included in a variety of subjects. Much of what is considered family life education is included. Both physical and emotional-social health are considered as can be seen by this chart showing departmental responsibilities:

Departmental Responsibilities for Health Education (1)

Physical Health	Grade 7	Grade 8	Emotional-Social Health	Grade 7	Grade 8
HOME ARTS			HOME ARTS		
Foods and nutrition	x	x	Social growth in our families	x	x
Cleanliness-Sanitation	x	x	Helping at home	x	x
Safety	x	x	Spiritual attitudes		x
Good grooming		x	Peer groups	x	x
Simple first aid	x	x	Social skills		x
			Clothing		x
			Budgeting		x
INDUSTRIAL-FINE-GRAPHIC ARTS			INDUSTRIAL-FINE-GRAPHIC ARTS		
Accident prevention	x	x	Desirable attitudes	x	x
Workshop safety	x	x	Appreciating the need of preplanning	x	x
Physical limitations of the individual	x	x	Developing self-discipline	x	x
Need for good physical health	x	x			
PHYSICAL EDUCATION			PHYSICAL EDUCATION		
Good health habits	x	x	Social and personal relationships	x	x
Personal appearance	x	x	Emotional maturity	x	
Sleep, rest, recreation	x		Personality growth	x	
Posture	x		Attitudes and understandings		x
Foods and nutrition		x			
Physical changes during puberty		x			
Physiology of exercise		x			
Physical fitness		x			
Safety and first aid	x	x			
School health services	x	x			
SCIENCE			SCIENCE		
Good health habits	x	x	Science--a tool for healthful living	x	x
Personal hygiene	x		Physical health can affect social-emotional health	x	x
Body structure, and functions		x	Social-emotional health can affect physical health	x	x
Foods and nutrition	x		The influence of heredity and environment	x	x
Tobacco, drugs, alcohol		x			
Heredity and environment		x			
Physical fitness		x			
Safety	x	x			
UNIFIED STUDIES-HOME ROOM			UNIFIED STUDIES-HOME ROOM		
Good health habits	x	x	Family relationships	x	x
Safety	x	x	Social and personal relationships	x	x
School health services	x	x	Community health services	x	x

A Look at Home Economics in a Unified Arts Program

In Oak Park, Illinois, 7th and 8th grades are part of the elementary schools and home economics is part of a program in Unified Arts. This area comprises Home Arts, Industrial Arts, and Arts and Crafts. These are housed in a Unified Arts Center, equal to three classrooms, furnished and equipped for activities in all three phases, yet arranged for flexibility so that when equipment is not needed it can be moved or stored.

Two teachers serve a Center at all times. An arts and crafts teacher is assigned full time to one school building, whereas a home arts teacher and an industrial arts teacher alternate between two buildings on a semester basis.

The following was adopted as the philosophy and objectives of the program in Unified Arts:

> "We believe that the purpose of the Unified Arts is to provide each child with an opportunity to participate in art activities which help enrich family and community living.
>
> Objectives:
>
> 1. To encourage initiative and self-reliance for original art ideas.
> 2. To foster the potential creative expression of every child.
> 3. To help children gain an awareness of aesthetic values.
> 4. To develop abilities and skills for desirable group participation in art activities.
> 5. To develop skills, information, and knowledge needed in one's personal, family and community living" (2).

Activities are organized around the following units:

7th grade	8th grade
1. Serving my school and community (taught when the Industrial Arts teacher is in the center)	1. Contributing to the family group
2. Preparing for seasonal and holiday celebrations. (interspersed throughout the school year as needed)	
3. Making the most of myself, my home and my family (taught when the Home Arts Teacher is in the center)	3. Making the most of myself

* * * * * * * * * * * *

Home Economics in junior high school grades can be organized and presented in a great variety of ways. There is no one answer; each school system develops its own program.

References Cited

1. Health Education Guide for Junior High School, Community Consolidated Schools, District 65, Cook County, Evanston, Illinois.

2. Unified Arts Course of Study, Kindergarten-8th Grade, Oak Park Elementary Schools, Oak Park, Illinois

CONTINUING CHALLENGES

What are some of the challenges still with us in providing home economics programs for junior high school youth?

Articulation between grade levels. Home economics teachers in junior high schools and in senior high schools in the same community or school district need to get together to find out what can be done to build a worthwhile curriculum in home economics for the youth of that community. When there is no organized structure within the school system to take care of this, one would hope that the teachers themselves would get together to discuss common concerns and to share ideas.

As home economists we are naturally concerned about our subject. As teachers we should be concerned about the total educational experience the students have in relation to our subject, not just about what happens in one's own classroom.

Planning needs to be done cooperatively so that there is no danger of the senior high school "calling the tune." It is important that junior high school teachers have a feeling of purpose about what they are trying to do for young adolescents in their grades. The junior high school program should not exist merely to fit into senior high school programs.

Articulation can also work in the other direction. Much about home and family life is taught below grade seven. Junior high school teachers need to be aware of curriculum content in the grades as well as in senior high.

Integration between subject areas. Although home economics is often labeled a "special" subject, it has a very real contribution to make to the general education of junior high school youth. Sometimes home economists may be called upon to be a member of a team planning general education experiences; at other times the home economics teacher may bring out relationships to other subjects in her own teaching.

Meaningful repetition has value in aiding learning, but repetition per se can be boring. However, having an idea or principle presented again, but from a different viewpoint in another subject, can be exciting

to learners. Learning makes more sense when meaningful relationships are recognized. The student can better organize what he has learned and build new learnings on former ones. For each teacher to approach her subject as if it were brand new to the student and related to nothing else previously studied, seems to be an inefficient use of time, both for teacher and students.

Home economics teachers need to be aware of trends in teaching in other subject areas and of various types of curriculum projects that may be influencing the work in other areas. For instance there has been a growing concern for economic education at all grade levels. Many teachers from a variety of subject areas have participated in workshops on economic education. But do home economics teachers know what is going on in their own school in a field very closely allied with their own?

Teacher education planned for junior high school teachers. Pre-service teacher education experiences need to be expanded to include more definite preparation for junior high school home economics teaching. An understanding of the characteristics of the young adolescent and why the behavior patterns are what they are, as well as opportunities to see these students in action and to try out teaching ideas with them, seem very important prerequisites for security for a first-year teacher. It would seem that paying some special attention to junior high school teaching would make for much better preparation than assuming if one is educated for, and has some acquaintance with, senior high schools, then one can, of course, do junior high work satisfactorily.

On the other hand, it probably is not wise to educate our future teachers for too narrow a range of teaching. Women, particularly, need to be flexible in the kinds of positions they are prepared to take.

In-service teacher education experiences need expansion, too. Workshops focused on junior high school curriculum and teaching would fill a real need. More leadership for curriculum development in home economics below the 9th grade is desirable.

Teaching home economics to junior high school youth--a challenge, yes, but we hope also a satisfaction.

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*HOME ECONOMICS EDUCATION; *FOODS INSTRUCTION; *SCIENTIFIC METHODOLOGY; TEACHING TECHNIQUES; *PROBLEM SOLVING; CRITICAL THINKING; *LABORATORY EXPERIMENTS

Students need to master the scientific method of problem recognition, hypothesis formulation and testing, and tentative acceptance of the hypothesis to the point that they will be able to apply them to various problem situations which characterize everyday living. Opportunities for applying the scientific method in food preparation are presented. Subject matter covers: (1) steps in inquiry training related to foods instruction, (2) learning experiences which demonstrate chemical or physical principles, (3) examples of experimentation lessons for the foods laboratory, (4) thought provoking questions, (5) a chart showing basic scientific principles, their application to food preparation, and indicated reaction, (6) a unit of study, "Cooking Is Also a Science," (7) exercises on measuring versus weighing, canned versus homemade, and nutrient retention in cooked food, (8) evaluation and report forms, (9) lists of materials, procedures, questions, and criteria for judging quality or results, and (10) suggested ways to illustrate and explain the principles involved in the listed foods experiments. (FP)

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EXPERIMENTATION IN THE TEACHING OF FOODS

Dorothy Keenan, Southern Illinois University
Barbara Shannon, University of Illinois

> "The development of the ability to think is the central purpose to which the whole school must be oriented if it is to accomplish either its traditional tasks or those newly accentuated by changes in the world."
> . . . Taken from "The Central Purpose of American Education," a statement issued in 1961 by the Educational Policies Commission

Along with all other workers in the educational system, home economics teachers should find a challenge in the above words. Can we help the students in our classes to develop the ability to think? If we cannot, we may find our subject left out of the changed schools of tomorrow.

We believe that homes are important and that the management of a home requires thought of a high order. We agree with Lou Allen, the head of the first four-year college course in "domestic science," who said

> "No industry is more important to human happiness and well-being than that which makes homes."

And we are convinced of the truth of her further statement that "this industry involves principles of science as many and as profound as those which control any other human employment." Can we teach therefore, so that our students will be able to think about these principles? Teacher telling and student memorization will not accomplish this purpose. In her talk on "Teaching Science Principles Related to Foods and Nutrition" which was presented at the American Vocational Association Convention in December, 1961, Ruth Stovall emphasized this point by saying

> "We don't discover meanings by being told. Discovering meanings is a matter of experience."

It is entirely possible, however, for students to have many experiences without really "discovering meanings"--without gaining any understanding of the scientific principles on which the experience is based. Someone must set the stage so that the "whys" of procedures, processes and reactions are taught as well as the "how to's." Much experimentation has shown that improvement of reflective thinking does not just happen. The teacher needs to have clearly in mind exactly what she wants to accomplish, and must then set out purposefully to do it.

Methods of Science

In Education for Effective Thinking by W. H. Burton, R. B. Kimball and R. L. Wing, the authors suggest that students need to master the techniques of the scientist to the point where they will be likely to apply them "to all appropriate problem situations which characterize everyday living."

The essential methods are listed as

* problem recognition

* hypothesis formulation

* hypothesis testing

* tentative acceptance of a hypothesis

Helping students to become skillful in the use of these methods is not easy! If only the science teacher attempts this task, the chances are that the impressions will not be very lasting, and that little actual change in behavior will result. The home economics teacher can help reinforce these learnings by showing how they apply in another area, one closer to the lives of most students. She can also help by showing her respect for the methods, and by providing the kind of social-emotional climate in which students feel free to question and to hypothesize. We have to face the fact that thinking scientifically is hard work. Many students have been trained to accept the teacher's word for everything, and they find it difficult to make the necessary effort to change this pattern of behavior. If their first attempts result in anxiety and frustration, they will be discouraged from further exploration. The excellent little bulletin, Critical Thinking in Current Affairs Discussion, published by the Junior Town Meeting League, 356 Washington Street, Middletown, Connecticut, makes the point clearly.

> "Critical thinking is likely to be accompanied by errors and false starts. If students are heavily penalized for making mistakes by the manner and tone of a teacher, or by the manner of other students, they will hesitate to make the try. Helpfulness need not assume the guise of constant appraisal and judgment."

Students Learn to Ask Questions

Have you heard of inquiry training? This exciting new teaching technique is being developed at the University of Illinois by a group of researchers under the leadership of Dr. J. Richard Suchman of the College of Education.

Dr. Suchman believes that

> "the human mental apparatus is best equipped for doing its own job of assembling data, processing it, and abstracting concepts, principles and generalizations. Under these circumstances, motivation is high and learning is optimal. But, for the most part, we are not teaching this way in the schools."

One way to gather raw materials for thinking is through the asking of questions. But how much do we really encourage questioning in the classroom?

Dr. Suchman quotes, with dismay, a study of a school system in which ninety-seven per cent of the questions were asked by the teacher!

Can this situation be expected to produce thinkers? question askers? independent explorers of new paths? It seems unlikely!

However, there are questions and questions, and any teacher or parent can list many types which are not worth encouraging. The idea behind inquiry training is to help students develop the technique of asking productive questions--of carrying on the type of investigative procedures that are necessary for the self discovery of relationships. The assumption is that children who start with the facts and work out their own generalizations do a better job of learning than if the generalizations and concepts are handed to them ready made. In addition to facts and generalizations, they are learning how to assemble facts, hypothesize generalizations, and test these hypotheses.

Conditions for inquiry

It has been found that several conditions are necessary in order to bring about productive inquiry by children of the upper elementary grades, the level at which these studies have been carried out.

A concrete problem is important

In the inquiry training research, students are presented with silent motion picture films of simple laboratory demonstrations in physics. An event, such as the bending, when heated, and straightening, when cooled in water of a bi-metallic strip, is shown, and the problem for the children is to find out why it took place as it did.

The second condition is a responsive environment. The children must see that the problem can be solved with information which they can obtain by asking specific questions. The teacher does not explain or interpret anything. The children must take the responsibility of obtaining, organizing, and interpreting data. They do this by asking the teacher questions which can be answered by "yes" or "no."

Students need help in learning how to carry on this kind of investigation. Guidance in the process of inquiry is a third important condition. As the activity progresses, the children are given a plan of action which will give some purpose and direction to their searching. Experience has shown that a fruitful scheme of operations has three stages.

Stage One

Episode Analysis

The process of identifying the objects in the film and the condition of these objects at various times during the demonstration.

Sample Question

Is the strip made of metal?

Stage Two

Determination of Relevance

Separating relevant from irrelevant variables so that attention

can be focused on the critical relationships. The children are taught to perform verbal experiments. They set up experimental conditions, predict outcomes, and then test their predictions by asking the teacher questions. They soon learn that, if they hold all variables constant except one, and change that one variable in a systematic way, they can discover its relevance by observing what effects these changes have on the outcome.

Sample Questions

If you put the bent blade in a refrigerator, instead of in the water, would it straighten out?

If you left the blade to cool off in the air, would it straighten out?

Stage Three

The Formulation and Testing of Hypotheses

The students translate their hunches about what variable is related to another variable into predicted relationships that can be empirically tested (verbally in the actual inquiry session).

Sample Question

Did the two metals expand at different speeds? (It has been previously established that the strip is made of two metals.)

Critiques of inquiry sessions

An important part of the inquiry training program is the evaluation of the questions asked. The sessions are tape recorded and later played back to the group. The teacher stops the tape after each question to discuss its strengths and weaknesses and to help the children learn way of improving their inquiry skills. These "critiques" serve to make the children more aware of the "process" of inquiry and help them form productive search models to guide their investigations.

It has been found that an inquiry training session works best with groups of not more than ten children. A larger class can be divided and part of the students can watch the session while the others do the actual questioning. All will benefit from the observation and critique. Later a different group can be used as "inquirers."

The thrill of discovery

The research workers have found that children who are able to investigate under their own power do not have to be offered outside rewards in order to be motivated to learn. The activity itself is far more stimulating and rewarding than any grade or verbal approval that a teacher can offer.

A sense of self-confidence and power comes from this type of discovery. The child who is able to formulate a rule or law from a series of concrete observations or experiments comes to realize that he is able to find ways of predicting and controlling his environment. Once he is convinced that this environment is orderly and predictable, he is able to "take" the long

and tedious searches for hidden rules and regularities. Furthermore, if he has the chance to search and discover for himself, he soon learns the essentials for a productive attack on a problem.

The researchers at the University of Illinois have just begun to explore this approach. Although it was begun with principles from the field of physics, plans are now being made to test the inquiry method in various other areas of the curriculum, and with students of various age groups. Also they want to determine just how inquiry training can best be introduced into the school program. Inquiry is not seen as a solution to all educational problems, but rather as a basic intellectual tool, like reading, which facilitates the intake and processing of data and the discovery of regularities in the environment.

The teacher is important

It is the teacher who sets the stage for inquiry by posing the problems, by creating a responsive environment from which the children can obtain the data they need, by guiding and directing the children in their investigative operations, and by making it possible for pupils to achieve autonomous discovery and engage in self-directed learning.

Special training and supervised practice may be necessary to prepare teachers to use this technique effectively. In a sense it involves casting the teacher in a new role that is less directive and more responsive than the traditional one. It also involves a shift in emphasis from learning as the retention of facts to thinking and the discovery of concepts and principles. As Suchman says,

> "Before we can expect teachers to help their pupils learn to think the way scientists do, we must find ways of helping the teachers learn to think this way themselves."

Asking Questions in Foods Classes

Could home economics teachers use this process of inquiry? It seems that there are a number of principles involved in food preparation which students could be helped to "discover." Long-time readers of the Illinois Teacher may remember the description of the silent demonstration which was given in one of the early issues. In a silent demonstration, the teacher carries on a certain process without comments of any kind. The students are required to find answers to questions on a guide sheet, through careful observation of the teacher's work. This procedure could easily be adapted for an "inquiry session." The teacher would need to be careful to select a process for demonstration which would illustrate a basic principle of cookery. The application of a chemical or physical principle could be shown and the students could be asked to develop for themselves the reasons why the evident results were obtained.

For example, suppose we consider a demonstration in which two potatoes are cooked in an ordinary covered saucepan, and two in a pressure saucepan. The procedures should be carefully planned so that the type of saucepan is the only variable. Potatoes of the same size and variety should be used.

They may be weighed to be sure that they are of equivalent weight. The amount of water used in each pan should be the same, and also the length of cooking time. It would be wise for the teacher to rehearse this demonstration so that she can be sure of these details. Also, since in this case, the degree of "doneness" might not be immediately obvious, it may be necessary to let some students test this by piercing or slicing the potatoes cooked by each method. The question for inquiry becomes:

> Why do the potatoes in the pressure saucepan cook faster than those boiled in the regular saucepan?

Undoubtedly students will have a vague notion that the pressure has something to do with it, but almost certainly, they will not have thought further about the reason. An "inquiry session" can encourage them to do so. The pattern of attack outlined in the preceding material can be taught. The first type of question would identify materials and procedures used. For example, students might ask:

> Were both sets of potatoes raw when placed in the pans?
> Was water the liquid used?
> Was anything added to the water?

In cases where the demonstration procedures were very clear, not many questions of this type should be needed, and students could rather quickly move on to determine the relevant variables. To be encouraged at this stage is verbal experimentation. Such questions as

> If you used another vegetable, such as carrots, would the results be the same?
> If you did not fasten the cover tightly on the pressure saucepan, would the same thing happen?
>
> or
>
> If you cut both sets of potatoes in small pieces, would the ones in the pressure saucepan still cook faster?

would be possible here.

Finally students should be ready to formulate and test hypotheses. One, who knows that steam is hotter than boiling water, might ask

> "Is there more steam in the pressure saucepan than in the other pan?"

Another, pursuing the hunch that the temperature of the water may differ could inquire

> "Is all boiling water the same temperature?"

and, after receiving an answer of "no," go on to ask

> "Well, then is the temperature of the boiling water in the pressure saucepan higher than the temperature of the boiling water in the other pan?"

This person, as one can see, is on the right track and once she goes after the "why" of the temperature difference, should be able to arrive at the answer to the inquiry question.

The time needed to "finish" an inquiry session; that is to state the principle which explains the reactions of the objects manipulated during the demonstration, will vary. Students who are familiar with a principle and need only to state it and apply it to the illustration at hand, can do this quickly. If the principle is new, and if students are unfamiliar with inquiry techniques, more time will be necessary. It is suggested that thirty minutes is probably long enough for the typical session. If students have not arrived at the answer by that time, the teacher can explain the principle, and then go on to an analysis of the procedures used by the group. It has been observed, however, that students often become very excited over this type of intellectual detective work, and do not want to be <u>told</u> the answer. This is one of the outcomes for which we are working, and a rare and rewarding experience for today's teacher of children beyond the primary grades.

Homework for the teacher

Admittedly it is not easy to do a good job of leading an inquiry session. The teacher must set the stage so that students will be ready to try a new technique and to stay with it until they become more skillful. She must be able to think quickly "on her feet." She must carefully plan her demonstration so that one principle is illustrated and other variables controlled. And of course, she must have a <u>thorough</u> understanding of the principle involved so that she can give accurate answers to pupil questions. For the example which has just been discussed, the following points are basic:

1. Water consists of molecules which are in a constant state of agitation. As the molecules strike against the under surface of the liquid they may escape from this surface, or <u>evaporate</u>, accumulating as vapor in the overlying air.

2. As heat is applied, greater agitation of molecules results, greater pressure is built up within the water, evaporation is speeded up and finally visible clouds of vapor form (steam).

3. When the pressure within the fluid is equal to, or slightly greater than, the external atmospheric pressure acting upon it, the water boils. Evaporation takes place at a maximum rate.

4. As liquid vaporizes, it increases in volume. But presence of an external pressure will resist such volume expansion. In this case boiling cannot occur until the internal pressure in the fluid has been raised by an increase in temperature to a point at which it can overcome the external pressure.

5. As the external pressure acting upon a fluid is diminished, the boiling point is lowered. By reducing the pressure over it, water can be made to boil even at room temperature.

Perhaps one additional caution is needed. We should point out to students that the scientific explanations of the way materials react are based

on presently accepted hypotheses. It is possible that further study and experimentation will result in changes in these hypotheses.

Some other possibilities for inquiry sessions

1. Why does moisture accumulate on the outside of a container when it is removed from the refrigerator?

2. How is it possible for thickening of an instant pudding to occur quickly and without heating, when an ordinary starch mixture does not thicken until heated to boiling?

3. Why do overmixed muffins become peaked and tunneled?

4. Why does it take less time to cook a frozen vegetable than the same vegetable when fresh?

5. Why do prunes and apricots lose their "wrinkles" when steamed?

6. Why does a sugar sirup form a soft or hard "ball" when dropped in cold water?

Experimentation in the Foods Laboratory

Inquiry training may be thought of as verbal experimentation. Presumably, it can be used in many situations when physical manipulation of variables would not be possible. But students need to work with real things, too; to have some experiences in handling materials, gathering data through their own efforts, and arriving at some tentative conclusions. A foods unit can provide some of these experiences if the teacher is aware of the possibilities. Classroom experiments can serve as a basis for many valuable learnings. These experiments do not necessarily have to be complex, but they should involve, in the words of Burton, Kimball and Wing,

> "the spirit of inquiry, the thrill of discovery, the challenge of creative and imaginative effort."

Surely the area of food preparation presents many opportunities to encourage an understanding of scientific method, and the development of a scientific attitude.

The trained eye

Why not begin with observation? A trained scientist is observant. He notices details that others may overlook. He wonders about things he observes which others may take for granted. Students beginning foods study have all seen water boil. But have they really observed it boil? Do they have any conception of the difference between "simmering" and "boiling"? Do they know what happens as tne temperature changes? Do they know how long it takes to boil a given amount of water at a specific burner setting? Probably not. Yet the answers to all these questions are important to the person who is cooking.

Thus a teacher might start her emphasis on experimentation with a

lesson devoted to boiling water. She might choose to demonstrate procedures for observation first, especially for younger students. She could measure, or have a student measure, one or two cups of tap water, and place them in a glass saucepan over a stove burner. If the class were large, several saucepans of water would be needed. The students should watch the changes in the water carefully, each writing down what she observes. After the water boils, the girls could compare notes and make a list of the stages through which the water passed. Probably a first attempt at this exercise would reveal very inadequate habits of observation. Repetition should help the students see more. There is a lot going on in boiling water! A list such as the following might be compiled.

1. Water clear and quiet
2. "Current" lines visible--move about as if floating
3. Tiny bubbles appear on bottom and sides of pan; remain fairly stationary
4. Some bubbles break loose and rise to surface of water where they disappear--others remain on bottom of pan
5. Bubbles increase in size--some which rise to surface move around just under surface before disappearing
6. Bubbles rise very rapidly--become tinier as they reach top (break in water); some remain in water--form and break so as to appear to be "dancing"
7. Water rolls at surface in one or two spots
8. Water rolls over entire surface

Some questions which might arise:

What are the bubbles?
Why do hot things steam?
How hot is boiling water?
Do you have to heat water to boil it?
At what stage is water <u>really</u> boiling?

These questions should all be noted, perhaps on the board, but the teacher will probably not want to answer them directly at this stage, Encouraging a scientific attitude means encouraging students to find ways to answer their own questions, wherever possible.

<u>Further exploration</u>

Once the students have the stages of boiling water clearly in mind, they can explore further. They can determine the time it takes to bring one cup of water to a full rolling boil at different burner settings, on different size units, and in saucepans of different sizes and materials. They can see how the amount of water in the pan and the depth of the water influence the time required to bring the water to a boil. They can add measured amounts of substances such as sugar and salt to the water, and see how these things affect boiling time.

The teacher will need to help in the construction of simple chart forms on which to record the results of the observations. She will also want to see to it that students study their records and formulate some general

statements about the results which they can then use as guides in cooking various foods. For, since home economics is an applied subject, all observation, inquiry and experimentation should be directed toward its application to the practical problems of homemaking. Two generalizations which the students may develop could be:

> The more shallow the water in a pan, the sooner it will boil.
> Adding salt or sugar to water lengthens the time it takes to boil the water.

Older students might carry on more complicated observation-experimentation with the use of thermometers. The temperature of boiling water could be measured by

1. allowing the bulb of the thermometer to rest on the bottom of the pan
2. holding the thermometer bulb in the bubbles breaking just above the surface of the water
3. suspending the bulb of the thermometer so that it does not touch the pan bottom, but is completely covered with water.

The appearance of the water should be observed at different temperature readings, such as 140 degrees F., 185 degrees F. and 212 degrees F. What temperatures correspond to the various physical appearances of the water which were noted in the previous list? What happens to the temperature of the water when it stops boiling?

A study of the way in which salt and sugar affect the boiling point may be carried on.

1. Pour one cup water into each of two small containers. Mark level of water and add water as needed to maintain this level.

2. Heat water to boiling. Add one teaspoon salt. Stir until dissolved. When water boils again, read the thermometer. Repeat, adding one teaspoon of salt at a time until no further change occurs.

3. In the same manner, add sugar to the water in the other container. Add the same amount of sugar as you did salt. Does the boiling point of the sugar solution also remain constant after a number of additions?

What explanation can be given for the results observed in this experiment?

Stepped-up Learning

For many years, exercises of the type just described have been confined to college foods classes. But students are learning the basic scientific principles in high school physics, chemistry and biology. Why should we wait until two or three years later to illustrate the applications? In fact, with the stepped-up elementary school science programs, the seventh graders who enter our classes are likely to be familiar with many science concepts. To offer them "just cooking" seems painfully out of date!

One seventh grade group enjoyed figuring out for themselves the procedure for making a basic white sauce. The teacher said to them, "Suppose that you would like to make a smooth, thick hot paste from flour and water. You have one cup of cold water and two level tablespoons of flour. What possible ways of combining these two ingredients can you think of?"

The girls saw that several things could be varied, including the amount of stirring, the intensity of the heat, and the length of the cooking time. With a little help, they arrived at enough "treatments" so that each class member could have one to try. The list included:

1. Mix together and cook over high heat, stirring
2. Mix together and cook over high heat, without stirring
3. Mix together and cook over low heat, stirring
4. Mix together and cook over low heat, without stirring
5. Heat water to boiling point first, then add flour while stirring, and cook, stirring constantly
6. Heat water to boiling first, then add flour and cook without any stirring
7. Mix flour with a little of the cold water and stir. Heat the rest of the water to boiling, add paste to it while stirring, and cook, stirring
8. Heat water to boiling; pour slowly over flour in a bowl and stir, but do not cook on the stove
9. Repeat no. 8, except, put flour in saucepan, and place on stove to cook, after combining

(There are many other possibilities.)

The teacher suggested that they keep track of the time required for thickening, but that each should stop cooking at the end of ten minutes, and bring her product, whatever its state, to a central spot where comparisons could be made. You can predict the results, but the girls, of course, could not and were very eager to find out what would happen. Some were upset when their procedures did not work well. Always before, failure had meant "not following directions." The teacher reassured them, saying that not all the methods would work equally well, but that trying unsatisfactory ways would make this evident and help them to remember the better techniques. Interest was high when the group gathered around to see what had happened, and the conclusions were quite obvious. The teacher helped them to generalize from the experience and pointed out that there were several satisfactory ways of solving this problem, and that which one the cook chose might depend on several factors, including the type of food which she was preparing. Method 7 for example, was usually used for gravy because the liquid (fat and juices from the meat) was already hot.

An explanation of the results was given to this class. It would have been better however if class members had been encouraged to track this down for themselves. Perhaps an inquiry session could have been used for this purpose.

This particular class then went on to a study of milk puddings. The teacher told them that cornstarch was usually used as the thickener in puddings and that it had twice as much thickening power as flour. She told

them that two tablespoons of sugar would sweeten a cup of milk and that some flavoring, such as vanilla, would be desirable. Then she challenged them to try to write a recipe for vanilla pudding. Some protested, but one said quietly, "I can do it," and proceeded to do so. After trying out and adjusting this recipe and practicing the technique which they had decided would give a smooth mixture with the least effort, the class proceeded to make a comparison of puddings with various thickening agents. Again each girl made a different type. Vanilla was used as the flavoring in each case. The following were used:

1. Commercial instant--milk added
2. Commercial requiring cooking--milk added
3. Tapioca--using the pre-cooked tapioca product
4. Custard (baked)
5. Junket
6. Flour as thickening
7. Cornstarch as thickening
8. Cornstarch and egg as thickening
9. Gelatin (milk as liquid)

The puddings were made on one day and left to chill overnight. The next class period was spent in a thorough evaluation. The cost per serving of each variation was computed and the time needed to prepare each was noted. The puddings were tasted and scored on consistency, texture and flavor, and compared as to nutritive value.

It seems clear that the girls in this class had learned many things in addition to the way to prepare a cornstarch pudding. They would be more likely to remember a satisfactory technique for thickening with a starchy substance, and they would surely have been exposed to forms of puddings which were new to them. They would have had experience in independent activity, carrying through on an entire process and making judgments about flavor, consistency, etc., during the taste-test comparisons. Perhaps not all seventh graders would be capable of the type of intensive study reported here, but the imaginative teacher should be anxious to find ways of adding enough depth to her foods lessons to challenge students of various ability levels. A look through some of the new elementary science books is revealing. Even second graders are "experimenting."

Some Ground Rules for Experimentation

If teaching techniques which will really help students to understand the scientific method are to be introduced into the classroom, the teacher needs to have a clear recognition of the nature of planned experimentation. Fundamentally, an experiment is set up to test an hypothesis, with an attempt to hold all factors constant except the single variable which is to be measured. Burton, Kimball and Wing list the following criteria for adequate controlled experimentation.

1. The experimentation should be planned in terms of a specific hypothesis or objective.

2. The experiment should permit a comparison of phenomena observed under experimental and control conditions.

3. The only significant difference between the experimental and control conditions should be the variable which is under study. Extraneous influences should be held constant in both samples.

4. Enough cases should be examined to avoid chance errors due to small samples.

5. The design and conduct of the experiment should be such that independent investigators can repeat it.

6. Conclusions must not be generalized beyond the specific limits of the experiment.

In practice, the so-called "law of the single variable" is an ideal assumption which is seldom actually fulfilled in a concrete situation. Also, often one is more interested in a careful analysis of the interrelationships of various factors as they operate normally under conditions that are reasonably typical. However, students should be helped to look for variables which have not been controlled so that they may learn to be cautious about making overly sweeping generalizations. In the work with the starch pastes, for example, the amount of water and flour, the size of the pan, and the length of the cooking time were controlled. There may have been variations, however, in the stirring techniques of the various students, the exact temperature of the stove burners at the two settings, the temperature of the water when heating began, the accuracy of the measurements of the flour and water, etc. Students can be helped to see that the significance of the findings reported from any experiment is determined by

the care with which the experiment was designed
the accuracy with which the data were collected and recorded
the judgment used in the analysis of data
the intelligence exercised in interpreting the findings and in drawing conclusions
the degree to which all the relevant variables in the area of investigation are known and controlled.

Planning to use experiments with homemaking classes

1. Select an experiment that is appropriate to the unit of study.

You might keep a list of ideas which occur to you while you are looking through professional journals, or just thinking idly. As students become acquainted with this method of work, they will probably bring in questions which can be restated as hypotheses to be tested.

Encourage speculation. "I wonder what would happen if . . ." has been the beginning of many important discoveries.

Aim for simplcity. A well controlled experiment does not need to be complex. Something which can be done with available equipment is desirable. Also, a simple experimental design can be more easily carried out by students, and such participation adds to the educational value of an experiment.

Plan to complete the experiment in one period, if possible, particularly when dealing with younger students. However, some experiments may involve observation for a period of a few days or even weeks.

Choose experiments which will give results sufficiently clear so that students, with some help, can draw conclusions from them.

2. Plan with students, if feasible, the objectives, organization, and details of the experiment, helping them to identify the variables involved, the methods of controlling these variables, and other procedures. Also work out simple ways of recording the results.

If the students cannot help plan, at least be sure that everyone clearly understands the purpose and method to be followed.

3. Assemble all equipment and supplies. Look up information which will help in interpreting results.

4. Run through the experiment at least once outside of class to be sure that equipment functions properly, and to foresee difficulties, if possible.

5. If the experiment is to be a demonstration, instruct student assistants, if any.

6. Schedule experiment for the most suitable time in relation to the work of the class. Introduce it in a way which will arouse interest, and plan with the group the major points which are to be observed.

7. Conduct the experiment, letting students help or take over completely, if this is possible.

8. Record the results.

9. Help the class to interpret results, to draw conclusions and to make applications to other situations.

10. Evaluate the experiment itself in terms of its contribution to the understanding of basic principles of food preparation, management, buying and so on, and of its role in helping students to think logically and critically.

Experimental designs may be set up to

1. provide for a comparison of various products, methods or theories, on a scientific basis
2. help develop judgment in making decisions as to the relative merits of the tested products or methods
3. encourage the development of principles and generalizations which will be applicable to several situations
4. to stimulate interest, promote curiosity, and focus attention on the "whys" as well as the "hows."

Application of principles

Many students can recite science principles glibly, but are unable to see any connection between these principles and ways of behavior which will accomplish desired objectives. Such relationships apparently need to be spelled out rather explicitly, especially for the average or slower learner. It may be helpful if the teacher will organize for herself a list of principles which are related to the various units she is teaching, and then develop applications of these principles as the class work proceeds. She might start by preparing a content outline in which topics involving principles are emphasized. An example of such an outline for quick breads is given here.

A. Selection of Equipment and Ingredients
    1. Measuring, mixing and baking equipment
        a. Kind of materials
        b. Weight
        c. Construction
    2. Ingredients
        a. Purposes in product
    3. Recipe analysis
        a. Proportions
        b. Form of ingredients
B. Management
    1. Time and energy
        a. Selection of equipment
        b. Number of pieces of equipment used
        c. Order of work
        d. Work habits--arrangement of work center
    2. Money
        a. Comparative costs of ingredients
        b. Comparison of home produced and commercial products
C. Use of Oven
    1. Heat
        a. Source
        b. Means of transfer--convection currents
    2. Thermostatic control
        a. Hydraulic bulb or compound bar
    3. Placement of pans and racks
    4. Care and cleaning of oven
D. Preparation of Pans
    1. Material choice
    2. Lubrication, use of wax paper or flouring
        a. Adhesion
        b. Cohesion
        c. Friction
    3. Heat absorption by materials
        a. Reflection
        b. Conduction
        c. Radiation
E. Measurement
    1. Standardization
    2. Accuracy

F. Mixing
   1. Solutions and mixtures
      a. Sugar and liquid
      b. Protein and liquid
      c. Starch and liquid
      d. Baking powder and liquid
   2. Reactions and interactions
   3. Mechanical effects
      a. Stirring
      b. Whipping or beating
      c. Kneading
      d. Creaming

G. Baking
   1. Coagulation
   2. Chemical reaction
      a. Changes in protein, starches, etc.
      b. Browning
   3. Evaporation and drying
   4. Expansion

H. Storage
   1. Staling
      a. Effect of air and moisture
      b. Mold
      c. Commercial freshness preservers
   2. Freezing

Additions to such an outline could be made as needed for a specific product. For example, under muffins, the conditions making for "tunneling" would be important, thus a consideration of gluten formation could be included.

Within the framework of this outline, the application to food of certain science principles could be developed. Some examples, which were worked out by graduate students at a summer workshop, are given here.

Principle	Application to Food Preparation	Indicated Behavior
1. Light rays are refracted ("bent") when passing from one substance to another of different density.	Liquid in a glass measuring cup appears to vary in height when viewed from different angles.	When measuring a liquid in a glass measuring cup, read the measurement at eye level to minimize errors due to the refraction of light.
2. Gas expands when heated in the direction which offers the least resistance to its movement.	When heated, batter containing bubbles of gas (air, carbon dioxide) will rise in the pan.	Spread batter evenly so that it will rise evenly.

Principle	Application to Food Preparation	Indicated Behavior
3. The effect of a treatment on each of the substances in a mixture will influence the results produced when the treatment is applied to the entire mixture.	If a flour mixture is baked at too high a temperature, the structure of the batter will be set before the gas has expanded enough to carry the batter to the desired height. If the temperature is too low, most of the gas will be driven off before the batter has set and the product will have less volume.	Use a stove with a thermostatic control to maintain the proper temperature throughout the baking period.
4. Carbon dioxide gas is formed when an acid reacts with a base in the presence of a liquid.	Baking powder is a standardized mixture of a base, a material having acid properties and a buffer material, such as starch. It will produce carbon dioxide gas when moistened.	Use baking powder to give a known amount of leavening power. Sift baking powder with other dry ingredients in order to insure a more even distribution of carbon dioxide gas when the batter is moistened.
5. Some chemical changes can be influenced by the physical manipulation of a mixture.	Strands of gluten, with elastic properties, will develop when mixtures with certain proportions of flour and liquid are stirred or kneaded.	Mix muffins only enough to moisten flour, not enough to develop gluten strands.
6. The rate at which heat and gases travel through a substance is influenced by the density of the substance.	A large mass of thick batter offers resisttance to a gas movement and also heats through slowly. Thus, in a loaf bread, the outside crust may form during baking before the leavening agent has produced sufficient gas in the interior of a mixture.	Allow a large mass of batter (as in a loaf of nut bread) to stand twenty to thirty minutes before baking to allow time for carbon dioxide to be formed in the center. Bake at a lower temperature than would be used for batters in smaller amounts, or for thinner batters.

Principle	Application to Food Preparation	Indicated Behavior
7. Heated air expands, moving away from the source of heat and toward cooler air of greater density.	Heated air circulates in an oven and free circulation is necessary if even temperatures are to be maintained.	Be sure that air can circulate freely in the oven. Do not fill it too full, allow pans to touch each other or the oven sides, or line it in any way which will interfere with circulation.

Some suggestions for experiments

The ideas in this section are presented as starters for the teacher who would like to introduce some experimentation into her foods teaching. Details will need to be worked out to fit the particular class situation. Remember that procedures should be standardized so that variables are eliminated, except for the one being investigated. Select a problem suited to the level of your class, and one which relates to the topic of study. When the experimenting is finished, remember to discuss three important questions:

1. What tentative generalizations can be made from the results of the experiment?
2. How can this knowledge be used in the preparation of food?
3. What explanation can be given for the results?

* Idea

Compare the thickness and clearness of pastes prepared from various types of starch: wheat (flour), corn, potato, (pre-cooked) tapioca and (pre-cooked) rice.

Procedure:

Mix two tablespoons of each starch with one-fourth cup of cold water. Add three-fourths cup of boiling water gradually, stirring constantly. Heat quickly to boiling and boil one minute. Pour into custard cups. Observe while hot. Cool and observe again.

Note:

The procedure may be varied by mixing the starch with one cup of cold water, and heating this mixture. See if students can devise some way of making an objective test of the consistency of the pastes. For help, use a text in Experimental Cookery.

* Idea

Compare the thickening power of browned and white starch.

Procedure:

Place two tablespoons of flour in a small, heavy skillet and heat until brown, stirring constantly. Cool. Slowly stir in one cup of cold water. Heat to boiling, stirring constantly, Compare

thickness and appearance with two tablespoons of unbrowned flour mixed in one cup of water and heated in the same way.

* Idea

Determine the effect of temperature on the solubility of sugar.

Procedure:

Place one-half cup of cold water in a measuring cup. Add sugar, one teaspoon at a time, stirring after each addition until mixture is clear. Repeat until no more sugar will dissolve and crystals are left on the bottom of the cup. Note the amount of sugar required. Repeat with boiling water. Heat the cold solution to boiling. Will more sugar dissolve in it? How much?

* Idea

Determine the effect of acid and sugar on the thickness of starch thickened mixtures.

Procedure:

a. In a small saucepan, mix one tablespoon of cornstarch and two tablespoons of cold water to a smooth paste. Add three-fourths cup cold water. Bring to a boil, stirring constantly. Continue to stir and cook over a moderate flame for three minutes.

b. Proceed as in "a," but use two tablespoons lemon juice as a source of acid instead of the two tablespoons of cold water.

c. In a small saucepan, mix one tablespoon cornstarch with one tablespoon sugar. Add two tablespoons cold water and mix to a smooth paste. Add three-fourths cup cold water and continue as in "a."

d. Proceed as in "c," but use four tablespoons of sugar instead of one tablespoon.

* Idea

Compare three methods of cooking rice.

Procedure:

a. In a large amount of water

1/3 cup rice
4 cups boiling water
1 teaspoon salt

Add rice to boiling salted water and continue a rapid boil to keep the grains of rice in motion so that they do not stick together. Cook fifteen minutes. Drain in a strainer and wash off loose starch.

b. In a small amount of water

1/3 cup rice
3/4 cup cold water
1/3 teaspoon salt

Use a heavy metal pan. Add rice to salted water. Cover with tight fitting lid; set over hot fire until it boils. Reduce heat as low as possible and simmer for fifteen minutes. Remove lid and permit rice to dry. Use a fork to gently lift the kernels to prevent sticking to pan.

c. Steaming
1/3 cup rice
3/4 cup water
1/3 teaspoon salt

Place ingredients in top of a double boiler and bring to a boil over the flame. Cover and cook over hot water until all the liquid is absorbed and the rice is tender.

Compare volume, appearance, texture and flavor of the rice cooked in the three ways.

* Idea

Determine how to prevent the discoloration of raw fruits.

Procedure:

Cut an apple is six sections. Place each section in a separate shallow dish and treat as follows:

a. Leave untreated
b. Cover with tap water
c. Cover with distilled water
d. Dip in lemon juice for five seconds, then leave in dish
e. Dip in pineapple juice for five seconds, then leave in dish
f. Dip in ascorbic acid mixture for five seconds, then leave in dish.

Expose all dishes for one hour, then compare appearance of the sections with various treatments.

Note:

Try repeating with a banana.

* Idea

Determine the effect of the addition of sugar to apples during the cooling process.

Procedure:

Pare an apple and cut into sixths. Place two pieces in each of three small saucepans or beakers containing solutions as follows:

a. 1/2 cup water
b. 1/2 cup water and two tablespoons sugar
c. 1/4 cup water and 1/4 cup sugar

Repeat with two other varieties of apple. Jonothan, Winesap and Delicious apples are suggested. Note differences in shape, texture, translucency, flavor of the fruit and flavor of the juice.

Additional ideas

1. Determine the effect of acid and alkaline media when cooking red cabbage.

2. Determine the optimum amount of mixing for muffins. Take out batter for two muffins after mixing with 15 strokes, 25 strokes, 50 strokes and 100 strokes.

3. Cook green vegetables
   a. for a long time
   b. for a short time
   c. with vinegar
   d. with soda

4. Note the effect on the texture of a plain cake when hydogenated shortening is
   a. melted
   b. cut in
   c. creamed with sugar

5. Soak two pans which have held flour mixtures, one in cool and one in hot water. Note difference in ease of cleaning.

6. Bake cookies from the same batch in the same oven, part on a dark tin and part on a shiny tin. Compare degree of browning.

7. Prepare cocoa using
   a. evaporated milk (diluted)
   b. low fat milk
   c. reconstituted non-fat
   d. fresh whole milk
   e. sweetened cocoa mix containing milk
   f. sweetened cocoa mix without milk
   g. chocolate sirup prepared at home
   h. commercial chocolate sirup

Compare cost, flavor, time of preparation. Include chocolate milk from a dairy in the comparison.

8. Make a comparison of eggs of different grades. Fry, hard cook, and poach an egg of each grade. Note differences.

9. Compare different brands of non-fat dry milk solids as to time needed for reconsitution, ease of reconstituting, amount of foam, flavor and cost as compared with liquid skim milk.

10. Compare flavor, texture, color and time required to become tender of vegetables cooked in large and small amounts of water, in large and small pieces, and at rapid and gentle boiling.

11. Cut two small pieces of meat (equivalent in weight) from the same piece of steak. Pan-broil both, one at high temperature, and one at low.

An Introduction to Experimental Cookery

Perhaps many of our readers have found some of the previous material familiar from their college classes in experimental foods. An interest in creative cookery, as well as a better appreciation of scientific method, was often a benefit from these courses. Then, too, they helped us to realized that the present day of knowledge of cooking techniques did not just happen! Could we not try to give our high school students some understanding of the ways in which researchers have gone about adding to our store of knowledge and understandings?

To help achieve this end, the unit which follows was developed as an individual project in a Workshop on the Teaching of Foods and Nutrition which was conducted at the University of Illinois. It was planned to acquaint older high school students with the principles and techniques employed in foods research laboratories. As a result of such a study, students should gain insight into this field of work and some might be encouraged to develop interests which would lead them into a career in the area. And, properly carried out, every experiment should contribute to the development in each student of the spirit of inquiry and an increased respect for cooking as a science.

Teachers who would like to try out this unit are urged to study the entire section carefully first. The equipment and chemicals called for should be available in any high school. Directions should be followed exactly. If time permits, it would be best to carry out the entire study. However, the last exercise and the creative problem could be omitted if necessary. The mechanics of doing and writing research work and the results of each exercise should be discussed in class.

The material has been addressed to the student and is designed to be placed as a manual in the hands of each girl. Certain scientific terms have been used and explained. But it might be well if the teacher actually taught these while the students are using the manual. If this is done, even the dull normal student can learn these materials and methods successfully. And they seem to take special pride and pleasure in feeling that they are "studying a science."

Unit: Cooking is also a science

Have you ever wondered wny a recipe failed? Did you ever want to substitute one ingredient for another but were just a bit afraid to try it? Have you asked where the information about vitamins in food came from and how it was obtained?

There are scientists who work daily in food research laboratories answering questions just such as these. They are employed in testing kitchens of industries and in food research laboratories of universities and the government.

Food research, like all scientific study, requires one to seek the answers to questions by carefully planned observation and experimentation. The researcher must keep a constantly open and inquiring mind. Absolute honesty in thought and action is required. Careful records of all observations, experiments and results of experiments are kept. Finally, the entire experiment is written in an acceptable form and published so that other scientists may also gain from the experimentation.

The complete answer to a question is rarely found in one study. In fact, many years of work may be involved in answering the more complex questions. This often confuses the beginning researcher who may expect dramatic, conclusive results from the very first experiment.

You may learn about these basic principles of food research by doing experimental work in your high school foods laboratory. As you work, keep

in mind the above requirements of a scientist. Good work habits, techniques, and methods formed now will yield a sturdy foundation on which to build should you continue your study in college in any area of science, but are equally valuable for insuring accurate results from a home experiment planned to find the answer to some problem that troubles you in the future.

Learning the language of research

As in most other areas there are certain words used in research work which have a special meaning to those in the field. You must acquaint yourself with these terms. The following is an example of an experiment that might be done in a foods research laboratory. The more commonly used terms are underlined and explanation given for each. If you do not understand the explanation, ask your teacher for further help.

A student would like to know if lard used in pastry will yield as good a product as hydrogenated fat such as Crisco or Humko. This is her problem which she hopes to solve in the laboratory by use of scientific methods. She first must learn all that she can about pastry and the use of lard in pastry. If she is near a large library which files research journals she will read and make notes of any previous work done using lard in pastry. This she will summarize for her own research work. It will be called the review of literature.

Having reviewed previous work, she will make careful plans for solving her problem. She will pick the recipe, determine the order she will use in making the pastry, and choose the manner in which she will determine the quality of the pastry. These are the methods she uses to solve the problem. She will then choose the equipment and ingredients to be used. These are the materials. Records of all this as well as all the results she obtains must be kept accurately. She will secure a notebook for these records which are called the data.

The actual experimental work will be the making of the pastry. The student makes two recipes of pastry identical in every way except for the type of shortening used. One will contain lard, the other a hydrogenated fat. This difference is known as the variable and should be the only cause of any difference between the two products. The pastry containing the hydrogenated fat is called the standard since it is used as a reference when deciding upon the quality of the lard pastry.

After the pastries are cooked and cooled, the experimenter must decide if the one containing lard is superior, inferior, or the same quality as the pastry containing the hydrogenated fat. She may use subjective testing, objective testing, or both, to determine this. A group of persons may taste and evaluate the quality of the pastries. This is known as subjective testing. Various types of mechanical apparatus may be used to test certain qualities of the pastries. This is known as objective testing and personal opinion does not enter into this type. But certain qualities, such as flavor, can not be tested objectively. Therefore, it is good to use both methods.

The experiment will probably be repeated many times to make certain that the results are due to the variable and not just to chance. Finally

the student will collect the data and then write up the experiment, stating the results obtained.

Learning the steps in research

Although the questions in foods work which may become research problems are innumerable, all are carried out in a manner similar to the example just given. You should become familiar with the following steps before you begin experimental work.

I. Choose a problem: This is not actually as easy as it may sound. Many things must be taken into consideration. Use the following list as a guide when making your choice.

1. Choose a problem which interests you. You will learn much more if you are interested and really enjoy what you are doing.

2. Keep the first problem simple. Consider the skill required to prepare the food and to do the various tests to evaluate the finished product.

3. Choose a problem which has as few variables as possible. If you have a dozen variables, how will you know which caused the results you obtained? As a general rule, it is best to have only one variable. This sometimes is difficult in foods work. However it would definitely be best to have only one in the first problem.

4. Consider the length of the class period. You certainly could not prepare and evaluate a product which requires one and a half hours cooking time in a one-hour class period. Some problems may be begun during one class period and completed the next day. For example, fresh tomato juice might be prepared one day, allowed to chill over night in the refrigerator, then evaluated the next day. Splitting a problem in this manner requires very careful planning in order not to involve more variables.

5. Consider the equipment available. You certainly can not do a problem which requires the use of a grill if you are unable to obtain a grill.

6. Consider the problems chosen by the rest of the class. Since class members must evaluate the products, a variety of foods should be tested. Tasting all chocolate cakes would become monotonous and not nearly as much would be learned.

II. Make careful plans for the methods and materials you will use in solving the problem you choose. Time spent in planning may save many wasted laboratory hours later. Review the steps listed below as you plan.

1. Read the available material concerning the food you plan to use in the experimentation. Although research journals are not available in most high schools, you can, never the less, read about the product with which you plan to experiment in various textbooks

and cookbooks. This material may be presented as your review of literature.

2. Choose the methods you will use to solve the problem. Knowledge gained from the reading you do will help you in choosing the methods. The objective and subjective testing that you will use in evaluating your products must be planned. In the appendix there are lists of the more common types of these tests. These lists do not begin to include all of the types. Often new objective tests are developed for testing some particular quality of a product. Such tests do not need to be complex nor require expensive equipment. In fact, many of the objective tests are very simple and are done with common kitchen utensils. You may want to try your hand developing such a test for the product with which you are working.

Since you are just beginning to do experimental foods work, it would be best for you to use the score card as your subjective testing. It is the more common of the subjective tests and the results are easier to interpret. If you feel that your problem is a special case in which another type test would be better, ask your teacher to help you plan for this.

Have your teacher examine your proposed methods, including the score card and any objective tests planned. Ask her to make suggestions and corrections.

3. Select the equipment you will need to use. It is best to keep all the equipment you use for an experiment together since you should use the same pieces throughout the experiment. You should become familiar with the operation of all the equipment and should clean it thoroughly in preparation for the experiment.

4. Make careful step-by-step plans for each day's work. Remember, if you plan correctly you can save time and have to wash less equipment.

5. Submit these plans to your teacher for her correction and approval.

6. Make a copy of your plans on a note card which may be kept in view at all times during actual experimental work.

III. Purchase a "data" book: One with cross-hatched pages is best for recording experimental data; however, if this is not available, a regular horizontally lined one may be used. All of your work should be recorded, even the mistakes. One of the necessities of research work is that it be repeatable. This is the reason for the emphasis on keeping accurate records of all work. It is much easier to repeat an experiment when you can read what was done than if you must try to remember what was done. Most research workers keep records in ink so that the work will not become smudged and can be kept for long periods of time. A sample data page is given in the appendix. Follow it when you begin keeping records.

IV. Do the experiment: As you begin laboratory work keep the following things in mind:

1. Begin work promptly.

2. Follow the procedure planned. If it seems advisable to change a step along the way, make a note of the change in the data book.

3. Keep careful, accurate records.

4. Be considerate of those who will score your product. Let them know approximately what time you will want them to score. Remember they are also working on a problem.

5. Leave the equipment clean and ready for the next day's use.

V. Repeat the problem: If time permits it is best to repeat a problem three times to be certain that the results are due to the variation used, not just to chance. When these repeat runs are made, care must be taken to use techniques, equipment, and evaluation methods identical to those used previously. Experiments done in the larger foods research laboratories are repeated many times to be certain that the results obtained are accurate; statistical methods are then applied when interpreting the data.

VI. Write the entire problem: You should include the following in the order listed.

1. Introduction: This should be very short and include the reason for the study.

2. Review of Literature: In your case this will include the summary of the material you read concerning the food you have experimented with.

3. Methods and Materials: These should be listed and discussed when necessary to make the meaning clear.

4. Results and Discussion: The results are gathered from the objective and subjective testing. It is best to average the scores from the subjective testing. For example, if you repeated the problem three times and had four scorers you should add all the scores for flavor obtained from all the scorers over the three-day period. This you should divide by 12 to obtain the average score the product received for flavor. This same process should be repeated for each quality listed on the score sheet.

Results from all testing should be presented to the class in tabular form or by graph. The discussion should bring out the outstanding points shown by the tables and graphs,

5. Summary: This should include a brief summary of what the results of the experiment indicate.

6. Bibliography: This should include a list of the material which you read and summarized in the review of literature. This list is usually arranged in alphabetical order, using last name of author.

Practicing research techniques

The following exercises are designed to acquaint you with some of the techniques used in experimental work and to give you practice in keeping accurate records of your work. These exercises are not to be written as an entire research problem; however, data should be recorded and the questions discussed in class and answered in the data book.

It will probably be necessary to borrow some of the equipment needed for these exercises from the high school chemistry laboratory. In these exercises the abbreviations ml. and gm. will often be used for milliliter and gram.

Exercise 1: Measuring vs. weighing

Experimental foods work requires that all ingredients except liquids be weighed rather than measured. Liquids should be measured in graduated cylinders rather than measuring cups. Greater accuracy than that possible when using ordinary cooking equipment is the reason for both requirements. You will find much evidence of this as you do this exercise.

Materials per person

3 sets of measuring cups
Balance or scales calibrated in either ounces or grams
Ordinary sifter
Foley sifter
Spatula
Wax pencil or gummed tags for labeling
Rubber scraper
6 cups of all purpose flour
3 cups of brown sugar
3 cups hydrogenated fat
2 cups milk
200 milliliter graduated cylinder

Procedures to be followed in this exercise

Flour

Step 1: Mark three one-cup measuring cups A, B, and C. Weigh each of these empty cups. Record the weight and label of each in the data book.
Fill these three cups with unsifted all purpose flour. Level each with the edge of a spatula.

Weigh each filled cup and record the weight.
Subtract the weight of the empty cup from the weight of the filled cup. This is the weight of the flour.
Record.

Step 2: Empty the four used above into a sifter and sift once onto wax paper.
Place the sifted flour into the labeled cups with a large spoon. Level with the edge of a spatula.
Weigh each filled cup and record the weight. Determine the weight of the flour as above. The weight of the empty cups may be taken from the previous data.

Step 3: Empty the flour used in step 2 into a container supplied by the teacher. This flour is not to be used in this step but the labeled cups are.
Place unsifted all purpose flour in a Foley sifter and fill each of the three cups by sifting directly into them.
Level, weigh each filled cup, determining the weight of the flour as above.

Brown sugar

Empty the flour from the above step into a provided container.
Wipe out each cup with a dry cloth so that it may be used for measuring sugar.
Fill each of the labeled measuring cups with brown sugar. Pack well.
Weigh each filled cup.
Record the weight, and determine the weight of the sugar as above.
Place sugar in a container provided by the teacher.

Liquid

Label 3 empty liquid measuring cups. This step is concerned with volume; cups are not weighed.
Fill each cup to the one-half mark with milk.
Transfer the milk from one to a 100 milliliter graduated cylinder.
Record the volume in milliliters.
Empty the milk from the graduate into a container provided by the teacher.
Rinse the graduate, dry it, and repeat the transfer and volume recording for the other two half-cups of milk.

Fat

Label three half-cup measuring cups A, B, and C.
Weigh each and record the empty weight.
Fill each of these three cups with hydrogenated fat. Pack well.
Weigh each filled cup.

Record the weight, and determine the weight of the fat as above.
Place the fat in a container provided by the teacher.

Record the answers to these questions

1. What, if any, variation did you find in the three weights of one cup of unsifted flour? Answer the same concerning the types of sifted flour, the brown sugar, and the fat. How did the volume of one-half cup milk vary in milliliters?

2. Which substance had the greatest variation in weight? Which the least? Suggest reasons for this.

3. Which is more accurate, weighing or measuring?

4. Why is measuring alright for ordinary cooking purposes but weighing necessary for research work?

Exercise 2: Canned vs. homemade

With so many mixes and prepared foods on the market it is of interest and value to know how these compare in quality and cost with the homemade products. The following exercise will give you an idea of how the foods researcher compares such products.

Materials per individual or pair

Thermostatically controlled oven
Balance or scales
Sifter
Wax paper
Measuring cups
Measuring spoons
200 ml. graduated cylinder
Mixing bowl
Mixing spoon or fork
Rolling pin and dough board
Embroidery hoop
Biscuit cutter
2 small cookie sheets
2 serving dishes
1 can commercially prepared biscuits

Recipe

Flour	1 1/3 cup	150 gm.	5.25 oz.
Fat	2 tablespoons	25 gm.	1.00 oz.
Milk	1/2 cup	118 ml.	
*Baking powder	1 1/2 teaspoons	6 gm.	.21 oz.
*Salt	1/4 teaspoon	1 gm.	.035 oz.

*In classroom experimental work small amounts such as these may be measured.

Directions

Have dry ingredients weighed and milk measured before beginning to mix.
Sift the baking powder with the flour.
Add the fat and salt. The fat may be combined with the flour with a pastry blender or by cutting in with two knives. Avoid mixing until the mixture looks oily and compact.
Form a cavity in the center of the flour mixture, pour the milk into this cavity and begin to stir.
Stirring may be done with a fork or a spoon. Stir thirty strokes.
Form the mixture into a ball of dough and turn out onto a lightly floured dough board.
Knead the dough gently ten times.
Place an embroidery hoop over the dough. The hoop is used so that the biscuits will be the same thickness and the volume can be compared.
Roll the dough, then cut with biscuit cutter.

Procedures to be followed in this exercise

1. Make arrangements before the preparation is begun for scoring the products. The members of the class will be the scorers. You will judge your own biscuits and those of two other class members. In this way there will be three scorers for each set of products.

2. Turn on the oven to 450° F. and allow to preheat during preparation.

3. Prepare the above recipe.

4. Grease lightly two small cookie sheets.

5. Arrange the homemade biscuits on one sheet and the canned ones on the other. Write "canned" and "homemade" on very small pieces of paper and then place the slips under a biscuit of each type. This will prevent getting the biscuits mixed.

6. Bake biscuits for ten minutes. In experimental work the oven should not be opened until time to remove the product; however, you may take a quick peek near the end of ten minutes if you are not familiar with the oven you are using.

7. Label two serving dishes "A" and "B" while the biscuits are baking. Record in the data book which biscuits will be "A" and which "B", This information will be known only to you during the scoring. Set out a score sheet, napkin, and a glass of water for each scorer. The water will be used to rinse the mouth after scoring one biscuit and before starting to score the other. The scorers should not comment on the product while scoring. This is a must.

8. Remove the biscuits and allow them to cool ten minutes. Score the biscuits. Collect the score sheets and clean up.

9. Average the scores for each quality on the score sheets and record these averages.

10. Figure the cost per biscuit for each type.

11. Wrap a biscuit of each type and save it for the following laboratory. Repeat this exercise then and compare the biscuits for the two days. If your technique is good, the biscuits should be practically identical.

Record the answers to these questions

1. Which type of biscuit required the longer time to prepare?

2. Did some members of the class like one type better and some the other? What might have influenced this?

3. Were the results obtained over the two-day period the same? What could have caused any differences?

4. Which type of biscuit was more expensive per serving? Did you expect this? Why?

5. Under what circumstances would you advise the homemaker to use each type of biscuit?

Exercise 3: Nutrient retention in cooked food

The nutrients retained in a food after cooking are of great importance. Studies to determine the best cooking method for "palatability" or taste and nutrient retention are often done in food research laboratories. In this exercise you will learn one way in which this is done with vegetables. You will cook broccoli two ways and determine which method yields the greatest Vitamin C or "ascorbic acid" retention and most palatable product. Although you will not have the sensitive equipment with which to determine the exact amount of ascorbic acid present, you will be able to get a fair idea of the effect of various cooking conditions upon this vitamin.

Materials per pair or group of three

Balance
Waring blender (several groups may use one)
One 100 ml. graduated cylinder
2 covered 2-quart saucepans
2 strainers
2 serving dishes and 3 dishes and forks for individual scorers
1 stop watch, if available, or a clock with a second hand which can easily be seen
Two 250 ml. Erlenmeyer flasks
Two one-liter or quart glass containers

•3 small beakers (250-400 ml.)
2 glass funnels and filter papers to fit
1 lb. fresh broccoli or two pint boxes of frozen broccoli

Note to the teacher

Following are directions for making up the solutions for this exercise. Enough should be made at one time for the entire class.
All of these solutions except the starch may be made up during the laboratory period just prior to starting this exercise and stored in the refrigerator.
Glass containers are used for storage purposes. If available, glass stoppered bottles are best; if not available, fruit jars may be used provided the mouth is covered with saran wrap or wax paper before the lid is screwed on.
A gallon glass jug would be good for storing the large amount of metaphosphoric acid (HPO_3) solution.

Chemicals needed for solutions

Amounts given are enough for entire class except when stated otherwise.

.6 gm. crystalline iodine
1.0-1.5 gm. potassium iodide
15.0 gm. crystalline metaphosphoric acid (HPO_3) per sample of broccoli tested
5.0 gm. water-soluble starch, not corn starch
Distilled water in amounts called for below, if available; otherwise use tap water

Solutions

1. Iodine solution--enough for entire class; may be made up previously and stored in refrigerator. The iodine crystals will not go into solution unless the potassium iodide is present.

a. Weigh into a small beaker .6 gm. crystalline iodine and 1.0-1.5 gm. potassium iodide crystals
b. Add 5 ml. ethyl alcohol and stir with glass stirring rod until iodine dissolves
c. Transfer to a large glass container and add 1000 ml. of water
d. Cover well and store in refrigerator

2. Metaphosphoric acid (HPO_3)--enough to test one sample of broccoli; multiply by number of samples to be tested to obtain amount needed for entire class; may be made up previously and stored in refrigerator.

a. Weigh 15 gm. of crystalline HPO_3 into a large beaker
b. Dissolve in 500 ml. distilled or tap water, stirring often because it dissolves slowly
c. Transfer to a large glass container, cover, store in refrigerator

3. Starch solution--enough for entire class; must be made up the same day used; cannot be stored overnight.

a. Weigh 5 gm. water-soluble starch into a small beaker
b. Add a small amount of water and make a paste
c. Transfer paste to large pyrex beaker, add 500 ml. water Part of this may be used to wash starch paste into large beaker
d. Boil solution for 5 minutes, cool, set aside for later use

Procedures to be followed in this exercise

1. Arrange before beginning preparation for class members to score the products. One member of each pair will be busy with the ascorbic acid determination and will not be available to score.

2. Weigh, record empty weight, and label two bowls. Set aside for later use. Also, label two serving dishes for later scoring purposes. Use "A" and "B" for all labels.

3. Prepare broccoli for cooking. If both fresh and frozen are available, some groups may work on fresh and others on frozen; however, one group should not try to do both.

4. Weigh out two 300 gm. samples of broccoli and have ready to cook according to the following instructions:

Fresh Broccoli

"A"	"B"
Bring 150 ml. tap water to boil. Add 300 gm. broccoli. Return to boil on high heat, reduce to low heat and cook for 10 minutes, stirring at the end of 5 minutes. Cook covered.	Bring 300 ml. tap water to boil. Add 300 gm. broccoli. Return to boil on high heat, then reduce to low heat and cook for 30 minutes, stirring at the end of 10 and 20 minutes. Cook covered.

Frozen Broccoli: 1 pint box contains approximately 300 gm.

"A"	"B"
Bring 150 ml. tap water to boil. Add 300 gm. frozen broccoli. Return to boil on high heat, reduce to low heat and cook for 6 minutes, stirring at the end of 2 minutes. Cook covered.	Bring 300 ml. tap water to boil. Add 300 gm. frozen broccoli. Return to boil on high heat, reduce to low heat, and cook for 30 minutes, stirring at end of 10 and 20 minutes. Cook covered.

5. Begin preparation of broccoli "B" immediately upon coming to class. After this has cooked 15 minutes, the water for broccoli "A" should be placed on range to begin heating. By doing this both samples should be finished cooking at approximately the same time. Timing must be accorate. It is best to use a stop watch, if one is available.

6. Make preparations for scoring while the samples are cooking. Labeled serving dishes, individual dishes, forks, napkins, and glasses of water should be set out with score cards for the scorers.

7. Drain both the fresh and the frozen broccoli. Weigh 75 grams of sample "A" into previously labeled bowl "A" and 75 grams of sample "B" into bowl "B". This step should be done as quickly as possible.

8. After the 75 grams have been removed, place the remaining broccoli of each sample into the serving dishes so the scorers may begin. One member of your group should supervise and record scores as <u>her</u> responsibility.

9. Blend sample "A", then sample "B" as follows. Place a sample in the Waring blender. Add 200 ml. of HPO_3 solution immediately. Turn on the blender and blend for 4 minutes. Rinse well all equipment used for sample "A" before using for sample "B"

10. Pour each blended mixture into labeled glass-stoppered bottles or quart jars. Wash blender well with 200 more ml. of HPO_3, and add this to the blended misture. These mixtures, "A" and "B", are covered and stored in the refrigerator until the following laboratory period. If a quart jar is used rather than stoppered bottles, place saran wrap or wax paper over the mouth before screwing on the lid. Storage should not be longer than 24 hours if possible. The HPO_3 is used to keep the ascorbic acid from being lost during blending and storage.

<u>Second period's work</u>

11. The starch solution is made up according to previous instructions.

12. Clean a buret thoroughly, rinse and fill with the iodine solution made up previously.

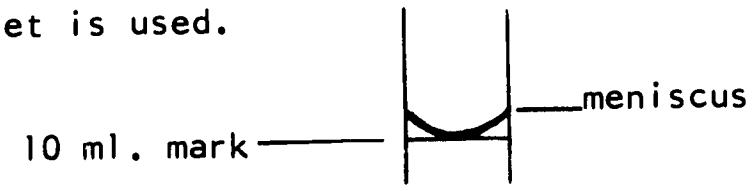
13. Clean two glass funnels and line with filter paper. These funnels must be supported during the filtering process, either by filter racks or by having another person hold them.

14. Filtration process. Remove the blended broccoli samples from the refrigerator, stir well, and filter each into a labeled glass container--a beaker or a jar. Since the filtering process is very slow, it is not necessary that the entire sample be filtered

before starting to titrate. As soon as 30 ml. of filtrate (the solution which comes through the filter paper) are available, the titration process can be begun.

15. Preparation for the titration process. Place 30 ml. of the filtrate of each sample in labeled 250 ml. Erlenmeyer flasks.

16. Adjust the iodine solution in the buret so the bottom of the meniscus is level with the 10 ml. mark, or the top mark if a larger buret is used.



17. Empty two medicine droppers of the previously prepared starch solution into the contents of each Erlenmeyer flask.

18. Titration process. Titrate the filtrate in each flask with the iodine solution until the filtrate becomes blue in color. To do this, the stop-cock of the buret is opened and the iodine is allowed to drain into the filtrate very slowly. The filtrate is swirled constantly to insure proper mixing.

A piece of white paper placed under the flask will make the following color changes sharper and easier to see. When the iodine drops into the filtrate, a blue color will appear on the surface, then disappear as the filtrate is swirled. As the titration continues, the color of the filtrate will change from a very pale yellow-green to nearly colorless, then to blue throughout the solution. As the solution becomes nearly colorless, the areas of blue formed when the iodine drops into the filtrate will be larger and disappear more slowly when swirled. At this point the iodine flow should be slowed to drop-by-drop addition. When the blue color forms throughout the filtrate and does not disappear when swirled, the end point has been reached.

Titration is stopped immediately when the blue color does not disappear, and the number of milliliters of iodine used should be read from the buret and recorded. Approximately 8-10 ml. will be used for sample "A" filtrate and 4-6 ml. for "B". It is possible that sample "A" of the fresh broccoli will require more than 10 ml. of iodine to complete the titration. If this should be the case, the buret must be refilled when the 0 ml. mark is reached. Remove the flask from under the buret when refilling the buret.

If it is impossible to get a buret, the following substitution could be made. Fill a small beaker (100 ml. size) half full of the iodine solution. Weigh the beaker and iodine and record the weight. Drop iodine from this beaker into the flask containing sample filtrate and starch solution with a medicine dropper. When an end point is reached, weigh the beaker with the remaining iodine. Subtract this weight from the first one to determine the amount of iodine used.

19. Record the amount of iodine required to titrate each 30 ml. sample. If time permits, filter all of the blended sample and determine the entire amount of filtrate obtained from each sample by measuring it in a graduated cylinder. Remember to add 30 ml. to the number obtained for each sample since this much was removed for titration. From the figures you have, determine the amount of iodine solution that would have been required to titrate the entire filtrate of each sample. Record this.

Explanation of what is occurring during titration

Free iodine reacts with starch to form a blue color. However, this blue color does not appear when ascorbic acid is present in the solution because the iodine reacts with ascorbic acid and is not free to react with the starch. When all of the ascorbic acid present has reacted with iodine, the next drop of iodine is available to react with the starch and form the usual blue color. Therefore, the iodine used up to the point when the blue color appears is an indication of the amount of ascorbic acid present.

Think about and record the answers to these questions

1. Which sample of broccoli received the highest taste score?

2. Which sample of broccoli retained the most ascorbic acid?

3. What statements can you make concerning the effects of cooking time and amount of water on ascorbic acid in cooked broccoli?

4. How would you tell a homemaker to prepare similar vegetables for the table?

Trying your hand at research

Select a problem that you would like to solve in the foods laboratory. As you choose and work, keep in mind the requirements of research. Write up the complete problem when you have finished. Good luck, and good experimenting!

Appendix

Sample Data Page for Exercise 1: Measuring and Weighing

Date_____ Name_____

Weight of 1 cup of unsifted all purpose flour:

	Cup A	Cup B	Cup C
Weight of cup filled with flour	213.5 gm.	272.5 gm.	250.0 gm.
Weight of empty cup	103.0 gm.	120.5 gm.	115.0 gm.
Weight of flour	110.5 gm.	152.0 gm.	135.0 gm.

Score Card for Exercise 2: Canned vs. Homemade (Baking Powder Biscuits)

Date_____ Scorer's Name_____

	Score	Reasons for low scoring:
SHAPE. . . . . 5 points Evenly round Free from bulges on sides and top		SHAPE Not evenly round _____ Bulges on top _____ Bulges on sides _____
COLOR. . . . . 5 points Uniform brown on outside Creamy white inside Free from yellow and brown spots		COLOR Brown spots _____ Yellow spots _____ Undesirable _____
VOLUME . . . . . 5 points Almost twice volume of unbaked biscuit		VOLUME Small _____ Too large _____
GRAIN. . . . . 5 points Flaky, peeling off in thin strips Fine, even cells		GRAIN Compact _____ Coarse cells _____ Uneven cells _____
FLAVOR . . . . . 5 points Blended flavor of well-baked ingredients		FLAVOR Undesirable flavor _____ Off-flavor _____ Aftertaste _____

General Rating: 5--very good
4--good
3--fair
2--poor
1--very poor

If a low score is given, check the reason or reasons in the column to the right.

Score Card for Exercise 3: Evaluation of Vegetables

Date_____ Scorer's Name_____

Product_____

For each sample, rate the qualities listed by placing in the proper column the numerical score that best applies.

Characteristics	Check	Reasons or Other Comments
APPEARANCE 3. Attractive, Intact 2. Unattractive 1. Wrinkled, Broken, or Sloughing		
COLOR 3. Natural, Bright, Fresh 2. Slightly Dull, Faded, or Uneven 1. Unattractive, Off-Color		
TEXTURE 3. Firm, Tender 2. Moderately Tough or Moderately Mushy 1. Mushy, or Tough and Fibrous		
FLAVOR 3. Pleasing, Fresh 2. Moderately Weak or Moderately Strong 1. Unpleasant, Off-Flavor		
GENERAL ACCEPTABILITY 3. Very Good 2. Fair 1. Very Poor		
Total Score		

Some of the More Common Subjective Tests for Scoring Quality of Food

These tests require a panel of tasters or scorers. The number on the panel varies, but 4 to 8 is the usual panel size. The larger research laboratories often have trained members for their taste panels. This is neither necessary nor possible on the high school level. It is advisable for the high school student to use scoring tests since the results are easily assembled, averaged, and interpreted. The following explanations are adapted from Lowe (6).

Scoring tests

This is the most frequently used of the subjective tests. The scorer is given a score sheet to use in evaluating the product. The scorer then gives a numerical score for each quality of the product listed. For example the scorer might be asked to give each of the three qualities flavor, texture, and color a score from one to five, five being high. After observation and tasting each of these qualities would be so scored.

It is the duty of the experimenter to make out the score sheet. Sample sheets have been included in the Appendix. Generally a score range from 1 to 5 is considered best. In making out the score sheet, care must be taken to give the proper emphasis to the various qualities. For example, a good score card would not have a possible high of 5 for texture and 2 for flavor since flavor is equal to or more important than texture.

Ranking test

The scorer ranks the samples either in decreasing or increasing order of some characteristic. The samples may be ranked as to over-all quality, or characteristics may be considered separately as texture, tenderness, or flavor.

Triangle test

The scorer is given three samples. Two are identical in all but one respect. The scorer is to select the different sample. This test is often used to test the ability of a scorer.

Paired samples

The scorer is given two products which are identical in all but one respect. The scorer is to determine which is better in this one respect. For instance, the scorer might receive two pieces of meat identical in every way except in tenderness and be asked to determine which is more tender.

Dilution test

The scorer is given several samples containing varying amounts of a certain ingredient but identical in all other respects. It is the duty of the scorer to attempt to place the samples in order as to decreasing or increasing amounts of the ingredient. An example of this would be samples of whole milk which are diluted with varying amounts of reconstituted non-fat dried milk. The scorer would be asked to place these in order from least amount of non-fat dried milk used to most used.

Examples of Objective Tests for Certain Characteristics of Food

Ink Imprints for determining grain of breads and cakes, modified from Child and Purdy (3)

Ink imprints may be made of breads and cakes. It is better to freeze cakes in order to secure a distinct print. Imprints of breads can be made satisfactorily without freezing.

Prepare a mixture of equal parts mimeograph ink, glycerine and water. The water may not be necessary if the ink is thin. Cut a piece of blotting paper slightly larger than the surface of the product of which a print is to be made. Allow the blotter to absorb all of the ink mixture possible by working ink into the blotter with a soft brush. Place this, ink side up, on a board and by means of thumb tacks stretch tightly a piece of thin, smooth, soft, plain-textured cloth over the ink surface. Excess ink should be avoided for this would result in uneven prints.

Press the surface of the product to be printed against the inked blotter and press lightly over the entire product. Carefully place the inked surface of the product down on newsprint and press gently so that an imprint will be made on the newsprint. Remove the product carefully so the imprint will not be smeared. Blot the print carefully and allow to dry.

Seed Displacement for determining volume of biscuits, Modified from Binning and Geddes (2)

1. Determine the volume of a small pan by filling it with rape seed or flax seed from a paper-lined funnel. Level off once. Take average of several readings. Empty seeds from pan.

2. Place at least five biscuits in the pan used in step one. Fill with seeds by filling the funnel completely with seeds and allowing all to run through, then adding a definite amount, if necessary, to complete filling of pan. Level off once.

3. Pour seeds from pan into a second paper-lined funnel which is supported by a metal graduate. Remove biscuits from pan.

4. Take a careful reading of height of seeds in metal cylinder.

5. Subtract reading obtained in step 4 from reading obtained in step 1 to obtain biscuit volume. Divide by number of biscuits to get average volume of biscuits.

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Outcomes to be Expected

At this point it may be well for us to take another look at what we have been trying to do. The activities for classroom use which have been described in this issue imply a very different approach from that demonstrated by laboratory periods devoted to preparation of single foods, which are then hastily eaten and evaluated superficially. Certainly we do not want to eliminate all consideration of family meals, or of the aesthetic and social values related to the service of food in the home. However, work with food is a "natural" for helping students gain an understanding of the way in which basic scientific principles operate in their daily lives. And we need to keep our purpose clearly in mind:

We are aiming to develop the ability to think--
clearly,
critically,
analytically.

On pp. 267-268 of the book, Education for Effective Thinking, Burton, Kimball and Wing state that one may be said to think effectively to the degree that he behaves in any of the following ways:

1. Recognizes and defines problems, identifies issues

2. Formulates, extends, and verifies feasible hypotheses

3. Collects, selects, or selectively recalls relevant data, differentiates between reliable and unreliable sources, between factual and non-factual sources

4. Recognizes reliable experiments

5. Draws reasonable inferences regarding cause and effect, logical implication, valid generalization, reliable prediction, and accurate description

6. Recognizes and evaluates implicit assumptions, uses postulational arguments logically, recognizes relevant value systems and uses them reasonably

7. Recognizes errors and fallacies

8. Comes to decisions or conclusions, tests them, applies them to pertinent situations

9. Applies semantic principles to language used

No one does these things automatically! Perhaps we need to reverse the familiar platitude about good example. Effective thinking is taught, not caught! And the skills which go to make up effective thinking have to be taught in small doses, too, with much repetition and much practice, especially for the slower learner. The less able child, incidentally, needs education for thinking just as much as does the better student.

Examples of learnings

Remember the boiling water?

What skills of effective thinking can students be learning as they carry out this "simple" activity?

To begin with, they are starting to make careful, accurate observations, and as a result to see many details which have gone unnoticed before. Using Burton, Kimball and Wing's terminology, we may say that they are collecting relevant data by means of their own sensory powers, and increasing the acuity of the senses in the process.

As they attempt to describe the stages of boiling water, they are learning to use words accurately and to choose the most suitable words to make the phenomena observed clear to another.

Further practice in all of these skills would be important. Observing the boiling of a sugar sirup might be an interesting variation. Could the students learn to distinguish between plain water and a sugar-water solution merely by watching each boil?

It will be helpful here if the teacher is careful about using correct terminology. For example, we often use the words "solution" and "mixture" in ways that are not chemically accurate.

As students note differences in the time required for boiling water at different burner settings, or in saucepans of different sizes and materials, they can be taught to draw reasonable inferences regarding cause and effect. Identification of the variables involved, and of procedures used to control them, could help these future consumers of research begin to develop some criteria for recognizing reliable experiments.

It is only a step further to helping them formulate some reasonable hypotheses, based on the observed behavior of the water under different conditions. Simple experiments to verify these hypotheses might be devised. Some limitations to the possibility of individual hypothesis verification could also be pointed out. For example, it might be somewhat difficult for an individual to verify the hypotheses:

> Any non-volatile substance dissolved in water will raise the boiling point of water.

A discussion of the basis for accepting this as a working hypothesis could lead to a consideration of the role of the word of authorities in helping us to arrive at certain conclusions. One cannot try out everything for himself! The importance of distinguishing between reliable and unreliable sources of information should be brought out at this point.

Another caution--

> We want to avoid giving students the impression that a hypothesis is "proved" once and for all. "Testing" is a more accurate word, implying that further information or newly developed methods may suggest a re-opening of the problem, further experimentation, and the acceptance of a revised hypothesis. As an aid in developing this habit of thinking, students can be encouraged to look for examples of exceptions, or apparent exceptions, to generalizations which have been formulated in class.

Repetition for thorough learning

The outcomes described in the previous section will not become "standard procedure" for most students without much repetition. The practice of the desired behaviors in new contexts will not only reinforce it but will serve to maintain interest.

Many of the experiments suggested earlier could be analyzed in the same way as the work with the boiling water. All of them can be used to help students search out cause and effect relationships.

* Browning starch apparently changes its thickening power.

* Heating water influences the amount of sugar which will dissolve in it.

* Lemon juice does something to prevent the darkening of an apple exposed to the air.

Our aim is to encourage students to say--about these reactions, and about other everyday phenomena which they observe:

"I wonder why."

We hope further that they will be able to make reasonable inferences, and to use these as a guide to their own behavior. A class was once given a copy of a scone recipe from which the amount of shortening had accidentally been omitted. One girl came back the next day to report this to the teacher. "I started to make these last night," she said," and I noticed that the fat was missing. My mother said I had better follow the recipe! But I knew it must be wrong."

She had also known how much shortening to add, since her class had been taught what proportions of fat and flour were used to produce baked products of various textures. Her scones were successful and she was very pleased with herself. A good thinker in the making!

The Techniques of Scientific Investigation

Senior high school girls who have worked through the unit in experimental cookery should have learned many new skills. Notice that in this unit emphasis has been placed on the careful, detailed planning which goes into research work. It is important that each girl have clearly in mind what her objectives are, before gathering data. The ability of the girl will have to be considered. Even slow students can learn to do experimental work. They cannot, however, write their own directions for doing it! The teacher must provide these, as well as emotional support, close observation, criticism of work habits and techniques and a great deal of aid in drawing warranted conclusions. On the other hand, the talented student needs encouragement to help her in selecting a challenging problem, thinking through her objectives, deciding on procedures, carrying out her plan, recording the data accurately, and finally, in evaluating the degree of confidence which can be placed in her conclusions, and in applying them to new situations.

Exactness is necessary in scientific laboratories. The importance of accuracy, and even of neatness, has sometimes been overlooked in our past work. How often have we accepted messy and carelessly done papers! Clear handwriting or printing and legible, uniformly sized numerals contribute to ease in understanding a research report.

Skill in manipulative techniques is also necessary. Students are asked to compare homemade and package mix products. An important point sometimes overlooked, however, is that the homemade product of an unskilled person, who uses careless techniques, is not likely to be of a high quality. In

order to make a valid test--to measure what one is presumed to be measuring--the student must practice until she is able to make a high quality product. Even the preparation of a mix requires some skill on the part of the cook. And, of course, either type of product can be spoiled by factors unrelated to the mixing, such as pan size and oven temperature. A student who realizes that an important purpose of research is to develop accurate facts and/or generalized statements to guide future actions, should see the need of eventually acquiring techniques which are good enough so that she can achieve dependable evidence. We may hope that she will then be ready to spend the necessary time and effort to develop these skills.

Relating experimental work to basic principles

One way of unifying the work in advanced classes might be to use several demonstrations or experiments which related to the same basic principle of chemistry or physics. The students would then be able to see how a single generalization or principle can be applicable to a number of different situations. Various members of the class could assume the responsibility for carrying out the different demonstrations and showing the results to the group. To reinforce the learning, it would be important to have, at the completion of the work, a discussion directed toward the statement of the principle involved and an exploration of its application to food preparation.

For example, we might consider the basic biological process of osmosis, which influences and serves as an explanation for many things which we do in our work with foods.

Students who have had chemistry should have learned the theoretical basis for this principle. The necessary subject matter content may be summarized as follows:

1. A true solution is a mixture in which a substance has been reduced to scattered molecules. The molecules of a dissolved substance do not reunite unless some change occurs, such as heating or evaporation.
2. In a true solution, as for example, a sugar sirup, the water molecules and sugar molecules, which are constantly moving, distribute themselves evenly with respect to one another, and rebound both from each other and from the sides of the container. Considerable pressure results from these impacts within and throughout the solution. This inner-solution pressure is called osmotic pressure.
3. Osmotic pressure depends on and is directly proportional to, the concentration of dispersed particles within the solution. Therefore the greater the amount of sugar in a sugar sirup, the greater the osmotic presure within it. Osmotic pressure in salt solutions is greater than in glucose solutions of equal concentration because salt ionizes, or breaks up into more particles.
4. Whenever two solutions of different concentrations, e.g. of different osmotic pressures, are separated by a membrane

which is permeable to both solvent and solute:

a. more solute molecules will pass through the membrane from the solution of higher osmotic pressure, where more solute particles hit against the membrane, than will pass through from the opposite direction.

b. more solvent (water) molecules will pass from the solution of lower osmotic pressure, where the greater number of water molecules hit the membrane, than will pass through from the opposite direction.

Thus the more concentrated solution will decrease in concentration and increase in volume. The less concentrated solution will increase in concentration and decrease in volume. This attempt to equalize the concentration of the two solutions is the phenomenon called <u>osmosis</u>.

5. Osmosis occurs whenever two solutionsof different concentrations are separated by a permeable membrane. Although diffusion of particles takes place in both directions, more solute particles move from the region of greatest concentration, and therefore the concentration of both solutions tends to be equalized.

<u>Suggested ways to illustrate the principle</u>

* Take two pieces of soft, ripe fruit such as a plum or a pear. Place one in a concentrated sugar solution, the other in plain water. Allow to stand for several hours or overnight.
Do the same with dried prunes or apricots. Compare the flavor and texture of the fruit, and the flavor and appearance of the soaking liquid.

* Experiment with cooking fresh and dried fruits in plain water, in different concentrations of sirup and at gentle and rapid rates of boiling, keeping constant other variables such as cooking time, size of pan, amount of liquid, and the weight and size of fruit.

* Pare and slice a fresh cucumber. Subject slices to different treatments such as

a. leaving on a dish at room temperature
b. soaking in strong salt solution for twenty minutes
c. soaking in strong salt solution for forty minutes
d. soaking in fresh water for forty minutes
e. soaking in strong salt solution for twenty minutes, then in fresh water for forty minutes

* Dry foods such as apples or pears. Compare keeping qualities with that of fresh fruit.

* Prepare preserves, noting methods used to keep the pieces of fruit whole.

* Prepare pickles with brine.

* Prepare sauerkraut.

Suggested explanations in terms of the principle

1. If the concentration of sugar in the solution is greater than the concentration of materials within the plant cells, more sugar will pass into the fruit from the sugar solution than will pass from the fruit juices into the sugar solution. For the water, however, the opposite will be true. Therefore the fruit in a concentrated sugar solution shrivels and becomes sweeter. The sirup becomes less sweet.
2. More sugar diffuses through the skin from inside the fruit to the outside than vice versa, while more water diffuses from the outside into the dried fruit or vegetable than in the opposite direction. The surrounding water gains in sweetness as the fruit becomes plumper. If sugar solution is used fruit will soften but remain more wrinkled. The two-way diffusion of water and soluble salts and sugars is speeded up by gentle heating. When actual cooking starts, however, the permeable membranes are softened and changed by heat.
3. Water is withdrawn from the tissues of the cucumber when it is placed in a strong salt solution; therefore, it becomes limp. The water is replaced when the salt solution is replaced by fresh water and the slice becomes firmer again. Salt molecules diffuse also, but not as rapidly as those of the water.
4. Microorganisms are destroyed by drying. When tissues are fresh, there is an equilibrium between the osmotic pressure of the solutions within the cells of bacteria, yeasts and molds, and the pressure outside in the food which contains these organisms. When water is evaporated from the food the concentration of salts and sugars is increased, the osmosis equilibrium is disturbed and water is withdrawn from the protoplasm of the microorganisms more rapidly than it is restored. As a result, they are killed. The dryness prevents spores from germinating, as well as providing an unfavorable situation for bacterial life.
5. In order to keep cooked fruit in whole pieces, it may be placed in a thin sugar sirup first and boiled very gently. The sirup will have a slight strengthening action upon the fruit tissue cell walls. The concentration of the sirup may be gradually increased to produce a product of the desired sweetness.
6. Any bacterium is composed in part of a true solution of salts and other substances enclosed in a permeable membrane. When it is surrounded by brine, more water molecules will diffuse from inside the bacterial cell to the outer solution than in the reverse direction. Thus the bacterium becomes "dehydrated." It is either killed or its activity is greatly limited. More salt molecules diffuse into the bacterium than from the inside to the outer solution, and this upsets the cell chemistry, also.
7. Sauerkraut makes use of salt in a low concentration together with acids. The small amount of salt adds flavor to the food, but the dehydration it produces in microorganisms is not enough to destroy them. The osmosis disturbance is between the particles of food themselves and the surrounding salt solution. The difference in osmotic pressure causes some water and sugar to

be withdrawn from the foods into the salt solution. Bacteria feed upon this sugar and acids are formed. Eventually, the acid concentration is too great for bacterial activity to continue.

Two helpful teacher references

Foods and Principles of Cookery, by Natalie K. Fitch and Charlotte A. Francis. Prentice-Hall, Englewood Cliffs, New Jersey. 1948.

Food Preparation--Principles and Procedures (a laboratory manual), by Elizabeth Sutherland and P. Mabel Nelson. Wm. C. Brown Co., Inc., Dubuque, Iowa.

* *

This is the last issue of the Illinois Teacher of Home Economics edited by Professor Letitia Walsh before her retirement from the University of Illinois. The idea for the Illinois Teacher originated with Professor Walsh. She devoted many hours of dedicated service to its development. Evidence that it met a felt need in the field of Home Economics Education may be seen in the fact that its circulation increased from two hundred to approximately three thousand over its first five years of publication.

At this time, the Home Economics Education staff of the University of Illinois wishes to honor Professor Walsh and to express appreciation for all of her fine work on the Illinois Teacher of Home Economics.

Publication of the Illinois Teacher of Home Economics is being continued under the guidance of a new editorial board. The remaining five issues for 1962-63 will reach you during the winter and spring months. Plans are also under way for continued publication in 1963-64.

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Du Page County Manpower Profile, 1947-1970.

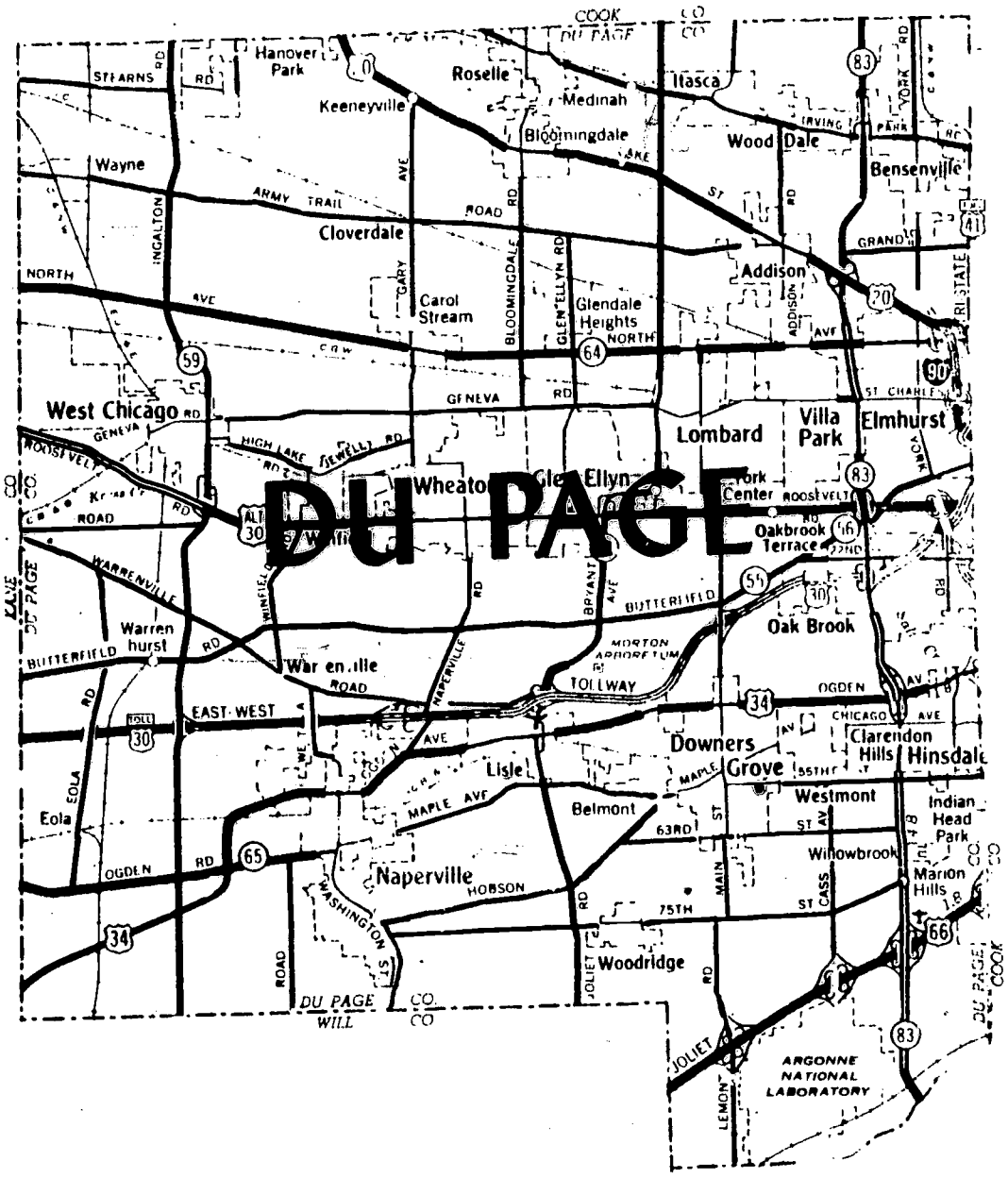
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DU PAGE COUNTY; ILLINOIS

Du Page County has been known as a middle-class residential area for city executives and professionals desiring to combine the advantages of urban business opportunity with suburban living. Until recently, local job opportunities were confined almost entirely to industries which cater to the needs of the population: government, trade, recreation, and personal services. The trend toward industrial expansion in Du Page County, as in all periphery counties of the Chicago Standard Metropolitan Statistical Area, has gained strength. Since 1951, employment in establishments covered by the Illinois Unemployment Compensation Act has increased by over 250 percent in Du Page County. Projections based on Unemployment Compensation Covered Employment trends indicate an expected wage and salaried employment of approximately 103,000 by 1970. The document consists of tables of data organized into (1) Unemployment Compensation Covered Employment in Du Page County, (2) Nonagricultural Wage and Salaried Employment in Du Page County, (3) Anticipated Nonagricultural Wage and Salaried Employment in Du Page County, March, 1965-1970, (4) Industrial Distribution of Unemployment Compensation Covered Establishments in Du Page County, March, 1964, and (5) Miscellaneous Data from The United States Census, April, 1960. (HC)

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DU PAGE COUNTY MANPOWER PROFILE 1947-70



PREPARED BY

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DUPAGE COUNTY MANPOWER PROFILE

1947-1970

THE CENTER FOR VOCATIONAL AND
TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

Chicago, Illinois

January, 1966

FOREWORD

This new publication stems from the great demand for, and excellent response to, its predecessor, Analysis of the Fotential Labor Supply in DuPage County, Illinois 1963-69.

With the expansion of the data-gathering processes for the annual study, Employed Workers Covered by the Illinois Unemployment Compensation Act, recently distributed, additional analytic aspects can now be viewed with regard to DuPage County. For this present version of the DuPage County study, two tables have been expanded, and 16 additional tables incorporated. This type of study has been used in the past by various planning associations as a basis for estimating future economic growth, for establishing zoning regulations, in plotting the need for additional highways and other basic services. Such studies are also used for planning expansion and/or location of new business and industrial complexes, and as an important operational tool of the Illinois Bureau of Employment Security.

For further information or extra copies of this report, please direct your inquiries to:

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Frank Igolka, Chief
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DUPAGE EMPLOYMENT CONTINUES UPWARD SPIRAL

Historically, DuPage County has been known as a middle-class residential area for city executives and professionals desiring to combine the advantage of urban business opportunity with suburban living. Until recently, local job opportunities were confined almost entirely to industries which cater to the needs of the population -- government, trade, recreation, and personal services.

During World War II, several large defense producers opened plants in DuPage County. However, as late as 1950, there were roughly only 25,000 actually working within the area--and only 4,000 of these were employed in manufacturing. By 1964, approximately 55,000 earned their livelihood in the County--15,000 in production activities. The trend toward industrial expansion in DuPage County, as in all periphery counties of the Chicago Standard Metropolitan Statistical Area, has gained strength. Efforts of the DuPage Industrial Development Commission have been instrumental in bringing about this industrial growth. This group was organized in 1959 to secure full participation for the County in the expanding importance of the suburbs. Under the leadership of the Commission, 10 percent of the County's land area has been zoned for industrial use.

All signs point to an even more substantial growth in DuPage County employment during the several years to come. By 1970, a much greater proportion of the local force is likely to be working in DuPage County, although many will continue to commute to jobs outside their home area.

Analysis of Employment in DuPage County

Since 1951, employment in establishments covered by the Illinois Unemployment Compensation Act has skyrocketed over 250 percent in the DuPage County area. Both manufacturing and nonmanufacturing industries registered proportional gains, with the nonmanufacturing segment employing approximately twice the number of workers in manufacturing. Little relative deviation has occurred between the two groups over the years.

U.C. Covered Employment in 1951 totaled 10,979, while the 1964 level was reported at 38,928. A percentage distribution by industry showed that in 1964 the retail trade segment claimed the greatest number of workers (24.7 percent), with the service industry a distant second at 10.4 percent. In the manufacturing groups, electrical machinery was highest, with 7.3 percent. Most of the remaining employment was evenly distributed among several groups.

DuPage County employment is concentrated in such centers of population as Downers Grove, Elmhurst, Wheaton, and Addison. However, wide variances exist between the industrial endeavors of these communities. This is to be expected, since each community fosters the growth of those industries traditionally located within its boundaries.

Projections of total wage and salaried employment to 1970 were made, based on the past U.C. Covered Employment trends. Since 1955, U.C. Covered Employment has risen on the average of 12.3 percent a year. There are strong indications that this fast-paced rise will continue in DuPage County at least to the end of the decade. Therefore, wage and salaried employment can be expected to almost double its 1964 level and total approximately 103,000 by 1970.

Analysis of the Potential Resident Labor Supply in DuPage County

DuPage County is located within the Chicago Standard Metropolitan Statistical Area. The existence of express highways simplifies commuting and thus its employers are able to recruit manpower from all six counties in this metropolitan complex--Cook, DuPage, Kane, Lake, McHenry, and Will. The adjoining counties, Cook, Kane, and Will, provide the majority of the incoming commuters, who are generally workers in the highly skilled, professional, and managerial categories--in which wage scales are sufficiently high to justify greater travel expense. Although it is probable that industrial expansion will continue to be significant in adjacent counties also, the anticipated labor-force growth in those counties will be adequate to provide commuters to DuPage establishments.

There are prime and distinctive characteristics in the DuPage County work force. They differ from those possessed by other workers in the State of Illinois and the Chicago SMSA in the following ways:

1. High Exodus of Workers--More than half of the resident work force is employed outside the County. This is substantially higher than for any other county in the State.

2. Low Unemployment Rate--DuPage County consistently has very low unemployment. The 1960 Census listed only 2.2 percent of the county's work force as jobless, as compared to the average of 4.3 percent for the State as a whole. The low unemployment rate in DuPage County may be attributed to (1) the high level of educational attainment of the population, and (2) the small proportion of unskilled workers.

3. High Educational Attainment--The educational attainment of workers residing in DuPage County is the highest in the State. According to the 1960 Census, 62 percent of those over 25 years of age completed four years of high school or more as contrasted with 42 percent for the entire Chicago SMSA.

4. Greater Representation in Skilled Occupations--The proportion of the DuPage workers with experience in skilled occupations was far above average. For example, professional, technical, and kindred workers made up 18.0 percent of the employed in DuPage County in 1960, but only 10.8 percent in Cook County.

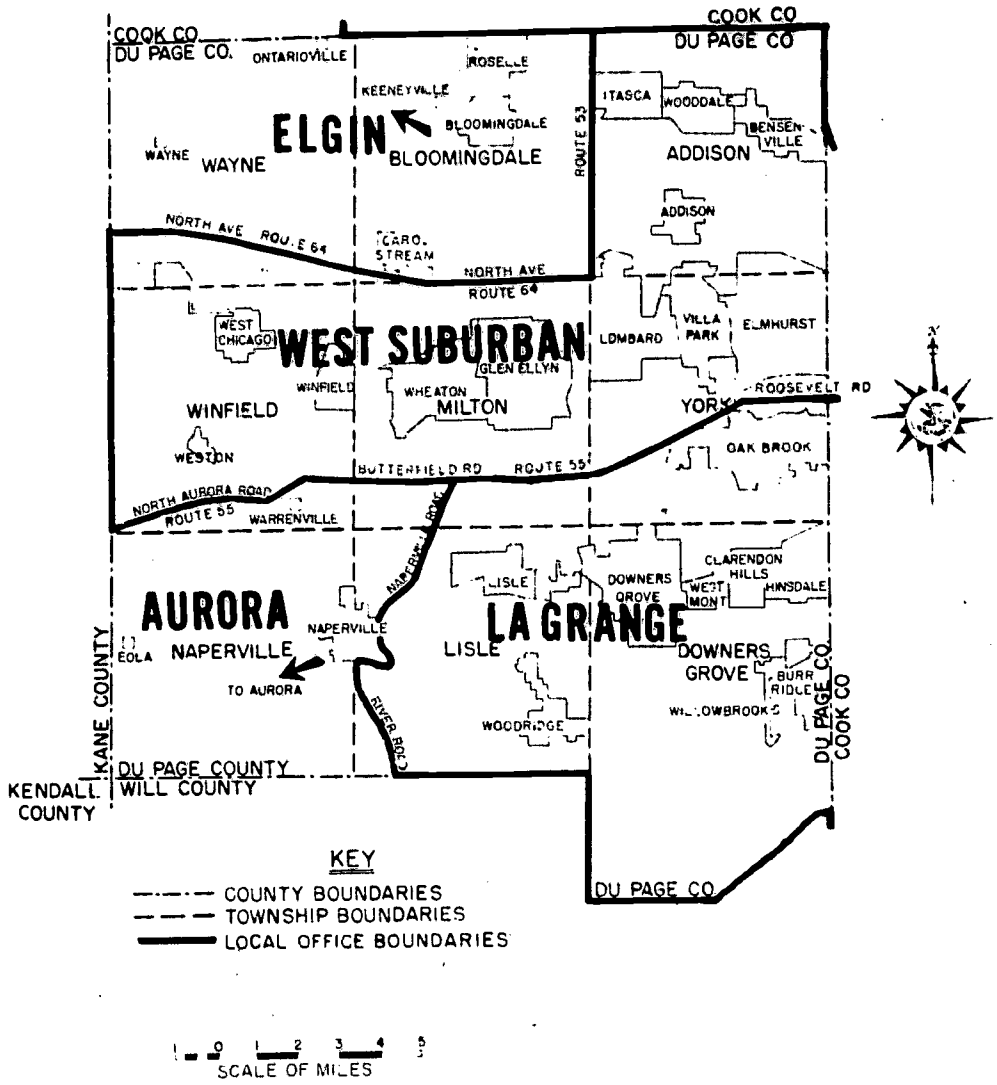
5. High Earnings Rate--Because of the relatively high proportion of workers in skilled, managerial, and professional occupational groups, workers in DuPage County have higher earnings than anywhere else in the State.

Potential Sources for Manpower Recruitment During 1965-1970

It is estimated that over 65,000 workers could be recruited from the County's potential labor supply to meet the needs of expanding industries during the next several years.

1. Workers now commuting outside DuPage County who are available for local jobs.	10,000
2. Housewives and other women not currently in the labor force.	5,000
3. Youth entrants.	20,000
4. New workers expected to move to DuPage County during the five-year period.	10,000
5. Supply available from adjacent counties through greater in-commutation.	20,000
Total Additions	65,000

DU PAGE COUNTY
BY LOCAL ISES OFFICE AREA[1/]



[1/] DU PAGE COUNTY PORTION ONLY OF AREAS SERVED BY ISES LOCAL OFFICES LOCATED IN AURORA, ELGIN, LA GRANGE, AND MAYWOOD

Illinois State Employment Service Offices Serving DuPage County

Administrative Office:
Walter E. Parker, Superintendent; 165 N. Canal St.; Chicago, Illinois 60606

Chicago Operations:
Frank Igolka, Chief; 1635 W. Ogden Ave.; Chicago, Illinois 60612

Downstate Operations:
James T. Greene, Chief; 165 N. Canal St.; Chicago, Illinois 60606

Professional, Managerial, and Scientific;
Grace Pergler (Miss), BOS; 208 S. LaSalle St.; Chicago, Illinois 60604

Aurora:
Raymond E. Powers, Manager; 221 Spruce St.; Aurora, Illinois 60504

Elgin:
Cleo Liepitz (Mrs.), Manager; 76 S. Grove Ave.; Elgin, Illinois 60120

LaGrange:
John Thomas, Manager; 15 W. Calendar Ave.; LaGrange, Illinois 60526

West Suburban:
Anthony Walat, Manager; 30 N. Fifth Ave.; Maywood, Illinois 60153

PART I

U. C. COVERED EMPLOYMENT

IN

DUPAGE COUNTY

Table I

U. C. Covered Employment in DuPage County

March, 1947 thru 1964

Year	Total	Percent of Chicago SMSA
1947	7,998	INA
1949	8,759	INA
1950	9,421	INA
1951	10,979	INA
1952	11,231	0.6
1953	13,117	0.7
1954	14,572	0.8
1955	14,472	0.8
1957	20,114	1.1
1959	24,134	1.3
1960	26,010	1.4
1961	27,410	1.5
1962	28,347	1.5
1963	30,827	1.7
1964	38,928	2.0

Table II

U. C. Covered Employment in DuPage County, by Major Community
March, 1964

Industry	Ind. Code	Total	Addison	Downers Grove	Elm-hurst	LaGrange Misc. 1/	Naper-ville	West Sub. Misc. 1/	Wheaton	Unclassi-fied
ALL INDUSTRIES		38,928	3,919	4,692	4,608	1,693	2,037	12,781	4,259	4,939
Manufacturing Total	19-39	13,789	2,746	2,014	256	337	825	4,592	1,749	1,270
Durable Goods Total		9,143	2,146	1,308	72	195	600	3,413	438	971
Ordnance & Accessories	19	16	0	0	0	0	*	*	0	0
Lumber & Wood Products	24	63	0	0	29	0	*	18	*	0
Furniture & Fixtures	25	1,212	49	*	0	*	*	86	0	*
Stone-Clay-Glass Prod.	32	155	*	0	*	*	*	52	*	*
Primary Metals Ind.	33	927	98	*	0	0	0	739	*	0
Fabricated Metal Prods.	34	1,694	877	361	*	*	*	150	*	*
Nonelectrical Mach.	35	1,732	410	642	0	65	5	591	*	*
Electrical Machinery	36	2,872	542	*	0	*	*	*	321	*
Transportation Equip.	37	79	0	0	0	0	*	*	0	*
Pro. & Sci. Instruments	38	255	*	*	0	*	0	64	0	0
Misc. Manufacturing Ind.	39	138	65	0	*	35	0	35	0	*
Nondurable Goods Total		4,646	600	706	184	142	225	1,179	1,311	299
Food & Kindred Prods.	20	1,371	92	*	*	*	114	630	0	104
Apparel	23	39	0	*	0	0	*	*	0	0
Paper & Allied Products	26	817	*	0	*	0	0	*	*	0
Printing & Publishing	27	1,160	*	71	177	*	101	201	482	0
Chemicals & Allied Products	28	467	37	*	0	0	*	277	0	9
Rubber & Misc. Plastics	30	748	349	*	0	*	*	26	*	186
Leather & Leather Prods.	31	44	*	*	0	0	0	19	0	0
Nonmanufacturing Total		25,139	1,173	2,678	4,352	1,356	1,212	8,189	2,510	3,669
Mining & Quarrying	10-14	126	0	*	*	*	0	*	*	*
Contract Construction	15-17	3,873	324	274	508	307	197	1,465	344	454
Transportation	40-47	614	*	35	199	14	*	226	58	73
Communication & PU's	48-49	1,677	0	*	*	38	0	*	*	1,021
Wholesale Trade	50	3,235	82	364	218	70	*	2,162	170	*
Retail Trade	52-59	9,584	485	1,087	1,942	638	627	2,451	790	1,564
Fin-Insur-Real Estate	60-67	1,983	*	165	661	*	102	387	323	255
Serv. & Misc. Inds.	01-09, 70-99	4,047	241	586	650	235	162	1,362	577	234

1/DuPage County portion of area served by office located outside the County.
* To avoid disclosure of individual firm data.

Table III

U. C. Covered Employment in DuPage County by ISES Office Area[1]
March, 1964

Industry	Ind. Code	Total	Aurora	LaGrange	West Suburban	Unclassified[2]
ALL INDUSTRIES		38,928	2,037	6,385	25,567	4,939
Manufacturing Total	19-39	13,789	825	2,351	9,343	1,270
Durable Goods Total		9,143	600	1,503	6,069	971
Ordnance & Accessories	19	16	0	0	*	*
Lumber & Wood Products	24	63	*	0	57	*
Furniture & Fixtures	25	1,212	*	32	135	*
Stone-Clay-Glass Prods.	32	155	*	9	99	*
Primary Metals Ind.	33	927	0	45	882	0
Fabricated Metal Prods.	34	1,694	*	387	1,105	*
Nonelectrical Mach.	35	1,732	5	707	1,005	15
Electrical Machinery	36	2,872	*	175	2,508	*
Transportation Equip.	37	79	*	0	*	*
Pro. & Sci. Instruments	38	255	0	113	142	0
Misc. Manufacturing Ind.	39	138	0	35	103	0
Nondurable Goods Total		4,646	225	848	3,274	299
Food & Kindred Prods.	20	1,371	114	424	729	104
Apparel	23	39	*	31	0	*
Paper & Allied Products	26	817	0	0	817	0
Printing & Publishing	27	1,160	101	145	914	0
Chem. & Allied Products	28	467	*	142	314	*
Rubber & Misc. Plastics	30	748	0	106	456	186
Leather & Leather Prods.	31	44	0	0	44	0
Nonmanufacturing Total		25,139	1,212	4,034	16,224	3,669
Mining & Quarrying	10-14	126	*	0	107	*
Contract Construction	15-17	3,873	197	581	2,641	454
Transportation	40-47	614	*	49	488	*
Communication & PU's	48-49	1,677	0	205	451	1,021
Wholesale Trade	50	3,235	120	434	2,632	49
Retail Trade	52-59	9,584	627	1,725	5,668	1,564
Fin-Insur-Real Estate	60-67	1,983	102	219	1,407	255
Serv. & Misc. Inds.	01-09 ,70-99	4,047	162	821	2,830	234

1/ DuPage County portion of area served by offices located outside the County.
2/ Includes DuPage County portion of Elgin Local Office Area.
* To avoid disclosure of individual firm data.

Table IV
U. C. Covered Employment in DuPage County by Major Community

March 1955, 1957, and 1959 thru 1964

	1955	1957	1959	1960	1961	1962	1963	1964
TOTAL	14,472	20,114	24,134	26,010	27,410	28,347	30,827	38,928
Addison	939	1,609	2,240	2,559	2,837	3,049	3,467	3,919
Downers Grove	1,843	2,152	2,938	2,966	3,403	3,554	3,966	4,692
Elmhurst	2,580	3,212	3,428	3,750	3,865	3,876	4,105	4,608
LaGrange Misc. 1/	871	937	1,409	1,268	1,353	1,268	1,387	1,693
Naperville	968	1,247	1,363	1,595	1,678	1,748	1,925	2,037
West Suburban Misc. 1/	2,639	4,981	6,306	6,952	7,205	7,481	7,987	12,781
Wheaton	1,690	2,632	2,723	3,011	3,052	3,220	3,368	4,259
Unclassified	2,942	3,344	3,727	3,909	4,017	4,151	4,622	4,939

1/ DuPage portion only of area served by office located outside the County.

Table V

U. C. Covered Employment in DuPage County by ISES Office Area 1/

March 1955, 1957, and 1959 thru 1964

	1955	1957	1959	1960	1961	1962	1963	1964
TOTAL	14,472	20,114	24,134	26,010	27,410	28,347	30,827	38,928
Aurora	968	1,247	1,363	1,595	1,678	1,748	1,925	2,037
LaGrange	2,714	3,089	4,347	4,234	4,756	4,822	5,353	6,385
West Suburban	7,848	12,434	14,697	16,272	16,959	17,626	18,927	25,567
Unclassified 2/	2,942	3,344	3,727	3,909	4,017	4,151	4,622	4,939

1/ DuPage portions only of areas served by offices located outside the County.

2/ Includes DuPage County portion of Elgin Local Office Area.

PART II

NONAGRICULTURAL WAGE AND SALARIED EMPLOYMENT

IN

DUPAGE COUNTY

Table VI

Nonagricultural Wage & Salaried Employment in DuPage County

March, 1947 thru 1964

Year	Total	Percent of Chicago SMSA
1947	21,800	INA
1949	22,400	INA
1950	22,700	INA
1951	25,000	INA
1952	24,300	1.0
1953	26,900	1.1
1954	28,500	1.2
1955	27,100	1.2
1957	34,500	1.4
1959	38,200	1.6
1960	39,700	1.6
1961	40,400	1.7
1962	40,300	1.6
1963	42,400	1.7
1964	51,900	2.1

Table VII

Industrial Distribution of Nonagricultural Wage & Salaried Employment in DuPage County, by Major Community
March, 1964

Industry	Ind. Code	Total	Addison	Downers Grove	Elmhurst	LaGrange Misc. 1/	Naperville	West Sub. Misc. 1/	Wheaton	Unclassified
ALL INDUSTRIES		51,900	4,600	5,900	7,100	2,300	2,600	17,100	5,600	6,700
Manufacturing Total	19-39	14,000	2,600	2,000	300	300	800	4,700	1,800	1,300
Durable Goods Total		9,200	2,200	1,300	100	200	600	3,400	400	1,000
Ordnance & Accessories	19	*	0	0	0	0	0	*	0	0
Lumber & Wood Prods.	24	100	0	0	*	0	*	*	*	0
Furniture & Fixtures	25	1,200	*	*	0	*	300	100	0	700
Stone-Clay-Glass Prods.	32	200	*	0	*	*	100	100	*	*
Primary Metals Ind.	33	900	100	*	0	0	0	700	*	0
Fabricated Metal Prods.	34	1,700	900	400	*	*	*	100	*	100
Nonelectrical Mach.	35	1,700	400	600	0	100	*	600	*	*
Electrical Machinery	36	2,900	500	200	0	*	100	1,700	300	100
Transportation Equip.	37	100	0	0	0	0	*	*	0	*
Pro. & Sci. Instruments	38	300	100	100	0	*	0	100	0	0
Misc. Mfg. Industries	39	100	100	0	*	*	0	*	0	0
Nondurable Goods Total		4,800	600	700	200	100	200	1,300	1,400	300
Food & Kindred Prods.	20	1,400	100	400	*	*	100	600	0	100
Apparel	23	*	0	*	0	0	*	0	0	0
Paper & Allied Prods.	26	800	*	0	0	0	0	*	800	0
Printing & Publishing	27	1,300	100	100	200	100	100	200	500	*
Chem. & Allied Prods.	28	500	*	200	0	0	*	300	0	*
Rubber & Misc. Plastics	30	800	300	100	0	*	0	*	100	200
Leather & Leather Prods.	31	*	*	0	0	0	0	*	0	0
Nonmanufacturing Total		37,900	1,800	3,900	6,800	2,000	1,800	12,400	3,800	5,400
Mining & Quarrying	10-14	100	0	0	100	0	0	*	0	*
Contract Const.	15-17	4,100	300	300	500	300	200	1,600	400	500
Transportation	40-47	1,100	*	100	400	*	*	400	100	100
Communication & PU'S	48-49	1,700	0	200	100	*	0	200	200	1,000
Wholesale Trade	50	3,500	100	400	200	100	100	2,400	200	*
Retail Trade	52-59	10,100	500	1,100	2,000	700	700	2,700	800	1,600
Fin-Ins- Real Estate	60-67	2,300	*	200	700	100	100	400	400	300
Service and Misc. Inds.	01-09, 70-89, 99	7,500	200	600	2,600	200	400	1,400	1,200	900
Government	91-94	7,500	700	1,000	200	600	300	3,300	500	900

1/ DuPage portion only of area served by office located outside County.
* To avoid disclosure of individual firm data.

Table VIII

Industrial Distribution of Total Nonagricultural Wage & Salaried Employment in DuPage County, by ISES Office Area 1/

March, 1964

Industry	Ind. Code	Total	Aurora	LaGrange	West Suburban	Unclassified 2/
ALL INDUSTRIES		51,900	2,600	8,500	34,100	6,700
Manufacturing Total	19-39	14,000	800	2,400	9,500	1,300
Durable Goods Total		9,200	600	1,500	6,100	1,000
Ordnance & Accessories	19	*	0	0	*	0
Lumber & Wood Products	24	100	*	0	100	0
Furniture & Fixtures	25	1,200	300	*	100	700
Stone-Clay-Glass Prods.	32	200	100	*	100	*
Primary Metals Ind.	33	900	0	*	900	0
Fabricated Metal Prods.	34	1,700	*	400	1,100	100
Nonelectrical Mach.	35	1,700	*	700	1,000	*
Electrical Machinery	36	2,900	100	200	2,500	100
Transportation Equip.	37	100	*	0	*	*
Pro. & Sci. Instruments	38	300	0	100	200	0
Misc. Manufacturing Inds.	39	100	0	*	100	0
Nondurable Goods Total		4,800	200	900	3,400	300
Food & Kindred Prods.	20	1,400	100	400	800	100
Apparel	23	*	*	*	0	0
Paper & Allied Products	26	800	0	0	800	0
Printing & Publishing	27	1,300	100	100	1,000	*
Chem. & Allied Products	28	500	*	200	300	*
Rubber & Misc. Plastics	30	500	0	100	500	200
Leather & Leather Prods.	31	*	0	0	*	0
Nonmanufacturing Total		37,900	1,800	6,100	24,600	5,400
Mining & Quarrying	10-14	100	0	0	100	*
Contract Construction	15-17	4,100	200	600	2,800	500
Transportation	40-47	1,100	*	*	900	100
Communication & PU's	48-49	1,700	0	200	500	1,000
Wholesale Trade	50	3,500	100	500	2,800	*
Retail Trade	52-59	10,100	700	1,600	6,000	1,600
Fin-Insur-Real Estate	60-67	2,300	100	300	1,600	300
Serv. & Misc. Inds.	01-09,70-89,99	7,500	400	1,600	4,600	900
Government	91-94	7,500	300	1,000	5,300	900

1/ DuPage portions only of areas served by offices located outside the County.
2/ Includes DuPage County portion of Elgin Local Office Area.

Table IX

Nonagricultural Wage & Salaried Employment in DuPage County, by Major Community

March 1955, 1957, and 1959 thru 1964

	1955	1957	1959	1960	1961	1962	1963	1964
Total	27,100	34,500	38,200	39,700	40,400	40,300	42,400	51,900
Addison	1,800	2,800	3,600	3,900	4,200	4,400	4,500	4,600
Downers Grove	3,500	3,700	4,700	4,500	5,000	5,000	5,500	5,900
Elmhurst	4,800	5,500	5,400	5,700	5,700	5,500	5,800	7,100
LaGrange Misc. 1/	1,600	1,600	2,200	2,000	2,000	1,800	1,900	2,300
Naperville	1,800	2,100	2,100	2,400	2,500	2,500	2,600	2,600
W. Suburban Misc. 1/	4,900	8,600	10,000	10,600	10,600	10,600	11,100	17,100
Wheaton	3,200	4,500	4,300	4,600	4,500	4,600	4,600	5,600
Unclassified	5,500	5,700	5,900	6,000	5,900	5,900	6,400	6,700

1/ DuPage County portions only of areas served by offices located outside the County.

Table X

Nonagricultural Wage and Salaried Employment in DuPage County, by IESS Office Area1/

March, 1955, 1957, and 1959 thru 1964

	1955	1957	1959	1960	1961	1962	1963	1964
Total	27,100	34,500	38,200	39,700	40,400	40,300	42,400	51,900
Aurora	1,800	2,100	2,100	2,400	2,500	2,500	2,600	2,600
LaGrange	5,100	5,300	6,900	6,500	7,000	6,900	7,400	8,500
West Suburban	14,700	21,400	23,300	24,800	25,000	25,100	26,000	34,100
Unclassified2/	5,500	5,700	5,900	6,000	5,900	5,800	6,400	6,700

1/ DuPage portion only of area served by offices located outside the County.

2/ Includes DuPage County portion of Elgin Local Office Area.

PART III

ANTICIPATED NONAGRICULTURAL WAGE AND SALARIED EMPLOYMENT

IN

DUPAGE COUNTY

1965-1970

Table XI

Anticipated Nonagricultural Wage & Salaried Employment
DuPage County

March, 1965 thru 1970

Year	Anticipated Employment
1965	57,000
1966	64,000
1967	72,900
1968	81,900
1969	92,000
1970	103,300

Table XII

Anticipated Nonagricultural Wage and Salaried Employment, by Industry
DuPage County
March, 1965-1970

Industry	Ind. Code	1965	1966	1967	1968	1969	1970
ALL INDUSTRIES		57,800	64,900	72,900	81,900	92,000	103,300
Manufacturing Total	19-39	15,300	17,100	19,200	21,600	24,300	27,300
Durable Goods Total		10,100	11,300	12,700	14,300	16,100	18,100
Ordnance & Accessories	19	*	*	*	*	*	*
Lumber & Wood Products	24	100	100	100	200	200	200
Furniture & Fixtures	25	1,300	1,500	1,800	1,900	2,100	2,400
Stone-Clay-Glass Prods.	32	100	100	100	200	200	200
Primary Metals Ind.	33	1,000	1,100	1,200	1,400	1,500	1,800
Fabricated Metal Prods.	34	1,900	2,100	2,500	2,600	3,000	3,400
Nonelectrical Mach.	35	1,900	2,100	2,400	2,700	3,000	3,400
Electrical Machinery	36	3,300	3,700	4,000	4,400	5,100	5,700
Transportation Equip.	37	100	100	100	200	200	200
Pro. & Sci. Instruments	38	300	400	400	500	600	600
Misc. Manufacturing Ind.	39	100	100	100	200	200	200
Nondurable Goods Total		5,200	5,800	6,500	7,300	8,200	9,200
Food & Kindred Prods.	20	1,500	1,700	1,900	2,100	2,400	2,700
Apparel	23	*	*	*	*	*	*
Paper & Allied Products	26	900	1,000	1,200	1,300	1,500	1,700
Printing & Publishing	27	1,300	1,400	1,500	1,800	1,900	2,100
Chem. & Allied Products	28	600	600	700	800	900	1,000
Rubber & Misc. Plastics	30	900	1,100	1,200	1,300	1,500	1,700
Leather & Leather Prods.	31	*	*	*	*	*	*
Nonmanufacturing Total		42,500	47,800	53,700	60,300	67,700	76,000
Mining & Quarrying	10-14	100	100	100	200	200	200
Contract Construction	15-17	4,600	5,200	5,900	6,500	7,500	8,300
Transportation	40-47	1,200	1,400	1,500	1,700	1,900	2,200
Communication & PU's	48-49	1,900	2,100	2,400	2,700	3,000	3,400
Wholesale Trade	50	3,900	4,400	5,000	5,500	6,300	7,000
Retail Trade	52-59	11,400	12,700	14,300	16,000	17,900	20,100
Fin-Insur-Real Estate	60-67	2,600	2,900	3,300	3,700	4,100	4,600
Serv. & Misc. Inds.	01-09,70-89,99	8,400	9,500	10,600	12,000	13,400	15,100
Government	91-94	8,400	9,500	10,600	12,000	13,400	15,100

* To avoid disclosure of individual firm data.

Table XIII

Anticipated Nonagricultural wage and Salaried Employment, by Major Community

DuPage County

March, 1965-1970

	1965	1966	1967	1968	1969	1970
Total	57,800	64,900	72,900	81,900	92,000	103,300
Addison	6,100	7,100	8,200	9,600	11,100	12,900
Downers Grove	6,900	7,700	8,600	9,600	10,700	11,900
Elmhurst	6,400	6,700	7,100	7,400	7,600	7,900
LaGrange Misc. 1/	2,400	2,500	2,700	2,900	3,000	3,200
Naperville	2,900	3,100	3,400	3,600	3,900	4,100
West Sub. Misc. 1/	20,000	23,600	27,700	32,400	38,200	44,500
Wheaton	6,300	7,100	7,900	8,900	10,000	11,300
Unclassified	6,800	7,100	7,300	7,500	7,500	7,500

1/ DuPage portion only of area served by office located outside the County.

Table XIV

Anticipated Nonagricultural Wage and Salaried Employment, by IDES Office Area[1]

In DuPage County

March 1965-1970

	1965	1966	1967	1968	1969	1970
Total	57,800	64,900	72,900	81,900	92,000	103,300
Aurora	2,900	3,100	3,400	3,600	3,900	4,100
LaGrange	9,300	10,300	11,300	12,400	13,700	15,100
West Suburban	38,800	44,500	51,000	58,400	66,900	76,500
Unclassified[2]	6,800	7,100	7,300	7,500	7,500	7,500

1/ DuPage County portion only of areas served by offices located outside the County.

2/ Includes DuPage County portion of Elgin Local Office Area.

PART IV

INDUSTRIAL DISTRIBUTION

OF

U. C. COVERED ESTABLISHMENTS

IN

DUPAGE COUNTY

March, 1964

Table XV
U. C. Covered Establishments, by Industry
DuPage County
March, 1964

Industry	Ind. Code	Total	Addison	Downers Grove	Elm-hurst	LaGrange Misc. 1/	Naper-ville	West Sub. Misc. 1/	Wheaton	Unclassi-fied
ALL INDUSTRIES		2,239	190	255	325	161	126	793	221	168
Manufacturing Total	19-39	320	90	31	11	20	21	103	20	24
Durable Goods Total		212	65	19	5	15	11	73	9	15
Ordnance & Accessories	19	1	0	0	0	0	0	1	0	0
Lumber & Wood Products	24	8	0	0	2	0	1	4	1	0
Furniture & Fixtures	25	15	2	2	0	2	1	5	0	3
Stone-Clay-Glass Prods.	32	15	2	0	2	1	3	5	1	1
Primary Metals Ind.	33	16	3	1	0	0	0	11	1	0
Fabricated Metal Prods.	34	53	25	6	0	2	2	11	1	6
Nonelectrical Mach.	35	59	21	7	0	6	2	20	1	2
Electrical Machinery	36	22	8	2	0	1	1	4	4	2
Transportation Equip.	37	4	0	0	0	0	1	2	0	1
Pro. & Sci. Instruments	38	8	1	1	0	1	0	5	0	0
Misc. Manufacturing Ind.	39	11	3	0	1	2	0	5	0	0
Nondurable Goods Total		108	25	12	6	5	10	30	11	9
Food & Kindred Prods.	20	22	2	3	1	1	4	7	0	4
Apparel	23	2	0	1	0	0	1	0	0	0
Paper & Allied Products	26	4	2	0	0	0	0	1	1	0
Printing & Publishing	27	41	4	4	5	2	4	13	9	0
Chem. & Allied Products	28	13	3	2	0	0	1	5	0	2
Rubber & Misc. Plastics	30	23	13	2	0	2	0	2	1	3
Leather & Leather Prods.	31	3	1	0	0	0	0	2	0	0
Nonmanufacturing Total		1,919	100	224	314	141	105	690	201	144
Mining & Quarrying	10-14	7	0	0	3	0	0	2	0	2
Contract Construction	15-17	491	33	46	63	39	24	202	46	38
Transportation	40-47	51	1	4	12	3	1	19	6	5
Communication & PU's	48-49	21	0	2	2	4	0	7	3	3
Wholesale Trade	50	140	10	16	20	6	7	54	16	11
Retail Trade	52-59	739	36	91	119	62	51	251	69	60
Fin-Insur-Real Estate	60-67	103	2	9	30	6	9	25	14	8
Serv. & Misc. Inds.	01-09,70-99	367	18	56	65	21	13	130	47	17

1/ DuPage County portion only of area served by office located outside the County.

Table XVI
U. C. Covered Establishments, by ISES Office Area 1/
DuPage County
March, 1964

Industry	Ind. Code	Total	Aurora	LaGrange	West Suburban	Unclassified 2/
ALL INDUSTRIES		2,239	126	416	1,529	168
Manufacturing Total	19-39	320	21	51	224	24
Durable Goods Total		212	11	34	152	15
Ordnance & Accessories	19	1	0	0	1	0
Lumber & Wood Products	24	8	1	0	7	0
Furniture & Fixtures	25	15	1	4	7	3
Stone-Clay-Glass Prods.	32	15	3	1	10	1
Primary Metals Ind.	33	16	0	1	15	0
Fabricated Metal Prods.	34	53	2	8	37	6
Nonelectrical Mach.	35	59	2	13	42	2
Electrical Machinery	36	22	1	3	16	2
Transportation Equip.	37	4	1	0	2	1
Pro. & Sci. Instruments	38	8	0	2	6	0
Misc. Manufacturing Ind.	39	11	0	2	9	0
Nondurable Goods Total		108	10	17	72	9
Food & Kindred Prods.	20	22	4	4	10	4
Apparel	23	2	1	1	0	0
Paper & Allied Products	26	4	0	0	4	0
Printing & Publishing	27	41	4	6	31	0
Chem. & Allied Products	28	13	1	2	8	2
Rubber & Misc. Plastics	30	23	0	4	16	3
Leather & Leather Prods.	31	3	0	0	3	0
Nonmanufacturing Total		1,919	105	365	1,305	144
Mining & Quarrying	10-14	7	0	0	5	2
Contract Construction	15-17	491	24	85	344	38
Transportation	40-47	51	1	7	38	5
Communication & PU's	48-49	21	0	6	12	3
Wholesale Trade	50	140	7	22	100	11
Retail Trade	52-59	739	51	153	475	60
Fin-Insur-Real Estate	60-67	103	9	15	71	8
Serv. & Misc. Inds.	01-09,70-99	367	13	77	260	17

1/ DuPage portions only of areas served by offices located outside the County.
2/ Includes DuPage County portion of Elgin Local Office Area.

PART V

MISCELLANEOUS DATA

FROM

THE U. S. CENSUS

1960

Table LVII
Comparison of Employed Residents, by Industry
DuPage and Cook Counties
April, 1960

Industry	DuPage County		Cook County	
	Number	Percent	Number	Percent
TOTAL	116,449	100.0	2,110,181	100.0
Agriculture	1,621	1.4	5,864	0.3
Construction	7,519	6.5	91,555	4.3
Manufacturing	38,200	32.7	718,972	34.1
Transportation	6,158	5.3	128,704	6.1
Communications & Public Utilities	4,340	3.7	53,685	2.6
Wholesale Trade	5,018	4.3	84,812	4.0
Retail Trade	16,018	13.8	298,403	14.1
Finance, Insurance, & Real Estate	6,432	5.5	112,341	5.3
Services	23,870	20.5	379,238	18.0
Public Administration	3,362	2.9	85,211	4.0
Industry Not Reported	3,722	3.2	149,344	7.1
ALL OTHER	189	0.2	2,052	0.1
(TOTAL POPULATION)	(313,459)	XXX	(5,129,736)	XXX

Source: U. S. Census of Population, 1960, PC (1), 15C, Ill., Table 85.

Table XVIII
Comparison of Employed Residents, by Occupation
DuPage and Cook Counties
April, 1960

Occupation	DuPage County				Cook County			
	Number	Percent	Male	Female	Number	Percent	Male	Female
TOTAL	116,449	100.0	83,363	33,086	2,110,181	100.0	1,382,562	727,619
Profess., Technical, & Kindred Wkrs.	20,903	18.0	15,747	5,156	228,046	10.8	149,608	78,438
Managerial, Official, & Propr.	14,977	12.9	13,918	1,059	162,578	7.6	140,954	21,624
Clerical Workers	20,075	17.2	6,736	13,339	414,132	19.6	135,498	278,634
Sales workers	10,655	9.1	7,829	2,826	153,150	7.3	102,859	50,291
Craftsmen & Foremen	19,597	16.8	19,181	416	292,086	13.9	280,817	11,269
Operatives	13,376	11.5	9,928	3,448	401,453	19.0	278,345	123,108
Serv. & Private Household Wkrs.	7,965	6.8	3,227	4,738	200,038	9.5	103,014	97,024
Laborers	3,726	3.2	3,483	243	88,712	4.2	84,091	4,621
Occupations Not Reported	5,175	4.5	3,314	1,861	169,986	8.1	107,376	62,610

Source: U. S. Census of Population, 1960, PC (1), 15C, Ill., Table 84.

Table XIX

Summary of Social Characteristics for State of Illinois, Chicago Standard Metropolitan Statistical Area, DuPage County, and Major Cities and Towns in DuPage County
April, 1960

Area or Locality	TOTAL POPULATION			Persons 25 Years and Over		Families
	Number	Percent Foreign Born	Percent Moved Into House After 1958	Median School Year Completed	Percent who Completed 4 Years of High School or More	Percent with Own Children Under 6 Years
STATE OF ILLINOIS	10,081,653	6.8	23.8	10.5	NA	30.1
Chicago SMSA	6,220,913	9.7	24.0	10.9	42.1	30.6
DuPage County	313,459	5.0	20.4	12.3	NA	36.7
LARGE COMMUNITIES						
Downers Grove	21,154	5.0	16.1	12.5	65.0	32.0
Elmhurst	36,991	5.2	15.4	12.6	67.6	31.5
Glen Ellyn	15,972	3.9	17.6	13.0	77.2	32.3
Hinsdale	12,859	4.4	17.0	13.1	74.5	25.6
Lombard	22,561	4.6	16.0	12.4	63.9	38.5
Naperville	12,933	3.3	29.7	12.7	70.1	39.1
Villa Park	20,391	5.6	21.2	12.2	55.9	38.9
Wheaton	24,312	4.2	22.3	12.9	76.1	36.4
SMALLER COMMUNITIES						
Addison	6,741	4.5	*	12.2	59.7	*
Bensonville	9,141	6.5	*	11.6	47.1	*
Clarendon Hills	5,885	4.0	*	13.0	76.7	*
Itasca	3,564	4.0	*	12.2	57.3	*
Lisle	4,219	4.1	*	12.0	50.0	*
Roselle	3,581	3.2	*	12.3	60.8	*
West Chicago	6,854	4.6	*	12.1	55.0	*
Westmont	5,997	7.2	*	10.6	39.0	*
Wood Dale	3,071	8.8	*	11.0	41.7	*

SOURCE: U. S. Census of Population, 1960, PC(1), 15C, Ill., Tables 34 and 35.
*: Information not available.

Table XX

Summary of Economic Characteristics for State of Illinois, Chicago Standard Metropolitan Statistical Area, DuPage County, and Major Cities and Towns in DuPage County
April, 1960

Area or Locality	Non Worker Ratio	Percent in Labor Force: Female 14 Yrs. & Over	Percent in Labor Force: Married Women Husband Present: Total	Percent in Labor Force: Married Women Husband Present: With Own Children Under 6	% Of Labor Force Unemployed	% of Employed In: Mfg. Indus.	% of Employed In: White Collar Occs.	No. & % Of DuPage Workers Employed Outside County	Median Income Per Family In Dollars
State of Illinois	1.44	36.2	31.1	17.8	4.5	31.8	42.3	-	6,566
Chicago SMSA	1.35	39.0	32.7	17.6	4.3	34.2	45.5	-	7,342
DuPage County	1.63	32.2	27.4	12.8	2.2	32.8	56.7	63,742 55.9%	8,570
LARGE COMMUNITIES									
Downers Grove	1.61	31.9	27.2	11.0	1.7	35.3	66.0	4,208 54.0%	8,889
Elmhurst	1.57	31.2	23.5	9.3	1.6	32.1	69.6	8,792 64.1%	9,868
Glen Ellyn	1.82	24.8	19.2	6.7	1.1	29.9	75.6	3,284 60.1%	9,959
Hinsdale	1.54	31.6	22.6	11.4	0.9	26.9	68.9	2,386 48.8%	11,318
Lombard	1.71	30.7	26.6	12.1	2.5	34.5	62.5	4,966 62.5%	8,539
Naperville	1.51	36.1	29.4	13.4	1.5	32.1	64.4	1,786 36.0%	8,551
Villa Park	1.58	35.0	30.8	12.2	1.7	38.0	54.9	4,999 65.8%	8,640
Wheaton	1.67	35.4	24.6	9.2	1.8	23.4	66.1	3,905 43.4%	12,257
SMALLER COMMUNITIES									
Addison	1.93	28.7	*	*	1.8	37.5	*	*	8,084
Bensenville	1.54	34.3	*	*	1.5	34.7	*	*	7,708
Clarendon Hills	1.62	29.7	*	*	2.0	33.8	*	*	10,000+
Itasca	1.71	30.5	*	*	0.9	29.6	*	*	8,403
Lisle	1.64	31.0	*	*	3.3	34.2	*	*	8,093
Roselle	1.68	34.3	*	*	2.3	34.1	*	*	8,182
West Chicago	1.52	39.7	*	*	3.0	27.6	*	*	7,054
Westmont	1.44	37.4	*	*	3.2	34.7	*	*	7,598
Wood Dale	1.55	33.0	*	*	2.3	37.7	*	*	7,758

SOURCE: U. S. Census of Population, 1960, PC(1), 15C, Ill., Table 33 and 34.
* Information not available.

TECHNICAL APPENDIX

Data contained herein is revised and expanded beyond that contained in previous studies. This publication includes the first estimates of nonagricultural wage and salary employment in DuPage County. These estimates were based on Standard Metropolitan Statistical Area data which was adjusted by an application of pertinent U. S. Census and Unemployment Insurance information.

Geographical distribution of data in this edition is based upon economic boundaries currently established by the Illinois State Employment Service. Data collection has become more refined, enabling information for additional communities to be presented. Revisions occasioned by additional breakouts were projected back through previous years.

Contents provide an operational function for divisions of the Illinois Bureau of Employment Security as well as informational service for public users. This publication also contains compilations revealing U. C. Covered Employment and firms in DuPage County, by respective administrative areas served by the Illinois State Employment Service Offices.

Interpretation - U. C. covered employment accounts for approximately 70 percent of all employed workers in DuPage County and is generally a reliable indicator of total employment and its fluctuations within and between separate geographic areas. However, districts which contain large hospital complexes, government agencies, or universities are atypical, since such employers normally are not covered by the Illinois Unemployment Compensation Act.

GLOSSARY

Chicago Standard Metropolitan Statistical Area (SMSA)--Includes Cook, DuPage, Kane, Lake, McHenry, and Will Counties in Illinois.

Local Office Area--A geographic area within DuPage County which is under the jurisdiction of a specific office of the Illinois State Employment Service. The Professional, Managerial, and Scientific Office serves appropriate occupations in the portion of DuPage County otherwise served by the LaGrange and West Suburban Offices.

The LaGrange and West Suburban Offices each serve all industries and occupations related thereto, except those served by the Professional Office. These offices also serve parts of Cook County, but data for those parts of their areas are not included in this study.

The Aurora and Elgin Offices are full-functioning, i.e., they serve all industries and occupations in their respective parts of DuPage County. The Aurora Office also serves Kendall County and part of Kane County; the Elgin Office also serves McHenry County and parts of Kane and Cook Counties. Data for these local office areas outside DuPage County are not included in this study.

Miscellaneous--A grouping of employment in those geographic areas whose separate employment, in terms of this study, was relatively insignificant.

U.C. Covered Employment--Includes all workers covered under the Illinois Unemployment Compensation Act; excludes farm, railroad, government, non-profit institutional, domestic service, and self-employed workers and employees of firms having less than four workers, unless they have voluntarily elected coverage or are subject to the Federal Unemployment Tax Act.

Unclassified--A grouping of employees, such as salesmen who work throughout the area, or a grouping of employment in firms operating in several locations within the area and whose employment data is not available by individual location.

VT 003 222

VT 003 222
Freed, C.W.
Region II Vocational Education. Comment and Prospectus.

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*VOCATIONAL EDUCATION; *CURRICULUM; *PROGRAM PLANNING; PREDICTION; *GEOGRAPHIC REGIONS
WEST VIRGINIA

West Virginia's Region II is embarking upon a total commitment to all levels of education with awareness that geographic, demographic, and economic influences require cooperative effort to provide comprehensive vocational education. A study of old and new questions has helped to clarify objectives, problems, and questions which must be synthesized into functional curriculums. There is a trend toward broad-based curriculums employing the cluster approach. That the entire program of vocational education revolves around the problem of student guidance is recognized. Prospects for the region's evolving vocational education program include (1) Vocational education will be a continuing process for youth and adults, (2) Former students will be consulted regarding course offerings, (3) Instructional television will be a part of each school's program, (4) Typing, drafting, and like courses will have large and small group laboratory instruction, (5) Course emphasis will shift from producing to servicing trades, (6) Industry will accept involvement and responsibility, (7) Some teachers will be jointly employed with industry, (8) The school day will be extended, (9) Area vocational schools may be granted their own tax base, (10) Short courses will be offered, (11) Labor unions will cooperate in establishing apprenticeship programs, and (12) Media technicians and teacher-aids may be trained for the school systems. (JM)

ED027441

REGION II VOCATIONAL EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Mr. Harris

COMMENT AND PROSPECTUS

by
C. W. Freed
Curriculum Improvement Center
Shepherdstown, West Virginia

VT003222

PREFACE

West Virginia's Region II is embarking on a path of total commitment to education. This is emerging as a comprehensive concern for all aspects of education; pre-school, general, special, vocational, and adult education are being scrutinized by school, community, and industry. Through this committal, vocational education is "coming of age". Within the region there is realization that a vocational commitment must be made and that a token endeavor will not suffice.

Geographic, demographic, and economic influences have made the counties aware of the necessity of cooperating with each other to effectuate comprehensive vocational education. Through this awareness one vocational-technical center has opened this year (1967) and two others are in the design stages.

1963 can be designated as the year of vocational education's rebirth, for it was in that year that the Vocational Education Act came into existence. This legislation electrified the long static vocational scene. With the aforementioned act and additional financial aid from state and regional authorities, the economic pressures, which tend to limit vocational education's offerings, have been greatly reduced. In some instances state, regional, and federal assistance can amount to nearly 80% of the financial burden for the county or counties involved.

PLANNING

As educators approach the problem of designing vocational programs, they take "a long hard look" at the entire spectrum of vocational activity. This critical approach to their planning will yield a few "new twists" to

some old questions and raise a few new questions; for example:

1. How important is skill training as compared to the understanding of underlying principles and the mastering of related knowledge in an occupation? Have the new programs taken into account the significance of rapid technological change?

2. How can educational programs be designed so that general and vocational components are effectively integrated? Is the new emphasis on vocational education tending to de-emphasize general education and/or increase the separation of the two?

3. Can comprehensive high schools encompass the programs of general and vocational education needed for a wide range of student interests and abilities? Does the addition of an area vocational school tend to strengthen or weaken the comprehensive high school?

4. How many and what kinds of people need vocational training to enter the world of work at a level appropriate to their abilities and needs?

5. What kinds of programs will help people with special needs, particularly those from disadvantaged areas?

6. What national, state, and local policies, organizations, and services are needed to further develop and administer vocational education?[1]

Planning for vocational education must be a coordinated effort on the part of many groups; local, state and national influences will enter into the planning considerations. Of these, local and state influences will have the larger voice in deciding what is needed and what is to be offered in any vocational program. The relative influence of groups affecting vocational policy can be illustrated by the results of a Santa Clara County (California) survey. The survey showed:

The most influential is:
1. Citizens advisory committee
2. Advisory committees in Department of Employment
3. Direct contact with industry

4. Area occupational surveys
5. Requests by business & industry
6. Newspaper information
7. Evening Division Advisory Council
8. Information from Chambers of Commerce, Boards of Trade, Etc.
9. State Department of Education suggestions
10. U.S. Government publications
11. Follow-up reports from former students [2]

CURRICULUM

Curriculum, the backbone of planned educational endeavors, will be the guiding force for vocational education. Vocational education has the dubious position of being the only educational area that can have, and will have its curriculum constantly evaluated. The employment secured and maintained by the product of vocational education, people with skills, will be the index by which school, community and industry will evaluate and thereby affirm or negate the schools curriculum.

Objectives of Vocational Education at the Secondary School Level:

To enable in-school youth to:
- a. Develop entry-level job skills
- b. Develop habits and attitudes which contribute to success on the job
- c. Know the organization and structure of a vocation
- d. Know how to enter and progress within the vocation
- e. Develop skills and attitudes which facilitate adjustment by the student (worker) to:
  - (1) changes in technology and job requirements
  - (2) changes in his aspirations [3]

Problems of Curriculum Development in Secondary School Vocational Education

- a. Keeping curricula and courses of study up-to-date
- b. Providing effective instructional methods and media
- c. Motivating alienated, disadvantaged youth toward work
- d. Evaluating the effectiveness of the program
- e. Providing counseling and placement service

f. Obtaining and developing qualified teachers and leaders
g. Achieving effective communication and cooperation among:
   (1) general education and vocational education teachers and administrators
   (2) different groups and levels of vocational educators
h. Achieving better public understanding of the purpose and place of vocational education.[3]

Questions Concerning Vocational Education Curricula in Secondary Schools

a. What is vocational education?
b. How specific should vocational education be?
c. What is a desirable relationship between skills, underlying principles, and related knowledge?
d. What is the place of job practice or "live work" in relation to exercises and simulation?
e. What pre-vocational experiences are desirable?
f. What is an effective relationship between preparation for the world of work and preparation for living?
g. How much flexibility (entry, branching, cross-over, etc.) is feasible?
h. How and by whom are these issues to be resolved?[3]

The objectives, problems, and questions must be synthesized into a functional curriculum for each proposed school; therefore, it is possible that no two schools will have the same offerings.

As our technical society evolves at a breathtaking pace, schools must attempt to plan for the future, which means that people must be trained for jobs which do not exist. Inherent in planning for the future is the fact that the future is unknown. With this in mind educators assume one of three roles: (1) accepting the status-quo, as good enough for tomorrow; (2) predicting the future in definite parameters; (3) predicting the future with the flexibility of a generalist. Few educators are content with the status-quo, and even fewer are bold enough to profess to know what the future will yield; therefore, most educators are advocating the third

alternative. The generalist, for example, might believe that the metal trades are evolving away from present technology. Predicated on this belief, he would plan for a cluster of courses dealing with metalworking rather than the development of one specific skill. The cluster approach, or so its advocates proclaim, will yield trained personnel who are versed in the scope of an area rather than just one phase of an area. The nature of the future dictates to many vocational educators that training must be training for people who must adapt to a changing industrial society.

GUIDANCE Following planning and curriculum another area of great concern to the vocational educator is that of vocational guidance. This is not a new hand-maiden to education, but rather it is a correlative activity which ~~anti~~ante dates the Smith-Hughes Act. Vocational programs are evaluated on the successes of their students. Therefore, the entire program of vocational education can be considered to evolve around the program of student guidance. Students who have the full benefit of counseling are more apt to "find themselves" and make a success of their chosen endeavors. The spectrum of vocational guidance is a full year program including:

Vocational Information Services
Individual Appraisal Services
Counseling Services
Vocational Preparatory Services
Placement Services
Follow-up or Adjustment Services
Research Services[4]

It may be prudent to note that counseling a student against pursuing a vocational program, if the counseling is valid, can serve both the student and the vocational program in a positive way. Needs of a particular student may best be served by other programs; additionally, the vocational program may be saved the problem of having a drop-out.

Guidance can ultimately be the most important aspect of a vocational program, for it is this endeavor which will present the program, assist in selecting the students, and follow the students through placement and evaluation.

PROSPECTUS

Region II is relatively new to large scale vocational education, whereas many areas of the nation have been involved with this phase of education for decades. This region will have the opportunity of gleaning the fruits of other's experimentation while planning programs.

Some prospective occurrences for the region's evolving vocational programs will be:

A. Vocational Education will be a continuing process for student and adult.

B. Each student will become a permanent member of his school; he will be consulted about needed course offerings.

C. Instructional TV will become part of each school's program with the possibility of sharing the produced materials.

D. Typing, drafting, and etc. will have large "open" laboratories. Instruction will be on a large and small group basis with practicing on the student's unscheduled time.

E. Course emphasis will shift from producing to servicing trades.

F. Industry will accept responsibility for phases of the training - "on-the-job".

G. Some instructors will be employed by industry or government and teach on a shared time basis.

H. Vocational schools will offer courses from 8:00 a.m. through 10:00 p.m.

I. Area vocational schools may be granted their own tax base.

J. Short courses (refresher type) will be offered.

K. Unions will cooperate in establishing apprentice programs.

L. Media technicians and teacher-aids may be trained for the school systems.

The primary purpose of this paper is to familiarize many people with the divergent paths, problems, and questions which the region's vocational activities may encounter. Secondarily, the author hopes that it will stir the imagination of teachers, administrators and community; thereby, yielding a comprehensive, realistic approach to vocational education for Region II.

---

1 Draper, Dale C. Educating for Work, A Report on the Current Scene in Vocational Education and the Committee's Conclusions, (Washington, D. C.: The National Association of Secondary School Principals, 1967), p. 7.

2 Draper, op. cit., pp. 35-36.

3 Draper, op. cit., p. 39.

4 Swanson, Gordon I. Vocational Education for Rural America, Yearbook 1958-59, (Washington, D. C.: Department of Rural Education, National Education Association of the United States, 1959), p. 288.

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Evansville Area Skill Survey (Including Henderson County Industry Projections).

Indiana Employment Security Div., Indianapolis. Research and Statistics Section
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Pub Date - Nov66 56p.

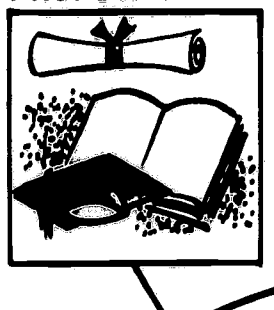
*OCCUPATIONAL SURVEYS; *EMPLOYMENT OPPORTUNITIES; *LABOR FORCE; LABOR MARKET; *EMPLOYMENT STATISTICS; *EMPLOYMENT TRENDS; EMPLOYMENT PROJECTIONS
EVANSVILLE; INDIANA

This survey, conducted by the Research and Statistics Section and the Evansville office of the Indiana Employment Security Division, reassessed manpower requirements in the three-county Evansville area.

Information about present employment, future required employment, and their own training programs was obtained from employers in 88 occupations constituting 48 percent of the total nonfarm employment in the area. Data concerning trainee output were also obtained from other public and private training facilities. All segments of industry anticipated increases in employment, subject to cyclical change. There will be an acute shortage of trained people in most clerical occupations and in the professional occupation of nursing. Licensed practical nurses and engineers will also be in short supply. Occupations requiring a high degree of manual skills with a knowledge of machine shop and the occupations of auto mechanic, maintenance mechanic, and carpenter will need accelerated training activities to meet the employment need. The semiskilled workers in greatest demand were truck drivers and sewing machine operators. A surplus of trained people was anticipated in the occupations of electronics technicians, beauty operators, and keypunch operators. (HC)

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PROFESSIONAL



MANAGERIAL



CLERICAL



EVANSVILLE AREA SKILL SURVEY

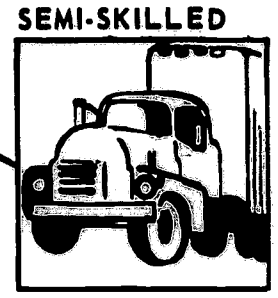
SALES



SKILLED



SEMI-SKILLED



SERVICE



INDIANA EMPLOYMENT SECURITY DIVISION

VT003227

STATE OF INDIANA
ROGER D. BRANIGIN, GOVERNOR
Indiana Employment Security Division
Lewis F. Nicolini, Director

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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EVANSVILLE AREA SKILL SURVEY

(INCLUDING HENDERSON COUNTY INDUSTRY PROJECTIONS)

Indiana Employment Security Division
Research and Statistics
10 North Senate Avenue
Indianapolis, Indiana 46204

November 1966

PREFACE

The Evansville-Henderson community leaders have been especially active in cooperating as a group to create a more healthy economic climate in the three counties comprising the Evansville Standard Metropolitan Statistical Area. As a result, local industry has regained some of its former strength and the prognosis is for continued growth. New industry entering the area and expansion of those already in the area are expected to more than offset employment losses occasioned by business withdrawals in recent years. A shifting in industrial composition is taking place which will bring about a changing occupational structure also.

The current study was made at the urging of civic and business groups in cooperation with government agencies to reassess the manpower requirements and training needs of the area employers.

The area skill survey was conducted by the Evansville local office and the Research and Statistics Section of the Indiana Employment Security Division and the Henderson local office of the Kentucky Department of Economic Security. This employer survey was completed through the local offices under the supervision of Mr. John Ross, Manager of the Evansville local office and Mr. T. J. Liles of the Henderson local office.

The cooperating agencies wish to express appreciation to the responding employers and the school officials who took time to fill out the required forms. In addition to the above-mentioned agencies, the following civic groups should be commended for stimulating interest in and sponsoring the survey:

Employment Committee of the Mayor's Commission on Human Relations of Evansville

Manufacturers' and Employers' Division, Evansville Chamber of Commerce

Boonville Chamber of Commerce

Henderson-Henderson County Chamber of Commerce

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HIGHLIGHTS

SCOPE OF THE SURVEY

The objectives of the survey were to reassess manpower requirements and the training needs of employers in the three-county Evansville area. Eighty-eight occupations considered significant were studied. These selected occupations constituted 48 per cent of the total nonfarm wage and salaried employment in the area. Information was obtained from employers about their present employment and future required employment in the occupations and about their own training programs. Data about the numbers expected to complete training were also obtained from other training facilities, both public and private. Information obtained for Henderson County, Kentucky, is presented separately where possible.

CONCLUSIONS

The Evansville-area economy will rise in the next two- and five-year periods with all segments of industry sharing in the anticipated increases in employment. Seasonal fluctuations in employment will occur, but over the five-year period the trend will be upward although subject to cyclical change.

Employment in all of the major occupational groups will increase, but at varying rates. Individual occupations surveyed in these groups will experience varying degrees of demand. Shortages will be more acute in some occupations than in others. Detailed occupational data show future demand as well as the extent to which the existing training facilities expect to provide qualified workers in these occupations.

Examination of these data reveals that there will be acute shortages of trained people in most of the clerical occupations, particularly when typing is a requirement.

In the professional occupations, the shortage of nurses will be the most acute; present training facilities will provide less than one-fourth of the anticipated needs by 1970. Licensed practical nurses and engineers will also be in short supply.

Those jobs requiring a high degree of manual skills with a knowledge of machine shop will also be in short supply. Accelerated training activities in most of the surveyed skilled occupations appear to be desirable, with particular emphasis in the apprenticeable occupations. The most serious imbalances were reported in the occupations of machinist, tool and diemaker, auto mechanic, maintenance mechanic and carpenter.

In the semiskilled category, most of those listed will be in short supply with the needs for truck drivers and sewing machine operators heading the demand list. These jobs require a short training period; on-the-job training in most cases could be provided.

A surplus of trained people is anticipated in the occupations of electronics technicians and beauty operators. In the clerical occupations, keypunch operators will be available in numbers exceeding the local demand, if present predictions of the trained supply are accurate.

ACTION INDICATED

FOR EMPLOYERS

Continue to evaluate manpower requirements on a long-term basis, particularly in those occupations requiring a long training period.

Communicate with the Indiana Employment Security Division about manpower requirements in order to provide information for establishing training programs and recruitment of trainees or workers.

Maintain close contact with school authorities to encourage curriculums and course content which will meet present and anticipated needs.

Assist in setting up and expanding on-the-job and formal apprenticeship training programs to provide skilled workers for key positions.

FOR EDUCATORS

Cultivate communication with employers and the Indiana Employment Security Division about future manpower requirements.

Conduct follow-up studies to determine the number of trainees enrolled who enter the local work force in the occupations for which training was given.

Examine and update curriculums to meet industry's changing needs.

Distribute job-guidance material to students.

FOR COMMUNITY LEADERS

Continue their commendable efforts to encourage new industry to enter the area and to provide better employment opportunities locally.

Lend support to vocational and technical facilities to provide a better-qualified work force to fit community needs.

FOR STUDENTS AND WORKERS

Investigate employment opportunities in the local community.

Prepare for available jobs by taking advantage of training facilities to acquire qualifying skills.

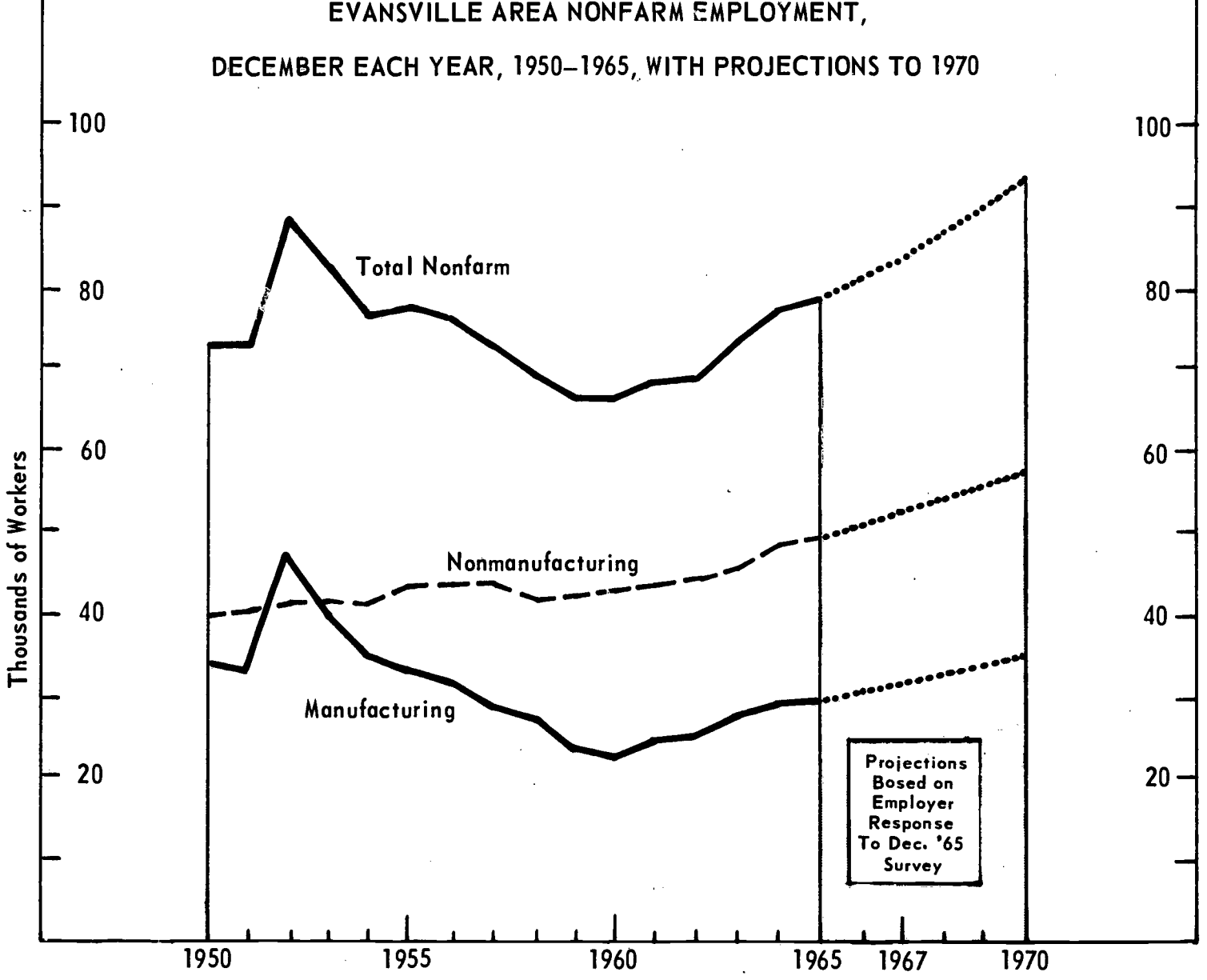
FOR INDIANA EMPLOYMENT SECURITY DIVISION

Intensify working relationships with employers, school authorities, other government agencies and private institutions concerned with supplying the community with an adequately trained and properly utilized work force.

Inform the public about the current and future job market in the area.

EVANSVILLE AREA EMPLOYMENT TREND

Nonfarm employment in the three-county Evansville area fluctuated widely between 1950 and 1965. A peak of 92,900 was reached in March 1953 during the Korean War period, and a low of 63,800 in February 1961, reflecting the 1960-1961 recession and the unrecovered employment loss caused when several large manufacturing plants closed between 1956 and 1959. A trend upward began during 1961; employment increased by an average 4.0 per cent in each of the succeeding four years. Nonfarm employment in December 1965 reached 79,000.



Manufacturing employment, 29,700 in December 1965, was higher than in any December since 1956. Important factors in this gain were the increase in fabricated metals products employment which also reached a nine-year December high, and the level of employment in the textiles and apparel group which matched the high of a year ago. In the machinery industry, employment totaled 10,300 in December 1965, slightly below the December 1964 level but representing a recovery from the 1955-1962 period when recessions and the loss of two large plants held employment in this industry group between 7,100 and 8,700. In 1959, a large firm in the transportation equipment industry also closed and contributed to the manufacturing employment loss.

December 1965 nonmanufacturing employment of 49,300 was the highest December employment ever reached in the area. The trend in nonmanufacturing employment has been generally upward since 1950, although slight dips occurred during recession periods. Growth has been uninterrupted since 1958.

Continued growth in Evansville nonfarm employment through 1970 is indicated by employer responses to the employment needs survey conducted in December 1965. Estimates based on the survey results indicate that nonfarm employment will reach 83,900 by December 1967, a gain of 6.2 per cent in the two years. By December 1970, the total is expected to be 93,500, an increase of 11.4 per cent over the 1967 figure for the same month and 18.4 per cent above that reported for December 1965. Over the five-year period, the annual growth rate approximates 3.7 per cent, representing a need for 2,900 workers each year to accommodate anticipated employment requirements. 1/

All major divisions of the area's economy will share in the projected employment gain. Durable goods manufacturing industries are expected to employ 8.5 per cent more workers in December 1967 than in the corresponding month in 1965, 10.2 per cent more in December 1970 than in 1967, and over the five-year period from 1965 to 1970, the increase is anticipated at 19.6 per cent. Nondurable goods manufacturing is projected to increase 2.8 per cent in the next two years, 14.4 per cent in the succeeding three years and 17.6 per cent over the 1965-1970 period.

Employment in nonmanufacturing industry divisions, which accounted for 62 per cent of the area's December 1965 nonfarm employment, is expected to increase by 6.1 per cent by December 1967. In the succeeding three years, 1967-1970, the gain is expected to be 11.3 per cent, and in the five years from 1965 to 1970, 18.1 per cent.

1/ *These projections are based on information furnished by existing firms in the area in December 1965. Industry developments after 1965 which indicate the probable entrance of a large firm to the area, and the awarding of substantial government contracts to the electrical machinery manufacturing industry, are likely to make estimates appear to be on the conservative side. Unforeseen circumstances which alter the growth patterns cannot be included in a survey such as this. It must also be kept in mind that the December-to-December comparison minimizes seasonal fluctuations which will occur during the year.*

EMPLOYMENT PROJECTIONS BY INDUSTRY DIVISION

Responses from the Evansville area employers showed an anticipated increase of 14,500 in nonfarm employment from December 1965 to 1970. This 18.4 per cent gain is significantly higher than the 10.1 per cent anticipated for the State as a whole over the next five years. Manufacturing employment in the Evansville area will grow at more than twice the rate expected for the State. Evansville nonmanufacturing employment will also experience a larger percentage increase than the State.

TABLE I

CURRENT AND PROJECTED EMPLOYMENT IN INDIANA AND THE EVANSVILLE AREA, BY INDUSTRY DIVISION

	Indiana Employment* (Nonfarm) 1965	1970	% Change Indiana 1965–1970	Evansville Area Employment (Nonfarm) 1965	1970	% Change Evansville Area 1965–1970
TOTAL EMPLOYED In Nonfarm Industries	1,624,700	1,788,000	+ 10.1	79,000	93,500	+ 18.4
MANUFACTURING	670,500	728,000	+ 8.6	29,700	35,300	+ 18.9
Durable Goods	509,100	562,000	+ 10.4	18,900	22,600	+ 19.6
Nondurable Goods	161,400	165,000	+ 2.2	10,800	12,700	+ 17.6
NONMANUFACTURING	954,100	1,060,000	+ 11.2	49,300	58,400	+ 18.1
Mining-Quarrying-Drilling	7,900	7,000	- 11.4	1,800	2,000	+ 11.1
Construction	75,000	74,000	- 1.3	4,400	4,800	+ 9.1
Trans., Comm., & Utilities	92,300	89,000	- 3.6	4,800	5,300	+ 10.4
Wholesale & Retail Trade	313,100	333,000	+ 6.4	17,600	20,900	+ 18.8
Finance, Ins., & Real Estate	64,300	72,000	+ 12.0	2,900	3,400	+ 17.2
Service & Miscellaneous	170,400	211,000	+ 23.8	10,000	12,900	+ 29.0
Government	231,100	275,000	+ 19.0	7,800	8,900	+ 14.1

* From Preliminary Report of Indiana Manpower Trends to 1975 - High Set. See Appendix III, Page 50.

Note: May not add to totals due to rounding.

In both State and Evansville area projections, the service industry shows the highest rate of growth of any of the nonmanufacturing divisions. This group includes private educational institutions, private hospitals and medical service units, business and legal services, repair services, hotels, and personal service firms. In Evansville, employment in this industry group will increase by 2,900 in the five-year period. Although the rate of increase is not as great in the wholesale and retail trade division as in the service division, it is in this group that the most additional people, 3,300, will be needed in the 1965-1970 period.

In two nonmanufacturing divisions, the Evansville projection of trend runs counter to the State trend: mining-quarrying-drilling and transportation-communication-public utilities. The State as a whole shows declines in these groups; the Evansville area employment is expected to rise slightly. The mining-quarrying-drilling industry group anticipates an increase of 200 over the period, with practically all of the gain in the oil drilling field. Even with this gain, employment in the industry group will be well below the level maintained, 2,600-2,800, during the early 1950's, due to the decline in coal mining activities. The

transportation-communication-public utilities industry group projects an increase of 500 over the five years in the Evansville area.

Among manufacturing industry groups, only the food industry expects a decline between 1965 and 1970. Employment in the machinery industry has increased during the past five years and growth is expected to continue, for a gain of 1,800 people by 1970, the largest numerical increase reported for a single manufacturing industry group. All of the fourteen industries included in the "all other manufacturing" group show increased employment needs by 1970, with primary metals, rubber and plastics products, chemical and allied products and paper products manufacturing firms anticipating the largest gains. Employment in both the textiles and apparel and the furniture and fixtures groups expect increases of 700 within the five-year period.

TABLE II

EMPLOYMENT TRENDS IN THE EVANSVILLE AREA, DECEMBER 1955-DECEMBER 1965
AND PROJECTIONS FROM DECEMBER 1965 TO DECEMBER 1970

	Dec. 1955	Dec. 1957	Dec. 1960	Dec. 1965	% Change 1960-1965	Dec. 1967	% Change 1965-1967	Dec. 1970	% Change 1967-1970	% Change 1965-1970
Employed In Nonfarm Industries	77,200	73,100	66,200	79,000	+ 19.3	83,900	+ 6.2	93,500	+ 11.4	+ 18.4
MANUFACTURING	33,300	28,900	23,600	29,700	+ 25.8	31,600	+ 6.4	35,300	+ 11.7	+ 18.9
Durable Goods	24,600	19,600	14,200	18,900	+ 33.1	20,500	+ 8.5	22,600	+ 10.2	+ 19.6
Nondurable Goods	8,700	9,300	9,400	10,800	+ 14.9	11,100	+ 2.8	12,700	+ 14.4	+ 17.6
Food & Kindred	3,400	3,300	3,300	2,900	- 12.1	2,600	- 10.3	2,800	+ 7.7	- 3.4
Textiles & Apparel	1,100	1,300	1,600	1,800	+ 12.5	2,200	+ 22.2	2,500	+ 13.6	+ 38.9
Furniture & Fixtures	2,000	2,200	2,100	2,200	+ 4.8	2,700	+ 22.7	2,900	+ 7.4	+ 31.8
Fabricated Metals	3,500	2,600	2,500	3,300	+ 32.0	3,200	- 3.0	3,300	+ 3.1	0
Machinery (Electrical and Nonelectrical)	8,000	7,100	7,800	10,300	+ 32.1	10,900	+ 5.8	12,100	+ 11.0	+ 17.5
Transportation Equipment	9,700	6,300	100	*						
All Other Manufacturing	5,600	6,100	6,200	9,200	+ 48.4	10,000	+ 8.7	11,700	+ 17.0	+ 27.2
NONMANUFACTURING	43,900	44,200	42,600	49,300	+ 15.7	52,300	+ 6.1	58,200	+ 11.3	+ 18.1
Mining-Quarrying-Drilling	2,800	2,600	2,300	1,800	- 21.7	2,000	+ 11.1	2,000	0	+ 11.1
Construction	3,400	3,100	2,500	4,400	+ 76.0	4,300	- 2.3	4,800	+ 11.6	+ 9.1
Trans., Comm., & Public Utilities	5,500	5,000	4,500	4,800	+ 6.7	5,000	+ 4.2	5,300	+ 6.0	+ 10.4
Wholesale & Retail Trade	16,100	16,600	15,800	17,600	+ 11.4	19,000	+ 8.0	20,900	+ 10.0	+ 18.8
Finance, Ins., & Real Estate	2,300	2,300	2,500	2,900	+ 16.0	3,000	+ 3.4	3,400	+ 13.3	+ 17.2
Service & Miscellaneous	7,600	7,800	7,900	10,000	+ 26.6	10,800	+ 8.0	12,900	+ 19.4	+ 29.0
Government	6,200	6,800	7,100	7,800	+ 9.9	8,200	+ 5.1	8,900	+ 8.5	+ 14.1

* No longer of significant size; now included in "All Other Manufacturing."

EMPLOYMENT PROJECTIONS BY INDUSTRY DIVISION, HENDERSON COUNTY

On the basis of population, Henderson County represents about 15 per cent of the three-county Evansville area. Nonfarm employment in Henderson County in December 1965 totaled 8,260, about 10.5 per cent of the 79,000 Evansville area nonfarm employment. The disparity between population and employment percentages is due mainly to the fact that Henderson County is primarily a rural farm community.

All industry groups in Henderson County anticipate growth by 1970 with a slightly higher percentage gain in the manufacturing division than in nonmanufacturing. However, the greatest numerical growth will be in nonmanufacturing industries, primarily in wholesale and retail trade. The next largest numerical increase in nonmanufacturing will be in the service group.

In the manufacturing division, the greatest employment gains are anticipated in the nondurables group, textiles and apparel, chemical and allied products and rubber and plastics products. Increases in the furniture and fixtures, primary metals and transportation equipment industries will predominate in the durable goods group.

In all, nonfarm employment is expected by Henderson County employers to grow from 8,260 in December 1965 to 10,670 in December 1970, a gain of about 2,400 or 480 workers per year.

Henderson County employment projections by industry division are shown on the next page. Although all divisions in Henderson County show greater percentage changes than the Evansville three-county area as a whole, the Henderson County proportion of total area employment will increase only slightly between 1965 and 1970, from 10.5 to 11.4 per cent. Oil drilling (mining-quarrying-drilling industry group) and nondurable goods manufacturing are the groups in which the greatest increase in the Henderson County proportion of area employment will occur, four and two percentage points respectively. All other divisions will show about one or less percentage point changes.

TABLE III
CURRENT AND PROJECTED EMPLOYMENT IN HENDERSON COUNTY,
BY INDUSTRY DIVISION

INDUSTRY	Current Employment Dec.1965	Estimated Employment Dec.1967	% Change 1965-1967 2 Years	Estimated Employment Dec.1970	% Change 1967-1970 3 Years	% Change 1965-1970 5 Years
Employed In Nonfarm Industries	8,260	9,660	+ 16.9	10,670	+ 10.5	+ 29.2
MANUFACTURING	3,240	3,840	+ 18.5	4,240	+ 10.4	+ 30.9
Durable Goods	1,400	1,630	+ 16.4	1,750	+ 7.4	+ 25.0
Nondurable Goods	1,840	2,210	+ 20.1	2,490	+ 12.7	+ 35.3
NONMANUFACTURING	5,020	5,820	+ 15.9	6,430	+ 10.5	+ 28.1
Mining	600	710	+ 18.3	740	+ 4.2	+ 23.3
Construction	480	570	+ 18.8	570	0	+ 18.8
Trans., Comm., & Utilities	470	560	+ 19.1	560	0	+ 19.1
Wholesale and Retail Trade	1,840	2,100	+ 14.1	2,410	+ 14.8	+ 31.0
Finance, Ins., & Real Estate	240	270	+ 12.5	320	+ 18.5	+ 33.3
Service and Miscellaneous	800	990	+ 23.8	1,090	+ 10.1	+ 36.3
Government	590	620	+ 5.1	740	+ 19.4	+ 25.4

EMPLOYMENT PROJECTIONS AND TRAINING NEEDS

The 88 surveyed occupations were distributed in six major occupational groups and comprised 48 per cent of the 79,000 employed in the area in December 1965. By 1970, employment in these selected occupations will comprise more than 51 per cent of the total employed in all occupations. However, growth rates for the major work categories as well as in individual occupations will vary widely.

TABLE IV

CURRENT AND PROJECTED EMPLOYMENT IN THE EVANSVILLE AREA, BY OCCUPATIONAL GROUP

OCCUPATIONAL GROUP	NUMBER OCCUPATIONS SURVEYED	EMPLOYMENT DEC. 1965	EMPLOYMENT DEC. 1970	PER CENT CHANGE
Professional and Managerial	23	4,461	6,296	+ 41.1
Clerical	16	9,810	12,070	+ 23.0
Sales	2	5,378	6,353	+ 18.1
Service	8	5,476	6,673	+ 21.9
Skilled	26	7,226	9,376	+ 29.8
Semiskilled	13	5,604	7,496	+ 33.8
TOTAL	88	37,955	48,264	+ 27.2

The growth patterns for the surveyed occupations were drawn on the basis of the anticipated demand and supply reported by the employers and the training facilities in the area. The demand figures shown for each occupation are expressed in terms of number of additional workers that employers expect to need for expansion of their work force and the numbers needed to replace workers who retire, quit, or who for other reasons will not be available to area employers. The supply is the number of prospective workers that training facilities expect to have trained in the occupation. The difference between the expected demand and the expected supply represents the additional supply of trained workers needed.

The training needs figures thus derived have several features which should be taken into consideration: (1) The supply from training sources includes potential dropouts from training in the particular occupation. (2) The supply includes completions, whether or not the trainees complete satisfactorily and meet employer requirements. (3) The supply includes trainees who may complete satisfactorily but may not enter the occupation locally. (4) The supply includes trainees who may enter self-employment, an area for which a survey of this type is not adaptable.

Some of the occupations for which the greatest additional supply of trained workers is needed - over and above the expected supply from training sources - are listed below:

OCCUPATION	ADDITIONAL TRAINED WORKERS NEEDED BY 1970
PROFESSIONAL, TECHNICAL AND MANAGERIAL	
Nurse	1,079
Licensed Practical Nurse	215
Engineers	210
CLERICAL AND SALES	
Retail Salesperson	2,858
Stock Clerk	816
Clerk-Typist	647
Cashier	510
Clerk, General Office	431
Teller	348
Secretary and Stenographer	264
SERVICE	
Waitress	1,947
Nurse Aide	1,273
Cook	848
SKILLED	
Tool and Diemaker	597
Auto Mechanic	467
Carpenter	409
Machinist	276
Welder	232
Painter	230
Bricklayer	197
SEMISKILLED	
Truck Driver, Heavy	1,848
Sewing Machine Operator	864
Truck Driver, Light	689
Routeman	605

The 88 surveyed occupations are treated individually in the following pages. All data apply to the three-county area, but a breakout for Henderson County, Kentucky, is included in the narrative section when possible. Also included are comments on factors that appear to be particularly significant in evaluating training needs.

PROFESSIONAL, TECHNICAL AND MANAGERIAL OCCUPATIONS

The professional occupations category includes those which usually require a high degree of mental activity. Work done is either concerned with the theoretical or practical aspects in complex fields of human endeavor or the technical and mechanical details of the broader fields of endeavor. These occupations generally require either extensive and comprehensive academic study, or concentrated specialized study or training.

Managerial occupations include occupations for individuals concerned primarily with responsible policy-making, planning, coordinating, and the guiding of work-activity of others, usually through intermediate supervisors.

For the State as a whole, professional workers will increase at a more rapid rate than any other group between 1965-1970 when the number of workers in this category will grow by 32 per cent. Managers and proprietors will increase by 7 per cent. Projections for the Evansville area based on employers' survey responses show that the professional and managerial worker groups will increase by 41.1 per cent during the same period in those 23 occupations which were covered by the survey. This was the highest rate of increase of any of the occupational groups surveyed.

ACCOUNTANT

Total employed, December 1965.....440
Demand by December 1970, for expansion.....107
Demand by December 1970, for replacements.....165
Total Needed.....272
Supply from training sources by 1970.....279
Additional supply of trained workers needed by 1970.....0

Accountants are found in all types of industry; however, nearly three-fourths of those surveyed in the area were employed in nonmanufacturing industries. Nearly one-fifth of these were employed in finance, insurance and real estate while another 21 per cent were in wholesale and retail trade. The greatest number of openings anticipated by 1970 will be in manufacturing industries where nearly half of the replacement and expansion needs were reported.

Current employment figures for this profession are probably understated since a substantial number of accountants are normally self-employed and not included in a survey of this type.

The anticipated supply of trained accountants available from Evansville College, The University of Kentucky Extension, and to local business colleges will exceed the local demand by seven. However, 100 per cent of this supply cannot be expected to accept jobs in the local labor market area, which is a training center supplying graduates to other areas. Accounting openings will remain difficult to fill locally as well as in other areas.

Of the estimated 42 accountants employed in Henderson County, none are known to be leaving the labor market and no additional needs are anticipated for the next five years.

CHEMIST

Total employed, December 1965.....102
Demand by December 1970, for expansion.....36
Demand by December 1970, for replacements.....25
Total Needed.....61
Supply from training sources by 1970.....41
Additional suppy of trained workers needed by 1970.....20

Chemists are required to complete a four-year college course prior to employment; a few are employed in the area on a cooperative training program in conjunction with their regular college courses.

Manufacturing firms employed practically all of the chemists in the area, although a small percentage were located in nonmanufacturing firms. Figures for current employment of chemists in the area may be somewhat conservative as those engaged by educational institutions and self-employed chemists were not surveyed.

Evansville College offers a four-year degree course in chemistry; this is the only local source of supply. As in the other professions surveyed, proximity to a source of supply does not signify that the total number of graduates will enter the local labor market; many will accept employment out of the area.

Henderson County employers reported current employment of 20 in this occupation in December 1965 with total needs by 1970 of 11 additional workers.

ENGINEERS

Total employed, December 1965.....398
Demand by December 1970, for expansion.....210
Chemical Engineer.....11
Civil Engineer.....54
Electrical Engineer.....18
Industrial Engineer.....47
Mechanical Engineer.....80

Demand by December 1970, for replacements.....210
Chemical Engineer.....0
Civil Engineer.....85
Electrical Engineer.....15
Industrial Engineer.....25
Mechanical Engineer.....85
Total Needed.....420
Supply from training sources by 1970.....210
Additional supply of trained workers needed by 1970.....210

Over 64 per cent of the area's engineers are currently employed in manufacturing firms, and almost 15 per cent work for firms who specialize in providing engineering services for all types of industry. Approximately 8 per cent are in the construction industry; 6 per cent in transportation, communications and public utilities; and 4.3 per cent are in government facilities. Mining and wholesale trade establishments account for 2.7 per cent of the current engineering employment, according to the survey response.

The source of supply for engineers in the area is Evansville College which offers degree courses in Electrical, Industrial and Mechanical Engineering. Many employers will consider graduate engineers in any of the specialties as qualified to fill any type of engineering position they have open. Many employers indicated that engineer is a shortage occupation because of a local as well as a National shortage of trained applicants. Most employers reported that they had tried recruitment out of the area.

Current employment of engineers in Henderson County is estimated at 46, with an additional need of 113 for replacements and expansion by 1970.

LIBRARIAN

Total employed, December 1965	181
Demand by December 1970, for expansion	14
Demand by December 1970, for replacements	60
Total Needed	74
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	74

Workers in this occupation manage libraries; supervise assistants in the classification, cataloging, shelving and circulation of books and periodicals; select books to be bought; and determine, or aid in determining library policies.

Current employment in the area totals 181, which includes those working as medical librarians in private and public hospitals; and those in the public libraries, schools and colleges. Undoubtedly this figure also includes some who work as assistants. Replacement needs, which are high, may be due to the fact that 80 per cent of the people employed in this occupation are women, who tend to have a loose attachment to the labor market, particularly in certain occupations. The local hospitals indicated a shortage of qualified medical records librarians in the area.

Survey responses indicate no future needs in Henderson County in this occupation; whatever need will arise will be small in number.

NURSE, REGISTERED

Total employed, December 1965	996
Demand by December 1970, for expansion	607
Demand by December 1970, for replacements	775
Total Needed	1,382
Supply from training sources by 1970	303
Additional supply of trained workers needed by 1970	1,079

The registered nurse performs the various nursing duties requiring the prescribed education, experience and skill in the art of caring for ill and injured persons in homes, hospitals, infirmaries, sanitariums or other institutions. The occupation is the largest of those surveyed in the professional field. The greatest number are employed in private and public hospitals and institutions; however, some work in manufacturing firms as industrial nurses and others work as private duty nurses and in medical offices of doctors.

Currently an estimated 996 are employed in the Evansville area, and as a result of contemplated expansion of facilities, this number is expected to grow by 61 per cent in the next five years. Replacements are high because of the number of young women who leave the profession to raise a family.

The supply of entrants to the profession is provided by hospital training schools, by Evansville College which offers a four-year degree course, and the University of Kentucky Northwest Center which offers a two-year course. Since those nurses receiving a degree from the local colleges also must take some in-hospital training, some duplication of trainees count may have been reported. However, even so, the demand in the next five years will be for more than 1,000 more nurses than the sources of training anticipate supplying in the same period of time. Local hospitals indicated they had made recruitment attempts out of the area because of a local shortage of trained people.

In Henderson County, current employment in the occupation is estimated at 46. For growth and replacement needs, an additional 135 will be needed by 1970. A part of this demand will be an increase in employment due to expansion of hospital facilities in Henderson.

DRAFTSMAN AND TOOL DESIGNER

Total employed, December 1965	465
Demand by December 1970, for expansion	244
Demand by December 1970, for replacements	345
Total Needed	589
Supply from training sources by 1970	540
Additional supply of trained workers needed by 1970	49

Approximately 65 per cent of the draftsmen and tool designers in the Evansville area are currently employed by manufacturing firms. The remainder work in firms that provide engineering and architectural services, in government facilities, and in other scattered industrial groups.

Draftsmen and tool designers are being trained in one technical institute; drafting training is offered in the local high schools both in the evening adult program and in regular day school. However, not all students who take drafting in high school enter the occupation and not all of those who are trained in this capacity in Evansville technical schools remain in the labor market area. In the net needs for training, no allowance was made for dropouts nor for those leaving high school not fully qualified in the occupation; therefore, the total net needs for training are somewhat understated, particularly for tool designers.

Surveyed employers indicated that tool designers were in the hard-to-fill job category because of a shortage of trained people, a shortage of qualified applicants in the area, and lack of adequate training facilities. Some listed draftsmen in this category also because of a lack of trained people, and because the area demand exceeds the supply.

In Henderson County, there are currently an estimated 22 draftsmen and tool designers employed, with an anticipated increase to 38 by 1970. Since local surveyed employers failed to indicate any replacement need in the coming year, the net training needs are somewhat understated here also.

MEDICAL TECHNOLOGIST

Total employed, December 1965.....190
Demand by December 1970, for expansion.....92
Demand by December 1970, for replacements.....145
Total Needed.....237
Supply from training sources by 1970.....56
Additional supply of trained workers needed by 1970.....181

Medical technologists are required to have a B.S. degree, which can be obtained at Evansville College in the area. Two local hospitals indicated they have a small number currently in training. This is a shortage occupation and was reported as hard to fill by the surveyed employers because of a lack of qualified applicants. Recruitment has been conducted outside the area for this occupation.

Henderson County's new ultramodern hospital to be completed in 1968 will increase the needs for all of the health occupations surveyed; anticipated needs for medical technologists will more than double the present small number employed there, counting the new jobs plus replacements needed by 1970. No training program was indicated by the present hospital in this occupation.

X-RAY TECHNICIAN

Total employed, December 1965.....45
Demand by December 1970, for expansion.....26
Demand by December 1970, for replacements.....35
Total Needed.....61
Supply from training sources by 1970.....48
Additional supply of trained workers needed by 1970.....13

X-ray technicians are employed by both private and government hospitals in the area. Although some of these facilities indicated an in-service training program was in progress, the supply of trained people will not meet total anticipated demand for the area. Employers indicated that applicants are in short supply and recruitment efforts have been made out of the area, making use of advertising in newspapers and professional journals, listings with nationwide employment services, and contacts with colleges and universities.

As in other health occupations, Henderson County expansion needs will have more than doubled and replacment needs will have added another estimated five openings by 1970 due to the hospital building program to be completed by 1968. Total employment in the occupation in Henderson is a relatively small portion of the area total.

LICENSED PRACTICAL NURSE

Total employed, December 1965.....173
Demand by December 1970, for expansion.....288
Demand by December 1970, for replacements.....185
Total Needed.....473
Supply from training sources by 1970.....258
Additional supply of trained workers needed by 1970.....215

Practical nurses are employed in the greatest numbers in hospitals in the area; however, many are self-employed or work in small establishments not covered in the survey. Employment figures as quoted are conservative.

Most of those employed in the occupation are women; the turnover rate is high because of the large number who leave the labor market to marry and raise a family. Though replacement estimates in this occupation are high, the larger portion of the needs will come from anticipated expansions in facilities employing workers in this occupation.

One year of vocational training is required as a background in this occupation. The source of supply is Evansville School of Practical Nursing and the local hospitals that conduct on-the-job training courses. Some duplication of reporting may have occurred in showing anticipated supply since those in training in practical nursing school may also be reported by the hospitals as being trained on the job.

Surveyed employers indicated that this occupation was hard to fill because of a shortage of trained people, and recruitment efforts have been extended out of the area by some.

In Henderson County, expansion needs are expected to triple by 1970 because of their new hospital building program. .The number expected to complete training programs will not be adequate to supply expansion and replacement needs, either for Henderson or for the three-county Evansville area.

PRODUCTION PLANNER

Total employed, December 1965	70
Demand by December 1970, for expansion	22
Demand by December 1970, for replacements	5
Total Needed	27
Supply from training sources by 1970	1
Additional supply of trained workers needed by 1970	26

Production planners work in manufacturing establishments, and often are promoted from within through in-plant training programs. Evansville College offers training courses indicated as of benefit in this occupation; additional training on the job would be needed for qualifying. One employer anticipated that one person would complete an in-plant training program by 1970.

Henderson County employers,with 29 currently working in this occupation, predicted a net loss of one person over the next five-year period and anticipated no replacement needs.

EMPLOYMENT INTERVIEWER

Total employed, December 1965	116
Demand by December 1970, for expansion	7
Demand by December 1970, for replacements	15
Total Needed	22
Supply from training sources by 1970	2
Additional supply of trained workers needed by 1970	20

Employment Interviewers were found in both manufacturing and nonmanufacturing firms and nearly 80 per cent of those surveyed were working in firms of 100 and over total employment. More than one-third of those employed in nonmanufacturing firms were in wholesale and retail trade establishments.

Henderson employers anticipate half of the whole area's needs by 1970 will be required for replacements in that county, but they predict no worker needs for expansion.

TIME STUDY MAN

Total employed, December 1965	28
Demand by December 1970, for expansion	13
Demand by December 1970, for replacements	13
Total Needed	26
Supply from training sources by 1970	1
Additional supply of trained workers needed by 1970	25

The time study man works in product cost and engineering, studying the individual industrial product operations, usually under the supervision of the Industrial Engineer. All of those reported in the area were in manufacturing industries and most of these were in firms of 100 and over employment.

Evansville College offers courses indicated by them as helpful in entering the occupation, but not fully qualifying without additional training.

In Henderson County only two firms reported employment in this occupation; three additional time study men will be needed in these firms by 1970.

COMPUTER PROGRAMMER

Total employed, December 1965	50
Demand by December 1970, for expansion	37
Demand by December 1970, for replacements	30
Total Needed	67
Supply from training sources by 1970	12
Additional supply of trained workers needed by 1970	55

Employment of computer programmers will increase at a high rate in the next five years. The largest number currently employed in the area was reported in firms of 100 or more employment size in the finance, insurance and real estate industry group. The largest manufacturing firms reported the smallest number currently employed but the greatest per cent of anticipated growth in the next five years.

Twelve programmers will be trained on the job; one business college in the area offers related courses to qualify students as trainees in the occupation.

Responding Henderson County employers indicated a training need of two in the occupation by 1970.

MANAGER, RESTAURANT OR COFFEE SHOP

Total employed, December 1965	238
Demand by December 1970, for expansion	70
Demand by December 1970, for replacements	25
Total Needed	95
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	95

Food service managers are employed in hotels, clubs, hospitals, retail trade establishments and in restaurants of all sizes. More than 71 per cent of those

currently employed work in restaurants; of these nearly two-thirds are employed in small establishments with less than 20 employees. In very small eating places, managers usually are required to perform other functions in addition to management duties.

An estimated 10.5 per cent, or 25, of the area restaurant managers are employed in Henderson County. Insufficient response from Henderson employers prevents making any projections of future demand; however, by assuming that the demand will correspond to the county's share of the area employment in this occupation, seven managers would be needed for expansion and three for replacements by 1970.

MANAGER, RETAIL STORE

Total employed, December 1965	556
Demand by December 1970, for expansion	18
Demand by December 1970, for replacements	30
Total Needed	48
Supply from training sources by 1970	34
Additional supply of trained workers needed by 1970	14

Retail store managers are among the most numerous of the professional and managerial occupations surveyed; however, company training programs contemplated or already in progress will take care of more than 70 per cent of the anticipated openings by 1970.

Henderson County employers predicted a need for five additional retail store managers by 1970. Current employment is 67.

BUYER

Total employed, December 1965	200
Demand by December 1970, for expansion	8
Demand by December 1970, for replacements	5
Total Needed	13
Supply from training sources by 1970	4
Additional supply of trained workers needed by 1970	9

Buyers were found in both manufacturing and nonmanufacturing firms; however, most of the future demand is anticipated in nonmanufacturing firms engaged in retail trade. In-plant training will alleviate the demand. Most buyers are trained on the job since familiarity with company product and buying habits is essential.

Although only 13 per cent of the total employment in this occupation was reported by Henderson County manufacturing employers, they also anticipate 30 per cent of the increased demand by 1970. No replies were received from retail establishments.

MANAGER, FINANCIAL INSTITUTION

Total employed, December 1965.....209
Demand by December 1970, for expansion.....23
Demand by December 1970, for replacements.....15
Total Needed.....38
Supply from training sources by 1970.....0
Additional supply of trained workers needed by 1970.....38

Banks, savings and loan companies, and credit agencies employ people in this occupation. More than 80 per cent of those reported were working in banking institutions.

There are no specific training programs in progress in the area; Evansville College does offer courses in business leading both to associate and bachelor degrees.

Increased demand for anticipated expansions will require an additional seven people in this occupation in Henderson by 1970. No replacement needs were reported, so the need expressed is undoubtedly on the conservative side.

CLERICAL OCCUPATIONS

The clerical group of occupations included in the survey employs the largest number of people currently, and it is expected that it will provide the greatest number of openings through 1970--2,260 new jobs resulting from expansion, and 1,171 replacement openings. Although the growth rate in the clerical occupations will not be as great as for most of the other occupational groups surveyed, many additional workers will be needed because of anticipated business growth. However, the trend toward automation will reduce the worker requirements for some of the more routine tasks.

The Evansville area has two post-high school business colleges which train for many of the business occupations covered in the survey. The University of Kentucky Northwest Center in Henderson also offers training for some of the occupations surveyed. Several high schools in the area also offer clerical training.

There are two major reasons why the entire training output of the schools should not be measured against local employer projected needs.

(1) Since Evansville is a training center and draws many students from outside the local labor market area, it is reasonable to assume that many of these will also accept employment out of the area after completion of training.

(2) The large proportion of women in the clerical occupations will result in a high dropout rate as many will marry and leave the area or occupation. Turnover rate is high and it is probable that many of these same jobs may be open several times by 1970.

Matching the anticipated number of clerical openings with the supply expected from training facilities is done primarily to give an indication of the proportion between the demand and the supply. It is very doubtful that there will be a surplus of trained workers qualified to meet employers' specifications in most of the surveyed occupations by 1970.

BOOKKEEPER

Total employed, December 1965.....1,287
Demand by December 1970, for expansion.....237
Demand by December 1970, for replacements.....180
Total Needed.....417
Supply from training sources by 1970.....265
Additional supply of trained workers needed by 1970.....152

Bookkeepers are employed in all types of industry; however, in the Evansville area, nearly 90 per cent are employed in nonmanufacturing establishments with nearly 45 per cent in wholesale and retail trade.

Two business schools in the area offer comprehensive bookkeeping courses and several of the high schools offer training in this field. High Schools in the area anticipate a supply of 364 graduates by 1970 with bookkeeping courses; however, of those who enter the labor market, most could not be considered fully qualified in this occupation without some post-high school training.

Henderson County firms reported current employment of 164 people in this occupation with anticipated increases of 37 and replacements of 50, making a total of 87 needing training by 1970.

CASHIER

Total employed, December 1965.....945
Demand by December 1970, for expansion.....230
Demand by December 1970, for replacements.....860
Total Needed.....1,090
Supply from training sources by 1970.....580
Additional supply of trained workers needed by 1970.....510

Cashiers are employed in a variety of industries; however, nearly two-thirds of those employed in the area are in wholesale and retail trade.

Turnover in the occupation will account for almost 80 per cent of the demand over the next five years; however, the occupation will grow by nearly 25 per cent in the same period.

The local high schools reported a supply from training anticipated to meet more than half of the demand. This is probably an optimistic estimate as not all those who complete instruction in the occupation will enter it after high school.

Henderson County employers reported a demand for 170 people in this occupation by 1970. Most of the growth was reported in the retail grocery industry.

CLERK, GENERAL OFFICE

Total employed, December 1965	2,093
Demand by December 1970, for expansion	508
Demand by December 1970, for replacements	1,290
Total Needed	1,798
Supply from training sources by 1970	1,367
Additional supply of trained workers needed by 1970	431

General office clerks perform a wide variety of clerical tasks including typing and operation of office machines, and must have a well-rounded background of training or experience to qualify.

They are found in all types of industry; however, nearly 83 per cent work in nonmanufacturing firms in the area. Of these, around 30 per cent are employed in wholesale and retail trade establishments. Of the nearly 1,800 people needed to fill anticipated openings by 1970, more than 20 per cent will be required in wholesale and retail trade, and another 18 per cent will be needed in manufacturing industries.

Training in this occupation is offered in two business colleges and in the high schools; however, anticipated supply from existing facilities will not meet the demand by 1970. Training is also given under MDTA in Henderson.

Henderson County employers reported additional and replacement requirements of an estimated 197 extra jobs by 1970.

TELLER

Total employed, December 1965	341
Demand by December 1970, for expansion	78
Demand by December 1970, for replacements	270
Total Needed	348
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	348

Tellers are employed in banks and savings and loan companies in the area. Three local high schools reported training courses available in the occupation; however, since the minimum age requirement for entry is 21 the training is more general than specific and not occupationally directed.

There are approximately 68 people working in Henderson County in this occupation with additional needs of 23 by 1970 due to expected expansion.

ROOM CLERK

Total employed, December 1965	186
Demand by December 1970, for expansion	0
Demand by December 1970, for replacements	220
Total Needed	220
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	220

Room clerks work in hotels and motels registering entering guests and checking out those departing. Duties are varied according to the size and type of establishment. Some also collect money and keep simple records as well as assigning rooms.

Although employers in the area predicted no expansion in their needs by 1970, undoubtedly new motels to be constructed in the area will result in additional workers in this occupation.

No response was received from Henderson County employers in this occupation.

CREDIT CLERK

Total employed, December 1965	314
Demand by December 1970, for expansion	136
Demand by December 1970, for replacements	135
Total Needed	271
Supply from training sources by 1970	13
Additional supply of trained workers needed by 1970	258

Nonmanufacturing firms are the largest employers of credit clerks with wholesale and retail trade, financial institutions and collection agencies making up the bulk of the employment. Their primary duties involve interviewing credit applicants, investigating and making determinations on credit standing.

Responses from firms indicate that employees with suitable educational or business backgrounds receive on-the-job training to fully qualify them for the occupation.

Low reponse rate from employing firms prevented making any separate estimates for Henderson County in this occupation.

COLLECTOR

Total employed, December 1965	154
Demand by December 1970, for expansion	14
Demand by December 1970, for replacements	150
Total Needed	164
Supply from training sources by 1970	18
Additional supply of trained workers needed by 1970	146

Collectors work primarily in financial institutions and collection agencies collecting overdue accounts. Turnover in the occupation is very high and accounts for the bulk of the net needs by 1970.

On-the-job training is ordinarily given for this occupation. Local high schools also may provide a number of people who have received helpful training; this is not vocational training specifically for the occupation.

There were no responses from Henderson County employers in this occupation.

CORRESPONDENCE CLERK

Total employed, December 1965	37
Demand by December 1970, for expansion	34
Demand by December 1970, for replacements	35
Total Needed	69
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	69

Correspondence clerks compose letters to individuals, company customers, or other business establishments in reply to requests for information or correspondence

received. They are employed primarily in large firms receiving a large volume of fairly routine mail. Additional needs are anticipated primarily in finance, insurance and real estate and in retail trade establishments.

Local business colleges offer courses helpful in this occupation; however, familiarity with company policies and/or products makes it necessary that much of the training be done on the job. Local high schools also give letter writing courses in connection with their business education.

No predictions can be made for Henderson County due to insufficient response in nonmanufacturing firms.

BILLING CLERK

Total employed, December 1965	183
Demand by December 1970, for expansion	38
Demand by December 1970, for replacements	120
Total Needed	158
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	158

Billing clerks prepare invoices and bills of lading, computes amounts due from records, using a calculator and typewriter or a computer-type billing machine.

Local high schools offer courses helpful in this occupation; however, supply available is uncertain. Some business machine sales organizations also provide instruction in machine use.

Only five replacements and no expansion needs were listed by Henderson County responding employers. This does not represent the total county demand because of insufficient response in the occupation.

CALCULATING MACHINE OPERATOR

Total employed, December 1965	95
Demand by December 1970, for expansion	28
Demand by December 1970, for replacements	50
Total Needed	78
Supply from training sources by 1970	41
Additional supply of trained workers needed by 1970	37

Calculating machine operators are employed in both manufacturing and nonmanufacturing firms, usually in larger size firms. More than 44 per cent work in wholesale and retail trade establishments.

Training in this occupation is offered in local business colleges and training is given in high school in the regular day business courses.

Responding employers in Henderson County reported no additional demand in the occupation by 1970; however, only two responding employers in the area reported workers in this occupation.

KEYPUNCH OPERATOR

Total employed, December 1965	124
Demand by December 1970, for expansion	59
Demand by December 1970, for replacements	90
Total Needed	149
Supply from training sources by 1970	381
Additional supply of trained workers needed by 1970	0

There will be an increase in the number of jobs for keypunch operators by 1970 as well as numerous anticipated openings to fill replacement needs. The anticipated supply from training sources is expected to exceed the demand in this occupation. Since Evansville is a training center drawing students from out of the area, many of those who complete training will accept jobs out of the local labor market area. The future supply will not be as excessive as it would appear. However, there is no evidence that additional training facilities for this occupation are required.

Four responding employers in Henderson County reported current employment of 29 in the occupation. Expansion needs are estimated at six by 1970, while replacement needs of 25 are anticipated.

SECRETARY AND STENOGRAPHER

Total employed, December 1965	1,689
Demand by December 1970, for expansion	325
Demand by December 1970, for replacements	645
Total Needed	970
Supply from training sources by 1970	706
Additional supply of trained workers needed by 1970	264

Secretaries and stenographers are closely related in skill requirements and some employers use the job titles interchangeably. In some large firms, stenographers are entry workers who advance to secretaries after experience on the job. Training facilities offer additional training to qualify stenographers as secretaries.

Training courses are offered in two local business colleges, at the University of Kentucky Northwest Center in Henderson and in local high schools in the area. A training class for clerk-stenographer under MDTA is in progress in the Evansville area. The supply in training in the local high schools was not deducted from the demand as it is impossible to predict how many will enter the labor market directly from high school as fully qualified workers in this occupational field. Of those enrolled in stenography in high school, some will fail to attain a proficiency level necessary to meet employer requirements, some will attend college, and a portion will marry and leave the labor market.

Henderson County employers reported a current employment of 240 in this occupation with estimated increases of 21 by 1970. Although none of those who responded to the survey listed any anticipated replacements, there will probably be an estimated need of from 80 to 90 people if turnover can be expected to follow the pattern for the whole area.

CLERK-TYPIST

Total employed, December 1965	902
Demand by December 1970, for expansion	229
Demand by December 1970, for replacements	755
Total Needed	984
Supply from training sources by 1970	337
Additional supply of trained workers needed by 1970	647

Clerk-typists are employed in both manufacturing and nonmanufacturing firms in all size groups, and the largest numbers work in firms employing 100 or more workers. Slightly more than one-fifth of these are employed in manufacturing firms; these firms also anticipate one-fifth of the job opportunities for expansion and replacement needs by 1970. Nearly one-fourth of the total number of clerk-typists employed were in wholesale and retail trade establishments; however, this industry group comprises less than 10 per cent of the total number of anticipated openings. Although less than 13 per cent of the current employment in the occupation is in the service industries, the greatest number of additions will be in this group, primarily in hospitals.

In addition to the anticipated supply of 337 to be trained in local business schools, the high schools will supply workers with typing skills. Of the 839 expected to graduate from high school by 1970 with skills in this occupation, only a portion will be available for vacant jobs.

Henderson County employers predicted a demand for 65 clerk-typists for replacements by 1970, and only one for expansion needs.

STOCK CLERK

Total employed, December 1965	933
Demand by December 1970, for expansion	233
Demand by December 1970, for replacements	855
Total Needed	1,088
Supply from training sources by 1970	272
Additional supply of trained workers needed by 1970	816

Stock clerks are employed in all types of manufacturing and most nonmanufacturing industries with nearly three-fourths of those in the area currently employed in wholesale and retail trade. More than 83 per cent of the anticipated openings by 1970 will be in these firms. While a little more than 15 per cent of the currently employed are working in manufacturing industries, less than 10 per cent of the openings are anticipated there.

The source of supply will come primarily from the local high schools plus the very few who are being trained on the job.

There are 119 stock clerks currently employed in Henderson County and by 1970, 335 more will be needed to fill anticipated expansion and replacement needs.

TELEPHONE OPERATOR

Total employed, December 1965	527
Demand by December 1970, for expansion	111
Demand by December 1970, for replacements	200
Total Needed	311
Supply from training sources by 1970	105
Additional supply of trained workers needed by 1970	206

Telephone operators operate switchboards to connect incoming calls and to place outgoing calls in both manufacturing and nonmanufacturing firms. More than 48 per cent of those currently employed in the area are working in transportation, communication and public utilities firms and nearly 45 per cent of the gross needs by 1970 will be in this group also. Another 14 per cent work in wholesale and retail trade establishments and more than 13 per cent of the gross needs are anticipated there.

Brief courses in switchboard operation may be offered in some high schools and business schools, but practically all newly employed operators receive on-the-job training to familiarize them with the equipment being used. Those working in offices other than telephone exchanges often are assigned other clerical duties. Turnover is high because many operators are young women who work a few years and then leave to take care of their families.

In Henderson County, approximately 50 people are employed in this occupation and an estimated 25 additional people will be needed for expansion and replacement requirements by 1970.

SALES OCCUPATIONS

Sales occupations surveyed in the area were made up of two groups which could be subdivided into a number of specialty sales jobs. The retail salesperson works in all types of retail establishments selling a wide variety of merchandise inside his employer's establishment. The wholesale salesman sells merchandise of all kinds to retailers generally outside of his employer's place of business.

Retail salespeople make up the largest single occupational group of employed people included in the survey and by 1970 the greatest number of additional workers will be needed to fill anticipated openings for expansion and replacement needs. Turnover in the occupation is high, since many of the women who make up this group have a loose attachment to the labor force. Re-entry into this occupation after absence from the labor market is comparatively easy due to the short period of training needed.

Retail and wholesale trade employment will increase by more than 18 per cent in the area by 1970 and the bulk of this increase will be due to the anticipated expansion in sales occupations.

SALESPERSON (RETAIL)

Total employed, December 1965.....3,872
Demand by December 1970, for expansion.....852
Demand by December 1970, for replacements.....2,500
Total Needed.....3,352
Supply from training sources by 1970.....494
Additional supply of trained workers needed by 1970.....2,858

Retail salespeople will be needed in all types of retail stores to handle increases and replacement needs by 1970. Employment in the wholesale field will experience an 18 per cent gain by 1970; however, the employment in the retail sales occupation will increase by 22 per cent.

An estimated 375 people work in this occupation in Henderson County with an additional 80 people needed by 1970 for expansion, while replacements should require another 250 workers.

SALESMAN (WHOLESALE)

Total employed, December 1965.....1,506
Demand by December 1970, for expansion.....123
Demand by December 1970, for replacements.....365
Total Needed.....488
Supply from training sources by 1970.....68
Additional supply of trained workers needed by 1970.....420

Wholesale salesmen are employed by manufacturing and wholesale trade industries. Training supply for both wholesale and retail salespeople will come primarily from local high schools and on-the-job training given by employers.

An estimated 125 people are employed in this occupation in Henderson County with an additional 25 needed for expansion and 35 for replacements by 1970.

SERVICE OCCUPATIONS

Service occupations will increase in employment with the expanding population in Indiana. Although overall employment in this group will grow, not all occupations will expand at the same rate.

Employment in the eight service occupations surveyed in the area in December 1965 was 5,476 and by 1970 an overall increase of 21.9 per cent is anticipated.

Six of these occupations were in hotel and restaurant industries, one in beauty shops and one located in hospitals. Nurse aide employs the largest number of people in this group and will experience the greatest gain in number of workers over the next five-year period.

HOTEL HOUSEKEEPER AND CHAMBERMAID

Total employed, December 1965	215
Demand by December 1970, for expansion	8
Demand by December 1970, for replacements	100
Total Needed	108
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	108

Housekeepers and chambermaids work in hotels and motels. The usual ratio is one housekeeper per establishment in medium size hotels; large hotels often employ an assistant housekeeper. The number of chambermaids employed is generally in relation to the number of rooms requiring these services. Expansion needs are probably understated because sampling methods do not account for those firms contemplated but not yet established in the area. It is anticipated that new motels will probably be built in these three counties, creating more expansion needs than those expressed by the firms already in existence.

There are no facilities for training fully qualified workers in these occupations; however, local high schools offer courses in home economics which might be helpful.

No responses from Henderson County employers were received in these occupations.

COOK

Total employed, December 1965	877
Demand by December 1970, for expansion	153
Demand by December 1970, for replacements	695
Total Needed	848
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	848

Cooks are employed in hotels, restaurants, lunchrooms, and country clubs and in food service departments of retail stores, factories, hospitals and nursing homes. Cooks in domestic service were not included in this survey.

There is always a shortage of trained cooks and the needs are expected to increase as business expands; however, nearly 82 per cent of the reported demand by 1970 will be for replacements.

There are no training courses available in the area except for those courses offered in home economics in the local high schools.

Henderson County employs around 100 workers in this occupation with additional training needs estimated at 52 by 1970.

WAITRESS

Total employed, December 1965	1,490
Demand by December 1970, for expansion	203
Demand by December 1970, for replacements	2,030
Total Needed	2,233
Supply from training sources by 1970	286
Additional supply of trained workers needed by 1970	1,947

Waitresses work primarily in hotels, restaurants and private clubs; in the Evansville area, more than 61 per cent are employed in restaurants. Growth in the occupation will add 203 new jobs by 1970; however, replacements are anticipated at ten times the expansion needs by 1970.

Source of training supply comes from figures furnished by the local high schools in the area.

In Henderson County, there are 130 employed waitresses and 130 more will be needed by 1970 for replacements. Surveyed employers' responses showed no growth needs.

SALAD GIRL

Total employed, December 1965	164
Demand by December 1970, for expansion	8
Demand by December 1970, for replacements	225
Total Needed	233
Supply from training sources by 1970	33
Additional supply of trained workers needed by 1970	200

Salad girls are employed in food service departments in hotels, hospitals, and retail stores, as well as in restaurants and industrial cafeterias.

Supply available by 1970 will come from local high schools.

In Henderson County, employers reported 10 people presently employed with no additions anticipated by 1970.

KITCHEN HELPER

Total employed, December 1965	679
Demand by December 1970, for expansion	149
Demand by December 1970, for replacements	665
Total Needed	814
Supply from training sources by 1970	158
Additional supply of trained workers needed by 1970	656

The kitchen helper is an entry worker in the food service industry and may learn cooking from this beginning job. Turnover in the occupation is very high; by 1970 nearly 100 per cent replacements will be needed; and expansion needs will require another 149 workers.

There are an estimated 34 people employed in this occupation in Henderson County with 27 needed for additions and replacements by 1970.

BEAUTY OPERATOR

Total employed, December 1965	255
Demand by December 1970, for expansion	110
Demand by December 1970, for replacements	240
Total Needed	250
Supply from training sources by 1970	1,756
Additional supply of trained workers needed by 1970	0

Beauty schools in the Evansville area expect to provide a supply of trained people which will greatly exceed the demand of local employers. However, a number of factors characteristic of this occupation will probably adjust this apparent imbalance. Since Evansville is a training center in this occupation for surrounding communities, not all of the trained people will enter the local labor market. Also, a small percentage of the young women beauty operators who are licensed actually remain in the labor market for lengthy periods. Some marry and leave the area or the occupation, others manage new beauty shops of their own, and some who obtain licenses never practice their profession. However, there apparently is little need for expanding facilities for training in the area.

No responses were received from Henderson County employers in this occupation.

NURSE AIDE

Total employed, December 1965	1,796
Demand by December 1970, for expansion	566
Demand by December 1970, for replacements	1,355
Total Needed	1,921
Supply from training sources by 1970	648
Additional supply of trained workers needed by 1970	1,273

Nurse aides are employed in private and government hospitals and in nursing homes.

Training is given as needed in most of the local hospital facilities; however, since turnover in the occupation is unusually high, training is not expected to meet anticipated increased demands by 1970. Supply from practical nursing training courses given in the local high schools is expected to add another 115 nurse aides to the labor market by 1970.

Due to local hospital expansion plans this occupation will grow by more than 31 per cent by 1970.

Henderson County will need 122 more nurse aides by 1970 to fill expansion and replacement needs.

SKILLED AND SEMISKILLED OCCUPATIONS

Growth in the skilled and semiskilled occupations is expected to continue to 1970. Employment in all nonfarm industries is expected to increase by 18.7 per cent by 1970; however, growth in the skilled occupations was predicted at 29.8 per cent during the same period.

Individual occupations will grow at varying rates with tool and diemakers at 109 per cent increasing the most rapidly. Carpenters will increase by 43 per cent; auto mechanics by 38 per cent; and bricklayers, millwrights, and foremen (construction) will each increase by 37 per cent.

All construction occupations will not grow at the same rate; needs in most construction occupations will fluctuate widely with seasonal and cyclical business trends. Long-term needs in most occupations are difficult to predict with accuracy; however, in general, shortages in these occupations have been persistent despite the seasonal fluctuations of the building industry. For instance, it is very doubtful that overall employment of electricians in the area will actually experience the little change reported by surveyed employers, since the trend in the area economy is upward.

Response from one large construction firm employing a considerable number of electricians reports the project nearing completion which will result in a temporary mass layoff of these craftsmen. However, other projects planned by firms not covered in this survey should absorb these skilled workers who are in short supply in nearly every area of the State.

SEAMSTRESS

Total employed, December 1965	363
Demand by December 1970, for expansion	100
Demand by December 1970, for replacements	140
Total Needed	240
Supply from training sources by 1970	10
Additional supply of trained workers needed by 1970	230

Seamstresses are employed primarily in retail trade and service establishments in the area and both growth and replacement needs are anticipated mainly in these industries. Those who are self-employed or work in small noncovered firms were not included in this survey.

The small supply available from training sources will come from local high school home economics courses, and from an MDTA training course presently in progress in the area.

Henderson County reports only nine currently employed in this occupation, with an increase to 11 workers by 1970. Replacement needs and anticipated self-employed persons were not reported.

CABINETMAKER

Total employed, December 1965	275
Demand by December 1970, for expansion	30
Demand by December 1970, for replacements	175
Total Needed	205
Supply from training sources by 1970	10
Additional supply of trained workers needed by 1970	195

Cabinetmakers are employed locally in the furniture industry. Anticipated replacement needs are 175 in the next five years and growth in the occupation will approximate 11 per cent by 1970.

Supply from on-the-job training courses conducted by employers is the only reported source of supply. Related wood shop courses are offered in the evening adult program, but do not provide fully qualified cabinetmakers.

Needs of the reporting firms in the furniture manufacturing industry in Henderson County are estimated at a total of 36 over the next five-year period, 11 for expansion and 25 for replacements.

MILLMAN

Total employed, December 1965	156
Demand by December 1970, for expansion	14
Demand by December 1970, for replacements	140
Total Needed	154
Supply from training sources by 1970	82
Additional supply of trained workers needed by 1970	72

Furniture manufacturers and lumber yards employ men in this occupation who are skilled in the use of a variety of woodworking machines.

Expansion needs will require only about one-tenth of the total demand in the occupation by 1970; the remainder will be needed for replacements. Replacement need as reported by surveyed employers seems excessive for a skilled occupation, and is probably somewhat overstated. Normal replacement rate for skilled workers is about 3 per cent per year.

Source of supply anticipated from local high school and adult evening classes will not be sufficient to meet the needs.

Henderson County responding employers showed a demand of 21 additional trained workers in this occupation by 1970 to take care of expansion needs, and indicated no replacements required.

UPHOLSTERER

Total employed, December 1965.....127
Demand by December 1970, for expansion.....17
Demand by December 1970, for replacements.....45
Total Needed.....62
Supply from training sources by 1970.....18
Additional supply of trained workers needed by 1970.....44

Upholsterers are employed in furniture factories and retail establishments in the area. Growth in the occupation will approximate 13 per cent over the next five-year period.

Supply of trained people will come from training provided by employers on the job.

Henderson County responding employers predicted no additional net needs in the occupation by 1970.

FINISH PATCHER

Total employed, December 1965.....35
Demand by December 1970, for expansion.....11
Demand by December 1970, for replacements.....35
Total Needed.....46
Supply from training sources by 1970.....0
Additional supply of trained workers needed by 1970.....46

Finish patchers repair the defects in the finish of completed or semicompleted furniture that has been rejected by inspection. They perform this salvage operation, using woodworking hand tools, shellac, varnish and sandpaper.

No source of supply is in training in the area but courses in woodworking conducted in local high schools are helpful. On-the-job training of production workers with specific aptitudes provides the supply in most cases. Adult evening classes in woodworking shop are also offered locally.

Henderson County currently employs 16 in this occupation. The number is expected to increase to 22 by 1970, and during the five-year period, employers anticipate that 10 additional will be needed for replacements.

MACHINIST

Total employed, December 1965.....387
Demand by December 1970, for expansion.....139
Demand by December 1970, for replacements.....190
Total Needed.....329
Supply from training sources by 1970.....53
Additional supply of trained workers needed by 1970.....276

Machinists are employed in practically all of the manufacturing industries in the area; some are also employed by railroads and mining firms.

Apprenticeship training planned or offered at present will provide 53 additional journeymen machinists by 1970; however, this will not fill the demand for the same

period. Machine shop courses are offered in both day and evening courses in the local schools to provide entry workers. Four years of apprenticeship training are necessary to become fully qualified in the skill requirements.

Shortages in this occupation are acute, persistent and statewide in scope. Since World War II, training in this occupation has failed to keep pace with industry's expanding needs. The majority of surveyed employers considered this a hard-to-fill job because of a shortage of trained people, the lack of an adequate training program, and because the area demand exceeds the supply. Some had made recruitment efforts out of the area.

Henderson County employers reported a demand for an additional 55 trained machinists by 1970 to handle expansion and replacement requirements.

TOOL AND DIEMAKER

Total employed, December 1965	475
Demand by December 1970, for expansion	517
Demand by December 1970, for replacements	185
Total Needed	702
Supply from training sources by 1970	105
Additional supply of trained workers needed by 1970	597

Tool and diemaker is an apprenticeable occupation usually consisting of a four-year formal training period. Continued expansion in the metal trades will require many more workers in this occupation by 1970. Supply of trained people available by the same year will be substantially below the demand. Shortages in this occupation have been persistent since World War II and at present are acute. The shortage will become more critical unless present training programs are accelerated and expanded to meet the demand. Many of the surveyed employers have had difficulty in hiring qualified people in this occupation. Reasons listed were a shortage of trained people, lack of adequate training programs, a shortage of qualified applicants, because of increased need due to local activity and because there is a National shortage of qualified workers.

Local high schools offer machine shop courses which give trainees basic fundamentals for entry as apprentices.

Henderson County employers predicted a net demand of 53 people in the occupation to meet expansion and replacement needs by 1970.

SHEET METAL WORKER

Total employed, December 1965	318
Demand by December 1970, for expansion	55
Demand by December 1970, for replacements	105
Total Needed	160
Supply from training sources by 1970	46
Additional supply of trained workers needed by 1970	114

Sheet metal workers are employed by metals manufacturing firms, construction industries and railroads in the Evansville area. Although less than 45 per cent of the current employment in this occupation is in manufacturing establishments, nearly 64 per cent of the anticipated demand by 1970 will be in these firms. However, needs in the construction industry are subject to sharp variations due to

seasonal changes and fluctuations in business activity.

This is an apprenticeable occupation with a total of 46 people expected to complete apprenticeship training by 1970. According to predictions by employers another 114 will need to be trained by then. Some training for entry into this occupation is also offered by local high schools.

No separate figures are available for Henderson County.

WELDERS

HELIARC WELDER

Total employed, December 1965	144
Demand by December 1970, for expansion	27
Demand by December 1970, for replacements	10
Total Needed	37
Supply from training sources by 1970	4
Additional supply of trained workers needed by 1970	33

COMBINATION WELDER

Total employed, December 1965	365
Demand by December 1970, for expansion	95
Demand by December 1970, for replacements	115
Total Needed	210
Supply from training sources by 1970	11
Additional supply of trained workers needed by 1970	199

Welders are classified according to the type of equipment they use and the skills involved. Combination welders are skilled at operating both arc and acetylene welding equipment, while heliarc welding is a specialty occupation which involves the use of inert gas such as helium to join hard-to-weld metals. Heliarc welding is an advanced skill usually requiring a certain amount of skill in combination welding for entry.

Trained workers in both types of welding are in short supply and the anticipated supply from training will fall below the demand.

On-the-job training will yield a total of 15 qualified people in both occupations by 1970. In addition, training is conducted in evening adult and day high school courses locally. These facilities are expected to train a total of 169 combination welders by 1970, which will not meet the needs even if all enter the local labor market. An MDTA training program for combination welders is in operation in Evansville.

Henderson County responding employers reported expansion needs for 17 trained welders by 1970.

ELECTRICIAN

Total employed, December 1965	511
Demand by December 1970, for expansion	1
Demand by December 1970, for replacements	100
Total Needed	101
Supply from training sources by 1970	41
Additional supply of trained workers needed by 1970	60

The area's electricians are employed in a wide variety of industries including mining; construction; manufacturing; transportation, communication and utilities; banking; and government.

Area needs for electricians will fluctuate as they do in other occupations which employ large numbers of workers in the construction industry; however, during the building season, electricians will undoubtedly be in short supply. The projection of growth needs are based on employers' responses and are influenced by the plans of one major employer who anticipates completing a project and dispensing with the services of a large number of electricians. Undoubtedly other employers will take up the slack when new projects begin. Since the construction industry is projected to increase employment by 9.9 per cent by 1970, there is certain to be need for additional electricians as well as others trained in construction crafts.

Henderson County responses indicate 9 workers currently are employed and 4 more required for expansion in this occupation by 1970. No anticipated replacements were reported by the employers.

ELECTRICAL REPAIRMAN

Total employed, December 1965	144
Demand by December 1970, for expansion	38
Demand by December 1970, for replacements	50
Total Needed	88
Supply from training sources by 1970	65
Additional supply of trained workers needed by 1970	23

Electrical repairmen keep electrical equipment such as wiring, motors, switches, switchboards, apparatus and electrical mechanisms in repair. They replace defective wiring and make connections to new electrical installations, replace fuses and motor parts, and repair electrical fixtures and equipment.

Most of the workers in the occupation are journeymen electricians trained through the apprenticeship program. Some are men who have acquired skills by working as helpers and receiving on-the-job training informally over a period of years. Most have also taken training in electricity offered in high school and adult evening courses.

The supply from apprenticeship and on-the-job training courses will not meet the demand by 1970; 52 of the anticipated trained workers will come from formal apprenticeship programs planned or already in progress.

Henderson County employers reported no additional needs for growth; replacements will require an additional 10 workers.

BRICKLAYER

Total employed, December 1965	180
Demand by December 1970, for expansion	67
Demand by December 1970, for replacements	145
Total Needed	212
Supply from training sources by 1970	15
Additional supply of trained workers needed by 1970	197

Bricklayers work for construction firms laying brick, terra cotta, hollow tile, and similar building block, except stone and marble, to construct walls, partitions, arches, fireplaces, chimneys, smokestacks and other structures.

This is an apprenticeable occupation requiring four years of training to reach the journeyman status. Training output through formal channels is anticipated at only 15 by 1970, indicating an acute shortage unless the training programs are accelerated.

Henderson County employers currently report no workers in this occupation, but indicate a need for two by 1970 to fill the needs in durable goods manufacturing.

CARPENTER

Total employed, December 1965	434
Demand by December 1970, for expansion	187
Demand by December 1970, for replacements	270
Total Needed	457
Supply from training sources by 1970	48
Additional supply of trained workers needed by 1970	409

In this area, about 94 per cent of the carpenters currently are employed in construction and this same ratio will be maintained through 1970.

The four-year formal apprenticeship training program operating in the Evansville area is expected to provide 48 journeymen carpenters by 1970, which will fall far short of employers' anticipated demands. However, an undetermined number of carpenters are trained on informal on-the-job instruction. As in most other areas, this does not begin to supply the need during peak construction periods.

Henderson County estimates indicate a requirement of 46 additional carpenters by 1970, all for growth needs.

CEMENT FINISHER

Total employed, December 1965	151
Demand by December 1970, for expansion	28
Demand by December 1970, for replacements	0
Total Needed	28
Supply from training sources by 1970	14
Additional supply of trained workers needed by 1970	14

Cement finishers are employed in construction, and are subject to the same fluctuating needs as other seasonal building trades workers. However, contemplated expansion of the building industry will result in the need for additional workers in this occupation by 1970.

The recommended source of supply is from the three-year formal apprenticeship program which is expected to provide 14 fully qualified workers in the next five years. However, many do acquire skills through informal on-the-job training.

Henderson County employers did not report on this occupation.

PAINTER

Total employed, December 1965.....455
Demand by December 1970, for expansion.....36
Demand by December 1970, for replacements.....270
Total Needed.....306
Supply from training sources by 1970.....76
Additional supply of trained workers needed by 1970.....230

About 90 per cent of the painters employed in the area are working in construction; the balance work in maintenance in large establishments.

A reported supply of 76 will be available from a three-year apprenticeship training program. An undetermined number will also receive training informally on the job in this skill.

There were no responses from Henderson County in this occupation.

PLUMBER

Total employed, December 1965.....167
Demand by December 1970, for expansion.....6
Demand by December 1970, for replacements.....5
Total Needed.....11
Supply from training sources by 1970.....21
Additional supply of trained workers needed by 1970.....0

Approximately 90 per cent of the plumbers currently employed in the area are working in construction, and the remainder work in large manufacturing firms and private and public hospitals.

The reported supply anticipated from formal five-year apprenticeship programs in the area will exceed the reported predicted needs by 1970 by 10. However, since there is a shortage of workers available during the peak building season, any excess of trained people will readily find employment out of the area if necessary, as there is a general shortage of skilled construction craftsmen.

There was no response from Henderson County firms in this occupation.

STATIONARY ENGINEER

Total employed, December 1965.....115
Demand by December 1970, for expansion.....29
Demand by December 1970, for replacements.....50
Total Needed.....79
Supply from training sources by 1970.....0
Additional supply of trained workers needed by 1970.....79

According to the employers' responses, about 46 per cent of the stationary engineers in the area are employed in manufacturing firms, operating, maintaining,

checking and recording the performance of the plant equipment for which they are responsible.

Many of the entrants to this occupation begin as helpers or as craftsmen in related fields and acquire the needed skills through informal on-the-job instruction. Formal apprenticeship training is recommended but no program is reported for this area.

All of the expansion needs are anticipated in Henderson County in this occupation.

MILLWRIGHT

Total employed, December 1965	147
Demand by December 1970, for expansion	55
Demand by December 1970, for replacements	55
Total Needed	110
Supply from training sources by 1970	54
Additional supply of trained workers needed by 1970	56

Millwrights move, repair, and install heavy industrial machinery and other equipment using a wide variety of tools and equipment requiring highly skilled manipulative techniques. They work in factories and for construction firms.

Training in the occupation is given through informal on-the-job instruction or through the formal apprenticeship training program. High school courses in machine shop which are offered locally in both day and evening courses are helpful. The anticipated supply of trained workers will come mostly from the apprenticeship program; however, only about half of the anticipated demand will be filled.

Henderson County estimates show 45 currently employed in the occupation. By 1970, six additional workers will be needed and replacements are estimated at 30.

AUTO MECHANIC

Total employed, December 1965	796
Demand by December 1970, for expansion	304
Demand by December 1970, for replacements	185
Total Needed	489
Supply from training sources by 1970	22
Additional supply of trained workers needed by 1970	467

In terms of numbers employed in the area, this is the largest of the skilled occupations surveyed, and a growth rate of 38 per cent is anticipated by 1970.

Most auto mechanics acquire their skills in an informal manner, although there is a formal four-year apprenticeship program in operation in Evansville which is expected to provide 22 fully-qualified workers by 1970. Other sources of supply are day and evening high school instruction, informal on-the-job training given by experienced mechanics, and an MDTA training course currently in progress in Henderson. By 1970, 220 workers will be available from local high schools; however, there is no indication of how many will enter the occupation locally. These courses are helpful, but usually do not meet the qualifications required by most employers who have the greatest demand for advanced skills in transmission and engine repair.

Employers in Henderson County are expected to require 90 additional mechanics by 1970 to meet their anticipated employment level of 203. An estimated 2 per year will be needed for replacements.

ELECTRONICS TECHNICIAN

Total employed, December 1965	197
Demand by December 1970, for expansion	3
Demand by December 1970, for replacements	28
Total Needed	31
Supply from training sources by 1970	696
Additional supply of trained workers needed by 1970	0

The supply of electronics technicians in training in the area will far exceed the local demand by 1970. This anticipated surplus of trained technicians will undoubtedly find jobs out of the Evansville labor market. The training facility in Evansville which will provide qualified technicians is an instruction center which draws trainees from out of the locality; many of these will find jobs in other cities.

No estimates can be made for Henderson County since responding employers reported no people employed in this occupation.

MAINTENANCE MECHANIC

Total employed, December 1965	732
Demand by December 1970, for expansion	227
Demand by December 1970, for replacements	175
Total Needed	402
Supply from training sources by 1970	77
Additional supply of trained workers needed by 1970	325

Maintenance mechanics repair and maintain machinery and mechanical equipment using hand and power tools and precision measuring devices. Following blueprints or manufacturers' specifications is usually a necessary part of the job.

Local high schools offer courses in both day and evening adult sessions related to the occupation; however, the formal four-year apprenticeship program and on-the-job informal training are the primary sources of skilled workers. Acceleration of the present training programs will be needed to fill the demand by 1970.

Henderson County employers reported 88 currently employed in this occupation with a projected demand for 41 additional trained workers to fill expansion and replacement needs by 1970.

FOREMEN

Total employed, December 1965	532
Demand by December 1970, for expansion	164
Furniture Manufacturing	21
Fabricated Plastics Products	33
Construction	110
Demand by December 1970, for replacements	220
Furniture Manufacturing	55
Fabricated Plastics Products	30
Construction	135
Total Needed	384
Supply from training sources by 1970	10
Additional supply of trained workers needed by 1970	374

In addition to a knowledge of production operations, foremen need the ability to supervise workers and to perform departmental administrative functions. Skill in the occupation supervised is needed and the normal procedure is for skilled workers in the occupation to be promoted to foremen after a number of years experience.

Foremanship and supervisory training courses are offered in the local high school adult evening sessions. In addition, courses in woodworking and in the construction occupations are offered. Apprenticeship training in construction crafts is also in operation.

In Henderson County there will be additional needs for 101 foremen by 1970, with more than half of these projected requirements in the furniture manufacturing industry.

SEWING MACHINE OPERATOR

Total employed, December 1965	862
Demand by December 1970, for expansion	292
Demand by December 1970, for replacements	680
Total Needed	972
Supply from training sources by 1970	108
Additional supply of trained workers needed by 1970	864

Sewing machine operators, who are employed in the area in manufacturing industries, are among the most numerous of the semiskilled occupations surveyed. Nearly 56 per cent of the additional needs by 1970 will be in the apparel and related manufacturing group. Replacements are very high because of the large number of women in the occupation who may not be permanently attached to the area work force. The seasonal nature of some of the employing industries may also be a factor influencing the replacement rate.

The source of most of the production-type workers is usually short-term on-the-job training which, according to employers, is expected to produce 108 trained people by 1970. Much of the additional shortage will be filled by re-entry of previously qualified women workers to the labor market.

Just over 22 per cent of the area's sewing machine operators are employed in Henderson County. An additional 117 workers will be needed for expansion needs and 430 additional for replacements by 1970.

DOUBLE-END-TENONER OPERATOR

Total employed, December 1965	29
Demand by December 1970, for expansion	5
Demand by December 1970, for replacements	20
Total Needed	25
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	25

All of the workers in this occupation are employed in the area's furniture and fixture manufacturing firms.

There is no formal training planned in this occupation, but familiarity with woodworking equipment is helpful for entry. General wood shop training is offered in the evening adult sessions in the area, while specific machine operation is usually given on the job.

All of the expansion needs of 5 additions by 1970 for the whole area in the occupation are anticipated by Henderson County employers. Needs for replacements will require another 10 trained people. Over 60 per cent of the area workers were reported in the Kentucky county.

MACHINE OPERATOR, GENERAL (WOODWORKING)

Total employed, December 1965	210
Demand by December 1970, for expansion	38
Demand by December 1970, for replacements	135
Total Needed	173
Supply from training sources by 1970	77
Additional supply of trained workers needed by 1970	96

Workers in this occupation have well-rounded skills on a variety of woodworking machines which bore, shape, groove or corrugate wooden articles in a production shop.

On-the-job training courses and woodworking shop courses in the evening adult high school sessions will yield about 77 trained men by 1970, leaving a net need of 96 workers to be trained.

Nearly 23 per cent of the area's current employment in the occupation is in Henderson County. It is estimated that 23 additional workers will be needed for expansion requirements, but no need for replacements is reported.

MOLDER OPERATOR (WOODWORKING)

Total employed, December 1965	60
Demand by December 1970, for expansion	2
Demand by December 1970, for replacements	10
Total Needed	12
Supply from training sources by 1970	2
Additional supply of trained workers needed by 1970	10

Workers in this occupation set up, maintain and operate the woodworking units required for shaping and profiling production runs of wood products.

On-the-job training will provide only two workers who will complete employer programs in the next five years. Wood shop courses offered in evening adult classes in local high schools are also available.

Henderson County employers will need five additional operators by 1970 for growth needs. The apparent discrepancy between the reported total area expansion needs of two men and the Henderson needs of five is due to one furniture firm in Vanderburgh County which plans a reduction in force.

MACHINE OPERATOR, GENERAL (MACHINE SHOP)

Total employed, December 1965	114
Demand by December 1970, for expansion	34
Demand by December 1970, for replacements	85
Total Needed	119
Supply from training sources by 1970	31
Additional supply of trained workers needed by 1970	88

These semiskilled operators perform the various machine operations on a variety of products, usually in metalworking plant production. Area employment, based on employer responses, is estimated at 114. In the next five years, 119 additional workers will be needed, 34 to take care of expansion and 85 for replacements.

Most machine operators learn their skills on the job; however, none of the area employers reported this type of in-plant program in progress. High schools offer courses in machine shop in both day and evening programs. In addition, an MDTA training program in this occupation is in operation in Evansville with 31 expected to complete training.

Ten of the workers in this occupation are employed by Henderson County manufacturing firms. These employers have indicated no additional worker needs by 1970, for either expansion or replacement.

PUNCH PRESS OPERATOR

Total employed, December 1965	420
Demand by December 1970, for expansion	152
Demand by December 1970, for replacements	130
Total Needed	282
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	282

These workers operate power presses in manufacturing industries to punch holes or make stampings from various materials.

Nearly 58 per cent of those employed in the Evansville area work in electrical and nonelectrical machinery manufacturing industries and 63 per cent of the training needs by 1970 will be there. Another 35 per cent are employed in fabricated metals industries with 34 per cent of the future needs also anticipated there.

On-the-job training of workers with the necessary aptitudes is the usual source of supply for the occupation, but employers have reported no in-plant program planned at this time. The punch press is one of the machines for which training is included in the machine operator, general course in the Evansville program under MDTA.

Henderson County estimates show 67 punch press operators currently employed in manufacturing industries. Anticipated growth will require ten additional trained workers and replacements another 25 by 1970.

INJECTION-MOLDING-MACHINE OPERATOR

Total employed, December 1965	434
Demand by December 1970, for expansion	182
Demand by December 1970, for replacements	445
Total Needed	627
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	627

These operators set up and tend one or more injection molding machines that mold thermoplastic materials.

No training programs to take care of future worker needs are reported by these manufacturing firms; however, on-the-job training in the occupation is provided by employers as the need arises. Mechanical aptitude and manual dexterity are required for trainees, and machine shop courses offered in local high schools are helpful.

Henderson County employment in this occupation is estimated at 173 for December 1965. By 1970, 127 more will be needed with 62 to take care of expansion and 65 to provide for replacements.

MACHINE OPERATOR, PLASTICS

Total employed, December 1965	172
Demand by December 1970, for expansion	91
Demand by December 1970, for replacements	135
Total Needed	226
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	226

Workers in this occupation perform shaping, finishing and assembly operations on plastic components utilizing a variety of machines modified for use with plastics.

No specific source of supply through formal or informal programs is indicated by area employers. However, the machine shop courses offered in the local high schools help qualify entrants for jobs in this occupation.

Henderson County employers report the need for only one additional trained worker in this occupation by 1970.

PAINTER, SPRAY

Total employed, December 1965	251
Demand by December 1970, for expansion	106
Demand by December 1970, for replacements	145
Total Needed	251
Supply from training sources by 1970	8
Additional supply of trained workers needed by 1970	243

About 83 per cent of these workers in the area are employed in production spray painting in manufacturing industries. The remainder are almost evenly divided between automobile sales and automotive service firms.

Most production painters learn through on-the-job instruction. Employers indicate that only 8 trained workers will be available by 1970 from scheduled in-plant training. However, as the needs arise, the training probably will be provided.

About one-fifth of the area workers were employed in Henderson County in December 1965. By 1970, it is predicted that 38 additional workers will be required in the Kentucky county to meet growth and replacement needs...

ROUTEMAN

Total employed, December 1965	481
Demand by December 1970, for expansion	200
Demand by December 1970, for replacements	405
Total Needed	605
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	605

The routeman or salesman-driver sells and delivers products over a specified route to customers of wholesale or retail firms, or to established automatic vending stations.

Most companies provide on-the-job training as needed for the occupation to applicants with the necessary aptitudes and driving skills. No estimates of workers undergoing training are available. High school courses in business subjects are helpful, as is sales experience.

In Henderson County, employers estimate a total need for 114 additional workers in this occupation by 1970.

TRUCK DRIVER, HEAVY

Total employed, December 1965	1,425
Demand by December 1970, for expansion	548
Demand by December 1970, for replacements	1,300
Total Needed	1,848
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	1,848

This is the largest of the semiskilled occupations surveyed in the area; drivers in this category work in most of the major industrial divisions. These drivers handle rigs with over three tons capacity and usually work on over-the-road assignments.

No specific training programs were indicated by employers. A chauffeur's license is required for entry, and the driver training and automotive mechanics courses offered in local schools would be helpful.

Henderson County employment in the occupation is estimated at 123. By 1970, they will need an additional 148 drivers in this occupation.

TRUCK DRIVER, LIGHT

Total employed, December 1965	1,014
Demand by December 1970, for expansion	220
Demand by December 1970, for replacements	475
Total Needed	695
Supply from training sources by 1970	6
Additional supply of trained workers needed by 1970	689

Light truck drivers operate vehicles with under three ton capacity and work mostly in local delivery work. They work in nearly all types of industry with the heaviest concentrations in transportation, wholesale and retail trade, and in government.

Most area firms reported no formal on-the-job training programs. Driver education and auto mechanics training courses are given in high schools locally.

Employment in the occupation in Henderson County is estimated at 113 for December 1965. Demand for additional workers will be 134 by 1970 to handle expansion and replacement requirements.

AUTOMOBILE SERVICE STATION ATTENDANT

Total employed, December 1965	132
Demand by December 1970, for expansion	22
Demand by December 1970, for replacements	165
Total Needed	187
Supply from training sources by 1970	0
Additional supply of trained workers needed by 1970	187

Automobile service station attendants are usually required to do minor repair work in connection with their duties involved in servicing cars. Replacement rates are high partly due to the fact that many students work in this occupation while in school and change occupations when their schooling has been completed.

No formal on-the-job training program was reported by employers in the area; however, training in auto mechanics is given in the local high schools.

There was no response from Henderson County employers in this occupation.

METHODOLOGY

Evansville area employers were asked in December 1965 to provide information on their future employment demand, their company training programs, and to determine if a need for training exists in 88 pre-selected occupations considered important in the labor market area. Present employment totals and estimated worker needs in two and five years were requested from the sampled employers to project the overall employment demand in 1967 and 1970. At the same time that data on current employment and anticipated two- and five-year demands in each of the pre-selected occupations were sought from employers, information was obtained from the area's training facilities about the output of trainees in these occupations.

Since it would have been nearly impossible to explore all occupations in the area, it was necessary to limit the study to those occupations considered most significant. Occupations studied were chosen because of known or suspected shortages, because they accounted for large numbers of workers, or because they were thought to be either increasing or decreasing in importance in the area. All required some form of specialized training for entry.

Employers were selected for survey from a listing by industry and size group of all firms covered by the Indiana Employment Security Act 1/ in the Evansville area. Vanderburgh and Warrick Counties in Indiana, and Henderson County in Kentucky make up the area. To the above-covered employer sample, the largest non-covered establishments in the three counties were added.

Individual employer responses were edited, classified and tabulated by industry and size group and expanded to area industry group totals. Employment needs in the occupations were inflated in the same manner. However, because the 88 surveyed occupations represent only about 48 per cent of the current employment in all occupations, the industry projections and the individual occupational demands will not show the same rate of growth.

In preparing the sample, a representative spread of Henderson County firms was selected in order that projections could be made for industry in this county alone. However, response was spotty, and though projections could be made in the major industrial categories, coverage in several of the surveyed occupations was incomplete because of the poor response rate in certain Henderson industries.

Response from the larger manufacturing firms in the area was very good, with few exceptions. One large firm did not complete the survey forms and indicated that their future plans in the area were too uncertain to make any predictions. In the intermediate and small-size manufacturing firms the response rate was less dramatic than in the larger establishments. Initial replies from nonmanufacturing firms were somewhat meager when compared with the returns from manufacturing. For nonrespondents, substitutions of firms in the same size and industry groupings were made, so that the employer sample would remain representative of the total area array. The resultant response from follow-ups and substitutions was satisfactory for the total area, but remained less representative for certain industry categories in Henderson.

1/ *Firms subject to the Act include those which employ four or more workers in any twenty weeks of a year. Excluded from coverage are agriculture, railroads, government and domestic help and casual labor. In general, about three-fourths of nonfarm employment is covered, including about 96 per cent of manufacturing but a smaller percentage of nonmanufacturing.*

COMPANY TRAINING PROGRAMS

Employers were asked to identify the occupations in their establishments for which company training programs were conducted and to indicate whether or not these programs were adequate to fill their needs for workers.

Nearly all of the responding employers reported some type of existing company training program; however, only about half were of the formal type relating to specific occupations. Orientation training in one form or another is common in firms of practically all sizes and industry groups. The more formal type of occupational training is conducted in firms in the employment size group of 100-and-over more often than in smaller size firms. Some employers offer reimbursement for courses taken in outside training facilities but the most common types are on-the-job formal training in many of the apprenticeable occupations, or company training courses in skills directly related to job performance.

More than half of the responding employers indicated that their existing training programs were adequate to fill the needs for which they were designed; however, there were some notable exceptions. Occupational training courses which were considered inadequate to meet employers' needs were primarily in the machine trades in the skilled and semiskilled categories. Most often mentioned were tool and die-makers, machinists, sheet metal workers, electricians and electrical repairmen, auto mechanics and sewing machine operators. Also frequently mentioned were engineers and supervisory personnel in the professional category and restaurant workers in the service industries.

No attempt was made to analyze the reasons for the inadequacies of company training facilities. Failure to establish these programs may have resulted from a variety of factors; the assumption is made that a combination of reasons was operating: For some smaller firms training programs may not be economically feasible; and in others, facilities for training are not available on the premises. In some larger firms, top management personnel may have been slow to realize the gravity of the labor market situation with respect to many key skilled occupations. Others have experienced difficulty in locating suitable qualified trainees who would accept apprenticeship training.

APPENDIX III
STATE TABLE

DISTRIBUTION OF 1965 EMPLOYMENT AND PROJECTED EMPLOYMENT BY OCCUPATIONAL AND INDUSTRY DIVISION, 1965 AND 1970 1/
(In Thousands)

Industry \ Occupational Group		Total	Prof., Tech. & Kindred	Farmers & Farm Mgrs.	Mgrs., Off'ls. & Propr. Except Farm	Clerical & Kind.	Sales Workers & Kind.	Craftsmen, Foremen & Kindred	Operatives & Kind.	Private Hshd. Workers	Serv. Wkrs. Exc. Priv. Hshd.	Farm Laborers & Foremen	Laborers, Except Farm
Agriculture	1965	70	1	50		–	–	–	–		–	17	
	1970	56	1	41		–	–	–	–		–	12	
Mining & Quarrying	1965	8	–		–	–	–	2	4		–		–
	1970	7	–		–	–	–	2	4		–		–
Construction	1965	102	4		10	5	–	56	10		–		16
	1970	102	4		10	5	–	57	10		–		15
Manufacturing: Durable Goods	1965	532	36		17	53	5	127	252		10		31
	1970	587	48		20	62	6	148	265		13		25
Manufacturing: Nondurable Goods	1965	180	11		10	22	15	30	80		4		9
	1970	184	14		10	23	16	31	77		4		8
Trans., Comm., & Utilities	1965	112	4		9	27	1	25	36		2		7
	1970	109	5		9	26	1	24	35		2		6
Wholesale Trade	1965	56	1		12	12	12	5	10		–		3
	1970	61	2		13	14	13	5	11		–		2
Retail Trade	1965	287	5		47	38	78	25	29		51		14
	1970	301	6		49	39	81	26	31		56		14
Fin., Insurance, & Real Estate	1965	68	2		13	33	14	1	–		3		1
	1970	75	3		14	36	15	1	–		3		1
Public Administration	1965	69	8		9	29	–	3	2		15		2
	1970	74	10		9	30	–	3	2		17		2
Service & Misc.	1965	386	138		16	48	3	24	23	38	89		7
	1970	470	185		19	55	3	28	26	42	103		8
TOTAL OCCUPATIONAL DEMAND	1965	1,866	212	50	144	269	129	297	446	38	174	17	90
	1970	2,025	279	41	154	293	136	325	461	42	200	12	81
NUMBER CHANGE IN OCC. DEMAND	1965–70	+ 158	+ 68	– 10	+ 10	+ 24	+ 8	+ 28	+ 15	+ 4	+ 26	– 5	– 10
PER CENT CHANGE IN OCC. DEMAND	1965–70	+ 8	+ 32	– 19	+ 7	+ 9	+ 6	+ 10	+ 3	+ 10	+ 15	– 27	– 11

1/ High Set: GNP 4% rate and trend rates increased 10%.

Note: Numbers are census type and therefore differ from establishment data shown on Table I. Dashes indicate less than one thousand.

Detail may not add to totals shown due to rounding.

Source: Indiana Manpower Trends to 1975 (Preliminary).

VT 003 230

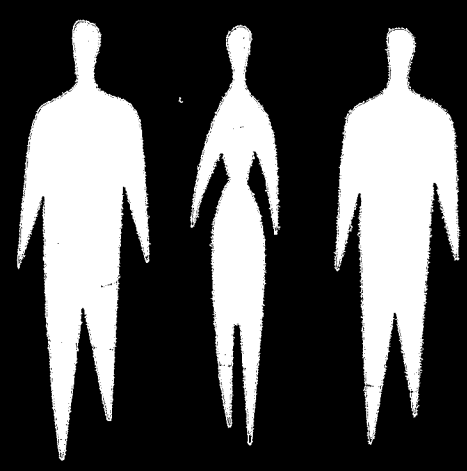
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Assessing Educational Requirements for Skillpower.

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ONTARIO; CANADA

The results of a survey of five manufacturing firms and three service businesses employing 28,500 persons to assess the educational requirements for skillpower between 1965 and 1970 were presented for their value in indicating trends only. Some findings were: (1) The total of 1,188 employees who were university graduates with a first degree was projected to increase to 1,510 by 1970, (2) 497 post-secondary and technical high school graduates were employed in 1965 with a projected increase of 700 by 1970, (3) A sharp increase in demand for graduates of technological institutes was indicated in the skilled tradesman classification, and (4) Semi-skilled operatives constituted 11.5 percent of the total employment in both years with the number of high school graduates increasing from 10 percent in 1965 to 43 percent in 1970. Conclusions included: (1) The work force of the companies is expected to increase about 20 percent faster than the growth of the national labor force from 1965 to 1970, (2) Accompanying the predicted growth is a radical upgrading of educational qualifications, and (3) Because economic activity and demand for skills vary in each area or community, data from this study can only indicate trends. The survey instrument is included. (WB)

ED027441



Assessing Educational Requirements For Skillpower

A look at how five manufacturers
and three service businesses in Ontario
view the educational requirements
of their 28,500 employees
between 1965 and 1970

• a Report of the Ontario Economic Council, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Foreword

ONTARIO'S greatly accelerated post-war investment in education has been termed the "greatest gamble ever taken by the province's taxpayers."

It has been a multi-billion dollar bet based on the odds that higher standards of educational achievement normally lead to higher standards of both individual and national productivity and to a readier attainment, individually and collectively, of desirable social goals.

To the great majority of the citizenry, the gamble seems to have been a justifiable one. Public criticism of ballooning educational budgets has not been widespread. There have, on the other hand, been attacks on governments at all levels for their alleged failure to remove any remaining financial barriers to further schooling.

Only comparatively recently, however, have attempts been made to relate forward skill supply and demand over a period of time adequate to allow for even minor curricular revisions. And there has yet to be evolved a formula which will permit a productivity evaluation related to specific areas of educational investment.

As we continue to increase the proportion of our tax dollars going into what is sometimes referred to as "human resource development", more precise criteria of measurement will not only be needed but demanded. But the complexity of the problem, let alone its solution, can hardly be overemphasized.

Even if one were able to assess accurately, for example, the number of lawyers required in Ontario a decade hence, what assurance would we have that some substantial percentage of those who graduate in law, or even who are called to the bar, would not find greater personal satisfaction in allied but different callings? How many graduate nurses will actually be available to our hospitals? How many professional foresters will be directly involved in woods management?

Matching supply and demand at even the elementary skill level assumes a degree of control over the disposition of human resources which would be repugnant to many of the people who now call for governmental projection and planning in depth and detail.

Yet much more can and must be done, and this study, similar to one undertaken by the Economic Council of Canada, samples some of the problems and potentials of forecasting skill demand.

Because of the general unfamiliarity within industry and commerce with skill demand forecasting — an unfamiliarity, incidentally, which is at least

Foreword
(Continued)

equalled within the public sector — only a relatively small number of companies participated in this test audit.

The eight firms, employing 28,500 persons, were, moreover, far from typical in that only two had less than 1,000 employees and each had relatively highly developed personnel departments and policies.

Despite this fact, to most of those who were asked to carry out the skill survey in each company, it was both an unfamiliar and somewhat irksome task, especially at a time of practically universal skill shortages. Yet, when concluding the submissions, each firm reported that it had found the project both informative and useful in the development of its own policies.

It may well be that some day we will find it wise to invest as much time and money in taking stock of human resources as in taking inventory of materials.

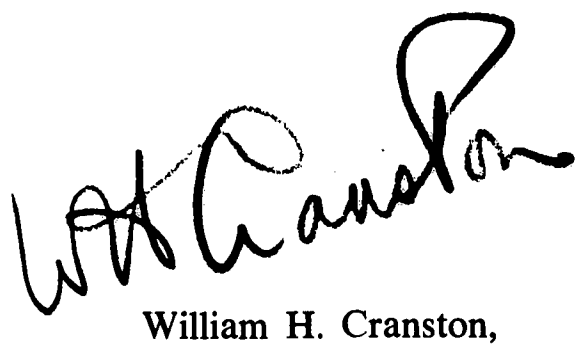
One can find satisfaction in the employment growth trends forecast. They exceed by 20% that called for by the Economic Council of Canada.

One can appreciate the increasing emphasis on academic achievement and vocational training within the school system which characterized the demand forecasts of almost all participating companies. At the same time one cannot help but wonder whether the growing trend toward using secondary school graduation as an almost universal condition of entry into even the relatively unskilled labour classifications is entirely realistic, and whether an academic or vocational certificate can be so fully substituted for what may be somewhat more onerous but more proven methods of evaluating motivation, initiative and ability.

It is evident, however, that even if one may question at times the total validity of the concept, there is likely in the next decade to be a substantial measure of employment discrimination in favour of those young men and women who have completed secondary schooling. And the opportunities for those who have taken some measure of post secondary technological or trades training appear to be expanding more rapidly than those of any other segment of the work force.

This is but one of a number of studies in the area of skill demand forecasting which are planned by the Ontario Economic Council, in co-operation with other provincial and federal agencies and departments. We trust that these findings will make some contribution toward our economic growth and prosperity.

To those firms and their staffs whose efforts made this report possible, we extend our sincere thanks.



William H. Cranston,
Chairman.

September, 1966.

Terms of Reference

Following conversations between the Economic Council of Canada and the Ontario Economic Council, this study was initiated in the late summer of 1965. Its objectives and procedures followed the lines set out for the larger, nation-wide study by the Economic Council of Canada.

Thus, in addition to the benefits of cross-verification of developed trend data, it was possible to avoid overlap in the field.

An informal review of final results indicates a high degree of agreement in the two studies.

Size and Scope of Survey

Because no such survey had been previously attempted, there was no recorded experience to serve as a guide to procedure. The selection of companies, their size, the nature of their operations or their location in no way represent a valid sample. It is for this reason that the results summarized here are reported for their value as *trends only*.

Eight Ontario-based companies participated. Five were manufacturing enterprises; three were service businesses. One of the latter was an insurance company, and one a national bank.

The total of employees represented in 1965 was about evenly divided between the two groups. Only two of the companies had fewer than 1,000 employees.

Summary and Comment

Despite the many shortcomings in selection, the data reveal clear and consistent trends.

From 1965 to 1970 the companies in the sample expect their work-force to grow about 20% faster than the growth of the national labour force for the period as forecast by the Second Annual Review of the Economic Council of Canada.

Accompanying that growth is a radical upgrading of educational qualifications. Most marked in this respect are the projected increases (in the area of 70%) in the employment of university post-graduates and of graduates of technological institutes, and projected increases of 50% in the personnel from technical high schools.

Manufacturers in the test group project a much greater rate of employee growth than the service businesses, 28% as opposed to 8%; and almost triple the demand with grade 12 or higher. (It should be noted, however, that much of the postwar growth in service businesses has taken place, and will continue to take place, in units employing substantially fewer persons than the firms represented in this sample.)

There is also a surging demand for persons with secondary-school educations in semi-skilled and labouring-type occupations.

The relative lack of demand among the companies in the test group for trade-school graduates is quite possibly misleading. There were no small businesses in the test group, no construction companies, and no retailers or wholesalers. Such organizations are substantial employers of such graduates.

Because the economic activities of each area or community vary, with resultant variations in the demand for skills, such studies as this can only provide trend data related to the region or regions within which the companies surveyed are located.

Total Employment Demand Projection

In the table below are recorded the 1965 and 1970 employment data for the test group of companies, classified under four educational qualifications.

The overall trend to the employment of more and more persons with advanced and specialized qualifications is evident, as is also the shrinkage of opportunity for those without secondary schooling.

Despite the important increases in groups A and B, the numbers represented (1002 more employees) are much fewer than the 5024 additional persons in Group C with secondary school education, though the growth rate in this latter group (29%) is somewhat lower.

Possibly most impressive is the fact that the number of employees of these companies with employment qualification of high school graduation or better is expected to grow by more than 6,000 — an increase of 30.5% over 1965.

EDUCATIONAL PROJECTION	1965 Total Employment	1965 % of the Whole	1970 Total Employment	1970 % of the Whole	% Increase 1970 over 1965
A. UNIVERSITY GRADUATES	1,298	4.5	1,728	5.2	+33.1
Technical & Scientific	921	3.2	1,193	3.6	+29.5
All Other	377	1.3	535	1.6	+41.5
B. POST HIGH SCHOOL	1,421	4.9	1,993	5.9	+39.5
Technological Inst.	353	1.2	717	2.1	+103.1
All Other	1,068	3.7	1,276	3.8	+19.5
C. SECONDARY SCHOOL GRADUATES	17,019	59.8	22,043	65.9	+29.0
Technical High School	1,470	5.2	2,606	7.8	+77.3
Regular High School	15,227	53.5	19,073	57.0	+25.3
Vocational or Trade	322	1.1	364	1.1	+13.0
D. NON-HIGH SCHOOL	8,770	30.8	7,708	23.0	−12.5
Vocational or Trade	81	0.3	92	0.3	+13.6
All Other	8,689	30.5	7,616	22.7	−12.5
		100.0		100.0	
Total	28,508		33,472		+17.4

Major Trends All Employees

In the table on page 7 were shown trend figures for each of four general educational classifications.

Chart 1 opposite this page spells out further the educational qualifications demand within those four groups.

University graduates with a first degree numbered 1,188 in these eight companies in 1965; the 17 per cent average growth would have indicated 202 additional people. The forecast of 322 additional is thus quite limited in contrast with the 108 employees with post-graduate degrees sought, where only 110 were employed as of 1965.

Equally strong is the demand for graduates of the technological institutes in comparison with "all other" post-high school training.

The requirement for high school graduates is strong (7% beyond the average 17% growth rate) but is overshadowed by the heavy projected requirement for technical high school graduates.

Complementary to all of the above is the major shrinkage in skilled personnel with non-high school or undertermined qualifications, an actual reduction in the five years of over 1,650 persons.

High School Graduates

High school graduates appear in both 1965 and 1970 in all occupations from labour up to and including administrative. All high school graduates are grouped together in Chart 1; in all succeeding charts they are shown only against their specific occupational classifications.

Vocational or Trade School

Because graduates of vocational schools are drawn into service industries and construction — and in particular into many varieties of smaller businesses, including the distributive trades — there was little reflection of this demand in the trial group reported here.

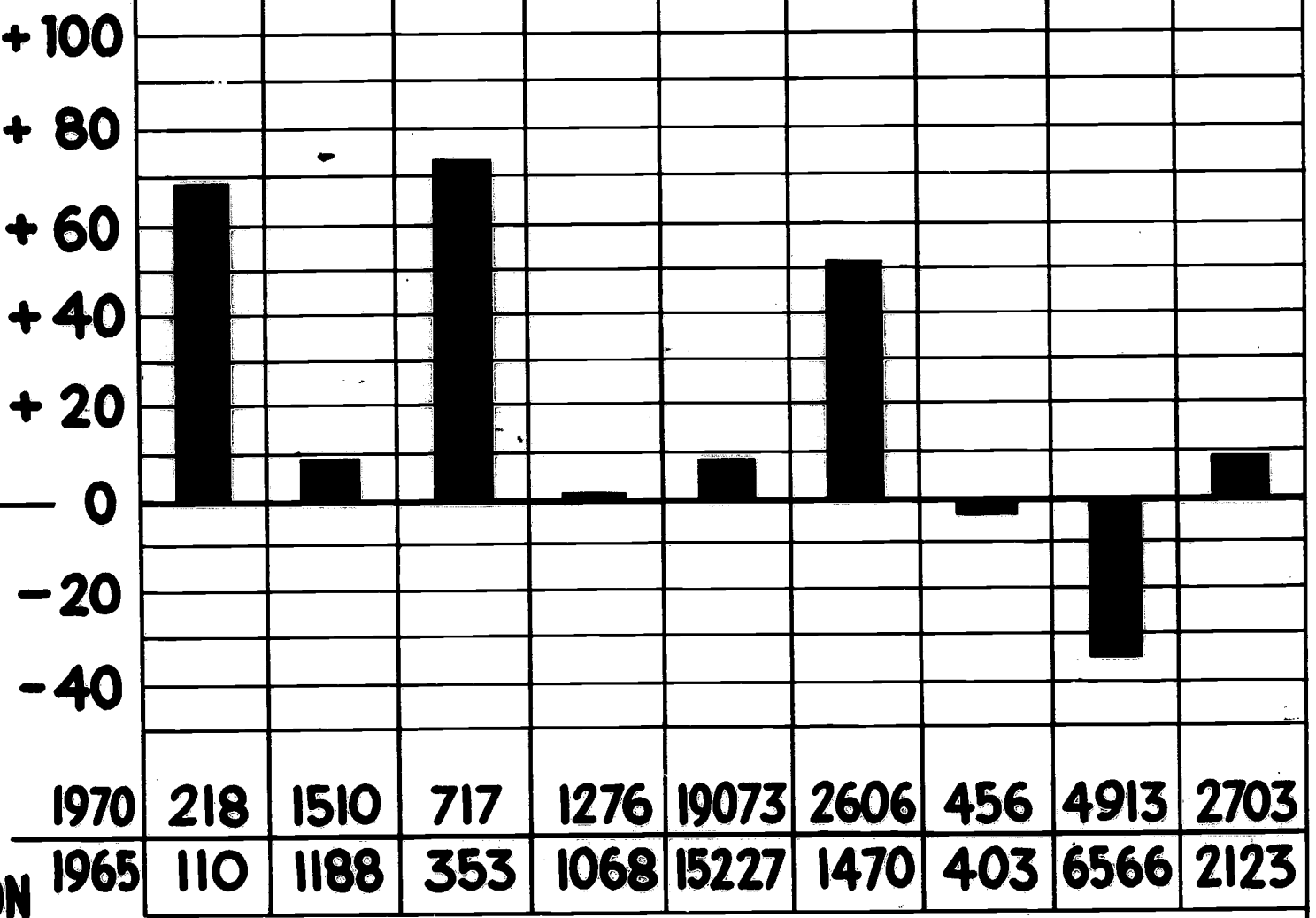
The projected demand for trade-school graduates may thus be much underestimated.

CHART 1

EDUCATIONAL QUALIFICATIONS ...all employees

UNIVERSITY POST-GRADUATES AND TECHNOLOGICAL INSTITUTE GRADUATES INCREASE BY AS MUCH AS 73%* IN TEST GROUP, NON-HIGH SCHOOL DECLINE BY 36%*

	UNIVERSITY		POST HIGH SCHOOL		HIGH SCHOOL & SKILLED				NO EDUC. QUALIF'N.
	POST GRAD.	FIRST DEGREE ONLY	TECHNO-LOGICAL INST.	ALL OTHER	HIGH SCHOOL	TECH. HIGH	TRADE SCHOOL	NON-H.S. OR UNDET.	SEMI-SKILLED AND UN-SKILLED
1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM	+69	+9	+73	+2	+7	+52	-3	-36	+9
EMPLOYEES EACH QUALIFICATION 1970	218	1510	717	1276	19073	2606	456	4913	2703
EMPLOYEES EACH QUALIFICATION 1965	110	1188	353	1068	15227	1470	403	6566	2123



	TOTAL	% INCREASE by 1970
1970	33,472	
1965	28,508	+17.4

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

Growth Rates by Occupation and Educational Requirement

Charts I through X reflect the trends of both occupational and educational requirements.

The following points should be noted:

— the average total employment growth rate of 17% shown in the table on page 7 has been taken in all charts as the norm for comparative purposes. Thus percentage changes in Charts I through X are only those percentages in excess of, or short of, 117% of 1965 employment.

— where an occupational group in 1970 is less than 10 persons it has been considered not significant and no trend percentage shown.

Undoubtedly the most significant information conveyed by these charts is the swiftly developing demand for higher educational qualifications.

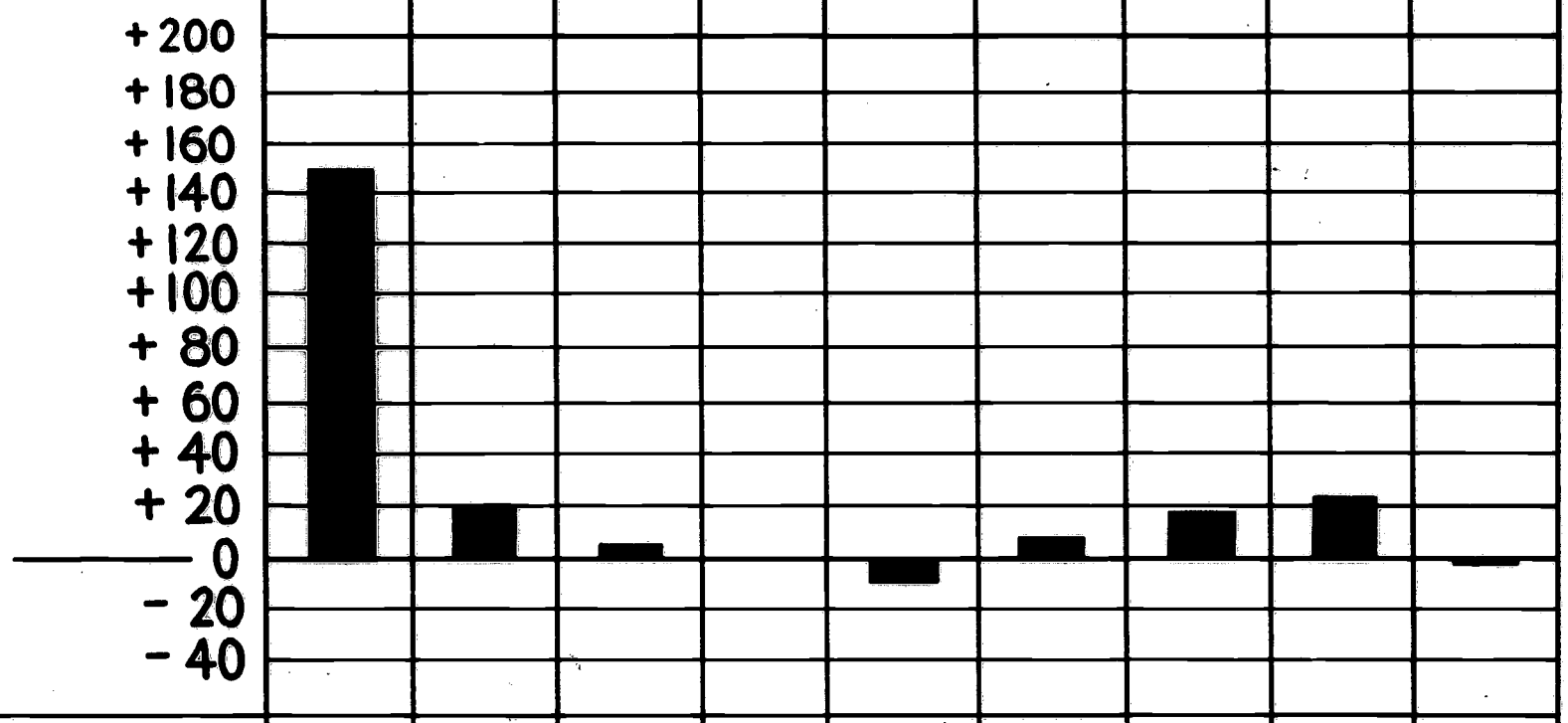
Since the educational base is progressive from right to left in all charts, running from minimal education through high school and post-high school to university post graduate, the prevalence of losses at the right and gains at the left is marked. The pattern is apparent in all ten charts in the six pages.

CHART II

PROFESSIONAL EMPLOYEES

WHILE THE DEMAND FOR POST-GRADUATE ENGINEERS SHOULD RISE BY 152%*, ENGINEERING GRADUATES WITH FIRST DEGREE ONLY ARE EXPECTED TO DROP BY 7%*

1970 vs. 1965 % INCREASE (+) OR DECREASE (−) BEYOND AVERAGE 17% GROWTH NORM ➡



		UNIVERSITY POST-GRADUATE				UNIVERSITY FIRST DEGREE			POST HIGH SCHOOL	HIGH SCHOOL
		ENGINEERS	PHYSICAL SCIENTISTS	OTHER PROFESSIONALS		ENGINEERS	PHYSICAL SCIENTISTS	OTHER PROFESSIONALS		
		+152	+20	+5		−7	+9	+18	+23	−2
EMPLOYEES EACH QUALIFICATION	1970	78	37	39		677	36	103	92	23
	1965	26	26	32		619	28	74	64	20

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

In the Administrative group (Chart III opposite) the increasing demand for persons of advanced or specialized education is progressively more marked as one moves higher on the scale of skills (from right to left on the chart). One exception to the trend stands out in the area of high school qualifications; those coming from the technical high schools are preferred above other courses for administrative and sales responsibilities.

Somewhat surprisingly the Sales group shows the same overall preference as previously noted for university post-graduates, and graduates of the technological institutes and technical high schools.

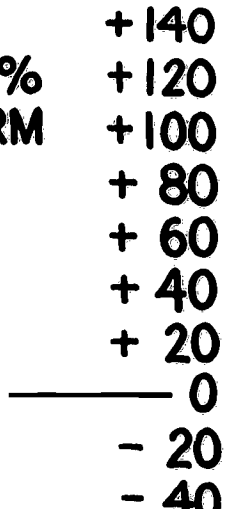
ADMINISTRATIVE AND SALES

THE NUMBER OF POST-GRADUATES IN ADMINISTRATIVE POSTS SHOULD INCREASE BY 127%* BY 1970, BUT PERSONNEL WITH NON-HIGH SCHOOL MAY BE DOWN BY 25%* IN BOTH ADMINISTRATION AND SALES

CHART III

ADMINISTRATIVE

1970 vs. 1965 % INCREASE (+) OR DECREASE (−) BEYOND AVERAGE 17% GROWTH NORM



		UNIVERSITY		POST HIGH SCHOOL		HIGH SCHOOL AND SKILLED			
		POST GRAD.	FIRST DEGREE ONLY	TECHNO-LOGICAL INST.	ALL OTHER	HIGH SCHOOL	TECH HIGH	TRADE SCHOOL	NON-H.S. OR UNDET.
	➡	+127	+15	+43	+1	−11	+14	-8	-26
EMPLOYEES EACH QUALIFICATION	1970	53	283	60	266	1179	225	111	315
	1965	20	210	36	225	1129	168	102	363

CHART IV

SALES

1970 vs. 1965 % INCREASE (+) OR DECREASE (−) BEYOND AVERAGE 17% GROWTH NORM

	➡	+57	+48	+57	+11	+5	+32	-1	-25
EMPLOYEES EACH QUALIFICATION	1970	11	332	55	157	930	95	22	459
	1965	6	192	30	120	754	61	19	524

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

The Clerical group in Chart V shows an extremely heavy concentration of high school graduates. Two companies in the sample had very large clerical concentrations, and this may have produced an over-heavy representation of high school graduates.

While the growth of demand for graduates of technological institutes and technical high schools is noticeable, it is not significant in the overall size of the Clerical Group.

On the other hand, the demand for these two types of graduates is most pronounced in the Technical classification (Chart VI). The number of high school graduates employed in 1965 was 53 and is expected to rise to 68 by 1970. But the employment of post-secondary school and technical high school graduates together was 497 in 1965, and is projected to increase to 700 by 1970.

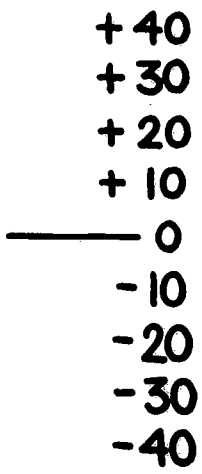
CLERICAL AND TECHNICAL

EMPLOYMENT POTENTIAL FOR THOSE WITH MORE ADVANCED OR SPECIALIZED EDUCATION SHOWS THE SAME PATTERN OF GAINS *

CHART V

CLERICAL

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM.

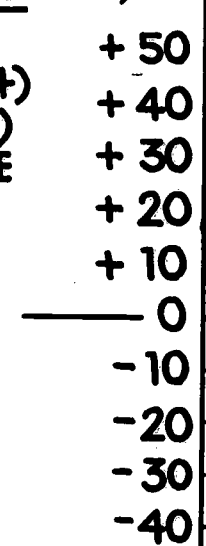


		UNIVERSITY		POST HIGH SCHOOL		HIGH SCHOOL AND SKILLED			
		POST GRAD.	FIRST DEGREE ONLY	TECHNO-LOGICAL INST.	ALL OTHER	HIGH SCHOOL	TECH. HIGH	TRADE SCHOOL	NON-H.S. OR UNDET.
			+3	+24	-2	-5	+11	-20	-23
EMPLOYEES EACH QUALIFICATION	1970		72	45	686	14089	180	77	1925
	1965		60	31	599	12686	138	82	2119

CHART VI

TECHNICAL

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM.



		* *	+34	+7	+10	+15	-4	-30
EMPLOYEES EACH QUALIFICATION	1970	7	247	75	68	378	65	163
	1965	5	157	60	53	280	58	197

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

** GROUPS OF UNDER 10 PERSONS (1970) CONSIDERED NOT SIGNIFICANT.

The sharp increase in the demand for graduates of technological institutes is again noticeable in the Skilled Tradesmen classification (Chart VII) but does not exist in the Skilled Operatives area (Chart VIII). There is however a corresponding heavy demand in the latter classification for technical high school graduates.

Skilled Tradesmen constitute between 3½% and 4% of total employment in both years. In 1965 some 10% received their education in technological institutes; in 1970 it is expected that 25% will come from that source.

Skilled operatives represented 6% of total employees both in 1965 and in the estimate for 1970. Only 24% were high school graduates in 1965; 60% are expected to have graduated from high school in 1970.

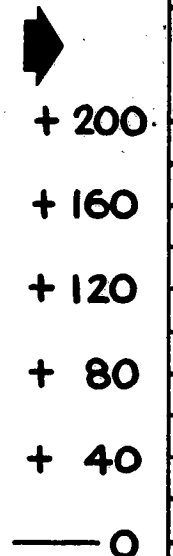
SKILLED TRADESMEN AND SKILLED OPERATIVES

SOME 165* INCREASE FORESEEN IN DEMAND FOR THOSE WITH SPECIALIZED EDUCATION

CHART VII

SKILLED TRADESMEN

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM

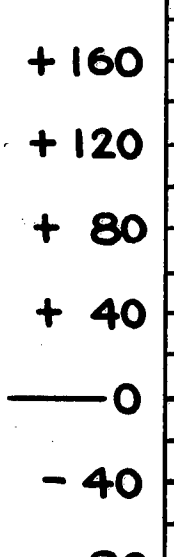


	UNIVERSITY		POST HIGH SCHOOL		HIGH SCHOOL & SKILLED				SEMI-SKILLED OR UNSKILLED
	POST GRAD.	FIRST DEGREE ONLY	TECHNO-LOGICAL INST.	ALL OTHERS	HIGH SCHOOL	TECH HIGH	TRADE SCHOOL	NON-H.S. OR UNDET.	
			+167		+29	-20	+2	-18	
EMPLOYEES EACH QUALIFICATION 1970			310		124	386	169	239	
EMPLOYEES EACH QUALIFICATION 1965			99		82	413	141	249	

CHART VIII

SKILLED OPERATIVES

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM



					**	+180	+	-44	
EMPLOYEES EACH QUALIFICATION 1970					2	1340	11	839	
EMPLOYEES EACH QUALIFICATION 1965					2	408	0	1283	

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

** GROUPS OF UNDER 10 PERSONS (1970) CONSIDERED NOT SIGNIFICANT.

Chart IX (semi-skilled operatives) and Chart X (labourers) contain the most marked changes in the 1970 projection.

Both of these occupations will draw heavily from high school graduates. Semi-skilled Operatives constitute 11½% of total employment in both years, but while only 10% have a high school education in 1965, that figure is projected to rise to 43% in 1970.

Labourers are expected to constitute 7.3% of total employment in 1970, as compared with 4½% in 1965. But the 15% with high school education in 1965 will increase to 40% in 1970.

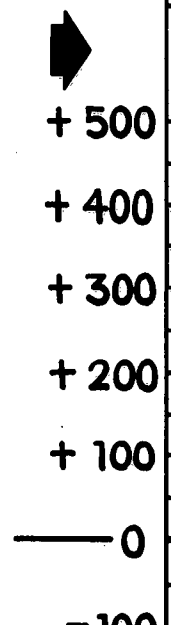
SEMI-SKILLED OPERATIVES & LABOURERS

OVER 300%* INCREASE PROJECTED IN DEMAND FOR THOSE WITH HIGH SCHOOL EDUCATION

CHART IX

SEMI-SKILLED OPERATIVES

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM

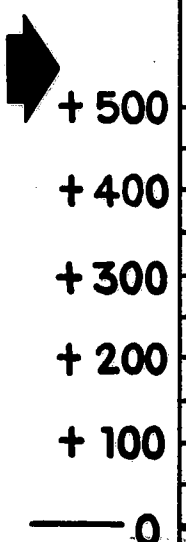


	UNIVERSITY		POST HIGH SCHOOL		SEMI-SKILLED AND UNSKILLED				
					HIGH SCHOOL OR EQUIVALENT				NO QUALIFICATION
	POST GRAD.	FIRST DEGREE ONLY	TECHNOLOGICAL INST.	ALL OTHER	HIGH SCHOOL	TECH HIGH	TRADE SCHOOL	NON-H.S. OR UNDET.	
					+348			-55	+13
EMPLOYEES EACH CLASSIFICATION 1970					1681			967	1235
EMPLOYEES EACH CLASSIFICATION 1965					319			1825	929

CHART X

LABOURERS

1970 vs. 1965 % INCREASE (+) OR DECREASE (-) BEYOND AVERAGE 17% GROWTH NORM



					+358	**	**	**	+5
EMPLOYEES EACH CLASSIFICATION 1970					977	2	1	6	1468
EMPLOYEES EACH CLASSIFICATION 1965					182	2	1	6	1194

* ALL PERCENTAGE INCREASES OR DECREASES ARE NET DEVIATIONS ABOVE OR BELOW 17% GROWTH NORM OF THE TEST GROUP.

** GROUPS OF UNDER 10 PERSONS (1970) CONSIDERED NOT SIGNIFIGANT.

APPENDIX "A"—preliminary letter to prospective participating company

ONTARIO ECONOMIC COUNCIL

950 YONGE STREET
TORONTO 5, ONTARIO

Dear Mr. President:

The Economic Council of Canada in its First Annual Review emphasized the need for further improvement in Canada's manpower policies.

As you know we are presently seriously hampered by a major lack of forward information on skill requirements — particularly for the mid-term future. This gap makes it exceedingly difficult adequately to plan basic educational and vocational training and retraining.

As one step toward obtaining supporting information, the Ontario Economic Council is seeking the co-operation of a number of companies representing a cross-section of commerce and industry. The objective is to determine what occupational trends are likely to evolve over the next five years, primarily in terms of fairly broad occupational groups, and what these trends should mean in terms of future education and technical training.

This study is being conducted by the Ontario Economic Council with a group of Ontario companies in parallel with a similar study initiated by the Economic Council of Canada. In this manner, duplication will be avoided, yet a useful co-relation of results should be achieved.

Messrs. C. H. Van Horne and C. R. Tindal are the members of the Ontario Economic Council staff associated with this project. One or the other will be available as required to explain in detail the information desired. They will also be interested in obtaining background information on future capital expenditure trends or any other major changes which bear upon manpower requirements. It goes without saying that any information which you give them will of course be treated in the strictest confidence. In no case, will any information be identified as coming from any particular company.

It is hoped that from this project there will eventually emerge a closer understanding between business and industry and the governmental authorities who jointly share the responsibility for educating and training.

Could you please advise us the name of the officer in your company with whom contact should be made in discussing details of the proposed survey.

Thank you very much for your help.

Yours very truly,

W. H. Cranston,
Chairman.

APPENDIX "B"—instructions to confirmed participants

The Summary Form (manilla folder) enclosed indicates the manner in which the information from each company should be submitted; it provides for a comparison of your 1965 manpower position with your anticipated requirements for 1970.

Also enclosed is an Annual Form (blue folder) the use of which is optional to the participating company. Some companies prefer to project their 1970 manpower requirements on a year-to-year basis. This form is suggested as a worksheet for such internal purposes.

General Structure of Analysis

These forms have been designed to provide for the cross classification of all employees by education or training on the one hand and by occupational group on the other. The headings across the top of the forms cover the education or training of all employees ranging from those with post graduate university degrees, to unskilled workers where no background training is required. The vertical headings on the left-hand side of the forms classify all employees according to occupational groupings. On the Summary Form, the vertical and horizontal classifications in combination should provide a focus on trends in manpower demands on the educational and training system during the period under study.

Your 1965 figures will, of course, show your present work force classified as to occupational group and the corresponding actual educational or training qualifications where the latter can be determined. Figures for future years should take into account not only anticipated changes in numbers expected to be employed in the various occupational groups but also any changes in the qualifications desired for each.

When forecasting future manpower requirements, please do so on the assumption that adequate supplies will be available in all categories to meet total needs. It is our understanding that at present, some firms are inclined to modify the number of certain types of personnel sought to conform with expectations of available supplies.

It is important to recognize that many of your present personnel will still be on your staff in 1970 even though they may lack the ideal education and/or training you seek in new employees being hired. Consequently, progress over the next five year period towards the ideal eventual qualifications for all employees will be made mainly through additions to your present work force. Nevertheless any significant trends in the educational or training qualifications being sought should be clearly evident for our purposes.

We would like to emphasize that the primary object of our study is to obtain information on the demands on public educational and training systems rather than on training programmes conducted within companies.

Classification under the various educational and training institutions is to apply only to graduates of such institutions. If there are instances where a significant number of employees have pursued but not reached graduate level, they may be included in Class "B" under "All Others" and should be identified in any accompanying note.

These forms do not provide for refresher or re-training type programmes outside the company. Public programmes of this type are, however, being offered and may assume increasing importance in the future. We suggest that where such training is desired, companies use the spare column at the right hand side of the form for this purpose, adding an appropriate descriptive heading. For our purposes it is important that we have a note from you indicating the type of training involved such as courses for senior management, middle management, foremen, specialized skills etc.

Occupational Groups

Recognizing the problems involved in forecasting manpower requirements, the occupational classification is broken down into fairly broad groups only. It may be however, that for some companies, our breakdown is still too detailed. You may consider it feasible, for example, to project your requirements of engineers as a group only, believing it unnecessary to be concerned with the various specific types of engineers listed.

If such is the case, grouping into a single category is satisfactory for our purposes, not only as applied to engineers but also to the physical scientists, the administrative group and the technicians.

A question may arise about the classification of an employee who carries the status of an engineer for example, but who does not hold an engineering degree. We suggest that such a person should be included with the engineers in the occupational group but shown under his appropriate educational heading in the horizontal classification.

We are aware that the specific occupational designations we have used may not account for the entire work force in all of the companies in our survey and as a result, most occupational groups provide an "other" category. Unless you consider that occupations falling into one of these residual categories are especially important and should be identified, we suggest that all occupations, apart from those listed, be grouped under the "other" headings.

The Professional group should include all employees so qualified by education, regardless of function being performed. For example, employees with professional qualifications but performing administrative or sales duties should be listed under their professional heading. In case an individual holds degrees in two fields, or should to meet future requirements, he should be listed under both. As an example in this connection, if a manager holds or should hold an engineering degree, and a degree (likely post graduate) in business administration, he should be listed both as an engineer and as a graduate in business administration.

The Accountants group under the heading "Other Professional Occupations" is to include Chartered Accountants, Registered Industrial Accountants, Certified General Accountants and Certified Public Accountants.

The Skilled Tradesmen and Craftsmen group is to include such occupations as electricians, machinists, carpenters, etc., and will likely all fall in Class "C".

The Operatives group is to include production workers such as assemblers and operators of production or processing equipment. Applying the general rule of thumb that workers whose occupations require two years or more of training are usually designated as "skilled", it is anticipated that most operatives will fall in Class "D" though some may belong in Class "C".

It is anticipated that in general, companies may be confronted with several possibilities when classifying some employees. In these cases we would be grateful if we could be advised in due course of the choice adopted as this information will be of considerable importance to us in interpreting and compiling data received from various sources.

Education and Training

Only a couple of comments appear necessary with regard to the breakdown of education and training into the various levels shown across the top of the forms.

The "All Others" category under Class "B" will contain such training as leads to the accounting degrees CA, RIA, CGA and CPA. Under Class "C", the "Non High School or Undetermined" heading is designed to cover individuals whose jobs presently have an entry-requirement of full high school, but who have acquired competence in their occupations with less than full high school training: It is suggested also that this heading will cover those present workers whose educational backgrounds are unknown and very difficult to obtain but where it may be assumed that high school education was not completed. In areas such as these, it is future educational and training requirements which will be of most significance to our work.

It should be noted that the educational and training breakdown conforms to the present system. If in projecting future requirements, any companies would like to have other types of training available than are currently being offered, comments to this effect would be most appropriate.

For the purpose of this project we are assuming that during the forecast period the growth of the Canadian economy will not be adversely affected by international developments or a serious recession.

APPENDIX "C"

Intrepretations of Working Form

1. It may be helpful to your analysis if the box heading entitled "Distribution According to Education or Training" be read as follows — "Distribution According to *Required* Education or Training."

2. In a mix of present educational backgrounds, education short of full High School but in excess of Grade 10 may be recorded as full High School; Grade 10 only, or less, may be recorded as non-High School.

3. Foremen (except for other specific reasons), will generally be reported under Administrative.

4. Many individuals with high educational qualifications are found doing un-skilled or semi-skilled work (usually short-term).
   Report such according to the job requirements only.

5. If Engineers or other professional personnel are employed in Sales (or other "non-degree occupations") the duplication should be foot-noted.

6. Separation of clerical staff into Male and Female may assist the quantitative identification of educational qualifications.

7. Class D applies to work for which the educational specification requires little, other than literacy.

ONTARIO ECONOMIC COUNCIL

ANTICIPATED TRENDS IN MANPOWER REQUIREMENTS

1965 to 1970

SUMMARY FORM

Company Name—

Year—

OCCUPATIONAL GROUP	DISTRIBUTION ACCORDING TO EDUCATION OR TRAINING																									
	CLASS "A" UNIVERSITY TRAINING								CLASS "B" POST HIGH SCHOOL TRAINING BUT NOT UNIVERSITY				CLASS "C" HIGH SCHOOL TRAINING AND SKILLED WORKERS										CLASS "D"			
	Post Graduate				Graduate				Technological Institute		All Others		High School		Technical High School		Vocational or Trade School				Non High School or Undetermined		SEMI SKILLED AND UNSKILLED WORKERS			
	Technical & Scientific		All Others		Technical & Scientific		All Others										High School		Non High School							
	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970	1965	1970
Professional																										
Engineers																										
Chemical																										
Civil																										
Electrical																										
Mechanical																										
Mining and Metallugical																										
Other																										
Physical Scientists																										
Chemists																										
Geologists																										
Physicists																										
Other																										
Other Professional Occupations																										
Accountants																										
Economists																										
Mathematicians																										
Other																										
Administrative																										
Graduates in Business Administration																										
Commerce and Finance																										
General Arts																										
Other																										
Other																										
Technical																										
Draughtsmen																										
Engineering Technicians																										
Laboratory Technicians																										
Other																										
Clerical																										
Sales																										
Technical																										
Non-technical																										
Skilled Tradesmen and Craftsmen																										
Operatives																										
Laborers																										

The Ontario Economic Council

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VT 003 233

VT 003 233
Kostenbauder, Scott
A Description of A Program for Computer-Assisted Occupational Guidance Developed at The Pennsylvania State University.

Pennsylvania State Univ., University Park. Dept. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 2Aug67 4p.

*OCCUPATIONAL GUIDANCE; *OCCUPATIONAL INFORMATION; *COMPUTER PROGRAMS

The computer-assisted occupational information program is written in Coursewriter language. The student aptitude scores and a student reference number are stored in the computer. The student responds, through the terminal, to a series of questions relating to his preferences and selects an occupation for examination. A summary description of the occupation is provided by the terminal typewriter. The student may ask for a detailed description of this occupation, go to another occupation, or go back to change his answers to the preference questions. The detailed description provides a comparison routine which points out discrepancies between the student's responses to the preference questions and conditions of the selected occupation. These comments are advisory in nature to remind the student to be aware of the differences. A visual display of a worker in several typical jobs of the occupation is shown, and a recorded interview with this typical worker is played. This display and recording is made accessible, selected, shown, and played by computer control. After the tape segment has been played, the typing of information resumes. After the occupation is completely described, the student is then returned to another point of selection, or he may ask the computer to suggest a list of possible occupations using his aptitude scores and answers to the preference questions. Variations of this process may continue until the student receives all the information desired about various occupations. (HC)

ED027441

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A DESCRIPTION OF A PROGRAM FOR COMPUTER-ASSISTED OCCUPATIONAL GUIDANCE DEVELOPED AT THE PENNSYLVANIA STATE UNIVERSITY

by

Scott Kostenbauder
Research Assistant

The Pennsylvania State University
Department of Vocational Education
University Park, Pennsylvania
August 2, 1967

VT003233

The creation of a program for the dissemination of occupational information for guidance purposes requires that several parameters be established before a program is written.

These are:

1. The purpose and methods of presentation defined.
2. The limitations of hardware.
3. The limitations of the programming language.

Since the philosophic foundation of the research project is covered elsewhere, this description will not cover this area except to point out that the program is written to be non-directive in nature.

The current terminal hardware prevents the development of mass random access for the audio and visual portions of this program. Future hardware will probably allow an expansion over the present possibilities of eighty slides and about ninety minutes of tape. The program is written in a language developed by IBM for instructional purposes called Coursewriter. This language is somewhat restricted for logical manipulations such as sorting or comparing. This limitation has been overcome as much as possible by use of conditional branches in a comparison matrix using switch settings.* The on or off settings of the switches represent bits of data.

DESCRIPTION OF THE PROGRAM

The program begins with a zeroing routine for several blocks of switches. These switches are used for the storing of the student's aptitude scores from the GATB and for the student's preferences. The aptitude scores are converted to categories (levels) from their numeric

*The switches described refer to a feature of the Coursewriter language. These are electrical representations and should not be confused with a mechanically operated on-off switch.

equivalents. These are entered through a terminal to the computer by a counselor or a clerical person. In the process of entering an aptitude score, a switch is set to store the level that the student has for that particular aptitude. When all nine scores have been entered the counselor or clerical person signs off the program. A number is assigned to the student at this time. The student, when first using the system, receives an introductory sequence of material. This material orients the student to the system and will not be repeated in the future use of the occupational information program by that student.

The student now has several questions presented by a visual display and these are summarized by the typewriter as are the students responses to the questions. The questions relate to the students preferences, such as whether indoor or outdoor is preferred, what future educational attainment is planned, physical effort, etc. These responses are stored by means of switch settings. The student is now asked what occupation is desired for examination. A chance is also given to change the answer given for the preference questions or to have the computer suggest a list of occupations based on the students aptitudes and preferences. A summary description of the occupation is provided by the typewriter when the student elects to examine that occupation. After this the student can ask for a detailed description, go to another occupation or go back to change his answers to the preference questions.

If the detailed description is asked for, the program provides a comparison routine which points out discrepancies between the student's responses to the preference questions and the conditions that usually exist

for that occupation. The computer causes comments to be typed only for the items where a difference does exist. These comments are advisory (non-directive) in nature to remind the student to be aware of the differences. At this point a visual display of a worker in several typical jobs of that occupation is shown. A recorded interview, condensed to two minutes, with this typical worker is played. This provides a closer contact to the worker than would otherwise be possible with written material alone. The recorded tape segment is accessed, selected and played by computer control. After a tape segment has been played, the typing of information resumes. The remainder of information which pertains to that occupation is then typed out. When the typing is finished, the student is returned to the point where another occupation can be chosen, the preference questions can be reanswered or the computer can be asked to suggest a list of possible occupations suited to the student. Variations of this can be continually run until the student receives all the information desired about various occupations.

VT 003 237

VT 003 237
Foree, Robert
Determination of Reasons for Practical Nursing Students Discontinuing Their Training at the Laramie MDTA Vocational School of Practical Nursing.

Wyoming Research Coordinating Unit in Vocational-Technical Education, Cheyenne
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 67p.

*HEALTH OCCUPATIONS EDUCATION; *PRACTICAL NURSES; *VOCATIONAL FOLLOWUP; GRADUATE SURVEYS; *DROPOUTS; *GRADUATES; INDIVIDUAL CHARACTERISTICS; VOCATIONAL SCHOOLS; MANPOWER DEVELOPMENT; DROPOUT CHARACTERISTICS LARAMIE; WYOMING; MDTA PROGRAMS; *MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS

Eighty-nine percent of 48 graduates and 64 percent of the 50 dropouts of the Laramie Vocational School during its 4 years of operation responded to a questionnaire to determine factors causing students to leave school and those which distinguished between students who withdrew from and those who completed the course. Data were furnished by the 71 percent of the returns which were usable and by school records. The only significant item on the questionnaires which seemed to have a bearing on predicting success was the employment of the mother when the student was a child. The probability of success seemed to be smaller for the student whose mother worked while she was a child. Information from school records indicated: (1) The probability of success increases with the age of the student, (2) I.Q.'s below 100 limit chances of success in 7 to 20, (3) Prenursing test percentiles below 50 limit success to 4 in 20, and (4) Married students have a higher percentage of success than single students. Recommendations concerned (1) student selection, (2) physical facilities, (3) curriculum, and (4) other factors such as increasing the course length, providing the prospective student with more information, providing more student counseling, avoiding downgrading students and showing favoritism, and continuing the school. (JK)

ED027441

C1

DETERMINATION OF REASONS FOR PRACTICAL NURSING STUDENTS DISCONTINUING THEIR TRAINING AT THE LARAMIE MDTA VOCATIONAL SCHOOL OF PRACTICAL NURSING

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VT003237

DETERMINATION OF REASONS FOR PRACTICAL NURSING STUDENTS DISCONTINUING THEIR TRAINING AT THE LARAMIE MDTA VOCATIONAL SCHOOL OF PRACTICAL NURSING

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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1967

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CHAPTER I

STATEMENT OF PROBLEM AND ITS IMPORTANCE

Since the inauguration of the Laramie Vocational School of Practical Nursing, there has been concern expressed by members of the State Vocational Department and the staff of the school regarding the high drop-out rate at the school.

The school was started under the provisions of the Manpower Development and Training Act of 1962 and continues operating under the revised act of 1965. The purpose of this act is stated as follows: (18:2787)[1]

> "determine the skill-requirements of the economy, develop policies for adequate occupational development and maximum utilization of the skills of the nation's workers, and develop and encourage the development of broad and diversified training programs, including on-the-job training designed to qualify for employment the many persons who cannot reasonably be expected to secure appropriate full-time employment without such training, and to equip the nation's workers with new and improved skills that are and will be required."

During the past four years in which the school has been in operation the drop-out rate has been averaging about 51 percent. Forty-eight persons have been graduated from the school as licensed practical nurses. Of these graduates, all have passed the Wyoming State Board Exam which is required in order to be licensed by the state. Fifty persons have attended the school and failed to complete the program for various reasons.

Since the profession of nursing is considered to be a critical area where more qualified persons are in demand, there is concern over the loss of human

---

[1]The first number is that of the selected reference and the second refers to the page or pages cited.

resources caused by the failure on the part of some to complete the program. The high drop-out rate has also increased the per-student cost of training to completion those remaining in the program.

Since the program originated, there have been several attempts to reduce the drop-out rate. The following steps have been introduced as a part of the program:

(1) The amount of time spent in a course related to personal-vocational relationships was increased;

(2) A remedial mathematics program was initiated;

(3) Personal interview prior to selection is now done;

(4) The selection committee was increased in number to include the Co-ordinator of the Practical Nursing Program and another nurse not connected with the program, and the State Director of MDTA.

(5) The length of the program was increased from twelve to thirteen and one-half months;

(6) Additional released time from teaching was provided for the coordinator so that she may spend more time the first few months with new students;

(7) Implementation of a how-to-study project for students; and

(8) Intensified counseling was begun.

Students are now selected for the program in the following manner:

(1) Students who have become interested in the school by advice from the employment office, students at the school or others make application to the State Employment Office.

(2) A GATB is administered by the employment office.

(3) If an applicant scores 90 or better on each of the following sections, she is considered. G. V. Q. & I. sections of the GATB are used.

(4) Scores are sent to the State Employment Security Office where the selection committee meets.

(5) The selection committee is composed of the following:

A. Two nurses. (Coordinator of the school and another nurse who is familiar with the program.

B. State Director of Vocational Education and MDTA.

C. State Employment Office - Director of MDTA.

D. State Director of the Wyoming Employment Offices.

(6) The committee gives special consideration to the following disadvantaged groups:

A. Educationally deficient or handicapped.

B. Inmates of correctional institutions.

C. Habitually or necessarily unemployed.

D. Selective Service rejects.

E. Minority groups.

F. Older workers (45 and older).

G. Those living at the poverty level.

H. Prison releases.

I. Youth who are out of work due to lack of training or experience.

During the first three years, the students were selected only by the employment office.

Members of the groups mentioned under Item Six above undoubtedly would have a greater chance of dropping out than would students selected at random from the population. Slater, in his study (14:912) of the relationship between various psychological factors and attrition, drew the following conclusions:

> "It is proposed that the students perception of curricular activity will be determined to a considerable extent by the attitudes and values which he learned before entering college. These attitudes and values reflect a variety of influences of which the home is customarily one of the most significant. And, neighborhood in which the home is located, experiences of the children, behavior patterns which are taught, social class position of the family, etc.; these are frequently determined by the nature of the father's employment."

The experiences that many of the persons have had related to Item Six are not necessarily those which would add to success in academic endeavors.

After a group of 30-35 persons is selected and approved to attend, if some do not accept, the employment office may place others that have not been chosen in the program so that there are at least 30 persons in the class.

The problem is the determination of the reasons for students discontinuing their education at the Laramie Vocational School of Practical Nursing.

PURPOSE OF THE STUDY

The purpose of this study was to determine the factors which are common to all drop-outs and the reasons for students terminating their educational endeavors at the Laramie Vocational School of Practical Nursing. The difference between graduates and drop-outs was assessed to help determine causes for students discontinuing their education at the school. Those questions which were answered by student records are as follows:

(1) Is there a significant difference between the I.Q. scores of graduates and drop-outs?

(2) Is there a significant difference between the ages of graduates and drop-outs?

(3) Is there a significant difference between pre-nursing test scores of graduates and drop-outs?

(4) Is there a significant difference between the grades of graduates and drop-outs?

(5) Is there a significant difference between the marital status of graduates and drop-outs?

(6) Is there a significant difference between GATB scores of graduates and drop-outs?

Questions which were answered by use of a questionnaire sent to all graduates and drop-outs are as follows:

(1) Is there a significant difference between the pressure to enroll in the nursing program between graduates and drop-outs?

(2) Is there a significant difference between the reasons for entering the nurses school between graduates and drop-outs?

(3) Is there a significant difference concerning work experience of the graduates and drop-outs?

(4) Is there a significant difference between counselor relationships of graduates and drop-outs?

(5) Did drop-outs become disenchanted with the program after they entered to a greater degree than graduates?

(6) Was there a significant difference regarding the understanding of the program between graduates and drop-outs?

(7) Was there a significant difference between graduates and drop-outs concerning the stipend they received?

(8) Did a significant number of the drop-outs find another source of income immediately prior to dropping out?

(9) Was there a significant difference between times of enrollment for graduates and drop-outs?

(10) Are physical conditions such as pregnancy and frequent illness a major cause of dropping out?

(11) To what extent does home-sickness affect the drop-out?

(12) Is there a significant difference between the family history of the graduate and drop-out?

(13) Does the length of the program affectthe drop-out rate?

(14) Is there a significant difference between outside activities of graduates and drop-outs?

PROCEDURE

The procedure involved in the study may be divided into four areas:

Part I. As extensive study of the cumulative records was made to determine possible causes for students leaving the program before completion; as well as determining the difference between graduates and drop-outs. The following information was taken from the records for further analysis:

1. Letter grades.
2. I.Q. test scores (WAIS).
3. GATB test scores (G-score was used).
4. Pre-nursing test scores (NLN & G.W.).
5. Reasons given for the student discontinuing his education.
6. Age of the student.
7. Marital status.

Part II. Letters were sent to all drop-outs indicating that they would be contacted by phone, personal interview, or letter regarding the school. A postcard was included for them to return listing their phone number. Some of these individuals were contacted and a questionnaire completed by telephone, others were contacted personally. All drop-outs who could not be contacted by phone or personally were sent the same questionnaire as the graduates.

Part III. A questionnaire was sent to all graduates. A letter was included which explained the purpose of the study. For a copy of the questionnaire, see Appendix.

Part IV. The information obtained on the questionnaires and from the student files was summarized and treated statistically to find the significant differences between the groups.

The T Test of Significance was used on items such as intelligence scores. The Chi-Square Test was applied to questions that had a multiple choice of answers. The .05 level of significance was used.

LIMITATIONS

The study was limited in scope and conclusiveness by the small sample. A total sample of 98 persons was used. This comprised the group who had, at any time, attended the school. Of this group, many had attended less than one month, therefore, a number of students were unable to effectively answer all questions on the questionnaire.

The return of the questionnaire was about what was expected. Eighty-nine percent of the graduates responded. Sixty-four percent of the drop-outs responded. A return of 60 percent was expected from the drop-outs and a return of 80 percent was expected from the graduates. Of the returns which were received, a total of 71 percent was found to be usable.

Limitations were imposed by the questionnaire since all factors related to dropping out could not be ascertained. In order to receive a workable response, the questionnaire had to be kept reasonably short and easy to answer. The area of student personality factors had to be virtually eliminated since the inclusion of any personality inventory scales would have made the instrument too lengthy.

CHAPTER II

SOME PERTINENT LITERATURE

In a study of this type, it seemed appropriate to look at some literature that is related to the drop-out problem at both the high school and post-high school levels. The literature concerning the "drop-out" at the high school level abounds. There is also an abundance of literature concerning college drop-outs. Therefore, only those studies that seemed related to the drop-outs at the Laramie Vocational School of Practical Nursing were examined. There were very few studies of post-high school vocational programs reported; and an even smaller number of studies concerning schools financed under the Federal Manpower Training Act.

The best summary concerning the drop-out from high school programs was found in the N.E.A. Research Bulletin (10:37p). The results of this summary were as follows:

1. One in every three ninth-graders fail to finish high school.
2. Juvenile delinquency is 10 times more frequent among drop-outs.
3. Characteristics of the drop-out:
   a. average age 16 years--often he has been marking time to reach 16 years of age.
   b. usually he has shunned participation in extracurricular activities.
   c. he may be quite unsocial and uncooperative.
   d. typically his parents are unimpressed with the value of education.
   e. schooling may be a family financial burden.
   f. many came from disturbed homes.
   g. generally they have a lower measured intelligence than other students.
4. Often they drop out because they see no future for a life in the educational curriculum.
5. The high incidence of inter-school transfers may be a factor.
6. Lack of rapport between teacher and student can also be a factor.
7. Many cite financial need as the reason for dropping out, but quite often there is more compelling concern.
8. Only a small percentage leave for health reasons.
9. Probably the most important factor in retention is home attitudes.
10. Over-emphasis of school by parents can cause children to rebel and want to quit.
11. Physical defects may affect social adaptation and affect retention.

12. To retain students, we educators will have to wage an attack on several fronts:
    a. provide a more meaningful curriculum.
    b. provide better guidance services.
    c. make early efforts to identify potential drop-outs and to identify their problems.
13. 41% had been retained one or more grade levels.
14. Marriage or pregnancy accounted for 35% of female, of this group 75% were above average scholastically.
15. 25% of males had a record of expulsion or suspension, only 10% of girls.
16. 20% were judged to have serious emotional problems.
17. 75% of males and 66% of females did not participate in allied activities.
18. Teacher opinion - 31% not accepted by peer group, 5% popular or leaders.
19. 20% had less than adequate ability to pay normal expenses.
20. 42% had parents whose attitudes toward school was rated less than satisfactory.

FATHER'S OCCUPATIONS:

Most studies of drop-outs indicate that the higher the socio-economic status, the greater the chance of success. Wolfle (21) showed that the occupation of the father and college success were closely related. He showed that students from professional families have by far the best chance of graduating from college. The managerial group was second, and the white-collar group third. He showed that children of factory workers, craftsmen, unskilled laborers and farmers experienced the least chance of college success.

In a study of correlations between fathers' occupations and high school drop-outs, a Chicago study (16:14-15) showed a correlation of .59. This correlation was significant at the .05 level. The occupation of the drop-outs' father was considered to be a factor in leaving school.

A study by Van Dyke (20) conducted in Iowa showed that the children of unskilled laborers were nine times more likely to drop out of school than were the children of people in professions. Only .5 percent of the drop-outs studied were from homes with fathers in the professions. Twenty-three percent came from families where the father was an unskilled laborer.

FAMILY SIZE

Often times a person feels that the size of a family may have an adverse effect upon the educational opportunity or achievement of students. Studies related to this seem to be somewhat inconclusive.

In a study conducted in Nebraska City, Nebraska, the average family size of drop-outs was 4.03 children. The average size of the families of graduates was 2.76.

Where a sample of 1,360 drop-outs from Midwestern small towns were studied, the following information was obtained: (3:21)

25% came from families of 7 or more children.
26% came from families of 5 or 6 children.
33% were from families of 1-3 children.
17% were from four-child families.

INTELLIGENCE

Intelligence has always been equated with success in school. In any study involving lack of school success, the intelligence is always considered. These studies related to intelligence are given to show that there is a possible relationship between it and dropping out of school. However, the evidence is not conclusive.

Schreiber (12:2), in an article entitled "School Dropouts", states that in his nationwide study, 70% of the drop-outs had I.Q.'s above 90.

In a study by Skelton (13:143-145) of the Alabama Polytechnic Institute, he found a significant positive correlation between intelligence and retention.

Russell, when he compared Freshman drop-outs with non-dropouts at Michigan State College, reported (11:715) significant positive correlations between retention and intelligence, education of parents, and socio-economic level and occupation of parents.

A study by the Vureau of Labor Statistics (19:8) involving 21,887 young people, including 9,505 drop-outs and 12,382 graduates, points out that one-third of the drop-outs had I.Q.'s below 85.

In a third study of intelligence, a correlation of .91 was obtained related to drop-outs from Chicago schools (17:16). This correlation is significant at the .01 level.

ADJUSTMENT IN SCHOOL

The attitude and adjustment of the girls enrolled in the program, to their classmates and the school situation in general, seems to play an important role in dropping out. Several studies related to this factor have been cited below.

The Dillon Study (3:80) involving the study of 1,360 drop-outs gave the following personal characteristics related to dropping out of school:

72% were judged to lack initiative.
56% considered lacking in self-confidence.
70% had attendance problems.
60% lacked skill in a tool subject.
66% were irresponsible.
58% had poor study habits.
30% did not get along with the teachers.
49% easily discouraged.

In a Detroit study (4:496), eleven factors were found to be significant between normal students and anti-social drop-outs. They were as follows:

1. They dropped out at a lower grade level.
2. They failed more subjects.
3. Were absent often.
4. Were often rated poor citizens.
5. Less frequently came from a happy, well-adjusted home.
6. Had out-of-school friends and spent more time with them.
7. Did not get along well with others at home.
8. Did not get along well with fellow students and teachers.
9. Did not have a sense of belonging.
10. Lacked school spirit.
11. Participated less frequently in out-of-school activities.

EXTRACURRICULAR ACTIVITIES

The old adage, "if you want something done, you ask a busy person to do it", seems to hold true regarding retention of students in school.

In the Nebraska City Study by Chaloupka (2:17), it was found that graduates participated in extracurricular activities twice as often as drop-outs. In this study records of 202 drop-outs and 201 graduates were studied.

In a study of students at Detroit Trade and Technical School (5:289), it was found that a significantly larger group of those remaining in school participated in extracurricular activities than did those who dropped out of school.

HEALTH

The records of many of the students involved in the program at the Laramie Vocational School of Practical Nursing seem to indicate that illness may have played a part in many of the drop-out cases.

A study by Gragg (6) of drop-outs from the Ithica, New York and New Haven, Connecticut schools showed that health was not a significant factor in distinguishing drop-outs from graduates.

REASONS FOR LEAVING SCHOOL

In a study by Moss (9:83-84) of students in a redevelopment area reasons were given for Junior College students discontinuing their education. The study involved 79 girls and 114 boys. The girls gave the following as reasons for leaving school:

Lost interest in college	16.5%
Financial problems	22.7%
Got married	26.6%
Discouraged by low grades	3.8%
Wanted a more practical education	2.5%
Other reasons	17.7%

A study by Lehr at Northwestern State College of Oklahoma revealed a very significant relationship between retention and grade point average, and course load. There was no significant difference between retention and any of the following: age, distance between home and college, housing while in college, marital status, sex, military services, or intellectual ability.

Nebraska (2:17) drop-outs gave these reasons for leaving school:

1. 29% disliked or were not interested in school.
2. 24% preferred work to school.
3. 20% wanted to or had to get married.
4. 13% parents did not believe in high school education.

On a questionnaire, principals (8:50) in Massachusetts gave these reasons for students leaving school:

1.	Preferred work to school	2,441 drop-outs
2.	Was not interested in school	1,251
3.	Needed money at home	621
4.	Parents wanted the youth to leave	346
5.	Was failing in school work	313
6.	Could not learn in school	300
7.	Ill health	274
8.	Wanted spending money	131
9.	Could earn more out of school	45
10.	Friends left school	45
11.	Disliked certain subject or teacher	31

DROP-OUTS OF MANPOWER TRAINING PROGRAMS

A study of Manpower Training Programs (15:15) in West Virginia sponsored by and under the Area Redevelopment Act involving a sample of 500 students was made. Approximately 20 percent of these students dropped out before completion of the course. A response of 50 percent was expected from drop-outs and a 70% response from trainees of the various programs.

The drop-outs in this survey gave the following as reasons for leaving the program:

1.	Took a job or was recalled to work	32.8%
2.	Health reasons	6.5%
3.	Health reasons--member of family	5.5%

4.	Couldn't afford foregone wages	10.6%
5.	Bad hours or hours conflicted with job	7.5%
6.	Student became generally dissatisfied	14.6%
7.	Student thought he couldn't learn the work	.2%
8.	Dropped for cause--excessive absence	.5%
9.	Dropped for cause--other reasons.	.5%

The following paragraphs express the views of the retraining program.

"West Virginia workers who experienced retraining were well pleased with the training they had received, but their satisfaction diminished somewhat with the passage of time following completion of the course. Of 86 workers who were still engaged in training at the time of their initial interviews surveys, 77 percent 'liked the course very much' and 86 percent felt that they had chosen 'the right course'. Among 627 workers who had completed the retraining course or had withdrawn from the course at the time of the initial survey, 64 percent 'liked the course very much' and 70 percent felt that they selected the appropriate course.

On the other hand, respondents' views on the difficulty of the course material appeared to benefit from a sense of detachment. Whereas 21 percent of the 'in-training' sample found the course 'pretty hard', only 12 percent of the 'drop-outs' and 'completions' expressed this view. The remainder in both groups found the course 'pretty easy' or 'about right'."

The studies mentioned are mostly those involving high school and college students; however, many of the factors would apply to students involved in any type of school experience. They do not reflect all studies in their entirety; but should be fairly representative of the majority of the studies which this writer has read. To the knowledge of this writer, no studies directly related to drop-outs from Practical Nursing Schools sponsored by "Manpower Acts" have been published, therefore, no information concerning them was included in this study.

Relationships which exist between the studies mentioned and the findings of this study will be discussed more in detail in the following chapters.

CHAPTER III

ANALYSES OF DATA

DATA FROM STUDENT FILES

The first part of the study was devoted to an analysis of information obtained from student files. The hypothesis tested was that there was no significant difference between the drop-out group and the graduates. The items tested were: age, I.Q., percentile scores on Pre-Nursing tests, grades received while in school, marital status and GATB scores.

The mean age for the drop-outs was 26.23 with a range of ages from 18 to 50. The mean age for the graduates was 31.70 with a range from 18 to 56. Only the scores of those who completed questionnaires were used.

TABLE I

AGE OF STUDENTS

Ages	Graduates	Drop-Outs
18 - 22	11	15
23 - 28	8	5
29 - 33	5	4
34 - 38	7	2
39 - 43	2	1
44 - 48	2	1
49 - 53	1	2
54 - 58	4	0
Total	40	30

The value from the T test was -1.069. This figure was not significant at the .05 level.

The mean I.Q. for the drop-outs was 100.83, and for the graduates 106.02. The range of I.Q. for the drop-outs was 85 to 116. The range for the graduates was from 80 to 125. Only the scores of those who completed the questionnaire were used.

TABLE II

I.Q. (WAIS) OF STUDENTS

I.Q.	Graduates	Drop-Outs
80 - 85	1	1
86 - 90	1	2
91 - 95	3	4
96 - 100	9	13
101 - 105	6	4
106 - 110	5	2
111 - 115	11	3
116 - 120	2	1
121 - 125	2	0
126 - 130	0	0
130 +	0	0

The T test value was -2.448 which is significant at both the .05 and .01 levels.

Most of the students at the school were given pre-nursing tests when they entered the school. The percentile scores for these tests were used rather than the raw scores since two types were used: the National League for Nursing and the George Washington Test.

The mean percentile score for the drop-outs was 55.07 compared with a mean score of 76.37 for graduates. Only the scores of the 70 complete records were used in determining the mean.

TABLE III

PRE-NURSING TEST SCORES

Percentile	Graduates	Drop-Outs
0 - 10	1	1
11 - 20	0	1
21 - 30	0	3
31 - 40	1	4
41 - 50	2	7
51 - 60	4	3
61 - 70	5	2
71 - 80	7	3
81 - 90	7	3
91 - 100	13	3

The T value for the pre-nursing tests was 4.1. This figure is significant at both the .05 and .01 levels.

The average grade for drop-outs at the school was 1.47. This figure is based on the following: 0 - F, 1 - D, 2 - C, 3 - B, and 4 - A. This figure is that the average grade for drop-outs is a D+. The average grade for the graduates was 2.6 or a C+ average. The T test value is 6.9, which is significant at the .01 and .05 levels. The grades used were the average grades while students attended the school.

TABLE IV

AVERAGE GRADES OF STUDENTS

	Graduates	Drop-Outs
F - 0	0	6
D - 1	0	8
C - 2	16	13
B - 3	24	2
A - 4	0	1
	40	30

MARITAL STATUS OF STUDENTS - This study indicates that a significant number of the graduates were married - 50%. Forty-three percent of the drop-outs were divorced or separated. Only those students who completed questionnaires were listed.

TABLE V

MARITAL STATUS OF STUDENTS

	Graduates	Drop-Outs
Single	6	10
Married	20	5
Divorced or Separated	12	13
Widowed	2	2

G.A.T.B. SCORES OF STUDENTS

When the GATB scores were considered, it was found that the mean score for drop-outs was 102.01, and the mean score for graduates was 101.00. Scores of 30 graduates and 41 drop-outs were used. Scores for many of the Laramie students were not obtainable in time for completion of the study. It can be concluded that there is no significant difference between the scores of the two groups on this item. Table VI shows the summary of scores.

TABLE VI

G. A. T. B. SCORES

	Graduates	Drop-Outs
80 - below	0	3
81 - 90	6	6
91 - 100	9	11
101 - 110	12	9
111 - 120	1	6
121 - 130	2	4
131 - 140	0	2
141 and over	0	0
Total	30	41

CONTENTS FROM QUESTIONNAIRE - On the questionnaire, information was sought in an attempt to determine if there were factors which were common to a significant number of drop-outs; and if there was a significant difference between the response of graduates and drop-outs. The findings will therefore be discussed as they related to the questions which have been posed under the section entitled Purpose of Study.

Is there a significant difference between the pressure to enroll in the nursing program between graduates and drop-outs? Question 1 asked who influenced the person to enter the program. The results of this question are found in Table VII.

TABLE VII

PERSONS WHO ENCOURAGED STUDENTS TO ENROLL

	Graduates	Drop-Outs
Mother	0	4
Father	2	1
Sister	0	1
Brother	0	0
Friend	9	2
Employment Office	10	10
Husband	6	5
Others	2	1
No One	11	6

On question 1, there was a significant difference between the two groups - significant at the .05 level. The X^2 for this question is 16.741. The value from this square tables for X^2_7 is equal to 14.07 at the .05 level.

Question 2 asks whether the student entered the program without any great influence from anyone. The findings were that 37 of the graduates were not influenced while 2 were influenced. Twenty-three of the drop-outs were influenced and 7 were not influenced.

There is a significant difference at the .05 level between the response of drop-outs and graduates. The X^2 value for this question is 5.873 with a X^2 value from the table of 3.84 for the .05 level of significance.

Question 3 is closely related to question number 2 in that it asks whether the student really wanted to enter the school, or if the person mentioned in question 1 influenced her to do so. There was no significant difference between the response of the graduates and drop-outs on this question. The X^2 value was 1.213 while the table value for X^2 at the .05 level was 3.84. The responses of the students were as follows: Graduates commented that 36 were not influenced, 1 was and 3 made no comment.

Twenty-seven drop-outs indicated no influence, 2 were influenced and 1 made no comment.

Is there a significant difference between the reasons for entering the nursing school between graduates and drop-outs? The responses given on question 9 are found on Table VIII. The majority of both groups stated that they entered the program because nursing was the type of work they had always wanted to do. The second most important reason was the statement that "I had always wanted to help people". There was no significant difference between the reasons given by the graduates and drop-outs. The X^2 value was 4.331; a value of $X^2_5 = 11.07$ was needed for these to be a significant difference at the .05 level.

TABLE VIII

REASONS FOR ENTERING THE SCHOOL

	Graduates	Drop-Outs
It was the type of work I had always wanted to do	30	18
I thought it would be better than what I was doing	3	3

(Table VIII continued on next page)

(Table VIII continued)

	Graduates	Drop-Outs
I thought it would be interesting to see what a practical nurse had to do	0	1
I had always wanted to help people	3	6
It had to be better than what I was doing	1	1
It would help me make more money	3	1

Is there a significant difference concerning work experience of the graduates and drop-outs? A tabulation of results can be found on Table IX. Many of the students in both groups had experience in hospital work before entering the program. There was no significant difference between the graduates and drop-outs related to work experience. An X^2 value of 6.193 was obtained; this value would have needed to be $X^2_4 = 9.49$ for it to have been significant at the .05 level.

TABLE IX

WORK EXPERIENCE OF STUDENTS

	Graduates	Drop-Outs
Nursing Service (any hospital work)	21	19
Restaurant work	3	4
Housekeeping	2	0
Office work	5	4
Other	5	0
None	4	3

Is there a significant difference between counselor relationships of graduates and drop-outs? Statistically, there was no significant difference related to any of questions 12, 13 and 14. For a summary, see Table X.

TABLE X

STUDENT-COUNSELOR RELATIONSHIPS

Questions		Graduates	Drop-Outs
12. Do you feel that you had adequate time to select a counselor when you were at the school?	Yes	28	15
	No	10	14
13. Did you get the counselor you asked for?	Yes	24	17
	No	14	12
14. Did you feel that you received enough help from your counselor?	Yes	30	18
	No	8	11

Values of X^2	Value needed for .05 significance
12. $X^2 = 3.547$	12. $X^2 = 3.84$
13. $X^2 = .260$	13. $X^2 = 3.84$
14. $X^2 = 2.428$	14. $X^2 = 3.84$

One drop-out and two graduates did not respond.

Did drop-outs become disenchanted with the program after they entered to a greater extent than graduates? Drop-outs became disenchanted to a significantly greater degree than did the graduates. This information is recorded on Table XI. The X^2 value was 14.120 when the two groups were compared. This value is significant at the .01 level where a value for X^2_4 of 13.277 is required for significance.

TABLE XI

EXPECTATIONS OF THE PROGRAM

		Graduates	Drop-Outs
1.	About what I expected	16	9
2.	Better than I had expected	21	8
3.	Not at all what I expected	3	7
4.	Of less value than I thought it would be	0	4
5.	A waste of time	0	2

Was there a significant difference between graduates and drop-outs concerning the stipend they received? Most of the students at the school received an allowance from the Manpower Provisions. To qualify for training allowance, an applicant must have accumulated a minimum of one full year's work experience prior to the time of applying for the allowance. They must be (1) the head of the household; (2) head of a family; or (3) a member of a family wherein the head of the household is unemployed.

Each applicant was considered on an individual basis. If an applicant maintains his regular place of residence in addition to a temporary residence while in school, he is eligible for a subsistence allowance of $35.00 per week ($5.00 per day for every day that he is in school, plus $10.00 expense allowance). If he moves his regular place of residence to Laramie, he will not receive a subsistence allowance.

After 10 weeks of training, the allowance automatically increases $10.00 per week.

Those applicants who are receiving assistance from Welfare, A.D.C., or under Titles 1, 4, 5, 10, or 16 may be eligible for an "incentive allowance" of

$20.00 per week and $10.00 for expenses. The incentive allowance went into effect as of July 1, 1967.

Those applicants who are members of a family in which the head of the household is employed full-time and who are living in their regular places of residence do not receive any allowances.

There was no significant difference between the graduates and drop-outs related to question 18 on the questionnaire. The students responded as follows:

TABLE XII

ADEQUACY OF STIPENDS

	Yes	No	No Response
Graduates	22	17	1
Drop-Outs	14	15	1

The value for X^2 was .484. A value of $X_1^2 = 3.84$ was needed for significance at the .05 level, even though the results were not significant.

Did a significant number of drop-outs find another source of income immediately prior to dropping out? There was not a significant number of drop-outs who found jobs prior to leaving the school. Only four expressed that they had found jobs. In response to the question, results were as follows:

TABLE XIII

JOB PROMISES

	Had job promised	Did not have job promised
Graduates	21	19
Drop-outs	4	26

There was a significant difference between the two groups at the .001 level with a value of 11.452 where a value of X_1^2 = 10.827 was needed for significance at this level.

Are physical conditions such as pregnancy and frequent illness a major cause of dropping out? The results of questions 22 and 23 are shown on Table XIV and on Table XV. There was no significant difference between the response of the graduates and the drop-outs on item 22. The value of X^2 was 1.775; a value of 5.99 was needed for significance at the .05 level.

Item 23 indicated that poor grades was the largest cause of dropping out of school. This fact is also shown by the student records.

TABLE XIV

OCCURRENCES WHILE A STUDENT

	Graduates	Drop-Outs
Sickness in home	6	5
Personal illness	13	10
Other things interfering with study	8	9
No response	13	6

TABLE XV

REASONS FOR LEAVING SCHOOL

	Graduates	Drop-Outs
Needed more income	2	6.67%
Illness (personal)	5	16.67%
Pregnancy	3	10.0 %
Marriage	0	0 %
Poor grades	7	23.3 %
Illness (in family)	3	10.0 %
Other reasons	10-	33.3 %

Was there a significant difference between times of enrollment from graduates and drop-outs? There was no significant difference between the two groups concerning the time of enrollment. The value for X^2 was 3.258. A value of $X_3^2 = 7.81$ was needed for significance at the .05 level. See Table XVI for summary.

TABLE XVI

TIME OF ENROLLMENT

	Graduates	Drop-Outs
A few days before school started	5	7
A week before school started	9	3
Several weeks before school started	9	9
A month or more before school started	17	11

To what extent does home-sickness affect the drop-out rate? Almost 10% of the drop-outs indicated that home-sickness was a cause of leaving school. Almost 17% indicated that they left for reasons of personal illness; therefore, a total of 27% left for reasons concerning illness. (See table XVII.)

Is there a significant difference between the family history of the graduate and the drop-out? No significant difference was found on Items 24, 25, 26, and 28. Item 27 showed a significant difference. See Table XVIII for summary.

TABLE XVII

ITEMS RELATED TO FAMILY BACKGROUND

No. of Brothers & Sisters	Graduates	Drop-Outs
0	2	4
1	6	6
2	7	3
3	6	6
4	3	2
5	4	5
6	4	1
7	4	1
8	1	1
9 or more	3	1

$X^2 = 5.870$ Needed for .05 significance $X^2_8 = 15.51$

Parents Living Together	Graduates	Drop-Outs
Yes	36	22
No	4	7
No response	0	1

$X^2 = 3.014$ Needed for .05 significance $X^2_1 = 3.84$

(Table XVII continued on next page)

(Table XVII continued)

Was father employed regularly	Graduates	Drop-Outs
Yes	38	26
No	2	3
No response	0	1
$X^2 = 2.061$	Needed for .05 significance $X^2_1 = 3.84$	

Was mother employed	Graduates	Drop-Outs
Yes	11	16
No	29	13
No response	0	1
$X^2 = 6.728$	Needed for .05 significance $X^2_1 = 3.84$	

No. homes lived in while living with parents	Graduates	Drop-Outs
No response	0	5
1	7	5
2	5	5
3	8	7
4	2	2
5	8	2
6	3	1
7	3	1
8	1	1
9 or more	3	1
$X^2 = 10.790$	Needed for .05 significance $X^2_8 = 15.51$	

Does the length of the program affect the drop-out rate? A significant difference in feelings between graduates and drop-outs was found related to this item. The value of X^2 was 8.016. A value of $X^2_2 = 5.99$ was needed for significance at the .05 level. See Table XVIII for summary.

TABLE XVIII

LENGTH OF PROGRAM

	Graduates	Drop-Outs
Too short	15	12
About the right length	25	13
Too long	0	3
No comment	0	2

Is there a significant difference between outside activities of graduates and drop-outs? No significant difference was found when graduates were compared with drop-outs. The value for X^2 was 1.477; a value of $X^2_3 = 7.81$ was needed for significance at the .05 level. See Table XIX for summary.

TABLE XIX

NUMBER OF OUTSIDE ACTIVITIES

	Graduates	Drop-Outs
0	18	12
1	13	10
2	8	6
3	0	1
4	1	1

Was there a significant difference regarding the understanding of the program between the graduates and drop-outs? There existed no significant difference, both groups had similar feelings regarding the program before

entering and understanding of it after entering. The X^2 value for item 16 was 4.237 with $X_2^2 = 5.99$ needed for significance. The X^2 value for item 17 was 3.919 with $X_2^2 = 5.99$ needed for significance. See Tables XX and XXI for summary.

TABLE XX

FEELINGS BEFORE ENTERING SCHOOL

	Graduates	Drop-Outs
Sure, it was the type of program wanted	19	20
Uncertain, but thought it might be what I wanted	21	9
Almost certain it was not, but was influenced by others to enter	0	0
No response	0	1

TABLE XXI

KNOWLEDGE ABOUT SCHOOL BEFORE ENTERING

	Graduates	Drop-Outs
I knew very little about it	18	11
I knew what some of the activities were	19	12
I knew a lot about the school and courses	3	6
No response	0	1

What were the occupations of the students' fathers. Was there a significant difference? The occupations of the fathers were quite similar for those who completed the questionnaire. The majority of both groups came from homes where the father had been a skilled or unskilled laborer or an agricultural worker. The drop-out group showed more fathers in managerial positions while graduates showed more from the semi-professional fields, (such as engineers and technologists). See Table XXII for summary.

TABLE XXII

FATHERS' OCCUPATION

	Graduates	Drop-Outs
Laborer	8	10
Farm or Ranch Work	9	3
Skilled Labor	14	7
Civil Service or Public Service	2	3
Managerial	0	4
Semi-professional	5	0
No response	2	3

What courses were considered to be the most difficult by graduates and drop-outs? The graduates considered Pharmacology to be the most difficult, next was Body Structure and Functions, and third was Family Living and Nutrition. Over half of the graduates considered Pharmacology to be the most difficult.

The drop-outs considered Body Structure and Functions to be first. (This is probably because many of them only took this course.) Pharmacology was second and Family Living and Nutrition was third in the list of most difficult

courses. There was a significant difference between the two groups with X^2 = 29.518 where a value of X^2_{10} = 18.31 was needed for significance at the .05 level. See Table XXIII for summary.

TABLE XXIII

COURSES CONSIDERED MOST DIFFICULT

	Graduate	Drop-Out
Body Structure and Functions	4	11
Personal-Vocational Relationships	1	0
Family Living and Nutrition	5	4
Nursing Arts and Skills	0	1
Personal-Community Health	2	0
Conditions in Illness	4	0
Pharmacology	23	6
Obstetrics	0	0
Well Child - Pediatrics	0	0
Geriatrics-Rehabilitation	0	2
Mental Health-Illness	1	0
No response	0	6

What did students feel was most difficult about course work? The largest number of drop-outs did not feel the teaching was adequate. Graduates responded that the material was difficult. There was a significant difference at the .05 level between the two groups. The value of X^2 was 10.836 where a value of X^2_3 = 7.81 was needed for significance. See Table XXIV for summary.

TABLE XXIV

WHY COURSES WERE CONSIDERED DIFFICULT

	Graduates	Drop-Outs
Difficult material	13	3
I did not have the necessary background	7	7
I did not feel the teaching was adequate	4	9
I did not feel that the course was of much value	0	2
No response	16	9

Were the students unhappy with their instructors? The drop-outs expressed more unhappiness with the instructors than the graduates. Almost one-third of the drop-outs felt that the instructors assumed that the student knew more than they actually did. Several students from both groups thought that the instructors showed favoritism. Many members, almost one-half of the drop-outs and almost two-thirds of the graduates did not respond. The X^2 value was 5.737 with a value of $X^2_2 = 5.99$ was needed for significance at the .05 level. For summary, see Table XXV.

TABLE XXV

STUDENT RESPONSE REGARDING INSTRUCTORS

	Graduates	Drop-Outs
They showed favoritism	6	6
They were not willing to help when needed	0	1
They assumed student knew more than they did	5	9
No response	29	14

How did students feel concerning the physical facilities at the school?

The Laramie Vocational School of Practical Nursing is housed on the third floor of the Junior High School Building in Laramie. Classes are conducted for junior high school students on this floor as well as for the nursing students. There is a room for classroom instruction and another used as a clinical laboratory.

Two-thirds of the drop-outs and about one-fourth of the graduates did not feel that these facilities were adequate. There was a significant difference between the response of the two groups concerning item 7 which asked if they felt that the facilities were adequate. The X^2 value was 13.780 where a value of $X^2_4 = 9.49$ was needed for .05 significance. See Table XXVI for summary.

TABLE XXVI

STUDENT FEELINGS ABOUT PHYSICAL FACILITIES OF SCHOOL

	Graduates	Drop-Outs
Did students feel that physical facilities were adequate?		
Yes	31	10
No	9	20
What did students feel was inadequate?		
Building	9	5
Lighting, seating, etc.	0	1
Instructional equipment	0	1
Textbooks	3	5
Noisy because of junior high students	1	4
No response	27	14

Did more drop-outs than graduates consider leaving the program? Item number 10 refers to this question; answers showing no significant difference between the groups. The X^2 value was .665 where a value of 3.84 was needed for significance at the .05 level. The response was as follows: 29 graduates felt like leaving school and 11 did not. Drop-outs answers showed that 11 did not wish to leave school while 19 did feel like leaving.

What type of work are graduates and drop-outs now doing? Of interest and concern to the staff of the Laramie Vocational School of Practical Nursing is the type of work graduates and drop-outs are now doing. The purpose for which the school was founded was the training of practical nurses which was (and is) a much-needed area of training. Seventy-five percent of the drop-outs are engaged in some phase of nursing; therefore, they have either obtained training elsewhere or are working in states where the state board requirements are not as strict as they are in Wyoming. The difference in occupations is quite difficult, being significant at the .001 level. Where an X^2_6 value of 22.457 is needed. The X^2 value for the comparison was 41.101. A summary can be found in Table XXVII.

TABLE XXVII

TYPE OF WORK PRIOR STUDENTS ARE NOW DOING

	Graduates	Drop-Outs
Nursing	30	2
Working as a nurse's aide	0	7
Other hospital work	1	3
Waitress or other service occupation	1	6
Housekeeping and other household work	1	5
Office work	0	1
Other	7	6

Comments concerning additional statements made by graduates and drop-outs during personal interview on questionnaire.

Favorable Comments of Graduates: Many of the graduates were extremely happy with the program offered by the Laramie Vocational School of Practical Nursing. A couple of examples of their comments are as follows: "I feel that this course was taught and organized very thoroughly and that it was a wonderful opportunity for me. I am very pleased with this course and the help I received. I am 59 years old and entirely self-supporting, thanks to this course." "It was one of the greatest opportunities of my life and MDTA made it possible! It made me a better wife and mother. I am now in a position to be self-supporting. I can gain employment anywhere in the U.S.A. and many other countries."

These sample comments reflect the opinion of many of the graduates. For further comments, see Appendix B.

Unfavorable Comments of Graduates: Some of the graduates expressed a degree of dissatisfaction with various aspects of the school. A few of their comments are as follows: "They showed favoritism. I kept seeing some of the students get dropped for petty reasons and because some students kept 'brown-nosing' the teachers." "There was a lack of understanding and communication between the teachers and the students. No respect is shown to the students." "The structure of the classroom was inadequate."

Further comments can be found in Appendix B.

Favorable Comments of Drop-Outs: Not all drop-outs were bitter; some expressed very favorable comments concerning the school. Some examples are

as follows: "I think it is a wonderful project and I hope to attend in the future if the program can continue. It would be helpful if I could receive an allowance to help cover cost of a babysitter." "I felt the teachers were excellent and well qualified. It was a worthwhile and comprehensive course." "I think it is a very good school. A little too strict on some things, such as attendance. The program was better than I had expected."

More comments can be found in Appendix B.

Unfavorable Comments of Drop-Outs: Appendix B also offers comments of drop-outs which were unfavorable. Samples of these were: "They should have places for your living - the places you get to live in are too high to live in. I didn't know anybody and was away from home for the first time. I was kind of scary." "The hospital was inadequate." "Children going to and from classes were very noisy and made it hard for us to concentrate. Not enough allowance to pay a decent babysitter and I didn't have my children with me. I was told by Mrs. _____ I was flunking and should quit. She runs you into the hole, degrading you, then tries to build you up again." "Rules of the school are far too strict! Too much to do in the time allotted. I did not feel the teaching was adequate. There was a lack of room."

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I SUMMARY

The purpose of the study was the determination of Reasons for Practical Nursing Students Discontinuing Their Education at the Laramie Vocational School of Practical Nursing. Involved in the study was the identification of factors that might distinguish between those students who withdrew and those who persisted until completion.

The study group was comprised of two groups of students who had been enrolled at the school; those who completed the course and those who dropped out before completion.

Information from student records was tabulated and subjected to a T test of various things to determine whether a significant difference existed between the graduates and drop-outs.

There existed a significant difference between the factors of age, intelligence, (as measured by WAIS I.Q. Test), Pre-nursing test, grades while enrolled at the school, and marital status.

From the questionnaire which was completed by the students, it was found that there was a significant difference between graduates and drop-outs concerning the following factors:

1. Expectations of course offered at the school.
2. Employment of mother while a child.
3. Length of the program.
4. Courses which were felt to be most difficult.
5. Why courses were considered to be most difficult.
6. Adequacy of physical facilities.

II CONCLUSIONS

Because of the small sample, conclusions made will not be statistically significant; however, certain conclusions will be presented concerning the probability of success of students entering the program. These conclusions are based only on those items on which there was found to be a significant difference between graduates and drop-outs.

The age of the student seemed to be a factor in student success. If the student is between the ages of 18 and 22, they would seem to have the least chance of success. The odds would be approximately 2 chances in 5 of succeeding. The probability of success seemed to increase with the age of the student.

When intelligence is considered, those students with I.Q.'s below 100 have 7 chances in 20 of succeeding. The group with scores between 106 and 125 had 20 chances in 26 for odds of 10 to 3 in favor of success.

The pre-nursing test percentiles seemed to be the best single indication of success. Those students with scores below 50 percentile had 4 chances in 20 of success; with odds of 4 - 1 against graduating. From this 50 percentile point upward, the probability of success was much better with odds of 18 to 7 in favor of success. The group with scores over 91 had odds of 13 to 3 in favor of success.

Grades used were grades while at the school; therefore, they could not be used as a predictor of success. The writer of this paper noticed that the highschool records of most students at the school indicated low grades in high school or other educational endeavors.

When the marital status of students is considered, there are some factors which seem to increase the likelihood of success. The odds for success are as follows:

Single students, 3 - 5 against; married, 4 - 1 in favor; divorced, (or separated) 12 - 13 against, and widows 1 - 1.

The only significant item on the questionnaire which had any bearing on predicting success was the employment of their mother when the student was a child. Sixteen drop-outs out of thirty indicated that their mothers worked when they were children; only eleven graduates out of 40 indicated that their mothers worked. It can, therefore, be concluded that the probability of success would be smaller for those students whose mothers worked while the students were children.

III RECOMMENDATIONS

After consideration of the facts which have been found in the study, several recommendations are made which could lower the drop-out rate. Some of the recommendations cannot be made considering the nature and the purpose of the school, however, they are mentioned.

Selection of Students:

1. Selection of students over 22 years of age unless the prospect shows a high degree of maturity.

2. Select only those students with I.Q.'s above 100.

3. Select only those students who score above the 50th percentile on the pre-nursing tests.

4. There is a greater chance of success when married students are selected; however, the need could possibly be greater where the others are concerned.

Physical Facilities:

1. The school should be in separate facilities or separated from the classrooms being used by junior high school students.

2. Student involvement in the selection, if possible, of materials and textbooks.

Curriculum:

1. Body Structure and Functions, and Pharmacology should be increased in length without increasing content, and placed in different sequence; and special consideration given to the methods of teaching these courses.

2. The course in remedial math and any other remedial areas should be continued if students of low ability are taken into the program.

Other Factors:

1. Overall course length should be increased.

2. More information about what is really involved in the program before a student enters the school.

3. Students should not be pressured to enroll; and those who have been pressured by others should be discouraged from enrolling.

4. Student counseling should be given special attention.

5. Teachers should avoid any show of favoritism and avoid down-grading of students. This does not mean a lowering of standards; but more empathy.

6. The basic organization of the school seems to be functioning effectively and should be continued.

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APPENDIX A

4-8-49.

THE UNIVERSITY OF WYOMING

COLLEGE OF EDUCATION

LARAMIE, WYOMING

With the cooperation of the State Department of Education, and the Adult Education Department of the University of Wyoming, a survey is being made of all students who have been enrolled in the Laramie School of Practical Nursing.

We would appreciate your help! A questionnaire has been enclosed with this letter. We would like for you to complete the questions concerning your experiences while a student at the school. When you have completed the form, please place it in the enclosed envelope and return it to us.

You will not be identified in any way and your answers to the questions will be held in strict confidence.

Since it is important that we receive information from all prior students, would you return the completed questionnaire as soon as possible so the results can be tabulated and recommendations made for the improvement of the school.

Thank you for your cooperation.

Sincerely yours,

Robert L. Foree

Robert L. Foree
Principal Investigator

Principal Consultant

Dr. Glenn S. Jensen, Head
Department of Adult Education
University of Wyoming

Enclosures

Answer each of the questions listed concerning the time when you were enrolled in, or interested in the Laramie School of Practical Nursing.

1. I was encouraged to enter the Laramie School of Practical Nursing by my ____mother, ____father, ____sister, ____brother, ____a friend,____the employment office, or_____.

2. I entered the program without any great influence from anyone. ____YES ____NO

3. I did not really want to enter the school, but the person mentioned in question 1 influenced me to do so. ____YES ____NO

4. While at the Laramie School of Practical Nursing, which course did you consider to be the most difficult?
   ____Body Structure and Functions
   ____Personal and Vocational Relationships
   ____Family Living and Nutrition
   ____Nursing Arts and Skills (First aid and home nursing included)
   ____Personal and Community Health
   ____Conditions in Illness
   ____Pharmacology
   ____Obstetrics
   ____Well Child and Pediatrics
   ____Geriatrics and Rehabilitation
   ____Mental Health and Illness

5. Did you feel the course was difficult for any of the following reasons?
   ____Difficult material
   ____I did not have the necessary background
   ____I did not feel the teaching was adequate
   ____I did not feel that the course was of much value

6. Were you unhappy with your instructors for any of these reasons?
   ____They showed favoritism
   ____They were not willing to help me when I needed help
   ____They assumed that we all knew more than we actually did when they taught their lessons

7. Did you feel that the physical facilities, such as the building and equipment were adequate? ____YES ____NO

8. What did you feel was inadequate?

9. When I entered the Laramie School of Practical Nursing, I felt:
   ____It was the type of work I always wanted to do.
   ____I thought it would be better than what I was doing.
   ____I thought it would be interesting to see what a practical nurse has to do.
   ____I had always wanted to help people.
   ____It had to be better than what I was doing.
   ____It would help me make more money.

10. Did you ever feel like leaving the school during the time you were enrolled there? ____YES ____NO
Why did you leave or want to leave?

If you did not leave, what kept you from doing so?

11. What type of work experience did you have before entering the Laramie School of Practical Nursing?

12. Do you feel that you had adequate time to select a counselor when you were at the school? ____YES ____NO

13. Did you get the counselor you asked for? ____YES ____NO

14. Did you feel that you received enough help from your counselor?
____YES ____NO
If not, how might they have helped you more?

15. After you had enrolled in the nursing school, did you find that the program was:
____About what I expected.
____Better than I had expected.
____Not at all what I expected.
____Of less value than I thought it would be.
____A waste of time.

16. When you first chose to attend the school, were you:
____Sure it was the type program you wanted.
____Uncertain, but thought it might be the program you wanted.
____Almost certain it was not what I wanted, but others influenced me to enter it in spite of my feelings.

17. Prior to entering the school, to what extent did you understand the program offered there?
____I knew very little about it.
____I knew what some of the activities were.
____I knew a lot about the school and the courses offered.

18. Did you feel that the weekly allowance you received from the manpower office was an adequate substitute for the income you might have received from a job?

19. When you left the Laramie School of Practical Nursing, did you have a job promised? ____YES ____NO
If so, what was the job?_____

20. What type of work are you now doing?
___Nursing, ___working as an aide, ___other work in a hospital
___Waitress or other service occupation, ___Housekeeping and other household work. If not any of the above, what is your job? _____
_____.

21. When you enrolled at the school, how soon before classes began did you decide to enter the school? (Your answer does not need to be exact.)
____A few days
____A week
____Several weeks
____A month or more

22. While you were enrolled in the school, did you have any of these occurrences?
____Sickness in your home
____Personal illness
____Other things that interfered with your study. Please explain.

23. If you left the school before completing the courses, was it for any of these common reasons?
____Needed more income
____Illness (Personal)
____Pregnancy
____Marriage
____Poor grades
____Illness (in your family)
____Other (Please explain)

24. How many brothers and sisters do you have? ____sisters ____brothers

25. Were your parents living together when you were a child? ____YES ____NO

26. Was your father employed most of the time when you were at home?
____YES ____NO What was his job?_____.

27. Was your mother employed when you were at home? ____YES ____NO
What type of work did she do?_____.

28. How many different homes can you remember living in when you were living with your parents? _____

29. Did you feel that the length of the course of study at the Laramie School of Practical Nursing was:
____Too short.
____About the right length.
____Too long.

30. Were you active in outside activities, such as church groups, clubs, dating or other activities while a student at the school? Please list any of these activities which required more than an hour each week.

List any other information concerning the Laramie School of Practical Nursing that you feel may be of interest to us.

APPENDIX B

GRADUATES: L.V.S.P.N.

FAVORABLE COMMENTS

"I understnad that now there is an instructor with the girls while they are on duty and teaches on the job. I wish I had had that kind of training. I wish I could enroll in the school and go through it as it is set up now."

"I feel that L.V.S.P.N. is an excellent school. I have always found the instructors willing to help whenever needed; in school or at their homes."

"I feel this course was taught and organized very thoroughly and that it was a wonderful opportunity for me. I am very pleased with this course and the help I received from it. I'm 59 years old and entirely self-supporting, thanks to this course."

"I believe the L.V.S.P.N. is fulfilling a great need in the nursing services. It improves one's understanding of one's own family and helps in illnesses of all kinds, even if the nurse does not work all the time for a hospital, nursing home or other nursing service. I wish the school could be enlarged and the courses lengthened, more courses taught."

"I leanred a great deal and feel that this knowledge will be helpful to me the rest of my life."

"It was one of the greatest opportunities of my life and MDTA made it possible! It made a better wife and mother of me. I am now in a position to be self-supporting. I can gain employment anywhere in the U.S.A. and many foreign countries."

"I think it is a wonderful opportunity for someone who is really interested in nursing."

"I do not feel anything was inadequate. The nursing school was better than I had expected. I feel that the course was too short, but I also feel we had the best of instructors."

"I had personal problems at home which my instructors were very helpful and considerate about. I think the length of the course was too short, and I loved going to school."

"I have had ample time to compare my training with the girls that (another school) turns out and I feel that the Laramie class is hard, but the ones who made it in our class all passed State Boards while in (another town) they are easy and too lenient on the girls and many have failed their State Boards. Mrs. ___ is tough on everyone, but it pays off."

"I discussed the situation of my being 2 mos. pregnant after school started with the coordinator and she was most helpful in urging me to stay in. I had a large family including teen-agers and a new infant--but I graduated. The school was better than I expected."

Graduates Favorable Remarks continued.

"I was not unhappy with my instructors and I did not feel that the equipment was inadequate. The program was better than I had expected."

"I felt that this was a once in a life opportunity."

"The program was better than I had expected. This was a challenge and at my age, I really wanted to succeed in doing what I had always wanted to do. Our instructors and coordinator were some of the finest people I have met. They gave more than their fair share of their time after hours to anyone who needed extra assistance. Mrs. ___ is the fairest person I have ever come in contact with. Because of her interest and understanding, I made a special effort at all times. I could appreciate the school policies and the high standards set. I only wish I could have had this opportunity earlier in life."

"No reason for dissatisfaction with teachers. Very satisfied. Many of the girls had personal difficulties, but the instructors got a lot of unfair blame. Most of the girls' complaints were the result of their own personal problems and I don't think it's fair to shove them off on the instructors to solve. The course wasn't too hard nore the requirements too hard. I had some disagreements, but I was always heard. I am most happy and pleased with the school."

"I am very grateful to have been able to attend the school. I could not have put myself through school."

"It is a good school."

THE FOLLOWING REMARK WAS LISTED BY 20 OF THE GRADUATES WHO RETURNED THEIR QUESTIONNAIRES:

"The program (or school) was better than I had expected."

GRADUATES: L.V.S.P.N.
UNFAVORABLE COMMENTS

"Mrs.____ did not teach, but left it up to Mrs.____ . She was no teacher, but she did the best she could. I did not feel the teaching was adequate."

"One of the older instructors usually degraded me because of my lack of education."

"They showed favoritism. I kept seeing some of the students get dropped for petty reasons and because some students kept 'brown-nosing' the teachers."

"They showed favoritism. They treated us like children."

"They assumed that we all knew more than we actually did when they taught their lessons. They showed favoritism."

"One instructor has very few human feelings and will not even let you explain 'why'. The coordinator is unfair in her judgment. She is a very good teacher, but should not be coordinator. I think she is a very good teacher, but is too involved with other things and too inhuman to have the final say as coordinator."

"Hospital facilities could be better. There was too much pressure put on me by the school. There wasn't enough time to cover material and complete assignments. A textbook was needed for Mental Health. Excuses were handled in an unjust way. It was next to impossible to support 4 children on the allowance. My sister had to help me or I couldn't have remained in school. The coordinator expected too much of the students. She is a very good teacher and knows how to teach, but she lacks the personal warmth and interest needed to show compassion and understanding of the students. I felt like I was being treated like a 3-4 year old rather than an adult. I am very full of resentment for many reasons too numerous to mention."

"There was a lack of understanding and communication between the teachers and the students. No respect is shown to the students."

"We were treated like small children caught in the act of doing something wrong, but never quite knew what it was. I felt that the instructors never trusted us. I think a Dr.'s excuse every time you are absent is unjust. The instructors spent quite a bit of time on hard courses at first then rushed through 10-15 chapters in one week and expected us to know it without any class discussions on it. You couldn't ask questions--they'd only tell you to 'look it up', and if you couldn't understand it, they wouldn't explain it. I felt like a robot."

"Mrs.____ made things almost unbearable. She went to another job, so I did not leave school. I understand many of their policies have changed. We worked more or less as aides with very little supervision."

"I feel that we should have had more on Pharmacology."

"The structure of the classroom was inadequate."

Graduates Unfavorable comments continued

"The classroom and books were inadequate."

"We needed books for Mental Health."

"I felt that the instructors was a cold piece of machinery, one has very few human feelings and will not even let you explain 'why".

"More space was needed."

"The coordinator appears not capable of handling more than one job such as teaching and coorcinator. There was not enough time for the material."

"One instructor appeared to have the idea we should learn much faster than we did and I got discouraged. I felt the students were not given a chance to defend themselves if they were 'called on the carpet'. We were treated like 3 year old children. If you don't know the answer to everything, she wants to know 'why you didn't study' -- maybe you did, but can't remember it all; but that's not excusable. The instructors never trusted us. Many times I just plain felt like saying, 'I do not comprehend!"

"We were not allowed to ask questions--we would be told that the instructors had covered it well enough that no questions should be necessary. There was not always time enough to cover the materials and complete assignments--they were much too long to be done properly in the time allowed. We needed textbooks in Mental Health. The manner in which excuses were handled was an unjust way. Money is a big problem with MDTA students and the cost of office call, medicine, etc. puts a big strain on budgets which have little, if any, 'give' in them. There was too much inconsistency in the school by the coordinator. She says one thing one time and next time something else. She puts school in her life ahead of everything else and expects everyone else to do the same. If we were single students with no families, we might be able to do that, but when one has to be father, mother to more than one child, this is not feasible. She is a very good teacher, but seems not have any interest in showing compassion or understanding for anyone else. She believes force rather than the will to do be inspired. You have to inspire people to want to do rather than to force them to your will. I feel that the price I paid for this year in school will be (and is) far too much for what I've gotten from it."

"In order to stay in class, we had to mold ourselves into the coordinator's mold and many times I disagreed with her and did not want to mold. I have never felt that she is a person--just a machine programmed to teach nursing. She could have been much more understanding. I felt that we were being instructed by a cold machine, interested only in herself and her problems. She was never interested in the class as people, only as 'her students'. We were expected to be molded into her form and our ideas and interests were nothing. Everything had to be done her way. She would never accept cricicism of any kind or admit that a student might have a good idea or technique. We went through much very important materials so fast that it was impossible to retain it. We had assignments and were quizzed on it the next day without ever discussint it in class, so if we did not understand something, we never had a chance to have it explained to us before we had received a grade on the quiz."

Graduates Unfavorable comments continued

"The hospital situation is inadequate, mainly because it is too small, and not enough facilities for better learning. I was being lectured constantly that my attitude was not good -- I was not a machine. There is much too much emphasis placed on personality. We couldn't be ourselves. All my anecdotal notes said I was too resentful of 'constructive criticism'--I don't consider being called 'flighty' or 'a follower' as being 'constructive criticism'--in fact, it is very destructive! The instructors wanted us to become the image and likeness of themselves. No one has the right to criticize another person's basic personality traits unless they drastically interfere with their work. Many times there is good reason for being resentful. When one is treated like a fourth-grader, he begins to feel like one and may act accordingly. I think the school is a good one, but please, somebody--tell the instructors that students are humans; not machines - grown women, not school kids; and they are individuals capable of having their own thoughts and beliefs."

"There was a tremendous lack of understanding between teachers and students. There was lack of moral support and respect for the students from the teachers."

DROPOUTS: LARAMIE VOCATIONAL SCHOOL OF PRACTICAL NURSING

FAVORABLE COMMENTS

"I think it is a wonderful project and I hope to attend in the future if the program continues. It would be helpful if I could receive some allowance to help cover a babysitter."

"I felt the teachers were excellent and well qualified. It was a worthwhile and comprehensive course."

"I felt that the school was good."

"I thought it was great and wish more could get going!"

"I am sure the school is a very good program and we need Practical Nurses more and more. I have the highest regard for the instructor, even though she can build up some resentment. I feel that the instructor made the practical nurses (licensed) what they are today. If they hadn't learned under her, they wouldn't have made it."

"I would like to go back next year and finish. I only have 3 kids left at home now and I could make it this time with a little more help and I've wanted this ever since I quit."

"I think it is a very good school. A little too strict on some things such as attendance. The program was better than I had expected."

"The instructors were real helpful and they know their work real well."

DROPOUTS: LARAMIE VOCATIONAL SCHOOL OF PRACTICAL NURSING

UNFAVORABLE COMMENTS

"I did not feel the course was of much value. The hospital part of the training was inadequate. The hospital made good use of us for the dirty jobs of clean up. The nursing program is generally all right. It is a fine thing if used right. Minor (?) mistakes I see done daily by the nurses, nurses aides, and the Drs. Yes! But this, (Mrs.____ indicated) I must never see or speak of to anyone! The nurses were jealous; they got theirs the hard way and wanted to make it hard for us also. They often played favorits, too. The aides did things that we got blamed for. I was 10 days from graduating, but was informed that I was 'out'. The reasons they gave me were untrue and inadequate. Mrs. ____ had me on her personal black list for vindictive reasons all her own. My grades were fine. Others graduated who were not getting along as well as I Mrs.____ was the one who said if you ever make a mistake, never admit it to anyone."

"Poor lighting and very uncomfortable seating. The school was better than I expected. Living conditions were terrible. Women leave their homes, uproot their families to better themselves. People refused to rent to anyone with 4 children. We finally found a 1-bedroom basement apartment and were packed in like sardines. You can't study with 4 children on top of you. I finally gave up and went home. Some day when they are older, I would try again, but not in Laramie unless lots of changes are made. We were considered intruders in Laramie. Also, our families were under great emotional strain with what we had to put up with. It was a great disappointment and the biggest mistake I'd made in a long time."

"The teaching was not adequate. Needed a quieter place to work. The equipment was good. The hours of work at the hospital conflicted with my home responsibilities."

"They should have places for you to live; the places you get to live are too high to live in. I didn't know anybody and was away from home for the first time. It was kind of scary."

"They didn't have enough teachers to handle all of us. They should have split the class in half and had more teachers. I was afraid of my teacher. I'd know what I was supposed to know in her class and when she'd ask me, I'd forget everything. I would like to go back this coming year and finish. I only have 3 kids left and I think I could make it this time."

"I did not feel the teaching was adequate. They showed favoritism and one was not willing to help me when I needed help--the coordinator. It was not adequate time for the course she was teaching. She made the statement that it was a 3 yr. R.N. course in 1 years time. I was made to leave by the coordinator as she marked me below average in Body Structure. The cheating that went on was not of my approval. Mrs.____ knew of this when I stated it to her and the results were a statewide investigation. It was the most disgusting year I took from Mrs._____. The counselor was not given to me. The coordinator could have aided more in having the counselor aid me."

Dropout's Unfavorable comments continued

"The material taught was very inadequate. I was not allowed to take part in class discussions. The school was doing nothing for me, but making a physical and mental wreck of me. The school ruined more girls than the help. The allowance was much too small. My living costs were more than my allowance. I was terminated for such things as irresponsibility and inciting riots. The school policies were much too strict and formal. I found no encouragement to do anything except just what I was told. Outside activities were discouraged and I found no challenge--only forced obedience. I couldn't do this, and I rebelled. I feel the course was lacking substance and very poorly presented."

"The hospital was inadequate."

"I didn't feel the instructors were very fair. I had trouble with the head instructor. I did not feel the teaching was adequate. They assumed we knew more than we did when they taught their lessons."

"They showed favoritism. We didn't have adequate books, ventilation, and space for clinical instruction. I wanted to leave because of pressure from the instructors, health reasons, depression, feeling of being remodeled into a person I didn't like or respect. I felt pressed against a wall-quit or be forced out. The people who were dropped were earmarked within a month of the school's inception. All pride, self-respect and initiative is destroyed. No human attitude is displayed for extenuating circumstances. Book shortage. The moral ethics and standards of staff were imposed on students. Petty issues to coerce public and private concessions. Dictatorial, hierarchy."

"They pushed too many studies on us the first week. There wasn't enough books to go around."

"The instructors seemed to pick out their favorite pupils and to do everything to prevent others from succeeding. It was a joy to help their pets and a great bother to do anything extra for anyone else."

"Children going to and from classes were very noisy and made it hard for us to concentrate. Not enough allowance to pay a decent babysitter and I didn't have my children with me. I would find myself deep in thought of my children when I should have been studying."

"You weren't allowed your own private life. They were always checking on you and jumping you for things they thought you shouldn't do. Should be able to see your counselor when you want to, not when they assign you to one. I was told by Mrs._____ I was flunking out and should quit. She runs you into the hole, degrading you, then tries to build you up again."

"Rules of the school are far <u>too strict</u>! Too much to do in the time allotted. I did not feel the teaching was adequate. There was a lack of room."

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VT 003 246
How to Train Workers on the Job.

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*ON THE JOB TRAINING; *TEACHER EDUCATION; TEACHING METHODS; TEACHING PROCEDURES; *INDUSTRY

This manual is designed to help the technically competent worker become an effective instructor for on-the-job training programs. The critical problem in training people for skilled jobs is the effective transmission of know-how from the instructor to the learner. A skilled worker can become a skilled instructor if he learns the techniques of successful instruction and uses them to pass his physical and mental skills along to others. The successful training instructor must develop sensitivity to trainee attitudes and problems. He must develop a pattern of training by planning a detailed breakdown of every step in the job. This breakdown permits him to deal with one step of the operation in depth and prevents his trying to cover too much at one time. The instructor uses the coaching process to deal with the difficulties of the trainee by observing, diagnosing, prescribing, motivating, trying, and reviewing. Specific areas covered are (1) on-the-job training, (2) knowledge versus instruction, (3) challenges and problems, (4) need for a program plan, (5) training patterns, (6) job analysis, (7) instructor's outline, (8) standards, (9) the coaching process, (10) tests, (11) the job log, and (12) self-development. (HC)

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HOW TO TRAIN WORKERS ON THE JOB

VT003246

U.S. DEPARTMENT OF LABOR/W. Willard Wirtz, Secretary
MANPOWER ADMINISTRATION/Bureau of Apprenticeship and Training

PREFACE

This manual is designed to help the skilled worker become a skilled *instructor*. It is a bridge between doing and teaching. We need instructors who can bridge this gap at a time when the demand for semi-skilled and skilled workers is growing constantly.

Assembled here is the best current thinking on how to train people for skilled work.

The critical problem in training is the effective transmission of know-how from the instructor to the learner. How can he get his instruction across so that the trainee really learns new techniques and methods of thinking and working?

A skilled worker can become a skilled instructor if he learns the techniques of successful instruction and uses them to pass his physical and mental skills along to others. The combination of skill on the job and *skill in showing others how to do it* makes the ideal leader for an on-the-job training program.

An instructor is selected because he is *completely and thoroughly familiar with the job* itself. He must be able to do it; be familiar with the reasons for doing every step, and the common mistakes.

This entire manual is devoted to helping the technically competent worker to become an effective instructor of people.

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The Attitude of Self-Improvement
Keeping up with Your Field
Security and Job Success
Success is Where You Are

WHAT IS ON-THE-JOB TRAINING?

Even the simplest of skills must be learned, usually from someone demonstrating how to make a bed, load a truck, nail a board or splice a wire.

There is a great and growing need for competent, well-trained people in business and industry. There is a related need for the skilled worker who is able to teach others how to do what he can do.

He can only do this if he is willing to put forth the effort required and is sincerely interested in passing along all that he knows. He cannot hold back part of his skilled know-how and do an effective job. The craftsman who has the attitude, "I learned my skill the hard way and you can too," has no place as a trainer.

Craftsmen and tradesmen have been recruited and trained on the job since the dawn of history. The men who shaped and laid stone for the pyramids in Egypt, who wove silk in northern Italy, who built ships on the River Clyde in Scotland, or printed copy for Benjamin Franklin in Philadelphia—all were selected and trained on the job for highly skilled work.

Forward looking men of all ages have insisted upon training their fellows in skills and related knowledge in order to provide the "good life" or saleable products.

Somehow, in the industrialization of America, we have lost sight of the need for filling the great demand for skilled workers. It has been assumed that an adequate supply of skilled help, of various kinds,

would always be available. Perhaps this shortsightedness has been responsible for today's scarcity of skilled and semi-skilled people.

We need more journeymen in the various trades. We have a great need for semi-skilled people in activities that range from meat cutting to auto mechanics to dental technicians. Any survey of needed personnel will show that this country could employ far more skilled people than are presently available.

The real problem is that, somehow, people have not been trained in the skills that are needed by industry. This is where on-the-job training is needed to train people for the work to be done whether it be fishing, fish filleting, house work, cooking or woodworking.

Every company is full of people who can do more, in terms of skills, than they are presently doing. On-the-job training is a means of tapping the skill potential of a business. As it is done on the premises, the learner does what is needed for the company and learns those things which cannot be taught him by any outside agency. As one company president has said:

"We must train people to do our work, our way with our tools, our procedures, and our employees. This part cannot be learned outside our plant. We must train our people constantly or we lose our competitive cutting edge."

Aside from what on-the-job training does for learners is the by-product of instructor development. The person who is selected to do training is obviously going to learn more than the trainees. He grows and develops while helping others learn and becomes a more valuable man for his company and himself.

KNOWLEDGE VERSUS INSTRUCTION

The successful on-the-job training instructor is always conscious of the trainee's attitude. This sensitivity of the instructor is important if he is to pass along know-how to the learner.

The instructor must look back on his own experiences and ask himself, "What did I learn first? In what order did I learn the rest?" He then attempts to train the learner in natural steps leading from the simple to the more complicated parts of the job.

A visit to the office of a dental technician brought this point into focus. He had a trainee who was learning the various skills required in the construction of bridgework, dental plates and partials.

The technician, a highly competent and qualified individual said: "The next time I train a person, I'll have a much better idea of which jobs to teach and in what order. I've been on the job so long that I assume everyone knows and can do what I do. *Nothing could be farther* from the truth."

The technician was saying, in effect, that he needed to train from the learner's viewpoint. He was also saying that it is difficult to put oneself in the shoes of another, even if he has been through the same learning process. The instructor must start with the present abilities of the learner and lead him to a higher level of skill and knowledge.

This is true of all skill instruction.

CHALLENGES TO THE INSTRUCTOR

The successful instructor must know what challenges he will have to face to accomplish his purpose. Some of the most common are:

1. *Maximum development in minimum time* is the over-all goal of the instructor. A program that takes longer than necessary is costly and inefficient. The same is true of the program which overteaches, includes more material than necessary to teach the skill.

2. *Gaining the respect and confidence of trainees* is one of the first steps after the program gets under way. A businesslike, friendly approach is needed.

3. *The best learning sequence* is important, generally progressing from the simple to the complex.

4. *Degree of skill perfection* to be achieved must be determined. Total skill is never developed in a training program. This will take time. If the learner develops proper working habits and practices, improvements in skill will follow.

5. *Providing meaningful experiences* so that the learner is given experience which is practical and useful, in a way that he can understand.

6. *The right way of doing the job* should always be the basis of instruction. When alternative methods are available, be sure the best is being used at a given time.

7. *Accident prevention* is a key part of training. The right way to do a job is the safe way. An injured trainee is a loss to the program. This preventive training should start at the beginning of the program and continue until completion.



PROBLEMS OF THE INSTRUCTOR

The job training instructor must be prepared to deal with many kinds of employee problems.

It must be remembered that many trainees may have been unemployed for a long time. These people may lack what they should have learned in school such as reading, writing and arithmetic. Their school experiences may have been unhappy and they may feel that any new training experience will be equally distasteful.

The degree of skill exercised in dealing with employee problems can make or break a program.

Kinds of Employee Problems

Since each person is different in many important respects, the problems an instructor will have with one will be different from the problems encountered with other employees. It is easy to overlook this since the job situation itself requires that each employee behave the same as others in many ways.

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Common Employee Problems

What are some of the employee problems or mistakes with which an instructor must deal? For practical purposes mistakes can be classified into four different groups.

1. Mistakes that show up in *spoilage, wastage* and *poor production*. For example, the so-called "human errors."

2. Mistakes in *methods* of working, operating, performing or producing. For example, selection of the wrong tool, equipment or work method.

3. Mistakes in *personal* or *group behavior*. For example, "horsing around," tardiness, absenteeism, carelessness.

4. Mistakes of *attitudes* and *points of view,* which may show up in poor production or methods of working. Examples: grouches, opposition to authority, lack of cooperation, poor morale, and so on.

Source of Employee Problems

We have said that the sources of each employee's problems will be unique. Why is this so?

Let's take the case of the instructor who has three employees who never seem able to follow the instruction given them, who appear not to be listening while the instructor is talking, and who react indifferently when the instructor attempts to get their attention.

It would be easy for the instructor to conclude that he has three "bad apples" who don't care about learning a job. The instructor should investigate each person's background before drawing conclusions.

He learns that one man was born with defective hearing; the second man was brought up in a home

where English was never spoken and has difficulty understanding what is said to him; and the third man lives eight miles from the job without public transportation so he walks to work. By the time he gets there he is tired and pays little attention to the instructor.

By establishing the source of the problem the instructor now can handle three completely different cases, where the problem *appeared* to be the same.

THE NEED FOR A PROGRAM PLAN

The instructor must know where he is going in a program and have a plan for getting there. A schedule of training is the roadmap he uses. The schedule will be determined by what the trainee is expected to know and do when the program is completed.

For example, the following objectives apply to a meatcutter in a supermarket:

1. He must be able to sharpen and maintain the tools of the trade; knives, tenderizer, band saw and so on.

2. He must have a thorough knowledge of animal anatomy.

3. He must have the ability to skillfully cut a carcass into saleable cuts of meat.

4. He must be able to package meats attractively.

5. He must be able to prepare and maintain an attractive display case.

6. He must be familiar with and obey all sanitation requirements.

7. He must be familiar with records and reports.

This is only a partial list of objectives, but serves to illustrate the general nature of what is needed.

From these objectives, the instructor will set up a schedule to be sure that a proper amount of time will be spent in each activity. A sample of a partial schedule might look like this:

Sharpening Cutlery	X hours
Breaking up carcasses	X hours
Fundamentals of display (related)	X hours
Cutting and packaging	X hours
Study of cuts (related)	X hours
Records and reports (related)	X hours
Sanitation regulations (related)	X hours

Some of these units will be covered on the job and others will be covered in group classes (related training). The completed schedule will give an estimate of the time required for completion and the time required in each activity. If the original schedule doesn't seem to get the job done, it should be flexible enough to make allowances for changes and still not seriously affect the over-all time required.

JOB AND INSTRUCTOR TRAINING PATTERN

The general pattern of instruction in a skill is a four step process. Each step is important:

Prepare the Worker

Be sure that he is at ease. If he seems to be nervous, spend a few minutes in conversation with him. Find out what he already knows about the job and stimulate his interest.

Present the Operation

The instructor should go through the operation carefully, telling the trainee exactly what each step is, how to do it and any precautions which must be taken to protect the worker, material or equipment.

Be sure that the instructions are *clear* and *complete*.

Cover *only* as much of the operation as the learner can understand at one time. If the operation is lengthy, explain part of it, and tell the trainee you will finish it later. Repeat these processes until the presentation is complete. Let him ask questions, if he has any.

Try Out His Performance

Let him perform the operation. Have *him* explain the steps and key points to *you*. Ask him questions about the steps to be sure that he understands them thoroughly.

If you have presented only part of the operation, repeat the process until you have covered all steps and the learner can do them in sequence and explain the key points. Continue with the trainee until you are positive that he *understands* and can *do* the operation.

Follow Up

Put the trainee on his own. Let him do the job by himself, but tell him where to get help if he needs it.

Encourage him to ask for help at the first sign of trouble.

Observe his performance regularly to be sure he is following the correct methods. This supervision can be slowly tapered off as he learns and becomes more familiar with the job.

IMPORTANCE OF JOB ANALYSIS

The key point in planning job-site training is a detailed breakdown of every step in the job to be sure that nothing is overlooked in the instruction.

A typical breakdown or analysis will include what to do, how to do it and the key points of each step.

JOB ANALYSIS SHEET

Starting an Automobile Engine

What to do	*How to do it*	*Key points*
Buckle seat belt		Safety factor
Adjust rear view mirror	Use right hand from normal driving position	Be sure you can see the road behind (a safety factor)
Depress accelerator	Lift foot	
Engage starter	Turn ignition key all the way to the right	Be ready to disengage starter
Disengage starter	Release pressure on key	Do it as soon as engine starts

Instructor's Outline

A group-session type of class allows the trainees to discuss the problems they are running into as they go along. It can be used by the instructor as a means of communicating essential materials to all of the trainees at one time.

A teaching guide should be prepared for each session of group instruction. It should include the objectives of the session and notes to jog the memory of the trainer so that nothing important is forgotten.

There are some general rules to be kept in mind in preparing this outline:

1. Do not try to cover too much material.
2. Keep the session moving along logically.
3. Discuss each item in depth.

4. Repeat, but in different words.

It is better to cover a limited amount of material thoroughly, than to cover a great deal of material that makes only a shallow impression. Here is a sample outline:

Sample Outline for Group Session

SUBJECT: Knives and their uses

OBJECTIVE:

To familiarize trainees with the type of knives used
To emphasize the importance of sharp knives
To explain where and how to get the knives
To show how dull knives cause injuries
To show how knives should be kept safely

PATTERN OF PRESENTATION:

Show the types of knives used:
- skinning
- boning
- etc.

Explain their uses.

Show why sharp knives are safer than dull ones:
- Less pressure required
- Will do the work for you

Show how to sharpen:
- Grinder
- Steel (sharpening)

Need for safe storage:
- Where
- How

Summarize by reviewing the types of knives, how they are sharpened, personal care and the fact that the company will furnish knives.



STANDARDS FOR THE TRAINEE AND TRAINER

For the Trainee

The instructor must determine the level of skill to be developed, based on specific standards, carefully developed to make certain they cover all phases of the operations that the trainee is expected to perform.

Some areas for setting sample standards are:

1. Quality.
   What are the standards which indicate a good job, well done?
2. Quantity.
   How much work can the trainee be expected to perform in the various steps? How can it be measured?
3. Waste or scrap.
   Is any spoilage of work normal and expected? If so, how much?
4. Ability to work without supervision.
   What task is the trainee expected to perform on his own?
   What problems are to be solved?

5. Knowledge of procedures.
   What procedures must be followed on the operations themselves and related tasks such as securing material, making reports and processing paperwork?
6. Safety rules.
   What are the hazards of the job? What can be done to prevent accidents?
7. Human relations.
   Must the trainee work with others or deal with customers?
8. Knowledge of related subjects.
   Does the trainee know *why* all the operations are performed?
   Can he perform related tasks such as reading blueprints, shop manuals or bills of material?
9. Motivation.
   Does the trainee show the necessary interest in learning?

Most performance standards can be determined by carefully studying the goals of the training. The instructor must break down the high standards for the skilled man to a series of lower levels for the trainee. In this way, the instructor can determine the effectiveness of the training up to any given point. Each job will have its own standards and those areas just mentioned are only a guide for the development of specific standards.

For the Trainer

Generally speaking, the instructor's ability to teach can be measured by the performance of the trainees. The best way to measure the effectiveness of training is to see how the trainees develop. The trainer must be realistic about the progress of the learners and be willing to admit that perhaps both he and the trainees could perform better.

Every so often the instructor must take a look at the progress of the trainees and ask himself the following questions:

1. Are the trainees working, showing proper progress, toward the program goals?
2. Is this progress as rapid as it should be?
3. Are the trainees applying what they have been learning to new situations?
4. What else should they be doing?
5. What goals are not being met?
6. Is the level of interest as high as it was in the beginning of the program?

The answers to these questions will give the instructor a measurement of his success. If he is not satisfied with the results, he should begin to plan different approaches to improve the program and his own performance.

For Related Training

In general, the instructor applies the same standards to related classroom training that he applies to job-site training. There are additional standards to be considered, however, when the related program is planned.

It must be *complete*. Great care must be taken to be sure that *all* of the required material is included.

It must be *timely*. The related training should progress hand-in-hand with the job-site training as much as possible. The best time to teach a related fact is at the time it is actually needed.

It must be *directly related* to the skill desired. The related training for a specific occupation should not include material which has little or no relationship. For example, there is no reason why a tune-up mechanic trainee should be taught the mechanics of an automatic transmission. It would be nice for him to know, but it is not related to the specific objectives of his training.

THE COACHING PROCESS

The instructor uses the coaching process to deal with a difficult detail of operation after the whole operation has been completed. Usually this will concern only one step of the operation. If several steps are giving trouble, they should be attacked one at a time.

Steps in the Coaching Process

Step 1 OBSERVE

The instructor must watch closely the step which is giving the trainee trouble. Mental notes must be made of *every* movement and factor which is present.

Example: Trainee carpenter is bending nails while driving them. He seems to be using a normal hammer stroke.

Step 2 DIAGNOSE

The instructor compares the step as he observes it with the step as it should be performed, to determine the cause of the trouble.

This is often the most difficult part of the process.

The instructor who can see quickly what is wrong in the situation can correct it. He may often find this hard to pinpoint, however, and should never jump to conclusions.

Example: The hammer head is not striking the nail squarely, because the stroke is faulty or the grip is being held at the wrong angle.

Step 3 PRESCRIBE

The coach must decide what changes the learner must make to remedy the situation. He then instructs the learner in the correct method and explains why it is better.

This instruction might be given in a direct manner, but it is often better to approach the problem in an indirect way by asking questions. This will lead the trainee to discover his own mistakes.

Example: The trainer decides that the most likely solution is to have the trainee correct the arc of the hammer blow.

Step 4 MOTIVATE-PRACTICE

The trainer should suggest or show in some way, the benefits of the new method. The *trainee* should be convinced that the new method is an improvement. If the results show immediate improvement, this should be convincing enough to the trainee.

The instructor then guides the trainee through the step in a correct way, just as he did in the initial instruction.

Example: The instructor has the trainee hit a piece of soft wood scrap, just as he would a nail. The imprint shows that the front of the head makes a deeper impression than the back, indicating that it is applying force to the nail at an angle. He then demonstrates how the hammer should strike the nail and has the trainee practice the right method.

Step 5 **REVIEW**

This takes place when the coach discusses *what* made the difference with the trainee. At the same time he should commend the trainee on his efforts to improve. At this time, he can discuss any other difficulty he can see, to prepare for the next round of improvement.

Example: After the trainee has driven several nails correctly, the trainer should again explain what happens when the head does not strike the nail squarely. He should also compliment the trainee on his improved performance.

TESTS AS TRAINING TOOLS

Every test given is an opportunity for the instructor to pass along information to trainees. No test should be given, graded and given back to learners without a discussion of the questions and the correct answers. The best time to correct a wrong impression or idea is at the time it becomes apparent.



TYPES OF TESTS

There are many forms of tests and the choice of those used will depend upon the preference of the instructor, and the type of knowledge or skill being tested. Each type of test has its own uses and is effective in its own way, if properly constructed and used.

Some of the more common types that can be used by the instructor are:

True and False tests are used widely in testing for specific facts. It is usually a lengthy test since each question normally covers only a very small area. Either questions or statements can be used and the trainee can indicate whether they are true or false either by writing T or F, or by checking a T or F box provided on the form.

Example:

T F Excessive feed often causes a rough finish on machine surfaces.

T F All household circuits require the same fuses.

T F 14 gauge metal is heavier than 16 gauge.

Completion tests are simply statements with one word left out; the trainee fills in the key word. They should be phrased so that there is only one correct answer.

Example:

The best material to use for exterior trim is _____.

Milk that is sold to consumers, must have _____% butterfat.

A right angle is an angle of _____ degrees.

Multiple choice tests give both the questions and the answers. The student is given a choice of three or four answers to a question, only one of which is correct.

Example:

The best size material for wall studding is:
a. 1x4 b. 4x4 c. 2x4 d. 2x6

The best material for screws used in a rowboat is:
a. steel b. brass c. cadplated d. aluminum

The resistance of a wire is expressed in:
a. ohms b. amperes c. volts d. watts

Essay Tests are composed of a series of questions that require the trainee to compose a detailed answer. They are usually used to determine the breadth of a trainee's understanding.

Oral Tests are often used informally to get a quick idea of how well a topic is understood. At other times, they are used to allow a trainee to expand on a subject without the necessity of writing.

Open Book Tests determine the student's ability to find required knowledge in books. It does not test specific knowledge of the learner but does test his ability to find the right answer from a book.

Performance Tests determine the trainee's ability by assigning a task to him. The task is performed in the presence of the instructor. This is an excellent way to test for understanding of the job-site portion of the training program.

THE JOB LOG

The trainer has a limited amount of time in which to perform a specific training job. If too much time is spent for one job activity, another area is shorted. It is necessary to keep accounts up to date if the trainer is to know what experiences each trainee has had.

A simple bookkeeping system will give all the information needed to help trainees move ahead at a regular rate and to rotate the trainees properly through different operations and subject matters.

Planning the Training Record

Two forms will usually take care of the essentials of record keeping. One will be kept daily by the trainee or the instructor, depending upon the situation and the trainee's preference. The other will be kept by the instructor and brought up to date once a week. This system can constitute an adequate record without being a burden to anyone.

Two sample forms are shown that will do the job. They are the "Weekly Job Log" and "Daily Job Log."

The Daily Job Log

These forms can be printed or duplicated on cards or paper of almost any size. Probably a 5x8 card will be the best size for most situations.

The heading requires no instruction and the body of the form is easily explained to the trainees. It is laid out to allow enough room for one line for each subject area or work assignment of the day, including related training. The hours for each day can be totaled, if desired, and used as a timekeeping card.



Each category of work and subject area of related training is assigned a symbol or code to make the recording easy. Absences can be recorded as an X or another symbol can be assigned to it. It is better to use letters than numbers to avoid any confusion between the job and hours. Some sample symbols are:

Automobile Mechanic

Skill Activities:

- C Chassis and Springs
- F Front Axle and Steering
- D Differential and Rear Axle
- T Transmission and Clutch
- E Engine
- A Accessories
- B Brakes
- M Tune-up
- G General Repair and Maintenance

Related Training:

- SM Shop Math
- CA Carburetion and Fuels
- EA Engine Analysis
- AE Automotive Electricity
- ST Shop Theory

Sheet Metal Worker

Skill Activities:

- A Fabrication
- F Forming
- I Installation
- L Layout

Related Training:

- SM Shop Math
- HA Heating and Air Conditioning
- MD Mechanical Drawing
- SB Sheet Metal Blueprints
- WE Welding Theory
- CM Characteristics of Metal

The trainee keeps a daily record of his activities, showing the symbols and the approximate amount of time spent in each activity during the day. At the end of the week, he turns the form over to the instructor to be recorded on the Job Log.

THE WEEKLY JOB LOG

The weekly job log is the permanent record of the activities of each trainee in the program. When the trainee completes his daily job log and turns it in, the instructor is responsible for bringing the weekly job log up to date. When this is done on a weekly basis, the trainer will have a running record of the training status of each trainee. It also serves to point out absences from either the regular work or the related training sessions.

CONTINUING SELF-DEVELOPMENT

The Attitude of Self-Improvement

The successful skilled man develops an attitude toward himself and his work that leads to a program of self-improvement. A good worker should feel that he is never doing as much or as well as he should. It seems that there is always more to learn and do as he goes along.

This desire to improve performance is the ideal attitude for the trainee to develop. It should be so embedded in his thinking that it will continue long after the program is completed. He should be encouraged to feel that the training program is only the first step in his personal improvement.

The words of Thomas A. Edison, "I learn something new every day," are just as appropriate today for the skilled man as they were for the experimenter at Menlo Park. In fact, they could be the proper theme for every workman.

Keeping up with Your Field

All fields of work are constantly changing. As one man expressed it, "In my trade, I have to run to stand still." He meant that as changes came along, he had to keep up with them in order to remain effective—and they were always coming up.

There are five basic methods of keeping up with progress in almost any field. Some form of these methods can be used by a person in any job classification.

Books are being published in greater quantities than ever before on almost any subject. Standard handbooks and manuals are revised as needed and are available to everyone.

Publications such as newspapers and magazines continually carry articles on changes in business and occupations. Most occupations have some sort of trade journal which carries articles and news about the occupation.

Experts are continually working with new tools, methods and equipment. These include not only the technical men but workers and supervisors. These experts are usually happy to pass on the results of their tests and experiments. In many cases the sales or technical representatives of suppliers are familiar with them and are pleased when asked to tell about them.

Experience is a great teacher. In many cases the experience of the individual will give him ideas for new and better ways of doing things. Experiments on the

job by skilled men have often led to useful and practical developments.

Special programs are often held by businesses, suppliers or schools to keep workers informed of new developments and how they are applied.

Security and Job Success

Job security goes hand in hand with good workmanship. The capable, skilled man is usually in demand by employers. His skills are generally transferrable from one organization to another and are nearly always needed. The best security for the trained man is the fact that he can and will do a good job wherever he is.

The skilled man is rated by the depth of experience he has in his chosen field and by his steadiness and dependability. The dependable and highly skilled man has little to worry about from the security viewpoint. The future is for the *trained* and *skilled* man. There are fewer and fewer openings for the unskilled worker and this trend will no doubt continue for some years to come.

Success is Where You Are

People have been and are successful in nearly every type of environment—east, west, north and south; in cities, towns, villages and in the country. The *man* is usually the determining factor, not the location. Men don't have to look for better jobs when their employers need and are always searching for capable people. Many people miss success because they do not recognize the opportunity where they are.

An illustration of not recognizing a good location for success is told in the story about a ship at sea which was signaling frantically to another that she was out of fresh water and needed help. The other

ship replied, "Lower your buckets where you are, you are off the mouth of the Amazon River and the water is fresh."

The successful man is one who is constantly self-critical and cashes in on his mistakes. He uses his mistakes as learning opportunities so that they can be avoided in the future. He will try to determine exactly what went wrong and why and then determine a course of action that sidesteps job pitfalls.

The trainee is in the biggest training establishment in the country. The American business community spends billions of dollars each year in training employees for new and better jobs—either formally or informally. With the economy expanding as it has and is, this amount is being constantly increased and the opportunity for further training, formal or informal, is present everywhere.

VT 003 247

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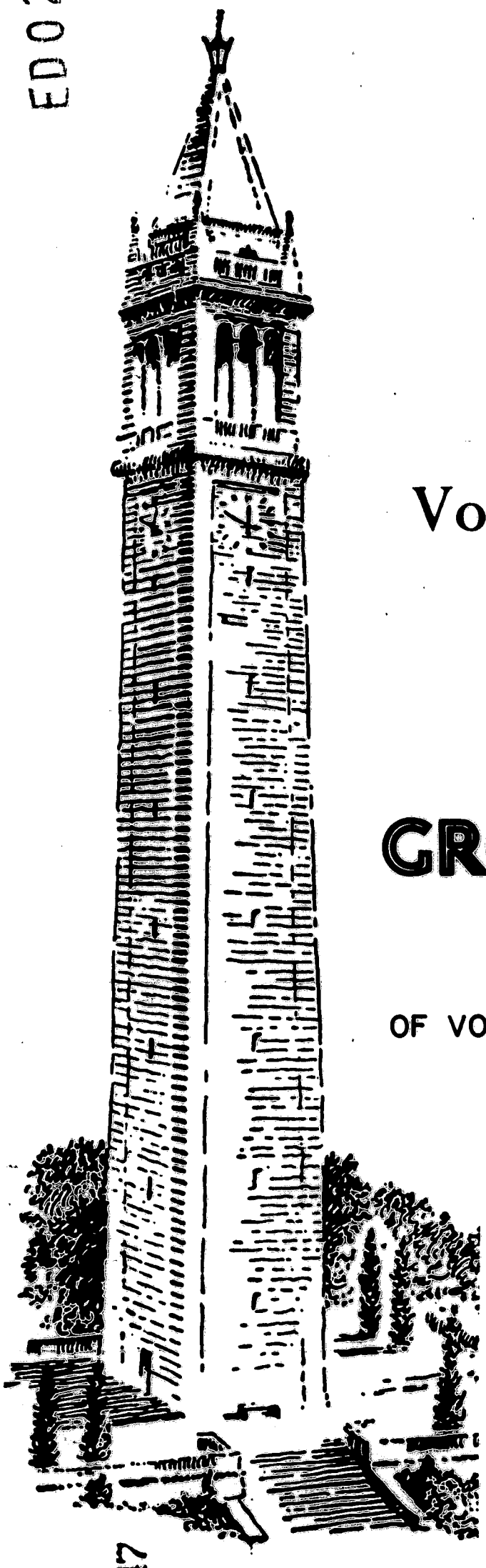
*VOCATIONAL EDUCATION; *EDUCATIONAL ADMINISTRATION; QUESTIONNAIRES; RATING SCALES; *OPINIONS; STATE SUPERVISORS; *EVALUATION; TECHNICAL EDUCATION; *STATE DEPARTMENTS OF EDUCATION; NATIONAL SURVEYS

This document is an instrument designed to obtain perception of the current administration of vocational-technical administration at the state level. It was developed by the Program for Research and Development in Vocational-Technical Education, University of California and includes a personal data sheet, and eight groups of objective-type questions to ascertain perceptions, opinions, and suggestions for maintaining the current status or for making changes in vocational-technical administration. Instructions precede and a sheet for comments and suggestions on the interview questions or other pertinent questions follows each section. "Identificication and Development of Instruments for a Study of Expectations and Perceptions of the State Vocational-Technical Education Agencies and Their Influences Upon Local Programs" (ED 013 362) contains the rationale and development of this instrument and a copy of the instrument. (MM)

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(C1)
47

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Program for Research and Development in Vocational - Technical Education

GROUP INTERVIEW GUIDE

FOR

A NATIONWIDE STUDY OF THE ADMINISTRATION

OF VOCATIONAL-TECHNICAL EDUCATION AT THE STATE LEVEL

School of Education
University of California
Berkeley, California

January 6, 1967

VT003247

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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GROUP INTERVIEW GUIDE

A NATIONWIDE STUDY OF THE ADMINISTRATION OF VOCATIONAL-TECHNICAL EDUCATION AT THE STATE LEVEL

School of Education
Program for Research and Development
in Vocational-Technical Education
University of California
Berkeley, California

Foreword

The questions which follow are carefully structured to elicit <u>your</u> perceptions of current administration of vocational-technical administration at the state level.

We believe state-level administration to be characterized by much excellence--and yet there is ample room for improvement.

We are identifying the opinions of a cross section of the public in each state. Although you may or may not consider yourself qualified in administration, we want your perceptions of <u>what is</u> and your concept of <u>the ideal</u> for your state. We believe you are in a position to have valuable opinions regarding most of the questions.

Complete frankness on your part is essential. Although our research is in no way conceived as a "witch-hunting expedition," some persons (respondents) may be reluctant to speak frankly for fear of possible embarrassment at a later date. This instrument is designed so that your responses will not be identified with your name in our reports and research findings.

The material which follows is divided into two main parts:

1. <u>Personal data</u> (in order that we can identify the kinds of responses given by various kinds of people)

2. <u>Seven groups of questions</u> (designed to ascertain your perceptions, opinions and suggestions for maintaining the current status or for change).

We appreciate your cooperation in this research, and look forward to responses and reactions.

Allen Lee
Project Director

For Your Information

Names of individuals responding to this instrument will not be identified with specific responses. Summaries of findings in general for individual states will be given to the respective State Directors of Vocational Education for such disposition as deemed appropriate.

Other requests concerning use of this instrument and information on findings and related matters should be submitted to the Project Director who has sole responsibility on such matters. This policy was established for the best interests of all concerned.

PERSONAL DATA

I. General Information:

A. State _____

B. Name _____

C. Age: 1. Less than 40 ____
2. From 41-50 ____
3. Over 50 ____

D. Check highest education level completed.
1. Some high school ____
2. High school graduate ____
3. Some college ____
4. College degree(s) ____

E. Are you now a member of a board of education?
1. Yes ___ No ___ Check one: Local___ State ___
2. Name of board _____

F. Are you now a member of an advisory board?
1. Yes ___ No ___ Check one: Local ___ State ___
2. Name of board _____

II. Major full-time work experience:

	Approx. no. years
A. Current Employment:	
1. Job Title _____	
2. Name of Employer _____ ..	____
B. Previous Work Experience:	
1. Professional, such as in medicine, dentistry, and law (do not include employment in education)	____
2. Agriculture Production	____
3. Manager or Proprietor	____
4. Sales	____
5. Office Occupation (e.g., secretarial, clerical, etc.)	____
6. Craftsman	____
7. Service Occupation	____
8. Unskilled Laborer	____
9. Military	____
10. Housewife	____

11. Teaching Experience:

	Approx. No. years Vocational	Approx. No. years General
a. Secondary	____	____
b. Post-Secondary	____	____
c. Higher Education ..	____	____
d. Other _____ ..	____	____ (54)

12. Education Administrative Experience:

	Approx. No. years Vocational	Approx. No. years General
a. Secondary	____	____
b. Post-Secondary	____	____
c. Higher Education ..	____	____
d. Other _____ ..	____	____ (67)

III. Education Board Experience:

	Approx. No. years
A. State Level	____
B. Local Level	____
C. Other _____ ..	____

IV. Advisory Board (Committee) Experience:

	Approx. No. years
A. State Level	____
B. Local Level	____
C. Other _____ ..	____

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42-79

V. Check to indicate:

	Urban Area	Rural Area
Where you have lived most of your life	☐	☐
Where most of your work experience has been	☐	☐

VI. Your average number and appraisal of yearly contacts with the Division (omit if you are an SDVE staff member):

Number		Appraisal	
None	____	Too often	____
1-15	____	Adequate	____
16-30	____	Too seldom	____
Over 30	____		

CD-2
9-12

CLARIFICATION OF TERMS

As you read the material which follows, occasionally you may have some doubt or question concerning the intended meaning of certain words.

Below are some brief explanations of a few terms used. (Please feel free to ask the group leader for additional clarification on these or other items at any time.)

Terms

1. DIVISION -- The state agency for vocational-technical education. Often known by such names as State Division (Bureau or Department) of Vocational Education.

2. DISSEMINATION -- Distribution of information concerning methods, materials and curricula in education.

3. FIELD TESTING -- Determining to what extent materials, methods and curricula may be successful and desirable by actual trial in existing situations.

4. GOAL SETTING -- Identifying and agreeing upon objectives and ideals in education.

5. IMPLEMENTATION -- Current practice such as method, materials, curricula and administration in schools and classrooms.

6. LOCAL SCHOOLS -- Grades 1-14 of public schools.

7. PLANNING -- Devising, designing and projecting method, system, manner, arrangements to achieve objectives.

8. POLICY FORMULATION -- Defining and establishing agreement concerning principles and guidelines which administrative officers shall follow.

9. PROBLEM DEFINITION -- Identifying obstacles or unsatisfactory situations (including finances, methods, materials, curricula, administration and training) which need change or improvement.

10. PROGRAM DEVELOPMENT -- Inventing, designing and refining combinations of methods, materials and subject matter.

11. RESEARCH -- Seeking new or better methods, materials and curricula in education.

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SECTION I

INSTRUCTIONS

1. Please do not turn this page until advised.

2. Please do not discuss this material or exchange thinking with other members of the group during the next hour.

3. In general, you are asked to give your personal best judgment or reaction. (You are requested not to speak for any organization or in an official capacity.)

4. The questions pertain to your perception (however extensive or limited this may be) of the situation in this state.

5. Your own spontaneous reactions are requested--do not deliberate at length on any of the questions.

6. If you do not understand the meaning of any question, raise your hand and the group leader will respond.

7. Please make whatever additional comments you have on the margins of any page.

8. Please make memos on the small cards with which you are supplied as a reminder of items you want to have discussed orally in the group session to follow.

Thank you.

SECTION I

Instructions:
Read each statement, and check one of the opposite boxes.

Code: SA - Strongly Agree
A - Agree
U - Uncertain
D - Disagree
SD - Strongly Disagree

	SA	A	U	D	SD
1. Current programs meet existing needs	☐	☐	☐	☐	☐
2. Requirements for high school graduation discourage enrollment in vocational courses	☐	☐	☐	☐	☐
3. High school vocational education decreases the probability of students' meeting college entrance requirements	☐	☐	☐	☐	☐
4. Vocational courses should not be offered before grade 13	☐	☐	☐	☐	☐
5. Additional funds are essential if the need for vocational education is to be met	☐	☐	☐	☐	☐
6. Procedures for local districts to secure state vocational funds are efficient and uncomplicated	☐	☐	☐	☐	☐
7. State and Federal funds should be allocated to districts with the greatest capability for utilization	☐	☐	☐	☐	☐
8. Vocational education in high school decreases the probability for success in college	☐	☐	☐	☐	☐
9. The state agency (Division) for vocational-technical education should be an integral part of the State Department of Education	☐	☐	☐	☐	☐

		SA	A	U	D	SD*
10.	Regulations of the Division are in need of change and up-dating ..	☐	☐	☐	☐	☐
11.	Current training programs produce an adequate supply of competent teachers and administrators for vocational education	☐	☐	☐	☐	☐
12.	Vocational education <u>should be</u> designed primarily for students who cannot succeed in general education	☐	☐	☐	☐	☐
13.	Vocational education <u>is</u> designed primarily for students not adapted for success in general education	☐	☐	☐	☐	☐
14.	Certification requirements for vocational teachers are outmoded	☐	☐	☐	☐	☐
15.	High schools <u>are</u> primarily concerned with preparing students for college	☐	☐	☐	☐	☐
16.	High schools <u>should be</u> primarily concerned with preparing students for college	☐	☐	☐	☐	☐
17.	Inadequate salaries hamper recruitment of Division personnel	☐	☐	☐	☐	☐
18.	The prestige of vocational education is lower than that of general education	☐	☐	☐	☐	☐
19.	Vocational education needs drastic change for improvement ...	☐	☐	☐	☐	☐

*<u>SA</u> - Strongly Agree; <u>A</u> - Agree; <u>U</u> - Uncertain;
<u>D</u> - Disagree; <u>SD</u> - Strongly Disagree.

	SA	A	U	D	SD*
20. Achievement of excellence is equally possible in both general and vocational education	☐	☐	☐	☐	☐
21. Vocational training opportunities for women are generally adequate .	☐	☐	☐	☐	☐
22. Occupational preparation should be a fundamental part of education	☐	☐	☐	☐	☐
23. Increasing demands for specialized skills justify more emphasis upon vocational-technical education and less upon general education ..	☐	☐	☐	☐	☐
24. Vocational education should be an integral part of a total education program rather than a separate kind of education	☐	☐	☐	☐	☐
25. State-level implementation of recent Federal vocational acts adequately meets the intent of the legislation	☐	☐	☐	☐	☐
26. Vocational education should serve a greater number of occupational areas	☐	☐	☐	☐	☐
27. There is need to devote greater emphasis to designing new programs and revising old ones	☐	☐	☐	☐	☐
28. Available funds are being efficiently utilized in vocational education	☐	☐	☐	☐	☐
29. Vocational education lacks public appeal and needs an improved image	☐	☐	☐	☐	☐

*SA - Strongly Agree; A - Agree; U - Uncertain;
D - Disagree; SD - Strongly Disagree.

	SA	A	U	D	SD*
30. High school vocational courses are more exploratory than vocational in nature	☐	☐	☐	☐	☐
31. The Division should assume major responsibility for adapting vocational education programs to changing needs	☐	☐	☐	☐	☐
32. Self-evaluation (supplemented by use of outside consultants) is more conducive to improvement of the Division than an evaluation done by outside sources alone	☐	☐	☐	☐	☐
33. Vocational programs are often conducted with inadequate and obsolete facilities	☐	☐	☐	☐	☐
34. The public schools are turning out large numbers of young people who are unqualified for employment	☐	☐	☐	☐	☐
35. Local districts should have the major responsibility for the nature and extent of local vocational programs	☐	☐	☐	☐	☐
36. Admission requirements for vocational programs exclude many who need the training	☐	☐	☐	☐	☐
37. Vocational education is appropriate for students not adapted for success in the general program	☐	☐	☐	☐	☐
38. Vocational education has tended to perpetuate stereotyped and rigid programs rather than to adapt to changing needs	☐	☐	☐	☐	☐

*SA - Strongly Agree; A - Agree; U - Uncertain;
D - Disagree; SD - Strongly Disagree.

	SA	A	U	D	SD*
39. The increasing complexity of education and the attendant challenges for understanding warrant less and less involvement of lay citizens in decision-making	☐	☐	☐	☐	☐
40. There is appreciable discrimination in vocational education based upon:					
a. Sex	☐	☐	☐	☐	☐
b. Age	☐	☐	☐	☐	☐
c. Religion	☐	☐	☐	☐	☐
d. Race	☐	☐	☐	☐	☐
41. Vocational education should be one of the major purposes of the two-year junior or community college	☐	☐	☐	☐	☐
42. There is a need for the development of a procedure and criteria for self-analysis of Division operations	☐	☐	☐	☐	☐
43. There is some social stigma attached to enrollment in vocational programs	☐	☐	☐	☐	☐
44. Existing Federal acts set vocational education apart from general education, creating an undesirable dual system	☐	☐	☐	☐	☐
45. Vocational education is appropriate for students who are well-adapted for success in general education	☐	☐	☐	☐	☐

*SA - Strongly Agree; A - Agree; U - Uncertain;
D - Disagree; SD - Strongly Disagree.

	SA	A	U	D	SD*
46. Due to the mobility of the population, heavy local tax loads, superiority of the Federal tax collecting machinery, etc., there should be more Federal financing of education ...	☐	☐	☐	☐	☐
47. It is possible to have major Federal financing of education and still maintain local control .	☐	☐	☐	☐	☐
48. The public should not fear Federal control of education	☐	☐	☐	☐	☐

49. Ideally, all public post-high school vocational-technical education (13th and 14th grades) should be under the jurisdiction of: (If you believe the responsibility should be divided, check more than one.)

a. Local Boards ..... ☐

b. State Board for Vocational Education ..... ☐

c. State Board of Education ..... ☐

d. State Board of Higher Education ..... ☐

e. Other _____ .... ☐

Comments:

*SA - Strongly Agree; A - Agree; U - Uncertain;
D - Disagree; SD - Strongly Disagree.

50. State Division personnel should consult and advise:

a. Primarily with teachers ..... ☐

b. Primarily with administrators. ☐

c. With teachers and administrators equally ..... ☐

(69)

Comments:

51. Who does have and who should have responsibility for <u>determining</u> what in-service education is needed for personnel of vocational-technical programs in the state? (Check one or more in each column.)

	Does	Should
a. State Division	☐	☐
b. Local Schools	☐	☐
c. Teacher Education Institutions.....	☐	☐
d. Other:_____..	☐	☐

Comments:

CD-2
69-77

52. Who does have and who should have responsibility for providing in-service education for personnel of vocational-technical programs in the state? (Check one or more in each column.)

	Does	Should
a. State Division	☐	☐
b. Local Schools	☐	☐
c. Teacher Education Institutions	☐	☐
d. Others:_____..	☐	☐

Does and/or Should the Division:

	Does		Should	
53. Supervise private schools?	☐ Yes	☐ No	☐ Yes	☐ No
54. Set standards for certification of teachers?	☐ Yes	☐ No	☐ Yes	☐ No

CD-3
9-24
(21-24, 26)

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION II

INSTRUCTIONS

1. Please do not turn this page until advised.

2. Please do not discuss this material or exchange thinking with other members of the group during the next hour.

3. In general, you are asked to give your personal best judgment or reaction. (You are requested not to speak for any organization or in an official capacity.)

4. The questions pertain to your perception (however extensive or limited this may be) of the situation in this state.

5. Your own spontaneous reactions are requested--do not deliberate at length on any of the questions.

6. If you do not understand the meaning of any question, raise your hand and the group leader will respond.

7. Please make whatever additional comments you have on the margins of any page.

8. Please make memos on the small cards with which you are supplied as a reminder of items you want to have discussed orally in the group session to follow.

Thank you.

SECTION II

Instructions:

Read each statement, and then circle one letter in each of the two right-hand columns to indicate your perception of how frequently the Division DOES and SHOULD:

Code: A - Almost Always
B - Frequently
C - Occasionally
D - Seldom
E - Almost Never

How frequently DOES and how frequently SHOULD the Division:	DOES	SHOULD
1. Consult with local district representatives on important vocational education matters? ..	A B C D E	A B C D E
2. Work cooperatively with teacher education institutions?	A B C D E	A B C D E
3. Assist local school districts with research design, writing proposals and securing funds for conducting research?	A B C D E	A B C D E
4. Promote an environment for experimentation and innovation?	A B C D E	A B C D E
5. Emphasize minimum standards? ...	A B C D E	A B C D E
6. Provide consultative help?	A B C D E	A B C D E
7. Provide for in-service development of Division personnel? ..	A B C D E	A B C D E
8. Encourage evaluation and appraisal of local programs? ...	A B C D E	A B C D E
9. Conduct studies?	A B C D E	A B C D E
10. Exercise general supervision of local programs?	A B C D E	A B C D E

How frequently DOES and how frequently SHOULD the Division:	DOES	SHOULD
11. Exercise major responsibility for the nature and extent of local vocational programs?	A B C D E	A B C D E*
12. Utilize advisory groups?	A B C D E	A B C D E
13. Encourage field testing of new programs?	A B C D E	A B C D E
14. Determine and enforce minimum standards for facilities?	A B C D E	A B C D E
15. Inspect instructional programs?	A B C D E	A B C D E
16. Determine and enforce minimum standards for safety of students?	A B C D E	A B C D E
17. Inform the public about programs and needs?	A B C D E	A B C D E
18. Assume leadership for defining education goals?	A B C D E	A B C D E
19. Waive requirements (e.g., minimum standards) to allow experimentation and research? .	A B C D E	A B C D E
20. Disseminate information about teaching methods and materials?	A B C D E	A B C D E
21. Promote unity and balance between general and vocational education within the state? ...	A B C D E	A B C D E
22. Maintain adequate communications with the Legislature? ...	A B C D E	A B C D E

*A - Almost Always; B - Frequently; C - Occasionally; D - Seldom; E - Almost Never.

45-70
(65-66,Ø)

How frequently DOES and
how frequently SHOULD the Division:

	DOES					SHOULD				
23. Evaluate its operations and organization?	A	B	C	D	E	A	B	C	D	E*
24. Assign responsibilities for regulation and leadership activities to separate persons?	A	B	C	D	E	A	B	C	D	E
25. Make decisions in vocational education with due regard for the total program of education?	A	B	C	D	E	A	B	C	D	E
26. Provide financial aid to encourage new programs even though this means reducing reimbursement for established programs?	A	B	C	D	E	A	B	C	D	E

*A - Almost Always; B - Frequently; C - Occasionally;
D - Seldom; E - Almost Never

71-80
(73-74, 76)

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION III

INSTRUCTIONS

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Thank you.

SECTION III

Instructions:

Read each question, and then check one of the opposite boxes to indicate your perception or opinion.

Code: A - Of Extreme Importance
B - Of Moderate Importance
C - Of Little Importance

How IMPORTANT is it for the Division to:	A	B	C
1. Identify problems or obstacles which hinder the achievement of goals?	☐	☐	☐
2. Maintain records on school operation, enrollment, cost statistics, etc.?	☐	☐	☐
3. Promote unity and balance between general and vocational education within the state?	☐	☐	☐
4. Promote an environment favorable to experimentation and innovation?	☐	☐	☐
5. Provide for in-service development of Division personnel?	☐	☐	☐
6. Evaluate its operations and organization?	☐	☐	☐
7. Make decisions in vocational education with due regard for the total program of education?	☐	☐	☐
8. Encourage development of local leadership?	☐	☐	☐
9. Seek increased vocational funds?	☐	☐	☐
10. Develop uniform statewide curricula? ...	☐	☐	☐
11. Maintain a staff which is sensitive to needs of local districts?	☐	☐	☐

		A	B	C*
12.	Determine and enforce minimum standards for safety of students?	☐	☐	☐
13.	Provide consultative services to local districts?	☐	☐	☐
14.	Develop long range plans?	☐	☐	☐
15.	Check local district compliance with state regulations?	☐	☐	☐
16.	Encourage the participation of the public in policy formulation?	☐	☐	☐
17.	Represent the needs of vocational education before the public and the state government?	☐	☐	☐

*A - Of Extreme Importance; B - Of Moderate Importance;
C - Of Little Importance.

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION IV

INSTRUCTIONS

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Thank you.

SECTION IV

Instructions:

Note each question, and then indicate your perception or opinion by circling one letter under DOES and one under SHOULD for each question.

Code:
A - Almost Always
B - Frequently
C - Occasionally
D - Seldom
E - Almost Never

How frequently DOES and how frequently SHOULD the Division involve persons like you in

	DOES	SHOULD
1. Planning activities?	A B C D E	A B C D E
2. Formulating policy?	A B C D E	A B C D E
3. Determining its staff needs? ..	A B C D E	A B C D E
4. Promotional activities?	A B C D E	A B C D E
5. Evaluating itself?	A B C D E	A B C D E
6. Developing budget requests? ...	A B C D E	A B C D E
7. Setting goals?	A B C D E	A B C D E
8. Defining problems and assigning priorities?	A B C D E	A B C D E
9. Research activities?	A B C D E	A B C D E
10. Developing programs?	A B C D E	A B C D E
11. Disseminating information?	A B C D E	A B C D E
12. Field-testing new methods, materials, etc.?	A B C D E	A B C D E
13. Implementing new ideas and programs?	A B C D E	A B C D E
14. Appearing before legislative committees?	A B C D E	A B C D E

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION V

INSTRUCTIONS

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Thank you.

SECTION V

Indicate your perception and opinion by circling one letter under the DOES column and one letter under the SHOULD column opposite each item.

Code: A - Extensively
B - Some
C - Little
D - None
E - Don't Know

In PLANNING Division activities to what extent DOES and to what extent SHOULD the Division (or State Board) involve the following:

	DOES	SHOULD
1. Division Personnel	A B C D E	A B C D E
2. Other State Department of Education Personnel	A B C D E	A B C D E
3. Chief State School Officer	A B C D E	A B C D E
4. State Vocational Director	A B C D E	A B C D E
5. State Board for Voc. Educ.	A B C D E	A B C D E
6. Legislators	A B C D E	A B C D E
7. State Finance Officer	A B C D E	A B C D E
8. U.S. Office of Education	A B C D E	A B C D E
9. Intermediate (County) Offices .	A B C D E	A B C D E
10. Local School Officials	A B C D E	A B C D E
11. Universities and Colleges	A B C D E	A B C D E
12. Community or Junior Colleges ..	A B C D E	A B C D E
13. Area Vocational Schools	A B C D E	A B C D E
14. Private Vocational Schools	A B C D E	A B C D E
15. State Advisory Council	A B C D E	A B C D E
16. Education Organizations	A B C D E	A B C D E
17. Other_____..	A B C D E	A B C D E

CD5
9-46
(39-42,46)

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION VI

INSTRUCTIONS

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6. If you do not understand the meaning of any question, raise your hand and the group leader will respond.

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Thank you.

SECTION VI

Indicate your perception and opinion by circling one letter under the DOES column and one letter under the SHOULD column opposite each item.

Code: A - Extensively
B - Some
C - Little
D - None
E - Don't Know

In its own POLICY FORMULATION, to what extent DOES and to what extent SHOULD the Division (or State Board) involve the following:

	DOES	SHOULD
1. Division Personnel	A B C D E	A B C D E
2. Other State Department of Education Personnel	A B C D E	A B C D E
3. Chief State School Officer	A B C D E	A B C D E
4. State Vocational Director	A B C D E	A B C D E
5. State Board for Voc. Educ.	A B C D E	A B C D E
6. Legislators	A B C D E	A B C D E
7. State Finance Officer	A B C D E	A B C D E
8. U.S. Office of Education	A B C D E	A B C D E
9. Intermediate (County) Offices ...	A B C D E	A B C D E
10. Local School Officials	A B C D E	A B C D E
11. Universities and Colleges	A B C D E	A B C D E
12. Community or Junior Colleges	A B C D E	A B C D E
13. Area Vocational Schools	A B C D E	A B C D E
14. Private Vocational Schools	A B C D E	A B C D E
15. State Advisory Council	A B C D E	A B C D E
16. Education Organizations	A B C D E	A B C D E
17. Other_____ ..	A B C D E	A B C D E

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

SECTION VII

INSTRUCTIONS

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Thank you.

SECTION VII

Circle one letter under each of the two right-hand columns.

Code: A - Extensively
B - Some
C - Little
D - None
E - Don't Know

To what extent DOES and to what extent SHOULD the Division involve itself in the following activities:

		DOES					SHOULD				
1.	Goal Setting	A	B	C	D	E	A	B	C	D	E
2.	Problem Definition	A	B	C	D	E	A	B	C	D	E
3.	Research	A	B	C	D	E	A	B	C	D	E
4.	Program Development	A	B	C	D	E	A	B	C	D	E
5.	Field Testing	A	B	C	D	E	A	B	C	D	E
6.	Dissemination	A	B	C	D	E	A	B	C	D	E
7.	Practice	A	B	C	D	E	A	B	C	D	E
8.	Inspection and Regulation	A	B	C	D	E	A	B	C	D	E
9.	Supervisory Visits	A	B	C	D	E	A	B	C	D	E
10.	Preparation of Reports	A	B	C	D	E	A	B	C	D	E
11.	Maintenance of Standards	A	B	C	D	E	A	B	C	D	E
12.	Service to Districts	A	B	C	D	E	A	B	C	D	E

WHAT ARE YOUR COMMENTS AND SUGGESTIONS ON THE PRECEDING OR OTHER PERTINENT QUESTIONS?

1/6/67

SECTION VIII

CLARIFICATION OF TERMS

Occupational Competency - A degree of skill, qualification, and/or ability to perform in a position or area of employment.

Placement - Locating individuals in positions of employment or training.

Follow-up - Securing information about former students.

Instructions: Read each statement, and check one of the opposite boxes.

Code:
SA - Strongly Agree
A - Agree
UA - Uncertain, but Probably Agree
UD - Uncertain, but Probably Disagree
D - Disagree
SD - Strongly Disagree

	SA	A	UA	UD	D	SD
1. High schools should assume responsibility for developing some level of occupational competency	☐	☐	☐	☐	☐	☐
2. Placement should include consideration of both employment and further education opportunities	☐	☐	☐	☐	☐	☐
3. High schools should follow up students who enter degree programs	☐	☐	☐	☐	☐	☐
4. High schools should place or "re-place" students several years after they leave the high school	☐	☐	☐	☐	☐	☐
5. Employers are interested in a new employee's general education rather than specific occupational competencies	☐	☐	☐	☐	☐	☐
6. High schools should assume responsibility for placement in employment or further education	☐	☐	☐	☐	☐	☐
7. Placement should be a function of community agencies other than the high school	☐	☐	☐	☐	☐	☐
8. High schools should follow up students who do not enter degree programs	☐	☐	☐	☐	☐	☐

	SA	A	UA	UD	D	SD*
9. Adequate communication exists between training (high school) and employers (business and industry)	☐	☐	☐	☐	☐	☐
10. High schools and employers should cooperate in providing some practical work experience for all students	☐	☐	☐	☐	☐	☐
11. When the decision-making time arrives, the youth of today are generally in a position to make wise occupational choices	☐	☐	☐	☐	☐	☐
12. Junior high schools should offer exploratory occupational experiences	☐	☐	☐	☐	☐	☐
13. Placement of high school graduates in a wage-earning capacity should be a function of non-school agencies	☐	☐	☐	☐	☐	☐
14. High schools do provide opportunities for students to establish occupational goals .	☐	☐	☐	☐	☐	☐
15. High schools should provide opportunities for students to establish occupational goals .	☐	☐	☐	☐	☐	☐
16. High schools do assist in placing students in degree-granting institutions following graduation	☐	☐	☐	☐	☐	☐
17. High schools should assist in placing students in degree-granting institutions following graduation	☐	☐	☐	☐	☐	☐
18. High schools do include employment service personnel as a part of the high school team for placing those leaving high school .	☐	☐	☐	☐	☐	☐
19. High schools should include employment service personnel as a part of the high school team for placing those leaving high school	☐	☐	☐	☐	☐	☐

*SA - Strongly Agree; A - Agree; UA - Uncertain, but Probably Agree; UD - Uncertain, but Probably Disagree; D - Disagree; SD - Strongly Disagree.

VT 003 250

VT 003 250
What Happens to the Long-Term Unemployed. The 1964 Labor Force Experience of a Group of Persons Unemployed during the 1960-61 Recession.

New York State Dept. of Labor, Albany. Research and Statistics Office
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jun67 35p.

*UNEMPLOYED; EMPLOYMENT PROBLEMS; *PERSISTENCE; *LABOR MARKET; *STATE SURVEYS; *EMPLOYMENT STATISTICS; INDIVIDUAL CHARACTERISTICS; EMPLOYMENT EXPERIENCE
NEW YORK

A questionnaire survey of 2,800 persons who were unemployed 40 weeks or more during the 1960-61 recession was conducted to determine (1) labor force status in the summer of 1964, (2) reason for not being in the labor force, (3) differences between the labor force status of men and women, (4) steadiness of employment prior to 1964, and (5) sources used to find jobs. In 1964, 48 percent were working, 14 percent were unemployed, and 46 percent were out of the labor force. Age was the most important single factor affecting the labor force experience of these long-term unemployed. Most older men and women and more women than men were out of the labor force. Nearly all who were employed in 1964 had been quite steadily employed in 1963. Those who were working had found jobs mainly through friends, relatives, and direct application to employers. Only nine percent reported the New York State Employment Service as the source of their last job. Individuals of the long-term unemployed of the 1960-61 recession differed greatly in their personal characteristics, employment background, and postrecession labor force experience. The survey group was not fully representative of all persons in New York State out of work for 40 weeks or more in that it did not include any persons ineligible for unemployment insurance, and it was somewhat older than all persons who exhausted unemployment insurance benefits under the federal program. (MM)

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(C1
.39 p.

What Happens To The Long-Term Unemployed?

VT003250

STATE OF NEW YORK
Nelson A. Rockefeller, *Governor*

DEPARTMENT OF LABOR
M. P. Catherwood, *Industrial Commissioner*

DIVISION OF EMPLOYMENT
Alfred L. Green, *Executive Director*

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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What Happens To The Long-Term Unemployed?

The 1964 Labor Force Experience of a Group of Persons Unemployed during the 1960-61 Recession

June 1967

New York State Department of Labor
Division of Employment
Research and Statistics Office
State Office Building Campus
Albany, N. Y. 12201

TERMS OF REFERENCE

... extended duration undoubtedly involves an economic risk to the community as a whole... Desirable economic readjustments may thus be postponed.

... the decision regarding the desirable duration of benefit often involves a compromise between the interests of society as a whole and those of the unemployed workers. The length of benefit payment may thus be regarded as the limit set by the community to the period during which it will run the risk of a possibly postponed and necessary employment readjustment.

- *The American Social Security System* by Eveline M. Burns, 1949, p. 141.

PREFACE

The stubborn persistence of extensive long-term unemployment in times of prosperity as well as during recessions has given rise to many studies of the problem throughout the United States. This report about long-term unemployment in New York differs from most other studies in two respects. First, it concerns a group of workers whose job-finding problems were especially difficult because they had been unemployed an unusually long time--40 weeks or more. And second, the report traces the labor force status of these workers for two to three years after this period of protracted unemployment, a much longer follow-up than undertaken in most studies.

The workers described in this report are a group of the long-term unemployed in the 1960-61 business recession who were canvassed in a special survey in late 1964 to obtain information about their labor force status following the recession. The variety of experience within the survey group was great. Some obtained steady employment. Some remained in the labor force but found only intermittent employment. Others withdrew from the labor force for a time but returned to work or resumed job-seeking later on. Others appear to have dropped out of the labor force permanently.

A few case histories included in the report illustrate how greatly the long-term unemployed differ from one another in personal characteristics, employment background and post-recession labor force experience. These personal histories along with the statistical findings of the study reflect the diversity of individuals and problems that should be the concern of any program intended to help the long-term unemployed.

The survey on which this report is based was made by the Research and Statistics Office of the Division of Employment of the New York State Department of Labor. Sylvia A. Wackstein supervised the collection of data and Robert Bucher was responsible for its tabulation. Mabel L. Hopper analyzed the findings and prepared the final report. Maurice Nolan prepared the charts.

Alfred L. Green
Executive Director

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SUMMARY

WHAT HAPPENS TO THE LONG-TERM UNEMPLOYED?

IN THE SUMMER of 1964, the Division of Employment made a survey of persons who were unemployed during the 1960-1961 recession and remained unemployed for 40 weeks or more, to find answers to the following questions:

1. What was their labor force status three years later--in the summer of 1964?
2. If they were out of the labor force, what was the main reason?
3. How did the labor force status of men differ from that of women?
4. How steadily had they been employed prior to 1964?
5. What sources did they use to find jobs?

The study covered some 2,800 persons who answered the questionnaire which was mailed to them. Their answers showed the following:

a. More than half (54 per cent) of these individuals were in the labor force in the summer of 1964; 40 per cent were working and 14 per cent were unemployed.

b. Of all those in the labor force in 1964, nine-tenths were working then or had worked in 1963.

c. A little less than half (46 per cent) of the survey group were out of the labor force in the summer of 1964. Forty-one per cent of the men and 51 per cent of the women were out of the labor force. The extent of withdrawals is not surprising in view of the number of older persons in the group. At the time of the survey, the median age of the men was 61 years, that of the women 51 years.

d. Age appears to have been the most important single factor affecting the labor force experience of these long-term unemployed. Most older men and women were out of the labor force because they had retired. Many younger women had withdrawn from the labor force to care for their homes and families.

e. Nearly all the persons who were employed in 1964 had been quite steadily employed in 1963. Two-thirds of those who were unemployed at the time of the survey had worked in 1963, but for less than six months on the average, indicating that their unemployment in the summer of 1964 was not an isolated event in their work history.

f. The people who were working had found their jobs mainly through friends or relatives and direct application to employers. Only 9 per cent reported the New York State Employment Service as the source of their last job.

g. The individuals who made up the long-term unemployed of the 1960-1961 recession differed greatly from one another in their personal characteristics, employment background and post-recession labor force experience, as illustrated by the case histories included in the report.

I. INTRODUCTION

THIS REPORT describes the labor force experience in 1964 of a group of New York workers who were unemployed for at least 40 weeks during and following the business recession which began in 1960. Although business activity started to pick up early in 1961, nonagricultural employment in New York did not rise above its 1960 level until late in the year. By the summer of 1964, when the persons described in this report were asked about their current labor force status, nonagricultural employment in the State had climbed 3 per cent above the summer of 1960.

The men and women described in this report are a group of some 2,800 former "TEC exhaustees", namely, unemployed persons who had received the maximum 26 weeks of unemployment insurance benefits provided under the permanent New York State program and who then went on to draw the maximum 13 weeks of extended benefits provided under the Federal Temporary Extended Unemployment Compensation Program. This Federal program, which was adopted as an anti-recession measure, was in effect from April 1961 through June 1962. 1/

This report is based on replies to a questionnaire which was mailed to each of these TEC exhaustees in the summer of 1964, asking him to report his labor force status during the previous week. In addition, each person was asked to answer questions, if applicable, about his main reason for being out of the labor force, the number of weeks he worked in 1963, and how he got his last job. Although the information about the labor force status of these people in 1964 is limited to a single week, more is known about their work experience from the 1963 data.

The findings of this study provide unique information about what happened to 2,800 long-term unemployed two to three years after they had used up all their extended benefits under the Federal emergency program. These unemployed, however, are not fully representative of all persons in New York State out of work for 40 weeks or more. In the first place, the survey group did not include any persons who were ineligible for unemployment insurance. This automatically excluded most unemployed young workers because usually they have not worked long enough to qualify for benefits. Also, the survey group is somewhat older than all persons who exhausted benefits under the Federal program. 2/

1/ For more information about the 1961-1962 Federal program and the surveys conducted under it, see Technical Notes at the end of this report. "TEC" was the abbreviation adopted by New York State to designate the Federal program.

2/ See Technical Notes for further explanation.

II. LABOR FORCE STATUS IN 1964

MANY WERE OUT OF THE LABOR FORCE

Almost half (46 per cent) of the persons covered by the 1964 survey were neither working nor looking for work. Forty per cent were working and 14 per cent were looking for work. (See Chart 1 and Table 1.) 1/ A few of the individuals who were out of the labor force had worked in 1963, indicating that they had withdrawn from the labor force recently, perhaps only temporarily.

The large number of withdrawals from the labor force is not surprising in view of the many older persons in this group of former TEC claimants. In the summer of 1964, the average age of the persons covered by the survey was 56 years; the median age of the men was 61, and that of the women 51 years.

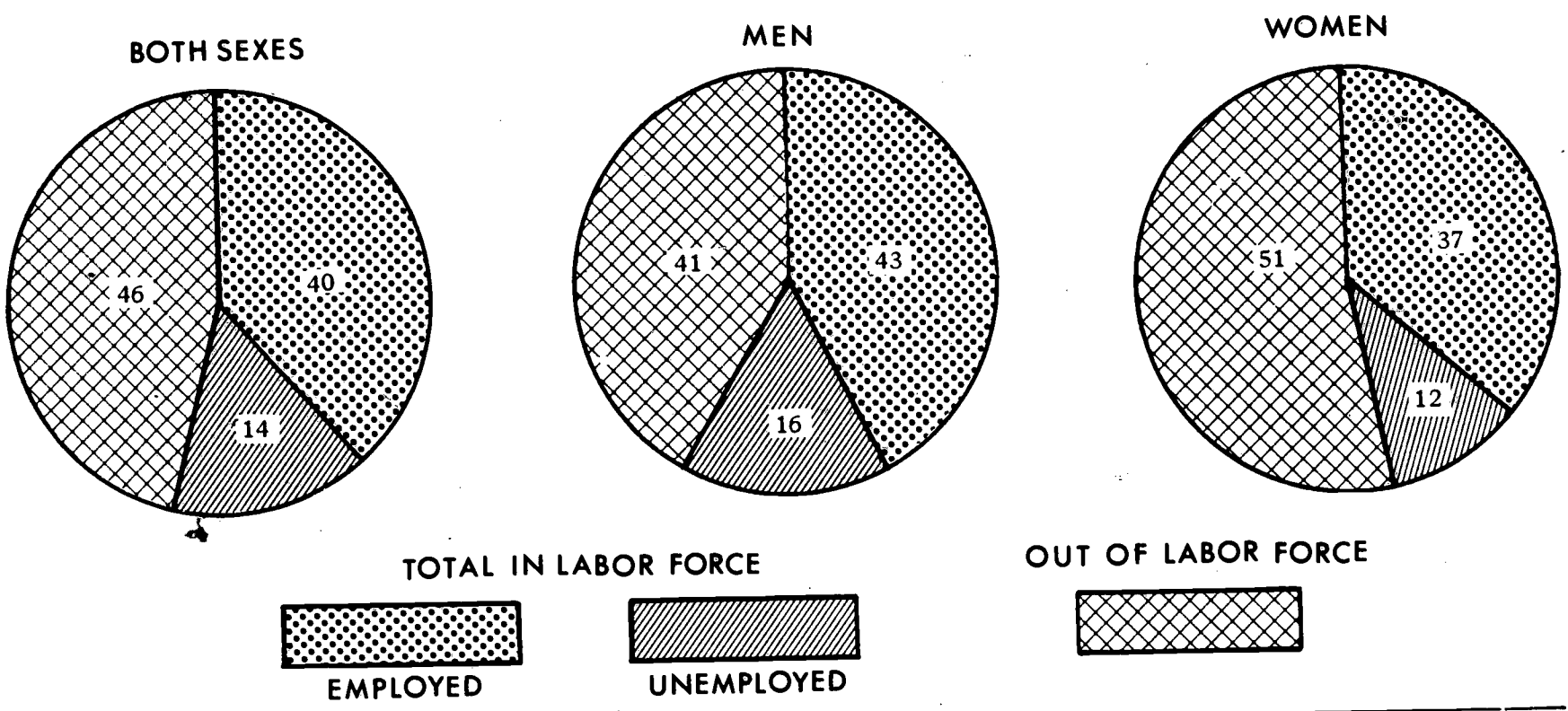
MOST OF THOSE IN THE LABOR FORCE WERE EMPLOYED

Persons with a job made up three-fourths of the total who were in the labor force in 1964, and those seeking work made up one-fourth.

Of the persons who were seeking work, almost two-thirds had worked in 1963. This meant that 90 per cent of the persons in the labor force at the time of the survey were working or had worked in 1963.

Nearly all of these who were working in 1964 had also worked in 1963. Although no questions were asked about the kinds of jobs these workers had in 1964 compared with their pre-recession jobs, a few of the respondents volunteered comments. Their re-

Chart 1. LABOR FORCE STATUS IN 1964



1/ All tables follow text, beginning on p. 15.

marks indicated that some had been downgraded, while others were in better positions, as illustrated by the following comments from two men who were working at the time of the 1964 survey and had worked in 1963:

"Although I am working, I am still looking for work in my own trade. For a long time I have been taking hit-and-miss jobs at very low wages." (A skilled worker.)

"A contact made there (on a temporary job) resulted in an offer for much better position which I now have. I have now worked constantly for 22 months with many pay increases." (A professional worker.)

PERSONAL CHARACTERISTICS INFLUENCED LABOR FORCE STATUS

As was to be expected, the labor force status of these long-term unemployed varied with their sex, age and other characteristics. Their characteristics discussed here were obtained at the time of the special surveys of TEC claimants in 1961-1962. Some characteristics, such as family status and occupation, may have changed for a few of these persons by the summer of 1964, but the extent of such changes was probably small. All of the group, of course, were older in 1964.

Sex. More of the women than of the men were out of the labor force in 1964; 51 per cent of the women and 41 per cent of the men reported that they were neither working nor looking for work in the survey week. (See Chart 1 and Table 1.) Of those who remained in the labor force, about three-fourths of both the men and the women were working.

Age. The age of these long-term unemployed appears to have been a key factor in their labor force status. Most older men and women were out of the labor force. The large majority of younger men were employed, as were most of the younger women who were in the labor force. Many younger women, however, had withdrawn from the labor force.

Advancing age affects the labor force status of men and women in a similar way. But among younger workers, family responsibilities are likely to affect men and women differently. Many women withdraw from the labor force for extended periods to care for their homes and families, especially while their children are young. For men, on the other hand, family responsibilities act as an incentive to gainful employment. These tendencies show up clearly in an analysis of the labor force status of the men and women in specific age groups.

Four out of every five persons, both men and women, who were 68 years of age or over at the time of the 1964 survey were out of the labor force. (See Chart 2 and Table 1.) 2/ The fifth who remained in the labor force were equally divided between employed and unemployed. Very few of the persons in this oldest age group who were out of the labor force in 1964 had worked in 1963, but more than half of those who were unemployed had worked in 1963.

In the next younger age group, 58 to 67 years old in 1964, about three-fifths were out of the labor force--nearly half the men and seven-tenths of the women. Almost two-thirds of those who remained in the labor force were employed. The proportions of those out of the labor force or unemployed who had had any work in 1963 were slightly higher among this age group than among the oldest group. Unemployment of those in the labor force was more wide-spread among the men than among the women aged 58 to 67 years.

Approximately a fourth of the persons who were under 58 years of age were out of the labor force; most of these were women. In fact, half the women under 38 and over a third of those aged 38 to 57 years were out of the labor force in 1964. Most of the men under 58, especially those under 38, were in the labor force and working. Among all persons under 58 years old in the labor force, about four-fifths of both the men and the women were working at the time of the survey.

Family status. Variations in labor force participation according to the family status of persons covered by the 1964 survey appear to stem largely from differences in age.

Information about labor force status is available for men in three types of family situations: men in one-person households (i.e., living alone or with nonrelatives), men who were primary earners in multi-person households and men who were unmarried secondary earners. (See Chart 3 and Table 1.) 3/ Of these three, it would be expected that primary earners in multi-person households would be least likely to withdraw from the labor force, because they have the greatest family responsibilities. Yet the highest proportion of withdrawals from the labor force (45 per cent) was found among primary earners. The probable reason is that they were the oldest of these three groups of men. (See Table 6.)

2/ All the tables which include age data show the ages of these persons in 1961-62. Their ages in 1964, mentioned in the text and in Chart 2, were estimated by adding 3 years to the limits of the 1961-62 age groups, because that was the average lapse of time from the dates of the earlier surveys when their ages were recorded.

3/ The number of married men secondary earners in the 1964 survey was too small to provide significant data.

The next highest proportion (39 per cent) was among men living alone, who were almost as old as the primary earners. The fewest withdrawals (19 per cent) occurred among unmarried secondary earners, who were much younger than the primary earners or men living alone. Among the men who remained in the labor force, more of the unmarried secondary earners were employed than of the older primary earners or men living alone.

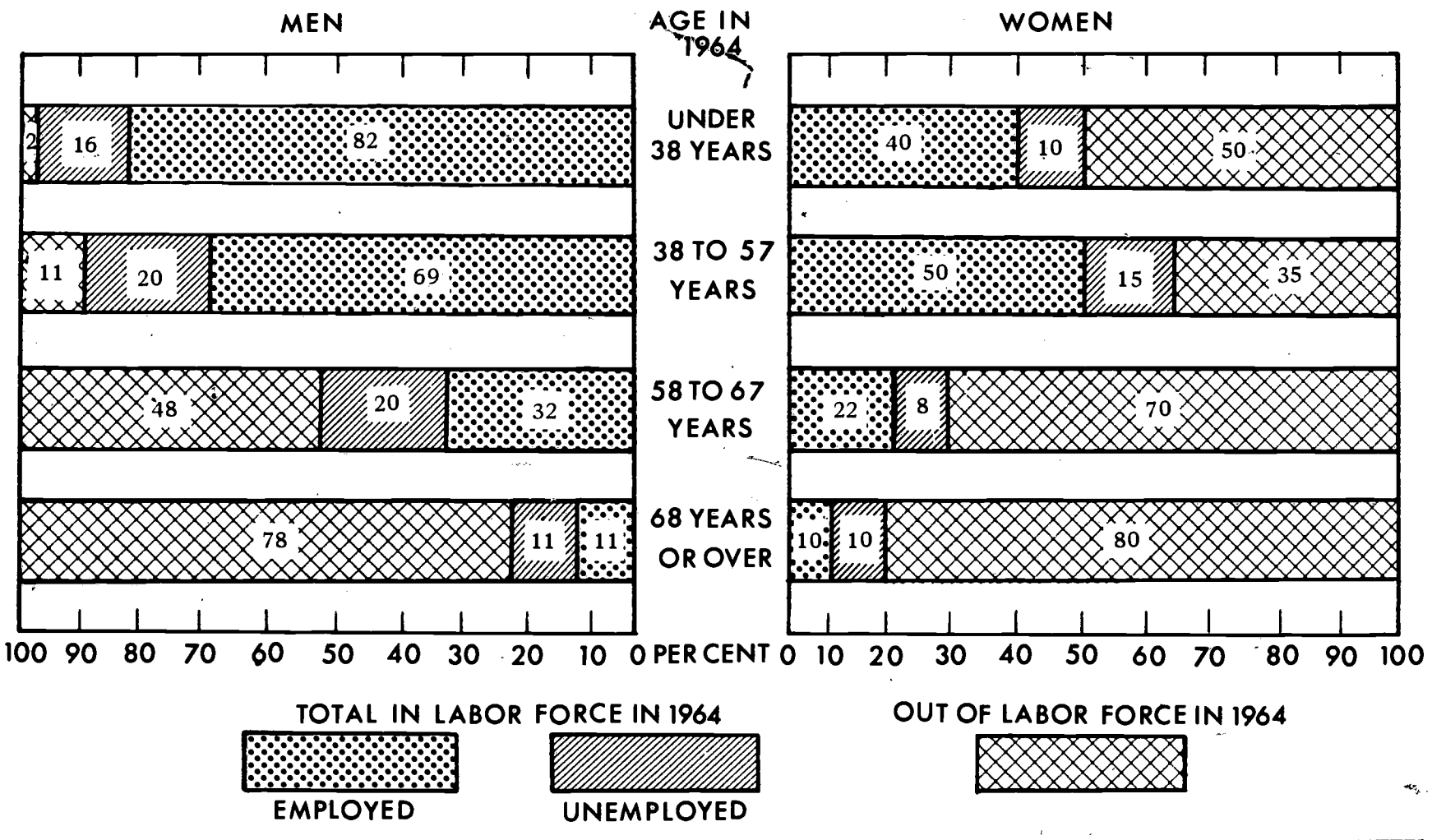
More women than men were out of the labor force in each of these three family status groups. However, variations in labor force experience by family status, like the variations by age, were not as great among women as among men.

Close to 60 per cent of the women living alone, who were considerably older than other women, had withdrawn from the labor force. A like proportion of unmarried secondary earners had also withdrawn from the labor force. This high proportion of withdrawals can be partially explained by the age of the women in this group, since a number of them were elderly widows. Among the other women, about half of those who were primary earners in 1961-62 as well as half of the married secondary earners were out of the labor force in 1964.

Occupation. Differences in labor force status by occupation also reflect differences in the age of workers, particularly among the men. Seventy per cent of the men in unskilled occupations, who were younger than men in any other occupational group, were in the labor force. (See Chart 4 and Tables 1 and 6.) In the next youngest occupational group--semiskilled workers--69 per cent were in the labor force. Furthermore, the highest proportions of men in the labor force who were employed were found in these two occupational groups: a little more than three-fourths in each group.

Approximately half of the men in skilled, service, and clerical and sales occupations were in the labor force. Between two-thirds and three-fourths of those in the labor force were employed.

Chart 2. LABOR FORCE STATUS IN 1964 BY AGE



The experience of men in professional and managerial occupations followed a different pattern. Seventy-two per cent of men in these occupations were in the labor force, but only two-thirds of the latter were employed. These men were older than the semiskilled and unskilled workers but younger than those in other occupations.

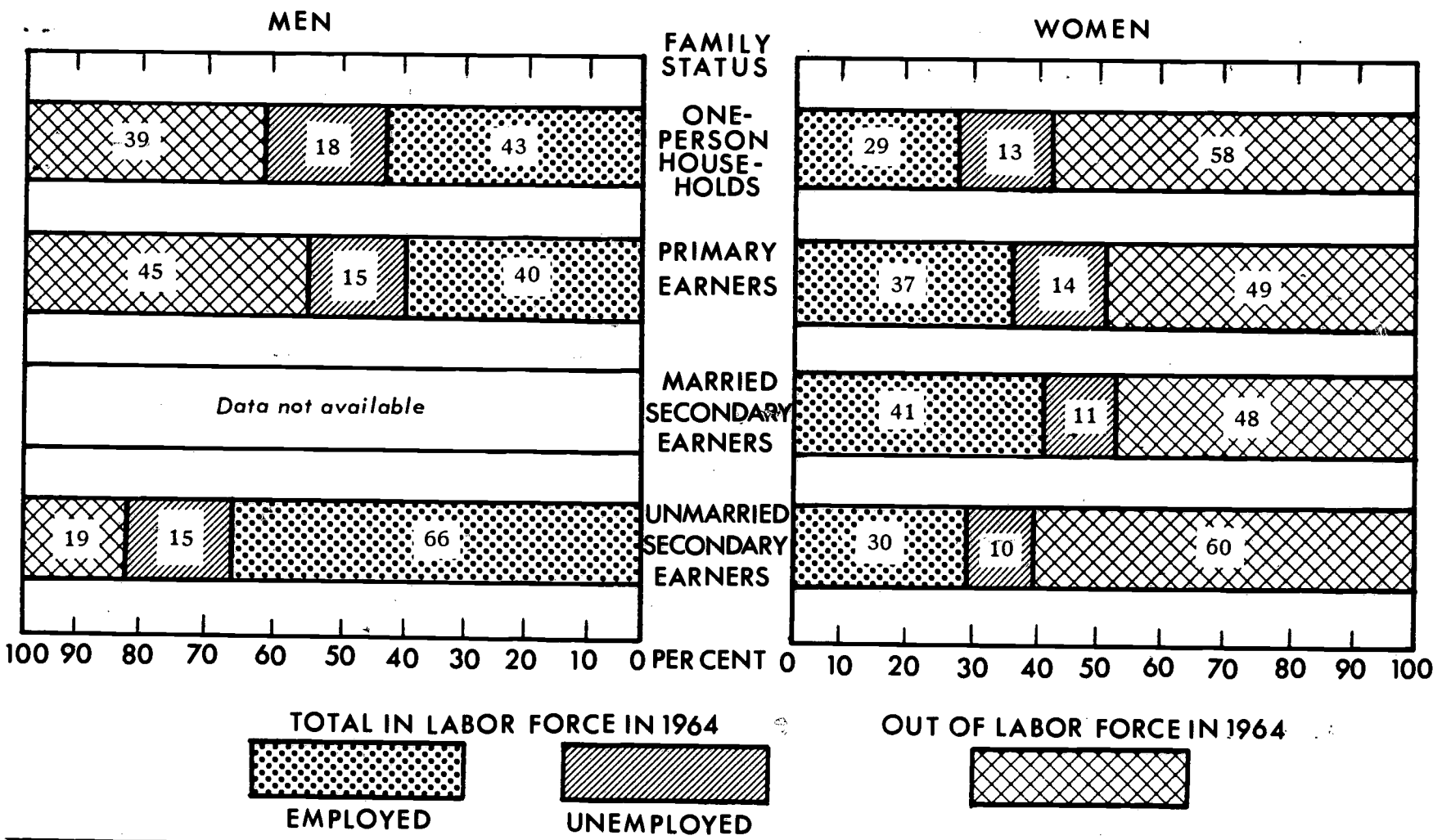
For the women, information is available for only four occupational groups. Among these, the proportion of women in the labor force and working was greater for unskilled and semiskilled workers than for clerical and sales workers or for those in service occupations. Differences in labor force status by occupation seem to have less relation to age among women than among men. Women in unskilled occupations were the youngest of these four groups but those in semiskilled occupations were the oldest, on the average.

In addition to age, the kinds of jobs available undoubtedly influenced the labor force status of persons in the survey in the summer of 1964. Seasonal hiring needs in manufacturing and construction expanded job opportunities for unskilled and semiskilled workers at that time of year. Also, there has been a significant upward trend in recent years in employment of unskilled and semiskilled workers. Job gains nationwide between 1961 and the first quarter of 1965 were summarized by the United States Bureau of Labor Statistics and reported in *The New York Times* of May 17, 1965, as follows:

"The Labor Department said today that the resurgence in employment among unskilled and semiskilled nonfarm workers during the current economic upswing was 'remarkable.'

"In the last four years these two groups, sometimes considered the hardest hit by automation, have accounted for 40 per cent of the gain in nonfarm jobs, although they represented less than 25 per cent of all nonfarm workers when the upswing began."

Chart 3. LABOR FORCE STATUS IN 1964 BY FAMILY STATUS



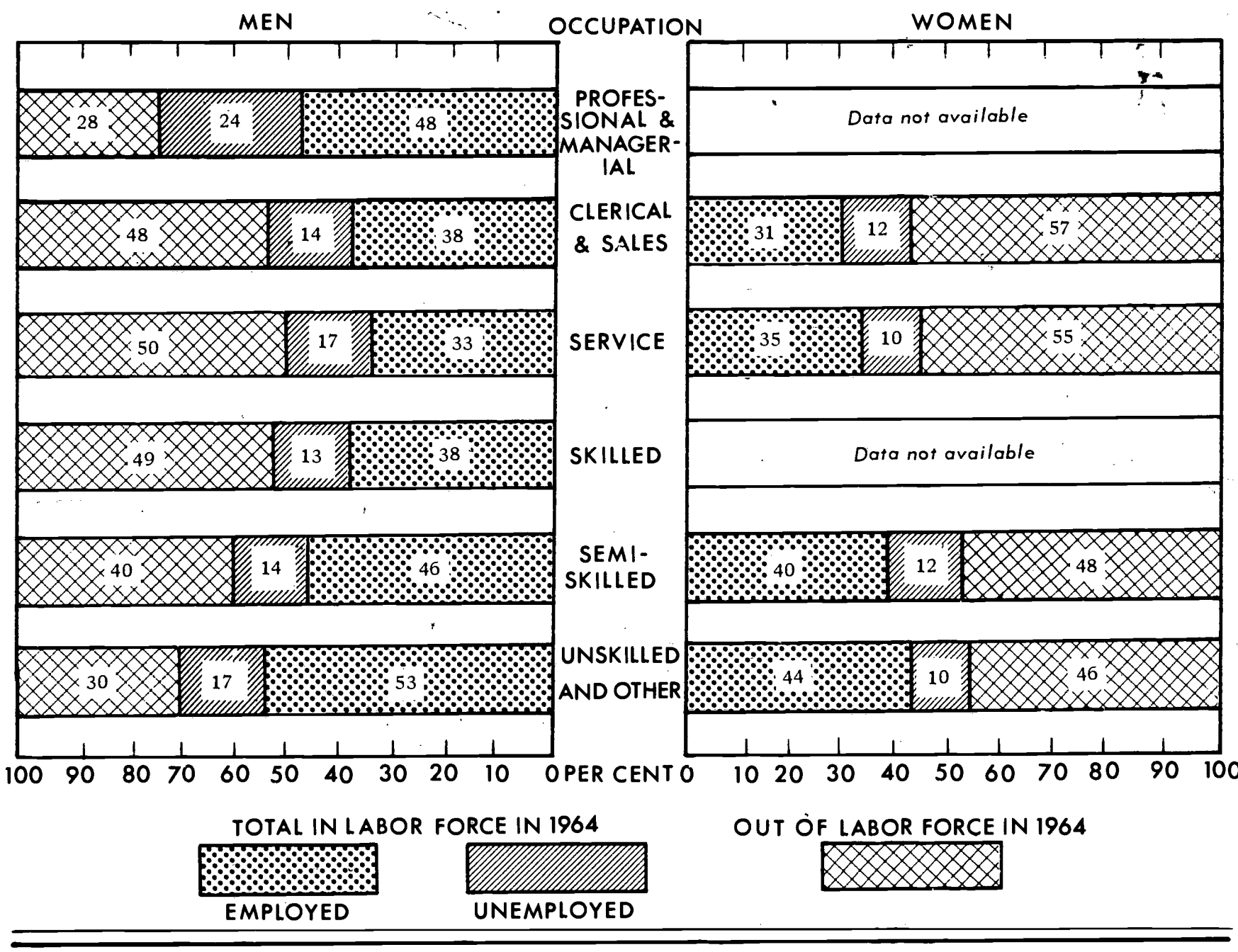
MEN AND WOMEN WITHDREW FROM THE LABOR FORCE FOR DIFFERENT REASONS

In line with the fact that the persons in the 1964 survey, particularly the men, were relatively old, retirement was given as the chief reason for withdrawal from the labor force. Nearly all the men out of the labor force who were aged 58 years or older in 1964 said they had retired. Most of the other men, including those under 58 years of age, reported illness as their reason for withdrawal from the labor force. (See Table 3.)

The main reason given by women for being out of the labor force at the time of the 1964 survey was housekeeping; 44 per cent gave this reason. Nearly 40 per cent said they had retired and 11 per cent that they were ill.

Keeping house was especially important among younger women. Eighty-four per cent of those under 38 years of age in 1964 who were out of the labor force said that they were keeping house, including many who commented that they had to care for young children. A few of these younger women said they were out of the labor force because they were pregnant and a very few, because of illness. Nearly 70 per cent of the women aged 38 to 57 years and out of the labor force were keeping house; most of the others were ill, and a few said they were retired. Retirement was the main reason given by women aged 58 years or over; a few of these older women said they were keeping house or were ill.

Chart 4. LABOR FORCE STATUS IN 1964 BY OCCUPATION



III. EXPERIENCE BETWEEN THE 1960-1961 RECESSION AND 1965

MOST PERSONS IN THE LABOR FORCE IN 1964 HAD WORKED IN 1963

Altogether a little more than half of all the persons in the 1964 survey who answered the question, "Did you work at all in 1963?", replied "Yes." Those who worked averaged 35 weeks of employment during the year; roughly a fifth of them worked less than 15 weeks, and a third worked 48 weeks or more. (See Table 4.)

The proportion of persons in the survey group who worked in 1963, as well as the number of weeks they worked, varied with their labor force status at the time of the survey. Of those who were employed in the summer of 1964, 95 per cent had worked in 1963 for an average of 44 weeks. Only a fourth of this 95 per cent had worked less than 26 weeks during the previous calendar year.

Among those who were unemployed in the summer of 1964, 65 per cent had worked in 1963, averaging 22 weeks of work. Their comparatively limited employment during the previous year indicates that their unemployment in mid-1964 was not an isolated event in their work history.

Considering all the persons in the survey group who were in the labor force, either employed or unemployed at the time of the 1964 survey, seven-eights had worked in 1963. By contrast, only 14 per cent of those who were out of the labor force at the time of the 1964 survey had worked at all in 1963. This small group had worked an average of only 13 weeks during that year.

Younger workers had much more employment than older workers. For example, persons under 38 years of age in 1964 who had worked at all in 1963 averaged 41 weeks of work, while those aged 68 or over averaged only 20 weeks.

White-collar workers had a few more weeks of work on the average than blue-collar workers. Persons in professional and managerial occupations worked an average of 40 weeks, and clerical and sales workers 38 weeks. The average weeks worked by persons in blue-collar occupations ranged from 32 weeks for service workers to 36 weeks for unskilled workers.

MOST REMAINED IN THE LABOR FORCE AFTER EXHAUSTING THEIR UNEMPLOYMENT BENEFITS IN 1961-62

Despite their protracted unemployment, the large majority of men and women continued in the labor force after exhausting their unemployment benefits in 1961-62. Each person included in the 1964 survey had been asked, in 1961 or 1962, about his labor force status three months after he received his 39th week of benefits (26 weeks of regular New York State benefits plus 13 weeks of Federal TEC benefits). At that time, 29 per cent of these individuals were employed. Fifty-five per cent were unemployed, but about an eighth of those unemployed had worked for a week or more during the three months since they exhausted their benefits. Sixteen per cent had withdrawn from the labor force.

Comparing the labor force status of these same persons in the summer of 1964 shows that most of those who found jobs right away (in 1961-62) continued working. Two-thirds of the people who were employed three months after they exhausted all their benefit rights were also working at the time of the 1964 survey. Fifteen per cent had lost their jobs and were seeking work again in 1964, but most of these had worked in 1963. The remaining 18 per cent were out of the labor force in 1964. More of the men than of the women at work in 1961-62 were working in 1964, and more of the women had withdrawn from the labor force. (See Chart 5 and Table 5.)

Four-fifths of the long-term unemployed who had withdrawn from the labor force within three months after receiving their last benefit payment in 1961 or 1962 were still out of the labor force in 1964. The other fifth had reentered the labor force; most of them were either working in 1964 or had worked in 1963. Altogether, those who reentered the labor force constituted only 3 per cent of the total number of persons covered by the survey, and most of them were women.

The most important change in labor force status between the Post-Exhaustion Survey in 1961-62 and the 1964 survey was a shift out of the ranks of the unemployed. Whereas 55 per cent of the total group were unemployed three months after exhausting their TEC benefits, only 14 per cent were unemployed in the summer of 1964.

Half of those unemployed at the time of the 1961-62 survey had withdrawn from the labor force by 1964. However, at least one in ten of this group had continued the job search for a long time, as indicated by the fact that they had some work during 1963. The large majority of the unemployed who withdrew from the labor force had been at least 45 years of age in 1961-62, and almost half had been 65 or older.

A little over a third of the persons who were unemployed at the time of the first post-exhaustion survey found jobs and were working in 1964. The majority of these people were under 45 years of age in 1961-62, but a few who had been 65 years or older were working again in 1964.

Only 16 per cent of the persons who were unemployed three months after exhausting their TEC benefits were still - or again - in the labor force and looking for work at the time of the 1964 survey; more than half of these had worked in 1963.

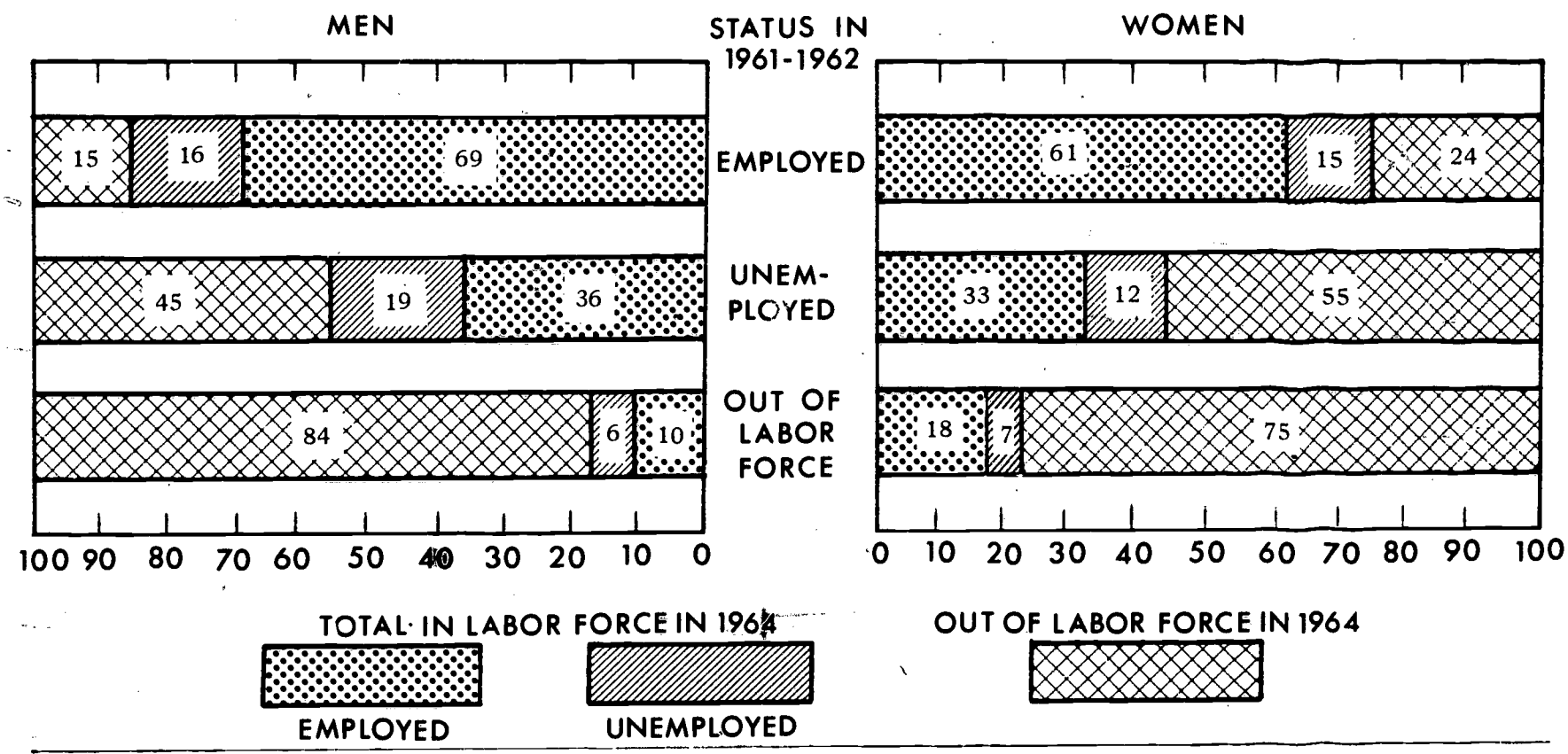
FRIENDS AND RELATIVES WERE THE MAIN SOURCE FOR NEW JOBS

Each person who had worked at all since the beginning of 1963 was asked how he got his last job. A third of those who answered the question said they got their jobs through friends or relatives. A fifth said they got their jobs by direct application to employers, and another 8 per cent were recalled by former employers. The various sources were:

	Per cent of persons reporting
Friends or relatives	34
Direct application to employer	20
Newspaper help-wanted advertisements	10
New York State Employment Service	9
Recall by former employer	8
Private employment agency	7
Labor union	6
Other (Civil Service, political organization, self-employed, etc.)	6
Total	100

These findings are generally in line with other surveys of how jobs are obtained. Many studies of displaced workers have shown that most of them obtain new jobs through informal methods, such as leads from friends and relatives or random applications for jobs, rather than through formal referrals by the State Employment Service, private employment agencies, unions, or former employers. 1/

Chart 5. LABOR FORCE STATUS IN 1964 BY LABOR FORCE STATUS IN 1961-1962 THREE MONTHS AFTER EXHAUSTION OF TEC BENEFITS



1/ William Haber, Louis A. Ferman and James R. Hudson, *The Impact of Technological Change*, the W. E. Upjohn Institute for Employment Research, Kalamazoo, Michigan, September 1963, Chapter III.

IV. CASE HISTORIES

THE INDIVIDUALS who made up the long-term unemployed of the 1960-1961 recession vary greatly in their personal characteristics and in their employment experience before and after the recession. The case histories which follow illustrate their diversity.

1. MAN UNDER 40 YEARS, NO REGULAR LINE OF WORK, MUCH PRE-RECESSION UNEMPLOYMENT

Mr. D. F. of the Buffalo Area has been unemployed most of the time since early 1960. When interviewed as a TEC claimant in May 1961, he was 35, married, and described himself as a primary earner with a dependent wife, although she was working full time.

His longest employment in the five years prior to 1961 had been as a metal paint sprayer with an electrical products manufacturer, a job from which he was laid off in September 1957. He worked part of 1958, then was unemployed for more than a year. He drew unemployment insurance for most of six months, but did not exhaust benefits at that time.

He got a job with a steel company in May 1959, was laid off intermittently then permanently in March 1960. He drew benefits at $41 a week for 26 weeks, exhausting his rights in October 1960. A temporary job in the Post Office lasted from November 14 to December 30. He filed his first claim for TEC in May 1961 and drew his 13th check in August. Three months later, with no employment since exhausting TEC benefits, he was looking for work. He reported, "Not working because work is scarce in my line. Also am on waiting list for Post Office job."

He had no work during 1963 and was still looking for a job in August 1964. He commented, "My reason for not being employed--not enough jobs in my type of trade, or high school education not complete.... Have not received any benefits since unemployed. Not enough weeks worked. Five weeks short of my twenty weeks. Close, but not close enough for benefits."

2. LONGSHOREMAN, 50 YEARS OLD ONLY 20 WEEKS WORK IN 1963

Mr. G. B. of New York City, a longshoreman, has had very little work for three and one half years. When he was interviewed as a TEC claimant in January 1962, he was 47, married, a primary earner with five others in the household: his wife and 9-year-old son were dependents, two daughters and a son-in-law in their 20's were working full time and not dependent on him. He had an eighth grade education.

His past work history showed steady full-time employment as a longshoreman for the same shipping company from January 1958 through December 1960. This was followed by brief jobs as a longshoreman, obtained through the union shape-up. He applied for unemployment insurance benefits in March 1961, received $50 a week for 26 weeks, exhausting his rights in October. He immediately filed for TEC, drew 13 weeks and exhausted in January 1962.

In April 1962, three months after receiving his last TEC payment, he reported only one day's work during the previous week. He had not had work lasting as long as a week since he exhausted TEC. He reported, "I went down every day and shape-up but didn't get any work."

In August 1964, he reported that in the previous week he "Had job but did not work," and he commented, "Slow." During 1963, he had only 20 weeks of employment. In answer to how he got his last job, he wrote, "Shape-up, longshoreman."

3. EDITOR, OVER 50 FOUND REEMPLOYMENT IN JANUARY 1962

Mr. J. T. of New York City, an editor, finally succeeded in getting a good job. He was interviewed as a TEC claimant in October 1961 when he was 54, widowed, living alone, with no dependents. He was a college graduate.

His past work history showed that he was laid off in December 1960 from his full-time job as editor for a publishing company. He applied for unemployment insurance benefits early in December, drew $50 a week for 26 weeks, exhausting in July 1961. He immediately filed for TEC and received his 13th check in October.

Three months later, in January 1962, he was working, but was not satisfied with the job. He commented: "I found work not in my regular field and at a greatly reduced salary. This position began January 2, 1962."

In August 1964, he reported that he was working and had worked all of 1963. In answer to the question about how he got his last job, he wrote, "I applied to a Temporary Office Personnel organization. They sent me out on a two-day assignment and I was asked to stay at it permanently. In my 4th month a contact made there resulted in an offer for much better position which I now have. I have now worked constantly for 22 months with many pay increases."

4. LABORER, UNDER 40, WITH FOUR CHILDREN WORKED 43 WEEKS IN 1963, UNEMPLOYED IN 1964

Mr. K. M. of the Albany Area is again unemployed and looking for work. In May 1961, he was 34 years old, with a wife and four children, aged 2 to 14 years. Although his wife was working full time when he was interviewed, he said that all five members of his household were dependent on his earnings for at least half of their support.

He had worked as a laborer and grinder for a steel mill at $90 a week until the end of February 1960, when he was laid off permanently. He filed for UI benefits and received $45 a week for 26 consecutive weeks, ending in September 1960. He continued to be unemployed but did not file his first TEC claim until May 1961 because he was ill in April. He exhausted his TEC benefits in October.

In January 1962, three months after he exhausted TEC, Mr. M.was working.

In September 1964, he was again looking for a job. He had worked 43 weeks in 1963. In answer to the question about how he got his last job, he said, "I put in an application and was called in."

5. PENSIONER, AGED 74, FORMERLY A LONGSHOREMAN, NOW WORKING AS A PORTER

Mr. R. I. of New York City is still working at age 74. He lives with his wife whom he supports. In 1961 he was a stevedore, working part time for a transportation company. He worked a few days intermittently and received UI benefits in between his working periods. He exhausted regular benefits in 1958, 1959, 1960 and 1961, and collected 13 weeks of TEC at a $29 rate between September 1961 and January 1962. He was also receiving his Social Security old-age pension.

Three months after his last TEC payment, he reported that he had worked one day during the previous week. His own comments tell his story: "I shape-up on jobs. The firm calls for me. I am going to be age 72 years June 18, 1962. Therefore I am getting Social Security, myself and wife get a monthly check for $148.50 - which I can't depend on that kind of money to support ourself. I am capable of working. I am a union man, pay my dues up to date $4 monthly in order to get work. I am a stevedore freight handler by trade. I shape up at____. They give me a day or two which pays $22.28 per day. When busy they give me 3 days. I am very happy to get that, to meet my living expense to exist. I am 18 years a member in the union. It does not pay me a pension. I may be 72 years young, still give a good days work. Otherwise those firms won't hire me."

In 1964, he reported that he had worked the last week of July. His most recent story follows: "I worked for (same company mentioned above). I started January 7, 1963 and laid off complete November 1, 1963, according to M____ Insurance Company N.Y.C. to discontinue me from dock work. They claimed according to my age 74 years old they call it age risk. December 24, 1963 I started working as door man at ____apartment building and I am still working as part time porter on weekly basis of $60 per week. For a man my age over 74 I feel very happy to do what I am doing. Thank God."

6. WOMAN WITH SEMI-INVALID HUSBAND HAD WORKED AS EGG CANDLER: STOPPED JOB HUNT BECAUSE DISCOURAGED

Mrs. M. B. of New York City is keeping house because she cannot get a job. When she was interviewed as a TEC claimant in October 1961, she was 51 years old, the family's primary wage earner; her husband, a cardiac case, could do only light work and their 20-year-old son was not working.

Mrs. B. finished two years of high school. Her work history showed three years of full-time steady employment as an egg candler and packer for a supermarket chain, until she became ill in September 1960. During her illness, the supermarket closed the egg department. She started looking for work again in December and filed for UI payments in January 1961, drew 26 weeks of benefits, then filed for TEC payments which she exhausted in October.

Three months later, still looking for work, she wrote: "I am not qualified for some jobs. Others promise to call but never do. In the meantime, I am getting deeper into debt."

In August 1964, she said she had given up job hunting; she had not worked at all in 1963. She said at that time: "Cannot get work. I did candler and packer. Applied for school lunch last year but never heard from them. I do want to work if you can help me."

7. FORMER SKILLED WORKER IN HIS 40's WITH SEVEN DEPENDENTS, WORKED 40 WEEKS IN 1963

Mr. N. W. of the Buffalo Area found work but it hasn't been steady. When he was a TEC claimant in May 1961, he was 44 years old, supporting a wife and six children under 14 years of age.

He had been a skilled worker, operating a furnace for a primary metals manufacturing firm. Even as far back as 1958, he had long spells of unemployment. That year he drew 26 weeks of UI benefits. In 1959, he went back to work for the same company for a short time, and also worked briefly in the Post Office.

In January 1960, Mr. W. got a job as an unskilled laborer for a construction firm and earned $170 a week. After being laid off in September, he received $50 a week in UI benefits for 26 weeks. He filed his first TEC claim in April 1961 and drew his 13th check in July. Three months later he was working again. In 1963, he had 40 weeks of work. He worked in the first half of 1964 but was on a temporary layoff at the end of July.

8. MECHANIC, 56 YEARS OLD, WORKING ON TEMPORARY JOB WITH THE GOVERNMENT

Mr. H. T. of Long Island has been employed fairly steadily but is dissatisfied with the kind of job he gets. He was 53 years old in 1961, living with his wife who was working full time. He was the primary earner in the family.

He had had steady full-time employment as a mechanic on construction equipment until laid off in June 1960. He then drew UI benefits of $50 a week until he exhausted his rights in January 1961. He filed for TEC in June 1961 and received his last check in October. Three months later, he had a job but not in his regular line of work.

Mr. T. worked 44 weeks in 1963 and was working in August 1964, when he made these comments: "Passed Government mechanic test. A substitute indefinite mechanic until Sept. 1964. I am 56 years old and in spite of being an expert mechanic and the N. Y. State Law about age, find it difficult to get a job in private industry because of my age."

9. WOMAN IN MANAGERIAL OCCUPATION, OUT OF WORK OVER A YEAR, FOUND GOOD POSITION

Mrs. T. H. of New York City got a good position again at the end of 1961. She was nearly 50, living with her husband who was working full time. When she worked, she earned more than her husband. They contributed to their household expenses on a 50-50 basis.

Mrs. H. had finished high school and then taken a six-month course in advanced bookkeeping in 1929. She had been steadily employed as an office and credit manager for a paint manufacturing firm at a salary of $140 a week until the summer of 1960 when she became ill. She began looking for work again in the fall but was unable to find a job. She drew 26 weeks of UI benefits, at the maximum rate of $50, and then started to draw TEC benefits in April 1961. She took a job in June with a nurses' registry, which lasted through August. After a two-week vacation she started looking for work again, drew the rest of her 13 weeks of TEC benefits and exhausted in October.

In January 1962, in answer to the TEC post-exhaustion questionnaire, she wrote: "Thank you for your wonderful assistance, I am working permanently since Dec. 1st, and have a very good position. I was out of work for 16 months but things seemed to ease up before Xmas. I had 2 offers of jobs and 2 additional requests for interviews all in four days time. However, I am sure I picked the right one."

In the summer of 1964, she reported having worked 52 weeks in 1963 and commented further: "Secured good position thru N. Y. Times ad in Dec. 1961. Starting salary $115.00 per wk. - have had promotions and earning $150.00 per week plus sizable Xmas bonus. Thank you for your assistance during period of unemployment."

10. MAN 60 YEARS OLD, IRREGULAR PRE-RECESSION WORK EXPERIENCE, HARDLY ANY WORK SINCE

Mr. T. C. of New York City says he is too old to be hired again. He was 57 years old in May 1961, living with his wife who was then working full time. But Mr. C. was the primary earner in the family when he worked.

His longest job in the previous five years had been as a packer for a firm making harnesses for horses. He was laid off from that job in April 1958 and was unemployed for a year. During that time he collected UI benefits for three months. His next job lasted from March 1959 until September 1960. He subsequently drew 26 weeks of regular UI benefits, followed by 13 weeks of TEC benefits, at a weekly rate of $34. During his unemployment he used up all his savings and was dependent for support on his UI benefit and his wife's wages.

In November 1961, three months after he received his last benefit check, he was still unemployed. He had no work in 1963, worked briefly in the first half of 1964 and was looking for work in August 1964.

"My main reason for not working when I tell anyone my age they only tell me they will notify me and that never came. This year I got a job as a painter for 3 weeks from the____Employment Agency. I worked for 3 weeks. I was laid off."

11. MALE CLERICAL WORKER, OVER 50 FOUND PERMANENT JOB

Mr. W. S. of Long Island found a steady job again late in 1961. When interviewed in October 1961 as a TEC beneficiary, he was 48 years old, living with his wife, two children and mother-in-law, all of whom were dependent on him.

Mr. S. had completed two years of college and had been a clerical worker with a large manufacturing firm. He collected UI benefits in 1959 when he was laid off for three months. He was laid off permanently at the end of 1960. He started collecting benefits at the rate of $50 a week, but managed to obtain about two and one-half months of work in 1961. Out of work again, he exhausted his regular benefits and drew 13 weeks of TEC benefits. Soon thereafter he was reemployed.

He worked 52 weeks in 1963 and was working in July 1964. He got his last job through a recommendation from his previous employer.

12. WOMAN OVER 50, SEMISKILLED MACHINE OPERATOR, RETURNED TO SAME FIRM AFTER A YEAR'S ABSENCE

Mrs. M. K. of New York City has been working intermittently for the same employer for over 14 years. In May 1961, at age 51, she was living with her 13-year-old daughter and her husband, who had a full-time job.

She had been working as a semiskilled machine operator for the M____Yarn Co., earning $62 for a 40-hour week. She was unemployed and drawing UI benefits for six months in 1958 and again from October 1959 to April 1960. After another five months of employment with this same company, she was laid off late in August 1960, and received 26 weeks of regular UI benefits plus 13 weeks of TEC benefits at $32 a week. She received her last benefit check early in July 1961.

Three months later, in October 1961, in answer to the inquiry about her work experience since July, she wrote: "Went back to work July 24th. Was working at M_____ Yarn Co. till Sept. 22nd. Now layoff account of Co. moving."

In August 1964, she was again working and reported having worked in 1963 but did not say for how long. She said, "I am working at M___Yarn Co. steady. I don't need a job. I have been working at M___ over 14 years. Thank you."

TABLES

EXPLANATORY NOTES

All tables relate to New York State.

A per cent distribution relating to a specific characteristic excludes cases not reporting on that characteristic.

An asterisk (*) after a figure indicates that the number of sample cases in that cell was so small that it was subject to a sampling error of more than 25 per cent. (See Technical Notes for explanation.)

TABLES 1 TO 5

These tables are per cent distributions. They present data for the 2,825 persons who reported their current labor force status in response to the questionnaire mailed to them in the summer of 1964. All these persons had been TEC exhaustees in 1961 or 1962, namely, unemployed workers who drew the maximum 13 weeks of extended benefits allowed under the Federal Temporary Extended Unemployment Compensation Program after having received the maximum of 26 weeks of benefits under the regular New York State Unemployment Insurance Program.

The tables present the following information provided by these persons in reply to the questionnaire:

1. Their labor force status in 1964: whether they were working, looking for work, or out of the labor force (neither working nor looking for work) during the previous week.

2. For those who were out of the labor force, their main reason for not working and not looking for work during the previous week.

3. Their work experience in 1963: whether or not they worked at all in 1963 and, if they worked, how many weeks they worked.

Tables 1 to 5 present these data cross-classified by selected characteristics of the respondents, which were obtained from the special surveys of TEC claimants conducted in New York State during the operation of the TEC program in 1961-62. (See Technical Notes for further detail about these surveys.)

TABLE 6

This table shows information on age by family status and occupation for TEC claimants as a whole, derived from the 1961-62 special surveys.

Table 1. 1964 LABOR FORCE STATUS OF 1961-1962 TEC EXHAUSTEES BY SELECTED CHARACTERISTICS

A. BOTH SEXES

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964				Out of labor force in 1964	
		Total	Employed	Unemployed		Total	With work in 1963
				Total	With work in 1963		
Total	100	54	40	14	9	46	6
SEX							
Men	100	59	43	16	10	41	4
Women	100	49	37	12	8	51	8
AGE							
Under 35 years	100	74	61	13	10	26	6*
35 to 54 years	100	75	59	17	11	25	4*
55 to 64 years	100	42	27	15	9	58	8*
65 years or over	100	22	11	11	6*	78	5*
Median age (years)	52.6	44.6	43.2	49.9	47.5	63.4	58.7
FAMILY STATUS							
One-person households	100	52	36	16	10	48	6*
Multi-person households:							
Primary earners	100	55	40	15	9	45	4
Married secondary earners	100	51	40	12	8	49	8
Unmarried secondary earners	100	63	50	13*	9*	37	4*
OCCUPATION							
Professional and managerial	100	68	46	21*	14*	32	6*
Clerical and sales	100	46	33	13	9	54	6*
Service	100	48	34	14	7*	52	7*
Skilled	100	51	37	14	10*	49	5*
Semiskilled	100	56	43	13	8	44	6*
Unskilled and other	100	63	49	14	10	37	4*

a/ Details may not add to total because of rounding to the nearest per cent.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Continued

Table 1. 1964 LABOR FORCE STATUS OF 1961-1962 TEC EXHAUSTEES BY SELECTED CHARACTERISTICS--Continued

B. MEN

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964			Out of labor force in 1964
		Total	Employed	Unemployed	
Total	100	59	43	16	41
AGE					
Under 35 years	100	98	82	16	2*
35 to 54 years	100	89	69	20	11
55 to 64 years	100	52	32	20	48
65 years or over	100	22	11	11	78
Median age (years)	58.1	45.4	42.7	54.5	65+ b/
FAMILY STATUS					
One-person households	100	61	43	18*	39
Multi-person households:					
Primary earners	100	55	40	15	45
Married secondary earners	c/				
Unmarried secondary earners	100	81	65	15*	19*
OCCUPATION					
Professional and managerial	100	72	48	24*	28*
Clerical and sales	100	52	38	14*	48
Service	100	50	33	17*	50
Skilled	100	51	38	13*	49
Semiskilled	100	60	46	14*	40
Unskilled and other	100	70	53	17	30

a/ Details may not add to total because of rounding to the nearest per cent.
b/ Median age falls in "65 years or over" group.
c/ Distribution not shown where base is less than 100 sample cases.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Continued

Table 1. 1964 LABOR FORCE STATUS OF 1961-1962 TEC EXHAUSTEES BY SELECTED CHARACTERISTICS--Continued

C. WOMEN

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964			Out of labor force in 1964
		Total	Employed	Unemployed	
Total	100	49	37	12	51
AGE					
Under 35 years	100	50	40	10*	50
35 to 54 years	100	66	51	15	34
55 to 64 years	100	30	21	8*	70
65 years or over	100	20*	10*	10*	80
Median age (years)	47.6	43.9	43.7	44.5	54.1
FAMILY STATUS					
One-person households	100	42	29	13	58
Multi-person households:					
Primary earners	100	51	37	14*	49
Married secondary earners	100	52	41	11	48
Unmarried secondary earners	100	40	30*	10*	60
OCCUPATION					
Professional and managerial	b/				
Clerical and sales	100	44	31	12	56
Service	100	45	35	10*	55
Skilled	b/				
Semiskilled	100	52	40	12*	48
Unskilled and other	100	54	44	10*	46

a/ Details may not add to total because of rounding to the nearest per cent.
b/ Distribution not shown where base is less than 100 sample cases.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Table 2. SELECTED CHARACTERISTICS OF 1961-1962 TEC EXHAUSTEES BY THEIR 1964 LABOR FORCE STATUS

A. BOTH SEXES

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964				Out of labor force in 1964	
		Total	Employed	Unemployed		Total	With work in 1963
				Total	With work in 1963		
SEX	100	100	100	100	100	100	100
Men	55	59	59	62	60	49	38
Women	45	41	41	38	40	51	62
AGE	100	100	100	100	100	100	100
Under 35 years	20	27	30	19	21	11	22*
35 to 54 years	34	48	50	41	43	19	27*
55 to 64 years	19	14	13	20	19	24	26*
65 years or over	27	11	7	21	17*	46	25*
FAMILY STATUS	100	100	100	100	100	100	100
One-person households	17	16	15	19	19	18	17*
Multi-person households:							
Primary earners	44	45	44	48	45	44	33
Married secondary earners	28	27	28	23	25	30	43
Unmarried secondary earners	11	12	13	10*	11*	9	7*
OCCUPATION	100	100	100	100	100	100	100
Professional and managerial	6	8	7	10*	10*	5	7*
Clerical and sales	25	21	20	22	24	29	27*
Service	13	11	11	13	10*	14	15*
Skilled	13	12	12	13	14*	14	11*
Semiskilled	21	22	22	20	18	20	24*
Unskilled and other	22	26	27	22	24	18	15*

a/ Details may not add to total because of rounding to the nearest per cent.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Continued

Table 2. SELECTED CHARACTERISTICS OF 1961-1962 TEC EXHAUSTEES BY THEIR 1964 LABOR FORCE STATUS--Continued

B. MEN

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964			Out of labor force in 1964
		Total	Employed	Unemployed	
AGE	100	100	100	100	100
Under 35 years	18	30	34	18	1*
35 to 54 years	26	39	42	32	7
55 to 64 years	18	16	14	23	21
65 years or over	37	14	10	26	71
FAMILY STATUS	100	100	100	100	100
One-person households	15	16	15	18*	14
Multi-person households:					
Primary earners	71	67	67	68	77
Married secondary earners	2*	2*	1*	3*	3*
Unmarried secondary earners	11	15	17	11*	5*
OCCUPATION	100	100	100	100	100
Professional and managerial	8	10	9	12*	5*
Clerical and sales	13	12	12	12*	16
Service	14	12	11	15*	17
Skilled	21	18	19	18*	26
Semiskilled	20	20	21	18*	19
Unskilled and other	23	27	28	25	17

a/ Details may not add to total because of rounding to the nearest per cent.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Continued

Table 2. SELECTED CHARACTERISTICS OF 1961-1962 TEC EXHAUSTEES BY THEIR 1964 LABOR FORCE STATUS--Continued

C. WOMEN

(Per cent distribution a/)

Selected characteristics at time of 1961-1962 TEC surveys	Total	In labor force in 1964			Out of labor force in 1964
		Total	Employed	Unemployed	
AGE	100	100	100	100	100
Under 35 years	22	23	24	19*	22
35 to 54 years	44	59	61	55	30
55 to 64 years	19	12	11	13*	26
65 years or over	14	6*	4*	12*	22
FAMILY STATUS	100	100	100	100	100
One-person households	19	16	15	21*	21
Multi-person households:					
Primary earners	12	12	12	14*	11
Married secondary earners	59	63	65	56	56
Unmarried secondary earners	10	8	8*	9*	12
OCCUPATION	100	100	100	100	100
Professional and managerial	5	6*	6*	6*	4*
Clerical and sales	38	34	32	39	42
Service	11	10	10	9*	11
Skilled	3*	3*	3*	6*	3*
Semiskilled	22	24	24	23*	21
Unskilled and other	21	23	25	17*	19

a/ Details may not add to total because of rounding to the nearest per cent.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Table 3. REASONS WHY 1961-1962 TEC EXHAUSTEES WERE OUT OF THE LABOR FORCE IN 1964 BY SEX AND AGE
(Per cent distribution a/)

Sex and age in 1961-1962	Total out of labor force b/	Reason for being out of labor force			
		Retired	Sick	Keeping house	Other
BOTH SEXES	100	61	12	23	4
Under 55 years	100	2*	21	66	11*
55 years or over	100	86	9	4*	1*
MEN	100	84	14	c/	1*
Under 55 years	d/				
55 years or over	100	91	8	-	1*
WOMEN	100	38	11	44	7*
Under 35 years	100	-	4*	84	12*
35 to 54 years	100	4*	18*	69	10*
55 years or over	100	77	10*	11*	2*

a/ Details may not add to total because of rounding to the nearest per cent.
b/ Excludes persons not reporting reason for being out of labor force.
c/ Less than 0.5 per cent.
d/ Distribution not shown where base is less than 100 sample cases.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Table 4. WEEKS WORKED IN 1963 BY 1961-1962 TEC EXHAUSTEES BY SELECTED CHARACTERISTICS

(Per cent distribution a/)

Selected characteristics	Total b/	No work in 1963	With work in 1963	Weeks of work in 1963						
				Total reporting	1 to 14	15 to 25	26 to 38	39 to 47	48 or more	Median weeks
	Per cent			Per cent						
Total	100	45	55	100	19	18	17	11	35	35.4
SEX										
Men	100	42	58	100	18	18	17	10	37	36.5
Women	100	48	52	100	21	18	18	12	31	33.9
LABOR FORCE STATUS, 1964										
Employed	100	5	95	100	10	15	18	12	44	43.6
Unemployed	100	35	65	100	30	32	19	8•	12•	22.0
Out of labor force	100	86	14	100	60	19•	9•	3•	8•	12.6
Characteristics at time of 1961-1962 TEC surveys										
AGE										
Under 35 years	100	27	73	100	15	15	17	15	39	41.4
35 to 54 years	100	27	73	100	15	18	19	11	38	38.1
55 to 64 years	100	53	47	100	31	17•	17•	6•	29	27.4
65 years or over	100	77	23	100	36	30	12•	6•	17•	20.2
FAMILY STATUS										
One-person households	100	48	52	100	21	25	17•	9•	28	29.3
Multi-person households:										
Primary earners	100	45	55	100	18	18	16	11	38	37.9
Married secondary earners	100	45	55	100	23	18	19	10•	31	32.3
Unmarried secondary earners	100	40	60	100	13•	13•	19•	14•	41	42.3
OCCUPATION										
Professional and managerial	100	32	68	100	20	17	13	10	40	40.1
Clerical and sales	100	52	48							38.3
Service	100	51	49	100	20•	22•	17•	10•	31	32.2
Skilled	100	47	53	100	21•	16•	18•	8•	36	35.1
Semiskilled	100	42	58	100	21	18	21	11•	29	32.9
Unskilled and other	100	39	61	100	16	20	19	12•	34	35.9

a/ Details may not add to total because of rounding to the nearest per cent.
b/ Excludes persons not reporting whether they worked in 1963 or not.

• Subject to sampling error of more than 25 per cent because number of cases is small.

Table 5. 1964 LABOR FORCE STATUS OF TEC EXHAUSTEES COMPARED WITH THEIR LABOR FORCE STATUS THREE MONTHS AFTER EXHAUSTING TEC BENEFITS

(Per cent distribution a/)

Sex and labor force status in 1964	Total	Labor force status 3 months after exhausting TEC benefits in 1961-1962			
		In labor force			Out of labor force
		Total	Employed	Unemployed	
BOTH SEXES	100	84	29	55	16
Men	100	86	32	54	14
Women	100	81	25	56	19
BOTH SEXES	100	100	100	100	100
In labor force in 1964—total	54	61	82	50	20
Employed	40	45	66	35	14
Unemployed—total	14	16	15	16	7•
With work in 1963	9	10	13	9	4•
Out of labor force in 1964—total	46	39	18	50	80
With work in 1963	6	6	6	5	5•
MEN	100	100	100	100	100
In labor force in 1964—total	59	66	85	55	16•
Employed	43	49	70	36	10•
Unemployed	16	18	16	19	6•
Out of labor force in 1964	41	34	15	45	84
WOMEN	100	100	100	100	100
In labor force in 1964—total	49	54	76	45	24
Employed	37	42	60	33	18•
Unemployed	12	13	15	12	7•
Out of labor force in 1964	51	46	24	55	76

a/ Details may not add to total because of rounding to the nearest per cent.

• Subject to sampling error of more than 25 per cent because number of cases is small.

Table 6. MEDIAN AGE OF TEC CLAIMANTS IN 1961-1962 BY SEX, FAMILY STATUS AND OCCUPATION a/

Family status and occupation	Both sexes	Men	Women
All TEC claimants	46.8 years	49.4 years	44.4 years
FAMILY STATUS			
One-person households	53.1	49.4	57.3
Multi-person households:			
Primary earners	51.3	52.5	46.1
Married secondary earners	41.4	58.9 b/	42.0
Unmarried secondary earners	33.5	28.9	44.6
OCCUPATION			
Professional and managerial	45.5	49.0	40.1 b/
Clerical and sales	47.5	53.9	44.7
Service	53.1	56.9	46.7
Skilled	56.2	56.5	54.5 b/
Semiskilled	46.9	46.0	47.5
Unskilled and other	39.5	39.2	39.9

a/ The median ages in this table are those of the TEC population as a whole, which contained fewer older persons than did the group covered by the 1964 survey. They are presented here only to indicate differences in age between different categories of TEC claimants.

b/ Data for this group are not shown in Table 1 because the number of sample cases from the 1964 survey is too small to be significant.

SOURCE: N.Y. State Department of Labor, Division of Employment, The Long-Term Unemployed, 1961-1962, August 1964, pp. 18 and 34.

TECHNICAL NOTES

The persons described in this report were beneficiaries under the TEC program in 1961-62. They were part of the sample of TEC beneficiaries covered by the special surveys made in New York State during the life of the program.

THE TEC PROGRAM

In order to combat the effects of the recession which caused a rapid increase in unemployment beginning in the summer of 1960, the Federal Government passed the Temporary Extended Unemployment Compensation Act of 1961. New York adopted the abbreviation "TEC" to designate this Federal program of extended benefits.

As this Act applied in New York, the equivalent of 13 additional full weeks of benefits was available to unemployed workers whose benefit rights were terminated under the permanent State unemployment insurance program after receipt of 26 full weeks of benefits (or by expiration of benefit years in a few cases). Workers whose rights were terminated at any time between July 1, 1960 and March 31, 1962 could claim TEC benefits.

Claim filing began in New York on April 10, 1961. No new claims could be filed after March 31, 1962; unemployed persons who had already qualified for extended benefits before that date could continue to receive payments until July 1, 1962.

THE TEC SURVEYS

As part of a nationwide research program called for by the Federal Act, New York conducted a series of surveys of TEC claimants in 1961 and 1962. Two of these were sources of data used in this report.

1. Family Characteristics Survey--provided data on the personal characteristics, family situations and employment background for a sample of 15,034 TEC claimants.

2. Post-exhaustion survey--covered about 4,000 of the TEC claimants who had been included in the Family Characteristics Survey and who subsequently exhausted their rights to 13 weeks of TEC benefits. A questionnaire was mailed to these exhaustees, three months after they had exhausted their TEC benefits, to find out their labor force status at that particular time.

The dates when they exhausted their benefits extended from July 1961 through June 1962 and their labor force experience three months after exhausting benefits covered the period from October 1961 through September 1962. Three-fourths of these TEC exhaustees had used up their benefit rights by the end of 1961.

The results of these TEC surveys were published in two reports by the New York State Labor Department, Division of Employment:

TEC Claimants in Four Survey Periods, New York State, 1961-1962. March 1963

The Long-Term Unemployed, 1961-1962. August 1964

THE 1964 SURVEY

The persons who had replied to the TEC Post-Exhaustion Survey were used as the starting sample for the follow-up study in July-September 1964. The mail questionnaire used in the 1964 study appears at the end of the Technical Notes. Despite the interval of two to three years since the 1961-62 survey, usable questionnaires were received from about three-fourths of the persons to whom they were mailed. Most of the nonresponses were Post Office returns, indicating that the addressee had moved and left no address.

The characteristics of the individuals covered by the 1964 survey were available from the original Family Characteristics Survey, and their labor force experience three months after exhausting TEC benefits from the Post-Exhaustion Survey.

Table A. NUMBER OF 1961-1962 TEC EXHAUSTEES COVERED IN 1964 SURVEY BY ITEMS REPORTED

Items reported	Both sexes	Men	Women
Total number of persons to whom a questionnaire was sent	3,737	2,137	1,600
Nonrespondents	912	587	325
Respondents	2,825	1,550	1,275
1964 LABOR FORCE STATUS			
Total respondents	2,825	1,550	1,275
Employed	1,138	667	471
Unemployed	396	245	151
Out of labor force	1,291	638	653
WEEKS WORKED IN 1963			
Total respondents	2,825	1,550	1,275
Without work in 1963	1,215	619	596
With work in 1963	1,482	841	641
Number of weeks specified	1,384	780	604
Number of weeks not specified	98	61	37
Not reporting on work in 1963	128	90	38
REASON FOR WITHDRAWAL FROM LABOR FORCE			
Total out of labor force	1,291	638	653
Reporting reason	1,280	634	646
Not reporting reason	11	4	7
SOURCE OF LAST JOB			
Total reporting	1,404	784	620

The date of the "last week" in 1964, for which each person reported whether he was working or looking for work or neither, varied from the last week in July to the second week in September, depending on whether he replied to the first, second or third mailing of the questionnaire. Nearly half of the respondents replied to the first mailing which was sent out on July 31, 1964. About 35 per cent answered after the second mailing in mid-August, and the others replied to the third mailing in the middle of September.

Size of the sample. Questionnaires were sent to 3,737 former TEC exhaustees, and a total of 2,825 respondents was included in the final sample--all those whose labor force status for the previous week could be determined from the answers to the questionnaire. The number of respondents in the final sample, classified by their labor force status, and the number answering the other questions which were asked are shown in the accompanying Table A.

Table B. AGE OF RESPONDENTS AND NONRESPONDENTS BY SEX

Sex and age in 1961-62	Per cent distribution a/			Nonrespondents as per cent of total
	Total persons canvassed	Respondents	Nonrespondents	
BOTH SEXES	100	100	100	24
Under 25 years	8	7	12	37
25 to 34 years	15	13	21	34
35 to 44 years	18	17	24	31
45 to 54 years	17	18	16	22
55 to 64 years	17	19	12	17
65 years or over	24	27	16	16
Median age (years)	50.0	52.6	42.2	
MEN	100	100	100	27
Under 25 years	7	6	10	40
25 to 34 years	14	12	20	38
35 to 44 years	15	12	22	40
45 to 54 years	14	14	15	29
55 to 64 years	17	18	12	20
65 years or over	33	37	21	17
Median age (years)	54.6	58.1	43.9	
WOMEN	100	100	100	20
Under 25 years	9	8	15	33
25 to 34 years	16	14	23	29
35 to 44 years	23	22	26	23
45 to 54 years	21	22	18	17
55 to 64 years	17	19	11*	13*
65 years or over	13	14	7*	11*
Median age (years)	45.8	47.6	39.6	

a/ Details may not add to total because of rounding to the nearest per cent.

* Subject to sampling error of more than 25 per cent because number of cases is small.

Effect of nonresponse. "Respondents," as used here, were those persons who returned a usable questionnaire, defined as one which showed current labor force status (as of "last week"). The 912 "nonrespondents" represented 24 per cent of the total to whom questionnaires were mailed. They were divided by reason for nonresponse as follows: Post Office returns--15 per cent, no reply at all--6 per cent, known to be deceased as reported by relative or Post Office--3 per cent and blank or incomplete returns--less than 1 per cent.

Although nonrespondents differed from respondents in a number of ways, adjustment of the 1964 labor force status of the respondents to take into account the characteristics of the nonrespondents results in no significant change. The most significant difference between the characteristics of respondents and nonrespondents was their age. Nonrespondents were considerably younger. (See Table B.)

One of the reasons usually given to explain a lower rate of response among younger persons is that more of them are employed and too preoccupied to return the forms. The results of this survey show that mobility is also an important factor. The proportion of Post Office returns was higher among younger than among older persons canvassed.

Table C. ACTUAL LABOR FORCE STATUS OF RESPONDENTS COMPARED WITH THEIR LABOR FORCE STATUS WHEN ADJUSTED BY AGE OF NONRESPONDENTS

(Per cent distribution)

Labor force status	Both sexes		Men		Women	
	Actual	Adjusted by age of nonrespondents	Actual	Adjusted by age of nonrespondents	Actual	Adjusted by age of nonrespondents
Total	100	100	100	100	100	100
In labor force	54	57	59	63	49	50
Employed	40	43	43	47	37	38
Unemployed	14	14	16	16	12	12
Out of labor force	45	43	41	37	51	50

Table C shows the effect of adjusting the 1964 labor force status of respondents to take account of the age of nonrespondents. The labor force participation rate would have been slightly higher among men but about the same among women if all persons canvassed had replied to the survey. The adjusted figures in Table C were derived by assuming that the labor force status of nonrespondents in each age group was the same as that of respondents in the like age group.

Although the labor force status of the 1964 survey group was little affected by the varying response rate from different age groups, their median age of 52.6 years (as of 1961-62) was higher than the median age of 46.0 years among all persons who exhausted TEC benefits during the life of the program. (See New York State Department of Labor, Division of Employment, *The Long-Term Unemployed, 1961-1962,* Table E, p. 157.) This age difference is the cumulative effect of several factors associated with the making of the TEC surveys in 1961-1962 and the follow-up study in 1964. Because of their higher age, the 1964 survey group may not be entirely representative of all TEC exhaustees.

Sampling error. As with all sample results, the sample estimates published in this report may differ from what would have been obtained if all TEC exhaustees had been enumerated. Sampling theory provides methods for measuring the variation of an estimate due solely to random sampling errors. A common measure of the size of the variation is the standard error. The chances are two out of three that an estimate from a sample differs from a complete count by less than one standard error. The chances are 90 out of 100 that the difference is less than 1.645 standard errors.

The expected sampling variation is dependent on the size of the sample. The larger a sample, the smaller is the expected sampling variation. Table D shows the sampling variation to be expected at the .90 confidence level for different selected cell sizes within the total sample of 2,825 cases.

For this size sample, a cell of 43 cases is subject to a sampling error of 25 per cent at the indicated confidence level. In Tables 1 to 5, which present the data from this survey in terms of percentage distributions for different characteristics, any cell which contained less than 43 cases has been noted by an asterisk (*) to call attention to the fact that that particular percentage is subject to more than a 25 per cent sampling error.

Other survey errors. All surveys, whether based on sample or complete enumeration, are subject to a variety of errors other than random errors of sampling and nonresponse errors. These other non-sampling errors include inaccurate responses, faulty editing or classification, and tabulating errors. These will affect the closeness with which an estimate of the size or value of a universe characteristic based upon the sample (the statistic) may approach the sought-for true value of the universe characteristic (the parameter). While sampling errors can be estimated, non-sampling errors cannot; consequently, the samples are collectively affected by these errors to an unknown degree. However, every attempt has been made to keep these errors to a minimum, including the design of the mail questionnaire and a check of the responses for reasonableness and consistency of the answers to the various questions asked.

Table D. PER CENT ERROR OF ESTIMATE FOR VARYING SAMPLE CELL SIZES AT A .90 CONFIDENCE LEVEL FOR A SAMPLE OF 2,825 CASES

Sample cell size	Per cent error of estimate (1.645 standard errors) at a .90 confidence level	Sample cell size as per cent of total sample	Chances are 90 out of 100 that true proportion lies between
5	80	0.18	0.04- 0.32
11	50	0.39	0.19- 0.59
30	30	1.06	0.74- 1.38
43	25	1.52	1.14- 1.90
116	15	4.10	3.48- 4.72
247	10	8.74	7.87- 9.61
783	5	27.70	26.32-29.08

STATE OF NEW YORK
DEPARTMENT OF LABOR
DIVISION OF EMPLOYMENT

Research and Statistics Office
370 Seventh Avenue - New York 1, New York - LOngacre 3-7660

The Division of Employment is conducting a study in order to determine ways to improve its services to New York workers. You can help by answering the questions below. Please complete the form and return it in the enclosed envelope, which does not need a stamp.

Your answers will be held strictly confidential and will not affect any future claims for benefits in any way. Thank you for your cooperation.

---

1. Were you working last week? ..... Yes ☐ No ☐

2. If you were not working last week, were you looking for work? ..... Yes ☐ No ☐

3. If you did not work or look for work last week, what was the main reason?

Check one answer below

a. Had job but did not work (on temporary layoff, vacation, sick, etc.). ☐

b. Keeping house ..... ☐

c. Going to school ..... ☐

d. Retired ..... ☐

e. Other reason ..... ☐
If you check this box, please explain the reason: _____

4. Did you work at all in 1963? ..... Yes ☐ No ☐
If you worked in 1963, about how many weeks did you work? _____ weeks

5. If you have worked at all since the beginning of 1963, how did you get your last job?

Check one answer below

a. Friends or relatives ..... ☐

b. Newspaper help-wanted ads ..... ☐

c. New York State Employment Office ..... ☐

d. Private employment agency ..... ☐

e. Other way ..... ☐
If you check this box, please describe how you got the job: _____

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HUDSON; OHIO

Twenty-eight public school personnel from six states with responsibilities for directing, supervising, or conducting research activities in occupational education attended a seminar with the objectives: (1) to stimulate the initiation of developmental, experimental, demonstration, pilot, exemplary, and innovative programs in occupational education at the local administrative level, (2) to assist local occupational education personnel in planning such programs, and (3) to develop strategies by and through which the Center may provide consultation and assistance for the initiation and execution of developmental and related programs in cooperation with Research Coordinating Units and other research organizations. Papers presented were (1) "The Need for Developing a New Kind of Vocational Program" by L.G. Benham, (2) "A Description of the Hudson, Ohio, Pilot Program in Vocational Education" by M.P. Pace, (3) "Establishing Objectives and Developing Procedures for Developmental, Pilot, and Innovative Programs" by L.J. Phipps, (4) "Evaluation of Developmental, Pilot, and Innovative Programs" by L.J. Phipps, (5) "The National Program of Educational Laboratories" by F. Schmidtlern, and (6) "Vocational and Technical Eduction and ERIC" by C. Wilson. Summaries of participant reactions are included. (EM)

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SEMINAR ON PLANNING DEVELOPMENTAL AND RELATED PROGRAMS IN OCCUPATIONAL EDUCATION

C. CAYCE SCARBOROUGH AND CHARLES H. ROGERS

SEMINAR CHAIRMEN

DEPARTMENT OF AGRICULTURAL EDUCATION

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

SPONSORED BY

REGION III OFFICE OF THE BUREAU OF ADULT AND VOCATIONAL EDUCATION

AND

THE CENTER FOR OCCUPATIONAL EDUCATION

Center Seminar and Conference Report No. 5

CENTER FOR OCCUPATIONAL EDUCATION

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

1966

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF EDUCATION—BUREAU OF RESEARCH

DIVISION OF ADULT AND VOCATIONAL RESEARCH

PROJECT NO. DAVR 5-1005, CONTRACT NO. OE 5-85-107

VT003263

CENTER FOR OCCUPATIONAL EDUCATION
RESEARCH-DEVELOPMENT-TRAINING

The Center for Research, Development, and Training in Occupational Education was approved and established as a Research and Development Center in 1965, under the provisions of Section 4(c) of the Vocational Education Act of 1963. The initial approval was for 20 months, ending 31 January, 1967. The proposal for the continuation of the Center for five years, beginning 1 February, 1967, has been approved and the continuation program is in operation. The total program, which has emphasized research in crucial problems in occupational education since its inception, has been divided into five complementary programs, including a research program, an evaluation program, a research development program, a research training program (in occupational education), and a services and conferences program. The Center is designed and organized to serve the nation, with special orientation to the southern states.

The Center is part of the program conducted under the auspices of the Educational Resources Development Branch, Division of Adult and Vocational Research, Bureau of Research, Office of Education, U. S. Department of Health, Education and Welfare. The Center is located at North Carolina State University at Raleigh, and has been established as an integral unit within the University. The program of the Center cuts across the Schools of Agriculture and Life Sciences, Education, Liberal Arts, and Physical Sciences and Applied Mathematics at North Carolina State University at Raleigh. Cooperating and participating Departments include the Department of Adult Education, Agricultural Education, Economics, Experimental Statistics, Industrial and Technical Education, Occupational Information and Guidance, Politics, Psychology, and Sociology and Anthropology.

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The Services and Conferences Program of the Center is established to facilitate the coordination of the program of the Center with other agencies and individuals interested in research, development and evaluation in occupational education; to arrange for consultation assistance with Center staff members for those who need and request it; and to disseminate the products of research and related activities of the Center. In addition, the Program has provided and will continue to provide assistance in planning and conducting conferences, workshops, seminars, and institutes which either are related to the research, development and training programs of the Center, or are related to the interests of other agencies which are relevant to the program of the Center. Reports of the proceedings of these conferences, workshops, seminars and institutes will be published in the CENTER SEMINAR AND CONFERENCE REPORT Series, under the auspices of the Services and Conferences Program. For additional information regarding the Services and Conferences Program, please write to:

Dr. Charles H. Rogers, Coordinator
Services and Conferences
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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SEMINAR ON PLANNING DEVELOPMENTAL AND RELATED PROGRAMS IN OCCUPATIONAL EDUCATION

Project No. 5-1005
Contract No. OE-5-85-107

C. CAYCE SCARBOROUGH and CHARLES H. ROGERS
Seminar Chairmen

1966

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The seminar reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Center Seminar and Conference Report No. 5

CENTER FOR OCCUPATIONAL EDUCATION
North Carolina State University at Raleigh
Raleigh, North Carolina

PREFACE

If changes are to be made in programs of occupational education to render these programs more effective, then it is essential that personnel at the local administrative level who deign to innovate--who dare to be different--be identified, encouraged, and assisted in the initiation of developmental and related programs in occupational education.

Sam Geek, Program Specialist, Region III Office of the U. S. Department of Health, Education, and Welfare, conceived of the need for encouraging and assisting local personnel to initiate new programs. He was aware of the paucity of developmental programs underway under the sponsorship of local school districts. He requested the Center for Occupational Education to organize a seminar, on an experimental basis, to stimulate interest in and provide assistance in initiating such programs. He contacted state directors of vocational education in Region III, and requested that they nominate personnel from local administrative units to be invited to participate in the seminar. It is a pleasure to acknowledge Mr. Geek's leadership in organizing the seminar, and to indicate that the seminar resulted from joint efforts of the Region III Office of the U. S. Department of Health, Education, and Welfare and the Center for Occupational Education.

Expressions of appreciation are due to C. Cayce Scarborough and Charles H. Rogers, who were seminar chairmen, and to Durwin M. Hanson, who was a member of the planning committee.

The Center is indebted to the consultants whose presentations were instrumental to the success of the seminar. Lloyd G. Benham, Principal, and Mary Pace, Vocational Supervisor, Hudson High School, Hudson,

Ohio, presented a succinct and challenging report of their experience in initiating a developmental program in vocational education at Hudson High School, a program that is supported, in part, under the provisions of Section 4(c) of the Vocational Education Act of 1963. Lloyd J. Phipps, University of Illinois, presented two stimulating papers on the technical aspects of developing programs. The resources available to local personnel for Research Coordinating Units, Regional Educational Laboratories, and the Center for Occupational Education were outlined by Carl F. Lamar, Director, Kentucky Research Coordinating Unit; Frank A. Schmidtlein, Program Specialist, Bureau of Research, U. S. Office of Education; and Selz C. Mayo, Professor and Head, Department of Sociology and Anthropology and formerly Acting Director, Center for Occupational Education, respectively.

One of the objectives of the seminar was to determine how the program of the Center for Occupational Education may function more effectively in providing assistance for the initiation of developmental and related programs. Suggestions along this line submitted by the seminar participants have been especially helpful.

John K. Coster, Director
Center for Occupational Education

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INTRODUCTION

Many people have been talking about Innovative Programs in Occupational Education. The Vocational Education Act of 1963, especially the hearings connected with this legislation, gave a national "push" to the consideration of innovative programs. Many strong supporters of vocational education clearly indicated that "more of the same" would not be adequate nor acceptable in the years ahead.

The Regional Seminar for Local Personnel recognized the need to involve directly those people closest to the on-going programs in all areas of Occupational Education. There are two major reasons for this basic guiding principle. First, the local directors and teachers are working "where the action is." If innovative programs are <u>really</u> going to take place, a key point of change will be at the local level. Second, local leaders are frequently not included in conferences and seminars devoted to discussing innovative programs. For these two major reasons, effort was made to invite people directly involved in local programs in all areas of Occupational Education. Participation at the seminar and comments from those attending indicated that the assumptions underlying the involvement of local leaders was sound, and that further involvement of other local leaders, such as high school principals, was greatly needed.

Major presentations of the seminar are included in this report, along with pertinent reactions of seminar participants developed in small group work sessions. No attempt was made to report the minute details of the seminar, but, rather to present major contributions which impacted on the

seminar objectives.

An expression of appreciation is extended to those who appeared on the seminar program. A special word of thanks is extended to Dr. H. F. Robinson, Administrative Dean for Research and North Carolina State University for making an informal luncheon address on the total research effort at the University.

Follow-up of this Regional Seminar in the various states represented is planned by Dr. Charles Rogers of the Center for Occupational Education, who cooperated in planning and conducting the seminar.

C. C. S.
C. H. R.

OBJECTIVES OF THE SEMINAR

1. To stimulate the initiation of developmental, experimental, demonstration, pilot, exemplary, and innovative programs in occupational education at the local administrative level.

2. To assist local occupational education personnel in planning such programs.

3. To develop strategies by and through which the Center may provide consultation and assistance for the initiation and execution of developmental and related programs in cooperation with Research Coordinating Units and other research organizations.

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Carl F. Lamar, Director, Research Coordinating Unit, University of Kentucky

Frank A. Schmidtlein, United States Office of Education, Washington, D. C.

Lloyd G. Benham, Principal, Hudson Public Schools, Hudson, Ohio

Mrs. Mary Pace, Vocational Supervisor, Hudson Public Schools, Hudson, Ohio

Selz C. Mayo, Head, Department of Sociology and Anthropology, North Carolina State University at Raleigh

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Local public school personnel who have responsibilities for directing, supervising, or conducting research activities in occupational education, and who have a keen interest in planning and initiating innovative programs and projects.

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THE NEED FOR DEVELOPING A NEW KIND OF VOCATIONAL PROGRAM

Lloyd G. Benham, High School Principal
Hudson Ohio Public Schools
Hudson, Ohio

It is indeed a pleasure to be here in Raleigh today; not because of what we have to say, but because of the opportunity Mrs. Pace and I will have to get new ideas from you. If each participant here can leave with one new idea to try when he returns to his school, this seminar will be very successful.

Let me say that we are not experts, although we are far enough away from home today to qualify as such. Neither do we profess to have answers to many educational problems; so, we are not professors.

My co-worker, Mrs. Pace, has a title of Vocational Supervisor. We do not know for sure what this is, but neither does anyone else, so we are safe in that respect. I have a title of high school principal, most people know what a principal is, and very few are safe in any respect. Someone recently described a principal as being a mouse who is trying to become a rat.

This sounded good to me until I heard a national figure in education tell what a superintendent should and should not do, then I became very confused. The question was asked of this national figure if he thought superintendents should be leaders in curriculum changes. His reply was: "For heavens sakes, no. The superintendent should buy the soup, the soap and the paper, and let the teachers who have the students work out the required changes, if they are to be successful."

I, too, am convinced that changes in education cannot be developed at an upper level and handed down to the teachers. But, let me say quickly, do not give these teachers the responsibility of developing new programs during the school year at a time when they are already carrying a full load or more with a teaching assignment. Think of employing those involved for one or two months in the summer when the pressures are off and the teachers have a clear mind to reflect on what they have been doing and ways of improving or changing for better results.

Of course, this takes extra money, so if your system is like most of the ones I am acquainted with, it will take some real salesmanship on your part to get started. Maybe this is an area where you can use your school superintendent to assist. Teachers are natural salesmen (that is, if they are good teachers) so they will not permit the lack of money to block their way if there is a sincere desire for improved educational programs for their students.

If you are from a state similar to Ohio, after election day, tomorrow, all the educational ills will be corrected. At least the politicians have made some great promises for money that should go toward education in the state. But these great promises have been made before and, really, no one is expecting any great changes. Politicians use the term education similar to the way some women use-sex appeal!

In Ohio we have the same problems that all high schools are facing in the U. S. Eighty percent of the high school students in Ohio are scheduled into college preparatory classes. Thirty percent of these students enter college. Out of every one hundred students entering first grade, twenty-five

will be drop-outs before the end of twelve years. I am not critical of the college preparatory programs-they are stronger now than ever before. They should be, after so much work and money have been spent by the states and federal government over the past ten years. But I am very critical of the fact that programs have not been developed to take better care of the majority of our secondary school students. All of us in the profession are guilty of permitting this to happen. Many of the students enrolled in the college preparation program are there because it is the lesser of two evils. There have been times in my experience when I felt it was really the smart students who were dropping out rather than the students of lower ability, and some of these students had valid reasons for doing so. It is my opinion that there cannot be a universal single best program that can be used in all schools. This statement may make vocational educators a bit uneasy, but when you see what has happened to the Vocational High Schools in New York City and some of the other eastern cities, you get the message.

It has been reported that all but two of New York City's nine vocational high schools are closing their doors and the vocational programs are being placed in the comprehensive high schools. Cleveland, Ohio, and the Boston area are experiencing the same difficulties as did New York. And, remember these were the first areas to have vocational schools dating back to the early 1900's.

It concerns me to hear educators use the term "meeting the needs of students". To many people, both in and outside the ranks of education, meeting the needs is to: provide bus transportation, hot lunches, drinking fountains, restrooms, and beautiful buildings. Granted, these are important, but they hardly meet the real needs of any individual's educational development.

Just for a minute, go back to your own school. What are the complaints you hear most often from parents and the community? I would hazard a guess that it is the "4-B's". Busses, Beans, Buildings, and Basketball! Seldom do you ever hear the parents criticize the curriculum their child is exposed to! Because of community pressures, issues centering around the "4-B's" have forced leaders in school systems to devote more and more time to the things farthest away from the classroom.

Hudson High School, where Mrs. Pace and I are employed, presently has an enrollment of 700 high school students. Hudson is a suburban area located between Akron and Cleveland, and is in a cluster of other industrial cities in north-eastern Ohio. In 1960, we began to keep a follow-up record of our graduating students. By 1964, we had some very revealing and shocking information-at least to me it was. Approximately seventy percent of our students were enrolling in college after high school. At the end of two years, approximately fifty percent were still in school, but only thirty percent were sticking it out for a four-year degree.

In 1964 and 1965, eighty percent of our graduating seniors were entering a two or four-year college. I only bring these figures up to give you a little idea of the type of community in which we work. It is a community that is "prestige conscious" and the thing to do to be "IN" is to enroll in college. The remaining twenty percent of our student body were enrolled in what we called a general course. It consisted of watered-down college preparatory courses, plus good industrial arts, home economics, and business education facilities.

This is the way we thought we were meeting the needs for those enrolled

in the general curriculum. As our school enrollment was growing, our enrollment in the general course was decreasing in size and the college preparatory enrollment was unrealistically increasing. We had problems, and I imagine many of you are faced with these same problems. Our counselors were doing their best to inform many students and their parents that they did not belong in the college preparatory program, but when they were questioned by these same students and parents, of other possibilities, the counselors were stymied and immediately had to defend a program that they knew wasn't worth very much expect for accumulating required credit toward graduation. With the results of the four years of research on our former graduates, our guidance department made a report of their findings to the Board of Education. So, now more people were beginning to wonder what could be done.

Our first move was to contact the State Department to get in some detail what we could put into our school program in the line of vocational training that would have a more realistic approach than the general course of study being used. The only thing we did find out was that they could not help. Perhaps I would have been as well off spending my day in the furnace room with the janitors, those fellows always have a philosophy and sage advice to offer on any subject.

Our school district is what Ohio calls "a non-additional aid district"- which means that a minimum amount of state financial support is given. More money goes to the so-called poorer districts in the state. The State Department was quite willing for us to push for formation of an area vocational high school which involves a number of local districts. However, there seemed to us better ways of approaching the problem of vocational education without its being so complicated, so we turned our efforts to investigating

what other schools were doing. This did not consume much time, because, even though all recognized the lack of a going program, very few were giving it a second thought.

Our second move was with the staff who were teaching these students. The industrial arts and home economics teachers were well aware that they were losing students regardless of how much they tried to improve their programs. All evidence of Industrial Arts at the 11th and 12th grade year indicated it was dead, so, we decided to bury it and start a new approach. Home Economics also needed changes if it were to be appealing, so things did begin to happen within our teaching staff.

The students were surveyed to see what they thought they wanted. This told us more. Parents were informally questioned about their concern for their child's education. A breakfast was held with a dozen business and industrial men brought in to discuss our problem with us. They were very helpful, and the thing that I remember most came from the personnel director of a large General Motors plant in our district who said, "Teach the people to be honest and dependable. If you do that much, we will train them to our needs when employed."

Looking back at our approach, it would appear we were doing what Frank Robinson or Mickey Mantel tries to do as he comes to bat each time; that is, to knock a homerun. We used the students as home plate, the staff at first, parents at second, and the tax-payers on third. The position of administration was the pitcher's mound, which is the closest position to all bases. Did you ever hear of a home run hitter being called out because he hit one out of the ballpark and missed a base? They know it is important to touch every base if they are to score, and we were well aware of the need to

touch every base if we were to score.

With the information gained from the students, parents, business and industry, and a considerable amount of brain storming with teachers involved, we had gathered sufficient information to get us started. With teachers, counselors and the aid of a very capable secretary acquainted with school operations, a program with goals and objectives was put together.

OBJECTIVES

1. To replace the general curriculum for the non-college preparatory student with a pre-vocational education program.

2. To provide all students not planning a college education with pre-vocational training in the school or work experience in the local community.

3. To re-evaluate and adjust the basic education program and to make all courses more stimulating and realistic for students.

4. To develop a broad educational program which would help to improve student attitudes toward themselves, school and work, and to make high school a worthwhile learning experience for non-college oriented students.

Being an administrator, I continually kept making the same mistakes over and over in the development of the program. I could see the cost projecting into something that I personally felt was not possible. Often I thought teachers and counselors were real dreamers, but each time they referred me back to the original objectives-to quiet me down.

Upon completion of the first draft of the program, the projected estimate of cost for it was approximately $40,000 which included equipment and four additional staff members. At this time a presentation of the

program was made to our own board of education. My proposal was that they pay up to $20,000 and I would contact The Ford Foundation to see if this program would qualify for a grant.

It took only a week to get an answer back, a very pleasant letter, but the answer was "No." They had just recently given a grant to a school in Massachusetts with a similar proposal. But they felt our program was sound and suggested we contact the U. S. Office of Education to see if they might assist with money made available through the 1963 Vocational Education Act, for pilot and experimental programs.

A telephone call to the U. S. Office of Education was made and within three days we had a stack of material and forms which required us to tell in detail our complete program. These forms alone could defeat the weakhearted, and I must confess having had second thoughts on several occasions which almost led me to the circular file. But each time I thought of the students and teachers for whom this program was so important, and I was further motivated to keep working.

Our proposal went to the U. S. Office of Education late in February. Those of you who have dealt with federal offices have some knowledge of the time it takes to get action or even answers. March and April passed. Late in May we had a call from Washington with the first encouraging news, which was a request to send someone from the U. S. Office of Education to our school to get more detail on the program, the school, and the personnel involved. This is where the tempo really picked up. Shortly after the visit, we had word of temporary approval and were given a green light to proceed with required remodeling and purchasing of equipment, and employment of additional

personnel. As in any new program, many changes were needed before we started and in reworking our final budget, the total first year expenditures jumped to $70,000 which was approved in early July by the U. S. Office of Education.

We found the personnel at both The Ford Foundation and the U. S. Office of Education thinking along the same lines that our staff was thinking. That was to develop a realistic program and prepare students who were not planning for college with some type of training that would at least give them one step toward the door of successful employment. Vocational Education, as presently offered, will not do this for many students.

It was extremely encouraging for those of us involved with the U. S. Office of Education, to learn of their deep convictions, concern, and interests in a program for all students. Their work is not nearly as far removed from students as we had thought. The same is true with The Ford Foundation that provided us with a substantial travel grant for visiting programs in Massachusetts, and San Francisco.

At this point, I feel a little like the minister who tells you what he's going to tell you, then he tells you, and then he tells you what he said. In summarizing the need for new programs and ways it can be done, I would like to again mention the following points:

1. There is a definite need to develop a program for all students, and to change the approach in many of the academic areas to make education more appealing to those learning. Get away from textbooks and grades. I know, and you know that grades are used more for motivation purposes than for evaluation. The students that I am talking about already know and have experienced poor grades, so why keep throwing these thorns in their paths and

expect them to willingly walk over them.

2. Get teachers involved. This is easy, and most of them already know their shortcomings of their own program. Many of them will have ideas for improvement. In doing so try to clear away the old rules and regualtions which stymie immediately teacher "initiative." These could be local, county, or state regulations. If a new program is to be effective, the teachers must be completely involved from the start. Free the teachers and pay them for this work.

3. Don't be led down a dead-end road by copying exactly what other schools are doing. The make-up of each school, like each child, is different. Develop a program for your own students from specific needs in your school or community.

4. Become aware of the research findings that have been completed in the areas in which you want to improve. Educators probably use completed research less than any other profession.

5. Money is available for new programs, but you have to go look for it.

6. A new curriculum, no matter how carefully developed, is not proof against poor classroom instruction. If you want to change, involve your best teachers. They are all ready proved leaders or they wouldn't be your best teachers.

7. Schools must attempt to build into curriculum the opportunity for the student to develop a wholesome attitude that comes from having a sense of contribution, and sense of being of value to someone else.

The role as a passive sitter and absorber of knowledge is not particularly gratifying.

8. Be sure to touch every base if you want to score: - - Student - - teachers - - parents - - and tax payers.

A DESCRIPTION OF THE HUDSON OHIO PILOT PROGRAM IN VOCATIONAL EDUCATION

(Mrs.) Mary P. Pace, Vocational Supervisor
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Mr. Benham mentioned that no one is quite sure what a Vocational Supervisor is, and therefore, we are fairly safe in that respect. A few people, however, have a firm conviction that the position belongs rightfully to the male gender. This has something to do with seven years experience in operating a drill press or a turret lathe, which I readily admit is not among my present skills.

This criticism may be very valid in the long-accepted approach to Vocational Education, but I have the educational training and a background of experience which enable me to understand and work with the non-college student, as well as with many groups in the community in which I have lived for twenty-five (25) years.

It has become the fashionable thing in the last few years to develop definitions of Vocational Education. We have read enough of them to fill a text book. Each of them has meaning in relation to the person or group stating it, and in the light of the purpose for which it was written. One of the best that I have seen is this developed by the Educational Research Council of Cleveland.

"Vocational Education includes all of the formally planned learning experiences through which an individual is assisted or guided in the develop-

ment of skills, abilities, knowledges and appreciations useful in the production of goods and services which society demands."

But even this definition is inadequate to express the idea of providing education leading to occupational adequacy for all students, which we are trying to achieve in our Hudson program. It is not our purpose to turn out skilled technicians-this is not practical, nor what industry wants-but to develop in our young people the interests, attitudes and competencies which can be generalized to meet the changes of jobs, the technological developments and demands of mobility which every individual will encounter during his lifetime. Life is not limited to a vocation, and students must be prepared for whatever may come their way. This, I think, is what we mean by such overworked phrases as "educating the whole child" and a "comprehensive curriculum".

In describing the Hudson project to you, I want to approach the four year program from the student's point of view; because the early plans and the experimental design were based on interests and desires expressed by students, more than on what we thought they needed. The hope was to fit the program-individually where need be-to the students, and not force them into a pre-determined pattern.

The first step in this effort was to make a survey of the interests and aspirations of students-giving them a wide range of occupational areas from which to choose. The results of this survey, plus information gathered in a broad study of the geographic area in which the school is located, were the bases for development of Vocational instruction.

A carefully chosen nucleus of the staff spent the spring and summer of 1965 developing the experimental curriculum. At the very outset-flexibility

was built into the program to allow for individual differences, and the quick adjustment of techniques found to be ineffective. In other words, rigid structuring, the required use of text books, usual testing procedures, the "learn what we teach or else" were replaced by student interest centered activities, rich experiences in observation, manipulative skills, and greatly increased personal counseling.

Laboratory units in skill training (again based on highest student interest) were equipped into Auto Mechanics, Homemaking and Child Care, Cosmetology and Graphic Arts. Offerings in the existing Business Training and Industrial Arts areas were increased.

Starting at 9th grade level, all students are scheduled for nine-week periods, two periods daily, in the work-skill training areas. During the 10th grade year, experience is provided in additional areas. This introductory phase serves a double purpose. The students, themselves, discover what areas appeal to them, and the skill instructors can evaluate individual aptitudes and guide students toward realistic and well-informed choices.

At the 9th grade level, all students take a vocational information course which combines some classroom instruction and discussion with many field trips and visual contacts with the area's businesses and industries so that the world of work and the people in it become real to them and not a meaningless abstraction. By the time they reach 11th grade, they are ready to make a choice of skill area in which they spend six periods of a nine-period school day, learning the many skills which lead to employability upon graduation.

In some cases, because we cannot provide school laboratory training

for every skill, students are placed in cooperative work training with an employer in the community. This work, scheduled as part of the school day, earns regular school credit. An experienced coordinator on our staff works closely with the employer and student, and their combined evaluation of his performance appears on his school progress report. We have discovered that this realistic experience and the strong influence of employer-guidance gave students renewed respect for the contribution the school makes to their future success.

Courses in sociology, career psychology and family living help students to understand themselves and their relationships to others in a wholesome and mature way. We try to provide a smooth transition to the adult responsibility which many of the students assume upon graduation.

It is difficult to put on paper or in words the great changes which have taken place in our academic courses. Our point of departure and our goal is the student, himself-and this means an unstructured approach to allow for as much variance in materials, techniques, and experience as is practical. As one of our best English teachers says, "The sacred cows must go". Text-books and traditional materials have been replaced by outside speakers, current publications, student planned debates on current youth problems, and teacher-created materials. Let me give you a few examples of some of the activities which go on in our English classrooms.

At 9th grade level, our English courses bombard the students with experiences which stimulate word flow-both oral and written. The inability to communicate effectively with other people is a basic weakness in the students with whom we are working. Although they are known to have average ability, they function below this level in reading, writing and verbal skills,

and show little motivation for learning. Audio and visual discrimination are stimulated by the use of teacher-made tapes on word association, synonyms, word-flow exercises, descriptive language, idioms and dialects. Pictures are used to develop personal narrative skills, sensory perception and appreciation of beauty. Every effort is made to avoid pointing out "wrong" language use at first, to encourage free flow of words and openness of expression.

Literature is made important as a source of enjoyment, as a means of emphasizing human qualities, of understanding the differences of groups of people shown in dialects and customs. Paperbacks are a main source since they are more modern and attractive and lend themselves to the individualized approach.

The most popular and effective technique in all grades is the student "log". This is a daily journal kept by each student to report on the activities in each day's English class, and comments on his opinions. The log is confidential, is turned into the teacher once a week, and returned the next day. It is not graded, but teacher comments are honest and positive and encourage the student to "keep talking." Openness and fluency are more important here than correctness of spelling and usage. Acceptance of the individual, understanding and substituting satisfaction and success for the threat of academic failure are the result of this technique.

Speech is encouraged through the Friday meeting which is led by a student toastmaster who introduces a grievance chairman (whose complaints or suggestions are screened by the teacher during the week). Students are asking for time in these Friday meetings to give anecdotal reports, speeches to entertain, or inform. A recent one was by a Senior student from South America, who wanted to tell the class how his experiences in our school and

as a worker in a local business had changed his attitudes toward himself, his family and America. His remark to his teacher after class was, "I had written everything I wanted to say, but when I got up, I just talked what I felt."

I walked into the classroom of the Senior English teacher last week to find her working with one of her students in a free period. The student had developed a tremendous concern over racial problems since reading "To Kill a Mockingbird". Here was a student who, a year ago, had no interest in anything but working on automobiles. Through the expert guidance and individualized approach, he is becoming a thoughtful, informed person.

In other areas of the curriculum, such as mathematics, science, and social studies, progress is being made in breaking down the rigid structuring of subject matter to develop a more realistic approach to the caliber of students with whom we are working. The relating of material and techniques to the "here and now", which is of paramount importance to these students, means creating entirely new approaches and a great variety of them. This means much more work and imagination on the part of the teacher.

This brings us to the heart of our program, which is the staff. These people must really care about these students, really want to work with them, and be willing to accept the fact that motivation and success will not be achieved in one year or two. With some students we will not succeed. Similarly, we will not sell acceptance of our philosophy to one hundred percent of our staff. One of our present group cannot accept this caliber of student by building his teaching around the student. He is attempting to force conformity to establish curriculum and techniques, and he will never teach them.

One of the greatest innovations in our program is the elimination of

formal grades for vocational students. Every nine weeks a progress report is issued by each teacher, emphasizing attitudes and skills needed for successful work performance. Students are encouraged to see the personal value of good work habits and favorable interrelation with adults and co-workers as accumulating references for future employment. Evaluation of such characteristics, discussed realistically with the student and his parents, leads to a more honest and positive self-image. The new system has eliminated the frustration and negative image created in the past by consistently poor or failing grades. Students seem to see a closer relationship between their school activities and ultimate goals.

To encourage closer communication between home and school, parents of all vocational students are scheduled for conferences with teachers after the first progress reports go home and again in the spring. Teachers meet in the school library, easily available to the parents, during a full day plus an afternoon and evening. Last year's sixty-five percent attendance has been increased to over eighty percent this year by a personal call in addition to the appointment letters. Many of the parents concerned had never made a previous teacher contact. I talked with everyone of the parents at the conferences last week, and the parent reaction to the program and our evident interest in their sons or daughters is completely positive.

Frank expression of student, teacher, parent and community opinion has been continually sought by means of three advisory committees, and wherever feasible, suggested changes have been incorporated.

The Professional Advisory Committee is composed of research consultants who evaluate the program by means of carefully constructed instruments given

to all students, staff, parents, and employers. The results of these techniques are used in improving the program. Other persons in this group, experts in the field of vocational and general education, serve as consultants in program structure and qualifications for skill area instructors.

Lay Advisory Committee members are chosen representatives of area businesses who meet as a group several times a year with the vocational staff and members of the Professional Advisory group for exchange of ideas. The public relations role of this group is very important, since they keep the community informed as to the progress and philosophy of the program, and channel to us job opportunities and economic changes in a wide variety of business activities. They have been individually responsible for valuable donations of equipment for the school training laboratories.

Community response to our program has been growing steadily. Members of the administration, guidance and teaching staff have spoken to many groups, local, county, and state, keeping them informed of our progress.

Our Student Advisory Council is chosen by the staff to serve as a liaison group between teachers and students. Two representatives from each of the four class levels meet with two or three staff members. Since our program is essentially student centered, the opinions and suggestions of representative students are valuable in the constant effort to make the program interesting and productive. The students chosen are not necessarily the most cooperative or enthusiastic, but rather those who can reflect and verbalize the feelings of all student groups.

In order to evaluate the Hudson experiment completely and accurately, the research team administer questionnaires to the entire student body, to staff and parents and employers each year. The results of these, plus the

standardized tests (such as the Iowa Tests of Educational Development, Kuhlman-Anderson California Reading, Language and Arithmetic Tests, the General Aptitude Test Battery) give them a basis for comparisons from year to year. The questionnaires such as Bill's Index of Adjustment and Values, Haller Occupational Aspiration Survey, North-Hatt Survey of Occupational Prestige, the JIM Scale will indicate any changes in attitudes toward self, school and employment. We will follow and observe these changes in two classes participating in the program over a four-year period, and the real significance cannot be measured for three years.

Preliminary results from the first year's evaluation are encouraging:

1. The drop-out rate is markedly lower. In 1964-1965, twenty students dropped out of school. Last year only two left for reasons other than transfer or extended illness.

2. Student interest and participation have increased.

3. Registration for vocational courses for the current year was higher than last year.

4. Teachers report improvement in class performance of many students who were completely disinterested in school.

5. Because of the closer communication between student, parent, teacher and counselor, there is a trend toward more realistic career choice.

6. There has been enthusiastic acceptance of the vocational program in a highly college-oriented community.

7. Nine of fifteen locally awarded scholarships were given to vocational students last year.

Individual counseling in our program extends far beyond the guidance office, involving every member of the staff who comes in contact with the student.

The enviable student-teacher ratio which exists in the Hudson system as a whole, and particularly in our vocational program, enables us to spend time with individual students outside the classroom. In many cases, the teacher, the job coordinator, and the supervisor are able to establish rapport with a student more readily than a guidance counselor. The teacher who can know the student as he is, understand his present values, attitudes, and the background which defines his frame of reference-can accept and work from this point toward growth and change. The job coordinator and supervisor working with the student in the dual capacity of the school and work environments, can help build the necessary bridge between the two areas. Close interdepartmental communication through frequent meetings provides immediate attention to student needs. Anecdotal notes accumulated at each bi-weekly staff meeting are turned into casual remarks of praise to student, parent or counselor, to reinforce the feeling of success so vital to a student's motivation.

Home visitations have been carefully planned as part of our guidance approach. The problem-centered approach in parent-school relations is being replaced by a common interest in future plans for the young people. We still have parents who come to the Parent-Teacher conferences with the idea that they need only talk to the teachers with whom Johnny is having problems. But as teachers are increasing personal notes of praise on the progress report cards, parents are responding to this positive approach by more active involvement in the lives of their children.

Magazines and newspapers are full of articles these days concerning the dangers of Federal control of education. To do a first-rate job, education needs the cooperative effort and financial support of every level of govern-

ment. Perhaps the weakness which we see in our students-inability to communicate with one's fellow man-is a point we should ponder. I do not mean to over-simplify the problem of who should be Junior or Senior partner in this tremendous undertaking. Professional educators at all levels-national, state and local-must be able to sit down together and find solutions to the problem which is common to every one of us-providing an education for tomorrow's citizens which will help them meet 1967 and the future.

ESTABLISHING OBJECTIVES AND DEVELOPING PROCEDURES FOR DEVELOPMENTAL, PILOT AND INNOVATIVE PROGRAMS

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Situation

A. Generalized Figures on School Dropout Obtained from the Division of Vocational and Technical Education, U. S. Office of Education:

1957-58	10	students	5th grade
1961-62	9.1	"	9th "
1963-64	8.1	"	11th "
1964-65	7.1	"	Will graduate from high school
	3.5	"	Will enter college
1969	1.9	"	Will graduate from college

Implications of these figures:

B. Changing Manpower Needs.

Grant Venn says,

"The impact of automation on the labor market has been profound. Automatic elevators have recently displaced 40,000 elevator operators in New York City alone. New equipment in the Census Bureau enabled 50 statisticians to do the work in 1960 that required 4000 such people in 1956. The check writing staff in the Treasury Department has been reduced from 400 people to four. The airline flight engineer and the railroad firemen may soon disappear completely. Thirty thousand packing house workers have been automated out of their jobs in the past few years. Enormous machines have helped reduce employment in the coal fields from 415,000 in 1950 to 136,000

in 1962. While construction work has leaped 32 percent since 1956, construction jobs have shown a 24 percent decline."

Ralph Bellman, a computer expert for the Rand Corporation, says, "Industrial automation has reached the point of no return. The scientific knowledge to automate American industry almost completely is already available and is certain to be used. Banks could cut their staffs in half easily by further automation; the steel and automative industries could increase their use of automation a hundredfold. Lower and middle management as well as production workers will be displaced for there will be no need for decision making at that level. Unemployment resulting from automation would be greater right now except that many industries are holding back--at a sacrifice to their profits to avoid increasing the severity of the problem. Self-restraint on the part of industries cannot continue indefinitely. Automation itself will produce few jobs. Two percent of the population will in the discernible future be able to produce all the goods needed to feed, clothe, and run our society."

C. Other Problems.

1. World, national, regional manpower needs must be considered as well as local needs.

2. Average worker changes jobs five or six times, but most employers still require some specific job competence for employment.

3. Knowledge and skills for occupations are in a process of continuing and accelerating change.

4. Fewer and fewer job opportunities for less capable.

5. Image or prestige of vocational education, including the separation

of occupational education, general education and academic education.

Objectives

What are the objectives and what should be the objectives of pilot programs?

Pilot or Developmental Programs-A Definition

We had better attempt to coordinate our thinking regarding what we mean by pilot or developmental programs. To me, a pilot or developmental program is a program designed to try-out, further develop, and refine, on a small scale, something new or different. It is an exploratory program. It is a program to develop or refine ideas and methods that have not yet been crystalized to the point where they are ready, in most instances, for inclusion in rigidly controlled experimental studies or ready for presentation to schools and teachers as recommended methods or programs.

Pilot or developmental centers should not be considered the same as demonstration centers. In Illinois this has been one of our most perplexing problems. As soon as a program is designated as a pilot program, the personnel in the school and others consider the program being tried a demonstration program. This is rather embarrassing, especially when some of the things tried out are not successful. Incidentally, if you do establish bonifide pilot or developmental centers some or many of the ideas tried will not be entirely successful. This should not discourage you. If you have all the answers, why bother to establish pilot or developmental centers. It many also be noted that it is often as important to find out what will not work, and why it will not work, as it is to find out what will work. Often the catalyst for

discovering how to do a task successfully is discovering what will not work and why. Then you have a firmer foundation for developing workable procedures.

Pilot programs may and often should lead to demonstration centers, but they should not start out as demonstration centers. Pilot programs may also lead to rigidly controlled evaluation projects, but often the program being tried is too nebulous, not fully defined, to permit sophisticated experimental design procedures.

The questions and suggestions that will be offered will, therefore, not be directed to the persons in this group who are one hundred percent experimental design oriented. They will be directed to all who want to think and investigate through pilot programs. They will be directed to the persons who want to develop successful materials and procedures for implementing the mandates in the Vocational Education Act of 1963. However, these questions and suggestions may also, I hope, be of value to those of you who desire to organize rigidly controlled experimental programs.

Why have pilot programs?

Pilot centers will help develop and refine answers regarding the direction and the procedures to be followed in the "new look" in vocational education. If you have the answers, know what should be done and how it should be done, do not bother with pilot programs. They will be a waste of time and a disappointment to you. The first step in organizing pilot programs should probably be a "long" look at why you want to establish pilot programs.

Pilot programs to chart future directions are advantageous because:

1. You are usually permitted to do things, try out ideas, that would not be tolerated if they were not a part of a pilot or experimental

program. They often would not be tolerated by either the State Department of Education or by the local school.

If tried and found successful, the objectors usually fade away and quickly find some way to justify and even legalize the procedures tried in the pilot program.

If the procedures tried are not successful, the school teachers, and state can "save face" because, after all, they were a part of pilot or experimental programs. If it was certain that innovations were valid, it would not have been necessary to try them out in pilot or experimental programs.

2. Often more time or money are available for pilot or developmental programs than for so-called "permanent changes."

3. Peers, fellow teachers and administrators, are often less critical of ideas being tried, if public relations for pilot programs are handled properly, than they are of regular or permanent changes.

4. Pilot or experimental programs often give status to changes desired. It fosters a climate for future acceptance of permanent change.

5. Pilot programs give a community and state an opportunity to get accustomed to change and prepares the populace for change. It prepares the populace for change because new ideas and procedures are viewed as tentative and not permanent. They still have the opportunity to veto the changes being tried.

6. Pilot or experimental programs are excellent public relation devices.

7. Official pilot or experimental programs serve notice, however,

that a state or school system is "on the move" in vocational education.

8. Pilot programs encourage other schools in a state or area to try innovations or pilot programs.

PROCEDURES FOR ORGANIZATION AND CONDUCT OF PILOT PROGRAMS

Steps

1. What is the purpose of the pilot programs?

It is impossible to try-out everything at once or in a certain pilot program or set of pilot programs. An imperative and essential task is the defining and limiting of the purpose of pilot programs. Results are often confounded by attempting to try-out and develop too many things in a program.

2. What information is desired from a pilot center?

It is important to determine what information is desired and potentially available from a pilot program or set of programs. It is not enough to decide on the purpose of a program. It is essential that much thought be given to types of evidence that might be collected that would be related to the purpose of the program.

3. What kind and type of schools and teachers will be used for pilot programs?

There is always the temptation to select the best schools and best teachers as pilot programs. In these schools and with these teachers most any "half-baked" idea will be successful. I believe that for many developmental programs that it might be better to select typical schools with typical teachers as pilot centers. When

Ford Motor Company officials try-out a new pilot automobile prior to its manufacture for general distribution, they do not select only ideal conditions for its try-out. The type and kind of school and teachers to use probably depends somewhat on the purpose of the pilot center and on the degree of development of the idea being tried. At least, consider the advisability of selecting typical schools with typical teachers when developing programs.

4. How will the pilot programs be selected?

After you decide on the type and kind of pilot programs to develop, you still have the task of selecting the centers. Should you go to schools and teachers and ask them to develop a pilot program or should you encourage attendance centers and teachers to request that they be permitted to conduct pilot programs? If you instead encourage teachers to request that they be permitted to conduct pilot programs, will you obtain the kind and type of situation desired? Perhaps some compromise between these two procedures may be most desirable.

5. How many programs?

It is possible to obtain too many pilot programs? Remember that if pilot programs are to be of much value, their efforts must be evaluated carefully, much data must be collected, and this requires considerable time. We had four pilot programs in Illinois in 1964-1965 and they kept us busy.

6. What special conditions are you going to demand?

In establishing pilot programs there is always the tendency to want to demand special conditions such as additional teacher time,

remodeled facilities, and budget. Certain special conditions are often necessary, but it is easy to insist on conditions that make it impossible to generalize findings to the universe.

7. How will schools and teachers be helped to identify with the project?

Schools, and their teachers need to identify with a project if they are to serve effectively in the try-out of new ideas and materials. We attempted to promote identification with our Illinois Curriculum Research Project by asking schools to submit proposals for permission to conduct pilot programs. Interested schools were given an outline of the objectives of the project and were asked to submit proposals in which they presented the following:

A. Describe what you propose to do. Indicate the present situation and what changes are planned.

B. Describe why you desire to do what you have proposed, considering the specific characteristics of your community.

C. Indicate what you hope to accomplish.

D. Describe how you plan to conduct the program proposed.

Indicate (1) plans for supervised agriculture experience programs; (2) time plan for classes; (3) enrollment requirements; (4) teacher time to be provided; (5) outline of content for courses, including course objectives; (6) follow-up and placement plans; (7) data to be supplied evaluators prior, during, and after pilot program.

We are not presenting this proposal format as the only way of promoting identification with a project, but it was, in our opinion, a worthwhile

procedure.

8. How much advanced planning is necessary?

More advance planning is necessary than teachers, school administrators, supervisors and teacher educators are often willing to allocate. Teachers who intend to conduct pilot programs will need to plan diligently all summer if they are going to start programs in September. Optimally schools and teachers should have a year for advance planning for a new program. Some very interesting stories could be told about situations that have developed in pilot programs because of inadequate advance planning. It will be the responsibility of supervisors and teacher educators to help teachers make adequate advance plans this summer if they are to be prepared adequately to commence a pilot program in September.

Questions and Suggestions Relating to Conduct of Pilot Programs

At least three critical questions should be considered in advance relating to the conduct of pilot programs.

1. How much permissiveness will prevail?

As stated earlier, pilot programs are exploratory programs. Teachers in pilot schools must feel free to modify and refine materials and methods as they proceed. They cannot be put in a "straight jacket," but they appreciate a well-defined framework in which to operate. Supervisors and teacher educators involved with pilot programs should decide in advance how to promote a permissive atmosphere in the conduct of pilot programs, and they should refrain from exhibiting their natural tendencies to dictate regarding details of operation.

2. What kind of supervision will be provided?

Teachers and administrators in pilot programs welcome and want supervision. They do not want excessive supervision, however, and they do not welcome dictatorial procedures. In the Syracuse project for the culturally disadvantaged, schools are provided with instructional analysts who work with the teachers involved. An instructional analyst must have certain competencies which many teacher educators and supervisors do not now possess.

3. What records must schools and teachers keep?

Teachers in pilot schools need considerable assistance and encouragement in the keeping of adequate records for a pilot program.

In summary regarding the organization and conduct of pilot programs, our experiences indicate that the following are very important:

1. Involve others in planning. Use advisory councils, school administrators, counselors and others. Obtain assistance of knowledgeable persons who can represent the whole state.

2. Assay the situation. What are the needs?

3. Determine and put in writing objectives and sub-objectives.

4. Limit the number of variables to investigate at any one place or time. Delimit your study.

5. Obtain support and assistance of others.

6. Explain pilot program completely to all involved before starting. Continue to explain objectives and procedures of pilot program to all involved continuously as program operates.

7. Emphasize that pilot or experimental programs are not demonstration programs.

8. Plan details of each pilot or experimental program as far in advance as possible.

9. Obtain, if possible, outside, impartial data collectors. Teachers do not have the time or will not take the time to collect adequate data and keep adequate records.

10. Evaluate, involving others, frequently.

11. Select ideas and procedures that are successful and discard or revise ideas and procedures that are not successful.

12. Demonstrate successful ideas and procedures in demonstration centers.

POSSIBLE PILOT PROGRAMS

1. We need pilot programs to determine what we can do best and what help we can get from others, or in other words what they can do better than we can.

2. Through pilot programs we need to learn where the special talents of present and future vocational teachers can best be used? There are many tasks common to all occupational education that teachers of agriculture, for example, are better qualified to do than any other vocational teacher.

3. We need pilot programs for preparing workers for clusters of jobs which promise rapid growth such as:

   a. Health services

   b. Landscape and grounds services

   c. Public and social welfare services

   d. Office services

   e. Outdoor recreation services

f. Technical services

Engineering

Agriculture

Computer

g. Home economics services

h. Marketing services

For example, rough estimates by economists set total employment in outdoor recreation in rural America at about 635,000. Nonurban recreation activities are expected to increase by 62 percent between 1960-1973. Thus nearly 400,000 persons will be needed to fill the new jobs created by increased demand.

4. We need pilot programs on how to coordinate the work of all vocational teachers and other teachers to make certain that all programs and courses include not only the development of certain basic occupational skills but also the development of abilities needed in all types of work.

5. We need pilot programs to develop pre-technical programs for engineering technicians, applied biological science technicians, and computer technicians.

6. We need pilot programs related to the improvement of the image of occupational education.

How can learning, regardless of how or where achieved, be given equivalent educational credit?

7. We need pilot programs to determine whether or not it is feasible to provide youth leaving school with both marketable abilities and

preparation for further education.

8. We need pilot programs to determine the kind and type of vocational education to provide youth with limited ability and youth who are underachievers.

9. We need pilot programs to determine the extent to which we can prepare students who are qualified, not just for their first job, but for increased responsibility during their working careers.

10. We need pilot programs relating to what occupations can be clustered for educational purposes and what is common among the clusters.

11. We need pilot programs related to the teaching of positive work attitudes and the communication skills necessary for the world of work.

12. We need pilot programs relating to placement-employment arrangements. Is half-day released school time necessary?

13. We need pilot programs relating to acculturation (adapting to a new cultural setting) of youth to work in various situations. All youth entering the world of work are "newcomers" and need to be treated as newcomers.

14. We need pilot programs designed to prepare and retain persons in local communities that will not hurt the individuals retained.

Many youth overlook occupational possibilities related to their backgrounds and related to their own communities. Often youth fail to spot the diamonds in their own backyards.

Gordon Swanson says, "Educators should not be content with preparing persons to fill jobs; they should create job opportunities." I assume that he meant that we can create job opportunities by preparing persons for jobs

that do not now exist and helping these persons to develop and to obtain employment in these areas.

Think big! Do not limit your thinking to what your present staff can accomplish. Do not limit your thinking to what present funds can provide.

EVALUATION OF DEVELOPMENTAL, PILOT, AND INNOVATIVE PROGRAMS

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Suggestions Relating to Evaluation

Evaluation if it is to be done must be built into the conduct of pilot programs. Certain important questions must be asked and they should be answered prior to the start of any pilot program.

1. Who will be involved in evaluation?

The obvious answer is all who are concerned or who should be concerned with the outcomes. Often, however, excessive responsibility for activities related to effective evaluation is left with the local teachers. Much responsibility, in my opinion, for these evaluation oriented activities should be delegated to outside groups. For the pilot schools in Illinois, the University of Illinois was given definite responsibility for promoting effective evaluation of the programs being conducted.

2. How will adequate data be collected for effective evaluation?

Teachers are too busy conducting the pilot programs to collect, organize, and preserve the data needed for evaluation. They need help. If adequate data are to be collected, organized and preserved, a person other than the teacher should be assigned this responsibility. We have used graduate assistants at the University as data collectors.

3. What evaluative criteria should be used?

A book could be written relating to possible answers to this question. Perhaps a few principles relating to evaluative criteria will suffice.

A. Evaluative criteria should be identified and defined prior prior to start of pilot program.

B. Personnel in pilot programs should assist in identifying and defining evaluative criteria.

C. Advisory groups at both state and local levels should be used to identify and define evaluative criteria.

D. Evaluative evidence should not be limited to objective data.

E. Evaluative evidence should, to the extent possible, include data from both pilot and control groups.

4. When should programs be evaluated?

The answer to this question seems obvious. Pilot programs should be evaluated continuously. Often they are not, however.

5. When should decisions to continue, modify, or drop pilot programs be made?

Decisions to modify, within the framework of the project, often need to be made daily. In Illinois, major modifications, and decisions to continue or drop programs are made each year. This is a "built-in" policy resulting from the requirement that pilot schools must submit proposals each year for continuation.

Typical Design

The design often used in a developmental, pilot and innovative project

may be symbolized as follows:

X O

In this symbolized design pattern the X equals or symbolizes the treatment and the O equals or symbolizes the observation or evaluation of the treatment.

The X O design often called a "one-shot" design is not a good design. With this design the researcher has very little information on which to interpret his findings.

If apparent desirable results are obtained, he does not know whether or not the findings obtained resulted from the treatment or from other variables such as history, maturation and selection.

An event, history, could occur prior, during or with the treatment that would be more influential on the findings than the treatment. Also, an apparent finding may be caused by the maturation of the subjects instead of the treatment. In addition, the results may have been produced by an interaction between the type or kind of subjects being studied and the treatment variable. Thus history, maturation and selection may with the X O design so confound a pilot program that the evidence collected for evaluation purposes cannot be interpreted.

A Better Design

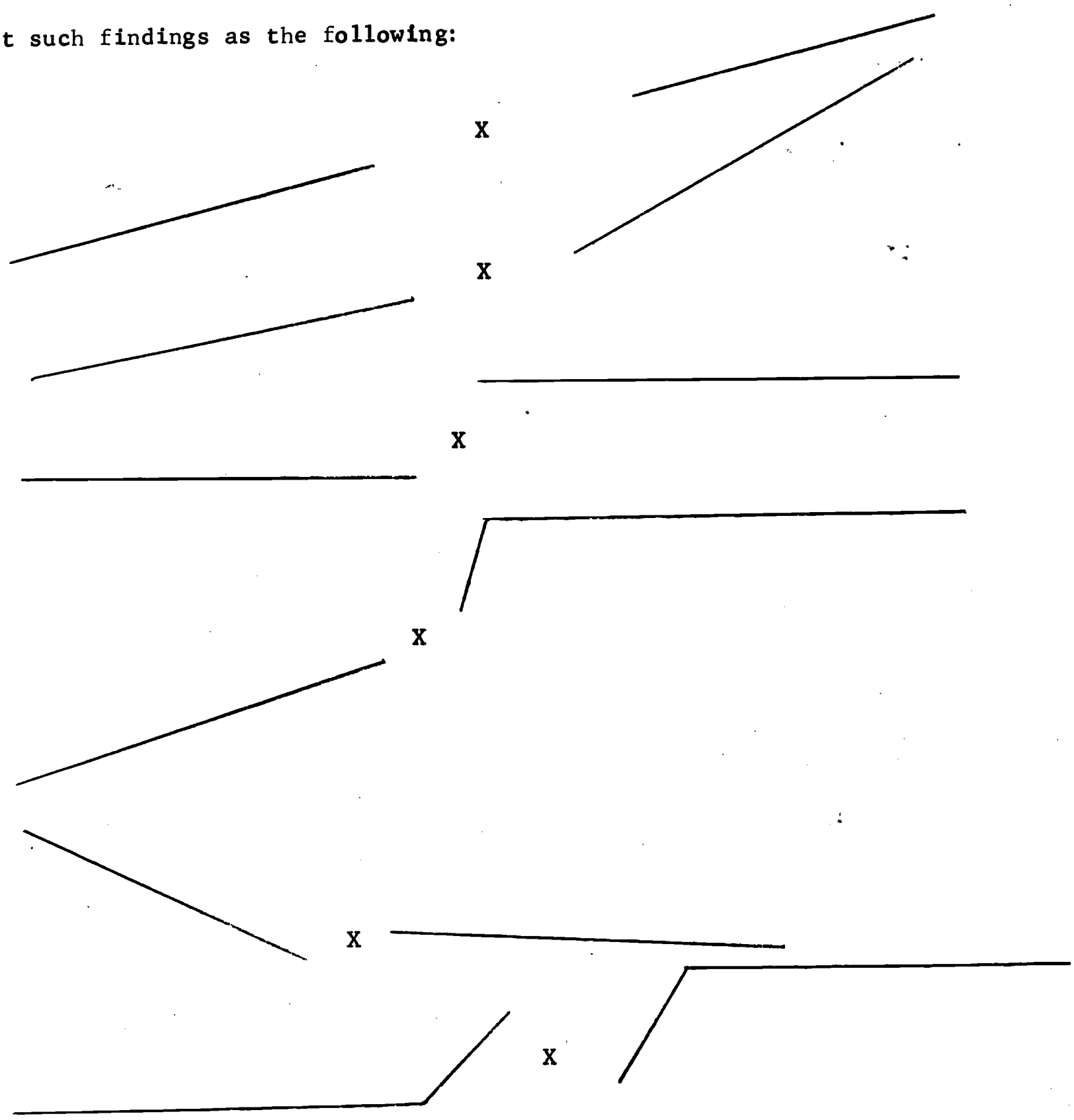
A better design to use than the "one-shot" design, and a design that usually is feasible is the time-series design.

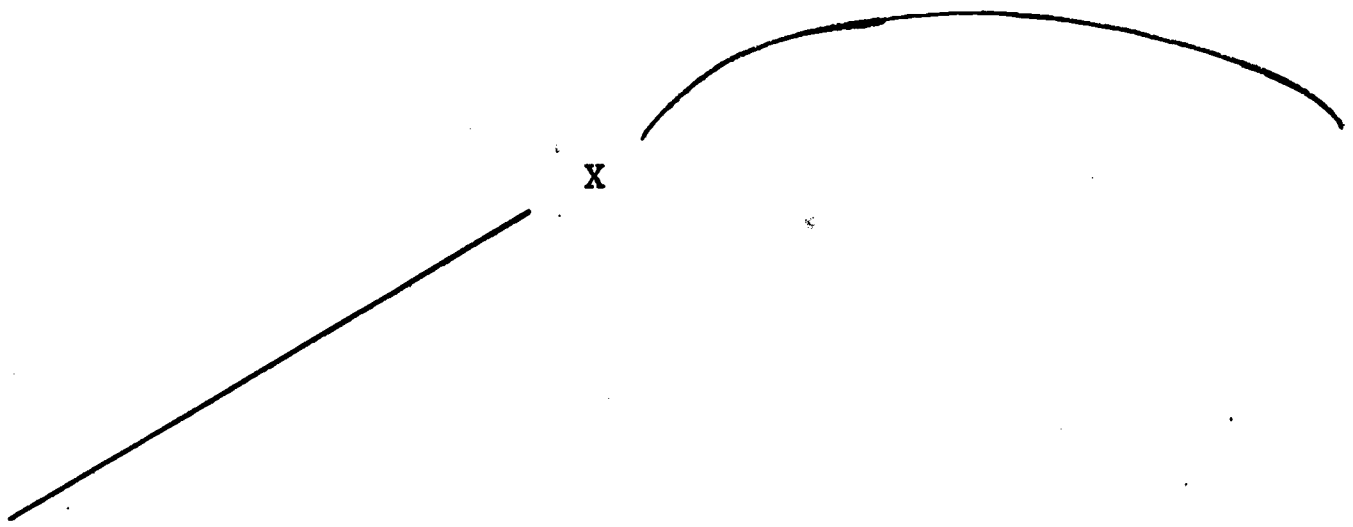
It may be symbolized as follows:

O O O O X O O O O

The O's before and after the treatment symbolizes several observations or evaluations prior to and after the treatment.

This design permits the plotting of results which may give hints regarding the possible influence of such variables as history, maturation and selection. For example, the time-series design makes it possible to at least partially interpret such findings as the following:





Still Better Design

A still better design, if feasible, is a time series design with control groups and with the subjects being selected by random. This design may be symbolized as follows:

R 0 0 0 0 X 0 0 0 0

R 0 0 0 0 0 0 0 0

The "R" symbolizes that the subjects involved in the study have been selected by random, pure chance. Random selection, if the number of subjects is sufficient, eliminates or controls for the influence of the selection variable interacting in some special way with the treatment variable. The bottom line indicates the use of a control group, a group equal to the other group, that does not receive the treatment variable being tried.

RESOURCES AVAILABLE TO PUBLIC SCHOOL PERSONNEL FOR PLANNING AND INITIATING DEVELOPMENTAL, PILOT AND INNOVATIVE PROGRAMS THROUGH THE RESEARCH COORDINATING UNIT

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"What resources are available to public school personnel for planning, initiating and carrying out developmental or pilot programs through research coordinating units?" Perhaps the best approach in attempting to answer this question would be to take a look at the setting which prompted the establishment of State Research Coordinating Units in Vocational Education. Last year there were 24 such units in this country. I have been told that there will be 44 Research Coordinating Units next year.

These units are not alike in their organizational structure and program of operation. Therefore, my remarks will relate primarily to the Kentucky program and to the guidelines submitted to the States to be used in preparing their proposal for submission to the U. S. Office of Education. The Kentucky Research Coordinating Unit was approved in June 1965. Unfortunately, it has never been fully staffed as planned. However, we feel that substantial progress has been made toward the attainment of our objectives and gradually we are acquiring personnel for what we expect to be a continuing operation.

In developing plans for the Kentucky Research Coordinating Unit, we were guided by five significant developments: (1) The work of the Panel of Consultants on Vocational Education and its recommendations to the Secretary of Health, Education and Welfare in November 1962; (2) The passage of the 1963 Vocational Education Act and its provisions for research and related activities;

(3) The Development of State Plans for Vocational Education in 1964 and the fact that I was given the responsibilities to compile and edit the Kentucky plan; (4) The Research Seminar held at Ohio State University in May 1965 pertaining to Research and Development and the need for such a program in each State; and (5) The pattern of organization in the U. S. Office of Education to administer Vocational Education 4(c) funds.

It is highly significant that we reflect on the things that prompted President Kennedy to appoint the Panel of Consultants to study Vocational Education in 1961 and the Panel's report. Vocational Education had been receiving unfavorable criticism from several directions. The critics said that it was too limited in scope, some programs were out of date, and its image was not good. This was at a time when the country was becoming increasingly aware of the impact of developments in science and technology. These dynamic forces seemed to be demanding change in practically every walk of life-in the "world of work" and in social activities.

It was recognized that these things represented the products of education and their proper development for the benefit of mankind depended on education. Thus, attention was focused on education. It has been generally accepted that education is the "key" that must be used to unlock the potential that people possess for economic productivity and social participation. As you know this has led to tremendous support of all levels of education by the Congress.

The panel of consultants saw the need for greater attention to research and development in Vocational Education. It concluded that:

Research has been conspicuous by its absence in Vocational Education. Although a great deal has been done by the U. S. Department of Labor and

others to specify and estimate the demand for trained workers, the research related to their supply is sorely lacking. Little investigation has been made of the needs for Vocational Education and the type of service required to satisfy those needs. Research of an evaluative type, which is fundamental to sound development, has been very limited. According to the Panel, little or no evidence has been gathered regarding the results or effectiveness of the instruction given. Various rationalizations and excuses have been offered over the years for inadequate program statistics. In 1938, the Advisory Committee on Vocational Education strongly censured the inadequate reporting of the program. The Panel asserted that this major weakness had not yet been corrected in 1961.

The Panel of Consultants recommended an extension of Vocational Education to more people in more locations and in more occupations. However, it recognized that this expansion could not be done efficiently without considerable research and development. It recommended that Pilot projects, experimental programs, basic and applied research, and analysis of operating programs should be extensively developed in order to provide the basis for improving these services. More and better information was thought to be needed to evaluate the progress of on-going programs.

The Panel of Consultants recommended that Federal funds should be made available to establish and operate selected centers to perform research, development and pilot projects and to encourage experimental activities to improve Vocational Education programs.

As you now know practically all of the recommendations of the Panel of Consultants were written into the Vocational Education Act of 1963. Strong

emphasis was placed on the need for research and development. The Act stated in Section 4(c) that:

Ten percent of the sums appropriated (by the Congress) for each fiscal year should be used by the Commissioner to make grants to colleges and universities and other public or non-profit private agencies and institutions, to State boards of education, and with the approval of the appropriate State board, to local educational agencies to pay part of the cost of research and training programs, and of experimental, developmental, or pilot programs developed by such institutions or agencies.

The Act further stated in Section 4(a) that provision shall be made from:

A State's allotment . . . for . . . Ancillary Services and activities to assure quality in all Vocational Education programs, such as . . . special demonstration and experimental programs . . . including periodic evaluation of State and local Vocational Education programs and services in light of information regarding current and projected manpower needs and job opportunities.

The rules and regulations for writing State Plans for Vocational Education stipulated that:

The State plan shall describe the provisions for research, demonstration and experimental programs designed to improve the quality of Vocational Education programs authorized under the Acts and provided for in the State plan. The State plan shall describe policies and procedures to be followed by the State board in approving such programs and the methods to be used in evaluating their results.

The Kentucky State Plan for Vocational Education provides for a Director of Research; a State Research Advisory Committee; a Panel of Consultants to review and make recommendations regarding research, demonstration and experimental programs for which Vocational funds are requested; types of programs that may be financed; policies to be followed in approving proposals; and procedures to be followed in evaluating research and developmental programs.

Basically the guidelines for the Kentucky Research Coordinating Unit are spelled out in the Kentucky State Plan for Vocational Education. In describing the duties of the Director of Research it states that:

The State research director shall give leadership to the research activities within the State program of Vocational Education, maintain liaison with federal agencies and personnel promoting research, and keep abreast of research developments which affect the State program. The research director shall coordinate the research activities of the various services in Vocational Education.

The research seminar held at Ohio State University in May 1965 was significant because it contributed greatly in helping firm up a clear concept of "research and development." The presentation by Allen Lee on "A Taxonomy of Activities Involved in Educational Change," the talk by Henry Brickell on "The Role of Research and Development in Vocational Education" and the Guba-Clark "Classification of Processes Necessary for Change in Education" all made good sense regarding what should be the pattern of a state program of research and development.

The pattern of organization in the U. S. Office of Education to

administer 4(c) funds includes the elements that largely influenced our staffing pattern. We believe that it is sound and satisfies our basic needs. It includes these areas: (1) Employment Opportunities; (2) Human Resources Development; and (3) Educational Resources Development, which includes training programs for professional personnel. We have added two additional areas to our Unit: Manpower Development, which is supported by the Manpower Development and Training Act, and Information Services which relates to information retrieval and dissemination of research findings.

The support of State Research Coordinating Units by the Federal Government was in recognition of the inadequate supply of competent research personnel in the states to conduct desirable research and training programs, and experimental, developmental or pilot programs under either Section 4(a) or Section 4(c) of the 1963 Vocational Education Act. It was anticipated that an appropriate first step would be the establishment of State occupational research and development coordinating units where productive results could be obtained.

It was expected that the State Research Coordinating Units would initiate and coordinate activities designed to attain the following objectives:

1. Stimulate and encourage occupational education research and development in the State Department of Education, local school districts, colleges, and universities, and other public and non-profit private agencies and organizations.
2. Coordinate occupational research activities conducted within the State and with those being conducted outside the State.
3. Disseminate information on the progress and applications of the results of occupational education research.

4. Stimulate activities which would result in increased interest and improved competence in research, such as pre-service and in-service training of occupational researchers.
5. Participate in reviewing, monitoring or conducting occupational research and development projects supported by Federal, State or local funds.
6. Identify and maintain an inventory of available occupational research and development resources in light of anticipated needs and programs within the State.
7. Survey available data on employment opportunities, emerging occupational trends, and job projections, as a basis for planning vocational programs and facilities within the State, and teacher training, recruitment and placement.
8. Identify issues and problems relating to the nature and place of vocational education in the State school system, and determine the contributions which occupational research and development could make in resolving them.

Research and development is intended as an ancillary service to programs of vocational education. Its purpose is to assure quality in all programs and help present and prospective members of the labor force acquire the basic knowledge, skills and personal characteristics necessary to insure continuing and satisfying careers in the "world of work."

It is expected that research and development activities will be focused on strengthening the vocational capabilities of people at all levels of vocational education below that of the baccalaureate degree. Attention needs to be given to all of the purposes indicated in Section 4(a) of the 1963

Vocational Education Act:

(1) Vocational education for persons attending high school.

(2) Vocational education for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

(3) Vocational education for persons who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment.

(4) Vocational education for persons who have special needs that must be satisfied for them to succeed in the regular vocational education program.

(5) Construction of area vocational education school facilities.

(6) Ancillary services to assure quality in all vocational education programs.

In this regard it is important to remember that the core of the whole operation is centered on the people responsible for developing and carrying out programs and for programming. They need to have a sound philosophy of vocational education and clearly defined objectives compatible with their beliefs and expectations. For the most part it is their felt difficulties encountered in developing needed programs which should dictate the research and related activities to be undertaken. Also, they will be the ones expected to implement most of the new practices and programs based on the findings of research. If we expect them to carry out their responsibilities regarding program development and take full advantage of programs of research and development then they must be involved in the process at the appropriate steps.

At this point I want to relate to the Kentucky Research Coordinating Unit. You will see immediately that we are undertaking a big task in attempting to involve a lot of people in the operation. It will require a great deal of patience, perserverance, communication and education. We expect to make some false moves. However, we sincerely believe that this involvement and lines of communication are necessary if research and development is to be a reality, an ancillary service to the State program of vocational education.

The orientation of our unit is to the concept that the purpose of vocational education is to maintain, extend and improve existing programs, and to develop new programs, so that persons of all ages in all communities of the State will have ready access to vocational training or retraining which is of high quality and which is realistic in the light of actual or anticipated opportunities for gainful employment and which is suited to their needs, interests and abilities to benefit from such training (Figure 1). The measure of success will be the evaluation of performance on the job of those who received the vocational education (Figure 2).

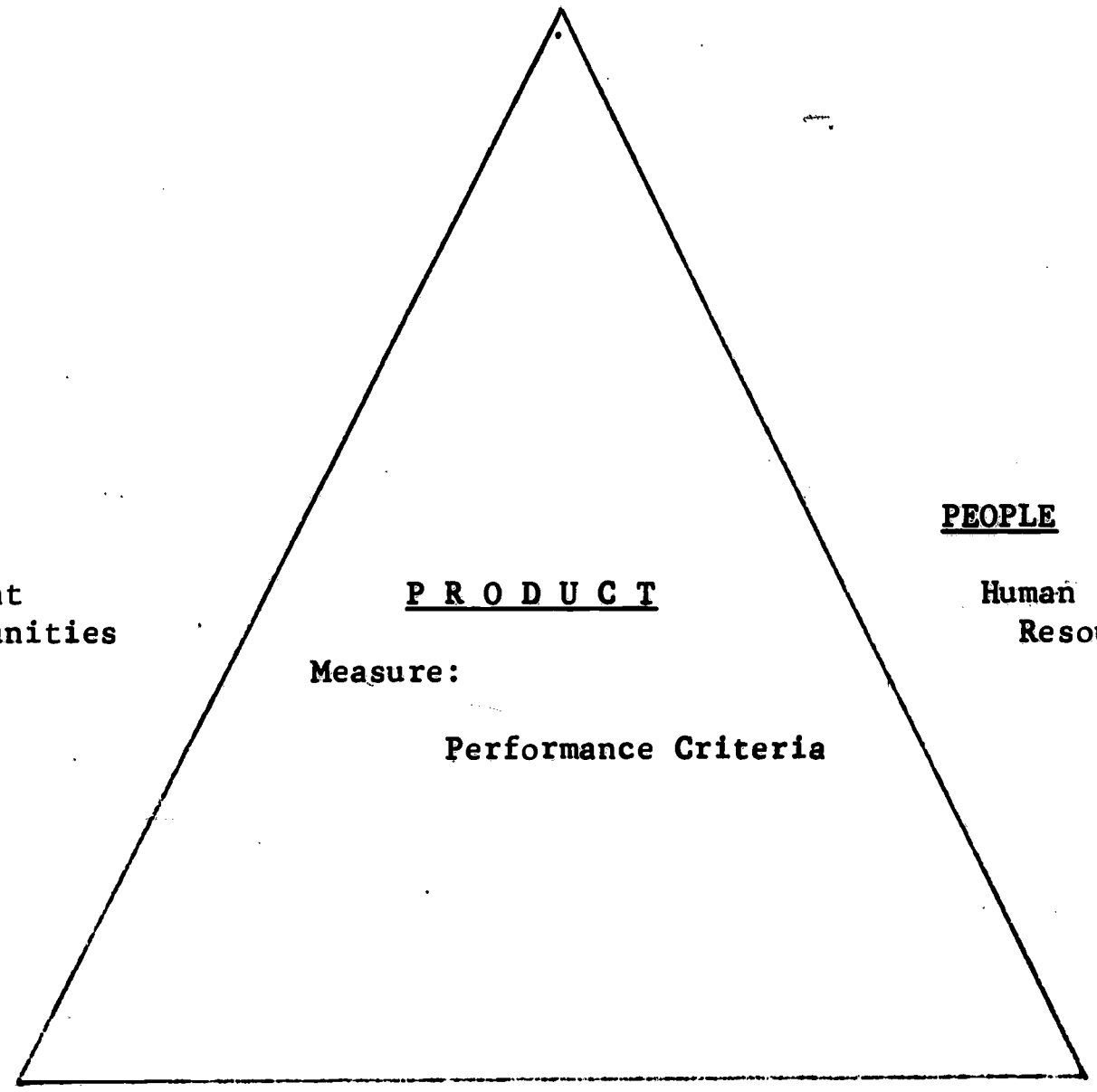
The structuring of our unit is based largely on the concept of research and development advocated by Lee, Brickell, Guba and Clark. Basically, it involves the following process (1) Formulation of clearly defined philosophy and objectives of vocational education; (2) Problem definition; (3) Research, basic or applied; (4) Program development; (5) Field testing; (6) Dissemination, and (7) Implementation of research findings in on-going programs.

This concept of research and development deserves considerable attention. For the most part it relates to program oriented research. It is an attempt to deal with the problems of educational change. Also, it represents an endeavor

FIGURE 1

STATE RESEARCH COORDINATING UNIT IN VOCATIONAL EDUCATION

- Orientation -



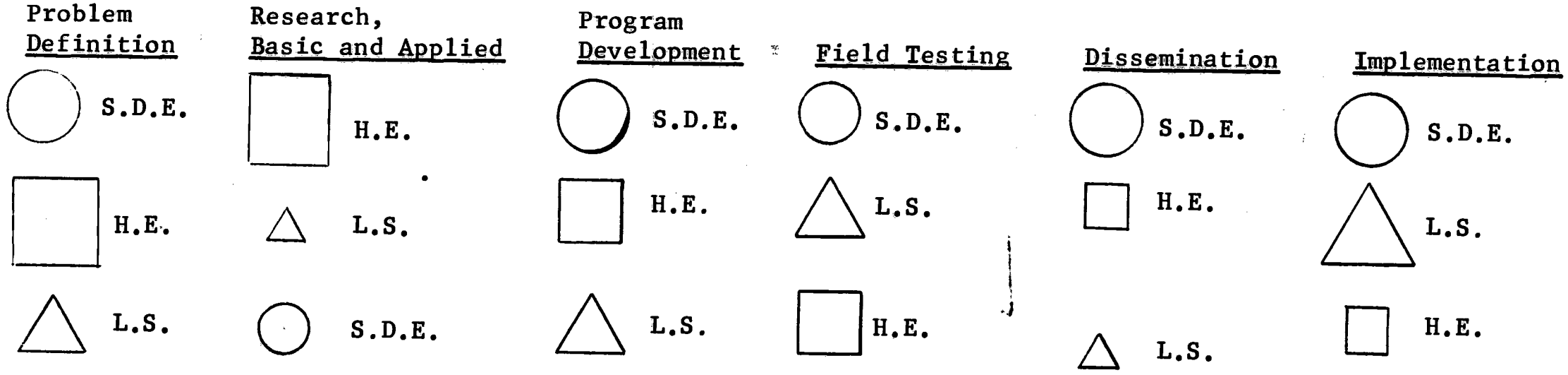
PROGRAMS

Educational Resources

How well are we doing?

"Who does what?"

A TAXONOMY OF ACTIVITIES INVOLVED IN EDUCATIONAL CHANGE
(Process of Research and Development)



Problem Definition-The State Department of Education should assume a major role for problem definition after consulting with higher education and local schools.

Research-Higher education should accept the major responsibility for research. Local schools and the State Department of Education should be involved. Perhaps the State Department of Education and local schools should assume a more significant role in applied research.

Program Development-The State Department of Education should have the major leadership role for program development. Higher education and local schools should be significantly involved.

Field Testing-The State Department of Education, local schools, and higher education probably should have equal involvement in field testing.

Dissemination-The State Department of Education should have the major role in disseminating the results of field testing. Higher education and local schools should have supporting roles.

Implementation-The State Department of Education should have the major role in implementation because the Constitution gives this responsibility to the State. However, the State delegates much of its responsibility to local schools. Higher education should assume a minor role.

FIGURE 2

to translate theory into practice-research into action-and establish effective communications between the researcher and the practitioner.

There are several groups of people with whom we are attempting to communicate. All of them have something significant to offer to a state program of research and development in vocational education. Actually, they seem to be eager to participate in our program. It will take some time and effort to get things organized and operating smoothly. However, I am convinced that the plan will work (Figure 3.)

The structure of the Kentucky Research Coordinating Unit is as follows: (Figure 4).

I have used this approach in attempting to answer the question "What resources are available to public school personnel for planning and initiating research and development programs through the Research Coordinating Unit?" because I think the orientation and structure of the unit has a lot to do with the answer that one can expect to get.

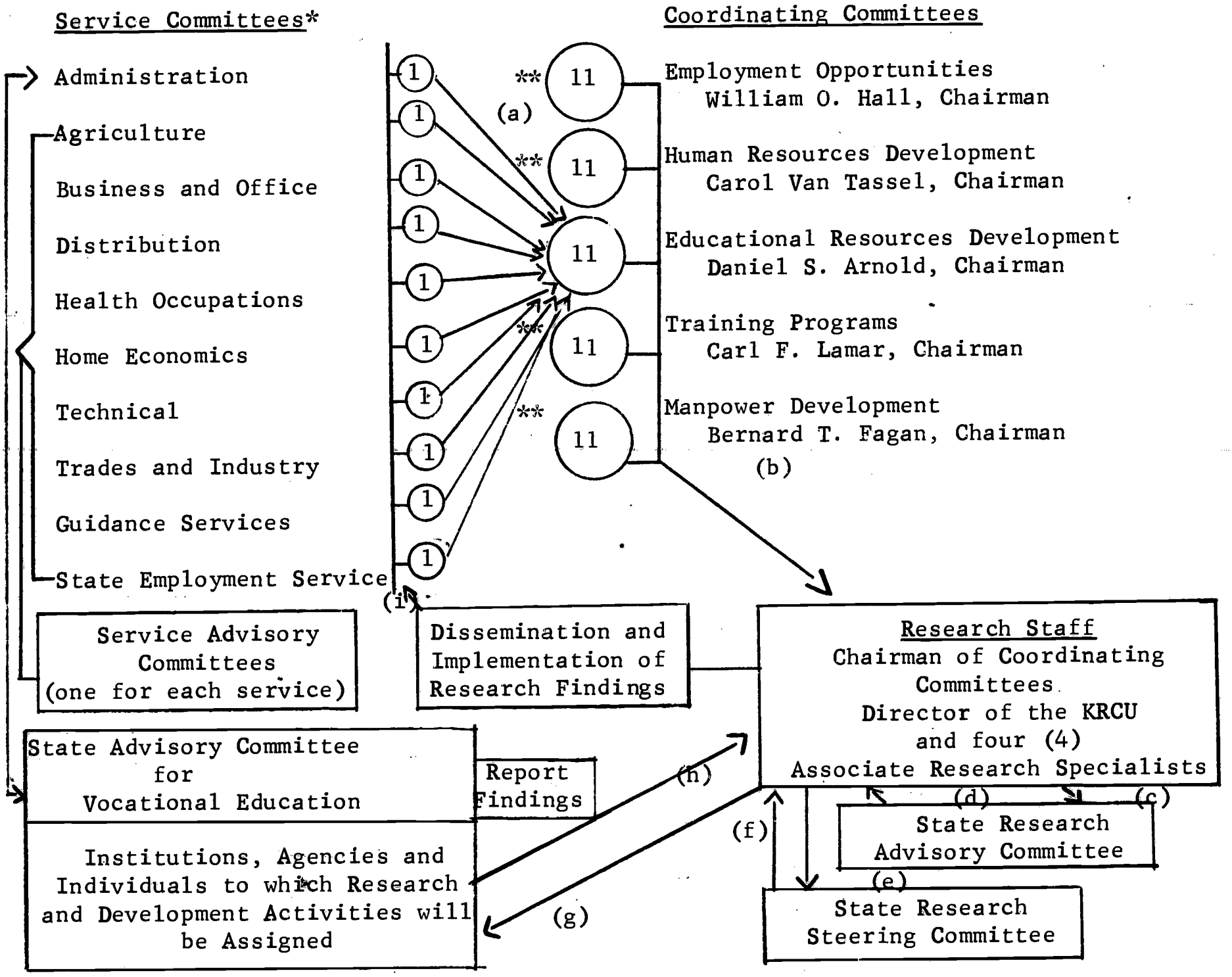
In our setup we are attempting to get tooled up to carry out the provisions of our State Plan for Vocational Education and the Kentucky Research Coordinating Unit for research and development. The specific activities that we have stressed are:

(1) Consultative services to anyone interested in research or related activities important to vocational education. This may involve problem identification and definition, the development of proposals; securing financial support for projects, or details in carrying out projects.

FIGURE 3

KENTUCKY RESEARCH COORDINATING UNIT
FOR
VOCATIONAL EDUCATION

Committee Structure and Relationships
(Research and Development Flow Chart)

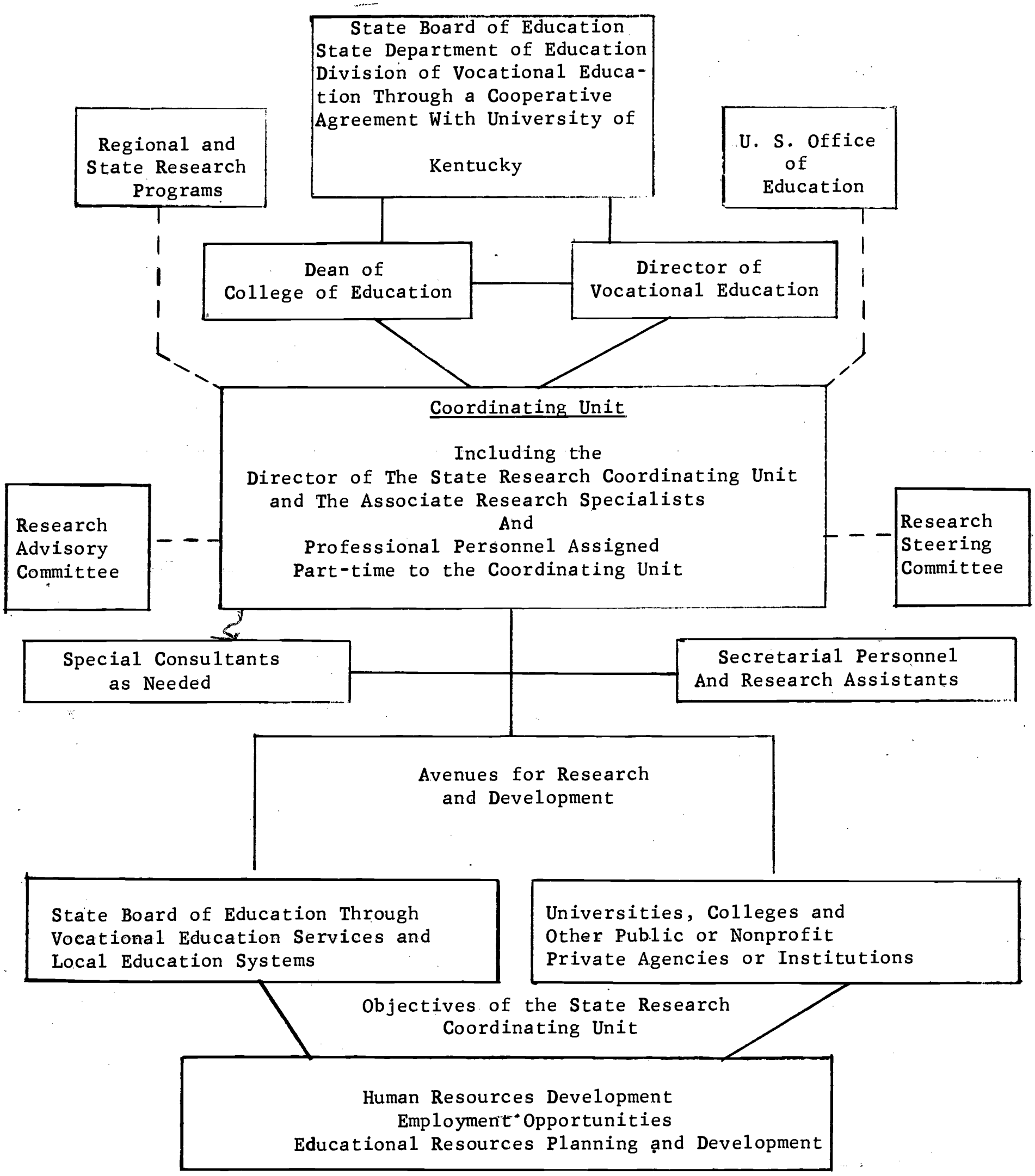


*Service Committees include the leadership responsible for programs and programming. The size of committees range from nine (9) to seventeen (17) members.

**Each Coordinating Committee includes one representative from each of the Service Committees.

FIGURE 4

STRUCTURE WITHIN WHICH THE STATE RESEARCH COORDINATING UNIT WILL FUNCTION



(2) Conferences and workshops planned for the purpose of stimulating and encouraging participation in occupational education research and development.

(3) Coordinating occupational research activities conducted within the State through the use of research coordinating committees, a State Advisory Committee, and a State Steering Committee.

(4) Providing information services for the purpose of retrieving research findings identifying the logical consumer, packaging it appropriately for the consumer, and disseminating the information so that the results will be properly used. We now have a director of information services to give leadership to this activity. He has been on the job since November 1.

(5) Stimulate activities designed to increase interest and improved competence in research. In this area last year we helped plan and carry out a series of 16 program planning meetings involving all services in vocational education plus representatives of the State employment service and general education. Representatives from the Region III Office, U. S. Office of Education, U. S. Department of Labor and others were used as consultants.

We conducted an eight-week research training institute last summer for 30 teachers, teacher-educators, and supervisors in vocational education to improve their research competencies. The entire staff of our KRCU was involved in the institute.

We conducted a series of three meetings for the teacher-educators in vocational education at the University of Kentucky on "How to prepare research, training, and developmental project proposals." This led to the preparation of six training proposals for next summer.

(6) Participate in reviewing, monitoring and conducting occupational research and developmental projects.

The director of research has the responsibility of reviewing research and development project proposals submitted for 4(a) funding and making recommendations to the State Director of Vocational Education regarding them.

Also he has the responsibility of reviewing proposals from local school districts which are being submitted for 4(c) funding and making recommendations to the State Director of Vocational Education regarding them.

The Research Coordinating Unit staff is available to cooperate in actually conducting studies. This may be done by working with a local school district, a teacher, teacher-educator or supervisor or by using graduate assistants or research assistants. At present we have four graduate assistants and three research assistants in the unit.

(7) The KRCU plans to spend considerable time in assessing the issues and problems uncovered in program planning and brought to its attention by representatives of the research coordinating committees. This is expected to be a continuing process. Hopefully, this will lead to the establishment of priority areas for research, training and development activities.

We have a relatively small research budget from 4(a) funds which can be used to give attention to the significant problem areas. If we use it wisely, I feel sure that it will increase in the years ahead.

I have related to the objectives of the State Research Coordinating Unit in enumerating possible available resources. I am sure there are others which should be mentioned. The RCU can help in many ways. The public school personnel interested in Vocational Education should make maximum use of it. I am sure the outcome would be mutually beneficial. This is a golden

opportunity to establish an important and essential ancillary service for vocational education.

THE NATIONAL PROGRAM OF EDUCATIONAL LABORATORIES

Presented By

Frank Schmidtlein
Bureau of Research
U. S. Office of Education
Washington, D. C.

In a letter from President Johnson to the Secretary of Health, Education and Welfare, the President acknowledged the establishment of the first regional educational laboratories with these words: "The laboratories should be large and significant enterprises, equal in size and scope to the major tasks they seek to accomplish. They ought to be conceived as comparable in their way to the large-scale laboratories of the Defense or Atomic Energy establishments. Nothing less will do. Their missions are equally important."

The laboratories to which the President was referring are not laboratories in the usual sense of the word. Rather than being a single building or place equipped to house experimental study, these laboratories are associations of people with varied talents and a common concern joined together in a new institutional relationship. Drawing membership and affiliations from several States, each laboratory is organized to study and attack educational problems. Hence, the place in which the work of these laboratories will be conducted is the region itself--its schools, its universities, its State departments of education, and its communities. Although the laboratory work is decentralized, each laboratory will concentrate its efforts on one or two major educational problems, thus providing focus and coordination among the laboratory's various activities.

Two major premises underlie the regional educational laboratory concept.

First, that educational research, development, and dissemination must proceed within the framework of a new kind of partnership if the results of these activities are ultimately to effect change within the Nation's classrooms. And since the talents and responsibilities for educational research and classroom implementation span a wide variety of institutions and individuals, the partnership should be composed of individuals from many institutional settings and disciplines. Representation and support has come from colleges and universities, teacher training institutions, local schools, local Boards of Education, State departments of education, and other groups--business, industrial, labor, cultural and civic--with a commitment to and a stake in educational quality. The second premist basic to the laboratory concept is that the translation of research findings into programs and practices which can be implemented by schools and teachers is a process which can be best done through a new institution capable of beginning the research cycle and carrying it through to its logical end: implementation.

Inshort, a piecemeal approach to educational research offers little promise for meeting a pervasive need. The regional laboratory approach, on the other hand, is comprehensive. Its promise lies in providing a new structure for coordinated action by all appropriate groups, charged with the specific challenge of jointly planning and working, through research and development, for educational change.

This promise is reflected in the President's letter. "I look to these laboratories," he says, "to stress putting into practice what we already know. The increase of knowledge through research must proceed at a rapid pace. But we have an even greater obligation to overcome the lag between

discovery and use, and to convert the results of years of research into application in the classroom.

"To involve outstanding scholars, experts, and artists in the development of new educational programs so as to assure that better methods of instruction are accompanied by new content.

"To be a part of community life, drawing out public support and involvement in innovation in education and calling on the resources of the community and industry for planning and operation."

Although the Guidelines for the National Program of Education Laboratories were issued by the Office of Education only a year ago, the response to the laboratory concept was so wide and enthusiastic that 20 laboratories involving 49 State departments of education are now being supported. All of these are legally chartered as non-profit corporations. Twelve of the laboratories are operational and beginning their programs. The remainder are currently in a developmental phase. (For a list of the laboratories and their directors, see last page.)

Each regional laboratory, in its development period, devotes major attention to (1) assessing and defining the specific educational problem areas of its region and the resources which can be mobilized to attack these problems; and (2) formulating specific sets of activities, a program, which will affect educational change. Some will conduct research on selected problems in their region; some will focus their resources and manpower on curriculum development; others will concentrate on programs for improving the training of teachers. Many laboratories will establish seminars and institutes for the training of research workers. All laboratories will be

concerned with dissemination of research results and demonstration of techniques and materials that have been tested and found to be effective.

Obviously, the problem areas selected for sustained attention by a laboratory at the time of its establishment will require periodic review, clarification, and adjustment in the light of actual working experience, of progress made, and of emerging developments both within the laboratory's region and elsewhere. The program of each laboratory is expected to undergo continuing evolution as the laboratory remains alert and responsive to a continuously changing educational scene. For example, the laboratory which chooses to concentrate on disseminating the latest practices in individually-prescribed instruction will necessarily need to update its "stock" from time to time to reflect new findings emerging from research in the schools experimenting with this approach. Similarly, a laboratory emphasizing work on the educational implications of school desegregation will be forced to re-think its program periodically as population shifts, teacher turn-over, and other factors create ever changing pictures of classroom composition, district organization, and school attendance.

Thus, the programs of the laboratories, like the laboratory institution itself, will be subject to constant evaluation, renewal and revitalization. Although the laboratory concept is new, and, like all new things, must have its value proved and tested by time, the 20 functioning laboratories are beginning to show what they can do. Beginning program activities have been launched; and plans are underway for their expansion. The hope of the laboratories and the promise of the laboratories is the same: that as these new and developing institutions and programs reach maturity, they

will represent a significant innovation, assisting the States in producing, as the President said, "rapid increases in educational quality on a mass scale."

REGIONAL EDUCATIONAL LABORATORIES

January 1, 1967

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Dr. Robert S. Gilchrist
Mid-Continent Regional Educational
Laboratory
104 East Independence Avenue
Kansas City, Missouri 64108
816-221-8686

MOREL
Dr. Stuart Rankin
Michigan-Ohio Regional Educational Laboratory
School Center Building
Detroit, Michigan 48202
313-833-7900

NWREL
Dr. Larry Fish
Northwest Regional Educational Laboratory
710 Southwest 2nd Avenue
Portland, Oregon 97232
503-224-3650

RELCV
Dr. Ralph McCallister
Regional Educational Laboratory for the Carolinas and Virginia
411 West Chapel Hill Street
Durham, North Carolina 27701
919-688-8057

RMEL
Dr. James Thrasher
Rocky Mountain Regional Educational Laboratory
105 Filmore Street
Denver, Colorado 80200
303-355-2315

SCEL
Dr. Gwendel Nelson
South Central Regional Educational Laboratory Corporation
National Old Line Building
Little Rock, Arkansas 72201
501-376-4641

SEL
Dr. Robert Hopper
Southeastern Educational Laboratory
3450 International Boulevard
Hapeville, Georgia 30054
404-766-0951

SWCEL
Dr. Paul Petty
Southwestern Cooperative Educational Laboratory
120 Vassar Avenue, S.E.
Albuquerque, New Mexico 87106
505-277-5221

SWEDL
Dr. Edwin Hindsman
Southwest Educational Development Laboratory
800 Brazos Street
Austin, Texas 78767
512-476-6861

SWRL
Dr. Richard Schutz
Southwest Regional Educational Laboratory
11300 LaCienega Boulevard
Inglewood, California 90304
213-776-3800

UMREL
Dr. John Prasch
Upper Midwest Regional Educational Laboratory, Inc.
2698 University Avenue
St. Paul, Minnesota 55104
612-645-0526

RESOURCES AVAILABLE THROUGH THE CENTER FOR OCCUPATIONAL EDUCATION

Selz C. Mayo, Head
Department of Sociology and Anthropology
North Carolina State University at Raleigh
Raleigh, North Carolina

HIGHLIGHTS OF PRESENTATION

1. The Center for Research, Development, and Training in Occupational Education at North Carolina State University at Raleigh was established June 1, 1965, pursuant to the approval of a proposal submitted by the University to the U. S. Commissioner of Education under the provision of Section 4(c) of the Vocational Education Act of 1963. This Center is one of two Research and Development Centers established under the provisions of the Act. The other is the Center for Research and Leadership Development in Vocational and Technical Education at Ohio State University. This Center is a part of the research and development program administered by the Division of Adult and Vocational Research, Bureau of Research, Office of Education, U. S. Department of Health, Education, and Welfare.

2. The development of the Center was traced from the original research center concept through the development of the program which is now in progress at the Center. It was mentioned that Dr. Mayo had been invited to a meeting at Brookings Institute in 1964 to discuss the use of the research funds provided under the provision of Section 4(c) of the Vocational Education Act of 1963. It was there that he made a plea for the establishment of centers for research and development. Subsequent to this meeting the center concept was accepted.

A conference was held with Chancellor John T. Caldwell and Dean of Research, Dr. H. F. Robinson to explore the interest of North Carolina State University in making application and preparing a proposal for one of the centers. The proposition was favorably received. Because of the research program in progress in the Departments of Education, Psychology, Sociology and Economics, and a strong Department of Experimental Statistics, it was felt that the University had the resources for establishing an effective research and development center.

Subsequent to this conference, a committee to develop a proposal was appointed. The committee was chaired by Dr. George Tolley, Professor of Economics. The committee was comprised of faculty representatives from the Departments of Economics, Psychology, Sociology and Anthropology, and the vocationally oriented Departments of the School of Education. The proposal was developed and submitted to the U. S. Office of Education in the spring of 1965. The proposal was approved which established the Center. Contracts were negotiated and the Center became operational in June of 1965. The original contract was for a period of nineteen months ending December 31, 1966.

Dr. Tolley was designated as Director of the Center, but was unable to fill this assignment due to a commitment to the U. S. Department of Agriculture. Dr. Mayo was then appointed as Acting Director and served from August, 1965 through June 30, 1966. Dr. John K. Coster was appointed Director of the Center on July 1, 1966.

3. It was emphasized that from its inception, the Center has been conceptualized as an interdisciplinary and multidisciplinary organization, cutting across the disciplines represented by the cooperating and participating departments. The staff of the Center includes full-time and part-time

personnel with the rank of assistant professor and higher, research instructors, and graduate research assistants. All professional personnel hold academic rank in one or more of the cooperating and participating departments. Every effort has been made in the organization of the Center to assure linkage with the disciplines represented by the departments as well as with the total program of the Center.

4. The total program of the Center includes a research program, an evaluation program, a research development program, a research training program, and a services and conferences program. Major emphasis was placed on the research program during the initial twenty-month approval period of the Center. In recent years, the research programs of the Departments of Economics, Psychology, and Sociology and Anthropology have moved toward concentration on a broad array of problems related to human resource development and manpower utilization. At the same time, the vocationally oriented departments at the University have been allocating an increasingly large proportion of human and financial resources to research and related activities. These research programs formed the basis of the research and development activities which were included in the original program of the Center. Six project areas were selected for emphasis during the initial program,

"Occupational Adjustments in the South."

"Shaping Flexible Vocational Behavior in Youth."

"Policy and Policy-Making in Occupational Education."

"Professional Personnel."

"The Evaluation of Occupational Education."

"Occupational Education in Areas of Economic Transition."

The Research program in the continuation program has centered on crucial, pivotal, fundamental problems related to the initiation, expansion, intensification, and enrichment of programs of occupational education, with special attention to the problems of providing programs for persons who are academically, socially, or otherwise handicapped. The research program is directed toward the study of the climate in which occupational education operates--to ferretting out environmental, economic, sociological, psychological, political, and administration factors that underlie the full and complete development of programs of occupational education to maximize the development of human potential.

5. It was pointed out that the Center was national in scope, but particular emphasis would be given to the problems of the region.

6. Another basic concern of the Center is evaluation. A research program in evaluation is being developed. There is considerable interest in developing criteria, processes and techniques for effective evaluation of occupational education programs. The Center also has the facility for providing evaluation services in occupational education. Already the Center is engaged in the evaluation of the effectiveness of developmental and related programs.

The Center has entered into a contractual agreement with the Brevard County Board of Public Instruction, Titusville, Florida, to conduct the evaluation phase of a project entitled, "An Experimental Design for a Multi-Cultural Nongraded Area Vocational High School Associated with a Community College." The sub-contract involves the development of strategies,

models and instruments to evaluate the effectiveness of the program in concert with the conduct of the project.

The Center has incorporated a project entitled "An Evaluation of a Pilot Project Entitled: Concerted Services in Training and Education in Rural Areas" in the continuation program. The pilot project is being sponsored jointly by the U. S. Departments of Agriculture; Health, Education, and Welfare; and Labor. It is being conducted in three counties--one in Arkansas, one in Minnesota, and one in New Mexico.

7. The service aspect of the Center program was discussed to apprise the seminar participants of the resources available to them through the Center. It was pointed out that with the large variety of professional personnel associated with the Center, consultant services, are available for assistance in research development. Specifically mentioned was the availability of consultants in such areas as test and measurements, research design, proposal development and statistics.

Furthermore, some funds were available to support the development of research proposals which fall within the research interests of the Center. The conference program was mentioned as one of the major services of the Center. Four types of conference were described. Training Seminars (such as this one) would be held to upgrade the research competency of vocational personnel in the region. Research Development Seminars would be held to study in-depth problems that have been identified. Task Forces would be formed to consider problems that cut across two or more states and several vocational-technical education service lines. These would be used to develop proposals for cooperative research projects. Dissemination

Conferences will be organized as the need arises to disseminate the products of the research of the Center.

8. Research training was discussed as another basic function of the Center. A doctorate in Occupational Education has been established at North Carolina State University, which will provide the opportunity for persons to prepare for research positions in occupational education.

The professional members of the Center staff will conduct seminars in research in occupational education for the participants in this program. The research and other programs of the Center will provide an opportunity for practical experience in research, it being anticipated that the graduate research assistant and research instructor positions on the Center staff will be filled by persons who are pursuing research training programs in one of the cooperating and participating Departments at the doctor's level. In addition, since all members of the professional staff of the Center hold academic rank in one or more of the Departments of the University, and since a relatively large number of the appointments to the Center staff are joint appointments with the members having part-time instructional assignments, maximum coordination between the program of the Center and the research training program is assured.

VOCATIONAL AND TECHNICAL EDUCATION--AND ERIC

(Mrs.) Celianna Wilson
Information and Services Coordinator
The Center for Vocational and Technical Education
The Ohio State University
(Presented by Charles H. Rogers)

The Major objectives of The Center for Research and Leadership Development in Vocational and Technical Education include conducting research studies in vocational and technical education; stimulating and strengthening state, regional, and national programs of applied research; and encouraging the development of research.

To aid in the accomplishment of these major goals and to assist the profession, a national information retrieval, storage, and dissemination system has been established as an integral part of the Center. This unit of the Center is linked with the Educational Research Information Center of the U. S. Office of Education, often referred to as ERIC.

ERIC is designed as the first nationwide comprehensive information system to serve American education. The basic objective of ERIC is to provide information on reliable, current educational research and research-related materials inexpensively to a wide variety of audiences. Several clearinghouses have recently been established by Central ERIC to focus on specific topics in other areas of education.

In addition to creating and coordinating the several clearinghouses, Central ERIC will provide other services useful to educational researchers and practitioners. ERIC plans a monthly abstract publication with indexes of all new acquisitions to the total ERIC collection. It is anticipated that each clearinghouse will supplement this publication with additional

information addressed to the professional community within its substantive focus. In addition, the ERIC Document Reproduction Service has been established to provide either microfiche or hard copy reproductions of any document available through the ERIC system.

THE CLEARINGHOUSE FOR VOCATIONAL AND TECHNICAL EDUCATION

The national Information Retrieval and Dissemination System for Vocational and Technical, as a component of the ERIC system, constitutes one of the major activities of the Center.

This clearinghouse is responsible for acquiring research reports and other documents related to any aspect of the general field of vocational and technical education. Included are reports on the specific fields of agricultural education, distributive education, health occupations education, home economics education, technical education, trade and industrial education, training in new technical fields, and the related fields of industrial arts education, labor economics, occupational psychology, and occupational sociology. These materials are screened, abstracted, and indexed. The abstractors are professionals in their respective vocational fields. Abstracts and full texts of the items will be produced on microfiche. These will be available from the Center or from the ERIC Reproduction Service at nominal cost.

The following sections provide more details on the operation of this clearinghouse for vocational and technical education.

ACQUISITION

The first step, and a critical link in the operation of this system,

is the acquisition of all appropriate materials. If this system is to be of maximum value to the vocational profession, these materials must be acquired and processed as promptly as possible. Efforts are being exerted to establish and maintain a surveillance system; however, this effort needs to be supplemented by the voluntary action of all persons in the vocational field who should forward two copies of current vocational and technical items such as the following:

Bibliographies
Conference Proceedings
Curriculum Materials
Curriculum Studies
Research and Research-related Reports
Research Reviews
Subject or Position Papers
Talks or speeches presented to professional groups

In addition, citations of significant journal articles, books, theses, and dissertations concerned with vocational and technical education need to be forwarded so they may be brought to the attention of the professional community. Please forward to:

Acquisition Specialist
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

SYSTEM OPERATION

Succeeding steps in the operation of this information system involve screening, organizing, and disseminating this material. With the growth of vocational education programs, there is an increasing need for accessible information that can be used in developing logical chains of reasoning for research activities, for school practices, and for redirecting current and

projected program thrusts of educational activities. A recognized weak link in the chain of educational research and development has been the lack of dissemination of research results and pertinent recorded information. There must also be economical storage of this information with access to this knowledge through subject analysis and selection of meaningful terms.

Considerable experimental and research activity has been expended by a number of organizations during the past decade in determining methods of storing, retrieving, and disseminating information pertinent to the needs of user groups and the individuals in these groups. Results to date show that there is far more information being published than any one individual could read during a lifetime of full-time reading. One device in extending coverage of information is the use of abstracts. Individual users of this system should be able to effectively use abstracts as a means of rapidly becoming familiar with the developments in any given area of interest. By reading an informative abstract, a user is able to determine whether his time should be spent in reading the full text of a particular title.

USE OF SYSTEM

Any person involved in or concerned with vocational or technical education of any type is encouraged to use this system. Researchers, supervisors, teacher educators, education specialists, administrators, teachers, and others are viewed as those who may logically desire to participate in this information system.

One of the methods of using this information system will be to request specific materials identified through the monthly ERIC abstract publication which will be distributed nationally. The abstracts of all materials

processed into the ERIC system will be reproduced in this publication. You may direct requests for forms to obtain materials to the ERIC Document Reproduction Service at Bell and Howell Company, 1700 Shaw Avenue. Cleveland, Ohio, 44113. If you have access to a microfiche reader, a copy of the microfiche might be more convenient for you, or you may wish to request the full size hard copy reproduction of documents. Each organization that anticipates use of microfiche should locate or acquire a simple and relatively inexpensive microfiche reader.

Another anticipated method of utilizing this service will be by requesting assistance in locating materials on specific topics. Requests for information should be as definitive as possible, and should be directed to the Retrieval Specialist at the Center. Upon receipt of your request, you may be contacted for further information or for delineation of your mailed or telephone request.

The nature of your request and the type and amount of relevant information in the system will help determine the form of response. You may wish to request a limited number of documents, or you may desire bibliographical citations or abstracts for certain topics. These may be forwarded to you as photoduplicated materials, typed materials, or microfiche cards, depending on the circumstances and your request. Initial searches may produce only a limited number of documents for a specific topic, but this is expected to increase as more materials are available in the system.

Each request will be handled individually at the Center, with full attention given to securing the maximum amount of available information at the lowest possible cost. The most rapid and efficient manner for

you to request assistance of any type will be to contact the office of the Retrieval Specialist.

Additional announcements concerning specific details and operational dates will be released as developments occur.

For additional information or assistance, write or telephone:

Dr. Robert E. Taylor, Director
614-293-7351

Mrs. Celianna Wilson
Information Services Coordinator
614-293-5463

Mr. Charles Harris
Acquisition Specialist
614-293-5463

Mr. Robert White
Retrieval Specialist
614-293-5463

SUMMARY OF REACTIONS OF SEMINAR PARTICIPANTS TO PILOT AND DEVELOPMENTAL PROGRAMS

Considerable time was allowed during the seminar for small group discussion to react to presentations and to develop strategies for utilizing the content. During these sessions, numerous ideas, suggestions and questions evolved. The following statements represent the major reactions of the participants to the presentation on planning, developing, initiating and evaluating pilot and developmental programs.

1. Need for Pilot and Developmental Projects

a. Pilot and developmental projects are continually needed to improve or to change existing programs to meet the changing occupational needs of students.

b. A favorable attitude toward innovation is necessary to keep instructional programs viable.

c. Both short range and long range pilot programs are needed. We need guides for the future but program with immediate applicability will enhance the pilot effort.

d. Pilot programs are needed at both state and local levels. Real changes, however, come in local program and emphasis should be given to innovative programs at that level.

e. Pilot programs are needed which do a better job of blending work attitudes with skill development.

f. Pilot programs involving work experience are needed in the elementary schools.

g. Innovative approaches for providing occupational information to rural children are needed. Perhaps something could be provided while students are being bussed to and from school.

h. Pilot programs are needed to determine the proper sequence of vocational offerings.

i. Pilot programs are needed to explore the possibility of teaching clusters of skills, cutting across all vocational service lines.

2. Establishing Objectives

a. Pilot programs should give priority to educational aims over research aims.

b. In developing pilot programs, the establishment of objectives is essential to give direction to program activities and for evaluation.

c. General objectives should remain the same throughout a project, but specific objectives may be changed as the situation dictates.

d. The desired outcomes of the program should be well understood by everyone involved in the program.

e. The program activities should be delimited to clearly established purposes.

f. Insofar as possible, objectives should be established that can be objectively measured. However, the value of subjective observations cannot be overlooked.

3. Developing Procedures

a. Pilot programs should be based on sound research findings.

b. Pilot programs should be developed which have application to a wide variety of situations. Results of such programs could be

universally utilized.

c. Ample time should be allowed for planning before initiating pilot programs.

d. Local personnel should be given time in their normal work schedule for planning pilot programs. Planning should not be an overload activity.

e. Personnel selected for pilot programs should have a special interest in the program as well as special competencies which will contribute to it. Teachers should be selected because of their competency, experience and professional attitude toward pilot programs.

f. Idea people are needed at the local level-people with time to undertake innovative projects.

g. In establishing innovative programs, we should clearly differentiate between "pilot," "developmental" and "experimental" programs.

h. We should approach innovative programs primarily from the students standpoint rather than the teachers. The ultimate aim is to improve learning experiences for students.

i. As far as possible, an interdisciplinary approach should be used in solving problems in vocational education.

j. The respective roles of business agencies and educational agencies should be coordinated to offer effective occupational education.

k. Effective communications are essential to the success of pilot programs. It is essential that students, teachers and community leaders be involved in the planning of such programs.

1. Teaching personnel should be rewarded for suggesting innovative ideas for improving instruction.

m. Time and funds should be made available for research and development in local programs.

n. We should look to industry as a resource for providing training in occupational education.

o. We should consider how the program will be carried on after the program is no longer funded by state or federal agencies.

4. Evaluation

a. Evaluation processes and procedures should be planned as the work of the project is planned.

b. Evaluation should be tied very closely to the objectives of the project.

c. Pilot projects are often evaluated on subjective data, but it is essential that this be supported by as much objective data as possible.

d. If subjective data is used in evaluation, a method for weighing this data should be developed.

e. It is desirable to establish control groups in all pilot programs.

f. The participants of a pilot program have an obligation to provide information about the strengths and weaknesses of the program.

g. Evaluation should take place periodically during the progress of the project.

h. Two kinds of evaluation are needed in all pilot programs. They should be evaluated internally by those involved in the project,

and externally by an outside team which can look at the project more objectively.

SUMMARY OF SUGGESTED ASSISTANCE NEEDED THROUGH THE CENTER FOR OCCUPATIONAL EDUCATION, THE RESEARCH COORDINATING UNITS AND THE REGIONAL EDUCATION LABORATORIES

One of the objectives of the seminar was to explore strategies through which the Center for Occupational Education and other research organizations might provide greater assistance to local school personnel for planning and initiating innovative programs. Several presentations and a panel discussion were utilized to explore the resources available to local school units through the various research and development agencies. The seminar participants were then given an opportunity to suggest ways that these agencies might provide greater assistance to them. The following statements represent the kind of assistance they believed could be provided through the Center for Occupational Education, the Research Coordinating Units, and the Regional Education Laboratories.

Assistance Needed Through the Center for Occupational Education

1. Provide a follow-up workshop to actually develop innovative ideas into research proposals.

2. Sponsor workshops, seminars, etc., to help train personnel to become more knowledgeable and skill ful in research technology.

3. Use more seminars as catalysts for stimulating pilot and developmental programs in local school units.

4. Hold a seminar similar to this one for state department personnel.

5. Disseminate periodic information about on-going pilot and developmental projects. Also, provide tips or guides for improving pilot efforts. Perhaps a monthly or quarterly review might be helpful.

6. Catalog and disseminate innovative ideas in occupational education.

7. Develop processes and procedures to be used by local school units to study their communities as a basis for developing new and innovative programs.

8. Assist in translating innovative ideas into operational programs.

9. Assist in proposal development and evaluation of projects having broad generalizability.

10. Provide consulting services to groups needing help in developing proposals.

11. Provide consultant help in program development, research design, and evaluation.

12. Stimulate the development of occupational education research in local programs.

13. Assist in the evaluation of current occupational education programs.

14. Assist in developing a plan for evaluating teacher training programs in occupational education.

15. Provide a reading service for evaluating research proposals.

16. Sell the interdisciplinary approach to research in occupational education.

17. Provide specific information relative to utilizing the resources and services of the Center.

18. Develop and disseminate procedure for utilizing resources of the many research agencies available to us.

19. Develop a massive program of communication in research and development.

20. Stimulate cooperative research efforts at all governmental levels (local, state, federal) in occupational education.

21. Extend the arm and project the image of the Center to a broader clientele and geographic area.

Assistance Needed Through the Research Coordinating Units

1. Provide in-service training in research technology.

2. Provide conferences and consultant services to local personnel for training in the area of research.

3. Sponsor interdisciplinary workshops within the state for research training.

4. Assist local units in operationalizing innovative research projects.

5. Stimulate pilot and developmental projects at the local level.

6. Assist local people in developing interdisciplinary approaches to the solution of problems in occupational education.

7. Provide local people with information about the resources and services of the Research Coordinating Units and the name of the contact person in requesting assistance.

8. Provide assistance to local people in studying the needs and interests of a community as a basis for developing innovative programs.

9. Provide assistance to local people in molding innovative ideas into researchable projects.

10. Assist local people in utilizing assistance available through all the research agencies located in specific geographic areas.

11. Assist state departments and local school units in identifying research needs and lend support to research conceived at the local level.

12. Assist local people in securing information regarding programs similar to those they propose for their own locality.

13. Assist local units in evaluating pilot and developmental programs.

14. Assist local units in long range program planning in occupational education.

15. Clarify lines of communication for charting proposals and securing approval.

16. Provide a catalog of funds available for supporting local innovative projects and outline procedures for applying for such funds.

17. Coordinate pilot and developmental efforts throughout the state.

18. Provide guidance and direction in setting up research procedures and evaluation of innovative programs.

19. Provide research information about occupations in the broad community, state and region.

20. Help to break down the barriers between vocational and academic educational programs.

21. Catalog and disseminate innovative ideas (or programs) operating in the state.

22. Assist state department personnel in working with local units on

research and development projects.

Assistance Needed Through the Regional Education Laboratories

1. We need help in understanding and utilizing the ERIC retrieval system.

2. More information needs to be provided about occupational programs sponsored by the Regional Education Laboratories.

3. More information is needed about the resources and services of the Regional Educational Laboratories.

4. Results of innovative programs need to be disseminated.

5. A catalog of innovative ideas should be provided.

6. The Regional Education Laboratory should serve as a "sounding board" for local innovative ideas.

7. The Regional Education Laboratory should assist in the evaluation of pilot and developmental programs.

8. The Regional Education Laboratory could provide services needed in large scale evaluation of pilot programs.

9. The Regional Education Laboratory should provide assistance in assessing local occupational education needs as a basis for program development.

10. Assistance is needed in the development of curriculum materials and instructional technology.

11. Assistance is needed in curriculum evaluation.

12. Assistance is needed to provide in-service training of teachers for participation in innovative programs.

13. Provision for in-service education to occupational education instructors is needed.

14. The Regional Education Laboratory should support demonstration programs that have been proved effective through pilot and developmental projects.

APPENDIX

PROGRAM

Monday Morning, November 7, 1966

Arrive at the College Inn

10:00-12:00 Seminar Registration - "Banquet Room"

Charles Rogers, In Charge

Monday Afternoon, November 7, 1966

1:30 First General Session - "Banquet Room"
Cayce Scarborough, Presiding

Welcome
J. Bryant Kirkland, Dean of the School of Education, North Carolina State University at Raleigh

Orientation to the Seminar

Introductions

3:00 Recess

3:30 Introduction of Speakers
Charles H. Rogers

"A Description of an Experimental and Developmental Study of a Four-Year Comprehensive Education Program, Hudson Public Schools, Hudson, Ohio"
(Mrs.) Mary Pace and Lloyd Benham

5:00 Adjourn

Tuesday Morning, November 8, 1966

8:30 Second General Session - "Constitution Room"
Charles Rogers, Presiding

Introduction of Speaker
John K. Coster

Presentation, "Establishing Objectives and Developing Procedure for Developmental, Pilot, and Innovative Programs"
Dr. Lloyd Phipps, Professor, Vocational and Technical Education, College of Education, University of Illinois

10:00 Coffee Break

10:30 First Group Session

Reaction to the Presentation by Dr. Phipps concerning Objectives

12:00 Lunch

Tuesday Afternoon, November 8, 1966

1:30 Second Group Session -

Reaction to the Presentation by Dr. Phipps concerning Procedures

3:00 Recess

3:30 Third General Session - "Constitution Room"
Bert W. Westbrook, Presiding

Reports of Small Work Groups on Objectives and Procedures

5:00 Adjourn

Wednesday Morning, November 9, 1966

8:30 Fourth General Session - "Constitution Room"
Thomas Baldwin, Presiding

Presentation, "Evaluation of Developmental, Pilot, and Innovative Programs"
Dr. Lloyd Phipps

10:00 Coffee Break

10:30 Third Group Session -

Reaction to the Presentation by Dr. Phipps concerning Evaluation

12:00 Luncheon - College Inn -
Durwin M. Hanson, Presiding

Introduction of Speaker
John K. Coster

Address: "The Research Program at North Carolina State University"
Dr. H. F. Robinson, Administrative Dean for Research, North Carolina State University at Raleigh

Wednesday Afternoon, November 9, 1966

2:00 Fifth General Session
Texton R. Miller, Presiding

Reports of Small Work Groups on Evaluation

3:00 Recess

3:30 "Summary Reaction to Small Group Reports and Further Suggestions for Participants Planning Innovative Projects"
Dr. Lloyd J. Phipps

5:00 Adjourn

Thursday Morning, November 10, 1966

8:30 Sixth General Session - McKimmon Room, Williams Hall
Charles H. Rogers, Presiding

"Resources Available to Public School Personnel for Planning and Initiating Developmental, Pilot and Innovative Programs"

9:00 a. Research Coordinating Units
Dr. Carl Lamar, Director of the Kentucky Research Coordinating Unit, University of Kentucky

9:10 b. Center for Occupational Education
Research-Development-Training
Dr. S. C. Mayo, Head, Sociology and Anthropology, North Carolina State University at Raleigh

9:50 c. Regional Education Laboratories
Dr. Frank Schmidtlein, United States Office of Education

10:30 Coffee Break

11:00 Panel of Consultants

"Exploration of Strategies By and Through Which The Center and Other Research Organizations Might Provide Greater Assistance to Local Public School Personnel in Planning and Initiating Innovative Projects"

Selz Mayo, North Carolina State University at Raleigh
Frank Schmidtlein, United States Office of Education
Carl Lamar, University of Kentucky
John Coster, Moderator

12:15 Luncheon

Thursday Afternoon, November 10, 1966

1:30 Final General Session - McKimmon Room Williams Hall
Cayce C. Scarborough, Presiding

Expense Accounts - Charles Rogers

2:00 Reports From Selected Participants on Specific Research Plans for Developmental, Pilot, and Innovative Programs They Plan to Conduct

3:45 Adjourn

CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

WILLIAM FRIDAY, Ph.D. ..... President

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

JOHN TYLER CALDWELL, Ph.D. ..... Chancellor
HARRY C. KELLY, Ph.D. ..... Dean of Faculty
WALTER J. PETERSON, Ph.D. ..... Dean of Graduate School

CENTER FOR OCCUPATIONAL EDUCATION

Policy Coordinating Board

HAROLD F. ROBINSON, Ph.D., Chairman ..... Administrative Dean for Research
H. BROOKS JAMES, Ph.D. ..... Dean, School of Agriculture and Life Sciences
J. BRYANT KIRKLAND, Ph.D. ..... Dean, School of Education
FRED V. CAHILL, Ph.D. ..... Dean, School of Liberal Arts
ARTHUR C. MENIUS, JR., Ph.D. ..... Dean, School of Physical Sciences and Applied Mathematics

Heads of Participating and Cooperating Departments

EDGAR J. BOONE, Ph.D. ..... Adult Education
C. CAYCE SCARBOROUGH, Ed.D. ..... Agricultural Education
C. EDWIN BISHOP, Ph.D., 1957-1966 ..... Economics
WILLIAM D. TOUSSAINT, Ph.D., 1966- ..... Economics
DAVID D. MASON, Ph.D. ..... Experimental Statistics
DURWIN M. HANSON, Ph.D. ..... Industrial and Technical Education
ROY N. ANDERSON, Ph.D. ..... Occupational Information and Guidance
PRESTON W. EDSALL, Ph.D. ..... Politics
HOWARD G. MILLER, Ph.D. ..... Psychology
SELZ C. MAYO, Ph.D. ..... Sociology and Anthropology

Center Administration and Research Personnel

JOHN K. COSTER, Ph.D. ..... Director, 1966-
SELZ C. MAYO, Ph.D. ..... Acting Director, 1965-66

Professors

ROY N. ANDERSON, Ph.D. ..... Occupational Information and Guidance
HERBERT M. HAMLIN, Ph.D. ..... Education
C. CAYCE SCARBOROUGH, Ed.D. ..... Agricultural Education

Associate Professors

HARRY G. BEARD, Ed.D. ..... Agricultural Education and Sociology
NORMAN M. CHANSKY, Ph.D. ..... Education and Psychology
LAWRENCE W. DRABICK, Ph.D. ..... Sociology and Anthropology
DONALD W. DREWES, Ph.D. ..... Psychology
LOREN A. IHNEN, Ph.D. ..... Economics
C. PAUL MARSH, M.S. ..... Sociology and Anthropology
TEXTON R. MILLER, Ph.D. ..... Agricultural Education
CARL A. MOELLER, Ed.D. ..... Industrial and Technical Education
TALMAGE B. YOUNG, Ed.D. ..... Industrial and Technical Education

Assistant Professors

C. DOUGLAS BRYANT, Ed.D. ..... Agricultural Education
ADGER B. CARROLL, Ph.D. ..... Economics
ROBERT M. FEARN, M.A. ..... Economics
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CHARLES H. ROGERS, Ed.D. ..... Coordinator of Services and Conferences
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*SMALLER COMMUNITIES PROGRAM

The Program, operating in 22 states, utilizes mobile teams of interviewer counselors, and test administrators and is an employment service effort to overcome high unemployment rates in rural areas. The team makes comprehensive studies of manpower resources for informing potential employers, developing vocational training programs, and planning community expansion. Reprints from the "Employment Security Review" and "Employment Service Review" illustrate the various aspects of the program in actual operation. "Smaller Communities Program Brings New Industries" describes programs in Wilkes and Meriwether Counties, Georgia. "Arkansas Serves Rural Youth" tells of the employment service's counselor going beyond his usual role to do the kind of counseling usually done by the school counselor in other communities. "Smaller Communities Program" describes the development, functions, and some specific results of the program. "A Community Awakens" details the economic growth of Covington County, Mississippi. "How the Future Looks Brighter" tells the story of how one man in Davis County, Iowa, was served by the program, and "Help for the Individual" summarizes the program's work in Rusk County, Wisconsin, in job placement and cooperation with employment service offices in other areas. States and counties receiving the services of the program by September 1967, and Bureau of Employment Security affiliates in the states are listed. (JM)

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SMALLER COMMUNITIES PROGRAM

VT003311

U.S. DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary
MANPOWER ADMINISTRATION
BUREAU OF EMPLOYMENT SECURITY

RURAL AMERICA--MESSAGE FROM THE PRESIDENT

Parity of Opportunity for Rural America

When the rural citizen, his community, business and government cooperate, the chances for a better rural life increase. Local leadership, and initiative are necessary if rural development is to keep pace with the needs of the people. But government can and should provide information as well as the technical and financial assistance which will speed progress.

Reaching Out to Rural Areas

Since it is clear that an administrative office for each Federal agency or program cannot and should not be established in every county, a method must be developed to extend the reach of those Federal agencies and programs which should, but do not now, effectively serve rural areas.

Lyndon B. Johnson

PRESIDENT OF THE UNITED STATES

February 4, 1965

Smaller Communities Program

EACH year rapidly changing technology in agriculture, mining, and forestry contributes to the disappearance of over 200,000 jobs (farm and nonfarm) in rural areas already stricken with an unemployment rate that was in 1962 one-third higher than that for the Nation.

Individuals trained and experienced in typically rural occupations find themselves suddenly with no market for their skills. They are handicapped further by a lack of knowledge of urban ways, job opportunities, and requirements. The problem extends to each graduating class in thousands of rural high schools.

Although there are about 1,900 local offices in the Federal-State employment security system, serving 3,047 counties, many of these offices are small and, because of limited placement opportunities existing in rural areas, they provide only claims-taking services for unemployment compensation. Most rural people who seek employment in urban labor markets do so without employment service assistance that could help them find prospective employers.

The Smaller Communities Program, which was operated on an experimental basis in several States from 1959 through 1961, has developed into an effective, economical means of extending the full range of employment services to rural areas and has been accepted as a continuing part of employment service operations. The program is presently operating in 14 States, and 42 rural counties have received the services of a mobile team of interviewers, counselors, and test administrators.

Utilizing a mobile team the program is initiated in a community at the request of local leaders. The program has enjoyed such an enthusiastic reception that often over 50 percent of a community's labor force is registered in the occupational survey conducted by the mobile team. The techniques developed for this program are designed to provide needed services to both the community and the individual.

The program helps community development organizations by making a comprehensive study of the manpower resources of the area, including information on the potential skills of the work force. This information on potential skills is of particular interest to prospective employers and can also be used in developing vocational training programs under existing Federal and State legislation. The program also assists these development groups in making a detailed study of the other resources of the area which can be used by the community in planning for the expansion of job opportunities.

The program helps individual residents of rural communities by providing them with the services—counseling, testing, and placement—of a regular local employment office. Each individual in the labor force has the opportunity to discuss his work plans with a professionally trained employment counselor. Training may be made available to applicants under the Area Redevelopment Act or the Manpower Development and Training Act. Applications and test results are turned over to the nearest regular local office for continued service.

By the time the team moves on to serve another rural county (after 3 to 4 months), the community has received help in developing employment opportunities where this is possible, and every employment service tool has been made available to its employers and citizens.

The articles which follow illustrate all these various aspects of the Smaller Communities Program in actual operation.

Smaller Communities Program Brings New Industries

S. HOYTE BLACKWELL

Through an active Smaller Communities Program, a manpower survey of employment potential in rural communities is helping to bring new industry and jobs to areas of low employment.

In spite of relatively low unemployment rates in Georgia metropolitan areas, several rural communities have experienced a lack of local job opportunities. Although the Georgia State Employment Service has extended its services to every county in Georgia, its success has been retarded for a long time in certain rural areas, largely because of a lack of placement potential. The problem was not a failure to recognize the obstacles to economic development. Local officials and Employment Service personnel were aware of the generally low family income and underutilized labor force but often experienced some difficulty in evaluating the communities' assets and resources sufficiently to attract new industry.

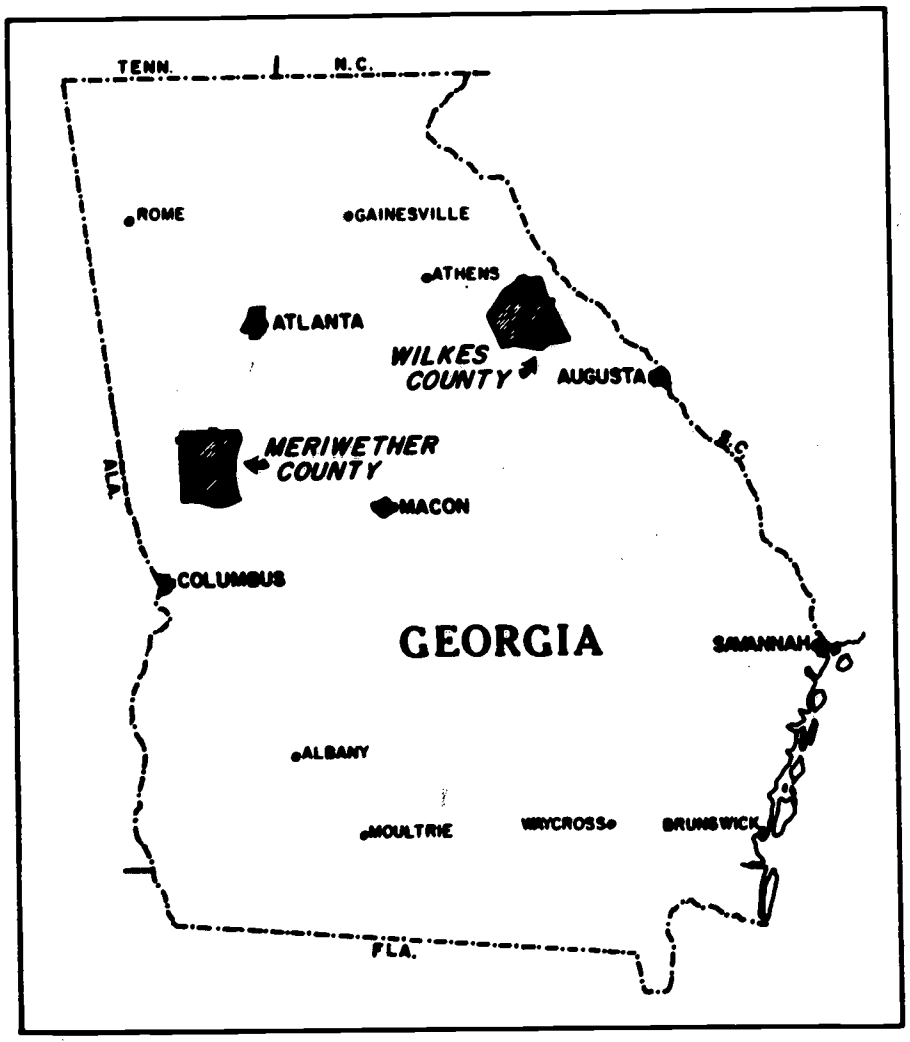
Georgia's recently expanded program of services to smaller communities offers a broad range of services, planned to insure the flexibility necessary to meet the individual needs to these areas. Since the communities face varying economic problems, the program was tailored to meet the specific requirements and potentials of each area.

Wilkes County Survey

The Wilkes County Smaller Communities Program was undertaken in response to a request to the State Commissioner of Labor by the Executive Director of the Washington, Ga., Development Authority in November 1963. The manpower survey was conducted by a mobile team of five Employment Service personnel as follows: an employment counselor, who also served as the team leader, a labor market analyst, and three employment interviewers.

The Smaller Communities Program was introduced by the program supervisor in December 1963 at a meeting with Wilkes County community leaders. A subsequent meeting was held in Washington, Ga., in February 1964 with representatives of Wilkes County, consisting of local businessmen, civic leaders, public officials, the local office manager serving the area, the mobile team leader, and the program supervisor. Operational procedures were discussed in detail, a sponsoring committee was organized, and plans were made for the program's implementation.

On February 19, the local office manager met with a cochairman of the sponsoring committee to make arrangements with the principals of the two high schools to test and counsel those members of the senior classes planning to enter the labor force upon graduation.



S. Hoyte Blackwell is Supervisor of Employer Relations and the Placement Process, Georgia Employment Security Agency.



Karson Industries, Inc., which manufactures mobile homes, is one of the new industries which have come to Washington, Ga.

The mobile team arrived in Washington—the Wilkes County seat, with a population of 4,440—on February 17. Testing and counseling of the high school seniors began the next day and were completed on March 3. The local newspaper made pictures of the team interviewing and testing at the schools for use in launching the publicity campaign for the manpower survey. A temporary office was opened for application taking, counseling, and testing. Later, temporary facilities for applicant processing were set up in five rural areas of the county.

The initial publicity, consisting of a headlined article in the county newspaper and radio spot announcements, was released on February 13. During the survey, publicity was maintained in Wilkes County by means of front page news stories, radio tapes, personal contacts with the general public, letters mailed to community leaders and rural residents by the County Agricultural Agent, fact sheets given to sponsoring committee chairmen and businessmen explaining the objectives of the survey, and a series of handbills distributed on the streets, at retail stores, and to homes.

In all, 2,467 individuals were interviewed during the manpower survey in Wilkes County. This was about 62 percent of the labor force of nearly 4,000. Applicants interviewed in the office who chose to take the GENERAL APTITUDE TEST BATTERY were scheduled for the test during the last 2 weeks of the survey.

Prior to the beginning of the manpower survey in Wilkes County, an organizational chart outling the various phases of the survey was drafted by the Smaller Communities Program staff. This chart contained a proposed committee to work in all phases of the survey. Its members would be recruited from local businessmen, civic leaders, and employees in various fields of work. This draft was adopted by the local sponsoring group in Wilkes County.

The sponsoring committee was headed by a general chairman whose responsibility was to coordinate the overall activities of the committee. A publicity chairman was appointed to handle publicity prior to and during the survey. An economic data chairman was selected to gather the information necessary for the Economic Base Report. Group cochairmen were appointed to work with the following industry worker groups in the county: Government; finance, insurance and real estate; civic organizations; contract construction; manufacturing; agriculture, forestry, fisheries; transportation, communication, electrical and gas utilities; service; wholesale and retail trade; unemployed workers and the general public. Because of the large number of persons in the governmental and manufacturing groups, deputies were appointed to assist the cochairmen of these two groups.

The duties of the cochairmen were to inform the employers and workers in their respective groups of the nature and purpose of the survey and to solicit their cooperation personally while the team was in the county. Most of the officers of the various committees were employers and employees within their respective areas of responsibility.

Each cochairman contacted the employers and employees in his group to set up a schedule for the mobile team to conduct on-the-job interviews. The mobile team later gave each employer application cards for distribution to his employees. Each employee was asked to take home an







Washington Post photos

The Smaller Communities Program may be able to make the future brighter for these Georgia workers.

application, complete it, and bring it back the next day. Space was made available in each establishment for personal interviews to be conducted at a date and in a manner which would not interfere with the operations of the establishment.

The mobile team began on-the-job interviews on February 24 and completed them on March 21. More than 1,700 applications were completed.

An important phase of the Smaller Communities Program in Wilkes County was the collection of information and statistics used later in the preparation of a comprehensive Economic Base Report. The ES labor market analyst worked closely with the sponsoring committee cochairman who was responsible for gathering pertinent economic resource data throughout the Wilkes County Study. A questionnaire type of information request was used to obtain data to assure that all significant questions were answered.

The Georgia State Employment Service has agreed to provide the Wilkes County Chamber of Commerce with a comprehensive report covering the tabulations of an Occupational Potential Inventory and an Economic Base Report for Wilkes County. The Employment Service has further agreed to interpret this material for this group and has made itself available to assist them in its use.

Two weeks prior to the close of the survey, Karson Industries, Inc., manufacturers of mobile homes, announced plans to locate in Washington, its first new industry in 15 years. Later this firm was approved for an ARA–OJT Program. Applications of the unemployed and underemployed taken during the survey are now being used to recruit staff for this new plant which is expected to employ about 150 men.

Copies of an Occupational Potential Inventory of Meriwether County were presented to the county's Industrial Development Committee in November 1963. This inventory has been used extensively in discussions about the available labor supply with industry representatives who were interested in locating in Meriwether County. The Employment Service office serving this county has worked very closely with five such employers. The county Industrial Development Committee has succeeded in attracting another employer—H. Goodman and Sons, Inc.—to Meriwether County. The local office manager believes that the Occupational Potential Inventory was a major factor in the decision of this plant to locate there.

Arkansas Serves Rural Youth

JAMES SELLERS

In bringing service to youth under the smaller communities program, the Employment Service counselor sometimes finds that the small rural high school does not have a school counselor. As in this case, the ES counselor may go beyond his usual role to give the kind of counseling usually done by the school counselor in other communities.

The Arkansas Smaller Communities program operates chiefly in rural and underdeveloped areas. Although the program is not designed primarily for rural youth, it has adjusted its operation to encompass their special needs. Young people in these areas have many problems and obstacles to overcome in achieving full and gainful employment which are not often encountered by urban or urban-educated youth.

Rural youths are often educated in small, understaffed schools lacking adequate counseling facilities. They are isolated from the industrial sections of the State and are not aware of the need for special education and training to compete successfully in the labor market. Normally, they are not exposed to college and university facilities and do not realize the benefits which accrue from further education.

These young people seldom hold part-time or summer jobs, other than on farms or in agricultural occupations. Most of them do not know how to secure a job, or the job requirements in different occupations. They rarely know how to prepare themselves for employment in business and industry. Most rural youths have had no contact with the Employment Service and have no knowledge of its services or operations. Many do not realize the value of aptitude tests and occupational counseling.

Historically, these areas have absorbed their labor force in farming and agriculture-supporting occupations. With the decline of farming operations and increased mechanization of the remaining farm jobs, there are not enough jobs to go around.

Young people who enter the labor market, either by graduation or by dropping out of school, have little choice but to:

1. Leave the area to seek permanent work in the more industrialized sections of the Nation; or

2. Join migrant, or seasonal, farm and harvest workers, who each year leave their homes to work a few months and return home during the off-season; or

3. Stay at home and compete for the few jobs that are still available—often at substandard wages.

The ideal answer to this dilemma would be the industrial and economic development of these areas with expanded opportunities to give the residents a suitable choice of jobs at home. Until this happens, there remain an opportunity and a challenge to the agencies and people concerned with these problems. We must inform, educate, and acquaint the youth of these areas with the problems ahead and arm them with information which may be used to overcome these obstacles.

A concerted effort is made by the Employment Service to register and test all senior students who will enter the labor market in each high school of the county. Temporary offices are set up in the school. Testing and counseling of 11th and 12th graders are accomplished by following the regular procedures for the ES graduating senior program. Since many of these students are not familiar with employment service functions, a detailed informational meeting precedes the testing sessions. The students are told that the work application and test records will be kept in the local office serving the area, and they are urged to contact that office for additional counseling or other assistance in securing a job.

The counseling interview obtains as much information as possible concerning the student's background, environment, financial status, and pertient occupational and educational data. Those students who seem to be potentially qualified to perform college level work and are interested are given all available information regarding existing colleges and universities in the area. Requirements for admission, the general curriculum, and average costs are discussed in detail as needed. If appropriate, the various scholarships, loans, and other assistance available are explained to the student, and, if possible, he is told whom to contact at each institution. This is a kind of counseling usually done by a school counselor in larger communities.

For the students who do not appear qualified for college or are not interested in more formal education, emphasis is placed on information related to securing full-time permanent employment. Basic information about various trades and occupations is given. Location of employment opportunities, general hiring requirements, ways and means of securing training or experience, trade school locations, and information on MDTA and ARA training are given in detail.

An example of the additional service rendered to rural youth is that given to a red headed, freckle-faced, 17-year-old senior, whom we shall call Bill. He was tested and counseled by the Employment Service in a small rural school in Randolph County, Ark., with 12 other members of his class. Bill's test results, in learning ability, placed him in the 98th percentile of the general working population. Some of his other scores were even higher.

During the interview it was learned that Bill had previously participated in a national high school achievement test administered in his school, and that he had been made eligible for a 2-semester scholarship at a nearby

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James Sellers is Rural Area Representative, Smaller Communities Program, Arkansas Employment Security Division.



Parents and children take the GATB tests in a rural church house.

State college. However, Bill had no plans to take advantage of his scholarship. In fact, he was planning to go to the west coast after graduation to work in the fruit harvest. He planned to return home during the off-season and work with his father cutting timber for local sawmills.

Continued interviewing revealed that Bill actually was interested in engineering, but did not believe that he would be able to attend college because of the cost. As the counselor gained Bill's confidence, he found that Bill wanted to go to college but that he had not discussed college with his parents because of the expense. Bill also admitted that he had no idea of what a college education would cost, but he knew it was a "tremendous amount of money."

The counselor contacted the school principal and learned that Bill was a straight "A" student, but the faculty was convinced that he would not go to college because of his background.

Bill's parents were uneducated and lived in a remote rural community, 20 miles north of the school. Since the Smaller Communities crew was scheduled to operate in that community 2 days hence, the counselor asked Bill if he would object to a conference between the counselor and his parents regarding his future. Bill agreed to encourage his parents to come to the temporary office in the community for a conference.

Two days later, Bill's parents came to the temporary office to participate in the Smaller Communities program. They were middle-aged migratory harvest workers. The father was functionally illiterate; the mother could read and write well enough to complete an application. The counselor who had interviewed Bill interviewed each separately and found that Bill had encouraged them to come in to register in the Smaller Communities program but had not told them of his discussion with the counselor.

After the application interview, the counselor asked the parents to join him in a private discussion concerning their son.

The counselor explained the GATB, and told them about his interview with Bill. He also informed them of the 2-semester scholarship for which Bill was eligible. Both parents said that they did not know anything about college but would like to know. They did not know the length of a college course, what a semester is, or how long it takes to complete a college education.

The counselor then discussed general information about college training, courses offered, and cost in both State-supported and private schools. The parents were surprised to learn that the total cost per year was only a fraction of what they imagined it to be and that their son might be eligible for a scholarship or a loan. Their interest increased when they were told that it was possible for a student to secure a part-time job and actually pay a major portion of his college expenses.

As the parents became aware of all these facts they began to get excited at the prospect of their son's attending college. They stated that they had discussed the possibility between themselves, but had given up hope because they did not think it financially feasible. They did not know where to go or whom to contact to get information.

They asked the counselor to make preliminary contacts at the nearby colleges to determine the possibilities of Bill's getting additional help. The two local colleges expressed interest and willingness to help him, and Bill and his parents were put in touch with the Dean at each school. It has not yet been determined that Bill will enter and complete college, but at least he will have a chance.

Although such services do not always reap immediate benefits, the long-term gain in status and goodwill can be immeasurable, both to the individuals concerned and to our country as a whole.

The needs of some areas and students are more evident than others, but all will remain until someone works with the rural youth of our country to inform and enlighten both the young people and their parents.

SMALLER COMMUNITIES PROGRAM

IN AN effort to promote better utilization of human resources in rural areas, the United States Employment Service in cooperation with affiliated State Employment Services launched a new venture in 1962—the Smaller Communities Program. The overall objectives of this program are to assist in the economic development of these areas and the occupational adjustment of individual residents. The specific actions through which the overall objectives will be sought are: (1) determination of current and potential manpower resources of the area; (2) assistance in evaluating the overall economic resources of the area; (3) cooperation with other agencies and community groups in developing a program for economic development; (4) provision of employment counseling and placement assistance to individuals for jobs within or outside the area; and (5) determination of area training needs and training potentialities of individuals.

Both the Smaller Communities Program and the Community Employment Program (discussed on page 105) are concerned with community employment development. They differ in that the Smaller Communities Program is responsible for bringing this community type of service, as well as placement, counseling, testing, and other employment services to areas far from a regular local office's "area of active service."

Nonurban counties across the Nation have been affected both by changes in consumer demand patterns and by the technological revolution in agriculture and in other primary production industries, such as forestry and mining. The decline in employment opportunities has been compounded in some areas by the exhaustion of natural resources. At the same time many small towns and rural points in the United States have not been receiving a full measure of help from the Employment Service because of their distance from the nearest local office and their lack of job opportunities and, consequently, of placement potential. The economic life of many of these areas is characterized by low family income and an underutilized labor force. Residents have been at a disadvantage in seeking nonfarm employment because of remoteness from metropolitan centers, often inadequate general and/or vocational education, lack of specific knowledge of employment possibilities, and unfamiliarity with urban and industrial ways.

This is the kind of area the Smaller Communities Program is designed to serve. As currently constituted, the program is extended to areas which do not contain a city of over 50,000 people and in which at least half of the population is rural farm or rural nonfarm and at least 10 percent of the labor force is engaged in primary production (agriculture, mining, fishing, lumbering) *or* if no more than 10 percent is engaged in manufacturing.

The USES and its affiliated State agencies, responsive to local manpower problems, identified themselves with the problems of rural communities during the spring and summer of 1958. The U.S. Departments of Agriculture (USDA) and of Labor (USDL), involving principally the Agricultural Extension Service and the Bureau of Employment Security, explored the idea of a joint USDA-USDL State agency "pilot" undertaking to generate and test methods for providing assistance to low-income, high unemployment, rural areas. The BES sought to adapt its operating programs of placement, counseling, testing, labor market information, and employment development to the needs of these areas. The central concept of the joint undertaking, called the Experimental Rural Area Program, was to explore the contribution the Employment Service could make in helping residents of rural low-income areas to recognize the need for appropriate economic adjustment and to plan and take action to achieve it.

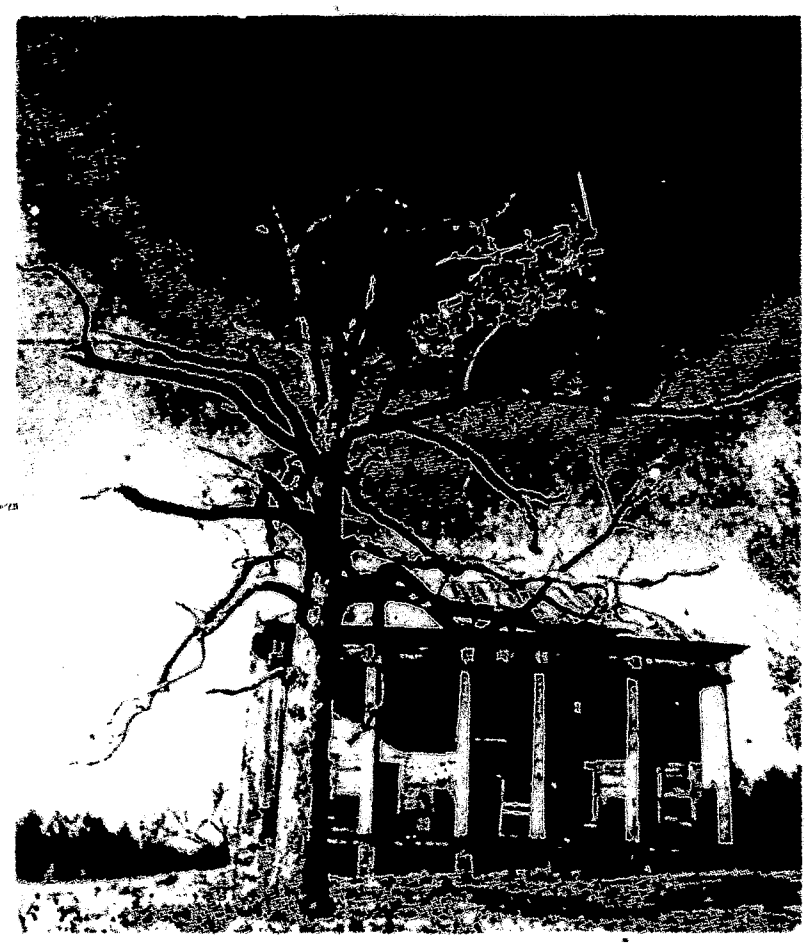
Four States were selected jointly by the two Departments for participation in the program—Arkansas, Kentucky, Tennessee, and Wisconsin—and a

Many are unemployed—the smaller communities program tries to help.





Typical of many small rural towns. The filling station (far left) has no gasoline and the store is open, but does little business. The building at right is the post office.





HANSEL SPARKS lives in a small Ozark Mountain town—Clarksville, Ark.—with his wife and child. At 21, Hank had been employed in several different jobs with little challenge or future. It seemed that his town just did not have an opportunity for him until a mobile team of interviewers and counselors from the Arkansas Employment Security Division set up temporary headquarters there.

Hank decided to take advantage of the employment services which were newly available in his home county. He went to the local school building where the mobile team was interviewing and counseling people at a night session and completed the GENERAL APTITUDE TEST BATTERY and the INTEREST CHECK LIST. A counselor probed into Hank's sketchy work history but could find nothing indicative of his potential. As the interview progressed, however, it was obvious that Hank, in addition to his good personal appearance, had an excellent resonant voice and a good vocabulary and was basically creative. He and the counselor discussed possible fields of work and Hank indicated that he might be interested in radio and television announcing and writing articles, scripts, or other material. He had never before had the opportunity to consider this type of work seriously.

Hank was referred to the local radio station to fill an opening for an announcer. He got the job—a result of the testing, counseling, and job development provided under the Smaller Communities Program. The employer is well pleased with his new radio announcer, as is Hank with his job. With diligent practice and study, Hansel Sparks expects to make his mark in this dynamic and challenging field of work.

—JAMES W. HARRIS, JR., *ES Rural Area Representative, Arkansas Employment Security Division.*

FULTON COUNTY, Ark., was an area determined to be in need of the type of services provided by the Smaller Communities Program. The nearest ES local office was in Batesville, 56 miles away. The county was suffering from a declining population, a high unemployment rate, and outmigration of its youth.

The Rural Area Representative and the residents of this county went to work on the problems confronting them. Countywide meetings introduced the program to the people. Both the employment service and the economic development aspects of the program were explained. The mobile team went to 21 communities in the county, and in 2 months, registered 60 percent of the workforce of 2,069. The Rural Area Representative personally visited those living in the most remote mountain sections. An occupational inventory of the manpower in the area was compiled and used with the other economic data collected by the members of the development committee in planning an action program.

The results, as of early 1963, have been phenomenal. Baxter Laboratories, Inc., using the manpower inventory in determining labor supply, is locating in the vicinity. A large apparel plant, originally attracted to an adjacent area by a preceding Smaller Communities Program, is now expanding, creating new jobs for Fulton County. Negotiations are underway with plastics, shoe, and men's accessory manufacturing plants.

The county, too, is giving itself a "face-lifting." A hospital and a clinic are being constructed—the first in this or any adjoining county—schools are being modernized and expanded, and a new sewer system is being built in the town of Salem.

IN THE small town of Hurley in Iron County, Wis., 600 miners were laid off at the Montreal Mine. At the request of the Governor and the Industrial Commission, the mobile team of the Smaller Communities Program was sent in to provide employment services. Because the situation was urgent, the team worked day and night to process all the miners involved, and then the team members continued to interview, test, and find jobs for them and for other people in the area. Rough folding tables set up in rent-free quarters were used as desks. Poor lighting and inadequate heat often hampered the process. The five-man crew obtained 786 new applications for work, tested 408 persons, and conducted 509 counseling interviews. But the most important accomplishment—and an amazing one in light of the economic conditions existing in the county—was the 220 placements. In addition, through the efforts of this crew, applicants were selected for training under the Area Redevelopment Act.

committee of Employment Service and Extension Service representatives was formed in each State to select the rural low-income area in which to operate. Starting about mid-1959, a house-to-house survey was conducted and a specially designed applicant registration-testing-counseling procedure to identify and inventory the occupational potentials of jobseekers was used by temporary experimental local offices in each area. Approximately 10,000 persons filed applications for employment in the four offices and about 7,000 were counseled and 8,000 were given ES aptitude tests. Nearly 500 job openings were found in the areas and about 300 residents were placed in jobs in their own localities. As a further development of the program, new plants were opened in two of the areas. Community development organizations were initiated or rejuvenated in all four.

Using the experience acquired in the Experimental Rural Area Program, an ES work committee, composed of State agency and USES staff, developed guidelines for a continuing program of services to rural, low-income areas remote from local offices. This new effort, which has been in operation for about 1 year, is the Smaller Communities Program. It continues to operate in close cooperation with related programs of the Departments of Agriculture and Commerce.

Each State ES agency participating in the program adds to its staff a Rural Area Representative to direct a mobile team of experienced interviewers and counselors and a labor market analyst in bringing their services to smaller communities. When an area has been selected for service because of its nonurban character and its need for manpower assistance, the Rural Area Representative discusses the objectives of the program with local leaders and pinpoints their responsibilities in the operation of the program. After assuring local interest, support, and leadership, he obtains cooperation in providing rent-free space for the mobile employment service team. It is essential that community leaders also cooperate in gathering information about the economy of the area and in encouraging applicants to register with the mobile team.

Under the general direction of the Rural Area Representative, the mobile team of interviewers and counselors works in the area, usually for 3 or 4 months, registering, testing, and counseling the underemployed and the unemployed, and assigning occupational codes based on both experience and potential. The occupational codes are tabulated in two arrays. One reflects the work experience of members of the labor force, while the other represents the potential for occupations which might become available if the economy of the area were expanded. This Occupational Potential Inventory gives an overall picture of the area's manpower resources and becomes an essential part of the Economic Base Report for the community.

The Base Report, in turn, in the hands of the local economic development group, is a valuable tool for initiating employment expansion plans which are realistic in terms of the area's assets. It can be used to develop promotional materials for use in attracting new industries and may form the basis of an Overall Economic Development Program necessary before an area can qualify for assistance under the Area Redevelopment Act. By interpreting the potentialities of the work force in the community, Employment Service staff members frequently prove to be key figures in assisting community leaders in arriving at sound economic development plans and in making training proposals under the Manpower Development and Training Act and the Area Redevelopment Act.

When the mobile team leaves an area, all applicant and employer records are turned over to the local office regularly having administrative jurisdiction over the area. This material appreciably facilitates rendering future employment services to residents of the area. The Rural Area Representative maintains regular contact with the community leaders to help them in their continuing employment development activities. He provides information on Federal programs of value in local community employment development, and ensures that followup counseling and placement services are recognized and provided.

The Smaller Communities Program is in operation in rural low-income areas characterized by declining employment opportunities. Although these communities have succeeded in attracting a wide variety of industries, ranging from poultry processing to drug and rubber manufacture, not all rural areas can hope to develop a sufficient number of job opportunities for all their unemployed, underemployed, and young people entering the labor market. It is in relation to this problem that the program offers particular benefit by providing thousands of rural people with information on the possibilities of employment in surrounding areas through counseling, testing, and referral services.

The program encourages the development of local job opportunities, and, at the same time, supplies vital information and guidance to rural people who may not otherwise receive such services from distantly located employment offices. This two-pronged effort, employment development and on-the-spot applicant services, is a fresh approach to the employment problems of rural communities.

A Community Awakens

By **RALPH W. ALEWINE, JR.**
Chief, Community Employment Programs
Mississippi Employment Security Commission

WHAT happens when a quiescent community suddenly awakens to its potential for economic growth?

This question was answered dramatically in Covington County, Miss., when the citizenry realized that industrial growth was necessary for economic improvement. The Services to Smaller Communities Program of the State Employment Service played no small part in stimulating interest in planning for economic growth in Covington County.

The community realized that it could not cling to the past. Change was inevitable and only positive actions could keep it from being changed for the worse rather than for the better. Additional employment opportunities were needed to combat a continuing decline in population and labor force. As a result of community awareness, the area has obtained three new industrial plants which employ approximately 500 persons.

The Services to Smaller Communities Program was initiated in 1962 in an effort to promote the economic betterment of rural, low-income areas, and to promote the occupational adjustment of their individual residents. Specific objectives of the program are: (1) to assess the current and potential skills of the manpower resources of an area; (2) to assist in evaluating the overall economic resources of an area; (3) to cooperate with other agencies and community groups in developing a program for economic development; and (4) to provide employment counseling and placement assistance to individuals for jobs within or outside the area.

Covington County is favorably located in south-central Mississippi. Some of the South's major metropolitan markets are nearby: Jackson, Miss.—60 miles; New Orleans, La.—130 miles; and Mobile, Ala.—125 miles. Two major U.S. highways traverse the county: U.S. 49—northwest to southeast; and coast-to-coast U.S. 84—east to west. Suitable railroad transportation is available and commercial airports are within a 30-mile radius. The area is interlaced with six pipelines which carry natural gas and petroleum from oil fields and refineries in Louisiana and Mississippi to markets in the Northeast. The primary natural resources are petroleum in recently discovered fields, rock salt, forestry—and people who are anxious to utilize their potential skills.

Despite the advantages enjoyed by the area in location, climate, transportation, and resources, there have been limited industrial employment opportunities. In fact, the only manufacturing plants in the area before 1962 were wood-using industries where employment has fluctuated precariously.

Why Covington County?

Covington County was selected for a Smaller Communities Program for a number of reasons. The area was rural in character with all of the population being classified as either rural-farm or rural-nonfarm. Total population declined from 16,036 in 1950 to 13,637 in 1960, a drop of 15 percent. The median family income in 1960 was $2,197, which was below the statewide average of $2,884 and considerably below the nationwide average of $4,806. The average rate of insured unemployment during the period 1950–1961 was 21 percent.

In early 1962, representatives of the Mississippi Employment Security Commission discussed the possibilities of the Smaller Communities Program with the Mississippi Extension Service Program Leader for Rural Areas Development. Several counties, including Covington, were considered. It was agreed that no program would be undertaken in any area without the wholehearted backing of all agencies and community organizations. Of those being considered, Covington County was the first to be recommended for a Smaller Communities Program.

Planning the Program

Through the County Agent, the Extension Service Program Leader arranged a meeting of the executive committee of the Rural Areas Development (RAD) organization. The Rural Area Representative (RAR) from the State office and the manager of the Hattiesburg local ES office attended this meeting. The proposed Smaller Communities Program was explained and the necessity for cooperation was stressed. All concerned welcomed the program.

The Covington County RAD organization is headed by a young dentist, Dr. Harlan Rogers, who wants to see the county come out of the doldrums and provide additional employment opportunities to hold the



Approximately 400 Covington County residents have found employment in this new million-dollar poultry plant which has a capacity for processing 8,000 birds per hour. This plant, along with two other new industrial plants, was staffed by the Hattiesburg local office from applicants who were given aptitude tests during the operation of the Smaller Communities Program.

young men and women in the county He and the executive committee agreed to back the program by taking whatever action was necessary to insure full participation by the county populace.

Later, the Rural Area Representaive met with the entire membership of the Covington County RAD organization and explained the purposes of the program. The members, who have varied interests and come from all sections of the county, could carry the story back to their own areas.

In Mississippi, a county Board of Supervisors is the governing body of each county. The Rural Area Representative attended a regular meeting of this Board, explained the program, and obtained its backing. The Board agreed to furnish office space in the courthouse at no expense to the employment security agency.

The groundwork had now been laid. Communications had been established with local leaders. Enthusiasm had been generated among community leaders. Active support was promised by all community organizations. It was time to carry out the plan of operations.

The Experimental Rural Area Program which had been conducted in Jefferson County, Miss., provided a wealth of experience for conducting the Smaller Communities Program. Generally, the program in Covington County would be conducted along similar lines.

The Hattiesburg local office, which has geographic jurisdiction over Covington County, furnished an experienced interviewer to direct the mobile team in the applicant services phase of the project. Followup assistance in referral, placement, and counseling activities, as well as community employment development, would be provided by that local office.

The mobile team was composed of a group supervisor (an experienced interviewer) and seven local persons who were employed as temporary interviewers. The presence of local persons on the team helped to assure acceptance of the project and greatly assisted the Rural Area Representative. The RAR and group supervisor carefully selected the local team members from tested applicants recruited by the Hattiesburg local office. Following 2 weeks of intensive training in application-taking, occupational classification, and occupational testing, the team was ready to work with the public.

The county courthouse in Collins served as a base of operations, but this type of program must be carried to the people. The local Rural Areas Development executive committee recommended communities

where sessions might be scheduled and suggested individuals in the various communities who might assist in getting groups to participate. The Rural Area Representative then visited these communities and arranged schedules with local leaders.

The program in Covington County was truly mobile; 53 sessions were scheduled in 21 different localities. All types of facilities were used—abandoned school buildings, empty store buildings, churches, the National Guard Armory, community centers, and even private residences. A rented trailer carried knockdown tables, folding chairs, test equipment, and all the other needed paraphernalia.

The mobile team arrived at a selected point at least 30 minutes ahead of schedule and set up its equipment. As applicants arrived, they were asked to fill out a self-application and to complete an Interest Check List. Then came a completion interview with each applicant.

All applicants were given Parts 8–12 of the *General Aptitude Test Battery*. However, some applicants were not able to participate in the verbal portions of the GATB because of limited education. It was sometimes necessary to divide the applicants into two groups at this point. Applicants with less than a sixth grade education were given the Revised Beta Examination. The others were given the remaining portions of the GATB.

The entire application and aptitude testing process lasted approximately 3½ hours. Where the size of the group permitted, tests were scored, converted, and recorded, and preliminary appraisal interviews were held with the applicants immediately. If this could not be done within reasonable time limits, applicants were encouraged to go to the temporary office in Collins for full appraisal interviews. An appraisal form was mailed to all applicants who did not report to Collins.

Publicity plays a vital part in the success of the Smaller Communities Program. The mobile team prepared a series of news articles for publication in the weekly newspaper; handbills were developed and circulated; announcements were made at local "Trade Day" drawings; and the RAR and mobile team supervisor spoke before the civic clubs of the county.

After two successive sessions in a fairly large community produced only a few applicants, the mobile team was called in for a roundtable discussion. It was decided that the people as a whole did not understand fully the program and that the approaches used had been largely impersonal. As a result, a form letter detailing the purposes of the program was sent to the 2,500 homeowners in the county. A schedule of operations was also enclosed. The homeowner was asked to look over the schedule, select a place and time to report for registration, and return to the temporary office a self-addressed card showing his selection. The response of the homeowners was excellent, and the mobile team had a sufficient supply of applicants for the remainder of the project.

A variation of this approach has been used in subsequent studies, but the basic idea of a personal communication remains the same. In subsequent operations of the Smaller Communities Program, an extensive preliminary manpower survey has preceded the comprehensive manpower study. The general populace is urged to report to any one of several registration points during a 2-day survey to complete simple survey questionnaires. This type of survey serves two purposes: (1) it provides local leaders with an immediate assessment of the labor supply, and (2) it provides a register for use in writing applicants to report for the comprehensive study.

Another important phase of the Smaller Communities Program is the collection, analysis, evaluation, and dissemination of economic resource data. The analysis of this information in an Economic Base Report will enable the community to make plans to utilize its resources effectively. In Covington County, the first steps were to determine what information was needed and how it could be obtained. This led to the development of an outline for economic base information. This outline was used by the Rural Area Representative and RAD organization in determining the sources of information.

A questionnaire type of information request was also developed for each topic in the outline to facilitate the gathering and compiling of information. This type of approach also standardized the responses and assured that all significant questions were answered.

The Covington County study elicited a high percentage of participation by the citizens. Applications were taken on 1,581 area residents, representing 34 percent of the labor force and 22 percent of the population between 16 and 65 years of age. The aptitude testing of 1,351 applicants enabled the interviewers to assign 6,195 potential occupational codes.

The tabulation of occupational potential data was no small task. Before the applications could be tabulated into the Occupational Potential Inventory, the Hattiesburg local office had immediate need of the applications for staffing a garment manufacturing plant and a poultry processing plant. This need led to the developing of a procedure whereby data from the applications could be transferred to program sheets for machine tabulation. In addition to saving countless hours of hand tabulating, the procedure permitted the immediate transfer of applications to the local office for further applicant services. The Occupational Potential Inventory is now prepared exclusively from the program sheet and is often completed within a week of completion of a Smaller Communities Program operation.

Three new industrial plants in Covington County have been staffed completely with test-selected applicants by the Hattiesburg local office. Most of the applicants had taken the complete GATB during the occupational potential survey. It was not necessary, therefore, to administer specific aptitude tests to this group.

Prior to the Smaller Communities Program in Covington County, service to the area was limited main-

ly to claims activities. Since the Smaller Communities Program was completed, the Hattiesburg local office has received 36 orders which resulted in job referral for 1,221 Covington County residents; 634 of them have been placed.

Covington County is one of 59 counties in Mississippi which has been declared eligible for assistance under the Area Redevelopment Act. An Overall Economic Development Program (OEDP) is necessary to qualify for assistance under this act. The Economic Base Report for Covington County served as a basic document for the Covington County Development organization in preparing this OEDP. The local organization prepared a supplementary report on problems, needed adjustments, area goals, and programs of actions. Many of the goals proposed by this organization have been attained—for the betterment of the community as a whole.

New Industry Comes In

As stated earlier Covington County had little industry prior to the operation of the Smaller Communities Program. In mid-1962, Movie Star, Inc., expanded its Mississippi operations and established a new plant in Collins. The Collins plant, which manufactures children's lingerie, doubled in size and is providing employment to approximately 100 women workers.

Collins is rapidly becoming a poultry complex in south-central Mississippi. In the late fall of 1962, the Collinswood poultry plant began operation. This modern plant processes and ships fresh packaged poultry to all parts of the world. In early 1963, a hatchery was added to the operation, and work has just begun on an egg-grading plant which ultimately will employ 60 additional persons in candling and grading 3,600,000 eggs per week. Collinswood is a million dollar complex with a million dollar annual payroll. It is also estimated that egg producers and broiler producers in the area will receive a million dollars each annually. Thus, the operation of this plant will not only provide direct employment for approximately 400 persons but will substantially increase farm income of marginal farm operations.

During the spring of 1963, the town of Mt. Olive obtained its first manufacturing enterprise to occupy a modern industrial building which had been constructed in 1960 under a local bond issue. The Northern Electric Co., manufacturers of heating pads, located in Mt. Olive largely because of manpower information acquired during the Smaller Communities Program.

The town of Seminary will construct a needed waterworks and sanitary sewer system under a $116,000 local bond issue to be supplemented by an ARA grant of $150,000. Seminary has also received a $35,000 loan from the Farmers Home Administration to develop an 11-acre recreational area which will include a modern swimming pool, bath house, and picnic grounds. These community improvements will be an asset in the town's effort to attract new industry, new business, and new residents.

In May 1963, the town of Collins was awarded first place in the Sixth Annual Industrial Awards in Memphis, Tenn., for towns of 2,500 population and under. This award was based upon industrial achievements and community improvements in utility and sewerage system, fire protection, police protection, recreational park, and airport facilities.

The following table of covered employment in Covington County under the Mississippi employment security law graphically shows the changes which are occurring.

Year	Average employment	Total annual wages
1958	576	$1,585,480
1959	621	1,708,968
1960	490	1,450,496
1961	449	1,404,723
1962	536	1,646,000
1963*	785	2,168,060

*Estimate based upon first quarter 1963 average.

Participation in the Smaller Communities Program can awaken community leaders to the need for positive action to increase local employment opportunities. Fully aware of their area's potential and in possession of information on manpower and other resources, local development groups may achieve results as dramatic as those in Covington County.

Labor Survey Helped . . .

Now the Future Looks Brighter

DAVIS COUNTY, located on the Missouri border, was the first county in Iowa to participate in the Smaller Communities Program. The county gave the Iowa Employment Security Commission's mobile team an enthusiastic reception—more than 1,000 Davis County residents registered in the labor survey conducted as part of the program's operation.

The survey, which determined the characteristics of Davis County's labor force, was made at the request of local leaders who wanted facts and figures ready for prospective employers.

Persons who have registered in the survey can receive direct benefits in addition to helping their county. This is illustrated by the story of young Tim Hull, a newly married and unemployed resident of Davis County.

Tim had left high school as a sophomore and worked first as a farmhand, then as a construction laborer. Since this work was only seasonal, he did a bit of everything, working from 8 to 14 hours a day for $1.50 an hour. He ran a jackhammer, and in the last 5½ weeks of employment, he drove a tractor for a paving crew.

Suddenly, Tim found himself unemployed. His wife required hospitalization; his car developed motor trouble. He had to borrow money to carry him over this rough period.

While in high school, where he took vocational agriculture, Tim had considered going into farming when he got out of school. But he changed his mind because "it costs so much to go into farming anymore."

Another reason for his change of mind was the keen interest he had developed in mechanics. On the farm where he was raised, he and his brothers enjoyed tinkering with machinery and making repairs. He had written to commercial training schools in the hope that he could enroll to develop a mechanic's skills, but he did not have enough money for the courses.

His plans were to go ahead with construction work, add a few tools every year to a stockpile, and eventually become a mechanic.

A breakthrough developed for Tim when he was asked to report for an interview as part of the Smaller



This finger dexterity test given to Tim Hull by Peter Downie of the Iowa Employment Security Commission under the Smaller Communities Program helped to qualify him for a training course as an auto mechanic.

Communities Program labor survey being conducted in Davis County by the Iowa Employment Security Commission. The result of this interview dispelled some of the uncertainty Tim held for the future. Although he had received, in the meantime, three offers for seasonal work, he turned them down. The chance to go to auto mechanics school—and to be paid a modest sum while in training—appealed to him more. "And it will be more secure in the future," he said.

In March of this year, Tim entered a training class of 20 persons in Denmark, Iowa, under the Manpower Development and Training Act. During the 52-week course, he is receiving a $31 a week training allowance and a modest amount for expenses, room, and board. His wife worked on a temporary job as an assembler of small parts and then became a nurse aide to help supplement her husband's income.

When Tim completes the course early next year, he will find employment opportunities and a brighter future waiting for him.

—*Adapted from* The Bloomfield (Iowa) Democrat.

Help for the Individual

By **DON ICKSTADT,** ***Manager***
Eau Claire District Office
and* LYNN BUSS,** ***Mobile Crew Leader
Wisconsin State Employment Service

RUSK COUNTY is faced with much the same problems as other counties in northern Wisconsin. This is an area characterized by very limited job opportunities and little placement potential. The population is declining and growing older, and the primary production industries of agriculture, forestry, and mining have suffered severe contractions. In this rural county, local pride is strong and the subject of wholesale emigration to more favorable job markets, though often acknowledged as necessary, is still unpopular. Though this movement from rural to urban and metropolitan areas is really nothing new, the magnitude of the present movement poses a major item of concern to all rural areas.

The problem is primarily one of guiding people in their otherwise haphazard job search into markets and occupations where talents will not be wasted.

The principal of a Rusk County high school said, ". . . when they graduate, they leave. You may as well be realistic. Whatever you can do to assist them in out-of-area placement, go ahead and do it." To plan for that job "someplace else" and to utilize the network of ES offices is one of the major challenges to the success of applicant-service operations in the northern counties of Wisconsin.

In view of these circumstances, when the State office told the Eau Claire local office that the Rusk County Rural Area Development Committee wanted the mobile crew to work with the high school graduating classes, very careful planning and orientation were needed before Smaller Communities Program operations could start.

However, selection of ARA trainees for an approved sewing machine operator training course had to be accomplished first. Aided by newspaper and radio publicity, volunteer committees recruited and set up appointments. Many applicants were discovered who were eager for training which could be applied to local job openings. The stimulus of job openings proved to be the best inducement for attracting registrants. Twenty sewing machine operators were trained for jobs in a local plant expansion.

Many male applicants were anxious for training, even if it related to jobs in other areas. The Administrative Office sought local office help in selecting welding trainees for a course and subsequent jobs in the shipyards in Manitowoc, a community 250 miles away on the other side of the State. The mobile team certified five carefully selected men. One of them commented, "This means a new start for us." Another had moved, leaving no address. The mobile team finally located him out in the country where he had been forced to move in with his wife's family. He was eager for the training and may be started on a new way of life.

The team soon found that what the high school principal said about the graduates leaving the area was shockingly true. The exodus was a very real thing. Most graduates were leaving for unknown job destinations.

The district office manager at Eau Claire made cooperative referral arrangements with ES offices in St. Paul and Minneapolis and other ES offices in Wisconsin. Though this cooperative program can be improved upon, it is one step toward easing the emigration of youthful jobseekers to the cities. The Smaller Communities Program has enabled the Employment Service to reach many rural youths and to guide their aimless wanderings.

Since the mobile team left the county, some good news has reached the local office. The grapevine carries word that several firms are already inquiring about the area and want to see the manpower profile report on the county. We believe that the report will reveal a county with good manpower potential.

By the end of February 1965, the following counties will have received services from the Smaller Communities Program:

STATE	COUNTY
Alabama	Geneva
Arkansas	Chicot, Drew, Fulton, Independence, Izard, Johnson, Lawrence, Randolph, Saline, Sharp, Stone, Desha
Georgia	Clay, Brooks, Early, Franklin, Gordon, Jeff Davis, Meriwether, Screven, Stewart, Twiggs, Talbot, Wilkes, Appling, Wayne
Iowa	Davis, Henry, Van Buren, Wayne, Washington
Indiana	Perry
Maine	Aroostock, Piscataquis, Washington, Androscoggin
Minnesota	Pine
Mississippi	Amite, Calhoun, Covington, Greene, Kemper, Leake, Pontotoc, Franklin, Wilkinson
New Mexico	Rio Arriba, San Miguel
North Carolina	Ashe, Alleghany, Clay, Tyrell, Washington
Oklahoma	Adair, Atoka, Cherokee, Coal, Garvin, McCurtain, McIntosh, Murray, Okfuskee, Sequoyah, Tillman, Wagoner, Beckham
South Carolina	Berkely, Chesterfield, Dorchester, Fairfield
Tennessee	Perry, Rhea, Robertson, Tipton
Texas	Cass, Delta, Hopkins, Marion, McCulloch, Newton, Rains, Sabine, Shelby, Coleman
Vermont	Grand Isle
Wisconsin	Adams, Crawford, Iron, Jackson, Juneau, Langlade, Marquette, Polk, Richland, Rusk, Sawyer, Taylor, Burnett

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By the end of September 1967, the following counties will have received services from the SMALLER COMMUNITIES PROGRAM:

STATE	COUNTIES
Alabama	Blount, Bullock, Cleburne, Geneva, Pickens, St. Clair, Wilcox
Arkansas	Chicot, Conway, Desha, Drew, Fulton, Franklin, Independence, Izard, Johnson, Lawrence, Lincoln, Logan, Randolph, St. Francis, Saline, Scott, Sharp
Iowa	Calhoun, Crawford, Davis, Decatur, Franklin, Hamilton, Hardin, Henry, Howard, Humboldt, Ida, Monona, O'Brien, Pocahontas, Sioux, Taylor, Van Buren, Washington, Wayne, Webster, Winneshiek, Wright
Kentucky	Jackson, Wolfe
Maine	Androscoggin, Aroostook, Piscataquis, Waldo, Washington, York
Michigan	Cheboygan, Chippewa, Clare, Crawford, Gladwin, Gogebic, Iosco, Iron, Isabella, Lake, Luce, Mackinac, Mecosta, Ogemaw, Otsego, Roscommon
Minnesota	Aitkin, Becker, Morrison, Pine, Redwood, Todd, Yellow Medicine
Mississippi	Amite, Calhoun, Choctaw, Covington, Franklin, Greene, Jasper, Kemper, Lawrence, Leake, Pontotoc, Walthall, Webster, Wilkinson, and Quitman
New Mexico	Guadalupe, Rio Arriba, Sandoval, San Miguel, Taos, Valencia
New York	Delaware, Schoharie, Lewis
North Carolina	Alleghany, Ashe, Avery, Bertie, Bladen, Brunswick, Clay, Duplin, Graham, Macon, Tyrell, Washington and Pamlico, Columbus, Jackson
Oklahoma	Adair, Atoka, Beckham, Cherokee, Blaine, Coal, Custer, Delaware, Garvin, Harmon, Jefferson, Johnson, Latimer, Lincoln, Marshall, McCurtain, McIntosh, Murray, Nowata, Okfuskee, Pawnee, Rogers, Sequoyah, Tillman, Wagoner
Oregon	Columbia, Curry, Grant, Wheeler
Texas	Cass, Coleman, Delta, Franklin, Hamilton, Hopkins, Jasper, Marion, McCulloch, Newton, Panola, Rains, Red River, Sabine, San Augustine, Shelby, Washington and Rusk
Vermont	Addison, Brighton, Essex, Franklin, Grand Isle, Lamoille, Orleans, Windham
Virginia	Floyd, Tazewell
West Virginia	Boone, Barbour, Lincoln, Summers, Upshur, Wyoming
Wisconsin	Adams, Barron, Burnett, Cawford, Florence, Forest, Hamilton, Iron, Jackson, Juneau, Langlade, Marquette, Menominee, Oconto, Polk, Price, Richland, Rusk, Sawyer, Taylor, Washburn, and Door.

State Employment Security Agencies Affiliated With the Bureau of Employment Security

(Additional labor information on areas covered by this publication can be obtained from the State agencies listed below.)

ALABAMA	Department of Industrial Relations, State Office Building, Montgomery 36104
ALASKA	Employment Security Division, Department of Labor, Box 2661, Juneau 99801
ARIZONA	Arizona Employment Security Commission, State Employment Service, 1717 West Jefferson Street, Phoenix 85005; Unemployment Compensation Division, P.O. Box 6123, Phoenix 85005
ARKANSAS	Employment Security Division, Department of Labor, Employment Security-Welfare Building, Box 2981, Little Rock 72203
CALIFORNIA	Department of Employment, 800 Capitol Avenue, Sacramento 95814
COLORADO	Department of Employment, 1210 Sherman Street, Denver 80203
CONNECTICUT	Connecticut Employment Security Division, Hartford 06115
DELAWARE	Employment Security Commission, 801 West Street, Wilmington 19899
DIST. OF COL.	United States Employment Service of the District of Columbia, Employment Security Building, Sixth and Pennsylvania Avenue, N.W., Washington 20001; Unemployment Compensation Board, Sixth and Pennsylvania Avenue, N.W., Washington 20001
FLORIDA	Industrial Commission, Caldwell Building, Tallahassee 32301
GEORGIA	Employment Security Agency, Department of Labor, State Labor Building, Atlanta 30303
GUAM	Department of Labor and Personnel, Government of Guam, Agana 96910
HAWAII	Employment Service Division, Department of Labor and Industrial Relations, 825 Mililani Street, Honolulu 96813
IDAHO	Employment Security Agency, P.O. Box 520, 317 Main Street, Boise 83701
ILLINOIS	Employment Security Administrator, Department of Labor, 165 North Canal Street, Room 200, Chicago 60606
INDIANA	Employment Security Division, 10 North Senate Avenue, Indianapolis 46204
IOWA	Employment Security Commission, 1000 East Grand Avenue, Des Moines 50319
KANSAS	Employment Security Division, State Labor Department, 401 Topeka Boulevard, Topeka 66603
KENTUCKY	Bureau of Employment Security, Department of Economic Security, Capitol Office Building, Frankfort 40601
LOUISIANA	Division of Employment Security, Department of Labor, Employment Security Building, 2200 Baton Rouge Expressway, P.O. Box 4094, Capitol Station, Baton Rouge 70804
MAINE	Employment Security Commission, 20 Union Street, Augusta 04332
MARYLAND	Department of Employment Security, 1100 North Eutaw Street, Baltimore 21201
MASSACHUSETTS	Division of Employment Security, 881 Commonwealth Avenue, Boston 02215
MICHIGAN	Employment Security Commission, 514 Boulevard Building, 7310 Woodward Avenue, Detroit 48202
MINNESOTA	Department of Employment Security, 369 Cedar Street, St. Paul 55101
MISSISSIPPI	Employment Security Commission, P.O. Box 1699, 1520 West Capitol Street, Jackson 39203
MISSOURI	Division of Employment Security, Department of Labor and Industrial Relations, 421 East Dunklin Street, Jefferson City 65102
MONTANA	Unemployment Compensation Commission, Unemployment Compensation Commission Building, P.O. Box 1728, Helena 59601
NEBRASKA	Division of Employment, Department of Labor, 550 South Sixteenth Street, P.O. Box 4600, State House Station, Lincoln 68509
NEVADA	Employment Security Department, P.O. Box 602, Carson City 89701
NEW HAMPSHIRE	Department of Employment Security, 32 South Main Street Concord 03301
NEW JERSEY	Division of Employment Security, Department of Labor and Industry Building, John Fitch Plaza, Trenton 08625
NEW MEXICO	Employment Security Commission, 924 Park Street, S.W., P.O. Box 1799, Albuquerque, 87103
NEW YORK	Division of Employment, Department of Labor, State Office Building Campus, Albany 12201
NORTH CAROLINA	Employment Security Commission, P.O. Box 589, Jones & North McDowell Sts., Raleigh 27602
NORTH DAKOTA	North Dakota Employment Service, 207 East Broadway, Box 568, Bismarck; Unemployment Compensation Division, 201 East Broadway, P.O. Box 1537, Bismarck 58502
OHIO	Bureau of Unemployment Compensation, 145 South Front Street, P. O. Box 1618, Columbus
OKLAHOMA	Employment Security Commission, Will Rogers Memorial Office Building, Oklahoma City 73105
OREGON	Department of Employment, 403 Labor & Industries Building, Salem 97310
PENNSYLVANIA	Bureau of Employment Security, Department of Labor and Industry Building, Seventh and Forster Streets, Harrisburg 17121
PUERTO RICO	Bureau of Employment Security, 414 Barbosa Avenue, Hato Rey, San Juan 00923
RHODE ISLAND	Department of Employment Security, 24 Mason Street, Providence 02903
SOUTH CAROLINA	Employment Security Commission, 1225 Laurel Street, P.O. Box 995, Columbia 29202
SOUTH DAKOTA	Employment Security Department, 310 Lincoln Street South, Aberdeen 57401
TENNESSEE	Department of Employment Security, Cordell Hull State Office Building, Nashville 37219
TEXAS	Texas Employment Commission, TEC Building, Austin 78701
UTAH	Department of Employment Security, Industrial Commission, 174 Social Hall Avenue, P.O. Box 2100, Salt Lake City 84110
VERMONT	Department of Employment Security, P.O. Box 708, National Life Drive, Montpelier 05602
VIRGINIA	Virginia Employment Commission, 703 East Main Street, P. O. Box 1358, Richmond 23211
VIRGIN ISLANDS	Virgin Islands Employment Security Agency, P.O. Box 1092, Charlotte Amalie, St. Thomas 00802
WASHINGTON	Employment Security Department, Employment Security Building, P.O. Box 367, Olympia 98501
WEST VIRGINIA	Department of Employment Security, State Office Building, California and Washington Streets, Charleston 25305
WISCONSIN	Wisconsin State Employment Service, P. O. Box 1607, 4802 Sheboygan Avenue, Madison 53701; Unemployment Compensation Department, P. O. Box 644, 4802 Sheboygan Avenue, Madison 53701
WYOMING	Employment Security Commission, ESC Building, Center and Midwest Streets, P.O. Box 760, Casper 82602

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A Model Instructional Materials File for Coordinators of Cooperative Occupational Education. Instructional Resource Series, Number 3.

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*COOPERATIVE EDUCATION; *INFORMATION STORAGE; *INSTRUCTIONAL MATERIALS; OFFICE OCCUPATIONS EDUCATION; DISTRIBUTIVE EDUCATION; TRADE AND INDUSTRIAL EDUCATION

This publication is designed to aid the coordinator and his students in developing and using systematically the materials necessary for program operation and student learning activities. A four-drawer filing system designed to be used in an office, distributive, or industrial cooperative program is described. The first drawer should have files on administration and program records. The second drawer should have files pertaining to technical information, such as bulletins and other literature on the processes, operating procedures, and techniques of the occupation. The third drawer should contain files for product and merchandise information. The fourth drawer should contain occupational information, such as information about specific occupations, obtaining further education, and general knowledge all workers should have. Within each drawer, the filing system is based on the simple-to-use numerical index. Suggested tips for filing and a detailed listing of the contents of each drawer are included. (PS)

ED027441

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Instructional Resource Series, Number 3
May 1965

A Model Instructional Materials File For Coordinators of Cooperative Occupational Education

Bureau of Educational Research Services
College of Education
Michigan State University
East Lansing, Michigan

VT003384

F O R E W O R D

The teacher-coordinator of a cooperative occupational education program has a need for many, and varied, instructional materials. This publication is designed to aid the coordinator and his students in developing and using systematically the materials necessary for program operation and student learning activities.

The original outline from which this publication developed was devised by the senior author when he was a coordinator. It was then based on systems used in a number of states. The outline has been revised with the help of others, particularly Dr. George Brandon, an Industrial Education specialist, Dr Robert Poland, an Office Administration specialist, and Mr. Edward Ferguson, teacher-trainer for Distributive Education, who prepared the manuscript for publication.

The publication represents another of the many services rendered to Michigan schools by this University, a designated vocational teacher education institution for office and distributive education.

Peter G. Haines
East Lansing, Michigan
1965

LIBRARY
THE CENTER FOR VOCATIONAL AND
TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

A MODEL INSTRUCTIONAL MATERIALS FILE FOR COORDINATORS OF COOPERATIVE OCCUPATIONAL EDUCATION

Cooperative occupational education programs are a unique kind of vocational education, melding and integrating learnings by the student in his school classroom with those of his occupational laboratory in a business or industrial firm. The goal of the program is the development of occupational competence; therefore, the teacher-coordinator is concerned that the student develop in each of the areas of competence, including:

1. The technology of the occupation
   a. principles, skills, and technical information
   b. product, materials, and merchandise information

2. Occupational relations
   a. occupational choice information
   b. business relationships
   c. personal development

From these instructional needs stems the need to collect, store, and use many and varied instructional materials. In addition to being a teacher, the coordinator is an administrator of a program and must keep systematic records.

This model file combines both the instructional materials to be used by students and teacher and the administrative records maintained by the teacher-coordinator. Some teacher-coordinators may wish to keep the administrative records in a separate file, but experience indicates that this is not necessary if the classroom where the file is located is accessible at all times. Students can be taught to respect, and will, the coordinator's records in the top drawer.

The important thing about the file is that it: (1) illustrates the kinds of materials the teacher-coordinator should have available, (2) systematizes

collection and storage, and (3) encourages students to use materials. While the file cannot be built over-night, the teacher-coordinator should begin with what materials he has and build thereon.

THE FOUR-DRAWER SYSTEM

This filing system has been designed to be used in cooperative programs involving any single occupation or combinations of occupations. In reviewing the file outlines, note that office, distributive, and trade sections are separate; those not represented in the program of course will not be used. Other sections could be devised for new occupations, such as those in agriculturally-related business and in home economics occupations outside the home. Thus drawers I and IV are needed for all programs; drawers II and III will be different for different programs.

The model filing system that follows is designed to use four drawers--a drawer for each of the four major areas--but can be expanded or condensed as needed by the individual. The four areas are: (1) administration and program records, (2) technical information, (3) product and merchandise information, and (4) occupational information.

Drawer I: This first drawer should have files on administration and program records. (NOTE: THIS DRAWER IS TAGGED RED, MEANING NOT OPEN TO STUDENTS.) The files should contain the coordinators records and correspondence necessary for control of the secondary and adult programs, the coordinator's own instructional materials such as units of instruction and examinations which are not for student use, and materials on organizing and operating a cooperative program that are usable by the coordinator.

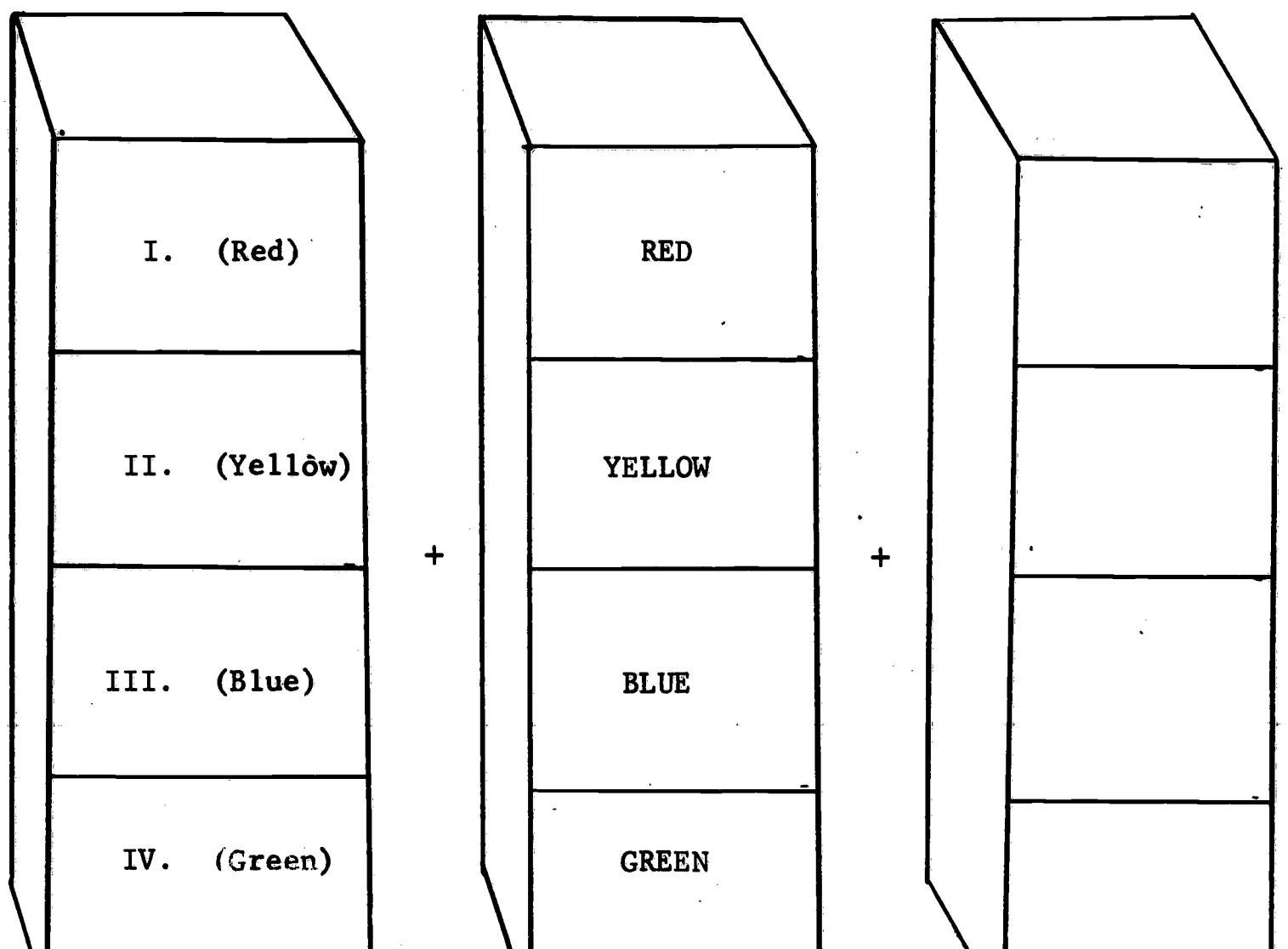
Drawer II, III, IV: (NOTE: THESE DRAWERS ARE OPEN TO STUDENTS AND SHOULD BE TAGGED YELLOW, BLUE AND GREEN, RESPECTIVELY.)

The second drawer should have files pertaining to technical information, such as bulletins and other literature on the processes, operating procedures, and techniques of the occupation.

The third drawer should contain files for product and merchandise information.

The fourth drawer or division will contain occupational information. The files would contain information about specific occupations, obtaining further education, and general knowledges all workers should know.

A colored tab system would be helpful if more than one division were in one drawer. If more than one file drawer is needed for a division, arrange a second file cabinet in similar manner as the first file was arranged keeping the first (top) drawer for Division #1, etc. (See Illustration)



(One File) (Use same levels if more files added.)

The filing system is based on a numerical index which is simple to use. The drawer breakdown is a logical division of the material. Within each drawer are subdivisions of the specific subjects which are again subdivided into more specific topics. The amount of material that is to be filed during any particular two-week period of time is relatively low. The coordinator may want to establish a folder for unfiled materials into which he will place items that should go into the file. At the end of the two-week period, all the materials can be filed at one time; or the file clerk can do it during a specific period.

For an example of the filing system, a piece of correspondence bearing the number I-A-6a means that the folder is found in:

Drawer I, ⟶ The red-labeled drawer--Administration and Program Records

major division A, ⟶ A. Correspondence/Records

sub-division 6, ⟶ 6. Student Clubs
which has a further sub-division
indicated by the lower case a. ⟶ a. Co-op Club of Michigan

Although this file is established for coordinators, it can be used by general business teachers as well. A teacher of any business subject may find certain parts of the file useful and may want to establish a file for a specific section. The files could then become a departmental file instead of just a coordinator's file. For example, the office practice teacher may want to create a more detailed file for Drawer IV--Occupational Information. This drawer contains such items as Guidance, Personal Development, Business Relations, and School-Community Relations.

The coordinator may choose any one of the following suggested ways for indicating which file folder is to be used for a specific piece of material.

1. Attach a small sticker in the upper right corner of the correspondence, booklet, or pamphlet. This sticker should be used for writing the number under which the materials are to be filed. The sticker can be placed inside the front cover of any booklet or pamphlet providing the cover is not defaced. Colored stickers, which correspond to the drawer colors, can be used to eliminate writing the Roman numeral in the number.

2. Write the number (under which the item is to be filed) in the upper right corner of the correspondence (which corresponds to the drawer colors).

The junior college coordinator might want to make a cross-reference system for the file. The mimeographed form should provide for the date of the publication, subject or title, publisher of material, as well as the file in which the original piece is located. Any piece of material that could be filed under two or more headings must be cross-referenced.

HOW TO ESTABLISH AND MAINTAIN THE FILE

Collecting Materials: The teacher-coordinator will collect many items himself. On coordination visits he should be alert to materials used in the firm and ask for complimentary copies. He should call on other businesses to see what materials are available. He should also use bibliographies of available materials and procure copies. It is recommended that school administrators provide a budget of at least $5 per student per year, for supplementary materials. Coordinators should also enlist the aid of students to find materials. They should be asked to request copies from their employers.

Student Use of the File: Students should be encouraged to see the file as "theirs." They should be asked to browse through it to find materials for assignments and individual projects. They should be asked to return materials to the file themselves--the teacher should not be a librarian!

However, in some schools the teacher-coordinator has found it wise to appoint a student librarian for each two-week period. It is wise to use early in the year some short assignments (for example--writing a one-page paper on a topic) that will familiarize the student with the file and get him to see its value to him. Students can learn many business-like habits from using a well-organized file; they can also learn terminology from the file headings themselves. The file can be a major teaching tool if students are taught to use it as a "working file" rather than a "guarded library."

Suggested Tips for Filing:

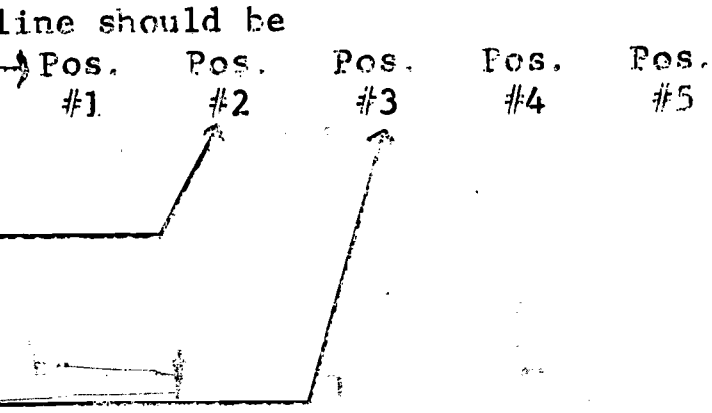
1. Date all items received.

2. After items are ready for filing, underscore with a colored marker the key words that are to be used in filing.

3. In the front of each drawer, place a master file sheet where it can be found easily, or tape the list to the face of the file drawer.

4. File behind the file folder tab because it gives easier access to papers and papers are in chronological order.

5. File folders are made to have several positions starting at the extreme left side of the folder or file drawer. Items marked A, B, or C, etc. in the outline should be placed in position 1. ——→



If more sub-divisions are added, they can be placed in positions 4 and 5.

6. Permit file folders to become no more than 1" thick before starting new folders.

7. Don't overload a drawer--papers become dog-eared and access to papers is more difficult.

Cost of Equipment: A four-drawer steel filing cabinet will cost approximately $40, less discount. There are several filing systems on the market which help prevent the loss of file folders and correspondence. One such system is the "Pendaflex", which consists of a steel frame which fits into the file drawer and file folders which are equipped with hangers which hook over the frame. The hanging folders are held in position and can be moved to any position on the frame. "Pendaflex" frames cost $1.95 per drawer, with the folders costing $15.70 per hundred.

DRAWER I ADMINISTRATION AND PROGRAM RECORDS (RED LABELS)

Contains:

(1) The coordinator's records and correspondence necessary for control of the secondary and adult programs.

(2) The coordinator's own instructional materials such as units of instruction and examinations which are not for student use.

(3) Materials on organizing and operating cooperative programs that are usable by the coordinator, together with state manuals.

A. CORRESPONDENCE/RECORDS
1. Superintendent/Principal
2. State Supervisor
3. Advisory Committee Minutes
4. Yearly Reports
5. Monthly Reports
6. Student Clubs
   a. Cooperative Club of Michigan
   b. DECA
   c. FBLA
   d. VIC
7. State Newsletters
8. Name and Address File
9. Professional Associations
10. Research Reports/Evaluations
    a. Community Survey
    b. Follow-up Studies
11. Cooperative Program
    a. List of Students
    b. Class Rolls
    c. Student Folders
    d. Student Manuals
    e. Training Records
12. Adult Program
    a. Class Schedule
    b. Class Rolls
    c. Requests for Classes
    d. Instructor Certification Blanks
    e. List of Prospective Instructors
    f. Adult Course Outlines

B. SCHOOL/STATE REGULATIONS
1. Lay-out Equipment
2. School Regulations
3. Reimbursement Forms
4. State Labor Laws
5. Federal Labor Laws
6. Curriculum Regulations
7. State Plan
8. Travel Requests

C. PROGRAM/PLANNING PROMOTION
1. Monthly Planning Calendars
2. Publicity Materials, High School
3. Publicity Materials, Adult
4. Trade Associations
5. Civic-Social Associations

D. RESOURCE MATERIALS-STATE/NATIONAL
1. State Manuals
2. Coordinator's Manuals
   a. Business Education
   b. Organization of Cooperative Program
3. Bibliographies

E. INSTRUCTION UNITS/COURSE OUTLINE FOR COOPERATIVE PROGRAMS
1. Distributive
2. Occupational Relations General Related
3. Coop Office Related Instruction
4. Diversified Occupations Related Training

F. TEACHERS MANUALS/INSTRUCTIONAL METHODS FOR ADULTS (Examples of Headings)
1. Christmas Sales Training
2. Credits and Collections
3. Dairy, Food, and Meats
4. Drugs
5. Merchandising
6. Merchandising English and Math
7. Personal Finance
8. Retailing
9. Salesmanship
10. Other Business Subjects
11. Office and Clerical Practice
12. Office Machines
13. Insurance Agency
14. Tourist Information
15. Public Speaking
16. Small Business Management

DRAWER II TECHNICAL INFORMATION (YELLOW LABELS)

Contains: Bulletins and other literature on the processes, operating procedures, and techniques of the occupation.

DISTRIBUTIVE OCCUPATIONS

A. MERCHANDISING
1. Organizing and Operating a Business
2. Food
3. Variety
4. Department Store
5. Discount Store
6. Apparel
7. Furniture and Home Furnishings
8. Automotive
9. Service Stations
10. Lumber and Building
11. Hardware
12. Eating Places
13. Drug Stores
14. Other Retail
15. Wholesaling Businesses
16. Service Businesses
    a. Automobile Services
    b. Business Services
    c. Personal Services
    d. Tourist, motels, hotels

B. MERCHANDISE BUYING PROCESS
1. Resources where to buy
2. Channels of Distribution
3. Methods of Market Contact
    a. Resident Buying Office
    b. Group Buying
    c. Salesmen
    d. Central Market
    e. Trade Papers
4. Selection Resources
5. Estimating Demand
    a. Open to Buy
    b. Stock Sales Ratio
6. How much to pay--purchase terms
7. Discounts
    a. Credit Terms
    b. Shipping Terms
    c. Special Buying Arrangements
    d. Writing the Order
8. Preparing the Goods for Selling
    a. Receiving Incoming Goods
    b. Checking the Goods
    c. Storing and Distributing
    d. Stock Arrangement
9. Pricing
    a. Mark up--Mark down
    b. Price Lines
    c. Merchandising Mathematics

C. SELLING
1. Sales Analysis
2. Buying Decisions and Motives
3. Customers
4. Gift Selling
5. Mail Order Selling
6. Outside Selling
7. Actual Sales
    a. Closing the Sale
    b. Objections
    c. Approach
    d. Presentation
    e. Problem Situation
    f. Substitutive Selling
    g. Suggestive Selling
8. Sales Idea File

D. PERSONNEL AND TRAINING
1. Employee Selection
2. Compensation
3. Promotion
4. Training
5. Labor-Management Relations

E. FINANCE AND CONTROL
1. Bookkeeping Systems
    a. Small Businesses
    b. Chain Stores
2. Billing and Invoicing
3. Capital Requirements
4. Inventory Control
5. Store Operating Ratios
6. Automation and Accounting
7. Accounting Statements
8. Customer Credit
9. Expense Control
10. Store Systems
    a. Cash Register Systems
    b. Cash Sales
    c. Charge Sales
    d. Wrapping
11. Store Protection

F. STORE OPERATIONS
1. Sales Promotion and Publicity
2. Sales Events
3. Trading Stamps
4. Advertising
   a. Newspaper
   b. Magazines
   c. Radio
   d. TV
   e. Direct Mail
   f. Other Media
   g. Copy Layout
5. Visual Merchandising
6. Store Location
7. Store Layouts
8. Store Equipment
9. Types of Store Organizations
10. Customer Services
11. Leased Departments

G. DISTRIBUTION-MARKETING
1. Channels of Distribution
2. History of Distribution
3. Functions of Distribution
4. Census Data
5. Trade Associations
6. Cost of Distribution
7. Marketing Research

H. GOVERNMENT RELATIONS AND BUSINESS LAW
1. Pricing
2. Advertising
3. Selling
4. Taxation
5. Credit
6. Business Law
7. Consumer Movement

OFFICE OCCUPATIONS

A. COMPUTATION
1. Adding Machines
2. Calculating Machines
3. Comptometer
4. Ten-key Machines
5. Mental Processes
6. Recordkeeping
7. Cost Control
8. Budget
9. Petty Cash
10. Post Accounts Receivable

B. DUPLICATING
1. Direct or Liquid
2. Indirect or Gelatin
3. Offset
4. Photocopy
5. Stencil

C. COMMUNICATIONS
1. Automatic Typewriters
2. Communicative Services
3. Correspondence
4. Dictating Machines
5. Form Letters
6. Letter Costs
7. Mailing
8. Mechanical
9. Messenger
10. Office Correspondence
11. Office Reports
12. Recorders
13. Teleautograph
14. Teletypewriter
15. Telephone
16. Typing Practices

D. RECORDS MANAGEMENT
1. Filing
   a. Alphabetical
   b. Chronological
   c. Geographical
   d. Numerical
   e. Phonetic
   f. Subject
2. Equipment and Materials

E. OFFICE MANAGEMENT
1. Automation
2. Employee Relations
3. Meeting People
4. Equipment and Layout
5. Planning
6. Work Simplification

F. DATA PROCESSING

INDUSTRIAL OCCUPATIONS

Apprenticeable

A. AUTOMOTIVE BODY BUILDER REPAIRMAN
1. Automotive Body Building
2. Automotive Body Builder Repairman
3. Custom-body Builder
4. Truck and Trailer Body Builder

B. AUTOMOTIVE MECHANIC
1. Automotive Mechanic
2. Bus Mechanic
3. Heavy Duty Equipment Mechanic
Diesel
4. Motor Boat Mechanic
5. Motorcycle Mechanic
6. Tractor Mechanic
7. Truck Mechanic

C. BRICKLAYING
1. Brickmason
2. Stonemason

D. CARPENTRY
1. Construction
2. Maintenance
3. Cabinetmaker
4. Millman

E. DRAFTSMAN
1. Architectural
2. Detailer-Draftsman
3. Electrical Draftsman
4. Mechanical Draftsman
5. Structural Draftsman
6. Topographical

F. DRYCLEANER

G. ELECTRICAL
1. Cable Splicer Cableman
2. Electronic Technician
3. Lineman
4. Maintenance
5. Meterman
6. Radio Electrician
7. Repairer and Winder
8. Sign Electrician
9. Signal Systems

H. FLOOR COVERER
1. Linoleum, Soft Tile and Carpet

I. IRON WORKER
1. Bridge and Structural Steel Erector
2. Ornamental Iron Erector
3. Ornamental Metal Fabricator
4. Structural Steel Fabricator

J. MACHINIST
1. Automotive
2. Machinist (any industry)
3. Maintenance

K. MAINTENANCE MECHANIC-REPAIRMAN

L. PAINTING AND DECORATING
1. Automobile Painter
2. Furniture Finisher
3. Painter (construction)
4. Paperhanger

M. PATTERNMAKING
1. Metal
2. Plaster
3. Wood

N. PHOTOGRAPHY
1. Commercial
2. Portrait

O. PLASTERING
1. Model-mold Maker
2. Plasterer

P. PLUMBER-PIPE FITTING
1. Gas Fitter, Pipe Fitter, Sprinkler Fitter
2. Plumber
3. Steamfitter

Q. PRINTING PRESSMAN
1. Compositer
2. Cylinder Pressman
3. Newspaper Pressman
4. Offset Pressman
5. Rotary Pressman

R. SHEETMETAL WORKING
1. Aircraft
2. Metal-sign Maker
3. Metal Spinner
4. Sheet-metal Worker

S. STATIONARY ENGINEER
1. Operating Engineer
2. Power House Engineer
3. Power House Operator

T. TOOL AND DIE MAKING
1. Die Casting Die Maker
2. Die Maker
3. Tool and Die Maker
4. Tool Maker

NON-Apprenticeable

A. APPLIANCE INSTALLATION AND SERVICE
1. Gas Appliance Services
2. Electrical Appliance Services
3. Household Appliance Installation Man

B. COIN MACHINE SERVICE
   1. Coin Machine Repairman
   2. Vending Machine Repairman

C. CARBURETION AND IGNITION SERVICE
   1. Carburetor Man
   2. Ignition Repairman

D. FLORISTS-NUSRERYMAN
   1. Florists
   2. Groundkeeper
   3. Landscaper
   4. Nurseryman

E. FURNACE INSTALLATION AND REPAIR
   1. Furnace Installer and Repairman (hot air)
   2. Oil Burner Installation and Serviceman

F. TAXIDERMY
   1. Texidermist

G. WELDING
   1. Arc
   2. Acetylene
   3. Combination

H. WHEEL ALIGNMENT
   1. Chasis Mechanic

DRAWER III PRODUCT AND MERCHANDISE INFORMATION (BLUE LABELS)

Contains: Information about products and merchandise.

A. HARD LINES
1. Appliances
2. Auto Accessories
3. Books and Stationery
4. Electrical Supplies
5. Farm, Garden, and Nursery Supplies
6. Furniture
7. Housewares
8. Lumber and Building Materials
9. Office Equipment
10. Paints and Wallpaper
11. Petroleum
12. Plumbing and Heating
13. Silverware
14. Sporting Goods
15. Toys

B. SOFT LINES
1. Apparel
2. Fashion
3. Furs
4. Home Furnishing
5. Jewelry
6. Shoes
7. Textiles
   a. Clothing Construction
   b. Cotton
   c. Linen
   d. Miscellaneous
   e. Silk
   f. Synthetics
   g. Wool

C. FOOD AND DRUG
1. Bakery Products
2. Candy
3. Cosmetics
4. Dairy Products
5. Drugs
6. Fruits and Vegetables
7. Grocery Products
8. Meat Products

D. LABELS AND STANDARDS, GRADES

E. MISCELLANEOUS

DRAWER IV OCCUPATIONAL INFORMATION (GREEN LABELS)

Contains: Information about specific occupations, obtaining further education, and general knowledges all workers should know.

A. GUIDANCE
1. Educational
2. Occupational
   a. Office
   b. Distributive
   c. Trade and Industrial
   d. Vocational Teaching
3. Social

B. PERSONAL DEVELOPMENT
1. Grooming and Health
2. Savings and Investment
3. Budgets

C. BUSINESS RELATIONS
1. Employer-employee Relations
2. Labor Unions
3. Trade Associations
4. Safety on the Job
5. Labor Laws
6. Employee Manuals
7. Job Analysis
8. Taxes
9. Business Policies

D. SCHOOL-COMMUNITY RELATIONS
1. Oreintation to Cooperative Programs
2. Getting a Job
3. Advancement and Promotion

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*LABOR MARKET; LABOR FORCE; UNEMPLOYMENT; *HIGH SCHOOL CURRICULUM; *VOCATIONAL EDUCATION; MIGRATION PATTERNS; STUDENT ENROLLMENT; EMPLOYMENT STATISTICS; POPULATION TRENDS; EMPLOYMENT PROJECTIONS; INDIVIDUAL CHARACTERISTICS; OCCUPATIONAL CLUSTERS
MICHIGAN

The purpose of this report was to relate current vocational education to the principal trends affecting the employment of the youth of the State. The census materials for Michigan and the "Self-Survey for Instructional Progress" from public schools required by the Superintendent of Public Instruction provided data on the growth of the labor force, age and sex characteristics of the labor force, trends in occupational and industrial distribution, unemployment trends, migration and labor markets, vocational training for local labor markets, vocational curricula, and education and experience of vocational education teachers. Some conclusions based on the data were: (1) The greatest problem of metropolitan area education is training non-white youth, (2) Industry, along with the schools, has responsibility for training youths for employment, (3) Planning curriculums and placing youth must be done cooperatively, (4) A broad general training adaptable to a variety of specialized jobs must be worked out, (5) Technician training should be given in community colleges, (6) Out-state areas must consolidate for vocational education to have adequate population, facilities, funds, and a variety of programs to meet employment needs dictated by technological changes, (7) Follwup data on both graduates and dropouts must be provided and coordinated for counties and regions. Thirty-eight tables, many by county break-down, are included. Tables of occupational groups and civilian labor force status and percentage change in major occupations, by county, are included. (MM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Vocational Curricula In Michigan

ERIC 17

Office of Research and Publications
College of Education
Michigan State University
East Lansing, Michigan

LA

VOCATIONAL CURRICULA IN MICHIGAN

Sigmund Nosow

Michigan State University

Cooperating Departments:

Office of Research and Publications, College of Education

School of Labor and Industrial Relations, College of Social Science

Department of Social Science, University College

Foreword

This study would not have been possible without the cooperation and help of the Michigan Department of Public Instruction and the local school districts which so generously provided the necessary curricular and instructional data when requests were made. Without the materials provided by the many agencies of the United States Department of Labor, the United States Bureau of the Census, and the Michigan Employment Security Commission the labor market analyses would have been impossible. The demographic data for Michigan provided by J.F. Thaden of Michigan State University Institute for Community Development saved many hours of analysis which probably would not have produced equally reliable results.

Special thanks must be given to Lawrence Borosage, Director of the Michigan Vocational Evaluation Project and to Robert M. Winger, Leon J. Alger, Ferris N. Crawford, and David C. Fitch, all of the Department of Public Instruction. Without Kimon Bournazos, my assistant on the project, the task would have been infinitely more difficult.

S.N.

East Lansing, Michigan
September, 1963

VOCATIONAL CURRICULA IN MICHIGAN

Sigmund Nosow

Michigan State University

The United States is an affluent society when measured by such economic indexes as gross national product or per capita national income. However, a new industrial revolution, an inadequately expanding economy for the expanding population, and the convergence of a variety of social forces directly affecting our economy have resulted in one of our greatest potential crises--mass unemployment. One cannot overestimate the social significance of labor force trends which made obsolete both manual and white-collar skills and which increasingly demand greater educational requirements of all types of workers. Nor can one overestimate those social forces which have brought about a huge population bulge, the increasing proportion of women entering the labor market; and the millions of youths who, because of inadequate education or training, find themselves hopelessly ill-equipped to obtain any type of work.

The consequences of such trends need not be elaborated upon; the waste of manpower is apparent. The increased social waste of indigent millions, the social costs of deteriorated neighborhoods with their poverty, disease, and crime, and lack of social identity of the unemployed and hopeless is inestimable. Projections of contemporary trends into the future provide little cheer. Unless some of the basic problems of providing employment for the new youthful and older displaced workers, the relatively poorly educated, and the socially and psychologically underprivileged are met, the resultant social dislocation may increase enormously.

A world which rapidly makes obsolete many types of specialized skills, traditionally acquired through vocational education or apprenticeship--one in which the lower manual and office skills are rapidly losing their value in the labor market--forces a close examination and evaluation of current vocational education. In fact, the local communities are finding the burden of adequately preparing youth for occupational roles increasingly difficult. So many variables which directly affect the employment of workers lie beyond the local school district and the local economic scene. It has become apparent to those studying contemporary labor market trends and contemporary vocational education practices that new and broader approaches to the training of youth are needed.[1]

To take a place successfullly in the labor market today, one needs more education and training than ever before. The wave of the future is projecting us into a world in which low-level skills have little utility. Can the schools meet these problems? How shall they be met?

From the point of view of a single school district or even a broader region, forces making for economic and social change seem beyond control. But the macroscopic end-product, the nature of the economy, its regional distribution, the distribution and movements of populations, and the changing age composition of the population can be rationally analyzed and predicted. It is only on the basis of the knowledge of such forces that the adequate vocational preparation of youth can take place at the national, state, or local levels.

How does one go about meeting the challenges to vocational education? The first task is identifying the nature of the challenge and the direction of the forces which are creating burdens on vocational education. In essence, the problems facing vocational education stem from these major sources: changes in the industrial complex and the structure of the labor force, making for redistributions in types of training and skill demands; the mobility patterns characteristic of the United States in which populations tend to move from areas with limited economic opportunities to areas with greater economic opportunity; the changing age and sex composition of the entire labor force, but especially the increasing participation of women; and the forces of tradition which freeze educational practices

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[1]See, for Example, U. S. Department of Health, Education, and Welfare, Office of Education, "Vocational Education in the Next Decade," Washington, D. C., 1961.

and curricula into given institutional molds, with control vested to the greatest extent in the local communities. Perhaps of equal importance is the challenge to the local school districts to keep in school and give adequate vocational training and guidance to that one-third of the students who comprise the annual dropouts.

It is apparent that the responsibilities for providing adequate training and job opportunities both for those capable and incapable of completing high school-level work transcend most local communities. The continuous upgrading of the educational quality of the labor force which has characterized American industry, at least during this century, has gained momentum. This makes it extremely difficult to place in the labor market the poorly educated millions seeking work each year.

The task we have set for ourselves is based on an effort to relate current vocational education in Michigan to the principal trends affecting the employment of the youth of the state.* What employment opportunities are going to be available in Michigan in the future? What proportion of the population is going to be seeking employment? What is the likelihood that youths are going to remain in their local communities seeking employment? To what extent do local vocational education programs meet current or future needs of the youths of these communities?

While many of the patterns for Michigan may be unique, the emergent needs in the state reflect broader tendencies in the United States. While many of the needs of local communities are a reflection of their own unique history and situation, they, too, reflect the broader patterns of the state and nation.

The number of excellent studies which have projected manpower needs for the next decade and beyond, both for the United States and for Michigan, present us with a body of data based upon past statistics and the seasoned judgments of experts concerning future trends.[2] All of these studies agree on a number of basic trends:

1. The proportion of the population in the labor force will increase.

2. The proportion of women in the labor force will increase.

3. The labor force is going to consist increasingly of younger workers, with a relative decline in the number of workers in all other age groups, especially the middle-age groups. Women, age 45 and over, will be the exception to this trend.

4. The absolute number of farmers, farm managers, and farm laborers will decline. The absolute number of laborers will remain the same. While there will be some increases in the number of craftsmen and other blue-collar skilled workers, their proportions in the labor force will decline.

5. The rapid rate of growth among the white-collar workers in the labor market will continue, with the greatest increase among the professional and technical groups.

6. Shifts in the percentage of employment by industry are going to show great relative declines in the commodity-producing industries such as agriculture, mining, and manufacturing, and large increases in the areas of trade, services and, to a lesser extent, governmental employment, and construction.

7. The labor market will place increasing demands upon workers for better education. It appears from current trends that even high school graduates without adequate vocational preparation will find it difficult to get jobs. Those with less than high school education (the one-third of the youths who drop out before graduation) are going to have even more difficulty in finding employment.

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*We recognize the vocational needs of adults, but the focus of the report is on youth.

[2]U. S. Department of Labor, "Manpower Challenge of the 1960's," Washington, D. C.: U. S. Government Printing Office, 1960; Michigan Employment Security Commission, "Manpower in Michigan," Detroit, Michigan" Michigan Employment Security Commission, 1962; U. S. Department of Labor, "Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training," Washington, D.C.: U. S. Government Printing Office, 1963; U. S. Department of Labor, Office of Manpower, Automation and Training, "Manpower and Training: Trends, Outlook, Programs," Washington D.C.: U. S. Government Printing Office, 1963; W. Haber, et. al., The Michigan Economy, Kalamazoo, Michigan: The W. E. Upjohn Institute for Employment Research, 1959; National Planning Association," National Economic Projection Series, 1962 edition," National Planning Association Washington, D.C., 1962; S. Cooper, "Special Labor Force Report No. 24, Interim Revised Projections of U. S. Labor Force, 1965-75," Washington, D. C.: U. S. Government Printing Office, 1962.

8. Population shifts will continue to reflect the changes in industrial concentration which have been occurring over the past decades. The fastest growing areas will continue to be the Far West and the Southwest. Patterns of migration from one region to another, and the movement of populations from the rural to industrial urban areas will continue to reflect the high mobility of Americans and the likelihood that youths shall migrate from the communities in which they have been reared and educated. Over the next decade, Michigan will continue to grow above the national average and also reflect similar patterns of rural-urban migration.

Growth of the Labor Force

Historically, the United States, more than any other country over the same period, has enjoyed consistently great growths in population and in the size of its labor force. This has been paralleled by a dynamic economy which has become second only to the United Kingdom in proportionate smallness of the population in agricultural activity, moving from a labor force in 1820 which was 71.8 per cent agricultural to one which in 1960 was only 7.9 per cent agricultural. During the same period, the population in the United States, which was 10,8 per cent urban in 1820 and 25.7 per cent urban in 1870, by 1960 was more than 63.0 per cent urban.*

While the trends over recent decades may not continue at the same rate, it is felt that by 1970 agricultural workers will constitute 5.3 per cent of the labor force, and by 1975, 4.5 per cent. By 1975, the urban population should approach 75 per cent of the total population under the new definition.[3]

Over the past century and a half, marked changes have also taken place for the labor force generally. It has grown from 21.9 per cent of the total population in 1820 to 40.4 per cent of the total population in 1960. From 1870 to the present, the participation rates, that is the percentage of persons who are labor force age entering the labor force,** have not changed radically. From the relatively stable rates between 1920 and 1940, there was a rise to 58.3 per cent by 1950. As may be observed in Table 1, the rates are expected to level off at about 57 per cent, at least for the near future.

Among other significant changes apparent in these participation rates are the consistently increasing rates of female participation in the labor force. This is perhaps the best criterion of what has been taking place in women's social roles in our society. The projections for the future indicate a continuation of these participation trends for women, although there is expected to be a decline in the participation rates of males.

There were 66.7 million employed persons in the civilian labor force in 1960 and 3.9 million unemployed, an unemployment rate of 5.6 per cent. If we accept as a goal for 1970 a full-employment economy, assuming 3 per cent or fewer unemployed, we would have to provide approximately 83 million jobs. Assuming that the 2.5 million now in the Armed Forces would remain at the same level, we would have to provide more than 13 million new jobs. This level can be reached only if the economy achieves a more dynamic growth rate and if the labor force achieves higher levels of education and training. If the economy were to achieve a full-employment level, many persons not now in the labor force might enter, making the potential job needs greater than the 13 million suggested above.

Growth patterns which have characterized the United States generally have also been reflected in Michigan. (See Table 2) During the present century, the percentage of the Michigan population in the labor force has been relatively constant. From 37.2 per cent of the population in the labor force in 1900, it rose to 37.6 per cent by 1960.

The declining importance of agriculture to Michigan's economy is also very apparent. From an experienced labor force with 43.8 per cent in agricultural activity in 1880, and 34.5 per cent in agricultural activity by 1900 (a more accurate figure than earlier census figures), by 1960 agricultural activity in Michigan only involved about 3 per cent of the experienced civilian labor force, and 3.4 per cent of the employed workers.

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*This was under the old definition used until 1950. Under the more liberal definition used since 1950, the rate was 69.9 per cent urban.

**Until the 1940 census this included children 10 years old and over. Starting in 1940, this included children 14 years old and over.

[3]D. J. Bogue, The Population of the United States, Glencoe, Illinois: The Free Press, p. 784.

Table 1

THE WORK FORCE IN THE UNITED STATES, 1870-1960,
AND PROJECTIONS FOR 1965-1975

Year	Gainful[1] workers (thousands)	Labor Force[2] (thousands)	Percent of total population	Percent of workers female	Participation rate		
					Total	Male	Female
1870.....	12,925	12,557	31.5	14.8	51.5	86.2	15.5
1880.....	17,392	16,896	33.7	15.2	52.5	87.3	16.3
1890.....	23,318	22,653	36.0	17.2	54.2	87.3	19.2
1900.....	29,073	28,282	37.2	18.1	55.0	87.7	20.4
1910.....	37,371	...	...	...	...	...	...
1920.....	42,434	42,660	38.7	20.4	55.8	85.9	24.1
1930.....	48,830	50,080	39.5	22.0	54.6	83.4	25.1
1940.....	...	56,030	42.5	25.3	55.9	83.9	28.2
1950.....	...	64,599	42.7	28.9	58.3	84.4	33.1
1960.....	...	73,081	40.4	32.2	57.4	79.7	36.1
1965.....	...	78,936	40.6	33.5	57.1	77.9	37.3
1970.....	...	85,703	42.7	34.3	57.0	77.1	38.0
1975.....	...	93,031	(3)	34.5	57.0	76.9	38.2

1 The reporting of gainful workers under 20 years of age prior to 1930 was highly unreliable. The report for 1910 generally shows wide discrepancy with that for 1900 and 1920 and questions of reliability have also been raised. For a critical discussion of labor force trends and statistics to 1940 see J. Durand, The Labor Force in the United States, 1890-1960, New York; Social Science Research Council, 1948, especially Appendix A, pp. 191-218.

2 The data since 1940 are not strictly comparable with previous labor force data since the concept of "gainful worker" was replaced with a different definition of "labor force." Gainful workers did not include workers without previous experience. A number of other changes were made in the 1940 census, among these was the decision only to enumerate persons 14 years and over, rather than 10 years and over as previously.

3 Not available.

Sources: For 1870-1950, D. J. Bogue, The Population of the United States, Glencoe, Ill., The Free Press, 1959, Table 16-1, p. 423. For 1960 and projections to 1975, S. Cooper, "Interim Revised Projections of the U.S. Labor Force, 1965-1975," Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., 1962, Tables 1 and 2, pp. 2-4.

Table 2

THE WORK FORCE IN MICHIGAN, 1900-1960,
AND PROJECTIONS TO 1970

Year	In labor force or gainful workers 14 years and over[1] (thousands)	Percent of total population	Percent of workers female	Participation rate		
				Total	Male	Female
1900.....	900	37.2	14.7	53.1	87.0	16.3
1910.....	1,109	39.5	16.4	54.6	87.2	19.1
1920.....	1,471	40.1	16.7	55.9	87.4	19.9
1930.....	1,926	39.8	18.7	54.6	84.6	21.5
1940.....	2,126	40.4	21.5	52.7	80.5	23.3
1950.....	2,541	39.9	25.3	53.8	80.2	27.5
1960.....	2,944	37.6	30.3	55.0	78.3	32.7
1970.....	3,750	39.1	32.0	56.7	77.1	37.0

[1] See Table 1.

Sources: For 1900-1940, U.S. Bureau of the Census, U.S. Census of Population: 1940, Characteristics of the Population, Michigan, 2nd Series. U.S. Government Printing Office, Washington, D.C., 1942. For 1950-1960, U.S. Bureau of the Census, U.S. Census of Population: 1960, General Social and Economic Characteristics, Michigan. Final Report PC (1) - 24C. U.S. Government Printing Office, Washington, D.C., 1962.
For the 1970 projections, population projections for Michigan and for those age groups in the labor force were taken from J.F. Thaden, Population of Michigan Counties, Projections to 1970, Institute for Community Development, Technical Bulletin B-24 Continuing Education Service Michigan State University, 1962. Assumptions were made that the participation trends for the 1960-1970 decade would follow those manifested over the 1940-1960 period used as a base. It was also assumed that basic demographic patterns such as growth for the state, marital status of population, proportions of youths in schools would not depart radically from those of the past decade. These figures are similar to those of Dr. Haber and of the M.E.S.C.; the basic differences arise from different projections of the size of the population, of which Thaden's is 9.6 million.

	Population for 1970	Labor Force	%
Haber*	9.9 (medium pro.)	3.8	38.5
M.E.S.C.**	9.4	3.7	39.4

*W. Haber et al, The Michigan Economy, Kalamazoo, Michigan, the W. E. Upjohn Institute for Employment Research, 1959.

**Michigan State Employment Security Commission, Manpower in Michigan, Michigan Employment Security Commission, 1962.

The degree of urbanization for Michigan also reflects the national patterns. In 1820, Michigan territory was considered to be 100.0Q per cent rural. By 1870, Michigan was 20.1 per cent urban, becoming more urbanized than the United States as a whole by 1910. In 1960, Michigan was 65.0 per cent urban under the old definition, and 73.3 per cent under the new, more urbanized than the national average, and the 16th most urbanized state.

If the trends for the past decade are continued, the urban population of Michigan should be more than 76 per cent of the state's population by 1970. The significance of the increasing patterns of urbanization to the labor force and especially to the occupational structure will be discussed at a later point. However, in passing, we might note that urbanization has always been directly associated with increasing levels of trade and service employment and decreasing levels of agricultural employment.[4]

The participation rates for the Michigan labor force are not dissimilar from those of the nation as a whole. This is especially true if one looks at the entire labor force. If we examine male and female participation rates separately, we find that the male rates have been somewhat higher than the national averages until 1940, and then dipped below. The female participation rates consistently have been below the national averages. However, if the trends of the past two decades continue, by 1970 both male and female rates should approach the national rate, since the rates of participation to a great extent reflect the industrial structure and employment opportunities.

Michigan has had a very heavy concentration of manufacturing industry throughout the 20th century, especially in durable goods, with the largest concentration in automobile manufacture. The proportional declines in manufacturing and the increases in non-commodity employment which open up new employment opportunities for white-collar workers, help to explain some of the changing patterns in Michigan and the projections for the future.

Comparing future growth with employment for 1960, there will be a need for approximately 900,000 new jobs over the decade.* Of this increase more than 45 per cent will constitute white-collar jobs.

Age and Sex Characteristics of the Labor Force

The outlook for future employment rests largely on the age and sex distributions for the population, since the size of the labor force is a function of participation rates of various segments of the population. Projections of the size and characteristics of the labor force from this decade to 1975 show the continuance of a very significant trend, the increasing participation of women in the labor market. Perhaps the most striking trend of the current decade is the increasing number of young workers entering the labor force.[5]

In 1900, one-fifth of all women 14 years and older were in the labor force. By 1960, the figure had risen to 36.1 per cent. The projected figures for 1975 anticipate a steady increase in the proportion of women in the labor force to 38.2 per cent of the female population 14 years old and older. (See Table 3).

Starting in the decade of the sixties, increasing millions of new young workers in the labor force have made the problems of maintaining a full-employment economy even more difficult. The expectation that the total population between 14 and 24 years of age will increase by more than 46.5 per cent between 1960 and 1970, and by more than 59.8 per cent between 1960 and 1975, shows why communities are facing increasing burdens of preparing youths for employment and in providing jobs for them.

The increases in the number seeking work from these age groups will approximate 6 million by 1970 and 8 million by 1975. Whereas the 14-24-year-old group comprised but 18.7 per cent of the

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[4]Cf. P. A. Sorokin, C. C. Zimmerman, and C. J. Galpin, A Systematic Source Book in Rural Sociology, Vol. 1, Minneapolis: The University of Minnesota Press, 1930, pp. 186, 239-241; N. P. Gist and L. A. Halbert, Urban Society, New York: Thomas Y. Crowell Co., 1938, pp. 3-4.

*Assuming full-employment (3% of labor force unemployed).

[5]S. Cooper, op. cit., p. 10.

Table 3

Labor Force Participation Rates by Age and Sex for the United States and Michigan
1940, 1950, 1960, and Projections for 1965, 1970, and 1975

Age and Sex	Labor Force Participation Rates, (per cent)								
	United States						Michigan		
	1 1940	1 1950	2 1960	2 1965	2 1970	2 1975	3 1940	3 1950	3 1960
Both Sexes									
14 years and over	52.2	53.4	57.4	57.1	57.0	57.0	52.7	53.7	55.0
14 to 24 years	44.1	45.7	50.2	49.4	49.7	50.0	44.5	46.1	44.4
25 to 34 years	63.7	61.0	65.8	66.2	66.7	67.1	62.4	60.2	62.9
35 to 44 years	60.8	64.2	69.3	70.6	71.5	72.0	60.8	63.1	67.3
45 to 64 years	55.1	58.2	66.6	68.1	68.9	69.2	55.9	58.4	64.8
65 years and over ...	23.3	23.6	20.3	18.3	17.4	16.8	23.6	29.9	17.2
Male									
14 years and over	79.0	78.9	79.7	77.9	77.1	76.9	80.5	80.2	78.3
14 to 24 years	57.8	59.1	63.5	61.9	62.2	62.4	57.6	59.0	56.3
25 to 34 years	95.2	92.1	96.4	96.2	96.2	96.2	95.9	93.0	95.4
35 to 44 years	94.7	94.5	96.4	96.7	96.7	96.7	95.7	94.7	96.2
45 to 64 years	88.7	88.2	90.4	90.7	90.6	90.3	90.2	89.3	90.7
65 years and over ...	41.5	41.5	32.2	28.2	26.4	25.4	42.2	42.0	26.2
Female									
14 years and over	25.4	29.0	36.1	37.3	38.0	38.2	23.3	27.5	32.7
14 to 24 years	30.5	32.5	36.7	36.5	36.8	37.2	31.3	33.6	35.5
25 to 34 years	32.9	31.8	35.8	36.8	37.5	38.0	28.7	29.3	33.2
35 to 44 years	26.9	35.0	43.1	45.5	47.0	47.9	22.8	31.8	40.5
45 to 64 years	19.8	28.8	43.8	46.7	48.8	49.7	16.5	25.4	40.1
65 years and over ...	5.9	7.8	10.5	10.5	10.5	10.5	5.1	7.0	9.8

Sources: 1

U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, U.S. Summary. Final Report PC (1) - 1C. U.S. Government Printing Office, Washington, D.C., 1962.

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S. Cooper, "Interim Revised Projections of U.S. Labor Force, 1965-75, "Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, 1962. The discrepancy between these data and those from the 1960 Census arises from allowances for population change between April 1, 1960 and July 1, 1960 and the inclusion of Armed Forces abroad, as well as from different sampling procedures between the census and the current population survey.

3

U.S. Bureau of the Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1) - 24C. U.S. Government Printing Office, Washington, D.C., 1962.

labor force in 1960, it will exceed 23 per cent in 1970-75. (See Table 4). The proportions of the total labor force of all age groups over 25, male and female, with the exception of women 44 years and older, will decline. However, there will be sizeable declines in actual numbers only for men aged 35-44 and 65 and over.

The actual rates of participation among the various age groups, especially for those in the 14-24 category, are not expected to change or the problems of employment would be compounded. (See Table 4). Actually, the greatest changes in participation rates are to be among women 25 years old and over. More women are either returning to the labor force or entering it for the first time after they have had their children. The emergent industrial structure which emphasizes trade and services is providing the types of opportunities ideally suited to this situation.

Although similar to the nation, Michigan does differ in some particular details regarding present and projected age and sex distributions of its labor force. The change in the sex distribution of the labor force is going to be more dramatic for Michigan than for the nation as a whole. This is accounted for by the lower participation rates for women in Michigan which have been discussed above. If current trends continue, total participation rates both male and female should be approximately 56.2 per cent by 1970. Participation rates for women, if they follow the trends over the past two decades, should be 38.6* per cent and the women as a proportion of the labor force should be greater than 34 per cent.

Between 1960 and 1970 there will be an increase in the youthful population in Michigan of more than half a million between the ages 14 and 24 or an increase of more than 55 per cent. If we assume that their participation in the labor force is to be at about the same rate as currently, there will be an increase in the labor force of at least 275,000 youthful workers. If we were to project increasing rates of participation based on the trends between 1940 and 1960, this figure would approximate the 300,000 suggested by the M.E.S.C.**

Whether one uses conservative or liberal estimates, the seriousness of the rise in youthful job aspirants and the critical problems posed for local communities are evident. The pressures on educational institutions to provide the kinds of training which may allow this tremendous bulge of young workers to be absorbed into the labor market cannot be denied.

More favorable to Michigan's employment picture will be the fact that the marked increase in youthful workers aged 14-24 will be offset almost completely during the coming decade by the decline in workers, male and female, in the 35-44 age group. (See Table 5). While there will be some decline in the 25-34 age group, there will be practically no change for those over 45 years old.

Trends in Occupational and Industrial Distribution

We have indicated some of the basic labor force trends and some of the expectations regarding the nature and size of the population which is going to comprise the labor force over the next decade. What types of training should persons receive if they are to be successful in their pursuit of employment? The only way one can clearly define the adequacy of vocational education or vocational preparation is to ask whether such training prepares workers to take the types of jobs which are available. This means that one must anticipate the occupational and industrial trends which make for particular types of employment. Knowledge about the labor market offers little help if training facilities, techniques and administration are inadequate. The educational experience which should be offered to meet these emergent needs is beyond the scope of this report.

To those studying the shifts in occupational distribution, the outstanding trend over the decade of the 1950's was "the much faster growth of white-collar (professional, managerial, clerical, and sales) than manual (craftsmen, operatives, and laborers) occupations."[6] This was a continuation of a long-term trend, from the turn of the century, in the employment of white-collar workers.

*Probably the 38.0 per cent shown in Table 2 is more likely.

** The Michigan Employment Security Commission projects an increase in this age group of 60.0 per cent or almost 300,000, although the projection of this age group presents them as constituting 21.6 per cent of the labor force. Discrepancies among the various statistics presented here and elsewhere in the report arise through a number of sources. Much of the current labor force data comes from the monthly sample survey by the Bureau of Labor Statistics and is presented in its "Monthly Report on the Labor Force." Population statistics are also based on sub-samples gathered during the intercensal periods found in Current Population Reports. Census data are based on labor force activity in a specific week during the census year. Much of the data gathered by the Bureau of Labor Statistics is reported in terms of annual averages, which run higher than the census reports of the labor market behavior for the same years.

[6]M. Rutzick and S. Swerdloff, "The Occupational Structure of U. S. Employment, 1940-60," Monthly Labor Review, November 1962, p. 1209.

Table 4

Distribution of the Total Labor Force, by Age and Sex, Annual Averages, Actual 1950, 1960 and Projected 1970 and 1975

Age and Sex	Actual		Projected	
	1950	1960	1970	1975
Both Sexes				
14 years and over	100.0	100.0	100.0	100.0
14 to 24 years	20.6	18.7	23.2	23.4
25 to 34 years	23.4	20.7	19.5	22.4
35 to 44 years	21.8	23.0	19.3	17.4
45 to 64 years	29.5	33.0	34.0	32.8
65 years and over ..	4.7	4.6	4.1	4.0
Male				
14 years and over	71.2	67.8	65.7	65.5
14 to 24 years	13.4	11.9	14.7	14.8
25 to 34 years	17.1	15.0	14.0	16.0
35 to 44 years	15.4	15.7	12.8	11.6
45 to 64 years	21.5	21.9	21.5	20.5
65 years and over ..	3.8	3.3	2.7	2.6
Female				
14 years and over	28.8	32.2	34.3	34.5
14 to 24 years	7.2	6.8	8.5	8.6
25 to 34 years	6.3	5.7	5.5	6.3
35 to 44 years	6.4	7.3	6.4	5.9
45 to 64 years	8.0	11.1	12.5	12.3
65 years and over ..	.9	1.3	1.4	1.4

Source: S. Cooper, "Interim Revised Projections of U.S. Labor Force, 1965-75," Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., 1962.

Table 5

Distribution of the Labor Force in Michigan by Sex and Age for 1940, 1950, 1960 and Projections for 1970

Sex and Age	1940[1]	1950[1]	1960[1]	1970[2]
Both Sexes				
14 years and over	100.0	100.0	100.0	100.0
14 to 24 years	21.6	18.6	17.1	23.8
25 to 34 years	24.9	24.8	21.7	19.9
35 to 44 years	21.9	22.3	24.3	19.8
45 to 64 years	28.0	29.9	33.3	32.9
65 years and over ..	3.6	4.4	3.6	3.6
Male				
14 years and over.....	78.5	74.3	69.7	69.1
14 to 24 years	14.0	11.7	10.5	14.6
25 to 34 years	19.2	18.6	16.1	14.8
35 to 44 years	17.9	16.7	17.0	13.9
45 to 64 years	24.1	23.6	23.4	23.1
65 years and over ..	3.3	3.7	2.7	2.7
Female				
14 years and over	21.5	25.7	30.3	30.9
14 to 24 years	7.6	6.9	6.6	9.2
25 to 34 years	5.7	6.2	5.6	5.1
35 to 44 years	3.9	5.6	7.2	5.9
45 to 64 years	3.8	6.3	9.9	9.8
65 years and over ..	.7	.7	1.0	.9

Source: [1]U.S. Bureau of the Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington D.C., 1962.

[2]J.F. Thaden, Population of Michigan Counties, Projections to 1970, Institute for Community Development, Technical Bulletin B-24, Continuing Education Service, Michigan State University, 1962. The sex ratios for 1960 were used to derive the separate male and female projections for 1970.

As the data on employment indicate, in 1900 there were half as many white-collar workers as blue. (See Table 6). By 1956, the number of white-collar workers had surpassed the number of blue and this gap continues to increase. During this long-term period the greatest increase has been in clerical workers, mainly in stenographic, typing, and secretarial work, an elevenfold increase. Professional workers, second only to the clerical workers in rate of growth, increased more in the newer fields than in the traditional ones, and this trend also is continuing.[7]

Table 6

Occupational Composition of the Non-Farm Labor Force,[1] 1900 and 1950

Occupation Group	Per cent distribution 1900	1950	Per cent change in labor force 1900-1950
All occupations	100	100	187
White-collar workers	28	42	322
Professional, technical, and kindred workers	7	10	312
Managers, officials, and proprietors	9	10	204
Clerical and kindred workers	5	14	725
Sales workers	7	8	216
Blue-collar workers	57	47	133
Craftsmen, foremen and kindred workers	17	16	173
Operatives and kindred workers	21	23	233
Laborers	20	8	7
Service workers	15	12	135
Private household workers	9	3	-2
Service workers, excluding private household	6	9	343

[1]The data for 1900 included all persons 10 years of age and over reporting a non-farm occupation in the census; those for 1950, all persons 14 years of age and over who were employed in a non-farm occupation during the week preceding the census and those unemployed whose last occupation was non-farm, i.e., the non-farm labor force.

Source: C. A. Barry. "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, Table 1, p. 12.

During the past decade, white-collar workers increased by nearly 28 per cent in contrast to the 6 per cent increase in manual workers. (See Table 7). In 1950, manual workers constituted 40.3 per cent of the work force in the United States, while white-collar workers constituted but 37.4 per cent. By 1960 they comprised 43.3 per cent of the employed civilian labor force, while manual workers constituted but 38.6 per cent. The long-term decline in agricultural workers continued during this decade, so that by 1960 the number of farm workers had declined to 6.4 per cent of the work force.

The fastest growing major occupational group during the 1950's was the professional, technical, and kindred workers, whose employment increased four times as fast as total employment and three times as fast as total non-agricultural employment.[8] The largest single percentage increase in this group

[7]Ibid., p. 1210; also C. A. Barry, "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, pp. 12 ff., also, U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 26.

[8]Rutzick and Swerdloff, loc. cit.

Table 7

DISTRIBUTION OF EMPLOYED CIVILIAN WORKERS, BY OCCUPATIONAL GROUPS AND SELECTED OCCUPATIONS, UNITED STATES,[1] 1940, 1950, AND 1960

Occupation groups and selected occupations	1960		1950		1940		Percent increase	
	Number	Percent	Number	Percent	Number	Percent	1940-50	1950-60
All employed persons	64,639,247	.....	56,435,273	.....	45,070,315	.....	25.2	14.5
Persons with occupations reported	61,455,572	100.0	55,692,340	100.0	44,651,964	100.0	24.7	10.3
White-collar workers	26,587,834	43.3	20,819,314	37.4	14,676,255	32.9	41.9	27.7
Professional, technical, and kindred workers	7,232,410	11.8	4,921,272	8.8	3,579,585	8.0	37.5	47.0
Engineers, technical [5]	853,738	1.4	519,680	.9	275,544	.6	88.6	64.3
Chemical	41,026	.1	32,543	.1	(2)	(2)	(2)	26.1
Civil	155,173	.3	125,125	.2	(2)	(2)	(2)	24.0
Electrical	183,887	.3	105,887	.2	(2)	(2)	(2)	73.7
Industrial	97,458	.2	40,278	.1	(2)	(2)	(2)	142.0
Mechanical	158,188	.3	112,440	.2	(2)	(2)	(2)	40.7
Sales	56,836	.1	24,734	(3)	(2)	(2)	(2)	129.8
Natural scientists	149,330	.2	116,918	.2	(2)	(2)	(2)	27.7
Biological scientists	13,937	(3)	9,215	(3)	(2)	(2)	(2)	51.2
Chemists	83,420	.1	74,637	.1	(2)	(2)	(2)	11.8
Mathematicians	7,527	(3)	1,691	(3)	(2)	(2)	(2)	345.1
Physicists	13,941	(3)	7,422	(3)	(2)	(2)	(2)	87.8
Medical and other health workers	1,305,901	2.1	1,007,515	1.8	(2)	(2)	(2)	29.6
Dentists	83,003	.1	75,355	.1	(2)	(2)	(2)	10.2
Dietitians and nutritionists	26,119	(3)	22,474	(3)	(2)	(2)	(2)	16.2
Nurses, student professional and professional	639,719	1.0	476,647	.9	(2)	(2)	(2)	34.2
Physicians and surgeons	228,926	.4	192,520	.3	(2)	(2)	(2)	18.9
Technicians, medical and dental	138,162	.2	76,662	.1	(2)	(2)	(2)	80.2
Teachers, elementary and secondary schools	1,521,590	2.5	1,042,809	1.8	(2)	(2)	(2)	45.9
Other professional, technical, and kindred workers	3,401,851	5.5	2,234,350	4.0	(2)	(2)	(2)	52.3
Accountants and auditors	471,302	.8	378,055	.7	(2)	(2)	(2)	24.7
Lawyers and judges	212,408	.3	181,646	.3	(2)	(2)	(2)	16.9
Technicians, electrical and electronic	91,463	.1	11,738	(3)	(2)	(2)	(2)	679.2
Technicians, other engineering and physical science	183,609	.3	90,995	.2	(2)	(2)	(2)	101.8
Managers, officials, and proprietors, except farm	5,409,543	8.8	5,036,808	9.0	3,633,656	8.1	38.6	7.4
Salaried	3,387,918	5.5	2,508,984	4.5	(2)	(2)	(2)	35.0
Self-employed	2,021,625	3.3	2,527,824	4.5	(2)	(2)	(2)	−20.0
Clerical and kindred workers	9,306,896	15.1	6,954,440	12.5	4,382,300	9.8	58.7	33.8
Secretaries, stenographers, and typists [4]	2,178,641	3.5	1,507,649	2.7	990,157	2.2	52.3	44.5
Other clerical workers	7,128,255	11.6	5,446,791	9.8	3,392,143	7.6	60.6	30.9
Cashiers	468,950	.8	231,382	.4	(2)	(2)	(2)	102.7
Office-machine operators	307,828	.5	142,350	.3	(2)	(2)	(2)	116.2
Sales workers	4,638,985	7.5	3,906,794	7.0	3,080,714	6.9	26.8	18.7
Retail trade	2,694,745	4.4	2,449,760	4.4	(2)	(2)	(2)	10.0
Other than retail trade	1,944,240	3.2	1,457,034	2.6	(2)	(2)	(2)	33.4
Insurance agents, brokers, and underwriters	364,557	.6	272,663	.5	(2)	(2)	(2)	33.7
Real estate agents and brokers	193,104	.3	141,003	.3	(2)	(2)	(2)	37.0
Salesmen and sales clerks, manufacturing	464,770	.8	328,084	.6	(2)	(2)	(2)	41.7
Manual workers	23,746,463	38.6	22,437,059	40.3	16,394,204	36.7	36.9	5.8
Craftsmen, foremen, and kindred workers	8,741,292	14.2	7,820,634	14.0	5,171,394	11.6	51.2	11.8
Foremen (not elsewhere classified) [5]	1,096,658	1.8	777,266	1.4	485,214	1.1	60.2	41.1
Construction craftsmen [5]	2,404,323	3.9	2,354,906	4.2	(2)	(2)	(2)	2.1
Brickmasons, stonemasons, and tile setters	185,909	.3	165,981	.3	(2)	(2)	(2)	12.0
Carpenters	818,835	1.3	918,753	1.6	(2)	(2)	(2)	−10.9
Electricians	337,147	.5	311,251	.6	(2)	(2)	(2)	8.3
Mechanics and repairmen [5]	2,197,193	3.6	1,708,812	3.1	831,125	1.9	105.6	28.6
Air-conditioning, heating, and refrigeration equipment	61,997	.1	43,639	.1	(2)	(2)	(2)	42.1
Automobiles	682,103	1.1	654,350	1.2	(2)	(2)	(2)	4.2
Office machines	29,262	(3)	31,023	.1	(2)	(2)	(2)	−5.7
Metal craftsmen, except mechanics [5]	1,099,835	1.8	1,095,683	2.0	932,962	2.1	17.4	.4
Boilermakers	23,754	(3)	35,645	.1	(2)	(2)	(2)	−33.4
Machinists	498,688	.8	514,696	.9	(2)	(2)	(2)	−3.1
Molders	48,929	.1	60,676	.1	(2)	(2)	(2)	−19.4
Toolmakers, and diemakers and setters	182,345	.3	152,658	.3	(2)	(2)	(2)	19.4
Other craftsmen	1,943,283	3.2	1,883,967	3.4	(2)	(2)	(2)	3.1
Locomotive engineers	56,630	.1	73,004	.1	(2)	(2)	(2)	−22.4
Locomotive firemen	37,087	.1	54,263	.1	(2)	(2)	(2)	−31.7
Operatives and kindred workers	11,897,636	19.4	11,180,315	20.1	8,079,922	18.1	38.4	6.4
Drivers and deliverymen	2,279,576	3.7	1,906,616	3.4	1,495,174	3.4	27.5	19.6
Other operatives, etc	9,618,060	15.7	9,273,699	16.7	6,584,748	14.8	40.8	3.7
Laborers, except farm and mine	3,107,535	5.1	3,436,110	6.2	3,142,888	7.0	9.3	−9.6
Service workers, including private household	7,170,784	11.7	5,708,178	10.2	5,291,594	11.9	7.9	25.6
Service workers, except private household	5,444,958	8.9	4,297,018	7.7	3,200,341	7.2	34.3	26.7
Protective service workers [5]	662,133	1.1	564,414	1.0	499,721	1.0	25.5	17.3
Waiters, bartenders, cooks, and counter workers	1,717,083	2.8	1,328,018	2.4	927,842	2.1	43.1	29.3
Other service workers	3,065,742	5.0	2,404,586	4.3	1,822,778	4.1	31.9	27.5
Private household workers	1,725,826	2.8	1,411,160	2.5	2,091,253	4.7	−32.5	22.3
Agricultural workers	3,950,491	6.4	6,727,789	12.1	8,289,911	18.5	−18.8	−41.3
Farmers and farm managers	2,505,684	4.1	4,310,979	7.7	5,147,789	11.5	−16.3	−41.9
Farm laborers and farm foremen	1,444,807	2.4	2,416,810	4.3	3,142,122	7.0	−23.1	−40.2
Occupations not reported	3,183,675	.....	742,933	.....	418,351	.....	328.5	661.0

1 1940 and 1950 adjusted to include Alaska and Hawaii.
2 Not available.
3 Less than 0.05 percent.
4 Female only; the comparatively few men recorded in this group are included in the total for the major occupational group.
5 Male only; the few women recorded in this group are included in the total for the major occupational group.

NOTE: Because of rounding, sums of individual items may not equal totals. Most totals include occupation not shown separately.

SOURCE: *United States Census of Population, 1960, United States Summary, General Social and Economic Characteristics, PC-1 Series*, table 89, and State reports on *Detailed Characteristics, PD-1 Series* for 50 States and the District of Colnmbia, table 120.

Source: M. Rutzick and S. Swerdloff, "The Occupational Structure of U.S. Employment, 1940-60," Monthly Labor Review, November 1962, p. 1211.

took place for technicians in the electrical and electronic fields. Teachers in elementary and secondary schools, who comprise the largest single professional group, also showed a very large increase during the decade.

Although clerical and sales employment has continued to increase at somewhat lower rates than in previous decades, this group still had an increase about three times greater than the increase for total employment. The largest increase for this group continues to be among secretaries, stenographers, and typists. Very large increases also took place in the number of cashiers and operators of business machines.

Sales workers increased by about 19 per cent. However much of the recent growth in the total number of sales workers is associated with increasing utilization of part-time workers in retail stores,[9] although the increases should diminish with the introduction of self-service devices.[10] It is among the non-retail sales workers such as wholesale trade, insurance, and real estate salesmen that the rate of growth has been greatest.

The growth in numbers of blue-collar workers continues but at a rapidly declining rate. Employment of craftsmen rose, but at 12 per cent below the average increase for total employment. A large proportion of the increase for this group came from the increases in craftsmen, foremen, and kindred workers. Within this group the largest increases were in the number of foremen, mechanics, and repairmen. While there was some increase in craftsmen in construction, metal craftsmen and other types of craftsmen showed marked declines. There was almost a 10 per cent decline in the number of non-farm laborers, so that by 1960 they comprised but 5.1 per cent of the total employed.

Service workers continue to show marked rates of increase, although somewhat lower than for the previous decade. The marked decline in private household workers during the decade of the 1940's was replaced in the 1950's by a marked increase. By 1960, service workers comprised almost 12 per cent of the entire employed labor force.

The increasing importance of white-collar work and the decline in blue-collar occupations rest essentially on the changing nature of our technology, and on the changing composition of American industry. Technological changes have reduced the number of operatives and laborers in manufacturing, mining, and other industries. Employment has risen rapidly in all of the service industries, public and private, providing increasing opportunities for white-collar workers. On the other hand, the growth rate of goods-producing industries has slowed down, providing fewer opportunities for blue-collar workers.[11] (See Table 8).

Production changes associated with greater uses of automated equipment are perhaps most familiar. However, the electronic data processing revolution in traditional white-collar office occupations is equally significant to employment trends. And to these one must add the changes which are being introduced into traditional retail trade areas, which provide self-service instead of employment for service workers.[12]

Even more startling is the increasing importance of white-collar workers in the manufacturing and service sectors of the economy. In Table 9 we see some of the changes which have taken place between 1952 and 1960 in the relative employment of white-collar and blue-collar workers in the various industries. In construction, manufacture of durable goods, and the service industries there are prominent increases in the number of white-collar workers over this eight-year period, while the employment of blue-collar workers in the same areas decreased (with the exception of the service industries), or increased at a lower rate.[13]

Recent Congressional hearings have described white-collar employment trends in selected industries emphasizing the radical changes taking place in occupational distribution.[14] For example, in the

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[9] Ibid., p. 1212.

[10] Loc. cit.

[11] U. S. Department of Labor, "Manpower Report of the President..." loc. cit.

[12] Vending machines are the most primitive form of self-service retailing. Department stores and supermarkets completely eliminating clerical help are now being contemplated seriously.

[13] Barry, op. cit., pp. 15-16.

[14] Committee on the Judiciary. Subcommittee No. 1. House of Representatives, Special Series No. 3, "Study of Population and Immigration Problems. Manpower in the United States with Projection to 1970," presented by Dr. S. L. Wolfbein, Washington, D. C.: U. S. Government Printing Office, 1962.

Table 8

CIVILIAN EMPLOYMENT BY MAJOR INDUSTRY GROUP AND AVERAGE ANNUAL RATES OF CHANGE
1947, 1957, 1976, and 2000

Major Industry Group	Employment (millions)				Average Annual Rates of Change			
	1947	1957	1976	2000	1947-57	1957-76	1957-2000	1976-2000
Agriculture.....	8.34	6.24	4.56	5.35	-2.9	-1.7	-0.4	1.3
Mining.....	0.87	0.69	0.68	0.60	-2.3	-0.1	-0.3	-0.5
Manufacturing.....	16.12	17.31	21.15	25.00	0.7	1.1	0.9	0.7
Utilities.....	0.62	0.69	0.99	1.20	1.1	1.9	1.3	0.8
Construction.....	2.85	3.62	6.20	7.40	2.4	2.9	1.7	0.7
Transportation.....	3.19	2.88	2.84	2.94	-1.0	-0.1	0.0	0.1
Communication.....	0.76	0.89	1.17	1.40	1.6	1.5	1.1	0.8
Trade.....	10.96	12.72	20.25	35.00	1.5	2.5	2.4	2.3
Finance and real estate..	1.86	2.55	3.48	5.00	3.2	1.7	1.6	1.5
Services.....	7.85	10.99	19.68	35.00	3.4	3.1	2.6	2.4
Government.....	4.41	6.38	9.10	16.21	3.8	1.9	2.2	2.4
Statistical discrepancy..	-0.02	0.05	---	---	---	---	---	---
Total.....	57.81	65.01	90.10	135.10	1.2	1.6	1.7	1.7

Source: Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportation, Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., 1962, Tables E-6 and E-6a.

Table 9

INDUSTRIAL DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT, BY MAJOR OCCUPATION GROUP, 1952 AND 1960

(Percent)

Occupation group	All industries	Construction	Manufacturing		Transportation and public utilities	Wholesale and retail trade	Service and miscellaneous[1]	All other[2]
			Durable goods	Nondurable goods				
White-collar workers:								
1952	100.0	2.9	9.3	8.4	7.5	33.2	30.2	8.5
1960	100.0	3.3	10.3	8.1	6.5	28.9	34.9	8.1
Blue-collar workers:								
1952	100.0	13.9	27.6	21.7	11.6	11.0	7.8	6.4
1960	100.0	13.9	27.1	21.6	11.3	12.7	9.3	4.2
Service workers, excluding private household:								
1952	100.0	.6	3.9	3.3	3.1	31.5	46.7	10.9
1960	100.0	.4	2.8	2.6	2.1	28.8	53.3	10.1
WHITE-COLLAR OCCUPATIONS								
Professional, technical, and kindred workers:								
1952	100.0	3.1	10.7	6.9	3.0	4.0	63.8	8.5
1960	100.0	2.7	13.0	6.6	4.0	3.2	63.1	7.3
Managers, officials, and proprietors:								
1952	100.0	5.6	6.6	7.4	6.0	50.7	18.6	5.1
1960	100.0	7.3	7.7	7.2	5.5	45.4	22.0	5.0
Clerical and kindred workers:								
1952	100.0	1.9	13.5	10.2	14.7	19.6	25.1	15.0
1960	100.0	2.1	12.9	9.6	11.8	17.7	31.5	14.5
Sales workers:								
1952	100.0	.3	2.7	8.0	.5	74.0	14.3	.2
1960	100.0	.3	4.1	8.6	.8	70.7	15.4	.1

[1]Includes finance, insurance, and real estate.

[2]Public administration, mining, forestry, and fisheries.

Note: Because of rounding, sums of individual items may not equal totals.

Source: C.A. Barry, "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, Table 3, p. 14.

automobile industry in 1951, white-collar workers constituted 16.7 per cent of all employees; in 1960 they constituted 21.8 per cent.[15] In agricultural implement manufacture, white-collar workers constituted 22.0 per cent of the employees in 1951 and 31.6 per cent in 1960. In the aerospace field, white-collar workers constituted 26.3 per cent of the labor force in 1951 and 41.7 per cent in 1960. In certain electronic plants, white-collar workers now outnumber blue-collar workers by two to one.

Projections for the coming decade and beyond suggest continuations of current trends. (See Table 10). Professional, technical, and kindred workers will show the greatest increases, with service workers not far behind. Somewhat smaller increases will continue for the other white-collar groups, with clerical workers outpacing both sales workers, and managers, officials, and proprietors, as a group.

Among the blue-collar workers, only the craftsmen and foremen will maintain their relative percentages in the labor force. All other groups will show proportionate declines. Farm workers and non-farm labor will continue their absolute and relative declines.

It is apparent that occupations with high educational requirements are going to offer the greatest employment opportunities.[16] This is clear from the continuing demand for professional and semi-professional workers. The demand for skilled technicians in the electronics, electrical equipment, chemistry, aircraft, paper and similar fields will be very high. In a recent survey it was found that between 1959 and 1960 "the rate of increase in employment of technicians was greater than that for engineers and scientists,"[17] although the ratio of technicians to scientists and engineers is lower than one to one.

There will evidently be a need for other white-collar workers, especially for office workers with typing and stenographic skills and the ability to operate office equipment. Service occupations which will continue in high demand are those found in food service and hospital work. Among the relatively unskilled there should remain an increasing demand for domestic service.

In the skilled trades there seems to be a continuing need for repairmen of all types, especially automobile mechanics, TV, radio, and appliance servicemen, business machine, air-conditioning, refrigeration, and instrument repairmen and mechanics, as well as all-around skilled tailors.[18] The largest group of manual workers will continue to be operatives and kindred workers. Of this group, drivers and deliverymen will continue to show the greatest gains for the coming decade.

As one might expect, historical changes in occupational structure in region and state have continued into the 1950's. How do the patterns of occupational change in the East North Central region, of which Michigan is a part, compare with the national patterns, and how do changes in Michigan compare with the national and regional trends?

The region as a whole reflected the same trends found for the entire country. However, the rates of growth are lower in all occupational categories in which there is growth, and the declines are less in all occupational groups in which there are declines, with the exception of farm laborers and farm foremen. (See Table 11). These growth patterns are reflected in the over-all occupational statistics which show that while the growth was 10.4 per cent for the entire country; the growth in the East North Central Region was only 7.9 per cent. The greatest rates of growth in the country are found in the Mountain and Pacific regions, in which employment increased by approximately one-third over the past decade.

Michigan is the only state in the East North Central region which showed a greater rate of growth over the 1950's than the national average, although the difference is minor. The growth in employment of professional and technical workers exceeded the national increase by 16.4 per cent, and the regional increase by 30.5 per cent. Increases in the managerial, official, and proprietor occupations, although 24.3 per cent greater than the national increases, were 460.0 per cent greater than the regional increases.

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[15] Ibid., p. 91

[16] C. A. Barry, "White Collar Employment: II - Characteristics," Monthly Labor Review, February 1961, pp. 144 ff.

[17] U. S. Department of Labor Bureau of Labor Statistics, "Scientific and Technical Personnel in Industry 1960," Washington, D. C.: U. S. Government Printing Office, 1961, pp. 15-17.

[18] U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 31.

Table 10

Employment in the United States by Major Occupational Group, 1960 to 1976

Major occupational group	Actual, 1960		Projected, 1970		Projected, 1976		Percent Change		
	Number (in millions)	Percent	Number (in millions)	Per cent	Number (in millions)	Per cent	1960-70	1970-75	1960-75
Total	66.7	100.0	80.5	100.0	87.6	100.0	21	9	31
Professional, technical, and kindred workers	7.5	11.2	10.7	13.3	12.4	14.2	43	16	65
Managers, officials, and proprietors, except farm	7.1	10.6	8.6	10.7	9.4	10.7	21	9	32
Clerical and kindred workers..	9.8	14.7	12.8	15.9	14.2	16.2	31	11	45
Sales workers	4.4	6.6	5.4	6.7	5.9	6.7	23	9	34
Craftsmen, foremen, and kindred workers	8.6	12.8	10.3	12.8	11.2	12.8	20	9	30
Operatives and kindred workers	12.0	18.0	13.6	16.9	14.2	16.3	13	4	18
Service workers	8.3	12.5	11.1	13.8	12.5	14.3	34	13	51
Laborers, except farm and mine	3.7	5.5	3.7	4.6	3.7	4.3	-------	-------	-------
Farmers, farm managers, laborers, and foremen	5.4	8.1	4.2	5.3	3.9	4.5	-22	-7	-28

Source: Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training, The United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

Table 11

Geographic Distribution of Employed Civilian Workers in All Occupations and in Major Occupation Groups United States, 1950, and 1960 (Percent)

Region and State	All occupations [1]		Professional, technical, and kindred workers		Managers, officials, and proprietors, except farm		Clerical and kindred workers		Sales workers		Craftsman, foremen, and kindred workers	
	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950
Total, 51 States. Number	63,455,572	55,692,340	7,232,410	4,921,272	5,409,543	5,036,808	9,306,896	3,954,440	4,938,985	3,930,704	8,741,292	7,820,634
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England	6.2	6.4	6.7	7.0	5.9	6.3	6.6	7.1	6.1	6.6	6.7	7.0
Maine	.5	.6	.4	.5	.5	.5	.4	.4	.5	.5	.5	.5
New Hampshire	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4
Vermont	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
Massachusetts	3.1	3.2	3.6	3.8	2.9	3.2	3.5	3.9	3.2	3.5	3.2	3.5
Rhode Island	.5	.5	.4	.5	.4	.5	.5	.6	.5	.5	.6	.6
Connecticut	1.6	1.5	1.8	1.7	1.5	1.5	1.8	1.7	1.5	1.4	1.9	1.8
Middle Atlantic	20.1	21.0	21.5	23.5	20.1	22.0	23.3	25.5	20.7	21.5	20.4	22.4
New York	10.3	10.5	11.2	12.7	10.9	12.0	12.9	14.2	10.4	11.2	9.4	10.5
New Jersey	3.6	3.5	4.0	4.0	3.8	4.0	4.1	4.2	3.7	3.4	4.0	4.0
Pennsylvania	6.4	7.0	6.1	6.7	5.4	6.0	6.4	7.1	6.6	6.9	7.1	8.0
East North Central	20.6	21.0	19.7	20.4	18.4	19.6	21.0	22.5	20.6	21.1	22.4	23.6
Ohio	5.4	5.4	5.3	5.4	4.8	5.0	5.4	5.7	5.5	5.7	6.2	6.5
Indiana	2.7	2.7	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.6	2.8	3.0
Illinois	6.0	6.3	5.8	5.6	6.3	7.0	8.0	8.0	6.0	6.3	6.3	6.8
Michigan	4.3	4.3	4.3	4.3	3.7	3.8	4.1	4.3	4.4	4.3	4.8	5.0
Wisconsin	2.3	2.4	2.0	2.2	2.0	2.1	2.0	2.1	2.2	2.3	2.3	2.4
West North Central	8.7	9.5	8.6	8.7	8.6	9.2	8.0	8.6	8.7	9.5	7.5	8.0
Minnesota	1.9	2.0	2.0	2.0	1.9	2.0	1.8	2.0	2.0	2.1	1.7	1.8
Iowa	1.6	1.8	1.4	1.6	1.5	1.7	1.3	1.4	1.6	1.8	1.2	1.5
Missouri	2.4	2.7	2.4	2.4	2.3	2.3	2.5	2.3	2.5	2.8	2.2	2.3
North Dakota	.3	.4	.3	.3	.4	.4	.2	.2	.3	.3	.2	.3
South Dakota	.4	.4	.3	.4	.4	.4	.3	.3	.3	.4	.3	.3
Nebraska	.8	.8	.7	.8	.9	.9	.7	.8	.8	.9	.7	.7
Kansas	1.2	1.3	1.3	1.2	1.3	1.3	1.1	1.1	1.3	1.3	1.2	1.2
South Atlantic	14.0	13.5	12.7	11.9	13.7	11.8	12.4	11.4	13.5	12.3	13.1	11.9
Delaware	.3	.2	.3	.3	.2	.2	.3	.2	.3	.2	.3	.3
Maryland	1.7	1.6	2.1	1.8	1.7	1.6	2.1	1.9	1.8	1.6	1.9	1.8
District of Columbia	.5	.7	.7	1.0	.4	.6	.9	1.6	.3	.5	.3	.5
Virginia	2.1	2.0	2.1	1.9	2.0	1.8	2.0	1.9	2.0	1.8	2.0	1.9
West Virginia	.8	1.1	.8	.9	.8	.9	.6	.8	.6	1.0	.9	1.2
North Carolina	2.5	2.6	1.8	1.8	2.0	1.9	1.6	1.4	2.2	2.2	2.1	2.0
South Carolina	1.3	1.3	.9	.9	1.0	.9	.8	.6	1.1	1.1	1.1	1.0
Georgia	2.2	2.2	1.6	1.6	2.1	1.8	1.7	1.6	2.0	1.9	1.9	1.6
Florida	2.6	1.8	2.4	1.7	3.5	2.3	2.4	1.5	3.0	2.0	2.7	1.7
East South Central	6.1	3.8	4.8	5.0	5.4	5.2	4.4	4.3	5.5	5.5	5.5	5.2
Kentucky	1.5	1.7	1.2	1.2	1.3	1.3	1.1	1.2	1.4	1.4	1.3	1.4
Tennessee	1.9	3.0	1.6	1.6	1.7	1.6	1.5	1.5	1.8	1.8	1.7	1.7
Alabama	1.7	1.8	1.3	1.3	1.5	1.4	1.2	1.1	1.5	1.5	1.6	1.4
Mississippi	1.1	1.3	.8	.8	1.0	.9	.6	.6	.8	.8	.8	.7
West South Central	8.8	8.9	8.2	8.2	10.0	9.3	7.8	7.3	8.7	8.9	8.4	8.0
Arkansas	.9	1.1	.6	.8	.9	.9	.6	.6	.8	.9	.7	.7
Louisiana	1.6	1.6	1.4	1.4	1.7	1.5	1.3	1.2	1.4	1.4	1.4	1.3
Oklahoma	1.2	1.3	1.2	1.2	1.4	1.5	1.2	1.2	1.3	1.4	1.2	1.3
Texas	5.1	4.9	4.9	4.8	5.9	5.4	4.8	4.3	5.2	5.2	5.0	4.8
Mountain	3.7	3.1	4.0	3.4	4.4	3.5	3.4	2.7	3.5	3.0	3.7	3.0
Montana	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3
Idaho	.4	.4	.3	.3	.4	.4	.3	.3	.3	.3	.3	.2
Wyoming	.2	.2	.2	.2	.2	.3	.2	.1	.2	.2	.2	.2
Colorado	1.0	.8	1.2	1.0	1.2	1.0	1.0	.9	1.0	.9	.9	.8
New Mexico	.5	.4	.6	.4	.6	.4	.4	.3	.4	.3	.5	.4
Arizona	.7	.4	.7	.5	.8	.5	.6	.4	.7	.4	.7	.4
Utah	.5	.4	.5	.5	.5	.4	.5	.4	.5	.4	.5	.5
Nevada	.2	.1	.2	.1	.2	.2	.2	.1	.1	.1	.2	.1
Pacific	11.9	9.8	14.2	11.9	12.6	12.1	13.0	10.8	12.7	11.6	12.3	10.7
Washington	1.6	1.5	1.8	1.7	1.8	1.7	1.6	1.5	1.6	1.7	1.7	1.7
Oregon	1.0	1.0	1.0	1.0	1.2	1.3	.9	.9	1.0	1.1	1.0	1.0
California	8.9	6.9	10.9	8.8	10.2	8.8	10.1	8.0	9.7	8.5	9.2	7.6
Alaska	.1	.1	.1	.1	.1	.1	.1	.1	.1	[2]	.1	.1
Hawaii	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.3

[1] Includes occupations reported only. See footnote 1, table 1.

[2] 1950 total adjusted to include Alaska and Hawaii.

Source: S. P. Manor, "Geographic Changes in U. S. Employment from 1950 to 1960," Monthly Labor Review, January 1963, pp. 6-7

Table 11 (con't)

Region and State	Operatives and kindred workers		Laborers, except farm and mine		Service workers, except private household		Private household workers		Farmers and farm managers		Farm laborers and farm foremen	
	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950
Total, 51 States: Number.	11,897,636	11,190,315	3,127,535	3,436,110	5,444,958	4,297,018	1,725,826	1,411,160	2,505,684	4,319,979	1,444,807	2,416,810
Percent.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England.	7.6	8.8	4.9	5.6	5.9	6.3	1.0	4.6	1.4	1.5	2.4	2.7
Maine.	.7	.7	.7	.9	.5	.5	.5	.5	.3	.4	.5	.8
New Hampshire.	.5	.6	.3	.4	.3	.3	.3	.3	.1	.2	.2	.2
Vermont.	.2	.2	.2	.2	.2	.2	.3	.3	.4	.3	.5	.5
Massachusetts.	3.7	4.3	2.3	2.6	3.2	2.5	1.6	2.1	.2	.3	.6	.6
Rhode Island.	.5	.6	.4	.4	.5	.5	.2	.3	(1)	.1	.1	.1
Connecticut.	1.8	2.0	1.1	1.1	1.3	1.3	1.1	1.1	.2	.3	.5	.4
Middle Atlantic.	22.0	24.6	18.3	19.9	20.6	22.6	14.6	18.2	5.5	5.0	6.4	8.2
New York.	10.1	11.0	7.6	7.9	11.2	12.8	7.9	9.9	2.5	2.3	2.8	2.7
New Jersey.	4.1	4.3	3.0	3.1	3.2	3.2	2.3	2.9	.6	.5	.9	.9
Pennsylvania.	7.9	9.4	7.7	8.9	6.2	6.6	4.4	5.4	2.4	2.2	2.7	2.8
East North Central.	23.1	24.1	19.5	19.3	20.5	21.1	14.1	14.0	18.2	16.5	12.3	13.3
Ohio.	6.2	6.3	5.7	5.3	5.2	5.4	4.0	4.0	3.4	3.4	2.4	2.5
Indiana.	3.1	3.2	2.8	2.7	2.6	2.5	1.9	1.9	3.2	2.9	1.8	1.9
Illinois.	6.2	6.7	5.5	5.8	6.0	6.8	3.4	3.9	4.9	4.6	2.8	3.0
Michigan.	5.1	5.9	3.5	3.5	4.3	4.2	3.4	2.8	3.4	2.3	1.8	1.9
Wisconsin.	2.5	2.4	2.0	2.0	2.3	2.2	1.4	1.4	4.4	3.6	3.6	2.9
West North Central.	6.8	6.5	7.4	8.2	8.9	8.8	6.9	6.2	20.9	21.5	13.4	15.7
Minnesota.	1.5	1.4	1.5	1.6	2.0	2.0	1.6	1.2	5.3	4.9	2.3	3.5
Iowa.	1.2	1.3	1.3	1.5	1.6	1.6	1.2	1.2	6.3	4.8	3.2	3.4
Missouri.	2.3	2.4	2.3	2.5	2.4	2.6	1.8	2.1	4.2	4.4	2.4	2.9
North Dakota.	.1	.1	.2	.3	.4	.3	.3	.2	1.1	1.6	1.1	1.3
South Dakota.	.2	.1	.3	.3	.4	.1	.4	.2	2.2	1.9	1.1	1.2
Nebraska.	.5	.5	.7	.8	.9	.8	.7	.5	3.4	2.5	1.3	1.7
Kansas.	.9	.8	1.1	1.2	1.3	1.1	1.0	.8	3.3	2.8	1.4	1.7
South Atlantic.	14.4	13.8	16.3	15.5	13.3	12.3	23.4	23.7	13.8	16.3	21.0	21.3
Delaware.	.2	.2	.2	.3	.2	.2	.3	.3	.2	.1	.2	.2
Maryland.	1.5	1.5	1.8	1.9	1.6	1.6	1.8	2.2	.7	.6	1.0	1.0
District of Columbia.	.3	.3	.6	.6	.9	1.1	1.0	1.3	(1)	(1)	(1)	(1)
Virginia.	2.0	2.0	2.5	2.6	1.9	1.8	2.9	3.1	2.4	2.4	2.5	2.8
West Virginia.	1.1	1.8	1.1	1.2	.8	.9	.6	.6	.6	.9	.6	1.0
North Carolina.	3.4	3.1	2.6	2.5	1.9	1.8	4.1	4.0	5.0	5.3	5.1	4.4
South Carolina.	1.7	1.5	1.6	1.5	1.0	.9	2.9	2.9	1.8	2.5	3.2	3.7
Georgia.	2.5	2.2	2.8	2.7	2.0	1.9	5.1	5.3	2.4	3.7	3.7	4.3
Florida.	1.8	1.2	3.2	2.4	3.1	2.3	4.5	3.7	.9	.9	4.6	3.2
East South Central.	6.5	6.1	7.4	7.1	5.4	5.4	11.1	10.8	12.6	16.6	12.0	13.1
Kentucky.	1.6	1.7	1.5	1.5	1.3	1.4	1.5	1.6	3.8	4.0	2.4	3.0
Tennessee.	2.1	1.9	2.1	2.0	1.8	1.8	2.9	2.9	3.5	4.1	2.5	2.9
Alabama.	1.8	1.8	2.4	2.3	1.5	1.4	3.9	3.9	2.4	3.7	2.5	3.3
Mississippi.	1.0	.8	1.4	1.4	.9	.8	2.8	2.4	2.9	4.8	4.5	3.7
West South Central.	7.5	8.5	10.6	10.5	9.2	8.8	13.2	12.5	11.1	13.8	13.2	14.1
Arkansas.	.9	.7	1.2	1.3	.8	.8	1.4	1.3	2.0	3.3	1.9	2.3
Louisiana.	1.4	1.5	2.4	2.5	1.7	1.6	2.6	3.1	1.3	2.1	2.0	2.4
Oklahoma.	.9	.9	1.1	1.2	1.3	1.3	1.1	1.2	2.0	2.6	1.3	1.7
Texas.	4.2	5.7	5.8	5.6	5.3	5.1	7.2	7.0	5.8	5.9	8.0	7.2
Mountain.	2.6	3.1	3.7	3.2	4.2	3.5	3.1	2.2	4.8	4.2	6.1	5.1
Montana.	.2	.2	.4	.4	.4	.4	.3	.2	1.0	.8	.9	.8
Idaho.	.3	.3	.4	.4	.4	.4	.3	.2	1.1	.8	1.0	.9
Wyoming.	.1	.1	.2	.2	.2	.2	.2	.1	.4	.3	.4	.4
Colorado.	.7	.6	1.0	.8	1.1	1.0	.8	.6	1.1	1.0	1.1	1.2
New Mexico.	.3	.3	.5	.5	.5	.4	.5	.3	.4	.5	.6	.7
Arizona.	.5	.3	.8	.6	.7	.5	.6	.4	.3	.3	1.6	.8
Utah.	.4	.3	.5	.4	.5	.4	.3	.2	.4	.4	.4	.4
Nevada.	.1	.1	.1	.1	.4	.2	.1	.1	.1	.1	.2	.1
Pacific.	9.5	9.6	12.0	10.6	12.0	11.2	9.7	7.8	5.6	4.7	13.4	9.4
Washington.	1.2	1.1	1.9	2.0	1.6	1.7	1.4	1.0	1.2	1.1	1.9	1.2
Oregon.	.9	.8	1.6	1.7	1.1	1.1	.8	.7	1.0	.9	1.3	1.1
California.	7.2	7.6	7.9	6.4	8.8	8.0	7.1	5.9	2.3	2.6	9.6	6.3
Alaska.	.1	.1	.1	.2	.1	.1	.1	(1)	(1)	(1)	(1)	(1)
Hawaii.	.3	.2	.4	.4	.4	.4	.3	.2	.1	.1	.1	.7

1 Less than 0.05 percent.

SOURCE: See table 1.

NOTE: Because of rounding, sums of individual items may not equal totals.

Of special significance to Michigan is the decline in the number of operatives and kindred workers, agricultural workers, and non-farm laborers. Between 1950 and 1960 there was a decline of 12,739 operative jobs, a decline of 53,280 farmer and farm manager jobs, a decline of 17,203 jobs for farm laborers, and a decline of 9,640 non-farm laborer jobs. Most of these declines represent losses in male employment. (See Table 12).

There is little likelihood that the trends indicated for Michigan and for the East North Central Region will shift or will be radically different from those for the country as a whole. As far as the shift of populations and employment opportunities among regions is concerned, recent informed opinion feels that "a gradual reduction in state differentials in industrial employment is developing."[19] However, the vast shifts which have taken place and continue to take place in both employment and population growth point to the need for "rapid expansion in education and other public services in many states, not only to meet the needs of the present workers and their families, but to equip the states to share appropriately in future employment growth."[20]

Predicting future occupation needs or the composition of industrial activity for a state is more difficult than for the country or region as a whole. The errors in predicting Michigan's future needs are, therefore, likely to be greater than in predicting the changes for a larger population. While the trends in the state should approximate those of the country, significantly different patterns have emerged over the past decade and should make for some differences over the next.

In projecting the occupational distributions of Michigan employment over the next decade, one might assume a continuation of past trends. Following the assumption of the National Planning Association that"there are strong pressures for existing capacity to remain where it is; even additional capacity, unless there are strong reasons to the contrary, will tend to locate where similar capacity is already located,"[21] it is most likely that recent trends in Michigan shall continue. Another economic phenomenon which reinforces Michigan trends is that the non-commodity producing sectors are functions of the basic sectors[22] (For N.P.A. industrial projections see Table 13).

The projections of Michigan's occupational structure assume not only the continuation in industrial trends, but a continuation of past rates of economic growth. If we were to make a most conservative estimate of occupational change we might assume that the proportions of the population in the various occupations would remain exactly as they were in 1960. In the light of trends, this is an unrealistic assumption. However, there are a number of other assumptions based on past occupational distributions or on past trends which would provide us with a range of reasonable estimates of occupational distributions for the future.

One assumption would accept the rate of change for the major occupational groups during the decade of the 1950's and assume a similar rate of change for the decade of the 1960's, what we have called projection A. (See Table 14). Another assumption might be that the trends manifested over the 1940-50 period and the 1950-60 period would continue for 1960-70--projection B. Still another assumption might accept the mean rates of change over the 1940-1960 period--projection C. None of these, in and of themselves, seem valid for all, or even most, of the occupational groups, since one must expect that the rates of change for the recent fastest growing occupations would tend to show some decline, as would the rates of change for the recent most rapidly declining occupations. For example, in the former case, the rates of increase of professional and technical workers, and in the latter, the rates of decline in agricultural employment.

An attempt to reconcile past trends with future probability has led to our making two "judgment models;" a conservative one (judgment model I) and a more liberal one (judgment model II). (See Table 15). In both cases we have constructed the model from figures derived from projections A, B, and C, accepting the figures which appeared to be most consistent with past distributions of the major occupational groups. Model II is constructed from those figures which seem most consistent with the direction of recent trends. If we had set a fixed figure of employment for 1970, we would have had to give each occupational group a proper weight to derive the projections and the judgment models; then in all cases we would have derived the same total employment figure. Instead we just took the projections for each occupational group and totaled these. As a result the projections of the size of the labor force for each of the cases is different. In the projection, the smallest

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[19]Ibid., p. 25, Cf. S. P. Manor, "Geographic Changes in U. S. Employment From 1950 to 1960," Monthly Labor Review, January 1963, pp. 1-10; V. R. Fuchs, Changes in the Location of Manufacture in the United States Since 1929, New Haven: Yale University Press, 1962, pp. 19-29.

[20]U. S. Department of Labor, "Manpower Report of the President," loc. cit.

[21]Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U. S. Department of Labor, "Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportion," Washington, D. C.; U. S. Government Printing Office, 1962, p. 295.

[22]Loc. cit.

Table 12

OCCUPATIONAL DISTRIBUTION OF THE LABOR FORCE
IN MICHIGAN, 1940-1960
(thousands)

Major Occupational Group	1940			1950			1960		
	Total[a]	Male	Female	Total[a]	Male	Female	Total[a]	Male	Female
Total	1821.4	1423.9	397.5	2391.9	1784.8	607.1	2726.9	1898.0	828.8
Professional, technical, and kindred workers.....	141.8	86.1	55.7	202.0	126.0	76.0	312.6	200.9	111.7
Farmers and farm managers.....	144.2	141.0	3.2	113.3	110.3	3.0	60.1	57.1	2.9
Proprietors, managers and officials, exc. farm.....	136.2	123.1	13.1	189.3	165.9	23.4	200.0	173.9	26.1
Clerical, sales and kindred workers.....	305.1	173.7	131.4	462.1	221.1	241.0	582.0	251.4	330.6
Craftsmen, foremen, and kindred workers.....	281.6	276.1	5.6	392.3	382.1	10.2	420.1	410.1	10.0
Operatives and kindred workers.	412.4	349.7	62.7	619.2	510.1	109.1	606.4	494.8	111.6
Domestic service workers.....	59.9	1.9	58.0	40.1	1.9	38.2	58.7	2.0	56.6
Service workers, exc. domestic.	129.4	76.4	53.0	181.9	98.7	83.2	236.4	106.6	129.9
Farm laborers (wage workers) and farm foremen.....	66.7	64.8	1.9	42.5	35.3	7.1	25.3	20.8	4.5
Laborers, exc. farm.....	125.9	119.8	6.1	118.7	113.3	5.5	109.3	104.8	4.5

[a] will not equal combined male and female because each was rounded.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington, D.C., Table 59.

Table 13

Distribution of Michigan Civilian Employment by Industry
for the years 1947, 1957, and Projections for 1976

Industry	Employment			% of state civilian employment		
	1947	1957	1976	1947	1957	1976
Commodity Employment						
Agriculture	220.0	193.0	157.2	9.0	6.8	4.4
Mining	17.1	14.2	12.5	0.6	0.5	0.4
Manufacturing	1040.8	1051.2	1045.6	42.4	37.0	29.4
Non-Commodity Employment						
Transportation, communication and utilities	141.0	161.0	182.2	5.7	5.6	5.1
Trade	447.9	524.0	784.1	18.2	18.4	22.1
Service	264.8	443.7	739.0	10.8	15.6	20.8
Finance and real estate	54.7	81.2	97.3	2.2	2.9	2.7
Construction	99.2	138.2	204.4	4.1	4.9	5.8
Government	171.0	237.0	329.1	7.0	8.3	9.3
Total civilian employment	2456.5	2843.5	3551.4	100.0	100.0	100.0
Total population	6,075	7,690	10,289			

Source: Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportation, Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., 1962, Table F-9, p. 328.

Table 14
Percent Change in Employment in Michigan by Major Occupational Group, 1940 to 1970

Major occupational group	1940 - 1950			1950 - 1960			1960 - 1970 Projections								
							A[1]			B[2]			C[3]		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	31.3	25.3	52.7	14.0	6.3	36.5	14.0	6.3	36.5	6.3	1.6	20.3	22.5	15.8	44.6
Professional, technical and kindred workers	42.4	46.2	36.6	54.7	59.5	46.9	54.7	59.5	46.9	70.7	76.6	60.1	48.6	52.9	41.8
Farmers and Farm managers	-21.4	-21.7	-5.2	-47.0	-48.2	-3.0	-47.0	-48.2	-3.0	-103.2	-107.1	-1.7	-34.2	-35.0	-4.1
Proprietors, managers and officials, exc. farm	39.0	34.8	78.1	5.6	47.9	11.7	5.6	47.9	11.7	.8	65.9	2.3	47.7	41.4	44.9
Clerical, sales and kindred workers	51.4	27.2	83.4	25.9	13.7	37.2	25.9	13.7	37.2	13.1	6.9	16.6	38.7	20.5	60.3
Craftsmen, foremen and kindred workers	39.3	38.4	83.4	7.1	7.3	-2.1	7.1	7.3	-2.1	(a)	1.4	(a)	(a)	22.9	(a)
Operatives and kindred workers	50.1	45.9	73.9	-2.1	-3.0	2.3	-2.1	-3.0	2.3	(a)	(a)	.1	(a)	(a)	38.1
Domestic service workers	-33.1	.1	-34.2	46.2	7.6	48.2	46.2	7.6	48.2	(a)	(b)	(a)	(a)	3.8	(a)
Service workers, ex. domestic	40.5	29.1	57.0	30.0	8.0	56.0	30.0	8.0	56.0	37.8	2.2	55.1	35.3	18.6	56.5
Farm laborers (wage workers) and farm foremen	-36.3	-45.4	269.4	-40.5	-41.3	-36.7	-40.5	-41.3	-36.7	-45.2	-37.6	(a)	-38.4	-43.4	(a)
Laborers, exc. farm	-5.7	-5.4	-10.6	-8.0	-7.5	-17.8	-8.0	-7.5	-17.8	-11.2	-10.4	-29.9	-6.8	-6.5	-14.2

[1]assumes the same rate of change as 1950-1960.
[2]based on trends over 1940-1960.
[3]based on the mean rates of change 1940-1960.
[a]trend changed direction between 1940-1950 and 1950-1960.
[b]negligible change for 1940-1950.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, table 59.

Table 15

Occupational Distribution of the Labor Force
in Michigan, 1970*

Major occupational group	Projection A[a] (thousands)			Projection B[b] (thousands)			Projection C[c] (thousands)			Judgment models I[d] (thousands)			Judgment models II[e] (thousands)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	3222.3	2,115.1	1107.2	3178.4	2131.1	1047.3	3418.1	2190.9	1227.2	3125.4	2088.8	1036.6	3241.9	2122.3	1119.6
Professional, technical and kindred	484.5	320.4	164.1	533.6	354.7	178.9	465.5	307.1	158.4	484.5	320.4	164.1	533.6	354.7	178.9
Farmers and Farm managers	32.5	29.6	2.9	32.5	(29.6)[f]	2.9	39.9	37.1	2.8	40.0	37.1	2.9	32.5	29.6	2.9
Proprietors, managers and officials, exc. farm	286.4	257.2	29.2	315.2	288.5	26.7	283.8	245.9	37.9	272.6	245.9	26.7	286.4	257.2	29.2
Clerical, sales and kindred workers	739.5	285.9	453.6	654.3	268.8	385.5	832.9	302.9	530.0	654.3	268.8	385.5	739.5	285.9	453.6
Craftsmen, foremen and kindred workers	449.8	440.0	9.8	425.7	415.9	(9.8)[f]	513.8	504.0	(9.8)[f]	449.8	440.0	9.8	425.7	415.9	9.8
Operatives and kindred workers	594.1	480.0	114.1	591.7	480.0	111.7	634.1	480.0	154.1	594.1	480.0	114.1	591.7	480.0	111.7
Domestic service workers	86.1	2.2	83.9	86.1	2.2	(83.9)[f]	86.0	2.1	(83.9)[f]	86.1	2.2	83.9	86.1	2.2	83.9
Service workers, ex. domestic	317.7	115.1	202.6	310.3	108.9	201.4	329.6	126.4	203.2	311.5	108.9	202.6	318.3	115.1	203.2
Farm laborers (wage workers) and farm foremen	15.1	12.2	2.9	15.9	13.0	(2.9)[f]	14.7	11.8	(2.9)[f]	15.9	13.0	2.9	15.1	12.2	2.9
Laborers, exc. farm	100.6	96.9	3.7	97.1	93.9	3.2	101.8	98.0	3.8	100.6	96.9	3.7	97.0	93.9	3.1
Occupation not reported	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4

*Assuming no radical changes in economic growth or development.

[a]assumes the same rate of change as 1950-1960.
[b]based on trends over 1940-1960.
[c]based on the mean rates of change 1940-1960.
[d]most consistent with past events (adopting the most reasonable conservative figures).
[e]most consistent with the direction of the trends, 1940-1960.
[f]figures borrowed from Projection A.

labor force would be 3.2 million, projection B; the largest 3.4 million, projection C. The judgment models, which we feel are more reasonable than any of the projections, show a difference of about 115,000 workers between the two estimates.*

Using any of the projections or judgment models, the patterns for future occupational distribution in Michigan are clear. The large increases among the professional and technical, the service, clerical and sales occupations are consistent with the growing demand for white-collar workers and the increasing participation of women in Michigan's labor force. These patterns are also consistent with the proportional declines of blue-collar workers in commodity-producing industries. The trends are also consistent with the emergent crisis in the employment of youth, especially those who have not received adequate education or training.

Unemployment Trends

If the statistics on employment trends as they affect particular occupational and industrial groups have not made the imminent employment probabilities for these groups clear, the complementary figures on unemployment certainly reinforce the impressions created in the discussion of employment. The increased demands for white-collar workers, placing a premium on education and training, are evident in the contemporary patterns of unemployment. Difficulties encountered by youthful workers entering the labor market in ever-increasing numbers also dominate unemployment patterns. Workers, especially young people, from underprivileged, socially marginal groups such as the Negroes, are unable to get full-time employment, reflecting the fact that employments trends have sociological significance.

The unemployment rates for all age groups have been increasing steadily over the past number of years. (See Table 16). Unemployment among youthful workers has consistently been higher than for the rest of the work force because of the problems which face new workers entering the labor force: early patterns of job-seeking reflecting inexperience; lack of identification with an industry or company; shopping around for jobs and job changing, reflecting a lack of knowledge of the labor market; and increasing vulnerability to layoff due to lack of seniority.[23] The anomaly concerning young workers entering the labor market today is that, with their rapidly increasing numbers, the unemployment rates for these age groups are also increasing very rapidly.

Perhaps more significant to the American economy and the problems of maintaining full employment than the rising rates of unemployment are the rising rates of long-term** unemployment. The long-term unemployed as a percentage of the total civilian labor force rose by approximately 16 per cent between 1957 and 1961. The largest rise has been for males in the 18-24 age group, more than 27 per cent, although there was a slight decline for male workers as a whole. The slight rise in long-term unemployment for all females reflects the 14 per cent rise in the 18-24 year old group. All other female groups showed declines over this period.[24]

The industrial redistribution of the labor force which has been taking place over past decades is also reflected in recent patterns of unemployment. In contrasting unemployment between 1958 and 1961, one finds that the proportion of workers in manufacturing who had some unemployment during each of these years respectively, fell from 24 to 22 per cent while unemployed in the service industries went up from 11 per cent to 14 per cent.[25]

A study of the distribution of unemployment for wage and salary people in industries which directly meet the needs of consumers and other industries with those producing commodities, as for example, construction, shows the disparate burden of unemployment placed on blue-collar workers. (See Table 17). As one might expect, the lowest rates of unemployment would be found among farmers

*It should be recognized that these projections are not based on a full-employment economy and hence show lower figures than indicated in the earlier section.

**Arbitrarily defined as workers looking for jobs fifteen weeks or longer.

[23] U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 40; U. S. Department of Labor, Manpower Research Bulletin No. 2, op. cit.; J. L. Meredith, "Long-Term Unemployment in the United States," Monthly Labor Review, June 1961, pp. 605-606.

[24] Meredith, loc. cit.

[25] C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December, 1962 p. 1353.

Table 16

Unemployed persons, by age and sex

Annual averages, 1947-61

Age and sex	1961	1960[1]	1959	1958	1957	1956[2]	1955	1954	1953[3]	1952	1951	1950	1949	1948	1947
Number unemployed (thousands):															
Total	4,806	3,931	3,813	4,681	2,936	2,551	2,654	3,230	1,602	1,673	1,879	3,142	3,395	2,064	2,142
Male	3,060	2,541	2,473	3,155	1,893	1,608	1,752	2,161	1,069	1,062	1,123	2,155	2,415	1,430	1,595
14 to 19 years	542	480	451	473	351	296	292	318	195	222	206	339	367	262	279
14 and 15 years	63	55	53	57	52	44	33	26	24	30	27	38	28	30	27
16 and 17 years	221	200	191	185	140	125	129	138	89	110	96	133	140	103	107
18 and 19 years	258	225	207	231	159	127	130	154	82	82	83	168	199	129	145
20 to 24 years	457	369	343	478	283	219	224	299	132	134	138	358	459	294	368
25 to 34 years	585	492	483	685	349	315	329	469	202	195	209	435	491	260	326
35 to 44 years	507	415	407	552	304	250	301	390	178	166	168	326	379	203	226
45 to 54 years	473	392	390	492	302	247	262	337	166	154	171	313	317	182	188
55 to 64 years	374	294	287	349	220	199	250	243	145	127	149	272	283	160	148
65 years and over	122	96	112	124	83	84	94	104	52	64	82	112	119	72	60
Female	1,747	1,390	1,340	1,526	1,043	943	903	1,069	533	611	756	987	981	633	547
14 to 19 years	379	310	276	284	222	214	179	197	117	140	150	204	228	153	146
14 and 15 years	30	24	20	22	25	25	17	18	10	15	16	23	17	17	17
16 and 17 years	142	124	110	114	90	89	71	72	49	59	61	81	88	60	57
18 and 19 years	207	162	146	148	107	100	91	107	58	66	73	100	123	76	72
20 to 24 years	265	214	200	223	147	137	131	159	89	97	102	168	178	115	109
25 to 34 years	304	260	242	308	224	181	199	243	119	135	176	216	213	144	112
35 to 44 years	342	256	266	319	195	173	172	215	92	112	141	168	168	94	82
45 to 54 years	278	222	214	239	146	139	129	155	67	74	109	141	109	74	58
55 to 64 years	141	101	119	122	80	83	79	84	40	42	67	73	65	43	33
65 years and over	36	25	23	31	28	17	14	17	9	11	14	18	20	10	8
Unemployment rate:															
Total	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4	3.6
Male	6.5	5.4	5.3	6.8	4.1	3.5	3.9	4.9	2.4	2.4	2.6	4.9	5.5	3.3	3.7
14 to 19 years	15.4	14.0	13.8	15.2	11.3	9.6	9.9	11.2	6.8	7.6	7.0	11.0	11.9	8.3	9.1
14 and 15 years	8.7	8.6	7.8	8.4	7.6	6.6	5.8	4.5	4.3	5.1	4.4	6.1	4.9	5.2	4.6
16 and 17 years	18.3	15.5	15.8	16.3	12.4	10.9	12.1	13.5	8.3	10.0	8.9	12.7	13.3	9.3	9.7
18 and 19 years	16.3	15.0	14.9	17.8	12.3	9.8	10.0	12.1	6.6	6.8	6.6	11.5	14.0	8.7	10.5
20 to 24 years	10.7	8.9	8.7	12.7	7.8	6.3	7.0	9.8	4.3	4.0	3.5	7.7	9.9	6.3	7.9
25 to 34 years	5.7	4.8	4.7	6.5	3.3	2.9	3.0	4.4	1.9	1.8	2.0	4.2	4.7	2.5	3.2
35 to 44 years	4.6	3.8	3.7	5.1	2.8	2.3	2.8	3.7	1.7	1.7	1.7	3.3	3.8	2.1	2.4
45 to 54 years	4.9	4.1	4.1	5.3	3.3	2.7	3.0	3.9	1.9	1.8	2.1	3.9	3.9	2.3	2.4
55 to 64 years	5.7	4.6	4.5	5.5	3.5	3.2	4.1	4.9	2.4	2.1	2.5	4.7	4.9	2.8	2.6
65 years and over	5.5	4.2	4.8	5.2	3.4	3.3	3.7	4.2	2.0	2.7	3.3	4.6	4.9	3.0	2.5
Female	7.2	5.9	5.9	6.8	4.7	4.3	4.3	5.4	2.7	3.1	3.9	5.3	5.4	3.6	3.2
14 to 19 years	14.8	12.9	12.3	13.1	10.1	9.9	9.0	10.0	6.0	7.0	7.4	10.4	11.2	7.3	7.1
14 and 15 years	7.2	6.9	5.7	6.6	7.5	8.0	6.6	7.1	4.2	6.1	6.3	8.6	7.0	6.9	7.3
16 and 17 years	18.3	15.4	14.4	16.6	12.6	12.1	11.1	11.6	7.5	8.4	9.2	13.3	13.6	8.9	8.9
18 and 19 years	15.1	13.0	12.9	12.9	9.4	9.0	8.4	10.1	5.5	6.3	6.7	9.1	10.6	6.5	6.0
20 to 24 years	9.8	8.3	8.1	8.9	6.0	5.6	5.4	6.6	3.7	3.9	3.8	6.3	6.7	4.2	4.0
25 to 34 years	7.3	6.3	5.9	7.3	5.3	4.3	4.7	5.8	2.9	3.1	4.1	5.3	5.3	3.7	3.0
35 to 44 years	6.3	4.8	5.1	6.2	3.8	3.4	3.6	4.6	2.0	2.5	3.3	4.0	4.2	2.5	2.2
45 to 54 years	5.1	4.2	4.2	4.9	3.2	3.2	3.1	4.0	1.8	2.0	3.1	4.2	3.5	2.5	2.1
55 to 64 years	4.5	3.4	4.1	4.5	3.0	3.2	3.3	3.9	2.0	2.1	3.5	3.9	3.8	2.7	2.2
65 years and over	3.9	2.8	2.8	3.8	3.4	2.1	1.8	2.9	1.3	1.9	2.5	3.4	3.4	1.9	1.8

[1] See footnote 4, table 1.
[2] See footnote 2, table 7.
[3] See footnote 3, table 1.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 12, p. 13.

Table 17

Unemployment rates and percent distribution of the unemployed, by major industry group

Annual averages, 1948–61

Major industry group	1961	1960[1]	1959	1958	1957	1956[2]	1955	1954	1953[3]	1952	1951	1950	1949	1948
Unemployment rate:														
Total[4]	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4
Experienced wage and salary workers	6.8	5.7	5.6	7.2	4.5	3.9	4.3	5.5	2.7	2.9	3.2	5.6	6.2	3.7
Agriculture	9.3	8.0	8.7	9.9	6.7	6.5	6.4	8.0	4.7	3.9	3.9	8.2	6.5	4.7
Nonagricultural industries	6.7	5.6	5.5	7.1	4.5	3.8	4.2	5.4	2.6	2.8	3.2	5.4	6.2	3.7
Mining, forestry, fisheries	11.6	9.5	9.7	10.6	6.3	6.4	8.2	12.3	4.9	3.4	3.8	6.6	8.5	2.9
Construction	14.1	12.2	12.0	13.7	9.8	8.3	9.2	10.5	6.1	5.5	6.0	10.7	11.9	7.6
Manufacturing	7.7	6.2	6.0	9.2	5.0	4.2	4.2	6.1	2.5	2.8	3.3	5.6	7.2	3.5
Durable goods	8.4	6.3	6.1	10.5	4.9	4.0	4.0	6.5	2.0	2.4	2.6	5.2	7.4	3.4
Nondurable goods	6.7	6.0	5.9	7.6	5.3	4.4	4.4	5.7	3.1	3.3	4.0	6.0	6.9	3.6
Transportation and public utilities	5.1	4.3	4.2	5.6	3.1	2.4	3.5	4.8	1.8	1.9	1.9	4.1	5.2	3.0
Wholesale and retail trade	7.2	5.9	5.8	6.7	4.5	4.1	4.3	5.2	3.0	3.1	3.7	5.8	5.8	4.3
Finance, insurance, and real estate	3.3	2.4	2.6	2.9	1.8	1.4	2.1	2.0	1.6	1.5	1.3	2.0	1.8	1.6
Service industries	4.9	4.1	4.3	4.6	3.4	3.2	3.8	4.0	2.4	2.6	3.1	5.0	5.1	3.5
Public administration	2.7	2.6	2.3	3.0	2.0	1.6	1.8	2.0	1.2	1.1	1.6	2.8	2.9	2.0
Percent distribution:														
Total[4]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Experienced wage and salary workers	84.9	85.3	85.6	87.8	87.2	85.8	88.0	89.8	88.6	87.7	87.8	89.1	89.6	87.7
Agriculture	3.7	4.1	4.2	3.9	4.2	4.6	4.4	3.9	4.5	3.7	3.6	4.9	3.7	4.2
Nonagricultural industries	81.2	81.2	81.4	83.9	83.0	81.2	83.6	85.9	84.1	84.0	84.3	84.2	85.9	83.5
Mining, forestry, fisheries	1.6	1.7	1.8	1.7	1.7	2.1	2.5	3.1	2.7	2.0	2.0	2.0	2.2	1.4
Construction	11.7	12.3	12.6	11.6	12.5	11.8	12.5	11.4	12.9	12.1	10.8	11.0	10.9	10.7
Manufacturing	28.8	28.2	27.8	34.4	30.8	29.0	27.5	33.3	27.0	28.3	29.3	28.8	33.3	28.0
Durable goods	17.5	16.0	16.1	22.2	17.2	16.1	15.0	20.0	13.1	13.3	12.5	13.9	17.8	14.3
Nondurable goods	11.3	12.2	11.6	12.2	13.6	12.9	12.5	13.3	13.9	15.1	16.8	14.9	15.4	13.6
Transportation and public utilities	4.9	5.2	5.0	5.4	5.0	4.5	6.0	6.7	5.3	5.3	4.7	5.9	7.2	6.8
Wholesale and retail trade	16.4	16.3	16.3	15.2	15.9	16.6	16.3	16.0	17.9	18.0	18.6	17.9	16.2	18.8
Finance, insurance, and real estate	1.9	1.7	1.7	1.5	1.5	1.2	1.7	1.2	1.9	1.7	1.3	1.1	.9	1.3
Service industries	13.9	13.6	14.3	12.1	13.6	14.2	15.0	12.4	14.1	14.5	15.1	14.9	12.9	13.9
Public administration	1.9	2.2	1.9	2.0	2.1	1.9	2.0	1.8	2.2	2.1	2.4	2.6	2.4	2.7

[1] See footnote 4, table 1.
[2] See footnote 2, table 7.
[3] See footnote 3, table 1.
[4] Includes other experienced unemployed (self-employed and unpaid family workers); excludes those with no previous work experience.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 16, p. 16.

and farm managers, although agricultural workers as a group had a relatively high rate of unemployment. The lowest unemployment category of workers is the higher white-collar workers,[26] and clerical and sales workers still seem to share their good fortune. The highest rates of unemployment are found among operatives and laborers; craftsmen and foremen are also hard hit by unemployment.

Although unemployment touches all industries, even public administration, the service industries generally provide the most stability in employment. The highest rates of unemployment are found in construction, forestry, fisheries and mining and in the manufacture of durable goods-industries with the highest proportions of blue-collar employees. (See Table 18).

As the changes in the distribution of white- and blue-collar workers continue, it will be found that the lower white-collar workers are not immune to instabilities in employment. In fact, between 1947 and 1961, unemployment rates for blue-collar workers have shown a slight decline. (See Table 19). The unemployment rates for the higher white-collar groups remain fairly constant, but the unemployment rates for the lower white-collar groups have shown a slight rise. The unemployment rates for service workers remained fairly stable during this period.

Some of the tendencies indicated above are even more disturbing when one explores unemployment for 1961 among those who had no work experience during that year. (See Table 20). More than 46 per cent of this group consisted of workers 24 years and under. Of this group a little less than half looked for regular full-time jobs, of which only a fourth looked for less than 5 weeks. Of the total looking for full-time employment, 28 per cent were non-white workers and of this group 87 per cent were unemployed and looking for work for five weeks or more.

What are the variables which underlie these patterns of unemployment? The single most important criterion of stability in employment appears to be the level of education of the worker. As one moves up the occupational ladder toward the professions with their high levels of education, the rates of unemployment decline radically.

The significance of education to the employment patterns in the United States cannot be overstated. The median years of education attained by the population generally and by the labor force specifically have been rising steadily. (See Table 21). Over the past ten years the median education of the employed rose from 10.9 to 12.1 years of schooling. The level of education among the unemployed has also shown a rise. The higher educational levels of the female employed and unemployed workers reflect the greater proportion of women in the white-collar sector of the labor force.

The relatively low educational levels of the rural labor force is reflected in the fact that the median educational level of the employed agricultural workers is lower than the median education level of the total unemployed. With the continued large decline in agricultural employment and the movement of workers from rural to urban areas, the difficulties inherent in these migration patterns are almost insurmountable. This is true for both white and non-white workers leaving marginal agricultural lands seeking urban employment. The handicaps of poor education and the lack of employment opportunities in occupations which now call for relatively low educational levels make the probabilities of these groups getting employment very small.

The high educational demands traditionally made on professional and technical occupations are evident. Also in evidence is the greater than high school education demanded in the sales and clerical fields. The 10-11th grade median high school education found for craftsmen and operatives is misleading. Since educational levels have risen historically, the older, more established workers in each of these fields are most likely to have lower educational levels, bringing the median figure down. (See Table 22). This means that new young workers entering the labor force will have to compete with other young workers with at least a high school education. Laboring jobs and some of the semi-skilled operative jobs do not make high educational demands. But as has already been demonstrated, these jobs are becoming less significant to our economy and offer few opportunities for youthful job aspirants flooding the labor market.

The problems for the Negro worker are even greater than for the poorly prepared whites. The deprivation of the Negro worker is reflected not only in his inability to get work, as evidenced in his high rates of unemployment, but in the types of work he gets when employed. Today, 22 per cent of all unemployed are Negro workers, although Negroes constitute only 11 per cent of the labor force. These figures also tend to be underestimates because of the underemployment of Negroes in Southern

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[26] C. W. Mills uses this term to describe the professional, technical, owner, and managerial groups among the white-collar workers. See White Collar, New York: Oxford University Press, 1956.

Table 18

Extent of Unemployment in 1960 and 1961 Among Persons Who Worked During the Year, By Major Occupation and Industry Group of Longest Job

Major occupation or industry group	Unemployed as percent of total who worked		Percent of unemployed who worked during the year having unemployment of-					
			15 weeks or more		2 spells		3 spells or more	
	1961	1960	1961	1960	1961	1960	1961	1960
All Groups	16.7	15.6	37.7	35.4	17.1	16.2	19.8	20.4
OCCUPATION GROUP								
Professional, technical, and kindred workers	7.1	5.4	26.1	25.5	9.7	13.6	13.9	9.1
Farmers and farm managers	2.5	2.0	(1)	(1)	(1)	(1)	(1)	(1)
Managers, officials, and proprietors, except farm	5.8	4.5	38.3	34.1	14.1	12.0	13.0	11.5
Clerical and kindred workers	13.6	11.1	30.1	27.2	13.0	12.7	10.2	9.3
Sales workers	12.1	12.3	32.5	26.5	14.2	14.7	13.1	12.4
Craftsmen, foremen, and kindred workers	23.1	21.3	34.8	37.3	20.0	16.8	24.4	28.2
Operatives and kindred workers	27.8	27.7	37.4	33.6	17.8	18.1	19.4	17.8
Private household workers	12.0	11.4	41.1	37.9	19.6	15.1	21.7	20.6
Service workers, except private household	17.5	16.0	40.9	38.8	19.3	15.2	15.2	19.4
Farm laborers and foremen	14.0	13.2	42.9	41.4	16.5	13.7	35.7	42.2
Laborers, except farm and mine	36.6	43.9	48.6	46.1	18.6	18.1	29.6	27.7
INDUSTRY GROUP								
Wage and salary workers	18.9	18.0	37.3	35.2	17.3	16.4	19.2	19.9
Agriculture	24.7	24.3	44.3	43.8	18.7	14.6	33.1	41.3
Nonagricultural industries	18.7	17.7	36.9	34.7	17.2	16.5	18.4	18.7
Forestry, fisheries, and mining	30.0	21.9	40.6	45.5	15.4	17.9	25.6	20.5
Construction	43.9	43.4	41.2	44.4	22.3	20.1	31.3	34.3
Manufacturing	22.0	21.7	34.6	30.7	16.6	16.3	16.0	15.2
Durable goods	23.6	23.3	34.7	29.7	15.9	17.0	14.3	13.3
Nondurable goods	20.1	19.6	34.6	32.1	17.6	15.3	18.4	18.2
Transportation and public utilities	14.0	13.2	38.2	36.0	12.8	12.1	24.0	20.4
Wholesale and retail trade	17.9	17.9	36.7	32.7	17.8	15.4	14.9	15.6
Service industries	13.7	11.3	37.3	35.4	16.1	16.6	15.3	16.2
Private households	13.0	12.8	43.4	39.1	16.7	14.4	26.2	26.6
Other services	13.9	11.0	35.9	34.4	16.0	17.2	12.8	13.4
Public administration	7.5	7.4	33.8	36.6	11.7	12.8	13.2	10.6

(1) Percent now shown where base in less than 100,000.

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1354.

Table 19

Unemployment rates and percent distribution of the unemployed, by major occupation group

Annual averages[1], 1947-61

Major occupation group	1961	1960[2]	1959	1958	1957	1956[3]	1955	1954	1953[4]	1952	1951	1950	1949	1948	1947
Unemployment rate:															
Total	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4	3.6
Professional, technical, and kindred workers	2.0	1.7	1.7	2.0	1.2	1.0	1.0	1.6	.9	1.0	1.5	2.2	1.9	1.7	1.9
Farmers and farm managers	.4	.3	.3	.6	.3	.4	.4	.4	.2	.2	.3	.3	.2	.2	.2
Managers, officials, and proprietors, except farm	1.8	1.4	1.3	1.7	1.0	.8	.9	1.2	.9	.7	1.0	1.6	1.5	1.0	1.2
Clerical and kindred workers	4.6	3.8	3.7	4.4	2.8	2.4	2.6	3.1	1.7	1.8	2.1	3.4	3.8	2.3	2.9
Sales workers	4.7	3.7	3.7	4.0	2.6	2.7	2.4	3.7	2.1	2.5	2.8	4.0	3.5	3.4	2.6
Craftsmen, foremen, and kindred workers	6.3	5.3	5.3	6.8	3.8	3.2	4.0	4.9	2.6	2.4	2.6	5.6	5.9	2.9	3.8
Operatives and kindred workers	9.6	8.0	7.6	10.9	6.3	5.4	5.7	7.6	3.2	3.9	5.3	6.8	8.0	4.1	5.1
Private household workers	5.9	4.9	4.8	5.2	3.7	4.2	4.1	5.0	2.5	3.2	3.8	5.6	5.2	3.2	3.4
Service workers, except private household	7.4	6.0	6.4	7.4	5.1	4.8	5.8	5.2	3.6	3.7	4.3	6.8	6.1	4.8	4.7
Farm laborers and foremen	5.7	5.2	5.1	6.2	3.7	3.7	3.7	4.2	2.5	2.3	2.1	5.0	3.9	2.3	2.7
Laborers, except farm and mine	14.5	12.5	12.4	14.9	9.4	8.2	10.2	10.7	6.1	5.7	5.6	11.7	12.9	7.5	7.5
Percent distribution:															
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	3.4	3.2	2.9	2.7	2.4	2.2	2.8	3.0	3.1	3.8	3.1	2.3	3.4	3.2
Farmers and farm managers	.2	.2	.2	.4	.3	.5	.5	.5	.6	.5	.6	.5	.3	.4	.4
Managers, officials, and proprietors, except farm	2.8	2.5	2.4	2.6	2.3	2.0	2.2	2.5	3.8	2.4	3.2	3.2	2.9	3.3	3.1
Clerical and kindred workers	9.9	9.8	9.3	9.0	9.2	8.6	8.0	8.2	8.5	8.5	8.7	8.2	8.8	8.6	9.5
Sales workers	4.6	4.2	4.4	3.7	3.8	4.5	3.6	4.8	5.2	5.4	5.7	4.9	4.0	6.3	4.0
Craftsmen, foremen, and kindred workers	12.1	12.1	12.5	13.2	12.0	11.3	12.8	13.5	14.5	12.5	11.5	13.8	14.4	12.0	13.5
Operatives and kindred workers	26.0	26.5	25.5	30.0	29.4	28.5	28.2	32.1	26.5	28.8	29.1	26.9	30.5	26.0	28.9
Private household workers	3.0	2.9	2.9	2.6	2.8	3.6	3.1	2.9	3.0	3.4	3.8	3.4	2.9	2.9	2.6
Service workers, except private household	10.5	9.9	10.5	9.5	10.2	10.9	11.7	8.7	12.0	10.4	10.9	10.3	8.8	10.7	9.1
Farm laborers and foremen	3.1	3.6	3.6	3.5	3.7	4.4	4.0	3.4	3.8	3.6	3.2	4.8	3.8	3.8	3.8
Laborers, except farm and mine	12.2	13.3	13.9	13.5	13.3	12.8	15.3	13.7	14.8	13.1	12.2	14.2	14.6	14.0	12.5
No previous work experience	12.2	11.6	11.6	9.3	10.3	10.4	8.4	7.0	4.4	8.3	7.3	6.8	6.6	8.8	9.4

[1] See footnote 2, table 6.
[2] See footnote 4, table 1.
[3] See footnote 2, table 7.
[4] See footnote 3, table 1.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 13, p. 14.

Table 20

Unemployed Persons With No Work Experience in 1961, By Extent of Unemployment, Type of Job Looked for, Age, Marital Status, and Color

Type of job looked for, age, marital status, and color	Total looking for work		Percent distribution by number of weeks unemployed				
	Number (thousands)	Percent	Total	1 to 4 weeks	5 to 14 weeks	15 to 26 weeks	27 weeks or more
Total, 14 years and over...	1,676	100.0	100.0	33.4	21.9	8.6	36.2
Age:							
14 to 17 years.....	368	22.0	100.0	47.4	35.3	7.2	10.2
18 to 24 years.....	407	24.3	100.0	33.2	23.8	12.5	30.5
25 to 64 years.....	814	48.6	100.0	28.9	15.1	7.2	48.9
65 years and over.....	87	5.2	(1)	----	----	----	----
Marital Status:							
Single	702	41.9	100.0	34.7	28.8	9.6	26.9
Married, spouse present.....	728	43.4	100.0	36.3	18.7	7.3	37.7
Other marital status	246	14.7	100.0	20.6	10.7	11.1	57.6
Color:							
White.....	1,279	76.3	100.0	38.2	21.4	8.3	32.2
Nonwhite.....	397	23.7	100.0	17.9	23.5	9.7	49.0
Looked for regular full-time job	1,022	100.0	100.0	22.4	18.1	10.7	48.8
Age:							
14 to 24 years.....	363	35.5	100.0	25.1	23.7	15.9	35.2
25 years and over	659	64.5	100.0	20.9	15.0	7.8	56.3
Marital status:							
Single	315	30.8	100.0	15.3	22.3	14.6	47.8
Married, spouse present.....	516	50.5	100.0	29.2	18.3	8.8	43.8
Other marital status.....	191	18.7	100.0	15.9	10.1	10.6	63.5
Color:							
White.....	734	71.8	100.0	25.8	18.8	10.0	45.3
Nonwhite.....	288	28.2	100.0	13.5	16.3	12.4	57.8
Looked for temporary or part-time job.....	654	100.0	100.0	50.7	27.8	5.3	16.2
Age:							
14 to 24 years.....	412	63.0	100.0	52.7	34.0	4.9	8.5
25 years and over.....	242	37.0	100.0	47.2	16.6	6.1	30.1
Marital status:							
Single.....	387	59.2	100.0	50.7	34.1	5.5	9.7
Married, spouse present.....	212	32.4	100.0	54.5	19.8	3.5	22.3
Other marital status.....	55	8.4	(1)	----	----	----	----
Color:							
White.....	545	83.3	100.0	55.2	24.9	5.8	14.1
Nonwhite.....	109	16.7	100.0	29.1	41.8	2.7	26.4

(1) Percent not shown where base is less than 100,000

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1358.

Table 21

Median Years of School Completed by the Civilian Noninstitutional Population 18 Years Old and Over, by Employment Status and Sex, 1952-62

Sex	Total, 18 years old and over	Labor Force					Not in Labor Force
		Total	Employed			Unemployed	
			Total	Agriculture	Nonagriculture		
Both Sexes							
October 1952	10.6	10.9	10.9	(1)	(1)	10.1	10.0
March 1957	11.0	11.6	11.7	(1)	(1)	9.4	10.2
March 1959	11.4	12.0	12.0	8.6	12.1	9.9	10.5
March 1962	11.9	12.1	12.1	8.7	12.2	10.6	10.7
Male							
October 1952	10.1	10.4	10.4	(1)	(1)	8.8	8.5
March 1957	10.7	11.1	11.2	(1)	(1)	8.9	8.5
March 1959	11.1	11.5	11.7	8.6	12.0	9.5	8.5
March 1962	11.6	12.0	12.1	8.7	12.1	10.0	8.7
Female							
October 1952	11.0	12.0	12.0	(1)	(1)	11.5	10.4
March 1957	11.4	12.1	12.1	(1)	(1)	10.4	10.7
March 1959	11.7	12.2	12.2	8.8	12.2	10.7	10.9
March 1962	12.0	12.2	12.3	9.4	12.3	11.5	11.2

(1) Not available

Source: Manpower Report of the President and A Report of Manpower Requirements, Resources, Utilization, and Training, United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

Table 22

Median Years of School Completed by the Civilian Labor Force 18 Years Old and Over, by Age and Sex, 1952-62

Sex	18 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
Both Sexes						
October 1952	12.2	12.1	11.4	8.3		8.3
March 1957	12.3	12.2	12.0	9.5		8.5
March 1959	12.3	12.3	12.1	10.8	8.9	8.6
March 1962	12.4	12.4	12.2	11.6	9.4	8.8
Male						
October 1952	11.5	12.1	11.2	8.7		8.2
March 1957	12.1	12.2	11.8	9.0		8.4
March 1959	12.1	12.3	12.1	10.4	8.8	8.5
March 1962	12.3	12.4	12.2	11.1	9.0	8.7
Female						
October 1952	12.4	12.2	11.9	9.2		8.8
March 1957	12.4	12.3	12.1	10.8		8.8
March 1959	12.4	12.3	12.2	11.7	10.0	8.8
March 1962	12.5	12.4	12.3	12.1	10.7	9.0

Source: Manpower Report of the President and A Report of Manpower Requirements, Resources, Utilization, and Training, United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

agricultural industry and the proportions who drop out of the labor force. Three-fourths of the Negro workers are concentrated in low skill occupations and in industries most susceptible to irregular employment.[27]

The tremendous disparities in the employment opportunities between white and non-white workers is reflected for males and females in total unemployment figures and in long-term unemployment. (See Table 23). The tremendous increase in long-term unemployment for non-white women between 1960 and 1961, for example, shows the vagaries of the economic scene and of the labor market generally and their effects on employment opportunities for different groups in the labor force.

What are the chances that young high school graduates or high school dropouts with or without vocational training will successfully get work? A study of the June, 1961, high school graduates in the United States showed that by October, 1961, 850,000 of the 1,750,000 who had been graduated were enrolled in college.[28] Of the 900,000 who did not go to college, most were in the labor force and 18 per cent were unemployed. Of these high school graduates, two-thirds of the girls had clerical jobs and two-thirds of the boys semi-skilled operative jobs or unskilled laborer jobs. These patterns were similar to those for the 1960 graduates.[29]

Between January, 1961, and October, 1961, about 350,000 in the age group 16-21 quit elementary or high school, similar to the dropout rate a year earlier. In contrast to the high school graduates, the dropouts had an unemployment rate of 27 per cent. In general, the dropouts were in an unfavorable position when compared to the graduates in the types of jobs they could obtain. They were more likely to be service workers, undoubtedly of the lowest skill levels, and farm workers. Only 1 in 7 had a clerical job. (See Table 24). In contrast to the 10 per cent of the graduates who had part-time work because of the inability to find full-time employment, 20 per cent of the dropouts had part-time work. As Secretary Wirtz has put it, "A boy or girl who drops out of school today without an elemental skill comes awfully close to committing economic suicide; for the number of unskilled jobs is getting smaller and smaller every year."[30]

If these levels of unemployment and the areas in which employment was available reflected the purely rational characteristics related to employment, such as training and education, rather than also reflecting discriminatory hiring, the opportunities for Negroes would still be highly limited. While every thirteenth person among the unemployed had less than five years of elementary school education, one out of every five adult non-white male unemployed persons had less than five years of formal education.

During the school months of 1962, approximately 700,000 youths between the ages of 16 and 21 were not in school and did not have work;[31] one out of four was non-white. Non-white youths under 19 had an unemployment rate of 24 per cent, double that of white youths. In 1962, 57 per cent of the non-white youths between 20-24 years of age were school dropouts; among white youths the percentage was 28 per cent.

The patterns of unemployment found for the nation as a whole are also found in Michigan. White-collar workers have lower rates of unemployment than blue-collar workers; non-whites suffer much more unemployment than do white workers, and youthful workers have a more difficult time in gaining employment than do older workers.[32] (See Table 25). Again, education seems to be the most crucial variable in employment.

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[27]Statement of W. Wirtz, Secretary of Labor before the Subcommittee on Unemployment of the House Education and Labor Committee on the President's Proposed Amendments of the Manpower Development and Training Act, July 8, 1963, p. 12; also, U. S. Department of Labor, "Manpower Report of the President..." op. cit.,p. 43.

[28]U. S. Department of Labor, Bureau of Labor Statistics, Advanced Summary Special Labor Force Report, "Employment of 1961 High Schools Graduates and Dropouts," October, 1961, pp. 1-2.

[29]U. S. Department of Labor, Bureau of Labor Statistics, Advance Summary Special Labor Force Report, "Employment of 1961 High School Graduates and Dropouts," October 1961, pp. 1-2.

[30]Wirtz, op. cit., p. 12.

[31]Ibid., p. 14.

[32]The patterns of unemployment are universal, although the rates related to various social characteristics vary with region, social and economic areas.

Table 23

Extent of Unemployment in 1960 and 1961, By Age, Marital Status, Color, and Sex

Characteristics	Unemployed as percent of total working or looking for work		Percent of unemployed who worked during the year having unemployment of-					
			15 weeks or more		2 spells		3 spells or more	
	1961	1960	1961	1960	1961	1960	1961	1960
Total, 14 years and over	18.4	17.2	37.7	35.4	17.1	16.2	19.8	20.4
AGE AND SEX								
Male, 14 years and over.....	19.5	18.4	38.4	37.0	17.6	16.8	22.2	22.8
14 to 17 years.....	20.8	19.3	25.5	29.7	17.6	16.6	14.3	22.5
18 and 19 years.....	35.5	33.0	36.1	32.5	20.6	15.1	18.2	22.4
20 to 24 years.....	33.6	34.8	34.3	36.2	20.2	16.1	19.1	19.8
25 to 34 years.....	21.1	20.1	36.4	33.2	16.4	16.5	22.1	18.4
35 to 44 years.....	17.6	15.3	38.1	33.5	16.4	18.0	23.4	24.0
45 to 64 years.....	15.2	14.4	43.7	43.0	17.9	17.1	24.5	27.0
65 years and over.....	10.6	10.8	55.4	61.4	13.7	15.7	35.0	33.1
Female, 14 years and over....	16.7	15.3	36.1	31.9	16.1	14.9	15.0	15.2
14 to 17 years.....	13.6	13.7	28.4	18.9	17.3	8.5	6.2	9.1
18 and 19 years.....	35.5	29.9	23.0	21.1	18.2	13.2	11.2	8.3
20 to 24 years.....	24.1	19.5	31.3	30.8	15.0	18.2	12.2	11.4
25 to 34 years.....	18.7	16.2	33.3	33.5	16.0	15.9	13.8	15.4
35 to 44 years.....	15.5	14.5	42.0	31.9	14.9	14.3	17.1	17.4
45 to 64 years.....	12.5	12.5	44.0	36.1	17.2	14.6	19.4	18.7
65 years and over.....	7.0	8.3	(1)	(1)	(1)	(1)	(1)	(1)
MARITAL STATUS AND SEX								
Male:								
Single.....	27.0	26.1	38.0	38.2	18.4	16.8	19.4	22.0
Married, wife present.....	16.6	15.7	37.4	35.2	17.5	16.7	22.0	23.0
Other marital status.....	28.7	25.9	47.6	47.6	16.6	17.3	34.1	24.7
Female:								
Single.....	18.6	16.7	31.2	29.6	18.9	15.2	11.8	11.4
Married, husband present...	15.5	14.1	36.7	30.6	15.0	14.6	15.3	15.0
Other marital status.....	18.3	17.5	39.7	37.3	15.6	14.9	18.1	19.8
COLOR AND SEX								
Both sexes:								
White.....	17.0	15.9	35.3	33.8	17.2	16.2	18.1	19.0
Nonwhite.....	29.3	27.8	49.2	42.3	16.6	16.2	28.4	27.1
Male:								
White.....	17.8	16.9	36.4	35.7	18.1	17.1	20.4	21.0
Nonwhite.....	34.1	31.8	48.2	43.3	15.3	15.0	30.7	31.4
Female:								
White.....	15.7	14.2	32.8	29.9	15.4	14.0	13.2	14.4
Nonwhite.....	23.5	22.9	51.3	40.4	19.2	18.3	23.7	18.5

(1) Percent not shown where base is less than 100,000.

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1355.

Table 24

Employment Status and Major Occupation Group of June 1961 High School Graduates Not Enrolled in College and Nongraduates Who Dropped Out of School in 1961, by Sex, October 1961

Employment status and major occupation group	June 1961 high school graduates			Nongraduates who dropped out of school in 1961		
	Both sexes	Male	Female	Both sexes	Male	Female
Civilian noninstitutional population (thousands)	916	345	571	354	179	175
In labor force						
Number (thousands)	730	297	433	239	150	89
Percent of population	79.7	86.1	75.8	67.5	83.8	50.9
Employed						
Number (thousands)	599	242	357	175	108	67
Unemployed						
Percent of labor force	17.9	18.5	17.6	26.8	28.0	(1/)
Percent distribution of employed by occupation	100.0	100.0	100.0	100.0	100.0	(1/)
Professional, technical, and kindred workers	1.5	-	2.5	1.1	1.8	(1/)
Managers, officials, and proprietors, except farm	.2	.4	-	-	-	(1/)
Clerical and kindred workers	41.6	9.9	63.2	11.4	7.3	(1/)
Sales workers	5.7	4.5	6.5	4.5	3.6	(1/)
Craftsmen, foremen, and kindred workers	4.2	9.9	.3	2.8	4.5	(1/)
Operatives and kindred workers	18.2	31.0	9.6	17.0	22.7	(1/)
Private household workers	2.8	-	4.8	9.7	1.8	(1/)
Service workers, except private household	8.7	6.6	10.1	18.2	12.7	(1/)
Farmers, farm managers, laborers, and foremen	7.5	14.0	3.1	24.4	28.2	(1/)
Laborers, except farm and mine	9.5	23.6	-	10.8	17.3	(1/)

1/ Percent not shown where base is less than 100,000.

Source: U. S. Department of Labor, Bureau of Labor Statistics, Advance Summary Special Labor Force Report, "Employment of 1961 High School Graduates and Dropouts," October 1961, p. 4

Table 25

EMPLOYMENT STATUS, BY COLOR AND SEX, MICHIGAN 1940 TO 1960

Employment Status and Sex	1960			1950			1940		
	Total	White	Non-White	Total	White	Non-White	Total	White	Non-White
Both Sexes									
Population, All Ages.....	7,824,965	7,088,013	736,952	6,371,766	5,917,825	453,941	5,256,106	5,039,643	216,463
Total, 14 Years Old and Over.....	5,349,563	4,876,839	472,724	4,717,979	4,382,486	335,493	4,036,893	3,869,512	167,381
Labor Force	2,943,909	2,685,815	258,094	2,540,508	2,359,547	180,961	2,125,877	2,033,307	92,570
Armed Forces	13,561	12,364	1,197	10,448	9,229	1,219	3,550	3,535	15
Civilian Labor Force	2,930,348	2,673,451	256,897	2,530,060	2,350,318	179,742	2,122,327	2,029,772	92,555
Employed	2,726,864	2,511,881	214,983	2,393,574	2,235,361	158,213	1,821,403	1,758,695	62,708
Unemployed	203,484	161,570	41,914	136,486	114,957	21,529	300,924	271,077	29,847
Percent of Civilian Labor Force.	6.9	6.0	16.3	5.4	4.9	12.0	14.2	13.4	32.2
Not in Labor Force	2,405,654	2,191,024	214,630	2,177,471	2,022,939	154,532	1,911,016	1,836,205	74,811
Male									
Population, All Ages.....	3,881,255	3,519,698	361,557	3,212,119	2,983,372	228,747	2,694,727	2,584,459	110,268
Total, 14 Years Old and Over.....	2,619,801	2,390,295	229,506	2,368,024	2,198,765	169,259	2,073,535	1,987,747	85,788
Labor Force.....	2,050,818	1,881,188	169,630	1,897,894	1,765,709	132,185	1,669,018	1,600,035	68,983
Armed Forces	13,369	12,215	1,154	9,976	8,816	1,160	3,550	3,535	15
Civilian Labor Force	2,037,449	1,868,973	168,476	1,887,918	1,756,893	131,025	1,665,468	1,596,500	68,968
Employed	1,898,034	1,757,949	140,085	1,786,025	1,670,105	115,920	1,423,909	1,377,896	46,013
Unemployed	139,415	111,024	28,391	101,893	86,788	15,105	241,559	218,604	22,955
Percent of Civilian Labor Force.	6.8	5.9	16.9	5.4	4.9	11.5	14.5	13.7	33.3
Not in Labor Force	568,983	509,107	59,876	470,130	433,056	37,074	404,517	387,712	16,805
Female									
Population, All Ages.....	3,943,710	3,568,315	375,395	3,159,647	2,934,453	225,194	2,561,379	2,455,184	106,195
Total, 14 Years Old and Over.....	2,729,762	2,486,544	243,218	2,349,955	2,183,721	166,234	1,963,358	1,881,765	81,593
Labor Force	893,091	804,627	88,464	642,614	593,838	48,776	456,859	433,272	23,587
Armed Forces	192	149	43	472	413	59	...	...	...
Civilian Labor Force	892,899	804,478	88,421	642,142	593,425	48,717	456,859	433,272	23,587
Employed	828,830	753,932	74,898	607,549	565,256	42,293	397,494	380,799	16,695
Unemployed	64,069	50,546	13,523	34,593	28,169	6,424	59,365	52,473	6,892
Percent of Civilian Labor Force.	7.2	6.3	15.3	5.4	4.7	13.2	13.0	12.1	29.2
Not in Labor Force	1,836,671	1,681,917	154,754	1,707,341	1,589,883	117,458	1,506,499	1,448,493	58,006

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 53.

A study of the educational background of job applicants by the M.E.S.C., November, 1960, showed that almost two-thirds of the unemployed job applicants had not completed high school.[33] An examination of the educational backgrounds of Michigan workers over 25 shows that in 1960, for urban residents, 40.9 per cent of the white labor force over age 25 had a high school education or higher, while only 25.2 per cent of the non-white labor force had this much education. (See Table 26). The contrasts between the backgrounds of rural farm and urban residents is also apparent in the fact that among the rural farm white members of the labor force, 32.7 per cent had a high school education or higher. For the non-white population this figure was 18.7 per cent.

Whether the lower employment rates of non-whites is a function of poorer educational background, lack of experience or training, or discrimination, it is apparent that in Michigan, non-white workers followed the national pattern of being concentrated in the lower manual occupations. For 1960 almost 39 per cent of the employed males were in operative or other semi-skilled manual work; other large groups were in the laborer, unskilled manual work, 14 per cent and 12 per cent in the manual skilled occupations. (See Table 27) Among the non-white women employed workers, more than 50 per cent were private household or service workers.

Among the unemployed, as might be expected, the same concentration of occupations is found. Of the experienced male unemployed in 1960 among the non-whites, 38.8 per cent were operatives or kindred workers, 23.3 per cent were laborers, and 9.9 per cent craftsmen. The comparable figures for whites is 34.4 per cent operatives, 14.6 per cent laborers, and 24.3 per cent craftsmen. (See Table 28). Among experienced non-white female unemployed workers, the largest concentrations are: 26.1 per cent service workers, 20.3 per cent private household workers, and 16.1 per cent operatives. For experienced white female workers the largest concentration of unemployed is among operatives and kindred workers, 35.4 per cent; sales workers, 18.8 per cent; and service workers, 15.5 per cent. In the cases for both males and females, the non-white population has more disadvantages than the white population, suffering from higher rates of unemployment and greater concentrations in the lowest skilled occupations and in industries with the greatest amounts of instability in employment. (See Table 29). In the cases of all workers, it is apparent that the patterns of unemployment show that the groups suffering most from the changing structure of the labor market are those with the lowest skills and with the poorest education.

Migration and Labor Markets

Have all the significant data upon which vocational education must be based been presented? Is it enough for local school administrators to know about national and statewide trends in employment and the factors which are related to unemployment? The answers rest on the type of labor market for which youths are being prepared.

The labor market is the focus for the analysis of employment and occupational activities. Labor markets, however, may be defined in a number of ways, depending upon the types of analysis or the discussion undertaken. For many purposes the labor market is adequately defined in purely geographic terms, although even here we must recognize the overlapping of local and regional markets. In other cases, it is possible to define labor markets in terms of given industries, or the production of given commodities, or even in terms of given union jurisdictions.[34] For our purposes, we shall define the labor market as a recognizable area of employment opportunities which provides a fixed number of persons within a given region, at a given time, with employment or potential employment.

A primary question, then, to be answered by the vocational educator is: For which labor markets local, statewide, regional, or national are we training our youths? If youths remain in the local community and work there or in geographically contiguous areas, preparation depends on local conditions, and training is for a local labor market. If youths seek work elsewhere, training and preparation must be for labor markets other than the local one. What is demanded of those responsible for the vocational education of youths in their communities is some knowledge of job-seeking behavior. How many youths remain in the community after terminating their educations? Which youths migrate elsewhere? How do patterns of migration for males and females differ?

If one prepares youths for labor force activity beyond the local labor market, local economic trends hardly provide a proper basis for adequate vocational training. On the other hand, preparing youths for the local labor market, must also reflect the changes in the broader economy which affect local labor market employment patterns. What significant local trends should be understood? What are the significant statewide, regional, and national trends?

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[33] Michigan Employment Security Commission, op. cit., p. 19.

[34] S. Nosow, "Labor Distribution and the Normative System" Social Force, October 1956, p. 26.

Table 26

Years of School Completed by Persons 25 Years Old and Over, by Color and Sex, for Michigan: 1960

Color, and Sex	Total 25 years old and over	Years of School Completed								
		None	Elementary School				High School		College	
			1 to 4	5 and 6	7	8	1 to 3	4	1 to 3	4 or More
The State.....	100.0	1.5	4.3	5.9	5.8	19.4	22.2	26.0	8.1	6.8
White.....	100.0	1.4	3.7	5.3	5.6	19.7	21.9	26.9	8.3	7.2
Nonwhite.....	100.0	2.2	10.9	11.9	8.3	16.1	25.4	16.8	5.5	2.9
Male.....	100.0	1.5	5.0	6.4	6.5	20.2	21.8	22.1	7.9	8.4
White.....	100.0	1.4	4.2	5.8	6.3	20.6	21.6	22.9	8.2	9.0
Nonwhite.....	100.0	2.7	13.5	13.1	8.6	16.3	23.5	14.2	5.0	3.0
Female.....	100.0	1.4	3.6	5.3	5.2	18.6	22.7	29.8	8.2	5.2
White.....	100.0	1.4	3.2	4.8	4.9	18.9	22.2	30.8	8.4	5.4
Nonwhite.....	100.0	1.8	8.3	10.8	8.0	15.8	27.2	19.4	6.0	2.8

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 47.

Table 27

Major Occupation Group of Employed Persons, by Sex and Color
Michigan: 1960

Occupation Group	Sex and Color			
	Male		Female	
	White	Nonwhite	White	Nonwhite
Total Employed.....	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers.....	11.0	3.5	14.1	7.4
Farmers and farm managers.....	3.2	.1	.4	--
Managers, officials and proprieters, ex, farms.....	9.7	1.9	3.4	1.2
Clerical and kindred workers.....	6.7	5.0	32.6	12.7
Sales workers.....	7.1	1.9	9.8	2.6
Craftsmen, foremen and kindred workers.....	22.3	12.3	1.2	.8
Operatives and kindred workers...	25.1	38.7	13.5	13.0
Private household workers.....	.1	.4	5.1	23.9
Service workers, except private household.....	5.1	11.5	14.6	26.9
Farm laborers and foremen.....	1.1	.5	.6	.2
Laborers, except farm and mine...	4.8	14.2	.5	1.2
Occupation not reported.....	3.5	10.0	4.4	10.0

* Columns may not equal 100.0 because of rounding.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 58.

Table 28

Major Occupation Group of the Experienced Unemployed, by Color and Sex, Michigan: 1960

Major Occupation Group	Male				Female			
	White		Nonwhite		White		Nonwhite	
	Total	Percent Distribution	Total	Percent Distribution	Total	Percent Distribution	Total	Percent Distribution
Total	107,057	100.0	26,539	100.0	47,242	100.0	11,585	100.0
Professional, technical, and kindred workers	3,141	2.9	222	0.8	1,079	2.3	179	1.5
Farmers and farm managers	546	0.5	5	...	28	0.1	12	0.1
Managers, officials and proprieters, ex, farms	2,692	2.5	144	0.5	530	1.1	53	0.5
Clerical and kindred workers	4,847	4.5	856	3.2	8,863	18.8	1,308	11.3
Sales workers	3,737	3.5	329	1.2	4,692	9.9	443	3.8
Craftsmen, foremen and kindred workers	26,015	24.3	2,620	9.9	645	1.4	86	0.7
Operatives and kindred workers	36,862	34.4	10,292	38.8	16,747	35.4	1,869	16.1
Private household workers	124	0.1	70	0.3	2,477	5.2	2,350	20.3
Service workers, except private household	5,136	4.8	2,268	8.5	7,486	15.8	3,020	26.1
Farm laborers and foremen	2,115	2.0	259	1.0	273	0.6	113	1.0
Laborers, except farm and mine	15,662	14.6	6,190	23.3	660	1.4	229	2.0
Occupation not reported	6,180	5.8	3,284	12.4	3,762	8.0	1,923	16.6

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 60.

Table 29

Industry Group of Employed Persons, by Color, Michigan: 1960, in Percentages

Industry group	Color	
	White	Nonwhite
Total Employed	100.0	100.0
Agriculture	3.6	0.6
Forestry and Fisheries	0.1	---
Mining	0.6	---
Construction	4.7	3.6
Manufacturing	38.2	35.1
Railroad and Railway Exp. Service	1.0	0.5
Trucking Service and Warehousing	1.5	0.6
Other Transportation	0.8	1.1
Communications	1.2	0.6
Utilities and San. Service	1.4	1.3
Wholesale Trade	3.1	1.7
Food and Dairy Product Stores	2.8	1.5
Eating and Drinking Places	2.7	2.8
Other Retail Trade	9.7	5.4
Finance, Insurance and Real Estate	3.5	1.3
Business Services	1.1	0.6
Repair Services	1.2	1.8
Private Households	1.8	8.9
Other Personal Services	2.3	5.8
Entertainment and Recreation Services	0.6	0.7
Educational Services: Government	4.6	2.9
Private	1.1	0.5
Welfare, Religious, and Nonprofit Mem. Organizations	1.2	1.2
Hospitals	2.6	6.1
Other Professional and Related Services	2.5	1.5
Public Administration	3.3	5.5
Industry not reported	2.8	8.4

Source: U. S. Bureau of the Census. U. S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U. S. Government Printing Office, Washington, D. C., Table 61.

Appropriate planning on the part of administrators might start with some analysis of labor market participation by youths of the community. The ideal situation, of course, is to have continual follow-up studies. This would give an absolute picture of the labor force patterns for the youths trained in the local community. This microscopic analysis, while valuable for the diagnosis of patterns and trends, might miss the broader changes which affect the particular community.

Other techniques can rely essentially upon census data. What has been happening to the population of given local communities? What has been happening to employment patterns? If migration has significantly affected local populations, how must this be translated into vocational training? If industrial trends have significantly affected local job opportunities, how might these be translated into vocational training?

Judging from the specific offerings and the types of orientations of the local school systems, the more traditional concepts of a labor market remain, in terms of purely local job opportunities. When society is founded upon an agricultural base and the service industries tied to the agricultural community, such a concept of vocational education is suited to the needs of youth and of the entire community.

However, this concept and the vocational needs of youth, is being questioned because of data which reflect changing economic and demographic characteristics of communities and of broader regions.

Studies of the demographic changes in recent decades indicate the tremendous mobility of the population. About 7 per cent of all male workers in the United States, for example, do not reside in the same county in which they resided a year previously. More than 5 per cent of the nation's inhabitants move from one county to another in the course of a year.[35]

In Michigan, the changes have been no less pronounced. During the decade of the 1950's, 156,000 persons migrated to Michigan, which constituted 2.4 per cent of the state's population in 1950.[36] Of course, population growth and population changes due to in-or out-migration did not affect all of Michigan's counties in the same way.

Populous counties have tended to gain population, while the least populous continue to lose population. In fact, maximum population was reached in Antrim, Manistee, Menominee, and Sanilac counties in 1900. (See Table 30). This pattern of maximum population during previous decades typifies most of the Upper Peninsula and northern lower peninsula counties. In contrast 19 southern Michigan counties have more than doubled population since 1910. In Michigan, 18 counties have less than 10,000 population while 16 counties have 100,000 or more. As might be expected, 15 of the 18 least populous counties are entirely rural, while 11 of the 16 most populous are more urban than rural.[37]

The distribution of population has marked significance for the patterns of industrial growth and development. The larger the concentration of population, the more services may be provided in the community. The notable increase in trade and services in Michigan is directly related to the increase in urban concentrations of population.

The extent to which this concentration of population is a function of migration is quite clear from the changes during the past two decades. Contrast Macomb County which had a 78 per cent in-migration during the 1950's with Alger or Missaukee counties with their more than 20 per cent out-migration for the same decade. This does not mean that all persons from the Upper Peninsula go to Macomb County, or even remain in the state, but it does mean that most of them go to the more populous parts of the state. (See Tables 31 and 32). While there are no actual figures which show the extent to which particular age groups leave or enter given counties, one can make significant inferences about the likelihood of any age group's leaving or remaining.

To point up the significance of out-migration to vocational education, a cohort analysis was made of specific age groups which provide new entrants into the labor force. We were interested in finding out how many of those youths who entered the labor force between 1950 and 1960 remained in their local communities.* Recognizing natural changes in population and some in-migration in

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[35]Bogue, op. cit., p. 375.

[36]J. F. Thaden, "Population of Michigan Counties -- Projection to 1970," Technical Bulletin B-24 E. Lansing, Michigan: Institute for Community Development, Continuing Education Service, Michigan State University, 1962, p. 12.

[37]Ibid., p. 22.

*Since the census provides us with demographic and labor force data for counties, the county was operationally established as the geographic bounds of the local community and the local labor market.

Table 30

Population of Michigan by Counties: 1900 to 1960

County	1960	1950	1940	1930	1920	1910	1900
Alcona	6,352	5,856	5,463	4,989	5,912	5,703	5,691
Alger	9,250	10,007	10,167	9,327	9,983	7,675	5,868
Allegan	57,729	47,493	41,839	38,974	37,540	39,819	38,812
Alpena	28,556	22,189	20,766	18,574	17,869	19,965	18,254
Antrim	10,373	10,721	10,964	9,979	11,543	15,692	16,568
Arenac	9,860	9,644	9,233	8,007	9,460	9,640	9,821
Baraga	7,151	8,037	9,356	9,168	7,662	6,127	4,320
Barry	31,738	26,183	22,613	20,928	21,383	22,633	22,514
Bay	107,042	88,461	74,981	69,474	69,548	68,238	62,378
Benzie	7,834	8,306	7,800	6,587	6,947	10,638	9,685
Berrien	149,865	115,702	89,117	81,066	62,653	53,622	49,165
Branch	34,903	30,202	25,845	23,950	23,997	25,605	27,811
Calhoun	138,858	120,813	94,206	87,043	72,918	56,638	49,315
Cass	36,932	28,185	21,910	20,888	20,395	20,624	20,876
Charlevoix	13,421	13,475	13,031	11,981	15,788	19,157	13,956
Cheboygan	14,550	13,731	13,644	11,502	13,991	17,872	15,516
Chippewa	32,655	29,206	27,807	25,047	24,818	24,472	21,338
Clare	11,647	10,253	9,163	7,032	8,250	9,240	8,360
Clinton	37,969	31,195	26,671	24,174	23,110	23,129	25,136
Crawford	4,971	4,151	3,765	3,097	4,049	3,934	2,943
Delta	34,298	32,913	34,037	32,280	30,909	30,108	23,881
Dickinson	23,917	24,844	28,731	29,941	19,456	20,524	17,890
Eaton	49,684	40,023	34,124	31,728	29,377	30,499	31,668
Emmet	15,904	16,534	15,791	15,109	15,639	18,561	15,931
Genesee	374,313	270,963	227,944	211,641	125,668	64,555	41,804
Gladwin	10,769	9,451	9,385	7,424	8,827	8,413	6,564
Gogebic	24,370	27,053	31,797	31,577	33,225	23,333	16,738
Grand Traverse	33,490	28,598	23,390	20,011	19,518	23,784	20,479
Gratiot	37,012	33,429	32,205	30,252	33,914	28,820	29,889
Hillsdale	34,742	31,916	29,092	27,417	28,161	29,673	29,865
Houghton	35,654	39,771	47,631	52,851	71,930	88,098	66,063
Huron	34,006	33,149	32,584	31,132	32,786	34,758	34,162
Ingham	211,296	172,941	130,616	116,587	81,554	53,310	39,818
Ionia	43,132	38,158	35,710	35,093	33,087	33,550	34,329
Iosco	16,505	10,906	8,560	7,517	8,199	9,753	10,246
Iron	17,184	17,692	20,243	20,805	22,107	15,164	8,990
Isabella	35,348	28,964	25,982	21,126	22,610	23,029	22,784
Jackson	131,994	108,168	93,108	92,304	72,539	53,426	48,222
Kalamazoo	169,712	126,707	100,085	91,368	71,225	60,427	44,310
Kalkaska	4,382	4,597	5,159	3,799	5,577	8,097	7,133
Kent	363,187	288,292	246,338	240,511	183,041	159,145	129,714

Table 30 (con't)

County	1960	1950	1940	1930	1920	1910	1900
Keweenaw	2,417	2,918	4,004	5,076	6,322	7,156	3,217
Lake	5,338	5,257	4,798	4,066	4,437	4,939	4,957
Lapeer	41,926	35,794	32,116	28,348	25,782	26,033	27,641
Leelanau	9,321	8,647	8,436	8,206	9,061	10,608	10,556
Lenawee	77,789	64,629	53,110	49,849	47,767	47,907	48,406
Livingston	38,233	26,725	20,863	19,274	17,522	17,736	19,664
Luce	7,827	8,147	7,423	6,528	6,149	4,004	2,983
Mackinac	10,853	9,287	9,438	8,783	8,026	9,249	7,703
Macomb	405,804	184,961	107,638	77,146	38,103	32,606	33,244
Manistee	19,042	18,524	18,450	17,409	20,899	26,688	27,856
Marquette	56,154	47,654	47,144	44,076	45,786	46,739	41,239
Mason	21,929	20,474	19,378	18,756	19,831	21,832	18,885
Mecosta	21,051	18,968	16,902	15,738	17,765	19,466	20,693
Menominee	24,685	25,299	24,883	23,652	23,778	25,648	27,046
Midland	51,450	35,662	27,094	19,150	17,237	14,005	14,439
Missaukee	6,784	7,458	8,034	6,992	9,004	10,606	9,308
Monroe	101,120	75,666	58,620	52,485	37,115	32,917	32,754
Montcalm	35,795	31,013	28,581	27,471	30,441	32,069	32,754
Montmorency	4,424	4,125	3,840	2,814	4,089	3,755	3,234
Muskegon	149,943	121,545	94,501	84,630	62,362	40,577	37,036
Newaygo	24,160	21,567	19,286	17,029	17,378	19,220	17,673
Oakland	690,259	396,001	254,068	211,251	90,050	49,576	44,792
Oceana	16,547	16,105	14,812	13,805	15,601	18,379	16,644
Ogemaw	9,680	9,345	8,720	6,595	7,786	8,907	7,765
Ontonagon	10,584	10,282	11,359	11,114	12,428	8,650	6,197
Osceola	13,595	13,797	13,309	12,806	15,221	17,889	17,859
Oscoda	3,447	3,134	2,543	1,728	1,783	2,027	1,468
Otsego	7,545	6,435	5,827	5,554	6,043	6,552	6,175
Ottawa	98,719	73,751	59,660	54,858	47,660	45,301	39,667
Presque Isle	13,117	11,996	12,250	11,330	12,131	11,249	8,821
Roscommon	7,200	5,916	3,668	2,055	2,032	2,274	1,787
Saginaw	190,752	153,515	130,468	120,717	100,286	89,290	81,222
St. Clair	107,201	91,599	76,222	67,563	58,009	52,341	55,228
St. Joseph	42,332	35,071	31,749	30,618	26,818	25,499	23,889
Sanilac	32,314	30,837	30,114	27,751	31,237	33,930	35,055
Schoolcraft	8,953	9,148	9,524	8,451	9,977	8,681	7,887
Shiawassee	53,446	45,967	41,207	39,517	35,924	33,246	33,866
Tuscola	43,305	38,258	35,694	32,934	33,320	34,913	35,890
Van Buren	48,395	39,184	35,111	32,637	30,715	33,185	33,274
Washtenaw	172,440	134,606	80,810	65,530	49,520	44,714	47,761
Wayne	2,666,297	2,435,235	2,015,623	1,888,946	1,177,645	531,590	348,793
Wexford	18,466	18,628	17,976	16,827	18,207	20,769	16,845
MICHIGAN	7,823,194	6,372,009	5,256,106	4,842,325	3,668,412	2,810,172	2,420,982

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962

Table 31

Natural Increase Rates and Net Migration Rates, by Counties of Michigan: Intercensal Periods 1940-1950 and 1950-1960

County	Natural Increase Rate[a] 1940-1950	Natural Increase Rate[a] 1950-1960	Net Migration Rate 1940-1950[b]	Net Migration Rate 1950-1960[c]
Alcona	10.1	8.0	-2.9	0.2
Alger	16.3	13.0	-17.4	-20.1
Allegan	9.9	15.7	3.6	4.1
Alpena	14.7	18.9	-8.0	7.1
Antrim	8.3	9.0	-9.8	-12.0
Arenac	9.2	10.6	-4.6	-8.4
Baraga	9.5	9.5	-22.4	-20.1
Barry	7.8	12.2	8.2	7.7
Bay	15.2	18.7	1.8	0.4
Benzie	8.4	9.6	-1.5	-15.0
Berrien	12.0	18.0	16.0	8.9
Branch	7.3	9.9	9.5	4.8
Calhoun	12.2	16.2	14.0	-2.5
Cass	4.8	8.3	23.7	21.4
Charlevoix	10.1	10.3	-6.2	-10.7
Cheboygan	11.9	13.8	-11.0	-8.3
Chippewa	15.7	20.1	-10.7	-9.5
Clare	11.9	15.4	-0.2	-2.9
Clinton	12.1	18.9	4.4	0.8
Crawford	6.8	13.2	3.7	5.3
Delta	11.3	14.5	-14.0	-10.6
Dickinson	11.0	10.3	-23.2	-13.9
Eaton	10.2	15.8	7.0	6.5
Emmet	11.5	13.1	-6.5	-16.7
Genesee	16.0	23.7	1.8	9.8
Gladwin	14.3	13.6	-13.3	-0.6
Gogebic	9.8	7.7	-23.5	-17.2
Grand Traverse	11.6	15.1	10.1	0.6
Gratiot	13.1	16.7	-9.8	-6.8
Hillsdale	8.9	12.3	-0.1	-4.0
Houghton	5.1	4.3	-22.1	-14.5
Huron	13.4	17.4	-11.4	-15.0
Ingham	15.3	20.1	9.6	-0.1
Ionia	10.2	14.4	-3.2	-2.3
Iosco	11.2	19.7	15.5	26.6
Iron	9.4	7.7	-20.7	-10.4
Isabella	14.2	18.1	-7.0	2.0
Jackson	11.0	15.5	4.6	5.1
Kalamazoo	13.0	17.5	9.8	13.5
Kalkaska	9.4	8.2	-19.6	-12.6
Kent	12.4	18.8	4.0	4.8

Table 31 (con't)

County	Natural Increase Rate[a] 1940-1950	Natural Increase Rate[a] 1950-1960	Net Migration Rate 1940-1950[b]	Net Migration Rate 1950-1960[c]
Keweenaw	2.1	-1.6	-28.7	-15.7
Lake	4.0	3.1	5.8	-1.6
Lapeer	9.3	14.6	2.2	1.3
Leelanau	9.3	13.7	-6.5	-6.4
Lenawee	11.9	16.4	7.8	2.3
Livingston	9.3	15.3	18.6	24.6
Luce	11.4	11.7	-1.8	-15.4
Mackinac	12.0	16.3	-13.3	-0.8
Macomb	18.3	25.9	47.7	78.1
Manistee	7.9	9.8	-7.0	-7.1
Marquette	10.3	13.2	-9.6	3.5
Mason	8.8	10.9	-2.8	-4.2
Mecosta	9.4	12.0	0.1	-1.7
Menominee	13.1	12.8	-11.2	-15.1
Midland	22.1	25.2	6.6	13.5
Missaukee	13.4	12.9	-19.6	-21.3
Monroe	11.7	19.0	16.2	11.4
Montcalm	9.6	13.4	-0.5	1.1
Montmorency	13.1	11.9	-5.7	-5.1
Muskegon	18.2	21.0	8.3	0.0
Newaygo	10.8	14.7	1.0	-3.6
Oakland	17.4	23.1	34.5	42.6
Oceana	8.8	13.5	0.1	-10.9
Ogemaw	10.9	10.1	-3.9	6.7
Ontonagon	7.2	10.6	-16.0	-7.8
Osceola	11.8	11.9	-7.6	-13.2
Oscoda	11.0	11.7	11.5	-2.3
Otsego	12.1	15.5	-2.0	0.4
Ottawa	15.1	19.5	6.6	11.1
Presque Isle	15.3	18.9	-16.9	-10.4
Roscommon	10.5	9.9	48.0	10.7
Saginaw	14.7	20.3	2.1	1.5
St. Clair	11.9	15.1	7.6	0.6
St. Joseph	10.2	12.1	0.5	7.3
Sanilac	10.9	12.8	-8.0	-8.4
Schoolcraft	13.5	15.4	-16.8	-17.4
Shiawassee	12.2	17.5	-0.7	-2.6
Tuscola	11.2	14.7	-3.8	-2.5
Van Buren	6.4	11.1	5.8	11.1
Washtenaw	14.5	20.0	25.8	5.2
Wayne	13.6	17.6	5.9	-9.0
Wexford	11.4	13.3	-7.5	-14.1
MICHIGAN	13.3	18.1	6.2	2.5

a. Corrected for underregistration of births
b. Migration as a percentage of 1940 population
c. Migration as a percentage of 1950 population

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, Mar. 1962.

Table 32

Components of Population Change in Counties of Michigan: 1940 to 1960

County	1950 to 1960			1940 to 1950		
	Population Change	Natural Increase[a]	Net Migration	Population Change	Natural Increase[a]	Net Migration
Alcona	496	484	12	416	575	-159
Alger	-757	1,257	-2,014	-114	1,645	-1,759
Allegan	10,236	8,285	1,951	5,924	4,445	1,479
Alpena	6,367	4,787	1,580	1,504	3,152	-1,648
Antrim	-348	942	-1,290	-173	896	-1,069
Arenac	216	1,030	-814	449	868	-419
Baraga	-886	726	-1,612	-1,261	819	-2,080
Barry	5,555	3,551	2,004	3,746	1,904	1,842
Bay	18,581	18,217	364	13,700	12,388	1,312
Benzie	-472	777	-1,249	557	672	-115
Berrien	34,163	23,918	10,245	26,605	12,321	14,284
Branch	4,701	3,247	1,454	4,497	2,043	2,454
Calhoun	18,045	21,039	-2,994	26,315	13,045	13,270
Cass	8,747	2,719	6,028	6,384	1,210	5,174
Charlevoix	-54	1,382	-1,436	532	1,329	-797
Cheboygan	819	1,954	-1,135	132	1,630	-1,498
Chippewa	3,449	6,212	-2,763	1,499	4,464	-2,965
Clare	1,394	1,695	-301	1,134	1,149	-15
Clinton	6,774	6,541	233	4,666	3,509	1,157
Crawford	820	600	220	404	266	138
Delta	1,385	4,864	-3,479	-977	3,776	-4,753
Dickinson	-927	2,532	-3,459	-3,711	2,920	-6,631
Eaton	9,661	7,068	2,593	6,130	3,753	2,377
Emmet	-630	2,128	-2,758	834	1,858	-1,024
Genesee	103,350	76,697	26,653	43,842	39,840	4,002
Gladwin	1,318	1,371	-53	108	1,348	-1,240
Gogebic	-2,683	1,958	-4,641	-4,576	2,853	-7,429
Grand Traverse	4,892	4,709	183	5,346	3,008	2,338
Gratiot	3,583	5,863	-2,280	1,132	4,313	-3,181
Hillsdale	2,826	4,088	-1,262	2,718	2,745	-27
Houghton	-4,117	1,639	-5,756	-8,431	2,234	-10,665
Huon	857	5,830	-4,973	699	4,402	-3,703
Ingham	38,355	38,589	-234	36,656	23,561	13,095
Ionia	4,974	5,839	-865	2,645	3,774	-1,129
Iosco	5,599	2,702	2,897	2,398	1,079	1,319
Iron	-508	1,335	-1,843	-2,400	1,763	-4,163
Isabella	6,384	5,813	571	2,063	3,956	-1,893
Jackson	24,069	18,552	5,517	15,280	11,027	4,253
Kalamazoo	43,005	25,878	17,127	24,794	14,807	9,987
Kalkaska	-215	366	-581	-549	459	-1,008
Kent	74,895	61,040	13,855	42,926	33,137	9,789

Table 32 (con't)

County	1950 to 1960 Population Change	Natural Increase[a]	Net Migration	1940 to 1950 Population Change	Natural Increase[a]	Net Migration
Keweenaw	-501	-43	-458	-1,072	73	-1,145
Lake	81	163	-82	479	203	276
Lapeer	6,132	5,672	460	3,857	3,156	701
Leelanau	674	1,228	-554	249	793	-544
Lenawee	13,160	11,673	1,487	11,222	7,066	4,156
Livingston	11,508	4,942	6,566	6,042	2,204	3,838
Luce	-320	935	-1,255	753	885	-132
Mackinac	1,566	1,639	-73	-130	1,122	-1,252
Macomb	220,843	76,357	144,486	77,844	26,722	51,122
Manistee	518	1,829	-1,311	168	1,456	-1,288
Marquette	8,500	6,823	1,677	312	4,873	-4,561
Mason	1,455	2,312	-857	1,221	1,753	-532
Mecosta	2,083	2,408	-325	1,722	1,707	15
Menominee	-614	3,207	-3,821	491	3,273	-2,782
Midland	15,788	10,970	4,818	8,708	6,923	1,785
Missaukee	-674	915	-1,589	-529	1,038	-1,567
Monroe	25,454	16,830	8,624	17,272	7,830	9,442
Montcalm	4,782	4,448	334	2,705	2,848	-143
Montmorency	299	509	-210	303	521	-218
Muskegon	28,398	28,430	-32	27,426	19,646	7,780
Newaygo	2,593	3,367	-774	2,404	2,205	199
Oakland	294,258	125,514	168,744	143,461	56,282	87,179
Oceana	442	2,193	-1,751	1,388	1,368	20
Ogemaw	335	962	-627	647	984	-337
Ontonagon	302	1,102	-800	-1,031	778	-1,809
Osceola	-202	1,623	-1,825	583	1,582	-999
Oscoda	313	384	-71	601	310	291
Otsego	1,110	1,083	27	627	744	-117
Ottawa	24,968	16,781	8,187	14,032	10,077	3,955
Presque Isle	1,121	2,368	-1,247	-209	1,848	-2,057
Roscommon	1,284	650	634	2,258	501	1,757
Saginaw	37,237	35,000	2,237	23,538	20,748	2,787
St. Clair	15,602	15,018	584	15,743	9,949	5,794
St. Joseph	7,261	4,694	2,567	3,565	3,398	167
Sanilac	1,477	4,054	-2,577	909	3,315	-2,406
Schoolcraft	-195	1,397	-1,592	-338	1,260	-1,598
Shiawassee	7,479	8,696	-1,217	5,002	5,306	-304
Tuscola	5,047	6,020	-973	2,764	4,120	-1,356
Van Buren	9,211	4,865	4,346	4,396	2,373	2,023
Washtenaw	37,834	30,800	7,034	40,758	16,559	24,199
Wayne	231,062	450,689	-219,627	421,943	302,777	119,166
Wexford	- 162	2,465	-2,627	734	2,078	-1,344
MICHIGAN	1,451,428	1,289,196	162,232	1,106,658	777,597	329,061

a - corrected for underregistration of births.

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962.

the various age groups, we feel that the analysis gives a fairly accurate indication of the number of youths trained in the local community who are likely to remain in it.

Those persons who were 5-9 years old in 1950 would be 15-19 years old in 1960. This group would have entered the labor force in the latter part of the 1950's. Those persons who were 10-14 in 1950 were in the 20-24 year age group in 1960, and would have entered the labor force all through the 1950's. Those persons who were in the 15-19 year age group in 1950 started to enter the labor force during the early 1950's and constituted the 25-29 year old group in 1960.

As an example, there were 180 persons in the 5 to 9-year-old group in Alcona County in 1950. If there had been no deaths and no in- or out-migrations, there should have been 180 persons in the 15-19 age group in 1960. However, there was an 11.7 per cent decrease in this number, an 8.5 per cent decrease for males and a 15.1 per cent decrease for females. (See Table 33). The group which was 10-14 years old in 1950 and 20-24 in 1960 had decreased by 45.9 per cent, and the group which was 15-19 in 1950 and 25-29 in 1960 had decreased by 40.9 per cent. Although the over-all net change in the population through migration was only 1.4 per cent, it is clear that the youths of this county left in very large numbers during the 1950's, balanced by some in-migration of older persons. Alger County, with the same large declines in the numbers of youths and young adults, did not have this out-migration balanced by the in-migration of other age groups and shows an over-all net out-migration of 20.6 per cent. Fifty-four of Michigan's 83 counties had some loss through migration during the decade of the 1950's. Thirty-six counties had more than 40 per cent net out-migration of youths who were between 10-14 and 20-24 during the decade, and 35 counties which had a net out-migration of 30 per cent or more for those between ages 15-19 and 25-29 during the decade.

These statistics show that a very large segment of Michigan's youthful population leaves local communities to seek work elsewhere. The largest proportion undoubtedly go to urban centers within the state and become part of the statistics showing the tremendous growths of population for such counties as Oakland, Macomb, and Genesee. Unfortunately, some of the movement for many counties is obscured by the census procedure started in 1950 of counting youths as residents of counties in which they are attending college; this would have a large effect on Ingham, Kalamazoo, and Washtenaw counties.

To what extent should one assume that these patterns of mobility, population growth and decline will continue? Dr. J. F. Thaden of Michigan State University has made demographic projections for all of Michigan and its counties for 1970 using three different methods. (See Table 34). In all three cases the projections are based upon past trends.

Projections A and C are both based upon the dynamic forces which have been gaining or losing momentum over the past two decades. Projection B is more static, neglecting the direction of these trends. There undoubtedly are populations which reach an equilibrium point, beyond which populations change little and migration just about disappears; for example, Alcona or Barry counties in the Upper Peninsula or Lapeer county in the lower.

The projections for each of the counties, however, do show many losses over the next decade and in every case these losses arise through out-migration of youths. Forty-three counties are expected to lose population during the 1960-70 intercensal period, from a small loss of 100 persons for Lake or Oscoda counties to a large one of 145,000 for Wayne county. In the latter case, it is unlikely that the movement, essentially residential, will affect labor market patterns. In the former cases, however, these reinforce previous trends which have already radically affected the labor market and vocational needs of the youth of these communities.

Vocational Training for Local Labor Markets

Most of the youths of Michigan, the largest proportion of which are concentrated in the metropolitan areas, initially seek work within these areas. Metropolitan school administrators, in responding to the vocational needs of youth, must build their programs upon the broader occupational trends which have been discussed. The patterns of occupational distribution and the needs of metropolitan labor markets reflect those trends which exist for the state and for the nation. Is this also true for school administrators in the less populous school districts?

Counties which have lost the largest number of youths through migration represent a large proportion of the local school districts within the state, although not a comparable proportion of students. Problems of vocational curricular planning facing school administrators in these less urbanized areas are quite different from those which exist in the urban centers. Vocational planning could be based on local needs or upon the needs of those youths who will leave the community. Does it make sense any longer to prepare youths for local labor markets? Is it financially possible to prepare youths both for local conditions and for labor market conditions more characteristic of the state or of the nation as a whole?

Table 33

Changes in the Population Composition of Youth Who Were of High School Age During 1950-1960, and Net Migration Change for the Total Population 1950-1960, By County, Michigan

Counties	Change in Number of Youths Who Were 5-9 in 1950 and 15-19 in 1960			Change in Number of Youths Who Were 10-14 in 1950 and 20-24 in 1960			Change in Number of Youths Who Were 15-19 in 1950 and 25-29 in 1960			Change Through Migration(a) 1950-1960
	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Alcona	-11.7	- 8.5	-15.1	-45.9	-50.3	-40.0	-40.9	-44.1	-36.5	- 1.4
Alger	-33.3	-33.5	-33.0	-55.7	-58.0	-53.4	-38.6	-40.6	-36.7	-20.6
Allegan	- 5.1	- 5.9	- 4.4	-21.3	-26.6	-15.7	- 4.5	- 9.5	+ 0.9	+ 1.8
Alpena	- 2.2	- 7.1	-13.0	-18.6	-25.4	-11.1	0.0	--	--	+ 7.9
Antrim	-24.9	-24.4	-25.4	-59.4	-60.2	-58.4	-47.2	-50.8	-43.2	-13.1
Arenac	-19.1	-16.8	-17.8	-49.0	-49.9	-48.1	-41.8	-40.5	-43.1	- 9.2
Baraga	-36.2	-35.0	-37.5	-61.2	-62.1	-60.2	-47.7	-50.2	-45.1	-22.8
Barry	- 1.6	- 1.3	- 2.0	-21.1	-23.1	-19.0	- 8.0	- 9.9	- 5.8	+ 7.7
Bay	- 6.9	-11.0	- 2.7	-16.6	-23.5	- 9.5	- 4.0	- 2.4	- 5.4	- 1.2
Benzie	-23.1	-21.2	-24.0	-51.8	-53.9	-49.8	-44.3	-43.2	-45.5	-17.2
Berrien	+ 4.7	+ 1.6	+ 7.9	- 4.0	-13.0	+ 5.1	+15.2	+13.5	+16.8	+ 8.1
Branch	+ 5.5	+10.6	+ .4	-20.8	-26.1	-14.4	-10.7	-11.0	-10.3	+ 4.6
Calhoun	+ 2.2	--	+ 3.8	+ 4.4	- 1.2	+10.2	- .8	-10.3	+10.8	- 3.1
Cass	+ 4.8	+ 4.0	+ 5.6	-21.6	-30.1	-11.9	+15.5	+13.4	+17.4	+20.5
Charlevoix	-24.3	-23.0	-25.6	-53.5	-56.7	-49.9	-38.3	-43.6	-32.8	-12.6
Cheboygan	-20.2	-19.3	-16.7	-46.2	-50.9	-47.2	-34.8	-39.9	-27.3	-11.2
Chippewa	-10.0	- 7.0	-13.3	- 2.7	+13.0	-19.7	-14.4	- 9.4	-19.8	-10.5
Clare	-12.0	-16.3	- 7.0	-43.7	-47.3	-39.9	-26.0	-25.4	-26.5	- 3.7
Clinton	-12.7	-16.1	- 8.9	-21.8	-26.6	-16.8	+ .6	- 2.5	+ 3.7	+ .6
Crawford	-10.2	-13.7	- 6.5	-32.9	-29.3	-36.6	+ 4.5	+31.4	-21.1	+ 3.5
Delta	-23.3	-23.6	-22.9	-50.7	-55.2	-46.0	-34.0	-36.7	-31.3	-11.5
Dickinson	-26.3	-29.7	-22.6	-53.3	-61.1	-44.8	-39.5	-43.7	-35.2	- 9.4
Eaton	--	- 2.0	+ 2.3	-17.2	-20.7	-13.4	--	- 3.2	+ 2.6	+ 6.8
Emmet	-25.2	-26.5	-24.0	-52.8	-57.3	-48.5	-41.6	-40.1	-43.0	-18.9
Genesee	+ 3.8	- .8	+ 8.4	+ 6.6	- 4.9	+18.4	+31.8	+32.4	+31.2	+ 8.5
Gladwin	-13.8	-13.5	-14.1	-47.6	-45.5	-49.9	-30.0	-33.7	-26.2	- 1.8
Gogebic	-27.3	-29.5	-24.9	-64.7	-70.6	-58.6	-46.9	-48.9	-44.8	-17.6
Grand Traverse	+ .8	- .7	+ 2.3	-26.9	-30.8	-23.3	- 4.7	- 4.9	- 4.4	- .6
Gratiot	- 5.6	- 8.5	- 2.5	-17.2	-22.7	-11.4	-18.4	-21.9	-14.7	- 6.8
Hillsdale	- 4.9	- 7.6	- 2.0	-21.6	-26.1	-16.5	-23.4	-27.5	-19.0	- 4.2
Houghton	- 3.2	+ 7.9	-15.2	- 7.3	+19.4	-34.8	-41.5	-38.5	-45.0	-14.6
Huron	-21.1	-22.6	-19.5	-48.8	-49.3	-48.3	-36.5	-37.9	-35.1	-15.2
Ingham	+32.4	+27.6	+37.4	+59.5	+54.9	+64.6	+ 5.4	+10.6	+ .3	0.0
Ionia	+ 2.5	+15.1	-11.4	+ 4.3	+32.9	-25.9	-18.3	-24.7	- 9.9	- 2.9
Iosco	+ 5.5	+ 2.6	+ 8.5	+32.4	+38.8	+25.5	+49.6	+62.2	+37.3	+24.0

Table 33 (con't)

Iron	-21.6	-25.2	-17.7	-59.4	-64.3	-53.7	-36.5	-43.7	-29.4	-11.1
Isabella	+44.6	+35.5	+53.5	+ 8.7	+47.2	+50.2	-25.3	-17.1	-32.8	+ 1.7
Jackson	+ .6	- 2.3	+ 3.6	+ .7	- 1.6	+ 3.1	+28.1	+46.9	+10.4	+ 4.2
Kalamazoo	+31.1	+18.5	+44.8	+49.4	+38.0	+51.7	+23.7	+31.4	+16.9	+12.9
Kalkaska	-32.5	-30.8	-34.1	-65.9	-65.6	-66.2	-43.8	-52.3	-33.7	-13.9
Kent	+ 4.7	- 1.1	+10.7	+ 3.3	- 9.1	+15.9	+11.7	+11.6	+11.8	+ 4.2
Keweenaw	-24.2	-22.4	-26.9	-43.8	-35.5	-54.7	-46.2	-37.0	-55.6	-16.8
Lake	-25.2	-29.2	-20.5	-61.4	-66.5	-56.0	-42.5	-46.8	-37.7	- 2.7
Lapeer	+ 3.5	+ 2.6	+ 4.5	-22.9	-28.6	-16.6	-17.4	-22.3	-12.0	- 1.1
Leelanau	-21.4	-20.7	-22.2	-40.8	-37.5	-44.4	-35.6	-37.2	-33.9	- 7.7
Lenawee	+ 6.2	- 1.5	+14.0	-11.9	-20.1	- 3.2	- 6.4	- 3.3	- 9.2	+ 1.2
Livingston	+ 9.1	+ 9.9	+ 8.3	- 7.9	-16.3	+ 1.5	+25.5	+22.5	+28.6	+23.7
Luce	-19.0	-21.1	-17.0	-56.2	-59.9	-51.8	-37.1	-40.0	-34.7	-16.6
Mackinac	-18.6	-24.9	-11.3	-37.7	-37.8	-37.7	-21.2	-19.4	-23.1	- .3
Macomb	+29.2	+21.9	+37.0	+45.2	+22.6	+69.4	+136.3	+114.1	+158.9	+77.9
Manistee	-17.8	-18.8	-16.8	-39.2	-44.7	-33.8	-30.2	-29.7	-30.8	- 8.0
Marquette	- 2.1	- 5.8	+ 2.0	+ 3.4	+ 5.3	+ 1.3	+10.9	+31.6	- 8.0	+ 3.3
Mason	-13.6	-14.2	-12.8	-38.9	-41.2	-36.6	-24.5	-30.4	-18.2	- 5.3
Mecosta	+49.4	+79.3	+19.1	+39.3	+77.2	- 4.0	-32.3	-29.5	-35.4	- 1.9
Menominee	-25.5	-24.2	-27.0	-58.1	-59.9	-56.2	-38.5	-41.4	-35.5	-15.4
Midland	- 9.5	-12.0	- 7.0	-21.1	-32.7	- 9.6	+35.8	+30.6	+40.6	+13.0
Missaukee	-33.2	-29.1	-37.1	-62.7	-63.4	-62.0	-56.0	-59.6	-52.2	-22.4
Monroe	- 1.7	- 4.2	+ 1.0	-13.9	-22.0	- 5.6	+11.5	+10.7	+12.3	+10.9
Montcalm	- 9.7	-10.7	- 8.7	-27.1	-31.0	-19.6	-11.8	-14.5	- 9.0	0.0
Montmorency	-11.1	- 6.6	-15.4	-64.7	-64.9	-64.5	-49.3	-50.8	-47.6	- 7.7
Muskegon	- 7.2	-11.1	- 3.1	-21.3	-30.0	-12.7	+ .9	+ .8	+ 1.0	- 1.0
Newaygo	-15.0	-17.1	-12.7	-40.3	-47.1	-33.2	-25.6	-26.9	-24.3	- 4.6
Oakland	+16.9	+13.4	+20.6	+ 8.3	- 6.8	+24.2	+67.2	+58.7	+75.6	+42.0
Oceana	-19.7	-19.4	-20.1	-45.6	-49.4	-41.5	-35.4	-38.1	-32.5	-11.4
Ogemaw	-17.5	-15.4	-17.7	-48.3	-54.0	-41.6	-39.5	-36.5	-42.4	- 7.4
Ontonagon	-27.7	-28.2	-27.2	-46.8	-48.1	-45.3	-27.1	-23.1	-31.6	- 8.9
Osceola	-29.7	-31.7	-21.6	-48.2	-51.3	-44.6	-40.6	-47.7	-33.0	-13.1
Oscoda	-17.4	-23.5	-10.0	-57.2	-57.0	-57.4	-39.3	-36.4	-41.8	- 4.1
Otsego	- 1.4	--	+ 3.3	-41.8	-48.8	-34.4	-26.9	-30.7	-23.1	- .5
Ottawa	+ 6.5	+ 3.4	+ 9.8	- .3	- 6.1	+ 6.0	+ 8.2	+ 3.3	+13.3	+11.0
Presque Isle	-21.1	-19.5	-22.8	-46.2	-44.3	-48.4	-30.7	-30.2	-29.2	-12.6
Roscommon	- 4.7	- .7	- 8.7	-42.2	-49.7	-33.5	-31.2	-25.9	-36.4	+ 8.6
Saginaw	- 7.3	-11.7	- 2.6	-16.4	-19.8	- 4.5	+ 6.8	+ 7.1	+ 6.5	+ .5
St. Clair	- 6.2	- 9.3	- 3.1	-28.7	-50.5	-23.5	-13.2	-16.1	-10.6	- .1
St. Joseph	- .8	- 2.5	+ .8	-16.8	-20.4	- 8.1	+ 4.0	+ .4	+ 7.6	+ 7.2

Table 33 (con't)

Sanilac	-17.3	-16.3	-18.4	-42.4	-45.8	-38.8	-29.2	-35.2	-22.5	- 8.7
Schoolcraft	-30.0	-31.0	-28.6	-59.0	-61.7	-56.1	-38.2	-41.7	-34.8	-14.9
Shiawassee	- 7.4	- 6.8	- 8.1	-18.7	-24.4	-12.8	- 6.2	- 7.0	- 5.5	- 3.1
Tuscola	- 9.8	-12.1	- 5.5	-32.4	-36.3	-39.2	-18.3	-20.0	-16.4	- 3.6
Van Buren	+ 3.2	+ 2.6	+ 3.7	-21.5	-28.1	-14.3	- 6.0	-14.8	+ 4.3	+10.2
Washtenaw	+62.3	+56.2	+68.5	+177.0	+177.9	+176.2	+33.5	+39.7	+27.1	+ 4.4
Wayne	-10.6	-15.2	- 5.7	-11.5	-22.2	- .4	+ 5.1	+ 3.7	+ 6.4	- 8.8
Wexford	-27.5	-30.3	-24.7	-45.5	-50.1	-40.8	-34.8	-35.2	-34.3	-15.6

Sources: U.S. Census of Population: 1960, Final Report, PC (1)- 24-B, General Population Characteristics Michigan, Table 27; U.S. Census of Population: 1950, Population Census Report P-B22, General Characteristics Michigan, Table 49.

(a) Taken from J.A. Beegle and J.F. Thaden, Population Changes in Michigan, 1950-60, (East Lansing: Agricultural Experiment Station, 1960), Table A, pp. 23-25.

Table 34

Population Projections of Michigan, by County, to 1970

County	Population 1960	PROJECTION A[1]	PROJECTION B[2]	PROJECTION C[3]	Percentage Range
Alcona	6,352	6,860	6,730	6,890	2
Alger	9,250	8,410	7,800	8,550	10
Allegan	57,729	69,900	68,360	70,200	3
Alpena	28,556	36,220	33,700	36,750	9
Antrim	10,373	10,080	9,160	10,040	10
Arenac	9,860	10,110	9,760	10,080	4
Baraga	7,151	6,600	4,680	6,360	41
Barry	31,738	38,040	37,970	38,470	1
Bay	107,042	29,390	128,880	129,520	0
Benzie	7,834	7,270	7,340	7,390	2
Berrien	149, 865	190,850	194,650	194,080	2
Branch	34,903	39,660	40,800	40,350	3
Calhoun	138,858	160,040	169,450	159,550	6
Cass	36,932	46,490	48,100	48,380	4
Charlevoix	13,421	13,300	12,910	13,370	4
Cheboygan	14,550	15,920	14,380	15,420	11
Chippewa	32,655	37,100	34,850	36,510	6
Clare	11,647	13,270	13,120	13,230	1
Clinton	37,969	46,130	45,700	46,210	1
Crawford	4,971	5,990	5,720	5,960	5
Delta	34,298	36,770	32,230	35,740	14
Dickinson	23,917	23,850	17,990	23,030	33
Eaton	49,684	61,260	60,560	61,660	2
Emmet	15,904	15,150	14,960	15,300	2
Genesee	374,313	501,260	481,940	516,930	7
Gladwin	10,769	12,330	11,310	12,270	9
Gogebic	24,370	22,730	16,020	21,960	42
Grand Traverse	33,490	39,200	40,440	39,220	3
Gratiot	37,012	42,100	38,680	40,970	9
Hillsdale	34,742	37,990	37,320	37,830	2
Houghton	35,654	33,520	21,680	31,950	55
Huron	34,006	34,990	33,010	34,890	6
Ingham	211,296	258,440	264,680	258,200	3
Ionia	43,132	49,230	47,010	48,740	5
Iosco	16,505	22,890	22,630	24,970	10
Iron	17,184	17,480	13,320	16,690	31
Isabella	35,348	43,040	40,530	43,120	6
Jackson	131,994	160,280	158,500	161,430	2
Kalamazoo	169,712	221,370	219,480	227,240	4
Kalkaska	4,382	4,430	3,370	4,180	31
Kent	363,187	453,080	444,840	457,620	3

[1]assumes that natural increase and migration patterns that prevailed in each county since 1940 will continue.

[2]is based on the ration method assuming that the total population will be 9.6 million and the population of each county would be the same percentage as the ratio from 1940 to 1960.

[3]is based on the assumption that the population of each county will continue to grow at the same rate as it did during the 1950-1960 decade.

Table 34 (con't)

County	Population 1960	PROJECTION A	B	C	Percentage Range
Keweenaw	2,417	2,120	810	2,000	162
Lake	5,338	5,400	5,400	5,420	1
Lapeer	41,926	48,970	48,050	49,100	2
Leelanau	9,321	10,140	9,490	10,050	7
Lenawee	77,789	93,040	94,490	93,660	2
Livingston	38,233	51,350	51,530	54,710	7
Luce	7,827	7,530	7,660	7,520	2
Mackinac	10,853	12,770	11,390	12,690	12
Macomb	405,804	688,320	649,310	890,330	29
Manistee	19,042	19,820	18,320	19,580	8
Marquette	56,154	65,990	60,200	66,150	10
Mason	21,929	23,610	22,810	23,490	4
Mecosta	21,051	23,420	23,020	23,370	2
Menominee	24,685	24,010	22,810	24,090	6
Midland	51,450	71,580	70,140	74,240	6
Missaukee	6,784	6,120	5,200	6,170	19
Monroe	101,120	130,810	132,910	135,100	3
Montcalm	35,795	41,230	40,070	41,310	3
Montmorency	4,424	4,770	4,670	4,740	2
Muskegon	149,943	185,020	190,210	185,030	3
Newaygo	24,160	27,230	27,000	27,060	1
Oakland	690,259	1,034,040	1,040,320	1,203,120	16
Oceana	16,547	17,100	17,040	16,990	1
Ogemaw	9,680	11,280	9,880	10,030	14
Ontonagon	10,584	11,220	9,170	10,890	22
Osceola	13,595	13,390	12,980	13,390	3
Oscoda	3,447	3,770	4,040	3,790	7
Otsego	7,545	8,910	8,580	8,840	4
Ottawa	98,719	128,180	127,290	132,180	4
Presque Isle	13,117	15,010	13,020	14,340	15
Roscommon	7,200	8,490	9,920	8,760	17
Saginaw	190,752	236,240	232,620	237,100	2
St. Clair	107,201	125,780	128,170	125,430	2
St. Joseph	42,332	50,400	49,200	51,090	4
Sanilac	32,314	34,060	32,200	33,870	6
Schoolcraft	8,953	8,720	7,820	8,760	12
Shiawassee	53,446	62,360	61,040	62,160	2
Tuscola	43,305	49,420	47,360	49,020	4
Van Buren	48,395	58,400	57,370	59,770	4
Washtenaw	172,440	217,900	231,850	220,900	6
Wayne	2,666,297	3,014,750	3,072,360	2,919,950	5
Wexford	18,466	18,310	17,660	18,300	4
MICHIGAN	7,823,194	9,654,000	9,600,000	9,975,740	

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962.

The large numbers of youths seeking employment outside their home towns cannot be dismissed as an insignificant variable in curricular planning. But this fact does not necessarily mean that local educators can neglect the needs of that minority which enters the local labor market. Occupational trends and patterns for some of the smaller rural counties suggest that the patterns for the state, region, and nation are much less typical for them than for the metropolitan centers; for example, contrast Detroit with Allegan county. (See Tables 1 and 2, Appendix A).

In most cases, the changes which specific labor markets undergo over a period of time offer some measures of the types of employment which are going to be forthcoming within these markets. Peculiar local conditions in industrial composition and larger external economic forces help to explain emergent employment patterns. The impact, however, of relatively limited economic phenomena on small labor markets suggests that the study of trends in such markets often provides a rough guide for vocational curriculum planning. A new industrial plant in a small community radically affects the proportional distributions of occupations, as does the closing of an old plant. This is certainly not true of a large metropolitan labor market.

However, let us not mistakenly depreciate the significance of broad economic and industrial trends for even local vocational curriculum planning. As we shall see, a knowledge of such trends is imperative for planning, whether in rural or highly urbanized regions. Where particular local conditions may influence trends significantly, the local administrator is in the best position to know about these and modify his projections of vocational needs. To what extent, however, will short-term trends continue to depart from long-term trends in the broader community?

Study of both state-wide and local trends should sensitize local school administrators, business and professional people to the occupational needs of their youth. Local occupational patterns may also provide a guide or offer a standard of comparison. Certainly most school administrators in Michigan are faced with some, if not all, of the following questions: What is the continuing place of vocational agriculture in the local community? To what extent does business education or distributive education prepare students for local labor markets? For urban metropolitan labor markets? To what extent is highly specialized trade and industrial training practical or adequate for the needs of youths who remain in the local labor market or go elsewhere? What can be done to limit the number of dropouts or to help those who do leave school to find employment? And last but not least, what is the place of home economics in the curriculum? Are home economics courses geared to the kind of world in which women are increasingly entering the labor force? Has home economics met the needs of the emergent patterns of female employment?

In our analysis we have treated 77 counties and two Standard Metropolitan Statistical Areas (Detroit and Lansing)* as local labor markets. We have traced the patterns of change in their occupational structures by showing the changing proportional distributions of the major occupational groups for 1940, 1950, and 1960, as presented in Appendix A. We have also included in Appendix A the percentage changes between 1950 and 1960 for each of these major occupational groups (Table 2), so that one may trace the influence of particular occupational changes on the changing patterns of occupational distribution found in Table 1. The appendices are included to provide local administrators with the raw materials necessary to make future curricular decisions in vocational education. The analysis which each administrator makes for himself, should, we hope, provide him with greater insights into the needs of his community.

Local school administrators would be the first to recognize that, while they are knowledgeable about their own community and events which transpire there, they often overlook significant events affecting them because they cannot place them in a broad enough perspective. For example, in our analysis we find that, contrary to the patterns for the entire state, some local labor markets show substantial increases in the employment of blue-collar workers over the past decade. How should local administrators respond to these data? Does this mean that youths from local schools are going to find plenty of opportunities in the blue-collar occupations? The interpretations of such data, as being short-run or long-run, demand a broader frame of reference than the local community and its labor market can offer. As we shall see, the answer to the above question is emphatically, no!

While each community may have its own unique patterns, an exploration of all of the local labor markets (counties) suggests over-all patterns which have already been evidenced in the state-wide trends. For many communities, the size of the labor force has remained constant or has declined. In some cases there has been a marked increase in unemployment, in others not. Such statistics suggest an inability of the local community to absorb new entrants into the labor force. In other cases there have been marked increases in the size of the labor force, suggesting gains by some labor markets at the expense of others.

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*Detroit S.M.S.A. consists of Wayne, Oakland, and Macomb counties; Lansing S.M.S.A. consists of Ingham, Eaton, and Clinton counties.

If one explores each of the occupational groups separately, it is found that with the exception of one or two counties, the professional and technical occupations have grown as a proportion of the labor force. The growth, however, has been relatively small for the rural counties of Michigan and has often reflected merely the decline in agricultural employment. The more densely populated counties show larger growths in this occupational group, consistent with state-wide and national patterns of occupational and industrial change.

The general availability of white-collar jobs, technical, clerical and sales, is also limited by the smallness of the labor force in most local labor markets. This is also the case for the various service occupations. In addition, one has to weigh properly the size of unemployment in a community to evaluate job opportunities for any of the occupational groups. For example, employment in the professional, technical and kindred occupations in Alger County rose by 27.9 per cent between 1950 and 1960. (See Appendix A, Table 2). But the size of the labor forces is very small and unemployment continues to be very high, above 15 per cent. Professional, technical, and kindred persons in the employed labor force consisted merely of 257 persons.*

If one examines column (b), Appendix A, Table 2, it would appear that professional, technical, and kindred workers' employment is increasing enormously. However, placing these increases in proper perspective, they represent comparative declines among other occupational groups; examine columns (e) and (j), for example, the farm occupations, or (g) and (k) the semi-skilled and unskilled, blue-collar occupations.

The declining significance of agricultural employment is found in the small proportion of employed farmers, farm managers, and farm laborers. In some cases the declines in employment were not very great between 1940 and 1950, but were precipitate between 1950 and 1960; for example, in Alcona, Alger, Alpena, Arenac, or Benzie counties, where agricultural employment constituted a major proportion of available employment. In other counties such as Berrien or Calhoun, the declines, although sharp, have been more gradual over the two decades.

In many cases, the apparent increase in importance of operatives and other semi-skilled and unskilled blue-collar workers merely indicates the decline in importance of farming, as for example in Berrien or Branch counties. In many other cases, however, those counties in which farming has declined show almost a complete balance between those who left farming and those who went into other manual occupations, as for example in Allegan or Tuscola counties.

The relative and absolute increases in blue-collar employment are not the panacea they may appear to be. For although this occupational pattern appears to go counter to state-wide and national trends, it is undoubtedly a transitory phenomenon. The declines in the employment of operatives and kindred workers in the larger urban centers are apparent in column (g) in Table 2. The patterns of increase in most of the less populous counties belie the pervasive trend in declining employment opportunities for semi-skilled and unskilled blue-collar workers which are accurately reflected by trends in the larger urban centers.

As we have indicated above, the potential opportunities for former agricultural workers, with their relatively low levels of education, to get work other than in farming rests in the lesser skilled manual and service occupations. If there is a continuing movement from agriculture, blue-collar jobs will offer little opportunity to youths competing against former agricultural workers. In the larger urban areas, the declining opportunities in the blue-collar and lower service occupations reflect the competition for such jobs among the relatively unskilled, untrained, and poorly educated.

Each administrator responsible for leadership and direction in vocational training must follow the needs of persons in his own community. It is clear that these needs will continue to be expressed in local labor markets and in broader state-wide and national patterns. Persistent employment patterns and rates of unemployment in the various occupational groups offer clues to local administrators. The rates of retirement from the labor force of persons now employed are also significant to the planning of possible occupational opportunities for youth.

The data we have presented on employment and on migration for the state and for each county offer the fundamentals upon which responsible exploration and planning for vocational needs must take place. Local administrators can receive help from the Michigan State Employment Security offices and from the major state universities in interpreting the data and the probability of particular types of emergent occupational trends. Some of the implications of the patterns in employment and migration presented in this report are treated in our final section.

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*If our references are mainly to a few counties, this is because they are at the top of the alphabetical list. Our analysis, intended to provide a model, does not go over each county in detail and makes no pretense of being complete.

Vocational Curricula

Our data dealing with the emergent vocational needs of Michigan and its local communities will have meaning only when they are reflected in vocational offerings in the various educational institutions--high school, community, or senior college. Since we have set for ourselves in this study the task of evaluating vocational education at the secondary school level, our data are confined to course offerings in grades 9-12, in all of Michigan's public schools.* This part of our analysis answers such questions as: What types of courses are being offered to the high school youths of Michigan? Are these offerings consistent with the emergent vocational needs of youth? Are the peculiar needs of each of the local communities adequately recognized in their curricular offerings? How does one go about evaluating vocational education curricula? What is the validity of different approaches to evaluation?

Since we are evaluating vocational education in the public secondary schools, we have made no analysis of post-high school training, or training offered in private secondary schools or training institutes. We recognize the breadth and inclusiveness which evaluation of any educational curricula must represent. We also recognize the peculiar problems which vocational curricula present to the evaluator. For example, we know that facilities vary widely from one school district to the next. Courses bearing the same title but taught in different schools may be unrecognizable as the same course. Perhaps even greater variations are found in the experience and training of teachers of vocational courses.

Limitations must be recognized; for this study we have assumed a constancy of facilities and that titles are actually descriptive of courses. We realize the inadequacies of such assumptions, but the techniques for gathering our data, imposed by limited funds and limited time, made it possible to bring together only what individual school districts described as their offerings and what the local school districts reported on the qualifications and training of their teachers.**

To parallel our discussion of occupational and industrial trends in local labor markets and to evaluate increasing arguments for area-wide educational programs, the curricular data for individual counties have been brought together and analyzed. In many cases, it will be found that even at a county-wide level, taking all courses offered in the county together, the vocational education needs are not being met to prepare youths for either the local labor market or for work in other areas.

While the curricular offerings in vocational education for most K-12 school districts in the state have been brought together, it would be an impossible and perhaps fruitless task to discuss each school district separately. Administrators in each of these districts know what they have been offering, and should have an idea of the changing needs of local and state-wide labor markets.

We have felt it important to present an overview of what is being offered in vocational education, and to give individual school districts some idea of how their own patterns follow those of the state. In many ways this parallels our discussion of state-wide labor market trends. These microscopic views of state-wide education should also provide guides for those responsible for vocational education at the state level, since it allows them to relate over-all education patterns to over-all occupational trends.

Of the the total number of courses offered in vocational education in grades 9-12 for the entire state, the largest number are found in business education: 58.6 per cent of all student-credit hours taught and 54.1 per cent of all classes offered. (See Table 35). Trade and industry provides 39.9 per cent of the classes and 36.6 per cent of student-credit hours, while vocational agriculture only provides 6.0 per cent of the classes and 4.8 per cent of the student-credit hours.

How does one interpret these figures? Interpretation is difficult. In terms of the felt vocational needs of the state, the greatest amount of vocational training is found in the business areas. When one considers that this includes office and distributive education, offering vocational training for both males and females, the relative distribution of curricular offerings does not seem out of line with contemporary labor market needs. However, if one explores the distribution of state and Federal funds provided to the local communities for vocational education, the actual offerings are not in line with the distribution of these funds: $693,753 to trade and industry, $521,791 to agriculture, $484,814 to home economics, and $249,662 to business education.***

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*With the exception of a few schools which did not provide complete enough data. See Table 1, Appendix B.

**See Appendix B for the discussion of methodology and instruments used.

***These are figures for 1961. See Report by R. Wenrich, "A Study to Determine More Effective Ways of Using State and Federal Vocational Education Funds," Michigan Vocational Education Evaluation Project, Ann Arbor, Michigan: University of Michigan, Office of Research Administration, 1962.

Table 35

Percentage Distribution of Vocational Education Classes and Student Hours According to Curriculum for Michigan, K-12 School Districts, Grades 9-12*

Curriculum	Classes (%)	Student Hours (%)
Total	100.0	100.0
Vocational Agriculture	6.0	4.8
Business	54.1	58.6
Trade and Industry	39.9	36.6

When one considers that a large proportion of students take college preparatory work which theoretically prepares them for the higher white-collar jobs, the comparative offerings in vocational education do not seem out of balance with the needs of the labor market. A study of the offerings in the various curricular fields county by county, however, reveals that while the over-all distribution for the state may appear adequate for the needs of youth, there is a concentration of particular types of vocational offerings in some counties to the neglect of other offerings. In addition, the actual lack of training offered in many school districts or counties makes for an imbalance in the training for both those who will remain in the local community and those who leave.

Which counties present adequate vocational training or a rational relationship between curricular offerings and labor market needs is difficult to say. We might start with the first two counties on the alphabetical list, Alcona and Alger, and examine some of these relationships. In 1960, Alcona had a proportion of professional, technical, and kindred workers representing 6.1 per cent of the employed labor force; Alger had a 9.6 per cent proportion of this group. Agricultural occupations represented 14.8 per cent of Alcona's employed labor force, and 7.3 per cent of Alger's. Clerical, sales and kindred workers were equally distributed, 14.0 per cent and 14.8 per cent respectively. Operatives and kindred workers represented a much larger proportion in Alger county than in Alcona county, 23.2 per cent and 14.8 per cent respectively.

Alger county had approximately twice the number of students as Alcona, yet the student-hour-offerings were larger only in business curricula. (See Table 36). Alcona not only had more students who went on to college--44 per cent as compared to 24 per cent--but also offered more vocational education, 21 per cent of all high school courses, compared to Alger's 13 per cent.**

Unemployment rates have been somewhat higher in Alcona, although the declines in the higher white-collar occupations and the lower rate of increase of lower white-collar occupations have been more typical of Alger than Alcona. The migration patterns of youth are similar for both counties although over-all migration out of Alcona is very low.

Is vocational training adequate in either of these counties? Are the needs of youth being met? Is one county preparing its youth better than the other? Is Alcona in a better economic condition to offer what appears to be greater educational opportunities to her youth?

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*Based on figures for the entire state including approximations for incomplete data, but excluding all courses which are 7th or 8th grade, or combinations including these grades.

**We assume that the total hours taken in a week by any one student is 30, and the total student-hours for the grades 9-12 is the total number of students multiplied by 30.

Table 36

Vocational Curricula in Michigan K-12 School Districts
for Grades 9-12, and Total Students Grades 9-12, by County

County	Curricula Measured in Student-hours per week*			Total Students in Grades 9-12[d]
	Agriculture	Business	Trade and Industry	
Alcona	159.25	1046.75	850.00	324
Alger	97.50	1650.50	851.25	666
Allegan	1568.75	6698.75	4283.50	2954
Alpena	118.75	3367.75	2515.25	1260
Antrim	125.00	1568.50	718.50	727
Arenac	215.50	1738.50	999.50	742
Baraga	187.50	1477.25	724.00	515
Barry	1418.50	3803.50	2861.25	1809
Bay	836.00	1249.25	10706.50	4695
Benzie	382.50	1560.25	724.00	527
Berrien	1389.50	10518.00**	6776.00**	6303
Branch	990.50	4923.75	578.25	1809
Calhoun	746.25	8859.75**	5350.00**	5995
Cass	658.75	4616.00	1938.75	1748
Charlevoix	174.25	2123.50	1557.00	851
Cheboygan	247.00	1508.50	1334.75	643
Chippewa	569.25**	4348.75**	3259.00**	1444
Clare	551.00	2346.50	931.00	883
Clinton	1193.50	6188.25	3161.75	1867
Crawford	a	99.75	76.00	291
Delta	150.50	649.00	948.00	1756

[a] no courses at 9-12 level indicated

[b] not enough information

[c] no K-12 school district

[d] one course indicated; no information on student-hours

* The number of hours the course was taught during the week was multiplied by the number of students in the class. Some inaccuracies arose from the fact that, in coding the hours, intervals were used and the final result was derived by taking the mean of the interval and multiplying it by the number of students. Another inaccuracy resulted from the fact that some school districts did not provide complete data on hours, students, or both. In some cases estimates were made from the available figures from the same district or from the total county figures. In other cases, the data was so incomplete that it was felt that it would be better to omit them completely. The school districts for which data is not included are found in Appendix B, Table 1.

**Some school districts were not included because of limited data.

Fourth Friday Membership, not including special students and others, September 30, 1960.
Schools with inadequate data (**) not included. See Appendix B, Table 1.

Table 36 (con't)

County	Curricula Measured in Student-hours per week			Total Students in Grades 9-12
	Agriculture	Business	Trade and Industry	
Dickinson	370.50	413.50	348.00	1414
Eaton	986.75**	5327.00**	3166.75**	2426
Emmet	253.75	479.75	248.75	964
Genesee	1746.75	43876.75	27,218.50	18466
Gladwin	99.75	280.25	104.50	735
Gogebic	60.00	629.00	546.25	1505
Grand Travers	b	b	b	1772
Gratiot	2264.75	9033.00	4428.50	2627
Hillsdale	1782.00**	4431.50**	2256.00**	1474
Houghton	a	3964.50**	2481.25**	1836
Huron	2763.50	5967.25	3475.25	2363
Ingham	1744.75	28712.50**	15303.75**	9858
Ionia	1292.00	5426.50	3172.25	2309
Iosco	760.25	4468.50	1723.50	1300
Iron	a	3190.25	1833.25	1122
Isabella	872.00	3949.50	3115.25	1642
Jackson	1613.75	8602.50	8300.00	6300
Kalamazoo	647.75	8211.75	13412.75	7441
Kalkaska	------	489.25	532.25	303
Kent	1783.00**	32,423.25**	19940.50**	14244
Keweenaw	c	c	c	---
Lake	a	501.25	432.25	268
Lapeer	1381.25	5731.25	3391.50	2050
Leelanau	55.25	236.00	66.00	389
Lenawee	2154.50	8418.25**	4313.75**	3308
Livingston	560.50	3511.50	1636.00	2074
Luce	a	2056.25	1357.50	516
Mackinac	d	417.25**	457.50**	378
Macomb	716.50	45325.25**	29275.00**	17049
Manistee	120.25	1686.00**	1036.25**	496
Marquette	544.00	5305.50**	3934.50**	2163
Mason	923.75	4387.25	2107.00	1365
Mecosta	551.25**	3149.50**	1680.75**	1105
Menominee	426.00	4242.00**	3048.00**	1449
Midland	204.25	8807.75	6166.75	3169
Missaukee	308.75	1296.25	485.50	420
Monroe	1033.00	10134.75	7082.25	4921
Montcalm	2438.75	7659.75	3330.75	2489

Table 36 (con't)

County	Curricula Measured in Student-hours per week			Total Students in Grades 9-12[f]
	Agriculture	Business	Trade and Industry	
Montmorency	324.25	1334.75	249.75	326
Muskegon	655.75	17097.50**	12,414.00**	7266
Newaygo	1246.50	2292.00	1519.25	1598
Oakland	498.75	49822.75**	34027.25**	32994
Oceana	579.50	1976.50	891.50	859
Ogemaw	417.25	1143.50	722.00	607
Ontonagon	a	1830.50	1187.00	719
Osceola	992.00	3181.00	1691.75	1069
Oscoda	126.00	519.75	340.25	195
Otsego	272.25	1050.00	337.75	448
Ottawa	674.50**	9101.00**	6118.00**	3900
Presque Isle	311.25	1541.25	952.50	925
Roscommon	a	2101.00	335.50	505
Saginaw	1725.75	17044.00	13433.00	9451
St. Clair	759.75	6614.00**	5404.75**	4898
St. Joseph	449.25	7525.00	4647.75	2621
Sanilac	2367.75	5568.50	3619.00	2066
Schoolcraft	d	1491.25	573.00	541
Shiawassee	1741.75	7884.00	3830.00	3023
Tuscola	3269.75	8020.75	4185.50	2894
Van Buren	1901.50	7773.75	5353.50	3092
Washtenaw	1215.00	11196.75**	7584.75**	5457
Wayne	346.75	262,138.50**	157,157.00**	103547
Wexford	645.00	968.50**	557.00**	423

Let us compare two more populous counties with similar-sized student bodies and about the same relative distributions of occupational groups, Cass and Clinton counties. Clinton is part of the Lansing S.M.S.A. and many residents work in Lansing. Cass is in the southwestern part of the State bordering Indiana and undoubtedly many persons from Cass work in some of the Indiana industrial communities, such as South Bend.

Although the distributions of occupations are very similar, especially if one combines the agricultural occupations into one group, there are noticeable differences in the distributions and amounts of vocational education curricula. Cass offers approximately 46 per cent more vocational student-hours than does Clinton. Of the course offerings, Cass provides 9.1 per cent in agriculture, 64.0 per cent in business, and 26.9 per cent in trade and industry. Clinton offers 11.3 per cent in agriculture, 58.7 per cent in business, and 30.0 per cent in trade and industry. What accounts for the differences in total amounts and distributions of course offerings?

Let us compare three other counties which are quite similarly situated in the densely populated southern part of the lower peninsula, industrialized, and having some cultural and educational similarities: Ingham, Jackson, and Kalamazoo counties. We find major differences in the nature and quantity of vocational curricular offerings in these counties. Kalamazoo places strongest emphasis on trade and industry, Ingham on business, and Jackson treats these areas about equally. Kalamazoo provides the least training in agriculture.

When we examine the structures of the labor markets of these counties, we find differences in the distributions of both blue-collar and white-collar occupations. The blue-collar occupations represent 31.2 per cent of the labor force in Lansing, 38.6 per cent in Kalamazoo, and 41.6 per cent in Jackson. In the clerical, sales, and kindred occupations Ingham had 26.0 per cent, Kalamazoo 21.7 per cent, and Jackson, 21.3 per cent. If one used purely rational criteria, a superficial conclusion might be that Jackson should offer the greatest proportion of trade and industry courses in its vocational program, and the lowest number of business courses.

One might ask whether the differential offerings between Ingham and Kalamazoo rationally reflect the needs of their labor markets. In terms of trends, Ingham does show a decline over the past decade in the number of operative jobs, while Kalamazoo and Jackson show small increases. However, if one studies the trends over the past two decades found in Appendix A, Tables 1 & 2, similarities are quite evident for all three counties. If vocational education planning is aware of both contemporary distributions and trends in available employment, one should expect that all three counties would show greater similarities in vocational offerings than they now do.

Which of these counties offers the most rational vocational education programs? Again it is difficult to say because of the myriad unexplored variables. We would assume, however, that the youths in these communities, for the most part, are going to remain and seek employment in them. All of the migration data we have presented earlier point in this direction, since each county has had a large increase in the youthful segments of the population. Judging by the proportions of youths going to college in these counties--44 per cent in Ingham, 41 per cent in Jackson, and 41 per cent in Kalamazoo--the social characteristics of these communities do not differ greatly.*

Tradition, rational appraisal of needs, and values of educational, civic, and business leaders profoundly affect the course of education. How one school district or county appraises its needs is a function of many variables. Whether this appraisal will lead to the productive employment of its youth depends on the abilities of those charting the direction of education, and vocational education in particular, to read the economic and occupational signs both on the broader scene and in the local community.

A crucial variable in the evaluation of vocational curricula which we have not discussed is that of dropouts. All school districts are faced with some students who do not complete high school. What training should they get before they leave? Can they be motivated to stay? Are the courses they take before they drop out valuable for employment?

Since the largest percentage of dropouts come from grades 9-10, the vocational offerings which they receive are very limited. It would seem that much of what is offered to these students is wasted. If, for example, we assume that of the one-third who do not finish high school, a large proportion are in the vocational classes in grades 9 and 10, then our evaluation of vocational offerings must be treated in a somewhat different light.

Using very conservative figures, then, a minimum of fifty per cent of the vocational education offerings in grades 9-10 are probably of little value for actual vocational activity, because of the relatively elementary level of such instruction, which postulates a vocational program built on these courses. This means that for the entire state, there are thousands of student hours, and hundreds of classes which are not serving the purposes they have been established to serve.

*See D. J. Porter, "Number and Percentage of Michigan High School Graduates Enrolled in College for Years 1950, 1955, 1960." Research Mono. # 1, Mich. State Dept. of Public Inst. 1963, pp. 5-9.

Education and Experience of Vocational Education Teachers

The evaluation of vocational education courses should certainly treat of the education and experience of teachers as a crucial variable. It is unfortunate that our data do not provide adequate statistics on the education and experience of all teachers in vocational education in Michigan. The number of teachers for whom we do not have information offer 52 per cent of all student hours in business, 49 per cent of all student-hours in home economics, 47 per cent of all student hours in trade and industry, and 74.9 per cent of all student-hours in vocational agriculture. We might make an assumption that the distributions of these teachers for whom we do not have information are comparable to the distributions for those for whom we have the necessary data, since the distributions of data are about equally complete over the State, rural areas as well as urban, small school districts as well as large city systems.

In general, the data on the educational backgrounds of teachers make it difficult to conclude that any one particular group is better prepared educationally than are the others. (See Table 37). The largest number of advanced degrees are found among the teachers in business education. In contrast, the largest number of nondegree teachers are found among those in trade and industry, a fact which recognizes the difficulties of recruiting practices in trade and industry, which places primary emphasis upon trade experience.

Table 37

Percentage of Vocational Education Classes Taught by Teachers With College Majors or Minors in the Fields In Which They Are Teaching

Curriculum	College Training			
	Advanced Degree	Bachelors Degree	No Degree	Total
Vocational Agriculture	100.0	98.8	100.0	99.1
Home Economics	92.2	94.2	92.7	93.6
Business	92.4	94.2	86.7	93.1
Trade and Industry	91.9	94.3	63.9	92.0

When we examine the experience of teachers in the respective fields, we find that a large number have fewer than five years of teaching experience. (See Table 38). The curriculum with the largest percentage of teachers with less than five years of teaching experience is vocational agriculture. Smaller percentages are found for trade and industry, with home economics and business education showing equally the lowest percentages.

Table 38

Percentage of Vocational Education Classes Taught by Teachers With Less than Five Years Teaching Experience

Curriculum	Percentage With Less Than Five Years Experience
Vocational Agriculture	51.3
Home Economics	31.0
Business	30.5
Trade and Industry	39.3

We have been interested in judging the quality of teaching. Certainly one criterion is academic training in the fields being taught. An exploration of the academic backgrounds of the teachers shows that relatively few classes are taught by persons who have had neither a college major or minor in their fields. The lowest proportion of teachers without a major or minor in the field in which they are teaching is found among the vocational agriculture teachers. Less than 1.0 per cent of the

teachers in vocational agriculture did not take a major or minor in agriculture in college. The largest proportion is but 8 per cent, found for trade and industry. An assumption that the experience of the teachers in our sample represents an underestimate of the actual experience and training of all Michigan vocational education teachers does not seem valid when the reliability of the results are checked against the Michigan Department of Public Instruction records on reimbursed programs.

Some Conclusions Suggested by the Data

The problems confronting educators in the out-state areas of Michigan are directly related to the patterns of out-migration from the local communities, and the inability of local school districts to meet the continual challenges of a rapidly changing economy. The types of vocational training needed by youths who are graduated from high school before entering the labor market are difficult enough to envision; the problems for youths who drop out of school before graduation are even more difficult to envision.

In the larger urban areas, the problems facing educators include not only the types of vocational training which youths should be receiving in the light of current labor market trends, but the differential problems where the populations of the communities are much less homogeneous than those in rural counties. The youths who are going to enter the labor force in metropolitan areas may be divided into four significant groups, not including those who go directly to college from high school.

The largest number are those white youths with just a high school education. A rational and successful preparation of these youths for the world of work must rest upon a continuing appraisal of the needs of local industry. Those white youths who drop out of school are going to continue as one of the most difficult problem groups, since there is very little opportunity for their employment appearing on the horizon.

Perhaps the greatest problem of metropolitan area education is the occupational training and occupational placement of non-white youths. These youths not only constitute the largest relative proportions of those not completing high school, but also constitute the largest relative proportions of the unemployed, and especially the long-term unemployed. The data reveal that the types of employment which have been available to non-white persons in the population are becoming less important to the economy, making the problem of placement of these youths even more difficult.

The training of all youths, white and non-white, and their placement in the labor market, cannot be left to chance. The economic models which show labor markets to be vast self-adjusting mechanisms, ultimately maximizing returns if left alone, are just too unrealistic to take seriously. Vocational training of our youth is a serious matter which cannot be left to the vagaries of the economic scene, nor sloughed off completely onto educational institutions, making it solely the responsibility of school administrations.

It must be realized that the attractiveness of communities for business firms rests not only on economic phenomena, but also on the social characteristics of the community. Is it a good place in which to live? Does it have a wholesome, healthy social climate? Does it have good schools, hospitals, and recreational facilities? Does it have a social climate unridden by tension and latent conflict?

The costs of maintaining a community, whether there is full employment or great unemployment, whether the schools and industry adequately prepare youth for the world of work, or relegate them to the unproductive, socially dependent unemployed, are ultimately borne by the community. Industry pays a high share of community costs. From a purely economic view, industry should realize that, along with the schools, it has the responsibility for training youths for employment.

In the complex and rapidly changing world of new technologies and shifting occupations, it becomes unrealistic to expect schools to train persons for specific new emergent jobs in industry. In large communities, the trades and services will maintain enough stability so that youths may be trained to fill available jobs in these fields. This is also true of clerical occupations for women. But only a portion of youths can be trained for these jobs. What is to happen to the others?

It is becoming apparent that narrowly specialized training as vocational curricula no longer makes sense. A broad general training adaptable to a variety of specialized jobs must be worked out. This is true for technical as well as clerical fields. Industry must begin to take its share of the responsibilities for training and job placement. Over and over again, industry spokesmen have said that they want generally educated or trained persons for whom they can provide the kinds of training needed in their plants. It is about time that the relationships between industry and school were formalized. The planning of vocational curricula must be done cooperatively and the placement of youth must not be a haphazard affair.

There will be continuing needs for specialized occupations such as repair services, for which schools can directly train youths. School systems must relate themselves to the changing needs of the labor market, providing flexibility, upgrading of training, and modifications where needed. There is no reason to train only auto mechanics so that there no longer are TV or repairmen for electrical appliances. On the other hand, not all the youths in the community can become repairmen. Large city school systems, of course, can provide sufficient flexibility and funds to meet these challenges; the smaller rural communities obviously face greater problems.

The upgrading of employment in industry has been reflected in the increasing demands for technicians of all types. Such technical training is being given in the community colleges. A responsibility of the high schools is not to attempt to train in these areas, since this training is likely to be inadequate at the high school level, but to prepare youths to go on to a community college to become technicians. Boards of education must resist the patterns through which community colleges, obviously seeking increased prestige or status, become college preparatory. If this becomes the function of the community college it cannot serve the functions of preparing youths for the technical occupations.

High school education, which has always been a multi-track phenomenon, must lay out more tracks. Youths can be trained for some vocations in high school. Others can be prepared for specialized or more sophisticated technical training to be taken in the community colleges. Others, who have been the dropouts must be put on still another track, providing them, with an education which is interesting, and perhaps remunerative, and which offers some hope for future employment.

In large cities such as Detroit, Grand Rapids, Flint, or Lansing, the time has come for industry to join other progressive forces in the community in seeing that larger proportions of non-white youths remain in high school until graduation and are then placed in industry. Cooperative programs which provide some income to such youths would be ideal. This does not mean only their placement in industry, but also opportunities to get employment in the higher service occupations. It means also the training of such youths in the distributive occupations and their placement in cooperative programs.

Non-white females require the same type of considered preferential treatment; efforts must be made to place them in the white-collar fields. The types of training to be given to non-white youths should be similar to the types of training for others, congruent with the changing needs of the labor market. We cannot overly emphasize the need for more numerous cooperative programs as one solution to the dropout problems for all youths, white or non-white, male and female.

The problems for out-state areas are of a different type. Such school systems are also faced with dropouts and to some extent with the employment of non-whites; but for the most part, these systems have as their main problem a traditional orientation to vocational education, based on an agricultural economy. The rationality of a community's maintaining the large number of agricultural vocational courses oriented toward farming has already come into question. It must be faced: farming employment continues to decline at a rapid rate. However, one must recognize that for those who do remain in farming, technologies are also moving ahead rapidly, and persons in agriculture need even greater training. In addition, agricultural service occupations are also very important and require vocational training.

How do the smaller school districts train their youths for the available jobs at home, and for jobs in other markets? The rationalization of vocational education demands a broad economic and population base. School systems which may not have to consolidate for academic education because they have adequate populations and tax bases, must consolidate for vocational education, because they do not have the facilities, and the costs of programs for limited numbers of students are prohibitive. The paucity of vocational curricular offerings in county after county shows the limitations imposed not only on local school districts, but on counties, and broader economic areas within the state. Actually, in such cases, little is done to train youths adequately for the world of work.

In each of the traditional areas of vocational education, tremendous changes have been taking place, making it possible to realize good vocational training for youths if the communities could provide the facilities. The only way this can take place is through area vocational programs; the broader the population base, the better.

Through area-wide vocational programs, vocational agriculture could be continued and expanded into trade and service areas of agriculture, with better offerings. Only students interested in these fields would get training in them, rather than being trained because there is nothing else available. The same is true for training in the operation of complex office or shop equipment. No local community can provide the necessary training for youths to achieve proficiency in the latest office techniques, or provide the latest equipment found in industry.

We have not discussed the role of counseling in vocational education. School systems have to provide adequate vocational data through continual follow-up study of both graduates and dropouts, and keep adequate records on the information so gathered. There also should be centralized facilities for the coordination of county and regional data and the continual meeting of counselors from different school systems to discuss the vocational needs of local youths.

We have not presumed to tell any local school district or any group of school districts in a county whether their vocational training is better or poorer than that of other school districts. What we have attempted in this study is to provide a model for analysis and to bring into conscious awareness some of the crucial variables which affect the future employment of youth in Michigan's schools. Administrators familiar with their own local problems and the broader problems of the state may find materials in the data which go far beyond the analysis we have attempted. We can hope for no happier outcome.

Appendix A

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940[1], 1950[2], and 1960[3]

OCCUPATION	Alcona			Alger			Allegan			Alpena			Antrim		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	5.5	4.6	6.1	6.2	6.6	9.6	5.1	5.6	7.2	5.6	7.0	9.2	6.3	6.3	8.5
Farmers and farm managers	36.3	35.7	13.2	12.1	12.2	4.6	28.9	19.3	8.0	15.9	12.5	4.6	33.5	25.8	9.3
Managers, officials, and prop's, exc. farm	8.1	7.4	13.8	8.1	10.5	9.0	7.0	7.1	6.2	7.0	8.3	8.8	7.5	8.4	8.3
Clerical, sales, and kindred workers	5.2	7.3	14.0	9.4	9.5	14.8	8.6	11.4	15.3	11.5	16.1	17.7	5.2	10.2	12.9
Craftsmen, foremen, and kindred workers	6.8	9.5	12.7	8.8	10.0	11.5	9.2	14.0	15.3	12.3	14.8	16.3	5.6	11.0	13.5
Operatives and kindred workers	6.9	6.5	14.8	17.3	19.9	23.2	16.5	23.8	27.2	21.7	17.6	20.6	6.2	10.3	25.8
Private household workers	2.3	1.4	1.9	2.9	.9	2.1	3.3	1.8	2.2	2.8	1.5	2.8	3.4	1.5	3.1
Service workers, except private household	3.1	4.8	9.9	6.6	6.6	8.7	3.5	4.8	6.2	5.3	7.0	7.8	3.3	5.3	7.3
Farm laborers and foremen	19.3	12.8	1.6	4.7	5.2	4.7	12.1	6.6	3.8	9.0	5.5	1.2	16.1	12.8	4.1
Laborers, except farm and mine	5.2	6.5	8.7	22.9	17.3	11.3	4.9	4.8	5.6	8.0	8.3	8.6	12.1	7.2	5.2
Occupation not reported	1.5	3.6	3.4	.9	1.3	.5	1.0	1.0	3.0	.9	1.4	2.6	.7	1.1	2.0
Male	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	4.0	2.8	4.9	4.4	4.7	7.5	2.9	3.7	5.5	4.0	5.0	7.7	3.9	4.5	6.7
Farmers and farm managers	40.3	42.0	18.4	13.6	12.5	6.0	33.5	24.0	10.6	19.8	15.6	5.9	36.4	30.6	12.2
Managers, officials, and prop's, exc. farm	7.8	7.8	13.7	9.0	11.3	10.4	7.5	7.9	7.3	8.2	9.5	10.7	7.7	8.8	9.9
Clerical, sales, and kindred workers	3.7	4.6	8.8	6.9	5.5	8.6	5.8	6.9	8.8	9.0	10.5	10.5	4.0	6.2	7.5
Craftsmen, foremen, and kindred workers	7.5	11.3	18.0	10.4	12.7	15.8	10.7	17.4	20.7	14.9	18.6	21.7	6.4	13.0	18.3
Operatives and kindred workers	7.3	7.4	15.5	17.4	21.3	27.9	16.8	24.3	29.2	17.6	20.3	24.5	7.0	11.2	27.3
Private household workers	.1	.1	- -	.1	- -	- -	.1	.1	.1	.1	.1	.2	.1	- -	.4
Service workers, except private household	1.9	2.7	3.7	4.5	4.6	5.0	2.1	2.5	3.3	4.6	4.4	4.1	2.3	3.0	3.7
Farm laborers and foremen	21.0	10.6	1.6	5.6	5.3	2.7	14.2	6.8	4.2	11.1	4.2	1.2	18.2	12.8	5.2
Laborers, except farm and mine	5.9	7.6	12.0	27.1	20.9	15.7	5.6	5.7	7.5	10.0	10.5	11.6	13.7	8.7	7.0
Occupation not reported	.5	3.1	3.5	1.0	1.1	.5	.9	.8	2.8	.7	1.2	2.1	.5	1.1	1.7
Female	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	17.3	13.0	8.9	14.8	13.1	15.2	16.8	12.8	11.5	11.7	13.9	13.2	23.3	14.2	13.1
Farmers and farm managers	5.6	5.6	.7	5.1	10.9	.7	3.8	2.1	1.5	1.3	1.6	1.0	13.2	4.1	2.0
Managers, officials, and prop's, exc. farm	10.2	5.6	14.0	4.0	7.6	5.4	4.5	4.1	3.2	2.3	3.8	3.7	6.0	6.4	4.1
Clerical, sales, and kindred workers	16.8	20.4	26.5	21.6	23.2	31.2	23.4	27.8	31.6	21.2	36.0	37.0	14.0	28.3	26.7
Craftsmen, foremen, and kindred workers	1.0	1.2	- -	1.1	.9	- -	.9	1.3	1.5	2.4	1.2	1.7	.3	1.7	1.2
Operatives and kindred workers	3.6	1.9	13.1	16.8	15.4	11.1	15.1	21.8	22.3	37.4	8.1	10.0	1.0	6.4	21.8
Private household workers	18.3	7.4	6.4	16.3	3.9	7.7	20.7	7.8	7.5	13.1	6.7	9.8	26.7	8.0	10.2
Service workers, except private household	12.2	14.8	24.7	16.8	13.2	18.2	11.3	13.3	13.5	8.1	16.3	17.8	10.9	15.9	16.3
Farm laborers and foremen	6.1	23.1	1.6	.4	4.9	9.9	1.1	5.9	2.9	.9	9.8	1.3	1.8	12.9	1.4
Laborers, except farm and mine	- -	1.2	.9	2.4	5.2	- -	1.1	1.2	.7	.4	.5	.5	.8	.7	.4
Occupation not reported	9.1	5.9	3.2	.7	1.7	.4	1.4	1.8	3.7	1.4	2.1	4.0	2.1	1.4	2.8

Sources: [1]U.S. Bureau of the Census. U.S. Census of Population: 1940. Vol. II, Part 3, Characteristics of the Population, Michigan. U.S. Government Printing Office, Washington, D.C., 1942.

[2]U.S. Bureau of the Census. U.S. Census of Population: 1950. Vol. II, Part 22, Characteristics of the Population, Michigan. Chapter B., U.S. Government Printing Office, Washington, D.C., 1952.

[3]U.S. Bureau of the Census. U.S. Census of Population: 1960. General, Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington, D.C., 1962.

*Totals will not equal 100.0 because of rounding.

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Arenac			Baraga			Barry			Bay			Benzie		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.1	5.3	10.2	7.3	6.8	10.5	6.0	7.5	8.9	6.9	7.6	9.9	7.8	6.7	9.5
Farmers and farm managers	37.6	30.3	11.3	17.5	15.1	6.1	33.1	18.2	9.0	11.0	6.5	2.6	24.4	14.2	5.5
Managers, officials, and prop's, exc. farm	7.0	8.8	7.9	8.7	8.9	10.1	6.6	6.6	5.3	7.8	7.9	8.1	11.7	11.5	9.3
Clerical, sales, and kindred workers	5.7	8.6	12.6	8.1	9.8	13.0	9.2	13.8	16.3	14.8	18.4	19.0	8.9	11.7	14.1
Craftsmen, foremen, and kindred workers	5.7	9.9	13.8	15.4	10.4	17.1	11.5	14.8	15.1	13.9	16.4	17.8	10.0	12.1	14.7
Operatives and kindred workers	5.5	11.9	21.3	13.2	17.6	18.2	11.9	21.6	24.1	23.4	25.9	24.7	8.7	20.9	20.5
Private household workers	2.2	1.5	2.8	1.8	.6	.6	3.9	2.2	1.8	3.4	1.9	2.4	3.7	1.8	2.5
Service workers, except private household	4.6	7.2	8.5	5.8	6.6	11.0	3.4	4.3	6.7	6.1	7.6	8.5	6.4	8.4	10.9
Farm laborers and foremen	20.6	10.6	2.8	10.5	8.9	1.8	9.2	5.9	2.7	5.6	2.0	.7	9.5	5.2	3.5
Laborers, except farm and mine	5.0	4.9	5.8	11.0	14.6	6.4	4.0	3.9	4.9	6.0	5.0	3.7	8.0	6.1	6.6
Occupation not reported	.8	.9	2.9	.6	.7	5.2	1.1	1.1	5.1	1.2	.7	2.7	.7	1.5	2.9
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.0	3.2	6.9	4.5	4.4	7.1	3.8	5.4	7.2	4.7	5.8	8.4	4.9	3.7	7.0
Farmers and farm managers	42.4	35.9	14.8	19.0	17.0	7.6	39.0	23.1	12.1	13.9	8.6	3.5	28.5	17.0	7.0
Managers, officials, and prop's, exc. farm	6.9	9.3	9.0	8.6	9.1	11.4	7.1	7.5	6.6	9.1	9.3	10.0	12.4	12.4	11.5
Clerical, sales, and kindred workers	3.8	4.9	6.9	5.7	5.5	6.9	5.6	8.5	9.6	11.0	12.4	11.9	6.7	8.1	9.7
Craftsmen, foremen, and kindred workers	6.5	13.3	13.8	18.0	12.6	22.9	13.7	18.8	20.6	17.6	21.5	24.7	11.6	14.5	20.6
Operatives and kindred workers	6.0	13.9	26.7	15.2	20.9	23.4	12.0	22.0	26.0	24.0	27.7	28.3	10.1	23.2	20.1
Private household workers	- -	- -	.2	.1	.1	.3	.2	.1	.2	.1	.1	.1	.3	.1	- -
Service workers, except private household	2.6	3.8	3.6	4.1	4.9	6.0	2.1	2.7	3.0	4.9	5.4	5.0	4.5	6.5	7.5
Farm laborers and foremen	22.7	9.8	3.2	11.6	7.3	2.4	11.0	6.3	3.3	6.5	2.2	.7	11.2	5.7	4.6
Laborers, except farm and mine	5.7	6.0	7.7	12.9	17.6	8.6	4.7	4.9	6.7	7.2	6.3	5.0	9.4	7.2	9.2
Occupation not reported	.5	.9	2.5	.2	.7	3.5	.9	.8	4.8	1.0	.6	2.4	.6	1.5	2.6
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	19.6	13.5	20.2	23.0	17.8	20.8	16.8	14.3	12.8	14.3	12.8	13.6	23.1	18.8	15.5
Farmers and farm managers	5.1	8.0	1.0	9.4	6.3	1.7	3.8	1.8	1.6	1.3	.4	.4	3.2	2.7	2.1
Managers, officials, and prop's, exc. farm	7.5	7.2	4.5	9.4	7.8	6.1	4.2	3.9	2.3	3.4	3.7	3.6	10.1	7.7	4.0
Clerical, sales, and kindred workers	18.8	23.3	29.3	21.7	29.6	30.9	26.6	31.4	32.8	27.5	36.0	35.8	20.8	26.0	24.1
Craftsmen, foremen, and kindred workers	.5	.6	.4	.6	.5	- -	1.0	1.7	1.8	1.2	1.4	1.3	2.0	2.5	1.0
Operatives and kindred workers	2.7	4.1	5.5	2.3	2.0	2.8	11.9	20.5	19.4	21.0	20.8	15.9	1.6	11.7	21.3
Private household workers	16.9	7.0	10.7	11.7	3.3	1.7	22.2	9.2	5.8	14.5	7.1	8.1	21.4	8.6	8.2
Service workers, except private household	18.6	20.8	22.9	15.2	14.8	25.6	10.1	9.6	15.9	9.9	14.3	16.9	15.9	16.0	18.6
Farm laborers and foremen	7.0	13.8	1.6	4.2	16.3	- -	.5	4.6	1.2	2.6	1.3	.6	.6	3.1	1.0
Laborers, except farm and mine	.5	.6	- -	- -	.8	10.4	.6	.9	.5	2.2	1.0	.5	.3	1.5	.5
Occupation not reported	2.7	1.1	4.0	2.6	.8	- -	2.2	1.9	5.9	2.0	1.0	3.4	1.0	1.3	3.6

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Berrien			Branch			Calhoun			Cass			Charlevoix		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.8	6.9	9.8	5.2	6.7	6.8	7.5	8.3	10.5	5.1	5.6	6.8	6.2	7.5	9.3
Farmers and farm managers	12.7	7.3	3.9	27.1	18.1	8.3	7.7	4.3	2.3	27.4	15.0	6.0	28.4	17.2	5.5
Managers, officials, and prop's, exc. farm	8.3	7.8	7.1	7.8	7.9	7.2	8.0	8.0	7.9	7.7	6.6	6.5	8.8	9.6	9.3
Clerical, sales, and kindred workers	13.1	16.1	19.1	10.0	14.1	15.6	16.5	18.9	20.2	9.1	13.2	16.1	7.9	13.6	14.8
Craftsmen, foremen, and kindred workers	15.4	16.4	15.4	9.5	11.9	12.3	16.6	16.9	15.0	11.5	15.9	16.2	8.0	13.0	14.7
Operatives and kindred workers	20.0	26.0	24.2	16.9	20.5	23.2	19.9	24.1	22.1	11.2	23.9	25.7	11.2	15.4	22.3
Private household workers	3.0	1.6	2.3	3.7	2.2	3.4	3.7	2.0	2.0	3.5	1.8	2.0	3.6	2.6	3.5
Service workers, except private household	5.5	6.7	8.0	4.1	7.4	12.2	8.1	9.6	10.2	3.7	5.2	6.6	5.9	6.7	10.4
Farm laborers and foremen	7.8	5.1	3.1	10.0	5.6	3.0	3.4	1.9	1.1	12.3	5.3	3.6	10.4	5.6	2.1
Laborers, except farm and mine	7.2	5.0	4.3	4.2	3.7	4.2	7.0	5.0	4.1	6.8	5.7	4.3	8.5	7.9	5.3
Occupation not reported	1.1	1.1	2.7	1.4	1.8	3.7	1.7	1.1	4.6	1.7	1.8	6.3	1.1	1.0	2.7
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.4	5.7	9.3	3.3	4.4	4.7	5.3	6.6	9.3	3.2	4.0	5.3	4.0	4.9	8.0
Farmers and farm managers	15.5	9.4	4.9	33.2	24.1	12.0	10.1	6.1	3.4	31.9	19.0	7.8	3.2	21.1	7.7
Managers, officials, and prop's, exc. farm	9.5	9.3	9.1	8.4	9.2	9.2	9.5	9.7	10.0	8.0	7.6	8.0	9.2	10.1	11.7
Clerical, sales, and kindred workers	9.2	9.7	11.2	7.3	9.0	10.2	12.4	12.2	11.8	6.3	7.9	9.1	5.9	8.6	9.5
Craftsmen, foremen, and kindred workers	19.2	21.5	21.8	11.6	15.6	18.5	21.8	23.5	22.0	13.3	20.1	22.3	9.5	15.9	21.4
Operatives and kindred workers	19.7	27.3	27.1	15.3	20.9	24.6	20.2	24.5	24.6	10.8	24.3	27.5	12.0	18.1	22.9
Private household workers	.2	.1	.1	.1	.1	.2	.2	.1	.1	.3	.2	- -	- -	.5	.6
Service workers, except private household	3.9	4.6	4.6	2.5	4.5	6.8	6.1	7.2	6.8	2.3	3.5	4.0	4.1	4.2	6.7
Farm laborers and foremen	9.2	5.0	3.3	12.3	5.7	4.0	4.4	2.2	1.4	14.4	4.9	4.0	11.8	6.2	2.5
Laborers, except farm and mine	8.2	6.4	6.1	4.9	4.8	6.0	8.5	7.4	6.0	7.7	7.0	5.7	10.1	9.6	7.5
Occupation not reported	.9	.9	2.4	1.1	1.6	3.8	1.5	.6	4.5	1.8	1.4	6.3	1.0	.7	1.6
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	11.2	10.2	11.0	13.5	13.1	10.7	14.0	12.4	12.8	14.9	10.9	10.3	16.8	18.1	12.2
Farmers and farm managers	2.1	1.5	1.5	2.1	1.6	1.5	.6	.2	.2	3.0	1.5	1.3	8.1	1.5	.9
Managers, officials, and prop's, exc. farm	4.1	3.6	2.9	4.8	4.4	3.4	3.5	4.0	3.8	6.3	3.1	2.8	7.0	7.3	4.3
Clerical, sales, and kindred workers	27.7	34.1	36.3	21.2	28.1	25.6	28.5	34.3	36.5	23.8	31.0	33.2	18.2	33.4	26.1
Craftsmen, foremen, and kindred workers	1.2	2.0	1.4	1.1	1.6	.9	1.4	1.8	1.1	1.5	1.6	1.4	.7	1.0	.7
Operatives and kindred workers	21.0	22.0	17.9	23.7	19.6	20.7	18.9	23.3	17.4	13.6	22.7	21.4	7.5	4.3	21.1
Private household workers	13.5	5.7	7.0	18.4	7.8	9.4	13.9	6.2	5.6	20.9	7.4	6.9	21.5	11.3	9.6
Service workers, except private household	11.6	12.6	15.5	10.8	15.5	22.2	13.7	15.0	16.8	11.2	10.5	12.9	15.1	16.6	18.5
Farm laborers and foremen	2.8	5.5	2.6	.3	5.2	1.2	.5	.8	.6	1.1	6.4	2.6	3.6	3.4	1.2
Laborers, except farm and mine	3.1	1.2	.6	1.4	.7	.8	2.6	.6	.3	2.1	1.5	1.0	.2	1.1	.6
Occupation not reported	1.7	1.6	3.2	2.6	2.5	3.7	2.3	1.4	4.8	1.5	3.3	6.2	1.5	2.0	4.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Cheboygan			Chippewa			Clare			Clinton			Crawford		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.8	7.3	9.4	5.8	7.7	11.1	5.4	6.1	8.7	4.9	5.9	7.9	8.4	10.2	9.2
Farmers and farm managers	28.8	16.5	5.4	12.9	8.1	4.0	31.3	18.5	7.0	32.1	20.5	10.5	7.2	3.7	.5
Managers, officials, and prop's, exc. farm	9.3	10.9	13.9	9.3	9.3	11.6	8.7	10.0	9.4	6.4	6.3	5.7	16.9	14.0	12.9
Clerical, sales, and kindred workers	9.3	12.4	15.7	12.1	16.0	18.5	9.2	12.6	13.8	8.7	12.2	16.4	11.6	13.1	15.6
Craftsmen, foremen, and kindred workers	9.0	13.8	13.3	8.2	12.6	16.0	8.3	12.2	15.0	8.7	13.5	16.1	12.5	12.7	11.8
Operatives and kindred workers	12.1	14.3	15.3	14.5	20.3	14.5	11.2	19.6	23.3	11.7	22.8	21.6	14.8	15.8	17.6
Private household workers	2.7	1.5	3.4	3.5	1.5	3.3	3.2	1.3	2.7	3.7	2.0	2.1	3.8	2.0	3.6
Service workers, except private household	5.5	9.6	11.0	15.5	9.0	9.9	4.9	6.6	8.9	3.7	4.9	6.7	13.5	11.0	13.2
Farm laborers and foremen	10.0	5.6	1.8	4.8	3.8	1.7	12.3	7.3	1.5	13.9	5.6	3.6	2.4	1.4	- -
Laborers, except farm and mine	6.7	6.4	5.5	12.2	10.5	5.6	4.0	4.5	4.5	5.3	4.6	3.4	7.7	13.4	11.6
Occupation not reported	.8	1.7	5.3	1.3	1.1	3.8	1.5	1.4	5.0	1.0	1.7	6.2	1.3	2.7	4.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.2	4.8	7.8	3.8	5.1	9.3	3.5	4.7	9.0	2.5	3.6	5.7	6.2	7.5	8.1
Farmers and farm managers	32.9	20.6	7.1	15.1	10.4	5.0	36.3	23.8	9.8	37.4	25.4	14.1	9.3	4.8	.8
Managers, officials, and prop's, exc. farm	9.9	11.5	17.4	10.0	10.5	13.9	8.5	11.2	11.3	6.7	7.0	7.0	17.6	15.7	15.5
Clerical, sales, and kindred workers	7.0	8.6	10.7	8.6	9.5	10.2	6.6	7.7	8.0	5.9	7.1	8.6	9.4	9.8	10.6
Craftsmen, foremen, and kindred workers	10.8	17.1	18.3	9.7	16.1	22.3	9.7	15.7	19.9	10.1	16.5	21.6	16.0	16.1	17.3
Operatives and kinderd workers	10.9	14.5	18.5	15.6	23.1	19.4	12.9	19.4	25.1	12.5	24.0	25.3	16.5	18.1	21.2
Private household workers	- -	.2	.6	.1	.1	.1	.3	.1	.2	.1	.1	.1	.4	.2	- -
Service workers, except private household	3.7	6.6	5.4	15.9	6.1	7.0	2.5	3.4	4.2	2.1	2.7	3.4	9.9	7.4	5.4
Farm laborers and foremen	11.9	6.5	2.2	5.7	4.5	1.9	14.3	7.5	1.9	15.9	6.4	4.1	3.2	1.4	- -
Laborers, except farm and mine	7.9	8.1	7.6	14.5	13.5	8.0	4.5	5.7	6.4	6.1	5.5	4.5	10.2	16.5	17.1
Occupation not reported	.7	1.6	4.4	1.0	1.1	3.0	1.0	.9	4.0	.8	1.7	5.7	1.3	2.5	4.1
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	13.3	16.6	13.4	15.1	16.3	15.5	16.3	10.9	7.9	18.8	14.9	13.6	15.2	19.2	11.2
Farmers and farm managers	9.5	1.2	.9	2.5	.7	1.5	2.6	1.4	- -	1.7	1.2	1.3	.5	- -	- -
Managers, officials, and prop's, exc. farm	6.4	8.8	4.8	6.0	5.5	6.1	9.7	6.2	4.8	4.7	3.8	2.3	14.8	8.5	8.2
Clerical, sales, and kindred workers	20.2	26.6	28.6	28.4	37.3	38.3	24.2	28.4	27.9	24.6	32.4	36.0	18.4	24.4	24.9
Craftsmen, foremen, and kindred workers	.6	1.7	.3	1.4	1.0	.9	.5	.9	3.3	1.1	1.8	2.2	1.4	1.1	1.4
Operatives and kindred workers	18.1	13.6	7.0	9.3	11.4	2.9	1.5	20.3	18.9	7.1	17.9	11.9	9.2	8.1	10.9
Private household workers	15.3	6.2	10.8	19.4	6.1	10.9	20.4	5.1	8.9	24.3	9.8	7.1	14.3	8.1	10.3
Service workers, except private household	13.6	20.7	25.5	13.5	18.2	16.9	18.6	16.6	20.4	12.7	13.3	15.1	24.9	23.3	27.7
Farm laborers and foremen	1.1	2.1	.9	.4	1.6	1.3	.8	6.6	.5	2.1	2.2	2.3	- -	1.1	- -
Laborers, except farm and mine	.6	.2	- -	1.2	.7	- -	1.3	.6	- -	1.0	.9	.7	- -	3.0	1.4
Occupation not reported	1.1	2.1	7.9	2.8	1.2	5.7	4.1	3.1	7.5	2.1	1.8	7.4	1.4	3.3	4.0

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Delta			Dickinson			Eaton			Emmet			Genesee		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	6.7	7.1	8.2	8.2	8.3	10.6	6.1	7.0	8.4	8.0	9.0	10.6	6.2	6.7	9.3
Farmers and farm managers	9.7	9.5	4.6	5.1	5.1	1.5	25.1	14.9	7.3	18.4	11.7	4.4	2.9	1.6	.7
Managers, officials, and prop's, exc. farm	10.3	9.4	10.4	10.6	8.8	9.9	7.0	6.6	6.4	10.8	10.2	12.2	6.2	5.9	5.7
Clerical, sales, and kindred workers	13.8	16.4	19.1	14.9	18.4	18.6	11.1	15.2	20.0	12.8	16.5	19.2	15.6	17.2	18.4
Craftsmen, foremen, and kindred workers	11.8	14.2	13.4	15.6	15.2	16.1	10.7	14.9	16.5	10.2	14.0	12.9	16.4	17.0	17.2
Operatives and kindred workers	13.0	18.0	21.2	23.6	23.2	20.4	16.6	23.6	22.3	11.3	15.9	13.1	31.7	37.5	31.2
Private household workers	4.2	1.1	2.3	3.0	.9	1.6	3.7	1.8	2.8	4.6	3.1	4.9	3.5	1.7	2.1
Service workers, except private household	6.4	7.0	10.3	6.3	7.4	10.1	3.9	5.2	7.3	7.1	8.9	12.3	6.4	6.8	7.2
Farm laborers and foremen	5.5	3.6	1.5	2.4	1.8	.8	8.9	4.8	2.2	8.6	3.5	1.5	1.9	.6	.4
Laborers, except farm and mine	16.9	12.3	6.8	9.3	10.0	6.0	5.2	4.0	3.7	7.1	6.0	6.3	8.3	3.8	3.8
Occupation not reported	1.8	1.4	2.2	.9	.9	4.3	1.8	1.9	3.1	1.2	1.2	2.6	.9	1.3	4.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.3	5.0	6.1	5.2	5.8	8.1	3.9	5.1	6.8	4.5	5.7	8.9	4.2	5.2	7.8
Farmers and farm managers	11.3	11.0	5.8	6.0	6.2	2.0	30.0	18.9	10.2	22.5	15.8	6.5	3.6	2.0	.9
Managers, officials, and prop's, exc. farm	11.5	10.9	12.7	11.5	10.0	12.8	7.7	7.4	7.9	12.6	11.9	15.1	7.0	6.6	6.9
Clerical, sales, and kindred workers	10.2	10.2	12.5	10.4	12.2	11.7	7.7	9.4	10.8	9.2	10.2	11.8	11.5	11.2	11.3
Craftsmen, foremen, and kindred workers	14.4	17.9	18.2	18.9	18.9	22.4	12.4	18.7	22.8	12.8	18.9	19.5	20.5	22.0	23.9
Operatives and kindred workers	15.2	20.6	26.6	27.9	26.2	24.4	17.6	25.7	26.4	13.0	19.0	18.0	35.5	41.9	35.2
Private household workers	.0	.1	.2	.1	.0	.1	.1	.0	.1	.2	.4	.5	.1	.1	.1
Service workers, except private household	4.2	4.6	5.2	4.7	5.6	5.7	2.6	3.3	4.2	4.2	4.9	5.6	4.7	4.6	4.4
Farm laborers and foremen	6.6	3.2	1.5	3.2	2.0	.9	10.6	5.2	2.9	10.6	4.1	2.3	2.3	.7	.5
Laborers, except farm and mine	20.7	15.4	9.4	11.2	12.4	8.5	6.1	5.0	4.9	9.1	8.1	9.5	9.8	4.8	5.2
Occupation not reported	1.5	1.1	1.7	.8	.8	3.3	1.4	1.3	3.0	1.2	1.0	2.2	.8	.8	3.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	17.1	14.9	13.6	21.6	18.4	16.3	16.5	13.7	12.2	20.7	17.7	13.8	13.8	11.5	12.9
Farmers and farm managers	2.4	3.8	1.5	.9	.9	.4	2.0	1.7	.7	3.7	.8	.4	.3	.2	.2
Managers, officials, and prop's, exc. farm	5.1	4.0	4.5	6.8	4.2	3.4	3.6	3.8	3.1	4.2	5.5	6.8	3.2	3.5	2.7
Clerical, sales, and kindred workers	29.1	39.6	35.9	35.3	43.0	33.9	27.1	34.6	41.0	25.8	33.7	33.0	30.8	36.0	35.8
Craftsmen, foremen, and kindred workers	.7	.6	1.1	.4	.6	1.8	2.6	2.3	1.9	.6	.9	.4	1.2	1.3	.8
Operatives and kindred workers	3.6	8.2	7.3	3.4	11.3	11.6	11.9	16.6	12.9	5.0	7.5	4.0	17.6	23.7	21.3
Private household workers	21.9	4.9	7.8	16.3	4.5	5.1	21.0	7.7	9.1	20.5	10.5	13.2	16.1	6.6	7.2
Service workers, except private household	15.6	16.2	23.2	13.3	14.3	9.7	10.2	11.6	14.2	17.4	19.6	24.8	12.8	13.6	14.1
Farm laborers and foremen	1.0	4.8	1.4	.6	1.0	.6	.9	3.5	.6	1.0	1.8	- -	.3	.3	.1
Laborers, except farm and mine	.5	.5	.2	.2	.6	.5	.8	.6	1.0	.1	.3	.2	2.8	.5	.5
Occupation not reported	3.1	2.5	3.4	1.1	1.2	6.6	3.4	3.9	3.4	1.1	1.6	3.3	1.1	2.8	4.4

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Gladwin			Gogebic			Grand Traverse			Gratiot			Hillsdale		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.2	6.6	9.4	8.2	7.9	8.8	9.1	10.1	13.4	6.2	7.0	9.5	5.8	6.8	8.5
Farmers and farm managers	40.6	28.8	12.1	3.5	2.3	.9	18.0	9.5	4.4	31.3	22.8	10.3	32.5	29.5	14.5
Managers, officials, and prop's, exc. farm	7.2	6.8	9.7	9.3	8.5	7.4	9.4	10.3	9.5	7.9	8.2	7.0	7.6	6.2	6.0
Clerical, sales, and kindred workers	5.8	10.0	13.8	13.7	13.8	16.8	14.9	18.8	20.3	10.4	14.0	17.9	8.6	13.8	13.3
Craftsmen, foremen, and kindred workers	9.2	12.2	13.8	13.6	15.5	14.2	10.8	13.6	12.1	8.2	12.2	12.4	9.9	11.8	14.2
Operatives and kindred workers	7.7	12.8	18.1	28.7	33.3	33.4	11.4	13.5	15.9	9.8	16.1	23.3	10.9	18.7	24.7
Private household workers	2.2	1.3	3.6	2.3	1.0	1.3	4.7	1.8	2.2	3.4	1.9	3.2	3.2	2.0	2.6
Service workers, except private household	2.6	5.0	7.6	8.4	7.9	9.8	8.7	12.2	14.2	4.3	5.6	8.8	3.6	6.0	8.2
Farm laborers and foremen	14.9	10.5	5.7	1.2	1.4	.4	7.3	4.2	2.0	12.3	6.9	2.5	11.9	- -	- -
Laborers, except farm and mine	3.9	4.7	4.0	10.3	7.3	4.2	5.0	3.7	2.8	4.6	4.3	3.2	4.8	3.4	3.8
Occupation not reported	.7	1.2	2.2	.7	1.0	2.9	.7	2.3	3.0	1.6	1.0	1.9	1.2	20.0	4.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	4.5	8.4	5.5	5.5	6.8	5.5	7.1	11.1	3.8	4.7	7.2	3.4	4.5	6.3
Farmers and farm managers	44.9	34.4	15.7	3.8	2.6	1.2	22.9	13.0	6.3	36.9	28.3	14.6	38.1	35.4	19.0
Managers, officials, and prop's, exc. farm	7.0	7.2	10.1	10.1	9.4	8.8	11.4	12.5	12.9	8.6	9.2	8.8	8.1	6.9	7.1
Clerical, sales, and kindred workers	3.8	5.5	7.1	9.4	8.2	9.0	11.1	12.8	13.4	6.9	8.0	9.6	5.9	8.6	7.5
Craftsmen, foremen, and kindred workers	10.2	14.8	18.3	16.3	18.9	18.8	14.0	18.7	18.6	9.6	15.1	17.4	11.6	14.4	19.3
Operatives and kindred workers	8.4	14.9	23.2	33.9	38.4	42.1	11.6	14.9	18.0	10.9	18.4	27.3	10.3	20.4	27.7
Private household workers	- -	.1	- -	.1	.1	.1	.3	.1	.1	.1	.1	.1	.1	.1	.1
Service workers, except private household	1.1	2.6	3.4	6.6	6.0	5.2	6.5	8.1	9.8	2.7	3.1	5.4	2.1	3.6	3.8
Farm laborers and foremen	16.6	9.4	6.3	1.4	1.2	.5	9.6	5.7	3.1	14.1	7.0	3.3	13.9	- -	- -
Laborers, except farm and mine	4.0	5.7	5.2	12.3	8.8	5.4	6.4	5.0	4.3	15.4	5.3	4.4	5.3	4.1	5.2
Occupation not reported	.6	1.0	2.3	.6	.8	2.1	.7	2.1	2.4	1.3	.8	2.0	1.0	1.7	4.1
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	20.3	16.1	12.4	21.5	18.1	14.4	19.9	17.4	17.5	19.0	15.7	14.9	18.1	15.3	14.1
Farmers and farm managers	5.7	4.3	1.6	2.4	1.0	- -	3.1	1.1	.9	2.3	2.0	.5	4.8	6.6	3.1
Managers, officials, and prop's, exc. farm	8.3	5.2	8.7	5.5	4.7	3.6	3.3	5.0	3.5	4.0	4.5	2.8	4.6	3.4	3.2
Clerical, sales, and kindred workers	22.7	30.1	33.2	35.1	37.4	38.0	26.4	32.9	32.6	28.7	37.0	36.9	22.3	33.7	27.9
Craftsmen, foremen, and kindred workers	1.0	.7	.6	.3	1.0	1.7	1.2	1.0	.3	.9	1.2	1.2	1.3	1.5	1.3
Operatives and kindred workers	2.3	3.9	3.5	2.5	11.5	10.1	10.9	9.9	12.2	5.8	7.2	14.0	14.1	11.9	17.4
Private household workers	20.3	6.3	14.0	13.1	4.9	4.7	17.7	6.1	6.4	20.6	8.8	10.3	19.2	8.9	9.0
Service workers, except private household	14.3	16.0	19.6	17.5	16.4	22.0	15.6	22.3	22.1	12.7	15.2	16.5	11.3	15.0	19.4
Farm laborers and foremen	1.0	15.1	4.0	.6	2.3	- -	.4	.7	.2	2.5	6.3	.7	- -	- -	- -
Laborers, except farm and mine	2.3	.4	.5	.3	.8	.8	.7	.5	.1	.4	.5	.4	2.1	.7	.2
Occupation not reported	1.7	2.0	1.9	1.2	1.9	4.8	.8	2.9	4.0	3.0	1.5	1.7	2.4	3.1	4.4

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Houghton			Huron			Ingham			Ionia			Iosco		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	8.3	9.4	12.7	4.6	5.6	8.3	9.9	12.9	15.5	6.0	6.1	8.1	6.5	6.7	10.8
Farmers and farm managers	8.2	7.5	3.8	36.7	31.5	22.6	5.0	2.9	1.5	24.2	16.1	8.0	23.9	15.2	6.3
Managers, officials, and prop's, exc. farm	8.6	9.1	7.7	6.4	7.1	6.9	8.8	6.6	7.8	7.7	6.8	6.9	11.8	13.6	14.4
Clerical, sales, and kindred workers	14.3	15.4	16.7	6.5	9.6	13.5	22.9	25.2	26.0	9.3	13.2	13.8	9.2	11.7	15.5
Craftsmen, foremen, and kindred workers	12.0	14.0	15.7	5.0	9.7	12.3	13.8	14.2	12.9	9.6	11.9	12.2	9.8	15.1	13.1
Operatives and kindred workers	27.9	22.0	19.6	6.6	11.3	15.7	19.6	20.8	15.6	16.2	25.4	26.9	9.8	15.0	14.8
Private household workers	3.9	1.3	2.4	2.6	1.6	1.9	3.8	1.2	2.1	3.5	1.9	2.5	2.5	1.7	2.6
Service workers, except private household	6.4	7.8	10.7	2.8	4.4	7.4	7.9	9.8	10.6	5.3	7.5	9.1	5.5	7.1	11.2
Farm laborers and foremen	3.9	3.7	.7	19.6	10.9	5.9	2.2	1.2	.9	10.9	5.6	3.5	10.0	4.3	.5
Laborers, except farm and mine	6.0	8.9	4.6	7.8	5.7	3.7	5.2	2.9	2.7	6.0	4.2	4.1	9.5	7.3	6.5
Occupation not reported	.6	.9	5.4	1.3	2.6	1.9	.8	2.3	4.4	1.1	1.3	4.9	1.5	2.3	4.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.0	6.2	10.4	3.1	3.8	4.9	8.4	11.9	15.6	3.8	4.3	5.8	4.5	5.0	8.3
Farmers and farm managers	9.9	9.0	5.0	41.2	37.4	29.2	6.6	4.0	2.1	29.7	20.8	15.3	27.3	19.1	8.4
Managers, officials, and prop's, exc. farm	9.5	10.3	8.8	6.8	7.6	8.0	10.7	8.2	10.1	8.3	7.7	8.2	11.8	14.2	17.5
Clerical, sales, and kindred workers	10.0	9.0	9.5	4.2	5.1	7.3	15.6	15.4	15.6	7.1	8.4	8.3	6.5	6.6	9.4
Craftsmen, foremen, and kindred workers	14.7	17.3	21.0	5.7	11.6	16.0	18.2	19.6	18.9	11.1	15.1	16.5	11.4	19.1	18.5
Operatives and kindred workers	33.6	26.5	25.4	6.0	11.5	17.9	23.9	26.0	20.3	14.2	24.9	29.0	11.1	16.6	17.5
Private household workers	.1	.1	- -	.1	.1	.2	.1	.1	.1	.1	- -	- -	.2	.1	- -
Service workers, except private household	4.6	5.5	8.0	1.6	2.5	3.5	5.9	7.9	7.8	4.2	6.3	7.0	3.5	4.1	6.5
Farm laborers and foremen	4.7	4.2	.9	21.5	11.7	6.7	2.9	1.5	1.2	13.3	6.1	- -	11.5	4.2	.7
Laborers, except farm and mine	7.3	11.0	6.2	8.8	6.7	4.8	6.9	4.0	3.9	7.1	5.3	5.1	11.0	9.1	9.4
Occupation not reported	.5	1.0	4.7	1.0	2.1	1.6	.8	1.5	4.3	.9	1.0	4.9	1.2	1.9	3.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	22.6	21.1	19.1	14.9	14.6	18.8	14.3	15.4	15.5	15.4	12.1	13.7	17.9	12.5	16.3
Farmers and farm managers	1.0	1.6	.4	6.4	3.0	1.8	.3	.5	.2	1.1	1.2	.6	4.8	1.8	1.5
Managers, officials, and prop's, exc. farm	4.6	4.3	4.5	4.1	4.8	3.4	3.5	2.7	3.3	5.3	3.7	3.6	11.8	11.8	7.7
Clerical, sales, and kindred workers	32.8	41.3	37.1	22.2	31.3	32.9	43.8	48.4	46.2	18.6	28.0	27.4	24.4	29.6	28.8
Craftsmen, foremen, and kindred workers	.5	1.1	.6	.4	.6	.7	1.1	1.5	1.1	3.1	1.8	1.5	.6	1.1	1.2
Operatives and kindred workers	3.3	4.2	3.4	10.3	10.1	8.8	7.6	8.4	6.5	24.6	26.9	21.8	2.2	9.6	8.8
Private household workers	20.3	6.4	9.0	20.0	9.2	7.3	14.4	3.9	6.0	17.7	7.9	8.7	15.7	7.2	8.2
Service workers, except private household	14.0	16.9	18.4	10.8	13.5	19.6	13.5	14.2	16.0	9.9	11.4	14.0	16.8	17.5	20.9
Farm laborers and foremen	.2	1.5	- -	6.8	6.9	3.4	.2	.5	.2	.8	4.1	1.9	1.4	4.8	- -
Laborers, except farm and mine	.1	.6	- -	.9	.9	.2	.5	.3	.5	1.4	.8	1.6	1.1	.8	.3
Occupation not reported	.7	1.1	7.4	3.1	5.1	3.2	.8	4.4	4.5	2.1	2.1	5.1	3.4	3.4	6.3

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Iron			Isabella			Jackson			Kalamazoo			Kalkaska		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	8.6	7.1	9.7	6.2	8.8	12.2	7.5	8.9	10.7	8.3	10.4	13.3	6.1	6.6	10.3
Farmers and farm managers	7.3	6.1	1.7	30.6	21.9	9.0	8.0	4.6	2.1	5.8	3.0	1.6	44.7	29.6	7.7
Managers, officials, and prop's, exc. farm	9.5	8.1	8.9	7.6	7.5	6.7	8.5	8.7	7.6	8.1	8.8	7.8	6.2	8.8	9.7
Clerical, sales, and kindred workers	12.3	12.4	14.4	9.0	14.3	18.2	17.5	19.7	21.3	17.9	20.3	21.7	3.5	8.9	16.5
Craftsmen, foremen and kindred workers	12.2	13.7	15.3	8.0	12.2	11.1	15.4	16.4	15.0	14.5	16.3	14.2	3.5	10.3	13.6
Operatives and kindred workers	26.7	32.5	31.6	12.2	15.1	16.1	22.2	24.6	23.0	25.4	24.6	20.7	5.5	13.0	19.4
Private household workers	2.5	1.2	.9	4.0	1.8	4.4	3.6	2.0	1.8	3.3	1.6	2.0	2.9	1.6	2.3
Service workers, except private household	7.9	7.9	10.4	4.4	7.4	12.5	7.8	8.4	9.4	6.8	8.4	9.0	3.5	5.2	8.6
Farm laborers and foremen	2.7	4.0	.8	13.0	6.0	2.2	3.4	1.9	1.3	2.5	1.2	.9	11.9	8.7	3.6
Laborers, except farm and mine	9.7	4.4	4.9	3.8	3.6	4.8	5.1	3.7	3.6	5.9	4.3	3.7	11.4	5.4	7.1
Occupation not reported	.5	2.6	1.2	1.2	1.5	2.9	1.0	1.3	4.2	1.4	1.1	5.2	.7	1.9	1.3
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.7	5.4	7.0	4.2	6.5	10.6	6.1	7.7	9.5	6.0	8.5	12.4	3.1	3.6	8.6
Farmers and farm managers	8.6	7.0	2.0	36.1	27.5	13.0	10.4	6.2	2.8	7.8	4.3	2.3	49.0	35.9	10.6
Managers, officials, and prop's, exc. farm	10.1	8.9	10.3	8.4	8.4	8.9	10.2	10.3	9.4	9.8	10.9	10.3	5.7	8.8	10.4
Clerical, sales, and kindred workers	8.2	6.7	7.0	6.3	8.5	10.4	13.0	13.0	13.2	13.7	13.7	13.9	2.8	5.3	11.4
Craftsmen, foremen, and kindred workers	14.7	16.7	20.0	9.5	15.0	16.3	20.1	22.1	21.2	19.1	22.3	20.7	4.0	12.6	19.2
Operatives and kindred workers	31.4	39.1	39.3	13.1	16.2	20.2	22.2	25.7	26.5	26.3	25.9	22.9	6.2	13.5	20.0
Private household workers	.2	.2	- -	- -	- -	.2	.3	.1	.1	.2	.1	.2	- -	.1	- -
Service workers, except private household	5.9	5.9	5.7	2.6	4.6	8.1	6.3	6.5	6.4	5.0	6.2	5.9	2.1	3.5	5.5
Farm laborers and foremen	3.1	3.1	1.1	14.7	7.4	2.8	4.4	2.3	1.7	3.3	1.5	1.0	13.6	9.0	3.7
Laborers, except farm and mine	11.6	5.4	6.3	4.3	4.5	6.6	6.2	4.9	5.1	7.6	5.8	5.4	13.1	6.5	9.8
Occupation not reported	.5	1.6	1.1	.9	1.2	2.9	.8	1.1	4.3	1.2	.9	5.0	.4	1.2	.9
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	23.0	14.5	18.3	16.2	17.4	15.5	12.0	11.9	13.6	14.9	14.9	15.0	26.9	19.1	14.0
Farmers and farm managers	1.1	2.6	.7	3.4	.9	1.1	.7	.4	.4	.3	.2	.3	15.2	3.6	1.0
Managers, officials, and prop's, exc. farm	6.5	4.4	4.6	4.0	3.7	2.5	3.2	4.3	3.6	3.1	4.0	2.7	9.4	8.7	8.3
Clerical, sales, and kindred workers	32.6	37.5	38.0	22.1	35.8	33.4	31.2	36.9	37.4	29.9	35.7	37.0	8.8	24.2	28.0
Craftsmen, foremen, and kindred workers	- -	.5	- -	1.0	1.5	.8	1.1	1.6	1.4	1.4	2.1	1.2	.6	.8	1.0
Operatives and kindred workers	3.6	3.6	7.4	7.7	10.7	8.0	22.3	21.6	15.4	22.5	21.6	16.5	.6	11.1	18.0
Private household workers	13.9	5.7	3.9	23.5	8.4	12.7	13.8	6.5	5.7	12.4	5.2	5.7	22.8	7.9	7.5
Service workers, except private household	17.6	16.5	25.4	13.3	17.6	21.1	12.2	13.4	15.9	11.9	13.6	14.9	12.9	11.9	15.8
Farm laborers and foremen	.9	8.0	- -	4.6	.8	1.0	.2	.8	.4	.2	.5	.7	- -	7.5	3.3
Laborers, except farm and mine	- -	.1	.3	1.3	.5	1.1	1.8	.7	.3	1.3	.8	.5	- -	.8	1.0
Occupation not reported	.7	6.6	1.4	2.8	2.6	2.8	1.4	2.0	3.9	2.1	1.5	5.5	2.9	4.4	2.3

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Kent			Keweenaw			Lake			Lapeer			Leelanau		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	7.6	8.6	11.1	3.9	3.4	4.1	5.6	6.1	5.8	6.3	5.9	8.6	5.6	7.2	9.6
Farmers and farm managers	6.7	3.5	1.8	6.1	2.6	.7	50.4	31.0	10.7	30.1	20.6	9.8	39.0	28.2	11.8
Managers, officials, and prop's, exc. farm	9.0	9.1	8.4	9.0	7.4	5.5	9.9	9.1	10.4	6.0	5.8	5.9	7.7	6.6	7.4
Clerical, sales, and kindred workers	20.4	21.9	23.9	7.5	9.4	11.5	5.8	10.2	14.5	7.2	11.7	12.8	4.7	9.5	16.5
Craftsmen, foremen, and kindred workers	15.3	16.5	15.3	12.3	16.9	21.8	6.9	10.5	15.8	8.2	11.7	14.8	5.3	11.7	13.7
Operatives and kindred workers	24.8	26.4	22.9	43.2	45.1	38.9	6.7	9.8	12.5	11.6	21.0	23.6	6.1	10.2	15.4
Private household workers	3.7	1.7	2.1	2.9	.4	- -	3.1	2.5	5.7	2.7	1.0	2.3	3.9	1.7	2.7
Service workers, except private household	6.9	7.1	7.7	6.2	4.7	9.8	5.3	6.9	10.1	4.9	7.5	10.7	3.7	5.1	8.7
Farm laborers and foremen	2.2	1.0	.6	.5	- -	- -	11.9	9.7	1.8	16.5	8.4	4.9	17.0	11.5	5.7
Laborers, except farm and mine	4.7	4.1	3.7	8.3	9.5	7.2	5.8	11.8	11.4	4.8	4.1	3.5	6.5	5.0	6.0
Occupation not reported	1.0	1.0	3.2	.5	.6	.7	.5	2.1	3.0	1.8	2.4	3.0	.6	3.2	2.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.4	7.0	9.6	2.6	2.6	4.7	3.4	4.9	4.6	3.3	3.5	5.8	3.5	4.4	7.7
Farmers and farm managers	8.8	4.8	2.5	6.6	2.9	.8	56.5	33.8	13.0	35.0	25.5	13.4	43.1	33.6	15.5
Managers, officials, and prop's, exc. farm	11.1	11.5	11.1	9.3	6.9	3.2	10.0	8.5	11.9	6.2	6.2	7.3	7.3	6.6	8.8
Clerical, sales, and kindred workers	16.1	15.4	16.7	4.4	5.3	6.0	4.7	7.7	7.9	4.8	7.4	7.3	3.0	5.8	7.6
Craftsmen, foremen, and kindred workers	20.1	22.2	22.1	13.5	18.2	24.5	7.8	13.1	21.9	9.5	14.3	20.5	6.0	14.0	19.6
Operatives and kindred workers	26.7	28.0	24.9	48.1	49.2	45.1	6.9	11.2	16.8	12.5	23.1	28.0	6.6	10.9	16.4
Private household workers	.1	.1	.1	- -	.2	- -	.2	.3	.4	.2	.1	.1	.4	.2	.2
Service workers, except private household	5.1	5.1	5.0	5.7	3.9	6.6	3.4	4.1	5.1	2.4	4.0	4.5	2.8	3.0	6.6
Farm laborers and foremen	2.8	1.2	.8	.6	- -	- -	13.5	7.4	2.2	19.2	9.1	5.6	19.6	13.2	7.5
Laborers, except farm and mine	5.9	5.2	5.1	9.3	10.4	8.3	6.7	14.7	15.4	5.4	4.9	4.8	7.3	6.0	8.4
Occupation not reported	.8	.8	2.9	.6	.5	.8	.4	1.7	3.0	1.5	2.0	2.8	.4	2.2	1.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.1	12.7	14.0	15.6	12.7	- -	19.2	10.5	8.8	23.4	15.8	15.5	19.6	21.0	14.0
Farmers and farm managers	.5	.4	.4	1.6	- -	- -	11.9	20.7	5.1	2.7	.8	.8	12.4	2.2	3.1
Managers, officials, and prop's, exc. farm	3.1	3.2	2.8	6.3	12.7	20.0	9.6	11.5	6.7	4.8	4.3	2.6	10.3	6.6	4.2
Clerical, sales, and kindred workers	32.7	38.4	38.4	34.4	52.4	45.9	13.0	19.7	30.7	20.6	29.2	26.5	15.2	27.6	37.1
Craftsmen, foremen, and kindred workers	1.3	2.0	1.6	1.6	3.2	4.7	1.1	.6	.9	1.2	.9	.7	.6	.9	- -
Operatives and kindred workers	19.4	22.6	18.8	1.6	1.6	- -	5.1	4.3	1.9	6.5	12.5	12.7	2.8	6.8	13.1
Private household workers	14.2	5.8	6.2	28.1	3.2	- -	21.5	10.8	18.8	16.7	4.9	7.7	26.4	8.8	8.6
Service workers, except private household	12.0	12.1	13.2	10.9	12.7	29.4	17.5	17.7	22.3	18.6	21.9	26.1	9.0	14.9	13.6
Farm laborers and foremen	.2	.3	.2	- -	- -	- -	2.3	18.4	.9	1.3	5.4	3.1	.6	3.1	1.6
Laborers, except farm and mine	1.3	1.2	.8	- -	- -	- -	- -	.6	1.6	1.1	.5	.4	1.2	.2	.6
Occupation not reported	1.4	1.5	3.9	- -	1.6	- -	1.1	3.6	3.0	3.1	3.8	3.7	1.9	8.1	4.1

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES 1940, 1950 and 1960

	Lenawee			Livingston			Luce			Mackinac			Macomb		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.8	6.9	9.9	6.8	7.8	10.2	7.8	9.3	12.5	5.3	5.6	8.9	5.5	5.8	11.9
Farmers and farm managers	20.9	13.0	6.6	26.2	17.3	6.1	5.2	4.2	.8	13.1	9.3	4.4	7.4	3.3	.9
Managers, officials, and prop's, exc. farm	12.7	7.6	7.2	7.0	7.0	7.0	8.3	8.8	9.3	13.7	16.6	12.9	6.1	6.1	6.6
Clerical, sales, and kindred workers	11.2	14.8	16.5	9.8	14.5	18.1	9.5	12.9	13.2	8.3	9.9	15.7	12.3	17.0	22.7
Craftsmen, foremen, and kindred workers	9.8	12.7	12.4	10.1	16.2	16.5	11.5	11.6	9.6	10.6	13.3	16.8	18.8	23.2	20.8
Operatives and kindred workers	15.9	26.1	26.6	10.1	18.5	20.8	14.1	15.4	10.9	11.6	15.6	13.2	26.7	29.8	22.5
Private household workers	3.4	2.1	2.7	2.7	1.3	2.3	3.5	2.1	4.1	3.5	1.3	2.1	2.5	1.0	1.1
Service workers, except private household	4.3	5.9	8.0	5.0	6.5	7.8	14.7	22.3	28.9	8.1	10.0	13.2	6.8	6.2	7.0
Farm laborers and foremen	7.7	3.5	1.8	13.5	5.0	2.7	3.1	2.7	.6	6.4	2.9	1.0	5.1	1.8	.5
Laborers, except farm and mine	6.6	5.9	4.1	7.6	3.8	3.6	21.9	10.4	7.7	18.6	14.1	8.6	7.3	4.3	3.0
Occupation not reported	1.9	1.5	4.0	1.2	2.0	4.7	.4	.4	2.3	.9	1.3	3.2	1.4	1.5	3.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.0	4.9	7.5	4.3	5.8	7.8	4.7	6.3	12.6	3.6	3.6	7.1	4.2	4.8	12.1
Farmers and farm managers	26.8	16.9	9.1	30.9	21.3	8.4	5.9	5.5	1.3	15.0	11.0	5.8	8.6	4.0	1.2
Managers, officials, and prop's, exc. farm	8.7	8.7	8.7	7.7	7.9	9.0	9.5	10.7	12.8	14.2	16.9	13.9	6.6	6.8	7.9
Clerical, sales, and kindred workers	8.5	9.6	9.0	6.3	9.0	9.7	6.0	8.5	7.7	5.6	6.0	7.8	9.7	10.5	13.7
Craftsmen, foremen, and kindred workers	12.5	16.3	17.1	12.0	20.7	23.3	14.4	16.2	15.2	12.6	15.8	23.9	22.1	28.9	27.7
Operatives and kindred workers	17.1	27.7	32.4	10.1	19.7	24.6	17.3	19.7	14.9	13.2	17.9	17.5	28.0	32.2	25.4
Private household workers	.2	.1	.2	.1	.1	- -	.5	- -	.3	.3	.1	.2	.1	.1	- -
Service workers, except private household	2.8	3.5	4.0	3.3	4.0	4.1	10.1	14.5	20.1	5.8	7.1	9.4	5.7	4.2	4.7
Farm laborers and foremen	9.8	3.9	2.3	16.0	5.7	3.3	3.7	3.8	.6	7.2	3.3	.5	5.8	1.8	.6
Laborers, except farm and mine	8.2	7.2	5.5	8.5	4.7	4.9	27.7	14.3	12.0	22.0	16.7	11.6	8.1	5.3	3.9
Occupation not reported	1.6	1.3	4.3	.9	1.1	4.7	.3	.5	2.6	.7	1.4	2.2	1.1	1.4	2.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	34.0	13.5	15.9	19.0	14.6	15.8	19.4	16.8	12.6	14.7	15.5	13.3	12.8	9.8	11.3
Farmers and farm managers	.9	.8	.6	3.1	3.4	.9	2.4	.9	- -	3.2	.8	1.0	.9	.6	.3
Managers, officials, and prop's, exc. farm	3.3	4.2	3.5	4.0	4.0	2.4	3.7	4.1	3.5	10.9	14.9	10.5	3.6	3.4	3.0
Clerical, sales, and kindred workers	20.6	31.1	35.1	27.0	33.3	37.6	23.1	23.9	22.3	22.6	29.3	34.5	26.7	41.5	48.1
Craftsmen, foremen, and kindred workers	.7	1.3	.9	.9	1.1	.8	.5	- -	.5	.3	1.1	- -	1.2	1.7	1.0
Operatvies and kindred workers	12.1	20.9	12 3	10.3	14.7	12.1	2.4	4.5	4.3	3.0	4.2	3.1	19.6	20.7	14.1
Private household workers	14.3	8.5	8.9	15.2	5.2	7.5	15.0	7.3	10.3	20.9	6.8	6.6	15.3	4.4	4.1
Service workers, except private household	9.3	13.3	18.0	13.4	14.7	16.5	32.0	41.7	43.3	20.4	24.0	22.1	12.8	13.4	13.6
Farm laborers and foremen	.6	2.1	.7	1.2	2.9	1.3	.8	- -	.5	1.9	1.1	2.1	1.3	1.8	.3
Laborers, except farm and mine	1.3	1.9	.5	2.8	.7	.4	- -	.6	.8	.3	1.3	1.2	2.7	.8	.5
Occupation not reported	2.8	2.4	3.5	3.0	5.4	4.7	.8	.2	1.9	1.9	1.1	5.7	3.1	1.8	3.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Manistee			Marquette			Mason			Mecosta			Menominee		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	6.4	7.0	9.0	8.3	8.9	12.4	5.8	6.1	8.8	6.8	7.3	13.4	6.1	6.5	9.5
Farmers and farm managers	17.5	11.6	4.3	3.0	2.3	.5	25.9	16.3	7.4	35.8	24.2	7.8	20.6	16.3	9.0
Managers, officials, and prop's, exc. farm	9.0	7.2	8.2	8.2	8.1	8.2	8.9	8.6	8.4	8.0	8.4	8.4	7.6	7.4	8.8
Clerical, sales, and kindred workers	10.2	15.1	15.8	14.0	15.8	15.7	10.3	13.9	14.6	8.1	13.6	18.2	11.1	12.6	14.2
Craftsmen, foremen, and kindred workers	11.3	15.4	16.8	12.7	14.1	15.1	8.8	13.8	15.4	8.7	10.3	12.4	9.8	10.4	13.8
Operatives and kindred workers	19.6	22.5	23.2	30.7	30.5	23.7	15.3	21.6	23.5	8.6	17.5	17.3	16.4	20.4	22.8
Private household workers	2.7	1.4	1.4	2.7	1.1	1.9	2.9	1.6	1.6	2.8	1.9	2.7	3.4	1.7	2.4
Service workers, except private household	5.8	6.8	9.9	7.9	8.3	11.5	4.8	7.1	7.9	3.6	6.0	9.0	4.5	6.3	8.1
Farm laborers and foremen	6.4	4.8	2.1	1.7	1.0	.4	9.9	6.0	2.4	12.9	5.4	3.2	10.8	8.4	2.2
Laborers, except farm and mine	10.0	8.8	7.2	10.1	8.9	4.5	5.2	4.0	6.3	3.5	3.7	4.7	8.8	9.5	7.0
Occupation not reported	1.0	1.0	2.2	.8	.9	6.0	.6	1.0	3.7	1.3	1.6	2.8	1.0	.5	2.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.6	5.2	6.6	5.1	6.3	10.9	3.5	4.1	6.4	4.3	5.3	12.3	3.7	4.4	7.6
Farmers and farm managers	21.6	14.9	5.9	3.5	2.8	.7	30.6	20.2	9.6	40.5	30.5	10.7	23.9	20.3	11.8
Managers, officials, and prop's, exc. farm	10.5	8.3	10.9	9.6	9.3	9.8	9.8	9.6	10.1	8.4	9.2	9.9	8.2	8.4	10.3
Clerical, sales, and kindred workers	7.3	10.9	7.7	10.4	10.1	9.1	7.2	8.8	9.3	5.4	8.8	11.7	8.1	7.8	9.4
Craftsmen, foremen, and kindred workers	14.0	20.0	23.4	15.9	18.1	20.4	10.5	17.4	20.3	10.0	13.0	16.4	11.5	13.0	18.3
Operatives and kindred workers	16.0	20.7	24.5	33.9	33.7	28.7	14.7	23.0	24.5	9.5	17.0	19.8	17.4	21.5	24.7
Private household workers	- -	- -	- -	.2	.1	- -	.1	.2	.2	- -	.1	.3	.1	- -	.1
Service workers, except private household	4.7	5.2	6.5	6.2	6.5	7.9	3.5	5.6	5.5	2.0	3.5	5.9	3.3	4.1	3.9
Farm laborers and foremen	8.2	5.0	2.7	1.8	1.0	.6	13.7	5.5	2.5	14.6	6.5	4.2	12.6	7.8	2.5
Laborers, except farm and mine	12.3	11.2	10.0	12.7	11.4	5.9	5.8	4.8	8.1	4.0	4.6	6.3	10.5	12.0	9.4
Occupation not reported	.7	.7	1.8	.6	.7	5.9	.6	.9	3.5	1.2	1.5	2.5	.8	.5	2.0
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	13.0	12.5	14.6	19.8	17.1	16.5	16.4	13.4	15.0	22.2	14.7	16.2	18.8	13.4	14.8
Farmers and farm managers	3.1	1.5	.6	1.0	.8	.1	4.3	2.1	1.8	6.6	1.6	.7	3.4	2.7	1.2
Managers, officials, and prop's, exc. farm	3.6	3.6	2.1	3.3	4.3	4.0	4.9	5.0	3.7	5.8	5.5	4.9	4.3	3.8	4.3
Clerical, sales and kindred workers	21.3	28.2	34.3	27.0	34.2	33.3	24.6	32.2	28.5	24.6	30.9	34.4	26.9	29.0	28.0
Craftsmen, foremen, and kindred workers	1.4	1.1	1.6	.7	1.4	.9	.9	.9	2.6	.3	.8	2.5	.9	1.5	1.0
Operatives and kindred workers	32.5	28.2	20.1	19.2	20.3	10.5	17.9	16.6	20.8	2.8	19.2	10.9	11.0	16.5	17.3
Private household workers	12.3	5.9	4.5	11.8	4.4	6.7	15.6	6.7	5.3	20.2	8.3	8.7	20.4	7.2	8.9
Service workers, except private household	9.5	11.8	17.7	14.1	13.9	21.2	10.7	12.7	14.4	13.6	15.0	16.7	11.1	14.0	20.2
Farm laborers and foremen	.3	4.1	.8	1.3	1.3	- -	1.3	7.7	2.2	2.1	1.6	.8	.9	10.1	1.2
Laborers, except farm and mine	.9	1.3	.5	.6	.8	.6	2.4	1.1	1.6	.1	.4	.7	.3	1.1	.2
Occupation not reported	1.9	1.9	3.1	1.2	1.5	6.1	1.2	1.6	4.0	1.7	2.1	3.6	2.0	.6	2.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS BY SEX, FOR COUNTIES, 1940, 1950 and 1960

OCCUPATION	Midland			Missaukee			Monroe			Montcalm			Montmorency		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.9	14.9	19.5	5.8	5.6	9.5	4.9	6.0	7.6	5.6	6.7	8.7	7.0	7.8	8.9
Farmers and farm managers	15.8	8.3	2.0	43.9	36.0	20.7	16.5	9.4	4.0	34.4	21.3	9.4	40.1	22.8	10.6
Managers, officials, and prop's, exc. farm	6.2	7.3	7.7	5.6	5.7	6.1	6.3	6.6	6.4	7.7	7.1	6.3	8.8	9.4	10.5
Clerical, sales, and kindred workers	10.8	16.6	17.7	4.1	8.2	12.0	11.3	15.0	17.8	8.2	12.6	14.5	5.1	10.8	15.6
Craftsmen, foremen, and kindred workers	13.7	17.6	16.8	4.8	9.0	9.5	11.8	16.2	17.0	7.9	11.4	12.5	3.9	11.6	11.9
Operatives and kindred workers	19.6	19.7	16.3	5.5	10.5	15.7	21.1	28.6	26.8	12.7	21.0	27.8	5.5	11.5	11.3
Private household workers	4.8	2.2	3.5	3.1	1.7	2.8	2.9	1.4	1.8	3.7	2.1	2.6	2.7	1.7	4.5
Service workers, except private household	4.7	6.5	7.3	1.7	3.6	5.5	4.7	6.1	8.0	3.4	5.7	6.5	2.9	8.2	10.7
Farm laborers and foremen	6.4	1.9	.6	20.0	12.5	6.4	8.1	2.7	1.6	9.7	6.3	3.4	17.3	7.8	3.1
Laborers, except farm and mine	5.9	4.2	3.4	4.7	4.4	6.3	.5	6.7	5.3	5.6	4.0	4.0	6.3	7.9	11.8
Occupation not reported	1.1	.8	5.0	.7	2.7	5.4	2.0	1.3	3.7	1.2	1.8	4.3	.5	.6	1.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.0	14.3	19.9	3.4	3.1	6.4	2.6	4.1	5.9	3.4	4.6	7.1	4.1	5.2	8.4
Farmers and farm managers	18.6	10.2	2.9	49.1	42.2	26.4	19.4	11.6	5.2	40.6	27.2	13.0	44.0	27.5	14.6
Managers, officials, and prop's, exc. farm	6.7	7.9	9.1	5.8	5.8	6.7	7.0	7.5	7.7	8.2	8.3	7.6	9.0	10.2	11.8
Clerical, sales, and kindred workers	6.9	9.8	10.5	2.7	4.7	8.9	8.1	9.3	10.0	5.7	7.4	7.8	3.7	6.7	7.5
Craftsmen, foremen, and kindred workers	16.2	21.8	22.3	5.3	10.8	12.4	14.0	20.0	22.6	9.2	14.3	17.4	4.4	13.8	16.5
Operatives and kindred workers	22.7	22.9	20.7	5.3	10.1	17.4	22.4	31.4	32.2	12.5	21.6	30.4	6.1	12.9	14.7
Private household workers	.1	- -	.1	- -	.1	- -	.1	.1	- -	.1	.1	.1	.1	.2	- -
Service workers, except private household	3.4	4.9	4.4	.9	3.0	2.5	3.3	4.1	4.4	2.0	3.6	3.0	1.8	5.0	5.4
Farm laborers and formen	7.5	2.2	.8	22.3	13.5	5.7	9.4	2.7	1.6	11.4	6.6	4.2	19.3	8.7	3.8
Laborers, except farm and mine	7.0	5.2	4.4	4.5	3.5	8.0	12.2	8.1	6.9	6.1	4.9	5.5	7.2	9.6	15.9
Occupation not reported	.9	.7	5.0	.7	2.3	5.5	1.5	1.1	3.4	1.0	1.5	3.9	.2	.3	1.4
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	15.7	17.2	18.5	25.8	17.7	19.8	16.3	13.4	12.4	17.0	13.8	12.5	27.0	20.5	10.4
Farmers and farm managers	1.3	.9	.2	.8	5.7	2.6	1.8	1.0	.7	2.9	1.4	.6	13.1	.5	- -
Managers, officials, and prop's exc. farm	3.8	4.7	3.6	3.3	5.4	4.0	3.0	3.4	2.8	4.9	3.3	3.2	7.3	5.7	7.2
Clerical, sales, and kindred workers	31.2	43.1	38.6	15.8	24.8	22.1	27.3	36.5	40.1	21.1	30.1	30.6	14.6	30.5	36.5
Craftsmen, foremen, and kindred workers	.5	1.4	.7	.4	.5	- -	.8	1.8	1.1	1.5	1.4	.8	- -	1.0	- -
Operatives and kindred workers	4.0	7.4	3.6	7.1	12.8	10.1	15.0	17.8	11.3	13.8	19.2	21.5	1.5	4.8	2.4
Private household workers	29.2	10.3	13.4	29.2	9.6	11.7	16.8	6.5	6.8	22.1	8.9	8.7	20.4	8.6	16.3
Service workers, except private household	11.4	12.5	15.8	8.7	10.6	15.2	11.8	13.7	18.5	10.6	13.0	14.8	10.2	23.3	24.5
Farm laborers and foremen	.6	.9	- -	1.7	7.9	8.5	1.1	2.3	1.4	1.0	5.4	1.7	3.6	3.3	1.3
Laborers, except farm and mine	.2	.4	.5	6.3	.7	.8	1.9	1.4	.5	2.8	.8	.4	- -	- -	1.3
Occupation not reported	2.2	1.1	5.2	.8	4.4	5.1	4.2	2.2	4.3	2.4	2.8	5.2	2.2	1.9	- -

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Muskegon			Newaygo			Oakland			Oceana			Ogemaw		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	6.6	8.1	10.1	5.4	6.5	9.2	8.3	10.4	15.6	6.1	6.6	8.7	5.8	6.2	6.0
Farmers and farm managers	3.8	1.9	.8	37.1	22.8	10.7	2.6	1.1	.3	36.3	24.4	12.5	49.3	35.9	13.8
Managers, officials, and prop's, exc. farm...	7.8	7.9	6.8	7.0	7.0	7.8	8.0	9.0	10.1	7.9	7.0	5.7	7.9	11.6	10.4
Clerical, sales, and kindred workers	15.5	18.2	19.1	7.4	13.0	15.7	18.0	20.1	23.7	7.0	10.5	13.1	8.2	11.7	15.4
Craftsmen, foremen, and kindred workers	17.2	19.2	17.8	6.1	12.3	14.0	18.1	19.2	16.2	6.5	11.3	13.8	8.0	11.0	14.5
Operatives and kindred workers	28.1	28.7	26.4	6.7	19.6	22.3	26.0	25.8	18.5	7.9	18.0	24.1	7.6	10.0	19.9
Private household workers	3.3	1.6	2.2	3.0	1.1	2.0	4.3	2.0	2.1	3.1	1.7	1.4	3.1	1.3	2.6
Service workers, except private household....	5.9	6.7	7.5	3.4	4.1	7.0	6.3	6.3	6.7	2.8	4.0	7.1	4.6	5.4	9.1
Farm laborers and foremen	1.7	1.0	.6	15.3	6.3	3.8	2.1	.8	.3	17.1	9.7	6.3	15.0	7.9	3.5
Laborers, except farm and mine	9.5	5.6	4.4	7.8	6.3	5.5	5.3	4.0	2.8	4.7	5.2	5.2	3.8	5.2	6.1
Occupation not reported	.5	1.0	4.3	1.0	1.0	1.9	1.0	1.2	3.6	.6	1.6	2.2	1.6	1.6	2.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	4.9	6.1	8.7	3.3	4.1	7.0	6.8	9.5	15.6	3.3	3.9	5.3	3.6	3.9	3.2
Farmers and farm managers	4.8	2.4	1.0	43.0	27.8	14.0	3.1	1.3	.4	41.4	29.8	15.7	56.0	41.5	18.7
Managers, officials, and prop's, exc. farm...	9.2	9.1	8.4	7.4	7.6	9.5	8.9	10.4	12.7	8.2	7.3	6.1	8.7	12.4	12.8
Clerical, sales, and kindred workers	11.3	11.6	11.0	4.6	7.8	9.0	14.1	13.6	15.9	4.2	6.4	7.8	5.8	7.2	7.2
Craftsmen, foremen, and kindred workers	22.2	24.6	24.3	7.2	14.9	18.8	22.0	24.5	21.9	7.6	13.7	17.6	9.2	13.1	19.5
Operatives and kindred workers	29.2	32.2	31.7	6.9	19.7	24.5	30.1	29.3	21.9	7.9	17.8	27.5	8.4	11.4	22.7
Private household workers	.1	.1	.1	.1	.1	.1	.4	.2	.1	.1	- -	- -	- -	.1	- -
Service workers, except private household....	4.6	4.7	4.0	2.0	2.3	3.4	4.5	4.1	4.0	1.7	2.2	3.6	2.8	3.1	4.9
Farm laborers and foremen	2.2	1.1	.7	17.8	7.2	4.6	2.6	.9	.3	19.8	11.2	7.3	17.1	8.2	4.8
Laborers, except farm and mine	11.2	7.1	6.0	7.1	7.5	7.5	6.4	5.0	3.7	5.3	6.2	7.0	4.4	6.2	8.4
Occupation not reported	.4	.9	4.0	.6	.9	1.7	1.0	1.1	3.3	.6	1.5	2.0	1.0	1.1	2.4
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	12.2	14.9	13.6	16.6	16.3	14.8	14.8	13.4	15.7	21.9	17.2	18.5	21.0	17.6	13.6
Farmers and farm managers	.6	.3	.2	6.3	2.3	2.2	.3	.2	.1	7.0	2.7	2.6	4.5	7.6	.5
Managers, officials, and prop's, exc. farm...	3.4	3.9	3.1	4.5	4.3	3.4	3.9	4.0	3.4	6.4	5.9	4.7	3.0	7.6	3.7
Clerical, sales, and kindred workers	29.2	39.7	38.3	21.7	33.7	33.6	34.5	41.9	44.2	23.2	27.1	28.8	23.7	34.3	37.3
Craftsmen, foremen, and kindred workers	1.0	1.5	2.1	.4	1.5	1.5	1.1	1.6	1.2	.4	1.6	2.3	.3	.4	1.1
Operatives and kindred workers	24.7	16.9	13.8	5.6	19.4	16.3	8.9	14.1	9.5	7.5	19.0	14.1	2.1	3.5	12.3
Private household workers	13.5	6.5	7.0	18.4	5.3	7.1	20.5	8.1	7.3	20.6	8.5	5.4	23.4	7.2	9.5
Service workers, except private household....	10.2	13.5	15.7	10.4	11.3	16.7	13.8	13.8	13.9	9.1	11.2	17.4	16.5	17.1	20.4
Farm laborers and foremen	.2	.8	.5	2.0	2.9	1.7	.2	.4	.2	1.6	3.5	3.2	1.5	6.3	- -
Laborers, except farm and mine	4.1	.8	.6	10.7	1.5	.2	.6	.8	.4	1.3	1.3	- -	.3	.4	- -
Occupation not reported	.9	1.4	5.1	3.3	1.5	2.6	1.3	1.6	4.2	.9	2.0	2.9	5.4	4.3	1.7

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Ontonagon			Osceola			Oscoda			Otsego			Ottawa		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.4	7.1	9.2	5.8	6.3	7.7	6.9	6.7	13.2	6.6	7.8	7.0	5.6	6.5	9.0
Farmers and farm managers	19.1	19.3	7.0	40.4	27.5	12.4	31.5	21.5	9.7	29.0	17.0	6.2	14.8	9.0	4.1
Managers, officials, and prop's, exc. farm	7.6	8.5	7.7	7.1	6.2	7.3	12.2	13.3	16.1	10.1	11.9	13.4	8.2	8.1	7.4
Clerical, sales, and kindred workers	7.0	9.0	10.7	7.8	10.8	11.0	5.0	7.8	11.9	8.5	11.4	13.6	11.9	15.0	17.5
Craftsmen, foremen, and kindred workers	9.2	10.1	19.0	5.6	10.3	12.1	9.8	12.3	11.0	4.5	10.2	12.7	14.1	17.0	17.7
Operatives and kindred workers	11.5	16.7	24.0	6.1	14.4	23.3	5.9	13.8	12.4	7.7	16.5	22.9	23.9	27.4	26.6
Private household workers	2.1	1.1	2.4	2.8	2.6	2.6	5.0	1.4	1.2	2.5	1.1	2.0	3.3	1.7	1.9
Service workers, except private household	5.3	6.3	8.2	3.2	4.9	6.5	3.9	4.9	6.1	7.0	9.3	14.7	4.4	5.5	7.6
Farm laborers and foremen	10.0	9.4	3.1	13.7	9.7	3.8	9.8	6.8	.8	15.4	7.1	.8	6.5	3.9	2.1
Laborers, except farm and mine	21.6	10.9	5.1	6.7	4.7	5.8	8.9	7.8	15.0	6.7	6.3	3.9	6.3	4.1	3.9
Occupation not reported	1.2	1.5	3.4	.7	2.7	7.5	1.1	3.8	2.6	2.0	1.3	2.7	.9	1.8	2.3
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	4.5	7.3	3.2	4.3	5.1	5.8	4.1	8.7	3.8	5.4	6.2	4.2	5.0	7.5
Farmers and farm managers	20.7	21.7	8.4	45.8	34.9	16.8	36.8	25.1	12.9	32.9	21.1	8.7	17.8	11.6	5.4
Managers, officials, and prop's, exc. farm	7.8	8.8	8.2	7.2	6.8	8.4	10.9	12.5	18.8	10.9	13.4	17.0	9.3	9.6	9.4
Clerical, sales, and kindred workers	4.4	5.4	4.8	5.3	7.0	6.9	3.1	4.6	4.3	5.9	7.8	9.2	8.2	9.7	10.5
Craftsmen, foremen, and kindred workers	10.4	12.3	24.6	6.4	12.9	16.3	11.8	14.7	14.8	5.4	12.9	18.0	17.0	21.7	23.9
Operatives and kindred workers	12.8	19.5	30.8	6.5	15.0	22.2	7.1	16.1	16.1	8.4	16.8	24.4	24.7	28.4	29.4
Private household workers	.1	- -	- -	.1	.1	- -	.9	- -	- -	- -	.1	- -	.1	.1	.1
Service workers, except private household	4.1	4.3	4.7	1.9	2.9	3.1	2.0	3.2	3.1	5.1	5.5	7.4	3.4	3.6	4.2
Farm laborers and foremen	10.9	8.7	1.4	15.7	9.3	4.9	11.1	7.3	.6	18.1	7.6	1.2	7.6	4.0	2.2
Laborers, except farm and mine	24.5	13.2	6.5	7.3	5.6	7.3	10.0	9.2	19.4	8.0	7.9	5.7	7.1	5.2	5.2
Occupation not reported	1.0	1.5	3.2	.5	1.1	8.8	.7	3.2	1.2	1.5	1.6	2.1	.6	1.0	2.2
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	20.1	18.5	15.4	22.6	13.1	14.3	12.6	18.9	26.4	20.6	16.7	8.8	12.2	11.3	12.9
Farmers and farm managers	7.5	8.7	2.3	5.0	1.9	1.1	5.4	4.4	- -	9.4	2.2	.5	1.6	.6	.7
Managers, officials, and prop's, exc. farm	6.2	7.3	6.3	6.3	4.3	4.4	18.9	17.0	8.1	6.0	6.6	5.3	3.1	3.1	2.1
Clerical, sales, and kindred workers	26.3	25.5	30.4	23.9	23.7	21.4	14.4	22.6	34.4	21.3	24.8	23.4	28.5	32.1	35.5
Craftsmen, foremen, and kindred workers	1.1	.4	.6	.7	1.1	1.2	- -	1.3	- -	- -	.4	.7	1.3	1.8	1.5
Operatives and kindred workers	2.1	3.7	1.5	3.2	12.3	26.0	- -	2.5	1.5	4.1	15.1	19.7	20.6	24.2	19.2
Private household workers	16.1	6.0	10.2	20.9	10.9	9.2	25.2	8.2	4.8	15.0	4.6	6.6	17.4	6.9	6.5
Service workers, except private household	13.7	15.1	20.2	11.5	11.9	15.1	13.5	13.2	15.0	16.5	23.0	31.1	9.2	11.3	16.4
Farm laborers and foremen	3.5	12.7	8.6	1.1	11.0	.9	3.6	4.4	1.5	2.2	5.5	- -	1.4	3.5	1.8
Laborers, except farm and mine	.5	.6	.6	2.8	1.4	2.1	3.6	.6	1.8	.4	.7	- -	2.7	.8	.7
Occupation not reported	3.0	1.5	4.0	2.0	8.2	4.1	2.7	6.9	6.6	4.5	.4	3.9	1.9	4.3	2.6

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Presque Isle			Roscommon			Saginaw			St. Clair			St. Joseph		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.5	5.7	8.1	7.5	6.7	9.5	6.6	7.5	10.1	5.8	6.5	9.0	5.9	6.7	7.2
Farmers and farm managers	27.5	20.2	9.8	13.2	4.4	1.5	9.7	5.8	2.7	13.0	7.9	4.2	16.6	11.7	5.9
Managers, officials, and prop's, exc. farm	6.6	7.8	10.3	22.1	17.2	19.6	7.5	7.9	7.1	8.9	8.7	8.0	8.9	8.2	7.0
Clerical, sales, and kindred workers	6.0	8.7	11.9	8.4	13.2	18.2	16.0	18.1	20.5	15.0	18.0	19.8	13.8	16.0	15.3
Craftsmen, foremen, and kindred workers	8.7	13.3	14.7	10.3	19.6	15.6	14.8	17.4	16.2	14.3	16.8	16.3	12.7	15.2	14.4
Operatives and kindred workers	15.2	16.0	23.3	11.1	14.7	14.2	22.1	25.5	25.1	19.0	25.1	22.4	20.9	24.9	27.3
Private household workers	3.4	1.6	1.1	2.7	1.3	1.5	3.5	1.7	2.0	2.9	1.4	2.5	3.7	1.7	2.2
Service workers, except private household	4.1	5.3	9.5	10.3	10.9	8.0	6.4	7.1	8.5	5.6	6.5	8.4	5.3	6.4	6.3
Farm laborers and foremen	16.0	12.4	5.0	4.8	1.5	.4	4.9	1.8	.9	6.6	2.6	1.5	6.8	4.0	1.6
Laborers, except farm and mine	6.4	6.4	4.8	8.6	7.0	5.2	7.4	6.1	4.3	7.3	4.8	3.8	4.9	4.2	4.0
Occupation not reported	.6	2.7	1.6	1.0	3.5	6.1	1.4	1.1	2.6	1.7	1.7	4.1	.5	1.0	8.8
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.5	3.7	5.4	7.0	5.2	8.9	4.6	5.6	8.3	4.0	4.9	7.4	4.1	5.2	5.6
Farmers and farm managers	31.1	24.2	12.3	15.5	5.4	1.9	12.1	7.5	3.6	15.8	10.2	5.5	21.2	15.5	8.4
Managers, officials, and prop's, exc. farm	7.0	8.6	12.0	22.5	17.5	21.6	8.7	9.1	8.9	10.0	10.2	9.8	10.1	9.8	9.3
Clerical, sales, and kindred workers	4.3	5.1	6.7	6.2	9.2	11.3	11.8	11.6	12.3	10.4	11.3	12.6	9.7	10.3	9.7
Craftsmen, foremen, and kindred workers	10.1	16.0	18.6	12.8	24.8	20.9	18.5	22.5	22.5	17.6	21.8	22.5	16.1	20.1	21.0
Operatives and kindred workers	14.0	18.0	27.1	13.6	18.0	16.4	24.0	28.4	30.3	19.6	26.2	26.3	20.3	24.2	25.5
Private household workers	.1	- -	- -	.3	- -	.3	.1	.1	.1	.1	.1	.1	.1	.2	.2
Service workers, except private household	3.2	3.6	6.3	5.8	6.8	5.1	4.4	4.6	4.6	4.3	4.9	5.1	3.5	4.2	4.2
Farm laborers and foremen	18.8	11.7	4.4	5.2	1.7	.6	6.0	2.0	.9	8.1	2.9	1.8	8.4	4.4	1.8
Laborers, except farm and mine	7.6	7.6	6.0	10.6	9.0	6.6	8.8	7.6	5.9	8.7	6.1	5.2	6.1	5.4	5.5
Occupation not reported	.4	1.4	1.3	.4	2.3	6.2	.9	1.0	2.6	1.4	1.5	3.7	.5	.8	8.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	16.3	14.6	17.7	9.4	12.0	10.9	14.0	13.2	14.3	13.0	11.7	13.1	12.0	10.6	10.3
Farmers and farm managers	8.2	2.3	1.1	4.4	.7	.7	.6	.6	.6	1.7	.8	.8	1.1	1.4	1.1
Managers, officials, and prop's, exc. farm	4.5	4.0	4.1	20.7	16.3	14.5	3.2	4.0	2.9	4.3	4.2	3.7	4.9	3.9	2.5
Clerical, sales, and kindred workers	15.0	24.6	30.7	16.3	26.8	36.4	32.0	38.0	40.0	33.7	38.7	37.3	27.8	31.7	26.4
Craftsmen, foremen, and kindred workers	1.5	1.1	.4	1.0	1.7	1.6	1.1	1.7	1.0	1.3	1.4	1.0	1.4	1.8	1.4
Operatives and kindred workers	22.0	7.1	9.5	1.5	3.4	8.5	15.1	16.6	12.8	16.4	21.9	13.1	23.1	26.9	30.8
Private household workers	21.3	8.7	5.0	11.8	5.9	4.7	16.3	6.6	6.5	14.0	5.3	8.3	15.8	6.0	6.1
Service workers, except private household	8.6	12.9	20.9	27.1	24.9	15.5	13.8	15.0	17.8	11.0	11.3	16.4	11.1	12.4	10.5
Farm laborers and foremen	1.0	15.4	7.3	3.4	.7	- -	.5	1.3	.8	.5	1.6	.7	1.4	2.9	1.0
Laborers, except farm and mine	- -	.6	.4	1.0	- -	1.5	2.0	1.6	.7	1.6	.8	.4	.9	1.0	1.0
Occupation not reported	1.5	8.7	2.8	3.4	7.6	5.7	1.5	1.5	2.7	2.6	2.2	5.1	.6	1.4	9.0

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Sanilac % distribution			Schoolcraft % distribution			Shiawassee % distribution			Tuscola % distribution			Van Buren % distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.3	5.1	7.8	6.8	7.8	7.3	5.7	6.3	8.4	5.2	6.3	8.2	5.7	5.9	8.1
Farmers and farm managers	46.2	37.1	22.2	9.4	5.3	2.5	20.1	11.9	5.6	34.8	26.1	13.3	29.9	17.6	7.8
Managers, officials, and prop's, exc. farm	5.7	6.2	6.7	11.6	10.1	10.9	7.8	7.4	6.7	6.2	6.9	6.0	8.9	7.4	6.1
Clerical, sales, and kindred workers	5.4	9.6	9.8	11.1	14.7	15.2	12.1	15.3	18.1	6.7	10.1	13.9	8.8	12.6	14.3
Craftsmen, foremen, and kindred workers	4.6	8.2	10.9	11.0	15.0	14.5	11.8	14.3	16.0	7.5	10.8	13.9	8.6	13.2	14.2
Operatives and kindred workers	5.5	11.3	18.0	16.0	21.1	20.8	19.0	28.4	27.0	9.5	18.0	22.1	11.3	21.8	24.2
Private household workers	2.4	2.7	2.1	2.9	2.6	3.1	3.4	1.5	2.6	2.9	1.3	2.1	2.6	1.6	2.1
Service workers, except private household	2.3	3.5	5.3	7.1	8.7	12.0	4.6	5.3	6.9	3.9	6.6	9.1	4.0	5.5	6.2
Farm laborers and foremen	18.7	10.5	7.0	3.4	2.7	2.0	8.6	3.3	1.7	17.7	7.4	4.5	12.1	7.8	5.8
Laborers, except farm and mine	3.9	3.5	3.9	19.8	11.3	10.2	5.5	4.3	4.3	4.6	3.8	3.7	6.3	5.3	4.9
Occupation not reported	1.1	2.2	6.3	.9	.6	1.6	1.4	1.9	2.7	.9	2.8	3.3	1.8	1.4	6.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	2.8	3.3	4.9	4.5	5.9	4.4	3.6	4.8	6.1	3.0	3.8	5.7	3.4	3.8	6.2
Farmers and farm managers	50.4	43.8	28.8	10.7	6.4	3.3	24.9	15.8	7.8	39.2	31.3	17.7	34.8	22.2	10.5
Managers, officials, and prop's, exc. farm	5.7	6.4	6.8	12.6	11.0	12.7	8.7	8.8	8.5	6.6	7.4	6.9	9.2	8.3	7.4
Clerical, sales, and kindred workers	3.3	5.8	5.9	8.0	8.3	8.7	8.9	9.5	10.4	4.6	6.2	8.0	5.8	8.4	8.2
Craftsmen, foremen, and kindred workers	5.0	9.7	14.1	13.0	18.7	20.1	14.4	18.4	22.4	8.5	12.9	18.9	10.1	16.8	19.7
Operatives and kindred workers	5.8	11.5	17.8	18.4	25.4	28.7	18.2	28.1	28.9	10.1	19.9	26.1	11.5	20.1	25.5
Private household workers	- -	.1	.2	- -	.3	- -	- -	.1	.2	.1	- -	- -	.1	.1	.1
Service workers, except private household	1.3	2.2	2.7	4.6	6.2	5.5	3.4	3.6	5.0	2.3	3.6	4.1	2.7	4.1	4.1
Farm laborers and foremen	20.5	11.2	7.9	3.9	3.2	1.8	10.5	3.9	2.2	19.8	8.1	4.8	14.1	8.5	6.2
Laborers, except farm and mine	4.3	4.2	4.9	23.5	14.0	14.1	6.1	5.6	5.9	5.2	4.6	4.8	6.9	6.5	6.4
Occupation not reported	.8	1.7	6.0	.7	.7	.7	1.2	1.4	2.5	.7	2.2	2.9	1.5	1.2	5.7
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	17.3	13.9	16.1	19.1	15.3	13.8	14.2	10.8	13.6	19.9	17.6	14.6	17.4	12.7	12.6
Farmers and farm managers	8.8	3.9	3.0	2.3	.7	.7	.7	.7	.7	4.8	2.8	1.7	4.6	2.5	1.6
Managers, officials, and prop's, exc. farm	5.0	4.9	6.5	5.9	6.5	6.7	4.2	3.4	2.6	4.1	5.0	3.5	7.0	4.6	3.0
Clerical, sales, and kindred workers	23.8	28.5	21.4	27.9	39.6	30.2	25.1	32.2	35.0	21.4	27.5	29.0	24.4	26.2	28.9
Craftsmen, foremen, and kindred workers	.8	.6	1.3	.8	.9	1.6	1.0	1.9	1.9	.5	1.1	1.0	.9	1.4	1.2
Operatives and kindred workers	3.2	10.2	18.5	3.1	4.8	2.8	22.2	29.2	22.6	5.9	9.4	11.8	10.5	27.2	21.2
Private household workers	22.8	15.9	7.7	18.1	11.5	10.1	17.0	5.8	7.8	22.1	6.7	7.5	15.4	6.5	7.1
Service workers, except private household	11.1	9.9	13.1	20.2	18.2	26.9	9.5	10.3	11.2	15.1	19.8	22.2	10.9	9.9	11.3
Farm laborers and foremen	3.0	7.0	4.4	.5	1.1	2.2	.6	1.6	.8	3.5	4.2	3.6	2.0	5.4	4.9
Laborers, except farm and mine	.4	.4	.7	- -	1.1	1.3	3.1	.7	.6	.7	.5	.6	3.2	1.3	1.3
Occupation not reported	3.9	4.9	7.3	2.1	.4	3.7	2.5	3.4	3.1	2.1	5.3	4.5	3.7	2.2	6.9

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Washtenaw			Wayne			Wexford			Detroit S.M.S.A.*			Lansing S.M.S.A.*		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.1	18.1	23.4	7.4	8.7	11.2	7.1	8.2	9.4	7.4	8.7	12.1	8.6	11.2	13.5
Farmers and farm managers	8.4	4.4	2.4	.2	.1	.1	16.6	10.5	3.3	.7	.4	.2	12.1	6.9	3.5
Managers, officials, and prop's, exc. farm	7.3	7.0	6.7	7.3	8.0	6.6	9.8	9.0	9.3	7.3	8.0	7.2	8.2	.6.5	7.3
Clerical, sales, and kindred workers	15.8	19.6	20.4	20.7	22.2	24.0	14.0	17.2	20.6	20.1	21.6	23.8	19.0	22.1	23.9
Craftsmen, foremen, and kindred workers	12.3	13.5	11.1	17.7	17.1	15.0	12.2	14.1	14.3	17.8	17.7	15.8	12.6	14.2	13.8
Operatives and kindred workers	15.8	17.4	14.3	26.8	27.5	22.0	16.8	22.3	22.2	26.7	27.4	21.4	18.1	21.5	17.4
Private household workers	4.6	2.3	2.5	3.1	1.6	2.2	3.3	2.6	3.0	3.2	1.7	2.0	3.8	1.4	2.2
Service workers, except private household	10.2	11.3	12.1	9.1	8.3	9.4	5.6	7.3	11.2	8.7	8.0	8.7	6.6	8.4	9.6
Farm laborers and foremen	4.3	1.8	1.1	.2	.2	.1	6.3	3.1	.8	.6	.3	.2	4.9	2.3	1.4
Laborers, except farm and mine	6.2	3.3	2.5	6.7	5.2	4.2	7.3	3.9	3.2	6.7	5.0	3.9	5.2	3.3	3.0
Occupation not reported	1.1	1.3	3.6	.6	1.1	5.3	1.0	1.8	2.8	.7	1.1	4.7	1.0	2.2	4.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.9	16.7	23.6	6.1	7.8	10.9	4.8	5.9	7.8	6.1	7.9	11.9	6.7	9.6	12.8
Farmers and farm managers	11.4	6.4	3.4	.3	.2	.1	4.0	14.0	4.6	.9	.5	.3	15.5	9.3	5.0
Managers, officials, and prop's, exc. farm	9.0	9.0	9.1	8.5	9.6	8.3	11.4	10.8	11.8	8.5	9.5	9.0	9.5	7.9	9.3
Clerical, sales, and kindred workers	11.5	12.3	12.1	15.6	14.3	15.1	10.2	11.7	14.3	15.2	14.0	15.1	12.7	13.3	13.9
Craftsmen, foremen, and kindred workers	16.8	19.4	17.0	22.8	22.6	21.4	14.8	18.1	20.3	22.7	23.2	22.1	15.9	19.0	19.9
Operatives and kindred workers	17.6	19.2	17.0	29.9	31.0	26.6	16.6	23.9	26.0	29.8	30.9	25.6	21.0	25.7	22.0
Private household workers	.3	.1	.1	.2	.1	.1	.2	.1	.2	.2	.1	.1	.1	.1	.1
Service workers, except private household	7.6	8.7	8.9	7.3	6.5	6.6	4.1	5.0	6.8	6.9	6.1	5.9	4.7	6.4	6.7
Farm laborers and foremen	5.8	2.4	1.4	.2	.1	.1	7.7	3.6	1.1	.7	.3	.2	6.3	2.8	1.8
Laborers, except farm and mine	8.0	4.6	3.8	8.6	6.7	6.0	8.4	5.3	4.7	8.3	6.4	5.3	6.6	4.3	4.1
Occupation not reported	1.0	1.2	3.5	.6	1.1	4.9	.8	1.7	2.6	.6	1.1	4.4	.9	1.5	4.2
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	22.1	21.0	22.9	11.5	11.0	12.0	14.8	14.3	12.5	11.8	11.2	12.5	15.0	15.2	14.8
Farmers and farm managers	.8	.3	.5	- -	- -	- -	1.7	1.4	.8	.1	.1	.1	.6	.7	.4
Managers, officials, and prop's, exc. farm	2.9	2.9	2.4	3.2	3.8	3.0	4.4	4.3	4.3	3.3	3.8	3.0	3.6	2.9	3.2
Clerical, sales, and kindred workers	26.7	34.5	35.0	37.4	44.0	43.5	26.3	31.7	33.3	36.8	43.6	44.0	40.0	45.2	44.4
Craftsmen, foremen, and kindred workers	.9	1.5	.9	1.5	1.8	1.2	3.6	3.4	2.2	1.4	1.8	1.2	1.3	1.6	1.4
Operatives and kindred workers	11.3	13.7	9.7	16.8	17.8	11.9	17.4	18.2	14.8	16.2	17.5	11.7	8.1	10.3	8.0
Private household workers	15.4	6.8	6.7	12.6	5.9	6.6	13.9	9.1	8.3	13.3	6.1	6.5	16.1	4.9	6.6
Service workers, except private household	16.7	16.7	17.6	15.0	13.4	15.3	10.9	13.4	19.9	14.9	13.5	14.9	13.0	13.7	15.6
Farm laborers and foremen	.4	.5	.4	- -	.1	- -	1.7	1.8	.2	.1	.2	.1	.4	1.0	.5
Laborers, except farm and mine	1.6	.5	.3	1.2	1.0	.5	3.7	.3	.3	1.2	1.0	.5	.5	.4	.6
Occupation not reported	1.2	1.6	3.6	.8	1.2	6.0	1.5	2.1	3.4	.8	1.2	5.5	1.2	4.1	4.7

*Detroit Standard Metropolitan Statistical Area Consists of: Macomb, Oakland and Wayne Counties

*Lansing Standard Metropolitan Statistical Area Consists of: Clinton, Eaton and Ingham Counties

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Michigan % distribution		
	1940	1950	1960
Both sexes	100.0	100.0	100.0
Professional, technical, and kindred workers	7.8	8.4	11.5
Farmers and farm managers	7.9	4.7	2.2
Managers, officials, and prop's, exc. farm	7.5	7.9	7.3
Clerical, sales, and kindred workers	16.8	19.3	21.3
Craftsmen, foremen, and kindred workers	15.5	16.4	15.4
Operatives and kindred workers	22.6	25.9	22.2
Private household workers	3.3	1.7	2.2
Service workers, except private household	7.1	7.6	8.7
Farm laborers and foremen	3.7	1.8	.9
Laborers, except farm and mine	6.9	5.0	4.0
Occupation not reported	1.0	1.3	4.3
Male	100.0	100.0	100.0
Professional, technical, and kindred workers	6.0	7.1	10.6
Farmers and farm managers	9.9	6.2	3.0
Managers, officials, and prop's, exc. farm	8.6	9.3	9.2
Clerical, sales, and kindred workers	12.2	12.4	13.2
Craftsmen, foremen, and kindred workers	19.4	21.4	21.6
Operatives and kindred workers	24.6	28.6	26.1
Private household workers	.1	.1	.1
Service workers, except private household	5.4	5.5	5.6
Farm laborers and foremen	4.5	2.0	1.1
Laborers, except farm and mine	8.4	6.3	5.5
Occupation not reported	.8	1.1	4.0
Female	100.0	100.0	100.0
Professional, technical, and kindred workers	14.0	12.5	13.5
Farmers and farm managers	.8	.5	.4
Managers, officials, and prop's, exc. farm	3.3	3.9	3.2
Clerical, sales, and kindred workers	33.1	39.7	39.9
Craftsmen, foremen, and kindred workers	1.4	1.7	1.2
Operatives and kindred workers	15.8	18.0	13.5
Private household workers	14.6	6.3	6.8
Service workers, except private household	13.3	13.7	15.7
Farm laborers and foremen	.5	1.2	.5
Laborers, except farm and mine	1.5	.9	.5
Occupation not reported	1.7	1.7	4.9

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Alcona	1,858	93	1,895	303	2.0	36.5	-62.3	89.1	94.9	35.6	133.0	44.0	108.0	-87.3	36.4	-1.5
Alger	3,038	448	2,677	398	-11.9	27.9	-67.0	-23.9	36.6	0.9	2.8	111.1	16.6	21.4	-42.3	-68.4
Allegan	17,101	520	19,923	964	16.5	49.9	-51.7	1.4	56.5	27.4	33.4	43.9	50.9	-32.1	36.4	25.7
Alpena	7,034	439	9,185	865	30.6	71.6	-52.5	39.1	43.4	43.6	52.3	139.3	44.4	-70.9	35.0	146.9
Antrim	3,259	167	3,198	369	-1.9	33.2	-64.6	-3.3	23.7	21.0	145.0	108.0	33.3	-68.4	-30.1	77.7
Arenac	3,222	208	3,198	261	-.74	92.4	-62.9	-11.6	44.6	38.4	77.9	89.6	16.7	-73.9	16.4	217.2
Baraga	2,246	347	1,862	381	-17.1	28.9	-66.8	-5.5	105.0	35.9	-14.6	-14.3	37.6	-88.5	-63.2	506.2
Barry	9,495	285	11,367	603	19.7	42.4	-40.5	-4.1	41.6	22.5	33.1	-1.4	87.7	47.5	464.1	-455.6
Bay	31,546	1,796	36,416	2,917	15.4	50.4	-54.6	18.7	19.0	25.2	9.7	46.8	29.1	-60.7	-15.0	320.9
Benzie	2,618	150	2,547	250	-2.6	38.1	-62.0	-21.3	17.7	18.7	-4.6	31.3	25.9	-33.8	5.0	112.8
Berrien	45,379	1,814	56,355	3,308	24.2	77.6	-34.4	13.9	47.4	16.2	15.6	79.7	48.5	-32.3	7.5	199.0
Branch	10,571	506	12,538	565	18.6	19.7	-45.8	7.5	31.1	23.2	34.2	87.3	95.5	-36.1	33.7	143.0
Calhoun	44,993	2,209	51,063	3,322	13.5	42.6	-39.3	12.6	21.3	0.3	4.0	13.3	20.9	-28.2	6.4	375.1
Cass	10,019	432	12,871	688	28.5	54.5	-49.0	25.9	56.4	31.2	38.2	41.0	62.4	-13.2	-3.0	77.6
Charlevoix	3,967	265	4,320	530	8.9	35.2	-65.4	6.1	18.9	23.5	58.4	45.2	175.6	-60.0	-27.2	194.9
Cheboygan	3,762	492	3,979	595	5.8	35.6	-65.6	34.6	10.2	1.5	13.2	144.7	21.6	-65.2	-9.9	236.5
Chippewa	9,415	702	8,388	1,480	-10.9	27.8	-56.3	10.8	2.9	13.5	-36.5	94.4	-1.3	-60.3	-52.3	159.3
Clare	3,407	257	3,653	203	7.2	52.2	-59.7	0.9	18.2	32.5	27.6	132.6	46.2	-78.2	7.8	275.6
Clinton	10,810	324	13,009	777	20.3	62.1	-38.8	7.9	61.5	43.3	13.9	22.6	65.1	-22.7	-10.4	337.0
Crawford	1,182	110	1,632	133	38.1	25.0	-94.4	27.1	64.5	28.0	53.5	145.8	65.4	--	19.6	106.3
Delta	10,219	695	10,519	1,060	2.9	19.6	-49.9	13.5	20.5	-3.1	20.9	111.8	50.8	-57.5	-42.9	57.2
Dickinson	7,592	1,221	7,683	749	11.9	29.7	-70.5	13.9	2.2	7.6	-10.7	77.5	38.6	-51.8	-39.2	387.7
Eaton	14,527	400	18,047	883	24.2	48.8	-39.0	20.4	63.5	36.8	17.4	93.5	73.5	-43.4	15.5	105.4
Emmet	5,387	453	5,174	622	-4.0	14.1	-63.9	15.1	10.2	-11.7	-20.4	51.2	32.6	-58.3	0.9	103.1
Genesee	108,525	3,283	132,406	9,096	22.0	69.1	-45.1	18.2	30.6	23.3	1.5	55.8	29.0	-36.3	24.4	276.3
Gladwin	3,015	95	3,319	151	10.1	56.0	-58.3	56.3	52.0	24.1	54.9	215.8	65.8	-40.2	-8.8	108.6
Gogebic	8,818	780	7,296	774	-17.3	-7.6	-68.8	-27.9	0.8	-32.2	-20.5	3.2	1.8	-76.4	-52.8	139.1
Grand Traverse	8,868	522	10,173	884	14.7	52.1	-47.0	5.9	24.1	2.2	47.2	32.8	-44.4	-12.0	49.5	35.8
Gratiot	10,988	487	12,552	803	14.2	55.4	-48.5	-3.0	46.4	16.5	65.5	90.6	77.7	-58.3	-15.7	122.4

a Total
b Professional, technical, and kindred workers
c Farmers and farm managers
d Proprietors, managers and officials, exc. farm
e Clerical, sales and kindred workers
f Craftsmen, foremen, and kindred workers
g Operatives and kindred workers
h Domestic service workers
i Service workers, exc. domestic
j Farm laborers (wage workers) and farm foremen
k Laborers exc. farm
l Occupation not reported

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Hillsdale	10,855	413	12,276	543	13.1	41.5	-45.3	16.3	9.1	36.4	49.9	50.9	35.9	-41.0	26.9	135.5
Houghton	11,370	1,193	10,241	1,004	-9.9	21.6	-54.4	-23.9	-2.6	0.7	-19.6	63.8	24.1	-83.3	-53.5	459.5
Huron	11,017	386	10,281	694	-6.7	37.2	-33.2	-9.0	31.3	17.6	29.9	7.8	57.8	-49.6	-39.6	-30.1
Ingham	65,615	3,393	79,222	3,678	20.7	44.9	-40.1	42.9	24.6	9.6	-9.2	110.1	67.5	-11.2	14.7	125.1
Ionia	12,880	560	13,695	780	6.3	39.8	-46.9	8.4	11.7	8.8	12.5	40.2	28.1	-33.2	2.6	309.7
Iosco	3,563	199	4,382	493	23.0	99.6	-49.3	30.0	62.6	6.1	21.1	86.7	91.3	-85.7	10.8	145.7
Iron	5,472	755	5,040	497	-7.7	26.2	-75.0	2.0	7.2	2.8	-10.3	-30.9	22.6	-81.3	2.1	-57.9
Isabella	8,777	384	11,624	722	32.4	83.6	-45.6	19.6	68.4	20.6	41.3	221.5	124.8	-51.1	73.4	150.0
Jackson	38,265	2,307	45,798	3,117	19.7	44.2	-46.0	4.9	29.7	9.5	12.1	14.5	33.8	-14.5	15.1	277.0
Kalamazoo	49,177	1,557	62,712	2,681	27.5	62.9	-33.2	12.6	36.4	11.1	7.3	58.7	36.5	-6.7	10.9	508.5
Kalkaska	1,299	113	1,307	199	0.6	55.8	-74.0	11.4	85.3	32.8	49.7	42.9	68.7	-40.7	32.9	-29.2
Kent	113,966	4,292	132,239	7,612	16.0	48.7	-44.2	1.6	26.2	7.8	0.3	41.6	26.8	-28.5	5.1	275.4
Keweenaw	727	117	615	86	-15.4	0.0	-78.9	-37.0	4.4	8.9	-27.1	--	76.5	--	-36.2	0.0
Lake	1,465	220	1,490	188	1.7	-2.2	-57.5	15.7	45.0	53.2	30.1	136.1	48.5	-81.0	-1.7	45.2
Lapeer	11,315	216	13,308	676	17.6	71.6	-44.4	20.6	29.4	49.1	32.3	165.8	66.9	-30.6	1.5	50.2
Leelanau	2,663	169	2,862	303	7.5	42.5	-55.2	21.0	86.2	24.9	61.8	77.3	85.2	-46.6	28.4	-17.6
Lenawee	23,554	474	26,284	2,020	11.6	59.7	-43.2	5.5	58.3	7.2	14.1	42.0	53.2	-40.5	-23.4	192.6
Livingston	9,325	460	13,200	798	41.6	85.8	-31.4	41.2	76.9	44.2	59.2	156.8	72.1	-22.7	34.1	225.1
Luce	1,867	155	1,944	275	4.1	40.2	-79.5	9.8	6.6	-13.4	-26.5	105.1	35.3	-78.4	-22.7	542.9
Mackinac	2,796	287	2,946	685	5.4	67.5	-50.2	-17.9	66.2	33.0	-10.8	77.1	39.1	-65.9	-36.2	154.1
Macomb	63,360	3,192	133,915	9,797	111.4	330.9	-40.3	128.9	181.1	89.8	59.7	129.1	139.9	-41.4	45.6	324.1
Manistee	6,354	420	6,443	676	1.4	30.6	-62.8	16.2	5.5	10.9	4.5	-4.3	47.9	-55.0	-17.1	124.2
Marquette	15,808	1,126	15,845	1,502	0.2	40.3	-77.1	1.2	-0.3	7.3	-22.1	69.5	39.7	-58.5	-49.6	564.3
Mason	7,323	316	7,347	507	0.3	45.1	-54.3	-2.5	5.2	12.0	9.0	1.7	11.9	-59.6	58.1	255.3
Mecosta	5,771	298	6,756	439	17.1	114.7	-62.2	17.3	56.4	40.5	15.6	70.4	75.7	-30.4	48.8	100.0
Menominee	8,901	508	7,995	529	-10.2	31.4	-50.2	6.9	0.8	19.4	0.6	26.2	15.3	-76.6	-33.7	293.3
Midland	11,504	532	16,297	821	41.7	86.0	-62.4	50.3	50.7	17.2	126.9	59.6	58.6	14.3	762.1	35.0
Missaukee	2,367	66	2,073	87	-12.4	49.6	-49.5	-7.4	28.4	-8.0	30.5	41.5	33.7	-55.6	27.2	75.0
Monroe	25,512	2,077	32,420	2,807	27.1	60.9	-45.9	23.7	51.3	33.5	19.1	59.6	66.5	-24.2	-0.2	247.2
Montcalm	11,272	393	12,598	530	11.8	45.7	-50.9	-0.9	28.5	23.1	47.7	37.8	26.8	-39.4	12.2	172.9
Montmorency	1,211	105	1,345	164	11.1	26.3	-48.6	23.7	60.3	14.3	74.1	20.5	45.5	-55.3	65.6	100.0
Muskegon	42,043	3,862	51,703	3,274	22.9	53.4	-49.3	6.3	29.1	12.1	13.4	66.7	30.6	-2.1	-3.1	410.2
Newaygo	6,705	305	7,370	727	9.9	55.0	-48.2	23.1	33.6	25.7	24.7	97.3	87.3	-33.9	-4.5	110.3
Oakland	146,981	5,382	240,861	13,165	63.9	146.0	-48.5	85.4	92.9	38.4	17.6	69.4	74.0	-39.7	13.8	372.1
Oceana	5,220	377	4,951	584	-5.2	25.1	-51.6	-22.2	17.6	155.6	27.0	-25.6	67.5	-38.6	-5.1	35.4

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Ogemaw	2,796	99	2,772	359	-0.9	-4.0	-63.7	-11.4	30.3	30.8	96.4	102.9	67.5	-55.9	16.4	34.8
Ontonagon	2,850	601	3,145	452	10.4	42.6	-60.0	0.4	31.5	107.3	59.4	131.3	45.3	-63.8	-48.2	143.2
Osceola	4,788	206	4,644	230	-3.0	19.3	-56.3	13.7	-1.5	14.2	56.7	1.6	29.4	-62.3	21.0	171.1
Oscoda	916	46	1,086	78	18.6	134.4	-46.7	43.4	81.7	6.2	7.1	0.0	46.7	-85.5	129.6	-20.0
Otsego	2,118	107	2,420	235	14.3	2.4	-58.4	29.0	36.0	42.1	59.0	113.0	80.7	-86.8	-29.1	132.1
Ottawa	27,293	770	34,583	1,359	26.7	74.8	-42.4	15.3	47.7	32.3	22.7	37.3	75.4	-33.0	20.5	67.4
Presque Isle	3,852	174	4,151	234	7.8	53.4	-47.6	42.0	47.6	18.9	56.7	-27.4	93.1	-55.5	-18.8	-37.1
Roscommon	1,823	176	2,231	252	22.4	71.5	-57.5	39.5	69.2	-2.8	18.3	41.7	-10.1	-66.7	-8.7	112.5
Saginaw	57,155	2,378	64,463	3,765	12.8	51.4	-46.5	2.5	27.5	4.8	11.1	33.6	34.3	-45.5	-20.1	161.1
St. Clair	32,600	1,652	35,039	3,130	7.5	48.4	-43.2	-1.5	18.4	3.9	-4.0	92.5	39.8	-47.5	-57.0	162.3
St. Joseph	13,498	530	16,545	720	22.6	32.8	-38.4	3.7	17.2	16.3	34.4	34.5	21.6	-51.8	16.0	999.2
Sanilac	10,727	370	10,930	648	1.9	35.4	-39.1	10.1	4.3	35.3	62.4	-20.7	54.9	-32.4	11.9	170.7
Schoolcraft	2,705	342	2,507	504	-7.3	-9.4	-55.6	0.0	-4.3	-10.6	-8.7	8.5	28.2	-33.8	-16.3	141.2
Shiawassee	17,246	449	18,899	1,176	7.6	46.2	-48.8	-0.6	29.3	23.9	4.2	83.9	41.8	-43.3	8.1	53.9
Tuscola	12,358	358	13,865	709	11.2	45.7	-42.9	-3.8	57.3	45.4	37.6	86.5	55.9	-31.6	7.6	34.0
Van Buren	14,200	699	17,179	1,034	20.9	67.4	-46.1	--	37.9	30.4	34.5	63.8	37.1	10.0	12.6	409.8
Washtenaw	48,110	1,926	65,532	3,312	36.2	75.8	-26.5	29.7	41.7	12.6	12.1	45.3	45.0	-19.7	5.6	275.5
Wayne	983,003	69,209	953,959	88,871	-3.0	26.1	-45.5	-20.7	5.2	-14.7	-22.6	27.6	8.9	-36.2	-20.3	361.0
Wexford	6,372	384	6,284	435	-1.4	13.0	-68.9	1.4	18.4	-0.3	-2.2	12.2	51.0	-74.0	-19.3	58.4
Detroit(S.M.S.A.*)	1,193,344	77,783	1,328,735	111,833	21.2	46.4	39.2	35.2	31.3	18.0	-1.6	91.5	37.7	24.6	10.7	141.9
Lansing(S.M.S.A.*)	90,952	4,117	110,278	5,338	11.3	54.6	-44.3	-0.2	22.6	-0.3	-13.2	37.1	20.7	-39.2	-13.9	359.8

* Detroit Standard Metropolitan Statistical Areas combines Macomb, Oakland, and Wayne counties.
* Lansing Standard Metropolitan Statistical Areas combines Clinton, Eaton, and Ingham counties.

Sources: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., Table 73; U.S. Bureau of the Census. U.S. Census of Population: 1950. Vol. II, Characteristics of the Population, Part 22, Michigan, Chapter B. U.S. Government Printing Office, Washington, D.C., 1952, Table 43.

Appendix B

METHODOLOGY

Appendix B

METHODOLOGY

The original data on vocational curricula and on teacher education and experience were gathered in cooperation with the General Education Division of the Department of Public Instruction, using the Self-Survey Supplements I and II, 1960-61, part of the Self-Survey for Instructional Progress required of all school districts approved by the Superintendent of Public Instruction for the collection of tuition. Those school districts which were not required to fill in these forms were contacted and requests were made of them to provide us with the same information for purposes of our research. The return from these school districts was one hundred per cent, making our research much more valid since these school districts represent the large city systems.

The data so gathered were coded, punched onto IBM cards, and processed, providing the basis for our discussion of curriculum in the body of the report. Since the data provided the Department of Public Instruction were not specifically directed to our research, some materials needed for our analyses were incomplete. In the total curricula we estimated the number of students and the hours taught for many school districts, basing our estimate on the mean number of students, and hours for the particular grade, curriculum, and course. We made no estimates for teacher experience since this was not necessary for our purposes.

In the analysis of the curricula by counties we felt that it would be more accurate to omit those school districts which did not provide complete enough returns. The school districts omitted are found in Table 1.

Several decisions had to be made concerning curricular analysis. After long discussion with members of the Executive Committee it was decided not to separate office education from distributive because of inherent difficulties in classification involved in the data. While we recognize the importance of home economics to the educational process, we felt that its value was less in the vocational field as such than in the field of general education. As a result, many of our analyses dealt only with agriculture, business, and trade and industry. In a similar fashion, counseling data which originally were gathered as part of our research design were omitted because of the inadequacy of defining hours, number of students, or even grade levels at which counseling is offered.

Another problem concerned the distinction between industrial arts and vocational education. Here again, the Executive Committee suggested that no attempt be made to distinguish between these types of courses. In our analysis we did omit courses offered at the pre-high school level as being essentially industrial arts.*

The labor market data and the projections for Michigan were based almost exclusively on the census materials for Michigan. Most of the techniques used are described in the body of the report. The demographic data is almost exclusively derived from Dr. Thaden's study of Michigan census materials and saved the project a great deal of time, effort, and money.

*For complete information on vocational curricula and on teacher education and experience see Vocational Education in Michigan, The Final Report of the Michigan Vocational Education Evaluation Project, East Lansing, Michigan: Michigan State University, College of Education, 1963, Appendix B, pp. 179-249.

Table 1

School Districts Not Included in Vocational Curriculum Analysis Because of Incomplete Data

County	School District	Number of Students in Grades 9-12*
Berrien	Benton Harbor	2047
Calhoun	Albion	721
Chippewa	Rudyard	244
Eaton	Charlotte	820
Hillsdale	Hillsdale	600
Houghton	Portage Township	388
Ingham	East Lansing	1049
Kent	Caledoni	334
Lenawee	Adrian	1187
Mackinac	Garfield Township	116
Macomb	Van Dyke	1285
Manistee	Manistee	628
Marquette	Negaunee	468
Mecosta	Remus	215
Muskegon	Orchard View	199
Oakland	Southfield	1851
	Walled Lake	1669
Ottawa	Holland	1267
St. Clair	Marysville	659
Washtenaw	Lincoln	427
	Ypsilanti	1241
Wayne	Lincoln Park	2737
	Romulus	1082
	Southgate	405
	Taylor Township	2364
Wexford	Cadillac	787

* Fourth Friday Membership, September 30, 1960.

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Hunter, Wilma
Vocational Need Study of Saline, Gallatin, Hardin, and Page Counties.

Southeastern Illinois College, Harrisburg. Board of Education
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The objectives of the study were (1) to determine the functions of businesses, the number working in these businesses, the job titles of the workers, the educational qualifications of workers, and the potential student enrollment at Southeastern Illinois College, and (2) to organize and develop the information for use in curriculum development. A saturation study was made of all employees in the telephone directories of the area and of their employees by separate employer and employee questionnaires. The functions of businesses indicated a general trend away from rural activities such as agriculture, mining, and transportation toward more urban activities such as manufacturing, professional, and educational services. Of the employed labor force, retailing accounted for 20 percent, services for 23 percent, agricultural employment for 10 percent, manufacturing for 10 percent, and mining for 8 percent. The operative category accounted for 20 percent of the labor force, clerical and sales for 17 percent, craftsmen and foremen for 16 percent, semiprofessional for 15 percent, and professional for 8 percent. Most of the employees had a high school diploma and 3 percent had a college education compared with 7 percent for the state and more than 7 percent for the United States. More than half of the employees indicated a desire to take additional courses and named a wide variety. The need for higher education was apparent. A description of the counties and tabular data are included. (MM)

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VOCATIONAL NEED STUDY
OF
SALINE, GALLATIN, HARDIN, AND POPE COUNTIES.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

A Study Conducted
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Project Sponsors

Board of Education
Southeastern Illinois College
Harrisburg, Illinois

Board of Vocational Education
and Rehabilitation
Vocational and Technical Education Division
Springfield, Illinois

Fall, 1965

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The project director wishes to acknowledge the contributions to the project made by employers of Saline, Gallatin, Hardin, and Pope Counties who allowed the survey made of their establishment and, also, the contributions made by responding employees. Cooperation from both employers and employees was essential in making this study.

In addition, the project director wishes to acknowledge information and assistance made by:

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Board of Education, Southeastern Illinois College, Harrisburg, Illinois

Dr. Harves Rahe, Chairman of Secretarial-Business Education Department, Southern Illinois University, Carbondale, Illinois

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Chapter I

INTRODUCTION

OBJECTIVES OF THE VOCATIONAL NEED STUDY

I. To determine for Saline, Gallatin, Hardin, and Pope Counties

   A. The functions of the businesses in the area.

   B. The number of persons working in these businesses.

   C. Specific functions of the workers in this area (Job Titles).

   D. The present educational qualifications of these workers.

   E. The potential student enrollment at Southeastern Illinois College for programs in various areas.

II. To organize and develop the above information in a manner which will lend itself to curriculum development.

THE NATURE OF THE STUDY

An area including four counties (Saline, Gallatin, Hardin, and Pope) in Southeastern Illinois was selected for study. The basic design was directed toward future use of information developed by this study in curriculum development at Southeastern Illinois College.

The employment of the area was studied. The first step in the procedure was using the listing in the telephone directories in the area. A list of all employers in the directories was compiled. The employers were then classified according to category.

Statistical inference from a sample was not used in this study; this was a saturation study of employees and of firms which employed within

this area, and the descriptive information contained in this report is parametric information for the area.

The report of this study presents information and recommendations relating to the nature and extent of a certain educational need. Decisions relating to the solution of any educational problem in this area remain where they have always been - in the hands of the citizens of the area.

Chapter II

DESCRIPTION OF THE COUNTIES
Saline, Gallatin, Hardin, and Pope

The counties of Saline, Gallatin, Hardin, and Pope are located in the southeastern portion of Illinois. Their territory extends from the Ohio River on the east to the counties of Franklin, Williamson, Johnson, and Massac on the west; they are bounded on the north by Hamilton and White counties and on the south by the Ohio River and Massac County.

The beautiful hills extend from the north and northwestern part. Along the southern border are more rugged hills. In the central area is the flat land, the Saline Plains region, used for agriculture. Along the eastern boundary lies the Ohio River which has territory very different from the rest of the area. The Shawnee Hills Region is within the Shawnee National Forest and is a valuable source of timber. In this region are the picturesque rock formations of great attraction to tourists.

The western part of Saline County is related to the coal mining counties to its west; the central areas and eastern Saline and Gallatin are agriculturally oriented; the national forest is most important to the counties of Hardin and Pope. The counties are similar in their history, culture, and in their governmental administration.

According to the U. S. Census Reports, the area has had a decrease in total employment from 1950 to 1960 with a corresponding increase in unemployment during the same time. (Table II) Agriculture represents the greatest loss, according to the report, but all reported occupations have

had decreases.

There are manufacturing plants in the area, with two employing over 100 people.

A reflection of loss of jobs and consequently a loss of population was shown for the area from 1940 through 1960, according to the U. S. Census reports. (Table I) In 1940 the labor force amounted to 37,272 persons; in 1960, 25,917 persons (or about 3% loss).

The U. S. Census report of 1960 indicated that the median scho l years completed by adults of the area averaged about 8.5, but this study revealed that employees now generally hold a high school diploma. Through the GED classes at Southeastern Illinois College, many area people have had an opportunity to study and take an examination to be able to receive their high school diplomas.

The median income of the families in the area is about $2,500 as compared to more than $5,500 for the state and more than $4,700 for the nation. The extremes of low and high income brackets in the area are not as prevalent, however, as in other parts of the state.

However, recent developments in the area are beginning to bring about an optimistic outlook. Specifically, the growth of Southeastern Illinois College at Harrisburg, the expansion of the Shawnee National Forest in Pope, Hardin, and Gallatin counties, the Ohio River Bridge at New Haven and at Shawneetown, the establishment of the Saline Valley Conservancy District, the establishment of a state-residential school for the mentally retarded (the A. L. Bowen Children's Center in Harrisburg), the Job Corps at Golconda, Economic Opportunity Programs in the area, and the growing number of community planning programs are all evidence of progress being made in the area of southeastern Illinois. Every successful

project contributes toward the general area development.

TABLE I

POPULATION TRENDS

COUNTY	1900[a/]	1910[a/]	1920[a/]	1930[a/]	1940[a/]	1950[a/]	1960[a/]	1964[b/]
Gallatin	15,836	14,628	12,856	10,091	11,414	9,818	7,638	6,900
Hardin	7,448	7,015	7,533	6,955	7,759	7,530	5,879	5,400
Pope	13,585	11,215	9,625	7,996	7,999	5,779	4,061	3,600
Saline	21,685	30,204	38,353	37,100	38,066	33,420	26,227	23,500

a/ Source: U. S. Census of Population, 1900, 1920, 1940, 1960.

b/ Estimated Population, Vital Statistics, Department of Public Health, State of Illinois.

TABLE II

NUMBER OF UNEMPLOYED IN THE LABOR FORCE

COUNTY	NUMBER OF UNEMPLOYED		PERCENT OF TOTAL LABOR FORCE		
	1950[a/]	1960[a/]	1950	1960	Study[b/]
Gallatin	232	156	7.5	6.9	13.3
Hardin	74	76	3.4	4.5	18.9
Pope	71	160	3.7	12.6	21.7
Saline	573	819	5.3	9.9	N.A.

a/ Source: U. S. Census of Population, 1950, 1960.

b/ Illinois Employment Office, Harrisburg, reported per cent of unemployed 1964 annual average of total labor force.

TABLE III

PROJECTIONS OF THE EMPLOYED LABOR FORCE BY INDUSTRY GROUP
SALINE AND GALLATIN COUNTY
1960-1985

INDUSTRY GROUP	NUMBER		PERCENT OF TOTAL[a/]	
	1960	1985	1960	1985
Agriculture	1,245	720	13.0	9.0
Mining	1,004	560	10.5	7.0
Manufacturing	1,013	960	10.6	12.0
Retail trade	1,816	1,680	19.0	21.1
Wholesale trade	238	160	2.5	2.0
Services	2,179	2,220	22.8	27.8
Public administration	289	280	3.0	3.5
Other	1,759	1,400	18.6	17.6
Total	9,543	7,980[b/]	100.0	100.0

a/ Per cent of total employed labor force.

b/ The figure represents 31.8% of the 1985 population of 25,100 expected for the area.

Source: General Planning and Resource Consultants, Inc., 1964; projections based upon U. S. Census of Population, 1960.

Note that in the table an increase is indicated only for services employment - but that the ratio of employed to total population also is expected to rise significantly from the 28.2% shown in the table of number of employed by industry group. It would appear to be essential to make a considerable effort to increase the value of the jobs to be filled; the higher the income per job, the more adequately the non-worker population will be supported. It follows, too, that in order to fill higher valued jobs, there should be an adequately trained labor force available.

TABLE IV

NUMBER OF EMPLOYERS

Saline County

TOWN	
Harrisburg	556
Eldorado	213
Raleigh	9
Galatia	35
Carrier Mills	54
Muddy	7
Harco	3
Stonefort	13
Total	890

Gallatin County

Ridgway	74
Shawneetown	98
Omaha	20
Equality	7
Total	199

Pope County

Golconda	68
Dixon Springs	1
Robbs	5
Eddyville	2
Reevesville	1
Brownfield	3
Total	80

Hardin County

Cave-in-Rock	48
Hicks	15
Elizabethtown	44
Rosiclare	93
Total	200

Chapter III

CONDUCT OF THE STUDY

METHOD USED

Personal contact was used wherever possible throughout this survey. During the interview with the firms, employees were identified and listed by name, and if the cooperation of the management of the firm was extended, the employee was interviewed and the questionnaire was filled out. When the employee could not be personally contacted, the name and address was secured and the same information was gathered by interviewing the manager (or a designated person).

INSTRUMENTS USED IN THE STUDY

During the gathering and compiling of the lists of employers, two instruments were developed for use in this study. The first of these instruments was a structured interview in interviewing employers. The second was a questionnaire used for obtaining information from the employee.

Appendix I contains the final form of the news release, the cover sheet presented to the employer, and the structured interview used in interviewing the various employers. Appendix II contains the employee questionnaire.

Each employer was given a sheet of explanation. The vast majority of the employers extended cooperation freely. Their general concensus was that they needed a local source of highly trained and educated workers.

They perceived this study as a means of gaining information for themselves and their employers, and as the employment trends in the counties.

The interviewing proved to be time consuming, and in many cases the employer was more than willing to pass along the questionnaire to employees on different shifts and return them to the project director. A few employers were hesitant about giving out information, but were generally willing. Generally, the persons who had less than a high school education proved to be the least cooperative.

Plans are underway to place the information on IBM cards, and analysis will be completed later by Southern Illinois University.

Chapter IV

ANALYSIS OF EMPLOYER INTERVIEW FORMS

The instrument used to gather information from and about the employers of Saline, Gallatin, Hardin, and Pope Counties was an interview form which was completed by the interviewer during the visit to the place of employment. This interview form is in Appendix I of this report. The information necessary to complete this form often came from different sources. It was necessary, particularly when dealing with larger sources of employment, to gather information from several different people.

The first part of this form is concerned with identification of the person or persons contacted. Identification of the contacts were recorded for the purpose of assuring continuity of contact in case it was necessary to make subsequent visits. The contact classification of hired manager and owner-manager appear most frequently as the initial contact with most employers. If persons of lower levels of management were first contacted, it was usually necessary to later contact higher levels of management to obtain the cooperation of the employees.

The following tables show an analysis of employment in the area:

TABLE V

COMPARISONS OF AVERAGE TOTAL LABOR FORCE

COUNTY	NUMBER	PERCENT OF TOTAL POPULATION
Gallatin	1,557	20.3
Hardin	1,642	27.9
Pope	1,178	26.5
Saline	6,960	26.4
Illinois*	4,124,547	

*U. S. Census Report, 1960.

TABLE VI

AVERAGE TOTAL EMPLOYEES IN MANUFACTURING

COUNTY	NUMBER	PERCENT OF TOTAL EMPLOYED LABOR FORCE
Gallatin	265	19.5
Hardin	51	3.1
Pope	63	5.4
Saline	770	11.1

TOTAL EMPLOYED LABOR FORCE

Gallatin	1,557
Hardin	1,642
Pope	1,178
Saline	6,960

TABLE VII

NUMBER OF RETAIL STORES BY BUSINESS GROUP

GROUP	SALINE	GALLATIN	HARDIN	POPE
Lumber, hardware, etc.	31	17	10	6
General merchandise	10	12	9	5
Food stores	96	21	15	6
Automotive dealers	22	6	5	3
Gasoline service stations	66	19	15	10
Apparel accessories	22	1	1	2
Furniture, appliance, etc.	23	6	2	1
Eating and drinking	41	25	15	10
Drug-proprietary	12	4	3	2
All other	69	10	4	6
Total	392	121	79	51

TABLE VIII

AVERAGE NUMBER OF WOMEN EMPLOYEES

COUNTY	NUMBER	PERCENT OF TOTAL
Gallatin	495	23.5
Hardin	357	21.7
Pope	285	24.2
Saline	2,287	29.8

TABLE IX

LABOR SUPPLY COMPOSITION OF AREA*

	PERCENT
Skill - Semi-skilled	17
Unskilled and entry	9
Clerical and sales	17
Skilled	15
Serv. workers	28
Others	14

AGE GROUP	PERCENT
Under 35	50
35-44	19
45-54	18
55-	13

*Poverty in a Section of Egypt U.S.A. as recommended by the Saline Valley Conservancy District.

TABLE X

SALINE COUNTY

AVERAGE NUMBER OF EMPLOYEES BY INDUSTRY

KIND OF INDUSTRY	NUMBER	RANK
Agriculture	647[a/]	4
Business services	43	22
Communications	100	19
Constructions	534	5
Eating and drinking places	170	16
Education	402	8
Entertainment and recreation	60	21
Finance, insurance and real estate	325	9
Food and dairy products stores	275	11
Other retail stores	1100	1
Forestry and fisheries	95	20
Hospitals and nursing homes	291	10
Manufacturing	800	3
Mining	902	2
Personal service	410	7
Public administration	240	12
Transportation	411	6
Repair service	150	17
Utilities	190	14
Wholesale trade	185	15
Non-profit organizations	115	18
Not reported	220	13

[a/] Source of number employed in agriculture is the U. S. Census of Population, 1960. Perhaps this figure is less now with the estimated decrease in overall population.

TABLE XI

SALINE COUNTY

JOB TITLES OF EMPLOYEES

JOB TITLE	NUMBER		PERCENT	
Professional and technical	645		9.242	
Engineering, technical		30		0.429
Medical and health		79		1.131
Teaching		250		3.582
Other		286		4.098
Managers, officials	601		8.611	
Salaried		319		4.570
Self employed, retail		198		2.837
Other		94		1.346
Sales	663		9.499	
Retail		445		6.376
Other		218		3.123
Craftsman and foreman	1282		18.369	
Construction		455		6.519
Foreman		97		1.389
Mechanic		366		5.244
Metal craftsman		31		0.444
Other		333		4.771
Operative	1513		21.679	
Driver and deliveryman		508		7.278
Other		1005		14.400
Service workers	900		12.895	
Protective		48		0.687
Waiter, bartender, cooks, counter worker		242		3.467
Other		610		8.740
Laborers	501		7.178	
Construction		111		1.590
Manufacturing		35		0.501
Other		355		5.086
Clerical	625		8.955	
Secretary, stenographer and typist		144		2.063
Other		481		6.892
Other	689		3.567	
Known not to be reported		220		3.567

TABLE XII

SALINE COUNTY

AVERAGE NUMBER EMPLOYED IN THE VARIOUS CATEGORIES OF MANUFACTURING

CATEGORY OF MANUFACTURING	NUMBER
Furniture, lumber, etc.	40
Primary metal industry	0
Fabricated metal industry	25
Machinery, including elec.	80
Motor vehicles	5
Foods	290
Textile mill products	0
Apparel and other fabricated	130
Printing, publishing, etc.	110
Chemicals, etc.	50
Other	70

TABLE XIII

GALLATIN COUNTY

AVERAGE NUMBER OF EMPLOYEES BY INDUSTRY

KIND OF INDUSTRY	NUMBER EMPLOYED	RANK
Agriculture	598[a/]	1
Communications	29	12
Construction	85	8
Eating and drinking places	90	7
Education	125	4
Entertainment and recreation	15	13
Finance, insurance, and real estate	15	13
Food and dairy products stores	85	8
Other retail stores	195	3
Forestry and fisheries	8	15
Manufacturing	265	2
Mining	100	5
Public administration	90	7
Personal service	125	4
Repair service	35	11
Transportation	75	9
Utilities	10	14.
Wholesale trade	50	10
Non-profit organizations	15	13
Other professional and related service	15	13
Not reported	98	6

a/ The number employed in agriculture was the number given in the 1960 U. S. Census Report.

TABLE XIV

GALLATIN COUNTY

AVERAGE NUMBER EMPLOYED IN THE VARIOUS CATEGORIES OF MANUFACTURING

CATEGORY OF MANUFACTURING	NUMBER EMPLOYED
Furniture, lumber, etc.	130
Primary metal industry	0
Fabricated metal industry	5
Machinery, including elec.	15
Motor vehicles	5
Transportation equipment	5
Foods	60
Textile mill products	5
Apparel and other fabricates	10
Printing, publishing, etc.	15
Chemicals, etc.	5
Other	10

TABLE XV

GALLATIN COUNTY

JOB TITLES OF EMPLOYEES

JOB TITLE	NUMBER	PERCENT
Professional and technical	141	9.7
Engineering, technical	4	.3
Medical and health	17	1.2
Teaching	67	4.6
Other	53	3.6
Managers, officials	156	10.7
Salaried	74	5.1
Self-employed, retail	57	3.9
Other	25	1.7
Sales	134	9.2
Retail	102	7.0
Other	32	2.2
Craftsman and foreman	221	15.1
Construction	65	4.5
Foreman	18	1.2
Mechanic	55	3.8
Metal craftsman	8	.5
Other	75	5.1
Operative	380	26.0
Driver and Deliveryman	97	6.6
Other	283	19.4
Service workers	229	15.8
Protective	28	1.9
Waiter, bartender, cook, counter worker	106	4.3
Other	95	6.5
Laborers	158	10.8
Construction	103	7.1
Manufacturing	16	1.1
Other	39	2.7
Clerical	40	2.7
Secretary, stenographer, and typist	18	1.2
Other	22	1.5
Known not to be reported		

TABLE XVI

HARDIN COUNTY

AVERAGE NUMBER OF EMPLOYEES BY INDUSTRY

KIND OF INDUSTRY	NUMBER EMPLOYED	RANK
Agriculture	132[a/]	2
Business services	4	17
Communications	25	14
Constructions	92	5
Eating and drinking places	44	10
Education	103	3
Finance, insurance, and real estate	46	9
Food and dairy products stores	87	6
Other retail stores	85	7
Forestry and fisheries	37	11
Hospitals and nursing homes	31	12
Manufacturing	58	7
Mining	586	1
Personal service	94	4
Public administration	54	8
Repair service	30	13
Transportation	4	18
Utilities	5	16
Wholesale trade	16	15
Non-profit organizations	5	16
Other professional and related service	16	15
Known not reported	31	12

a/ Source of agriculture employment: U. S. Census of Population, 1960.

TABLE XVII

HARDIN COUNTY

AVERAGE NUMBER EMPLOYED IN THE VARIOUS CATEGORIES OF MANUFACTURING

CATEGORY OF MANUFACTURING	NUMBER EMPLOYED
Furniture, lumber, etc.	9
Primary metal industry	-
Fabricated metal industry	-
Machinery, including elec. (welding)	8
Motor vehicles	-
Transportation equipment	-
Foods	-
Textile mill products	-
Apparel and other fabricated (plastic)	5
Printing, publishing, etc.	6
Chemicals, etc.	-
Other	30

TABLE XVIII

HARDIN COUNTY

JOB TITLES OF EMPLOYEES

JOB TITLE	NUMBER	PERCENT
Professional and technical	230	14.007
Engineering, technical	91	5.542
Medical and health	34	2.070
Teaching	51	3.105
Other	54	3.288
Manager, official	244	14:859
Salaried	65	3.958
Self employed, retail	57	3.471
Other	122	7.429
Sales	135	8.221
Retail	72	4.384
Other	63	3.836
Craftsman and foreman	235	14.311
Construction	78	4.750
Foreman	38	2.314
Mechanic	62	3.775
Metal craftsman		
Other	57	3.471
Operative	448	27.283
Driver and deliveryman	79	4.811
Other	369	22.472
Service workers	157	9.561
Protective	26	1.583
Waiter, bartender, cook, counter worker	61	3.714
Other	70	4.263
Laborers	70	4.263
Construction	13	0.791
Manufacturing	5	0.304
Other	52	3.166
Clerical	84	5.115
Secretary, stenographer and typist	30	1.827
Other	54	3.288
Not reported	39	2.375

TABLE X-IX

POPE COUNTY

AVERAGE NUMBER OF EMPLOYEES BY INDUSTRY

KIND OF INDUSTRY	NUMBER EMPLOYED	RANK
Agriculture	276[a/]	1
Business services	5	21
Communications	9	18
Constructions	78	6
Eating and drinking places	17	14
Education	83	4
Entertainment and recreation	8	19
Finance, insurance, and real estate	4	22
Food and dairy products stores	42	10
Other retail stores	88	3
Forestry and fisheries	8.	19
Manufacturing	63	12
Mining	81	7
Personal service	12	17
Public administration	104	2
Repair service	19	16
Transportation	49	8
Utilities	8	19
Wholesale trade	12	17
Non-profit organizations	8	19
Other professional and related serv.	16	15
Not reported	43	9

a/ Source of agriculture employment figure - U. S. Census of Population, 1960.

TABLE XX

POPE COUNTY

AVERAGE NUMBER EMPLOYED IN THE VARIOUS CATEGORIES OF MANUFACTURING

CATEGORY OF MANUFACTURING	NUMBER EMPLOYED
Furniture, lumber, etc.	8
Primary metal industry	4
Fabricated metal industry	-
Machinery, including elec.	-
Motor vehicles	5
Transportation equipment	8
Foods	4
Textile mill products	4
Apparel and other fabricated	15
Printing, publishing, etc.	4
Chemicals, etc.	7
Other	8

TABLE XXI

POPE COUNTY

JOB TITLES OF EMPLOYEES

JOB TITLE	NUMBER	PERCENT
Professional and technical	107	9.1
Engineering, technical		
Medical and health	20	1.7
Teaching	42	3.6
Other	45	3.8
Manager, official	66	5.6
Self-employed	37	3.1
Retail	21	1.8
Other	8	0.7
Sales	94	8.0
Retail	78	6.6
Other	16	1.4
Craftsman and foreman (& kindred)	98	8.3
Construction	42	3.6
Foreman	5	0.4
Mechanic	39	3.3
Metal worker		
Other	12	1.0
Operative	164	13.9
Driver and deliveryman	34	2.9
Other	130	11.0
Service worker	102	8.7
Protective	31	2.6
Waiter, bartender, cook, counter worker	26	2.2
Other	45	3.8
Laborer	62	5.3
Construction	17	1.4
Manufacturing	20	1.7
Other	25	2.1
Clerical	442	3.7
Secretary, stenographer and typist	144	12.2
Other	298	25.3
Known not to be reported	43	3.7

Chapter V

ANALYSIS OF EMPLOYEE QUESTIONNAIRES

The questionnaire form used in this analysis is in Appendix II.

ACTIVITIES AND DUTIES OF EMPLOYEES

Data in the tables for analysis of Employee Questionnaires is strictly that reported by or for the employees.

In working with with people outside the firm, meeting people was checked three times more often than anything else. (Table XXII)

In working with personnel in the firm, appraising work of others led the list with the training of others and supervising others following.

Using technical and service manuals and parts lists was checked almost one and one half as often as any other in working with production, products, materials, or service. Working with firm's or customer's equipment, tools, supplies, and instruments revealed that operating was by far the leading activity with 1260 checked, as compared to the next highest of maintaining, which was checked 840 times.

Keeping records and accounts was checked 1720 times, as compared to the next highest of filing, 1544, and handling money, 1440, in the activity of working with business problems.

The thirteen leading areas with which worker must be familiar to do job were as follows: (1) Business principles

(2) English

(3) Accounting

(4) Office procedure

(5) Maintenance

(6) Business management

(7) Clerk typist

(8) Stenographer

(9) Mining

(10) Lumber

(11) Hydraulics

(12) Shop work

(13) Salesmanship

EDUCATION

Only a few employees indicated less than a high school education; while only a small percent reported a college education or better.

COURSES REQUESTED

Courses requested varied a great deal. Many indicated a desire, but did not know what to request. It was general, though, that half of the employees do desire to take additional courses. (TableXXIII)

TABLE XXII

ACTIVITIES AND DUTIES OF EMPLOYEES AS REPORTED

A. Working with People Outside Firm	
Meeting people	3101
Selling	1008
Advising, consulting and diagnosing	1210
Estimating costs	940
Buying	770
Other	630
B. Working with Personnel in Firm	
Handling men	620
Inducting new personnel	670
Training others	1370
Appraising work of others	1433
Supervising others	1311
Other	280
C. Working with Production, Products, Materials, or Service	
Designing	260
Making and building	311
Sketching and drawing	222
Mixing	200
Assembling	510
Inspecting	660
Testing	790
Calculating costs	800
Conducting research	160
Using technical and service manuals, parts lists	1077
Developing techniques	220
Planning production or service	544
Other	330
D. Working with Firm's or Customers' Equipment, Tools (hand or power), Supplies and Instruments	
Constructing above	0
Designing	60
Repairing	380
Operating	1260
Assembling	333
Calibrating	110
Remodeling	111
Adjusting	299
Maintaining	840
Inspecting, Testing, Trouble Shooting	688
Installing	321
Selecting	299
Other	30

E. Working with Business Problems	
Policy-making	477
Planning	866
Promoting	654
Handling money	1440
Keeping records and accounts	1720
Writing articles, copy, etc.	790
Making speeches	594
Filing	1544
Inventorying	773
Making tech. reports	755
Reading tech. reports	711
Decision making	1530
Other	33

AREAS WITH WHICH WORKER MUST BE FAMILIAR TO DO JOB

Accounting	1460
Advertising	260
Agricultural chemicals	60
Agricultural economics	70
Animal diseases	50
Animal nutrition	50
Architecture	90
Business management	1180
Business principles	2100
Carpentry	200
Chemistry	50
Clerk	850
Clerk typist	1180
Credit	420
Crops	60
Dairy	60
Drafting and design	300
Electricity	390
Electronics	100
English	1920
Farm buildings	110
Farm conveniences	60
Farm mechanics	60
Feeds	60
Floriculture	0
Food handling	366
Food management	60
Food processing	400
Foreign language	2
Forestry	206
General agriculture and rural life	155
Government	395
Graineries	20
Heat	130
Horse training	5
Housekeeping	580

Hydraulics	650
Insurance	340
Livestock	150
Lumber	610
Maintenance	1310
Mathematics	540
Mechanics	580
Medical records	58
Medicine	380
Metallurgy	200
Mining	837
Nursing	290
Office procedure	1340
Physics	20
Plant diseases	40
Plumbing	100
Poultry	20
Rural recreation	6
Salesmanship	570
Shop work	580
Soils	50
Soil and water management	50
Sound and light	40
Stenographer	980
Taxes	860
Tractors and other power units	100
Trucking	225

TABLE XXIII

SPECIFIC COURSES DESIRED	NUMBER DESIRING COURSE
Accounting	75
Administration-business	4
Administration-education	3
Administration-library	2
Advertising	1
Agriculture	4
Algebra	1
Anthropology	1
Advanced nursing	2
Advanced statistics	1
Architecture	1
Art	5
Auto mechanics	4
Banking	1
Blue print reading	1
Book selecting	1
Business courses	18
Business law	42
Business letters	2
Business machines	3
Business management	15
Business procedure	2
Braising	2
Chemistry	4
Civil engineering	1
Cooking	5
Counseling	24
Credit	4
Drama	16
Drafting	2
Dynamics	1
Economics	8
Education	4
Electricity	10
Electronics	7
English	94
Factory engineering	1
Finance	1
First aid	1
Flotation engineering	1
Foreign language	3
Geriatrics	1
Guidance	37

SPECIFIC COURSES DESIRED	NUMBER DESIRING COURSE
Government	4
History	1
Hygiene	4
Insurance	1
Interior decorating	1
Interpretive courses	1
Journalism	2
Marketing	1
Mathematics	39
Mechanical drawing	2
Mental retardation	1
Music	10
Nursing	1
Ore dressing	1
Physical Education	2
Physical science	1
Philosophy	1
Program planning	1
Psychology	55
Public relations	1
Reading	2
Real estate law	2
Research methods	1
Records management	2
Sanitary service	1
Science	3
Secretarial courses	1
Sewing	2
Shorthand	44
Speech	9
Sociology	35
Social science	5
Soil conservation	1
Statistical engineering	1
Statistics	19
Techniques of supervision	1
TV - radio	1
Typing	20
Welding	2
Zoology	4

Average education level of employees as reported	12.73

CONCLUSION

Information has been collected from employers and employees relevant to determining for Southeastern Illinois the need for vocational and technical education for persons living in the area. The study has been designed to determine the functions of the businesses in the area, the number of persons working in these businesses, the job titles of these workers, the employee educational level, and the potential student enrollment at Southeastern Illinois College for programs in the various areas.

The functions of the businesses include a general trend in the direction away from rural activities (agriculture, mining, and transportation) toward more urban activities such as manufacturing, professional, and educational services. Related to this shift in employment is the finding that retailing has a great percentage of employees. It is important to realize that retail trade provides not only employment for the people in the area, but is also vital in its distribution of products to the residents and provides tax revenues to the communities throughout the area through the sales tax. (By adding the catering services to the category of retailing their combined employment accounts for 20% of the employed labor force.)

All services make up approximately 23% of the labor force of the area. These services include personal services, business services, professional services, as well as educational services.

Agricultural employment is about 10% of the entire labor force.

The average employment by the mining companies is about 8% of the present total employment.

Perhaps manufacturing employment in the terms of the jobs it makes available is the most important. In addition, the contributions of manufacturing is important to the regional economy. The number of jobs in individual manufacturing establishments range from 10 to 200. The largest manufacturing employer is the total food industry--the bakery, beverage, dairy, meat packing and popcorn packaging. Furniture, lumber and wood products rank second; apparel and associated products rank third; and printing and publishing rank fourth. All manufacturing provides about 10% of the area's total employment.

As to the specific job titles of employees, the operative category leads in the number of employed. This operative category includes operators of a wide range of mechanical equipment, and associated with mining, manufacturing, and to some extent with transportation and construction. Employees with this job title comprise 20% of the labor force.

The employment in clerical and sales is 17%; Craftsmen and foremen, 16%; Semi-professional, 15%; Professional, 8%.

According to the U. S. Census Report of 1960, the educational level of the adult population was 8.6 for Southeastern Illinois; however, this study reveals that the employees will generally have a high school diploma. Three percent of the employees have a college education; as compared to more than 7% for the state and more than 7% for the United States.

More than half of the employees have indicated a desire to take additional courses. The courses listed are a wide variety.

With vocational courses being added to the curriculum at Southeastern, the employers will be able to require higher standards for initial employment.

Therefore, the present employees will need to take courses to keep pace with the younger employees who are attending and graduating from Southeastern. A satisfactory local supply of trained people will add to the attractiveness of the area to industry who might be interested in locating here.

From this study, the need for higher education is most apparent. Government employment in the area has increased since the establishment of the Bowen Children's Center, the State Prison at Vienna, the Job Corps at Golconda, and the Federal Vocational Educational Programs in Saline County. Southeastern has already added new curricula to meet the needs. If further realization of the opportunities afforded both vocationally and academically by Southeastern is to be realized, it must lie with the people of Southeastern Illinois. Southeastern Illinois College is ready to serve!

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APPENDICES

APPENDIX I

NEWS RELEASE

FROM: Mrs. Guy J. Hunter
Chairman, Business Department
Southeastern Illinois College
Harrisburg, Illinois 62946

RE: Vocational Need Study

A Vocational Need Study of Saline, Gallatin, Pope, and Hardin Counties is being conducted by Mrs. Wilma Hunter, Chairman of Business Department of Southeastern Illinois College in cooperation with the State of Illinois, Department of Vocational Education, Springfield, Illinois.

Information is being collected from employers and employees relevant to determine for Southeastern Illinois the need for vocational and technical education for persons living in the area. The study is designed to determine the number of practicing technicians, the specific functions of the technicians, the educational qualifications of the technicians, the educational qualifications of the technicians as desired by themselves and their employers, the potential student enrollment for programs in various areas, and to organize and develop the above information in a manner which will lend itself to curriculum development at Southeastern Illinois College.

The information collected will be strictly confidential and will be handled as research data available only for analysis by the vocational staff. The purpose, of course, is to compile data that will aid in furthering the development of the vocational curriculum at Southeastern Illinois College.

The employers and employees of the area will be contacted and asked for their cooperation in reporting needed information to complete the study.

APPENDIX I

(COVER SHEET - PRESENTED TO EMPLOYER AND EMPLOYEE)

FOUR COUNTY VOCATIONAL NEED SURVEY (FALL, 1965)

A Vocational Need Survey is being conducted in Saline, Gallatin, Pope, and Hardin Counties. Information is being collected from employers and employees relevant to aid in future curriculum development at Southeastern Illinois College.

We are asking your cooperation by giving us information for a questionnaire. Your cooperation in accurately reporting will determine the success or failure of this project. This study is completely impartial to employer-employee relations of your company.

The information given by you is strictly confidential and will be handled as research data available only for analysis by our staff. Our purpose is to compile statistics which will aid us in furthering our curriculum.

Your cooperation is most urgently solicited and sincerely appreciated.

Southeastern is always willing and ready to serve you through its curriculum, its staff, and its placements service. We would be happy to have you contact us for further information.

Sincerely,

Mrs. Wilma Hunter
Chairman, Business Education
at Southeastern Illinois College

APPENDIX I

EMPLOYER

FORM I

I. FIRM NAME, ADDRESS _____ DATE _____

II. NAME, ADDRESS AND PHONE NUMBER OF PERSON INTERVIEWED _____

_____

_____

_____

III. Position of interviewed: 1 Owner 2 Owner Mgr 3 Hired Mgr 4 Personnel Dir 5 Sales Mgr 6 Service Mgr 7 Eng 8 Chief or Supervising Eng 9 Office Mgr 10 Other _____

IV. Functions of Firm

0 incidental x significant
xx major

_____ Job Shop
_____ Mass Prod.
_____ Purchasing
_____ Service
_____ Constructing
_____ Retailing
_____ Manufacturing
_____ Warehousing
_____ Processing
_____ Wholesaling
_____ Contracting
_____ installation
_____ Other _____

V. Firm Products, Service, Functions

_____

_____

_____

_____

_____

_____

_____

VI. Type of Business

_____ Percentage of business agricultural oriented

_____ Percentage of business non-agricultural

VII. Complexity of Operations

____ Low ____ Med ____ High

____ Total number workers (Owners and employees)

____ % Turnover total employees

VIII. Job Titles and Number of Workers in Each

APPENDIX II

EMPLOYEE

FORM 2

I. Name and Address of Employee_____

_____

II. Name and Address of Firm_____

_____

III. Job Title_____

IV. Alternative Titles_____

V. Source and Location of Job in Company Dept., Div., etc._____

_____

VI. Number of Workers with Title_____

VII. Activities and Duties of Persons with this Job Title

A. Working with People Outside Firm
_____Meeting people
_____Selling
_____Advising, consulting and diagnosing
_____Estimating costs
_____Buying
_____Other_____

B. Working with Personnel in Firm
_____Handling men
_____Inducting new personnel
_____Training others
_____Appraising work of others
_____Supervising others
_____Other_____

C. Working with Production, Products, Materials, or Service
_____Designing
_____Making and building
_____Sketching and drawing
_____Mixing
_____Assembling
_____Inspecting
_____Testing
_____Calculating costs
_____Conducting research
_____Using technical and service manuals, parts lists
_____Developing techniques
_____Planning production or service
_____Other_____

D. Working with Firm's or Customers' Equipment, Tools (hand or power), Supplies and Instruments

_____Constructing above
_____Designing
_____Repairing
_____Operating
_____Assembling
_____Calibrating
_____Remodeling
_____Adjusting
_____Maintaining
_____Inspecting, Testing, Trouble Shooting
_____Installing
_____Selecting
_____Other_____

E. Working with Business Problems

_____Policy-making
_____Planning
_____Promoting
_____Handling money
_____Keeping records and accounts
_____Writing articles, copy, etc.
_____Making speeches
_____Filing
_____Inventorying
_____Making tech. reports
_____Reading tech. reports
_____Decision making
_____Other_____

VIII. Areas with which Worker MUST be Familiar to do Job

	Training for Area
	Adequate-Barely Adequate-Inadequate-Unrelate
_____Accounting	
_____Advertising	
_____Agricultural chemicals	
_____Agricultural economics	
_____Animal diseases	
_____Animal nutrition	
_____Architecture	
_____Business management	
_____Business principles	
_____Carpentry	
_____Chemistry	
_____Clerk	
_____Clerk typist	
_____Credit	
_____Crops	
_____Dairy	
_____Drafting and design	
_____Electricity	
_____Electronics	
_____English	
_____Farm buildings	
_____Farm conveniences	
_____Farm mechanization	

Areas (cont'd)	Training for Area Adequate-Barely Adequate-Inadequate-Unrelated
_____Feeds	
_____Floriculture	
_____Food handling	
_____Food management	
_____Food processing	
_____Foreign language	
_____Forestry	
_____General agriculture and rural life	
_____Government	
_____Graineries	
_____Heat	
_____Horse training	
_____Housekeeping	
_____Hydraulics	
_____Insurance	
_____Livestock	
_____Lumber	
_____Maintenance	
_____Mathematics	
_____Mechanics	
_____Medical records	
_____Medicine	
_____Metallurgy	
_____Mining	
_____Nursing	
_____Office procedure	
_____Physics	
_____Plant diseases	
_____Plumbing	
_____Poultry	
_____Rural recreation	
_____Salesmanship	
_____Shop work	
_____Soils	
_____Soil and water management	
_____Sound and light	
_____Stenographer	
_____Taxes	
_____Tractors and other power units	
_____Trucking	

IX. Educational History

Highest grade completed (circle)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Degree _____

From _____

University

List specific courses which you now feel would be valuable to you in your present job_____

_____

_____

Other courses you feel would be helpful_____

_____

_____

Do you plan to take additional courses in the near future?_____

Would you consider taking these courses at Southeastern Illinois College?

_____If so, when_____

What course?_____

If you would like to take additional courses and cannot, what are the reasons to keep you from taking these courses?_____

_____

_____

_____

_____

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WASHINGTON

The current status and growth potential of Washington's distribution and service industries which include wholesale and retail trade, finance, insurance and real estate, professional, business and personal services and transportation were examined. Trends and projections to 1985 and comparison of the state to the national picture for each of these areas, personal income, consumption spending, population, and employment were based on available statistical data. Some of the conclusions were: (1) The state must rely even more than it has before upon distribution and service industries as a source of employment for its working population, (2) These people will not be absorbed easily into distribution and services unless the necessary training and educational facilities are available to qualify them for such employment, (3) The growth in service trades and professions will depend more upon increasing consumer demand than it has in the past, (4) The greatest growth will take place in education, communications and public utilities, hospital and physicians' services, certain financial services, airline services, and certain repair services, and (5) It was projected that some 245,000 jobs will be available by 1985 in distribution and service industries to absorb the 185,000 additional males between the ages of 24 and 64 who will not be able to find employment in other industries, but because almost half of such employees are women, there must be a greater increase in employment in these industries or withdrawal of a large number of women from the labor force to avoid a significant amount of unemployment. Included are 141 tables and 28 graphs. (MM)

VT 003 412

Trends in Biotechnology

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TRENDS IN DISTRIBUTION, SERVICES AND TRANSPORTATION

With Particular Reference to The
State of Washington

by

Omer L. Carey, Assistant Professor
Rom J. Markin, Associate Professor
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Economic and Business Studies

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In Cooperation With

The Washington State
Department of Commerce and Economic Development

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Pullman, Washington 1966

PREFACE

This report was prepared for the Washington State Department of Commerce and Economic Development as part of a larger study undertaken by that Department. One of the major purposes of the larger study is to analyze the growth potential of the various industries of the state of Washington and to project their future employment possibilities. The present segment of that study is concerned with the distribution and service industries--wholesale and retail trade; services; finance, insurance and real estate; and transportation. Four of the authors of the study are members of the faculty of the College of Economics and Business at Washington State University; the fifth, Roy J. Sampson, is Professor of Transportation at the University of Oregon.

It is apparent that the significance of the industries studied in this report is often greatly underestimated. They are usually considered to be secondary or tertiary industries and of less importance to the development of the economy than the so-called basic industries of agriculture, mining, fishing and manufacturing. With this position we strongly disagree. It is the continuing theme of this study that the distribution and services industries are important in their own right, not only because in total they represent nearly 50 per cent of the employment in Washington but also because, in total, they manifest a greater potential than the "basic" industries. It is, of course, true that to a large extent, employment and income generated by the distribution and service industries are closely related to, and even dependent upon, other kinds of economic activity. Nevertheless, these industries have shown a persistent tendency toward a more rapid growth in employment than have the basic industries.

As this report shows, it is anticipated that the distribution and service industries in the state of Washington will play a crucial role in providing the additional employment for the added population which will be forthcoming in the state during the next two decades. It is our conviction that it would be unwise to neglect the importance of these industries in the future. They may well occupy a more prominent position than previously in the economic growth of the state.

The 1965 revision of gross national product, personal consumption expenditures and related series were not published until after this study was completed; hence, no attempt has been made to incorporate the new data into this report.

We would like to thank all those who spent tedious hours preparing statistical charts and tables and typing and proofreading the manuscript. We wish to mention particularly Miller D. Lembke, Barbara A. Shaw, Joy Schroeder and Ellen Pickell. For their contributions to this study, we extend our sincere thanks.

John A. Guthrie, Director
Bureau of Economic and Business Research
Washington State University

1966

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Chapter 1

INTRODUCTION

After a generation of rapid industrial development, initiated by war and sustained in part at least by the threat of war, it is desirable for the state of Washington to review its present economic situation and its prospects for the future. Consistent with this objective, this study examines the current status and growth potential of Washington's distribution and service industries. This general grouping includes such diverse activities as wholesale and retail trade; finance, insurance and real estate; professional, business and personal services; and transportation.

In the general scheme of economic base analysis, these activities are among those designated as tertiary, service, or nonbasic to distinguish them from a region's basic or export industries. The latter are usually considered to be the prime generators of a region's economic development. Such an arbitrary distinction is inaccurate and indeed misleading. For one thing, Washington's distribution and service industries are basic to the extent that they serve markets outside the state. But apart from this, it is erroneous to assume that these industries play a passive role in economic development for they have grown relatively more rapidly than the so-called basic industries.

As a matter of fact, as pointed out by the National Bureau of Economic Research, the United States is the first nation in history to have achieved a "service economy" in the sense that less than half of its employed population is engaged in the production of tangible commodities.[1] This is shown by the employment data in Table 1-1 both for the United States and the state of Washington. Commodity-producing industries account for approximately one third of the total non-agricultural employment, 36.2 per cent for the United States and 31.5 for the state of Washington.[2] The distribution and service industries, including public utilities which are not a subject of this study, employ almost half of the total, 47.1 per cent for the United States and 47.3 for Washington. The balance of total employment is accounted for by the government sector.

While rejecting the thesis that the distribution and service industries are unimportant to Washington's economic growth except as they earn dollars from sales to nonresidents, it is important to recognize that their growth depends upon the extent to which Washington shares in the growth of population and income incurred by the nation. Furthermore, this growth depends to an important extent upon the ability of Washington's agriculture, forestry, mining and manufacturing to compete in state, national and world markets.

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[1] Victor R. Fuchs, "Some Implications of the Growing Importance of the Service Industries," The Task of Economics, 45th Annual Report (New York: National Bureau of Economic Research, June, 1965), p. 6.

[2] Employment in agriculture, forestry and fishing is not included in Table 1-1 because of difficulties in providing comparable data. Using data computed in a different way from those in Table 1-1, employment in this category for the United States in 1963 was less than seven per cent of a larger total figure. Ibid., p. 7.

Table 1-1

EMPLOYEES IN NONAGRICULTURAL ESTABLISHMENTS, ANNUAL AVERAGES BY INDUSTRY, TOTAL AND PER CENT DISTRIBUTION, UNITED STATES AND STATE OF WASHINGTON, 1963

Type of Industry	United States (in thousands)	United States % of Total	State of Washington (in thousands)	State of Washington % of Total
Total	57,174	100.0	850	100.0
Mining	634	1.1	2	0.2
Contract construction	3,029	5.3	43	5.1
Manufacturing	17 035	29.8	223	26.2
Transportation and public utilities	3,913	6.8	60	7.1
Wholesale and retail trade	11,865	20.8	186	21.9
Finance, insurance and real estate	2,866	5.0	43	5.0
Service and miscellaneous	8,297	14.5	113	13.3
Government	9,535	16.7	180	21.2

SOURCE: U.S. Bureau of the Census, Statistical Abstract of the United States, 1964 (Washington, D.C.: Government Printing Office, 1964), pp. 224.

It does not follow, of course, that the growth of the distribution and service industries will be a simple function of the projected increases in the state's population and income. In the first place, there will be in the future, as there has been in the past, changes in the character as well as in the size of the markets served by these industries. The continuing shift of population from rural to urban areas and from central cities to suburbs can be expected to have an impact upon the types and amounts of services required. Similarly, changes in the style of living which accompany a rising level of income are certain to alter the relative demand for distribution and other services through changes in the pattern of consumer spending.

Equally important, the future growth of Washington's distribution and service industries will depend to a significant degree on how well they serve the consumer and industrial needs of the state. The relatively low level of productivity of the distribution and service trades, in comparison with manufacturing for example, has made it difficult in the past for these industries to meet the competition of other industrial segments of the economy in attracting capital and labor. This has often resulted in offering to the consumer an inadequate quantity and quality of service. If the full potential of the distribution and service industries of the state is to be realized in the future, gains in productivity must be realized so that there will be available to the consumer the right kind of service at the right time and place and at the right price.

The purpose of this study is to examine various facets of the distribution and service industries. Population, income and employment projections are developed in Chapter 2 in order to determine the basic potential for these industries. In Chapter 3, an attempt is made to point up some of the factors which may affect their future growth. Present trends and the future growth potential of each of the separate industries--retail and wholesale trade;

finance, insurance and real estate; professional, business and personal services; and transportation--are analyzed in Chapters 4 through 6. Before proceeding to these discussions, however, it is desirable to mention briefly some of the factors affecting interregional specialization and trade and some of the approaches to and problems involved in regional economic analysis.

Interregional Trade and Economic Localization

There is a considerable body of economic theory dealing with the mutual interdependence of regional economies. Basically, "space is important in economic life for two chief reasons: the industrial agents are to some extent confined to certain localities and move only with difficulty; and the costs of transport and other impediments prevent free movement of commodities."[3]

The first part of this general statement is concerned with the fundamental condition for regional economic specialization and trade. Because the supply of productive factors in various regions can be adapted to the demands of industry only with expense, if at all, industrial activity itself must be adapted to the varying supply of productive factors in different areas. The process of industrial adaptation is made possible by trade among regions and is reflected by the tendency for a region to specialize in the production and export of commodities requiring relatively large inputs of productive factors that are abundant in the region. At the same time, a region will tend to import consumer and industrial goods requiring relatively large proportions of inputs that are scarce or nonexistent there. This principle of comparative advantage explains Washington's tendency in the past to specialize in activities using its abundant natural resources.

In many instances, however, the original reasons for an industry locating in a region no longer apply. With progress in transportation, power generation and transmission, and raw materials processing, there is less reason for the nation's manufacturing complex to be located in proximity to natural resources. This does not necessarily mean that there will be a diminution of regional specialization and interregional trade, but over a period of time there may well be some changes in the nature of this trade. The immediate and, for most purposes, relevant cause of specialization and trade is simply that imports, despite costs of transport, can be purchased more cheaply in another region than they can be produced locally. And a region's exports, despite transport costs, can undersell competitors in other regions. These competitive relationships, however, can and do change from time to time.

Another significant aspect of interregional trade is that it brings outside demand to bear upon the local supplies of labor, capital and natural resources, resulting in greater incomes to the owners of these productive agents. Yet interregional trade also exposes local demand to outside supply, a local demand that might have been at least partially satisfied by local producers. Indeed it is frequently the case that there is some small local production of commodities that are imported on a large scale, a fact indicating that it is at least technically feasible for local firms to produce more of these locally consumed goods than they do. One reason why these firms do not produce

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[3] Bertil Ohlin, Interregional and International Trade ("Harvard Economic Studies," Cambridge, Mass;, Harvard University Press, 1957) p. 9.

more is that they are held in check by the competition of outside firms who, because of production and marketing economies, are able to more than compensate for the disadvantage of having to transport the goods to local consumers.

No less important, however, is the fact that existing and potential import-competing producers must buy or lease productive agents in local factor markets where local export industries are a dominant competitive force. In other words, if interregional trade adds to the incomes of local productive factors by bringing outside demand to bear, through exports, upon the supply of these productive factors, it also adds to the costs of local producers who would use these factors to serve local customers. Moreover, even if this local factor competition is reduced because of the decline of the export industries, there is the competition of industries in other regions for productive factors such as money capital and labor that can move from region to region. In the long run at least, mobile factors of production will not remain in a region where markedly smaller returns are being earned than can be earned in other regions. Thus the forces of interregional trade and competion work in opposition to efforts to promote regional economic self-sufficiency.

Probing more deeply, the cost of transportation influences regional specialization and trade not only as a factor underlying the comparative immobility of productive agents but also because it is an obstacle to the free movement of finished goods. Cost-reducing improvements in transportation tend to benefit a region's existing export industries by reducing the delivered costs of both its inputs and outputs. While it might be argued that raw material oriented industries would lose some of their advantage, since the region's raw materials can now be exported at a lower cost to prospective manufacturers in other regions, the opposite is likely to be the case. In fact, transportation improvements permitting lower cost shipment of raw materials and other inputs often permit natural resource oriented manufacturers to stay in original locations long after local raw material supplies are depleted.

These same transportation improvements, however, are likely to work to the disadvantage of local producers of finished goods for local consumption. For one thing, with increased exports and increased exporter demand for local inputs, the costs of production of goods intended for the local market may increase. Of greater importance, if the local producers have been shielded from outside competition by high transport costs, a reduction in these costs may result in greater imports and thus a loss of business for the local producer. Of course, if these producers improve their products and achieve greater production and marketing efficiency, they may be able to withstand the increased competition. Indeed, with lower transport costs they may become exporters themselves. As an example, a poor regional beer will be hurt by lower transport costs whereas an excellent regional beer might be able to enter competition for the national market. It should be noted, however, that even the latter will find many and often almost insuperable marketing obstacles other than transport costs to such an expansion.

So far as the state of Washington is concerned, transport costs constitute an important barrier to the location of export industry. Actually, for a time after World War II, transport costs tended to increase rather than decrease. This created a barrier to the further growth of export industries, such as aluminum, for example, especially when the adverse development in transportation was coupled with the development of cheaper power resources in other parts of the nation. Offsetting this lack of growth in export industry,

one might have expected a growth in local firms producing goods for local consumption. This development, however, has not taken place to the extent that it might have because of the really significant increase in production efficiency that has taken place throughout the nation. The large national manufacturing plants have always had the advantage of certain economies of scale in relation to local producers. Recent developments in production efficiency through mechanization and automation have probably increased this advantage significantly. Furthermore, the large national firms have well established marketing organizations which provide a difficult competitive situation for the local producers.

It is apparent that employment in Washington's manufacturing will grow less rapidly in the future than it has in the past. To be sure, as population increases in the state and in the Pacific Northwest, economies of scale will be possible and some new industries will be established to serve the regional market. Moreover, technical developments may afford opportunities for new manufacturers supplying the existing complex of regional export industries. Nevertheless, general improvements in transportation and production efficiency will tend to benefit national manufacturers at the expense of manufacturers serving the regional market. And the hard fact is that even on a national basis employment in production has grown little, if at all, since World War II.[4] With constantly improving productivity it may well be that the commodity requirements of our growing national population will be served in the next two decades with but modest increases in manufacturing employment. Furthermore, despite some much publicized exceptions, there has been relatively little relocation of manufacturing facilities in the postwar period, and as we have seen there are good reasons for assuming that the various regions of the nation will retain their manufacturing specialities in the decades ahead.

But what about the trade and service industries? Here there would seem to be more reason to be optimistic with respect to the future growth potential of the state. In the first place, the commodity manufacturers--whether they are national or local--must have distribution facilities in the areas they serve. As competition among national manufacturers becomes more intense, as a result in part of greater efficiency in production and transportation, we can expect them in the future, as they have in the past, to establish distribution facilities in the state on a larger and larger scale.

Actually, the problem of achieving growth in employment and productivity in the distribution and services industries is not fundamentally different for the specialized region than it is for the more nearly self-sufficient national economy. If we ignore the tourism complication for a moment, the reason is simply that distribution and personal services do not in the main enter the flow of interregional trade. Whether the distribution or service firm is national or local, and many national firms do exist, its operations must be located in proximity to consumers. Thus, even though there is competition in a region between locally-owned and nationally-owned distribution and service firms, the services produced in a region do not usually compete with services produced in other regions.

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[4] As Fuchs states, "...all of the net growth of employment in the United States in the postwar period has occurred in the service sector." See Victor R. Fuchs, op. cit., p. 6. "Services" as used in this quotation exclude transportation and public utilities and include general government.

If we consider the interregional competition for tourists and conventions, it is not wholly true to say that there is no competition at the level of service outputs. But, despite this exception, there is a fundamental difference between competition in services and in commodities. Regional producers of the latter must meet national standards in quality and price or, despite their transport cost advantage, they will soon lose out in the competition for regional consumer patronage to producers elsewhere in the nation. In contrast, the quality and price of services will be only as good as the competition in the locality. Tourism doubtlessly has had a leveling effect upon quality and price in some lines of services activities, but even here much variation remains.

Although a region's distribution and service industries do not ordinarily compete with similar industries in other regions, there are certain aspects of competition that should be noted here. In the first place, services offered in the market place compete in a region, as in the nation, with the self-supplied services of the consumer. Therefore, in each locality there is a potential for growth in service industry output and employment that can be achieved if these industries are able to provide the do-it-yourself consumer with economically attractive alternatives. And this potential market for services can only be tapped by firms operating in the area.

In addition, a region's distribution and service industries compete with consumer goods, those produced both nationally and regionally, in the sense that all consumer goods and services must compete for allocations of the consumer budget. If budget allocations for personal services increase in the future relative to those for goods, as they have thus far in the postwar period, the effect will be to substitute local service employment for employment that could have been engaged in the manufacture of consumer goods. For Washington and the Pacific Northwest generally, since a large proportion of consumer goods are produced outside the region, this means that local service employment would grow at the expense of growth in manufacturing employment in other regions.

Actually, a shift in the regional pattern of consumer spending in favor of services will result in an increase in employment in service industries more or less independently of what happens to manufacturing employment. An obvious case in point has been the rapid growth of employment in education and the medical services in the nation, in this region, and indeed in most localities of this region, including those suffering adverse employment developments in their manufacturing enterprises. The explanation is simply that in recent years consumers have increased their expenditures for education and medical care.

We may conclude, therefore, that there is a logical basis for the hypothesis that Washington's service industries have greater potential for future growth than do its commodity-producing industries. Moreover, in the subsequent discussion of input-output analysis, the point is made that service enterprises generate more income for the region per dollar of output than do consumer goods enterprises. Before proceeding to this point, however, it is necessary to consider some of the possible approaches to the study of regional economic development.

Approaches to Regional Analysis

Unfortunately, no suitable general theory of regional economic development exists. There are, however, several conceptual approaches to the study of regional economies. A number of these--the economic base hypothesis, the general economic theories of price and employment, and the input-output accounting model--contain ideas that are useful in analyzing the relationships between the service industries and the economy of a state. And although it is impossible to summarize adequately each of these conceptual structures, a brief analysis of each, and of its shortcomings and omissions, provides some basis for understanding the economic significance of the distribution and service industries and the interrelationships between them and the remainder of the economy.

The Economic Base Hypothesis

The simplest, if not the most persuasive, approach to regional economic analysis is that suggested by the economic base hypothesis. This concept divides all regional economic activities into two categories: (1) the economic base or exporting activities and (2) the service industries, those activities the main purpose of which is to provide for the needs of persons residing within the boundaries of the region. The economic welfare of the region is seen to depend upon the dollar inflow earned by the exporting industries from trade with the rest of the nation and world. More specifically, the hypothesis asserts that employment in the service industries and ultimately the population total of the regions are determined by changes in the level of employment in the economic base; that is, they grow and decline in proportion to base employment.

Proponents of this approach calculate an economic base ratio, which is the ratio of export industry employment to total employment at a point in time. This ratio is used in conjunction with forecasts of export industry employment to predict future levels of total employment and population in the region. Since the distinction between economic base and service activities is not made in terms of the conventional industry classifications, the actual determination of the ratio is not a simple matter. For example, some fraction of the output of the service industries covered in this study would normally be included in the economic base since firms in these industries serve tourists and other out-of-state residents. By the same criterion, manufacturing activity engaged in the production of goods for Washington residents would be allocated to the service sector.

Apart from the difficulty of implementing it statistically, the economic base approach has other deficiencies. First, both logic and facts tend to refute the contention that there is a stable relationship between base employment and total employment over a period of time. Secondly, and for our purposes more important, this approach does not identify important functional relationships in the regional economy and fails to reveal significant facts and ideas about the structure and functioning of the economy. Thus there is little reason to believe that use of the base ratio is effective for forecasting purposes. At best, it is merely one of the several factors to be taken into account in predicting the potential growth of the services sector; at worst, it may be completely valueless especially in a dynamic economy.

The Income and Employment Approach

A feature of the economic base hypothesis is that its validity tends to diminish as it is extended from the small region or city to the larger and relatively more closed regional economic system. And it is obviously inappropriate when applied to the nation's economy. The general level of employment and income in the United States, though affected by international trade, is determined principally by endogenous factors such as the level of spending by consumers, investors and governments. It is apparent from macroeconomic theory that there is an ultimate, if not immediate, relationship between a region's income and employment levels and fluctuations in the economic aggregates for the total of the regions comprising the nation's economy.

But the specific nature of the relationships between the regional parts and the whole of the economy is less clear. We can say tentatively that factor flows and interregional trade are influenced by the behavior of national aggregates. But the extent to which a regional economy responds to, or is dependent upon, these interregional flows is conditioned in large part by factors within the region itself. More specifically, we may say that a region's ratio of base to total employment may vary because factors other than the money inflow from exports may initiate growth in regional income. Further, the ratio may vary because the volume of income available for expenditure upon service activities in the region depends upon the regional income multiplier.

Without considering this model in detail, it is well to examine the logic of these assertions. It is obvious that, in a region's balance of interregional payments, items other than exports have significance for regional development. For example, an inflow of private or public capital may initiate and sustain growth in regional income and employment. Moreover, the extent to which regional income and employment respond to such inflows depends upon what happens to the area's imports. If regional consumers have a high propensity to consume imported goods, a large fraction of any increment in income that they receive may leave the area as payments to firms outside the region.

More important, by virtue of the circularity of money flows in the region, there will be an expansion of regional income several times the initial increase in income. Just what this multiple is depends not only upon import leakage but also upon the proportion of each round of income that is withdrawn as savings by individuals and businesses. That is to say, an initial increase in income will generate further income, the amount of which will be more or less depending upon whether propensities to save and import in the region are large or small. Therefore, the income and employment model contributes to our knowledge of regional economic development by bringing to light a functional interdependency that is ignored by the economic base approach. Not only is the regional production of goods and services for local consumption dependent upon regional income, but regional income in turn depends upon the functional relationship between resident expenditures for the output of service activities and itself.

Furthermore, the income and employment model stresses the dependence of regional employment and income upon investment, another variable omitted by the economic base approach. Regional economic growth may be initiated and sustained by the construction of business and government facilities and homes, that is, by investment which is motivated by factors other than the flow of interregional trade. Specifically applied to the distribution and service industries, investment by firms in these industries may be motivated by

changes in the spatial distribution of regional population. Given the need for retail and service activities to locate in close proximity to consumers, the movement of population from rural to urban areas and from central cities to suburbs will motivate investment in service facilities that may be largely independent of interregional trade flows.

The Input-Output Accounting Approach

Impressive as it is, the income and employment approach does not enable us to appraise the future prospects of Washington's distribution and service industries. The principal problem is the lack of the factual information needed to implement the theoretical structure. For the national economy, the development of income and product accounting has provided much of this information, but these accounts have not been extended to the regional level. Furthermore, the more recent development of the input-output accounting approach has led to the belief on the part of many regional specialists that this is an even more fruitful approach to the study of the regional economy.

One reason for preferring the input-output approach is that it provides more information than do the income and product accounts. Data are provided with respect to the flows of raw materials, semifinished products, and services among industries as well as for final product flows to consumers, investors, the government sector and net exports. The former flows are cancelled out in income and product accounting. The input-output accounts also identify aggregate final output and income originating in production. Income, however, is shown as value added by each industry rather than as employee compensation, proprietors' income, corporate profits, capital consumption allowances, and other conventional income categories for the economy as a whole.

The focus of input-output analysis is upon the economy's technical relationships as represented by a matrix or table of coefficients. This matrix shows for each industry the value of inputs going into that industry's production process from all other industries and from primary factors, and the value of its output to other industries and to final demand. Since these input coefficients represent interindustry relations at a point in time, the analysis is static. But, with simplifying assumptions about industry production functions, it is possible to trace the impact of a change in the demand for the output of a given industry upon the industries supplying it with inputs and also upon the industries indirectly related to the one in question. For example, a regional input-output table would enable one to see how short-run fluctuations in the exports of major Washington industries, such as aircraft and parts, spread through Washington's economy affecting, among other things, the ratio of the state's base employment to total employment.

Apart from this, the use of interindustry tables is worthwhile merely to see the nature and the extent of the interdependence existing among industries and classes of final demand at a given time. Many questions about the role of distribution and service industries in the Washington economy could be answered by reference to an interindustry table if such were available for the state. Since it is not yet available, use has been made of the national study for the year 1958 recently made available by the U. S. Department of Commerce

in order to show the types of relationships that may be obtained from such a table.[5] The basic data contained in the national study and a discussion of some of the implications of the data are presented in the following section.

Significance of National Input-Output Study

Despite the conceptual and practical problems of relating the national input-output relationships to the state level, cautious use of this material provides useful insights for analyzing Washington's trade and service sectors. The data in Table 1-2 indicate that value added, which is composed almost

Table 1-2

INPUT-OUTPUT SCHEDULE FOR NINE SERVICE INDUSTRIES, 1958

(per cent)

Inputs	Transp. & Whse.	Whsle. & Retail Trade	Finance & Ins.	Real Estate & Rental	Hotels, Pers. & Repair Serv.	Business Serv.	Auto Repair & Serv.	Amusements	Med. & Educ. Serv.	Ave. of Nine Indus.	Ave. Remaining 73 Indus.	Ave. 52 Mgfg. Indus.
Ag., forestry, fish.	0.1	0.2	---	3.6	---	---	---	0.2	---	0.5	3.0	1.6
Mining	0.1	---	---	0.2	---	0.1	0.1	---	---	0.1	2.2	1.7
Construction	3.7	0.8	0.5	9.5	0.3	0.1	1.4	2.2	3.0	2.4	0.6	0.1
Manufacturing	9.5	4.7	2.9	1.7	16.6	29.1	26.4	2.9	8.2	11.3	35.7	42.2
Comm. & utilities	1.2	3.1	2.0	0.8	2.5	9.8	2.6	1.3	2.7	2.9	1.5	1.2
Transp. & whse.	6.4	0.4	0.9	0.6	0.7	0.5	0.9	0.4	0.5	1.3	2.8	2.1
Wholesale & retail trade	2.9	1.7	1.0	1.7	4.3	1.7	8.5	1.3	1.8	2.8	3.4	3.7
Fin., ins., real estate	5.1	7.0	28.2	5.3	6.2	4.9	6.5	7.4	8.1	8.7	1.9	1.5
Services	4.1	6.3	4.7	3.0	6.5	3.3	3.7	27.5	4.9	7.1	2.7	2.2
Other industries	0.5	1.9	1.9	0.1	1.4	1.9	0.4	1.6	2.6	1.4	0.9	1.1
Govt. enterprises	2.3	1.4	1.5	1.1	0.2	2.7	0.3	0.1	0.1	1.1	0.4	0.2
Gr. imp. of goods & serv.	4.0	---	0.4	---	---	---	---	1.9	---	0.7	2.7	1.9
Total Purchases	39.9	27.5	44.0	27.6	38.7	54.1	50.8	46.8	31.9	40.3	57.8	59.5
Value Added	60.4	72.4	56.0	72.2	60.8	45.9	48.1	53.2	68.1	59.7	40.4	40.1
Total Inputs	100.3	99.9	100.0	99.8	99.5	100.0	98.9	100.0	100.0	100.0	98.2	99.6
Outputs												
Ag., forestry, fish.	2.3	2.0	1.9	3.5	---	3.8	1.4	---	0.7	1.7	3.2	1.2
Mining	0.4	0.3	0.7	2.7	---	1.6	0.2	---	---	0.7	1.3	0.5
Construction	6.2	6.6	1.8	0.4	---	10.7	3.6	---	0.3	3.3	6.9	8.6
Manufacturing	27.5	12.1	7.8	4.0	2.4	30.3	6.3	---	1.0	10.2	35.3	35.7
Comm. & utilities	1.1	0.4	0.6	0.4	---	1.9	0.5	5.4	0.1	1.2	1.0	0.2
Transp. & whse.	6.2	1.1	2.7	1.7	---	2.0	10.4	0.4	0.1	2.7	1.1	0.9
Wholesale & retail trade	1.0	1.7	6.0	8.2	1.8	19.5	10.4	1.7	0.4	5.6	1.9	1.0
Fin., ins., real estate	0.8	0.5	25.4	5.3	---	7.1	1.6	0.1	0.7	4.6	1.3	0.2
Services	1.3	2.1	4.1	5.8	3.8	7.3	5.3	25.1	1.4	6.3	3.1	3.0
Research & development	---	---	---	---	---	0.1	---	0.1	---	---	---	---
Govt. enterprises	2.3	0.1	0.2	0.2	0.1	0.5	0.5	---	---	0.4	0.4	0.1
Total Sales To Ind.	49.1	26.9	51.2	32.2	8.1	84.8	40.2	32.8	4.7	36.7	55.5	51.4
Transfers To Other Ind.	11.5	2.0	3.1	---	10.9	2.3	0.9	4.4	2.6	4.2	10.8	9.8
Sales To Final Demand	39.4	71.0	45.4	67.5	80.4	13.0	58.0	62.5	92.0	58.8	34.6	38.4
Total Outputs	100.0	99.9	99.7	99.7	99.4	100.1	99.1	99.7	99.3	99.7	100.9	99.6

SOURCE: Survey of Current Business, November, 1964.

[5] "The Interindustry Structure of the United States, A Report on the 1958 Input-Output Study," Survey of Current Business, November, 1964, pp. 10-29.

entirely of employee compensation, profits and capital consumption allowances, represents a significant proportion of total inputs for each of the nine trade and service industries. Considered as a group, virtually 60 per cent of the inputs of these nine industries is value added. In contrast, value added represents only 40 per cent of the inputs of the remaining 73 industries. This high ratio of value added to inputs reflects the fact that the trade and service group of industries is significantly less dependent upon other industries for their input requirements than are industries generally. On the whole, manufacturing industries are not large suppliers of inputs into the trade and service industries except for business services (which depend on the printing and publishing industry) and auto repair (which, naturally, depends on the auto parts industry).

These characteristics permit the inference that Washington trade and service industries are relatively self-contained. That is, the value added by these industries represents primary inputs (e.g. labor) located almost entirely in the state. In the case of manufactured inputs, it can be presumed that much is also provided from within the state either because it is ubiquitous (e.g. printing) or inherently local in character (e.g. utility and government services).

A less obvious conclusion that is indicated by the national study input sector concerns the relationship between service industry output and regional income. It will be recalled that value added by the nine industries averaged 60 per cent of total inputs (outputs) compared with 40 per cent for the remaining industries of the economy. This high ratio not only implies relatively low dependence for inputs from other industries but also means that, relative to output, service industries require more primary productive factors--land, labor, capital--and generate more returns to these factors than other industries. While it is true that some value added by regional industries will leak from the state in the form of wage payments, interest, investment and profits to outsiders, it is more likely to provide income for Washington residents than payments for inputs from other industries that may or may not be located in the state.

This point needs further development because it means in effect that dollar for dollar an increase in the output of Washington's service industries may result in a greater increase in Washington income than, say a comparable increase in the aluminum industry which tends to have a significantly lower value added per dollar of output. This argument would not, of course, apply to a closed economic system such as the nation's economy. An additional dollar of final demand there will generate an additional dollar of income (value added) whether it is spent for services or manufactured goods. This follows from the basic identity of national income analysis.

Initially, the service industries would have a three to two advantage in income generation; but when we take account of the indirect effects of the increase in final demand, the differential disappears. The demand of manufacturing industry for inputs from other industries will result in value added by the suppliers and by firms supplying the suppliers and so on until the sum of the value added created by the increased final demand for manufactured goods would equal the value added created by an equivalent increase in the final demand for the output of the service industries. But for the regional economy, it is not necessarily true that a dollar-for-dollar increase in regional manufacturing output will result in as much income for the region as would be generated by service industries. The average manufacturing industry requires

$2.27 of transactions involving direct and indirect input requirements to provide a dollar increase in output for final demand and, thus, a dollar's increase in income or value added.[6] This total transactions requirement compares with an average of $1.78 for the nine service industries. The greater transactions requirement of the average manufacturing industry suggests that a larger fraction of the income resulting from increased manufacturing final output will originate outside the region than is the case for increased service output. More specifically, we would expect that the manufacturer's greater direct and indirect dependence upon other industries would be reflected by a higher ratio of import requirements per dollar of final demand than is the case for service industries.

In this regard it should be recalled that there is reason to believe that regional imports constitute a very small proportion of regional service industry direct input requirements. While it follows from this that a very large fraction of income from increased services output originates in the region, strictly speaking it is necessary to consider the chain of indirect industry relations in order to determine just what this fraction is. That is, the input structure of the chain of suppliers for regional service industries would have to be examined to determine what fractions of each round of transactions are comprised of value added, inputs supplied from other industries in the region, and imports from outside the region.

Perhaps it should be mentioned that the ratio of total transactions requirements to final output is not a measure of the multiplier concept discussed earlier. In this context the multiplier would apply to the value added resulting from increased output, not to the volume of transactions. Here we are concerned with ascertaining what fraction of value added originates in the region rather than what fraction of value added or income that originates regionally is spent in the region. Nevertheless, the latter point is relevant to the discussion. If it could be shown that a larger proportion of value added originating in Washington from increased service output is, in turn, spent in Washington than is the case for value added originating in Washington from increased manufacturing output, this would be significant information. Dollar for dollar, an increase in the output of Washington's service industries results in a greater increase in Washington income than is true for manufacturing industries. This is so for two reasons: (1) a larger fraction of the value added created by increased service output originates in Washington, and (2) the income multiplier effect is greater for the value added that originates in Washington as a result of an increase in service output. That is to say, dollar for dollar, a larger fraction of value added from increased service output is spent in Washington for investment and consumption than is the case for value added by manufacturing. A conventional input-output table does not enable us to determine whether the income multiplying effect of increased service output is greater than it is for increased manufacturing output, but a plausible argument can be made in support of this assertion.

As a qualification to our proposition about the relative regional income-generating effects of increased service and manufacturing output, it should be pointed out that a regional input-output table would probably reveal that a number of existing Washington manufacturers are less dependent upon imports than would be indicated by the average of manufacturing industries in a national

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[6] Ibid., Table 3, pp. 26-9.

table. In particular, manufacturers of agricultural or forest products located in Washington because of its abundant natural resources will have a large proportion of their input requirements supplied by regional raw materials suppliers. Thus, even though manufacturers in general have lower value added than service industries, this may not be true for a few leading Washington industries.

But these qualifications do not vitiate the proposition that, dollar for dollar, increased output in Washington's service industries will probably yield more income for Washington than increased manufacturing output. To those enamored with the economic base philosophy, this assertion may be difficult to accept. They might ask where the money will come from for increased expenditure upon services if it does not arise from increased exports from the region. An answer to this question has been suggested above in the discussion of the general theory of income and employment. Another answer will be suggested in a following section, the gist of which is simply this: if Washington's service industries can find the ways and means to provide the consumer with more and better services at a reasonable cost, there need be no worry about where the money will come from. It will come from consumers reallocating their expenditures in favor of these industries because the output of these industries has become a better bargain.

It will be recalled that the trade and service industries are largely self-contained with respect to their input requirements. When the pattern of their outputs is examined (Table 1-2), it is seen that in large part the distribution and service industries depend upon sales to final demand. Almost 60 per cent of the average output of the distribution and service industries is sold directly to consumers and other final users. This is almost twice the percentage sold directly to final demand by the remaining industries of the economy. As would be expected, the distribution and service industries are significantly less dependent than the manufacturing and extractive industries upon sales to intermediate users. This is consistent with what has been seen about the inputs of these industries; namely, they reflect relatively small involvement with other industries.

Clearly, as can be seen in Table 1-3, consumers represent the most important final demand for services. Directly or indirectly they account for an average of more than four fifths of service output. Private fixed capital formation, which includes home construction as well as business investment, is the second most important category. On the average, approximately seven per cent of distribution and service output is ultimately due to this final demand. However, less than one per cent of this output is sold directly to this final use compared with more than 50 per cent which is sold directly for personal consumption. Gross exports do not loom large relative to the average service industry output for the nation. Of course, this would not be true for a region. And we are unable to estimate the importance of service exports or the off-setting imports for the region as we did with imports of service inputs. Thus for the time being we shall merely conclude that Washington service industries, in common with those of the nation as a whole, are principally oriented to consumer demand. And we will not differentiate between resident and non-resident consumers.

Table 1-4, which is also drawn from the national study, gives further insights into the relationship between consumption and service output. In this table the proportion of service output sold directly to consumers relative to aggregate consumer spending and to each of the 12 major subclasses of

Table 1-3

TOTAL, DIRECT, AND INDIRECT OUTPUT ATTRIBUTABLE TO EACH CATEGORY OF FINAL DEMAND, 1958

(per cent)

Categories of Final Demand	Transp. & Whse.	Whsle. & Retail Trade	Finance & Ins.	Real Estate & Rental	Hotels, Pers. & Repair Serv.	Business Serv.	Auto Repair & Serv.	Amusements	Med. & Educ. Serv.	Ave. of Nine Indus.
Pers. consump. exp.										
Total	61.9	80.6	86.7	89.6	92.1	65.9	83.9	89.2	94.3	82.7
Direct	25.4	64.6	44.6	64.5	77.7	7.7	55.4	58.0	90.1	54.2
Indirect	36.5	16.0	42.1	25.1	14.4	58.2	28.5	31.2	4.2	28.5
Gross pvt. cap. form.										
Total	13.7	11.1	6.1	5.2	2.5	15.6	6.8	2.2	0.7	7.1
Direct	1.5	3.9	---	2.0	---	---	---	---	---	0.8
Indirect	12.2	7.2	6.1	3.2	2.5	15.6	6.8	2.2	0.7	6.3
Net invent'y change										
Total	0.3	a	a	a	(0.1)	(0.1)	0.1	0.5	a	0.1
Direct	0.4	0.1	---	---	---	---	---	0.4	---	0.1
Indirect	(0.1)	(0.1)	a	a	(0.1)	(0.1)	0.1	0.1	a	a
Gross exports										
Total	9.9	2.7	1.9	1.8	0.7	4.1	1.9	6.7	0.2	3.3
Direct	6.7	1.5	0.1	0.4	---	0.7	---	4.6	a	1.6
Indirect	3.2	1.2	1.8	1.4	0.7	3.4	1.9	2.1	0.2	1.7
Fed. govt. pur.										
Total	8.9	3.0	2.5	1.9	3.3	7.2	3.9	1.6	3.2	3.9
Direct	4.2	0.7	a	0.2	2.0	2.3	1.6	0.3	0.5	1.3
Indirect	4.7	2.3	2.5	1.7	1.3	4.9	2.3	1.3	2.7	2.6
St/local govt. pur.										
Total	5.3	2.6	2.8	1.5	1.5	7.3	3.4	(0.2)	1.6	2.9
Direct	1.2	0.2	0.7	0.4	0.7	2.3	1.0	(0.8)	1.4	0.8
Indirect	4.1	2.4	2.1	1.1	0.8	5.0	2.4	0.6	0.2	2.1
Sum final demand										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Direct	39.4	71.0	45.4	67.5	80.4	13.0	58.0	62.5	92.0	58.8
Indirect	60.6	29.0	54.6	32.5	19.6	87.0	42.0	37.5	8.0	41.2

[a]Less than 0.1%.

SOURCE: Survey of Current Business, November, 1964.

consumer expenditures is indicated. Unlike the previous table, which shows the importance of consumer spending to the various distribution and service industries, this table shows the importance of direct spending for services relative to the consumer budget. And, as can be seen from the first row of the table, some 57 per cent of consumption spending is allocated to the distribution and service industries.

The largest allocation is for the services of wholesale and retail trade. Approximately 21 per cent of the consumer dollar goes to defray the costs of the middleman. Depending on one's point of view, this 21 per cent gross margin can be looked at in different ways. The manufacturer may consider this fertile ground for increasing his profits, e.g. by reducing dealer margins. The consumer may view this margin as an extraction by an intermediary tending to increase product costs without a commensurate benefit. The middleman views this margin as limiting the amount and quality of the services he can offer (e.g. increased selection of goods, credit, delivery or product advice).

While we cannot hope to portray accurately the complex interplay of these divergent interests in so few words, clearly the future of the distribution industry depends in part upon how these conflicts will be resolved as well as upon technological developments, trends in the availability and cost of labor,

Table 1-4

INDUSTRIAL COMPOSITION OF DIRECT CONSUMER PURCHASES FOR TOTAL CONSUMPTION AND 12 MAJOR PERSONAL CONSUMPTION EXPENDITURE CATEGORIES

(per cent)

	Expenditures						
			For Distribution & Service Industries				
	For 86 Indus.	For 76 Indus.	Transp. & Whse.	Whsle. & Retail Trade	Fin., Ins., Real Estate	Services	Total Distrib. & Serv. Indus.
Pers. Consump. Exp. 1958[a]	100.0	43.1	3.0	21.2	17.2	14.8	56.9
I. Food & tobacco	100.0	67.1	3.4	29.5	---	---	32.9
II. Clothing	100.0	52.0	1.5	35.2	b	11.3	48.0
III. Personal care	100.0	30.3	1.1	24.8	---	43.8	69.7
IV. Housing	100.0	---	---	---	96.6	3.4	100.0
V. Household oper.	100.0	63.5	2.4	23.6	0.3	10.2	36.5
VI. Medical care	100.0	11.0	0.4	10.7	7.7	70.2	89.0
VII. Personal bus.	100.0	1.0	---	---	78.2	20.8	99.0
VIII. Transportation	100.0	45.7	10.4	27.1	4.5	12.3	54.3
IX. Recreation	100.0	40.5	1.7	24.5	b	33.3	59.5
X. Pvt. ed. & research	100.0	---	---	---	---	100.0	100.0
XI. Religion & welfare	100.0	---	---	---	---	100.0	100.0
XII. For. travel (Net)	100.0	72.7	17.2	10.1	---	---	27.3

[a]Percentage distribution of personal consumption expenditures by 12 expenditure categories, 1958, is: I. Food & Tobacco 28.35%; II. Clothing & Jewelry 10.58%; III. Personal Care 1.49%; IV. Housing 12.95%; V. Household Operation 14.07%; VI. Medical Care 6.16%; VII. Personal Business 5.70%; VIII. Transportation 11.48%; IX. Recreation 5.73%; X. Private Education & Research 1.22%; XI. Religion & Welfare 1.36%; XII. Foreign Travel 0.89%; Survey of Current Business, July, 1960.

[b]Less than 0.1%.

SOURCE: Survey of Current Business, November, 1964.

and the level of consumer income. Moreover, the other service industries will be affected by the conflict between consumer, middleman and manufacturer because they must compete with material goods for the consumer dollar.

Applicability of Analysis to State of Washington

While the analytical procedures and even some of the general conclusions of the analysis of the United States input-output tables are appropriate to the state of Washington, obviously a number of qualifications must be made and extreme care must be exercised in applying any of the national ratios to the economy of the state of Washington. First of all, the structure of Washington's industry differs from that of the nation since the former is dominated by such regional specialties as forest products and aircraft manufacturing. So far as the distribution and service industries are concerned, they are quite similar to the national pattern except that Washington's economy is much more open than the national economy. Imports and exports are significant in Washington's economy whereas this is obviously not the case for the nation.

Another qualification concerns the pattern of expenditures by Washington consumers, which undoubtedly differs in some degree from that of the average of the nation's consumers. Moreover, gross margins in Washington's distribution and service industries may differ from national averages because of competitive conditions peculiar to the state. It should also be noted that the national study applies to 1958, a recession year. Since the level and structure of demand and prices in the economy have changed since that time, the current pattern of interindustry relations will differ from that shown in the study. Finally, the national study's approach to conceptual and statistical problems yields service industry measures that are not comparable with those available for use in this study.

An example of this latter point that is worth mentioning, because it touches upon the fundamental problem of measuring distribution and service industry output, involves the national study's treatment of wholesale and retail trade. The output of these industries is measured by gross margins--operating expenses plus profit--rather than by sales volume. Actual commodity flows to and from these industries are not shown. What remains as output is a measure of the services rendered by the trade industries. Inputs, on the other hand, show the cost of providing these services. The trade margin, together with transport costs, may be designated as the cost of distributing commodities from producers to users. This cost accounts for the difference between producers' output valued at producer prices and users' inputs valued at purchase prices.

Concluding Observations on Methodology

From the foregoing discussion, it is obvious that there are limitations for this study to the use of input-output analysis to determine even the present status of Washington's distribution and service industries. Moreover, such analysis does not suggest what changes are likely to occur in the future. It does not indicate the possible changes in the relative demands for goods and services that may result from developments in interindustry competition for factors of production on the one hand and for consumer dollars on the other. Moreover, there is the question of just what changes will occur in the style of consumer living with a rising level of income, changing family size, changing place of residence and other similar influences.

Measures of real output in the distribution and services industries have always been unsatisfactory.[7] At the present time, about all that can be done on a state basis is to take the available statistical data on sales, revenues or receipts, and on employment and analyze them with respect to trends. Comparisons of growth can be made between the state of Washington and the United States for the various industries and an attempt made to explain why differences exist. Comparisons can also be made between the state of Washington and neighboring states. Such comparisons may be more meaningful than those made with the United States, but even within the Pacific Northwest area significant differences exist in the economies of the various states.

The basic procedures followed in this study are essentially those described in the preceeding paragraph. The exact procedures and comparisons used are not necessarily the same throughout the investigation because of differences in the availability of data and for other reasons. Undoubtedly, the most difficult problem is that of making projections of future growth. Forecasting is at best hazardous and is particularly difficult in the distribution and service industries where measures of output are not satisfactory. The industry projections made in this study have been based largely on projections in income and population. They are somewhat mechanistic and do not take into account possible changes in the style of living and similar factors, although one chapter is devoted to a general discussion of some of these influences. Because of the importance of trends in population and income in any analysis of Washington's distribution and service industries, the following chapter is devoted to this subject.

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[7] See Fuchs, op. cit., p. 15.

Chapter 2

TRENDS AND PROJECTIONS OF WASHINGTON PERSONAL INCOME, CONSUMPTION SPENDING, POPULATION AND EMPLOYMENT

Introduction

This chapter and the next will examine several demographic and economic factors, the trends of which influence the overall growth prospects of the state's distribution and service industries. The immediate purpose is to provide projections of state population, income, employment, and consumption spending for subsequent use in making individual industry forecasts. Beyond this, trends in the components of these economic and demographic aggregates will be examined. The intent is to indicate how changes in the components may alter the demand for the output of the distribution and service industries, on the one hand, and the supply and cost of economic resources available for use by these industries, on the other. This chapter will make the aggregate projections. Then it will focus upon employment and population as stratified by age, sex and industry.

Washington State Personal Income Projections

The postwar trend and several alternative projections of Washington personal income in 1960 dollars are displayed in Table 2-1 and the accompanying semi-logarithmic Figure 2-1. The projection labeled "A" is a simple linear extrapolation of the 1946 to 1964 trend in real state personal income. A linear least squares trend was fitted to the price-deflated and logarithmically transformed annual values of state personal income. The coefficients derived from this regression are the basis for the projected values of 1965 and the years beyond to 1985.

Unlike the "A" projection, which presumes only that the past trend of real state income will persist into the future, the remaining four projections are based upon a set of assumptions concerning the future behavior of the state's population and economy. The methodology is that commonly used in Gross National Product projections.[1] Two of the projections employ the Washington State Census Board's medium population projection (B-Series) and two use the Board's low population projection (C-Series). One of each pair of projections assumes a compound annual rate of growth in state output per man-hour of 2.5 per cent from 1960 to 1985 while the other projection assumes a 2.0 per cent growth rate.

All four projections employ a common set of assumptions concerning the relationship between forecasted growth in population and productivity. The per cent of population 15 years and older participating in the labor force is assumed to increase slightly from 56.5 per cent in 1965 to 58.5 per cent in

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[1] An example is the projection made by the Bonneville Power Administration for its Pacific Northwest Economic Base Study.

Table 2-1

WASHINGTON STATE PERSONAL INCOME, 1946-64, AND PROJECTIONS, 1965-85

(millions of 1960 dollars)

Year	Projection A[a]	B-Series[b] @ 2.0%	B-Series @ 2.5%	C-Series @ 2.0%	C-Series @ 2.5%
1985	$14,165	$14,954	$16,906	$13,934	$15,753
1980	12,179	12,695	14,008	12,105	13,356
1975	10,472	10,721	11,544	10,385	11,183
1970	9,004	9,052	9,502	8,860	9,299
1965	7,741	7,817	8,013	7,732	7,926
1964	7,501				
1960	6,597				
1957	6,132				
1953	5,402				
1948	4,439				
1946	4,864				

[a]Projection A follows the form $Z = A(1 + g)^n$ where Z is personal income in 1960 dollars, A is $5,723 million, g is the rate of growth a year for the period 1946-64 and is 3.067% a year, and n is the number of years.

[b]Population projection series from Washington State Census Board. Per cent rates of increase are productivity gains per year from 1960.

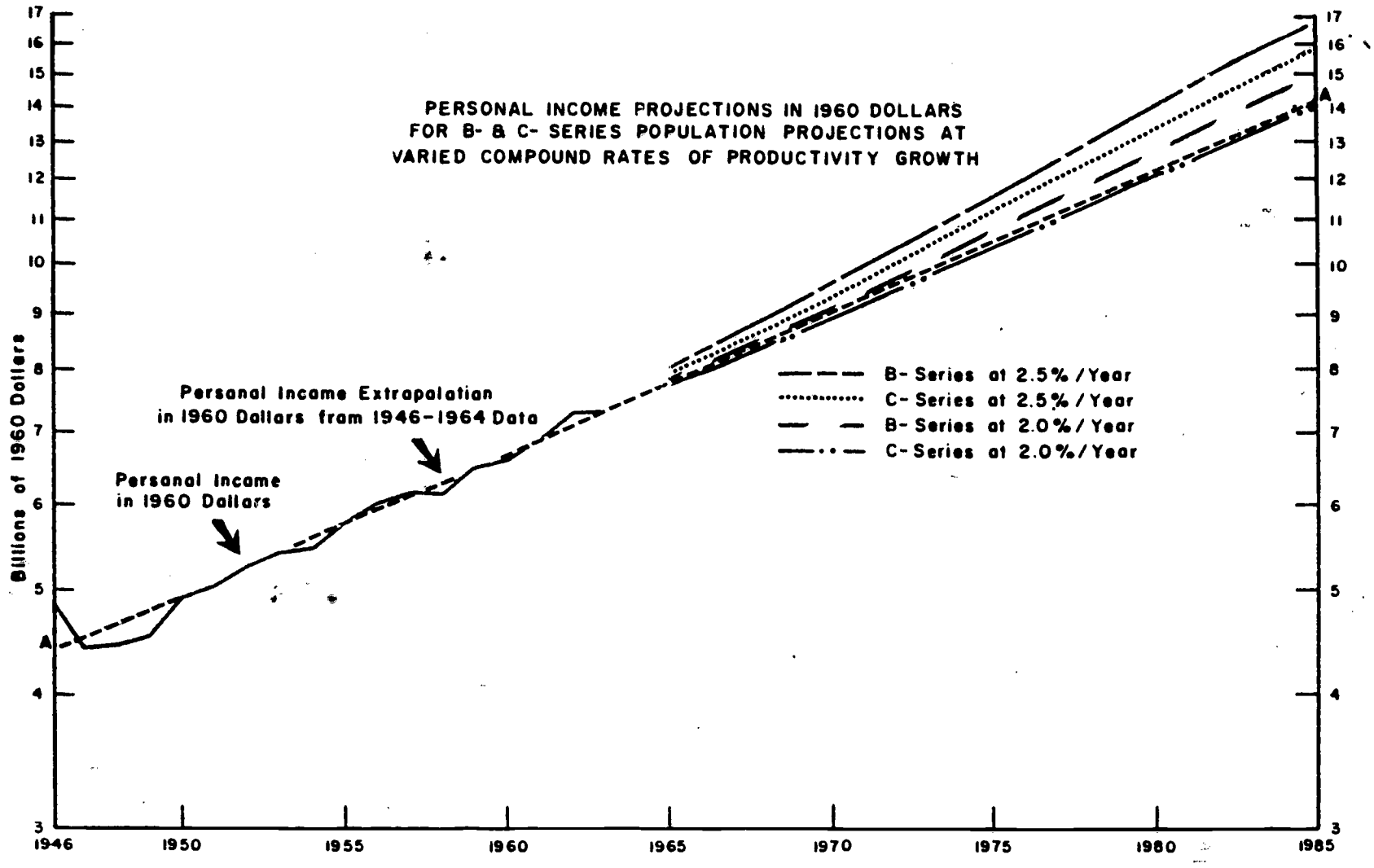
SOURCE: Survey of Current Business, April, 1965, p. 18. Original data were changed from current dollars to 1960 dollars using 1957-59 consumer prices.

1985 following the projected national trend.[2] The armed forces participation ratio is projected to remain at its 1960 level, 1.8 per cent. The unemployment rate is assumed to decline from an indicated 6.6 per cent of the state's civilian labor force to 5.0 per cent in 1965 and remain at that level throughout the period. The average weekly hours worked in the state is assumed to be the same as in the nation, and the average is projected to decline from 40.2 hours in 1960 to 35.7 hours in 1985. Finally since a measure of gross state product is not available, it is assumed that the ratio of gross state product to state personal income is the same as the ratio of Gross National Product to personal income in the nation.

[2]Sophia Cooper and Denis F. Johnson, "Labor Force Projections for 1970-80," Monthly Labor Review, February, 1965, pp. 129-40.

FIG. 2-1

WASHINGTON STATE PERSONAL INCOME TRENDS AND PROJECTIONS, 1946 TO 1985



Source: Table 2-1

Three of the four income projections employing this method exceed the values obtained by extrapolating the past state income trend. In 1985, for example, the extrapolated state income forecast is $14,165 million in 1960 dollars. This compares with projected 1985 values of $14,954 million, B-Series, 2.0 per cent; $16,906 million, B-Series, 2.5 per cent; $13,934 million, C-Series, 2.0 per cent; and $15,753 million, C-Series, 2.5 per cent. The B population Series 2.0 per cent productivity growth projection will form the basis for subsequent analysis. Of the three higher projections, it lies closest to the extrapolated trend line. The low projection, which lies even closer to the trend line, is judged to be less desirable because of a preference for the Census Board's medium population forecast.

Although the extrapolated income forecast is used as a guideline in selecting the final income projection, it is judged to be less useful than a projection using the model outlined above. For example, in making the B-Series 2.0 per cent income projection, we have also implicitly projected total state employment for the years 1965 to 1985. On the one hand this employment forecast is linked to the income projection by the assumptions concerning the average work week and productivity. On the other hand it is linked to the Census Board's medium population forecast by the assumptions concerning employment to population ratios. Therefore the opportunity presents itself to analyze the relationships between projections of population, income and employment. This will be done later.

Table 2-2 depicts the past trend and projected future stream of per capita real personal income for the state. The B-Series 2.0 per cent total income projection has been divided by the B-Series population projection. The past

Table 2-2

WASHINGTON STATE PER CAPITA PERSONAL INCOME 1946-64 AND 1965-85 PROJECTIONS BY B-SERIES POPULATION[a] WITH 2.0% PER YEAR PRODUCTIVITY GROWTH IN 1960 DOLLARS; PER CENT CHANGES BETWEEN SELECTED YEARS

Year	Per Capita Personal Income for B-Series @ 2.0% Per Year Productivity Growth	Per Cent Change	
1985	$3,331	7.2%	
1980	3,107	7.7%	
1975	2,886	8.0%	23.5%
1970	2,673	6.2%	32.4%
1965	2,516		
1964	2,513	9.5%	
1959	2,294	6.7%	27.5%
1954	2,150	9.1%	
1949	1,971		

[a]The population estimates for the years 1965-85 are the Washington State Census Board's B-Series projections.

SOURCE: Survey of Current Business, April, 1965, p. 19. Original data were converted to 1960 dollars.

trend of real per capita income is based upon the series reported in the Survey of Current Business. It should be noted that close comparison of past and projected percentage growth in per capita income is tenuous. The State Census Board's B-Series estimates of state population are somewhat higher than the estimates used by the Survey of Current Business in the early 1960's. The growth rates of the recent past are therefore higher than if the higher State Census Board population estimates were used. However the projected future growth of per capita income is consistent with the state's postwar experience. In the 15 years from 1965 to 1980, an increase in real per capita income of roughly one quarter is forecast. This is approximately the growth experienced in the 15 years from 1949 to 1964. This similarity between the projected future and the recent past flows from the fact that both projected total income and the B-Series population projection are close to their postwar trends. By 1985 the Washington income per person in 1960 dollars is projected to be $3,331, $815 or roughly one-third more than in 1965. It is worth mentioning that the projected 1985 per capita value is but $175 higher than the amount indicated for that year by dividing the extrapolated past trend estimate of total income by the B-Series 1985 population estimate.

Past Trends and Projections of Washington State Personal Income, Personal Disposable Income, and Consumption Expenditures

Having settled upon a projection of state personal income and, by implication, projections of population and employment, the task remains to relate

these magnitudes to the growth prospects of the distribution and service industries. From the discussion of input-output relations it will be recalled that consumer expenditures constitute the principal demand for these industries. Therefore it is an appropriate first step to estimate the relation between personal income and personal consumption spending. Table 2-3 and the accompanying semi-logarithmic Figure 2-2 display the estimates of this relation for the postwar period and the future to 1985.

Table 2-3

WASHINGTON STATE PERSONAL INCOME, DISPOSABLE PERSONAL INCOME, AND PERSONAL CONSUMPTION EXPENDITURES, 1948-63 AND PROJECTIONS, 1965-85

(millions of 1960 dollars)

Year	Personal Income Projection with B-Series Population @ 2% Per Year Productivity	Disposable Personal Income[a]	Personal Consumption Expenditures[b]	Ratio of Disposable Personal Income to Personal Income	Ratio of Personal Consumption Expenditures to Disposable Personal Income
1985	$14,954	$12,579	$11,595	.841	.922
1980	12,695	10,739	9,909	.846	.923
1975	10,721	9,131	8,436	.852	.924
1970	9,052	7,771	7,190	.858	.925
1965	7,817	6,765	6,269	.865	.927
1963	7,319	6,323	5,864	.864	.927
1960	6,597	5,770	5,358	.875	.929
1957	6,132	5,427	5,044	.885	.929
1953	5,402	4,731	4,406	.876	.931
1948	4,439	3,983	3,721	.897	.934

[a]DPI projected using the regression equation between DPI and personal income of: $Y = 0.81464X + 397.288 \times 10^6$.

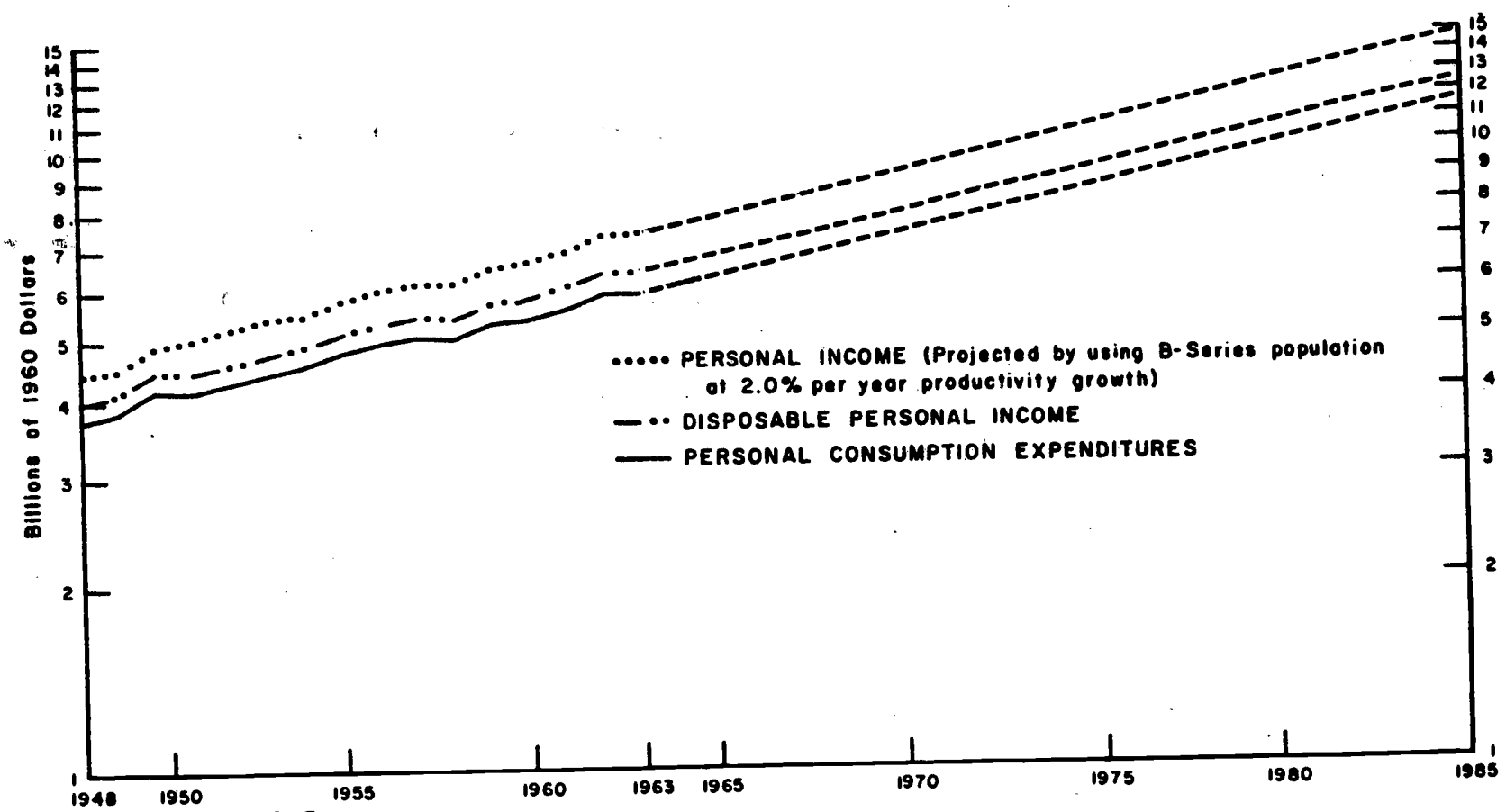
[b]PCE for all years for Washington were found by applying regression equation of DPI and PCE for United States to Washington: $Y = 0.91602X + 72.31 \times 10^6$ for Washington.

SOURCE: Survey of Current Business, April, 1965, pp. 18 and 21. For years 1948-63, original data were changed from current dollars to 1960 dollars.

The personal income series shown is a combination of the price-deflated annual values, as reported in the Survey of Current Business from 1948 to 1963, and the B-Series 2.0 per cent projected values at five-year intervals from 1965 to 1985. State disposable personal income, or income after payment of direct taxes, is based upon a series recently made available by the Survey of Current Business. A regression was made of the relationship between disposable income and personal income over the period from 1948 to 1963, and the resulting coefficients were applied to projected personal income to estimate disposable income in the future. Since estimates of personal consumption expenditures are not available on a state basis, a regression of consumption upon disposable income for the nation was made to estimate both past and projected state consumption spending.

FIG. 2-2

WASHINGTON STATE PERSONAL INCOME, DISPOSABLE PERSONAL INCOME, AND PERSONAL CONSUMPTION EXPENDITURES, TRENDS AND PROJECTIONS, 1948 TO 1985



Source: Table 2-3

As can be seen most clearly in Table 2-3, there has been a slight tendency in the recent past for disposable income in the state to decline relative to state personal income. In turn there has been a slight te dency for consumption spending to decline relative to disposable income. Tnese tendencies have been projected into the future. Accordingly personal consumption expenditures in 1985 are projected to be 3. 3 per cent less (some $383 million) than they would be if the 1963 consumption-income relation was assumed to hold for the future. The projected decline in the ratio of disposable to personal income would seem to be warranted by the evident expansion in the public sector of the economy. However, it is debatable that the savings rate will continue to increase in the coming decades.[3] As it stands the projection of the state's consumption function is slightly unfavorable to the growth prospects of the distribution and service industries. A much smaller share of government and investment spending directly results in demand for these industries than is the case for consumption spending. Accordingly a reduction in consumption spending relative to the other categories of final demand will tend to result in a relative decline in the

[3]The recent decline in the ratio of consumption to disposable income reflects in part the fact that consumption in the early postwar years was abnormally high due to war-deferred consumer needs. For a thorough discussion of long-run trends in consumption-income relations see Milton Friedman's A Theory of the Consumption Function, a study made for the National Bureau of Economic Research.

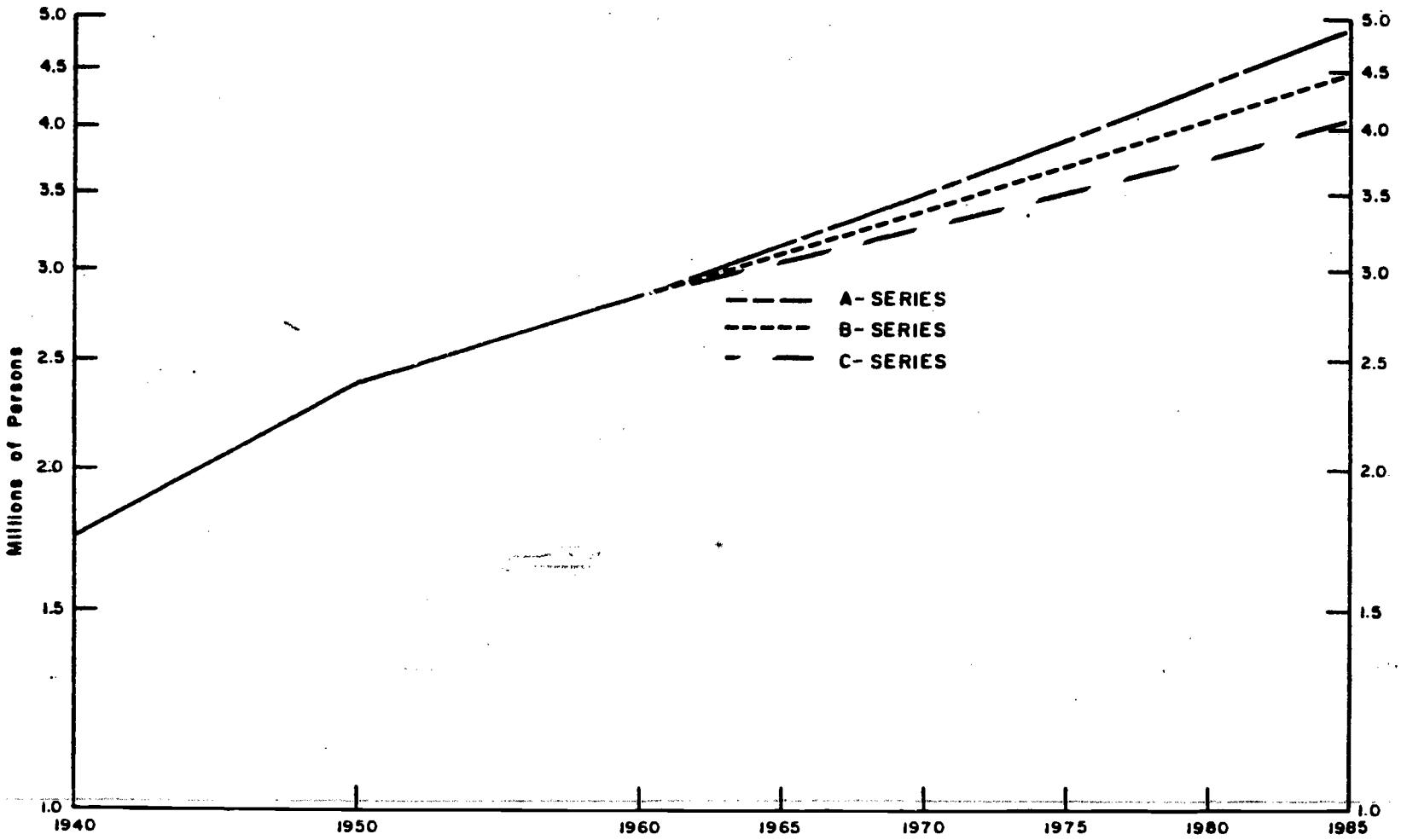
final demand for the distribution and service industries.[4] However, as will be seen in the next chapter, existing trends in the composition of consumption spending suggest an increasing relative demand for these industries.

Washington State Population Projections

A two-decade trend of state population growth and three Census Board projections are displayed in the semi-logarithmic Figure 2-3. From high to low projection it is estimated that there will be 4,919,589 persons, 4,488,945 persons, or 4,058,279 persons residing in Washington by 1985. The medium or B-Series projection assumes a rate of growth per decade approximately the same as that from 1950 to 1960. This projected growth rate also roughly approximates the state's growth experience in several earlier decades of this

FIG. 2-3

WASHINGTON STATE POPULATION TRENDS AND PROJECTIONS, 1940 TO 1985



Source: Washington State Census Board, Population Trends and Forecasts, Washington: 1870 To 1985. Seattle, 1965.

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[4] According to the national input-output study, 56.9 per cent of consumption spending is allocated to distribution and service industries compared with 8.8 per cent and 11.1 per cent for investment and government spending respectively. Applying these percentages to the $383 million mentioned above, the final demand for the output of the distribution and service industries would be roughly $180 million smaller in 1985 than if no relative decline in consumption spending were projected.

century. However, the projection we have chosen for our income forecast is not merely an extrapolation of the population growth rate of the fifties. Assumptions concerning fertility, mortality, net migration, as well as those about war and a national economic depression are involved in each projection. We shall not discuss these assumptions but it should be apparent that the state's population growth itself is dependent upon economic developments in the state. If state income grows more slowly than in the past decade and more slowly than in other states, it is unlikely that the projected population growth will be achieved.

Trends in the Components of Washington Population and Employment

Trends in the composition of state population as well as that of the total population can have a profound impact upon the growth prospects of the state's distribution and service industries. As will be seen in the next chapter, the distribution of population by age and location underlies trends in the relative consumer demand for the outputs of the distribution and services industries. Similarly developments in the composition of population influence the availability, cost and productiveness of labor employed by these industries. For the remainder of this chapter, the relationships between the trends and projections of state population as distributed by age and sex and those in state employment as distributed by age, sex and industry will be examined.

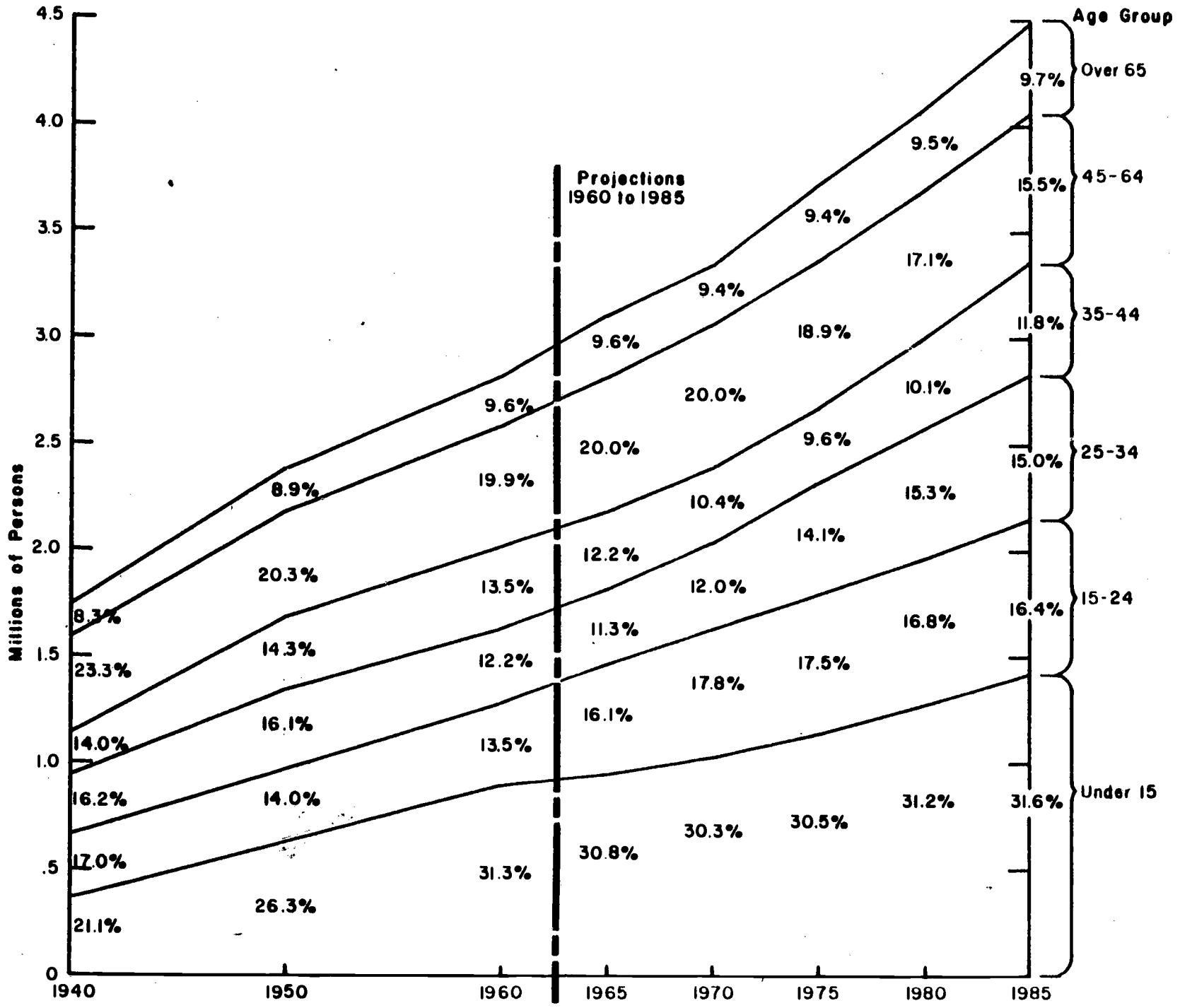
Age Distribution of Washington's Population

Figure 2-4 displays the trend and the B-Series projection of the state population's age composition. The principal cause of this pattern's dynamics is the surge of births that occurred in the immediate postwar years. Between 1940 and 1960, the share of population under 15 years of age increased from 21.1 per cent to 31.3 per cent of the total population. This group's projected share of population remains near the 1960 level, reflecting the assumption that the birth rates of the postwar period will be maintained. The coming of age of those born in the early postwar years is reflected by a reversal of the 1940 to 1960 trend in the share of population between 15 and 24 years of age. This group's share of population declined from 17.0 per cent in 1940 to 13.5 per cent in 1960. By 1965 this group comprised 16.1 per cent of the total, and it is projected to increase to 17.8 per cent in 1970. For the same reason, there is a projected reversal of trend in the share of the 25 to 34 age group. Because of the low birth rates in the 1930's this age group declined from approximately 16 per cent of total population in 1940 and 1950 to 11.3 per cent in 1965. In the future, this group's share will increase to 15.3 per cent. Of course, if birth rates are not maintained in the coming decades, and there is currently some indication of a decline, the shares of these older groups will increase even more than projected. Similarly, the relative size of the population 35 and over will not decline as much as projected here if birth rates are lower than expected.

The effect of these population changes upon the future demand for the state's distribution and service industries is problematical. In any case this is considered in the next chapter. There are more tangible implications for the potential supply of labor. In the past there has been a declining trend in the proportion of the state's population supplying the bulk of the state's work

FIG. 2-4

WASHINGTON STATE POPULATION TRENDS AND B-SERIES PROJECTION BY AGE GROUP, 1940 TO 1985



Sources: U.S. Bureau of the Census, U.S. Census of Population, Washington, Detailed Characteristics, 1940, 1950, 1960.

Washington State Census Board, Population Trends and Forecasts, Washington: 1870 to 1985. Seattle, 1965.

force. Between 1940 and 1960, the share of population 15 and over but under 65 years of age declined from 70. 5 per cent to 59. 1 per cent. For the most part this relative decline reflected the surge in births. But the rising proportion of population 65 and over also contributed to this decline. Significantly, in the face of this decline in the proportion of population in working age groups, state economic conditions during the period necessitated a level of employment which remained virtually constant relative to the growing total state population. Thus, as will be seen, greater labor force participation was required of these working age groups. Women in particular responded to the employment demand, taking full- and part-time jobs at a rate much in excess of the growth in their numbers.

Looking at the future, it is significant that this decline in the proportion of the state's population of working age is arrested. In fact, between 1960 and 1975, a slight reversal of the trend is forecast. Thus, one might conclude that labor in the state will be relatively less scarce in the immediate future than in the past two decades. However, there are several possible offsetting factors that must be considered. For one thing, a trend toward early retirement might reduce the availability of men for employment. Or prevailing attitudes toward women working may change, thereby curbing the availability of women for the labor force. On the demand side, the employment requirements of the state's industry may grow sufficiently fast to compensate for the increased labor supply. In any event the level of total employment that is tacitly assumed by our income forecast does imply that there will be such a compensation.

Composition of State Employment by Age and Sex

Figure 2-5 sheds further light on the matter of labor scarcity in the state. State employment trends and projections are displayed as stratified by age and sex. The most significant development of the past was the increase in the ratio of employed females to female population in all working age groups. Relatively and absolutely the largest female employment increases occurred in the two groups spanning the ages from 35 to 64. Indeed, much of the total state employment growth was accounted for by middle-aged women. Women in the 25 to 34 age group tend to be burdened with small children, so it is not surprising that the employment participation of this group increased only from 24.7 per cent in 1940 to 29.8 per cent in 1960. In contrast, the rate of employment for middle-aged females doubled during this period. The employment rates of young girls and older women also grew less rapidly than those of middle-aged women.

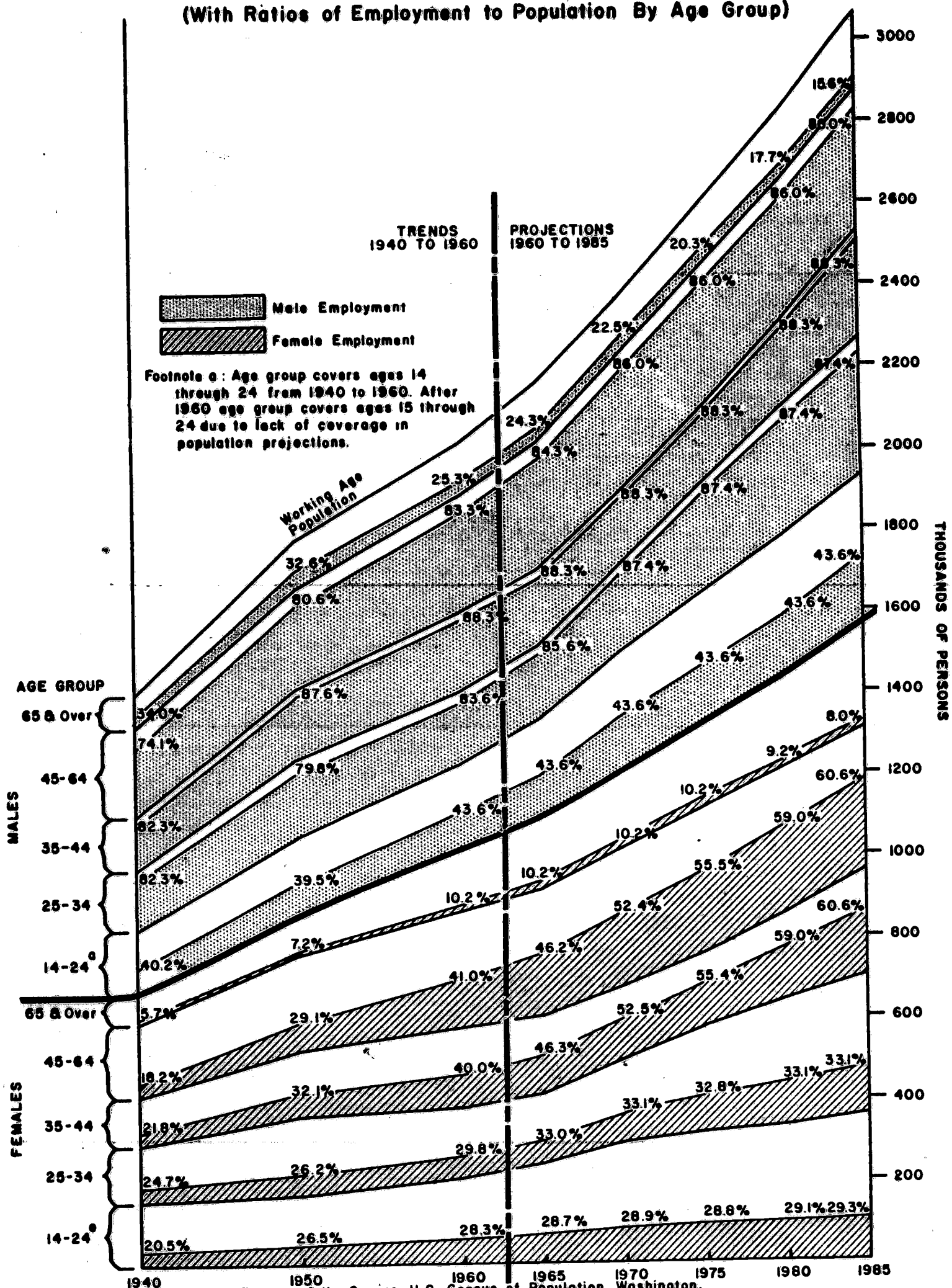
The ratio of male employment to male population in the various age groups did not evidence the same consistent increase. According to Census of Population data, the proportion of males 65 years and older who were employed tended to decline over the period and the proportion of boys and young men between 14 and 24 years of age increased but slightly. Men in the age groups from 25 to 64 evidenced some greater degree of employment participation but the increase in these ratios was much less than for women. Of course the participation of males between 25 and 64 has always been high. And despite the increased employment of middle-aged women, the male employment to population ratios were still more than twice those of women in 1960.

Significantly, the employment ratios of males in the 25 to 64 age groups had reached a level in 1960 where they could not be much higher. The unemployment portion of each age group includes persons not in the labor force because of school, retirement, incarceration and other reasons as well as persons in the armed forces. Considering further that some unemployment is unavoidable because of job switching, a ratio of 90 per cent would be a near maximum for males of these ages in Washington. Therefore future increases in the supply of males of this age group will be for the most part dependent upon growth in their numbers.

In the past 15 years the growth in the number of males in the 25-64 age group was slow, principally because of the reduced birth rates during the Depression. In the future, however, their numbers will increase rapidly as they are joined in the early 1970's by males born in the late 1940's and early

FIG. 2-5

WASHINGTON STATE EMPLOYMENT TRENDS AND PROJECTIONS BY SEX AND AGE GROUP, 1940 TO 1985
(With Ratios of Employment to Population By Age Group)



Sources: U.S. Bureau of the Census, U.S. Census of Population, Washington, Detailed Characteristics, 1940, 1950, 1960.
Washington State Census Board, Population Trends and Forecasts, Washington: 1870 to 1985. Seattle, 1965. B-Series Used.

1950's. The 1950 to 1960 increase of males 25 to 64 years of age was some 40,000, and the 1960 to 1965 increase was estimated to be approximately 24,000. In the last half of the 1960's the increase is estimated to be 38,000 and in the first five years of the next decade the projected increase is 70,000. Considering the fact that Washington is not alone in facing this prospective surge in numbers of prime-age males, these estimates may be considered to be fairly certain.

The section of Figure 2-5 dealing with the 1965 to 1985 projections has special significance because it brings together the State Census Board's B-Series projections of age and sex and total state employment as derived from the study's projection of state personal income. Given these projections the completion of the figure requires only that the total of employment be allocated among the sex and age groups. Except for one age group, the projection of male employment assumes that the ratio of employment to population in each age group remains unchanged or increases slightly from 1960. The exception is that the employment ratio of males 65 years and older is projected to decline as it has in the past. The ratio of the 45 to 64 group is projected to increase from 83.3 per cent in 1960 to 86.0 per cent in 1970 and remain constant thereafter. Males in the 35 to 44 group are assumed to have already reached a maximum rate of participation in 1960 while males in the 25 to 34 age group are projected to reach their maximum rate in 1970. The male group under 25 years of age is assumed to maintain its 1960 participation rate.

With two exceptions, the projection of female employment is based upon the assumption that in each age group the ratio of males to female employment remains approximately as it was in 1960. The two exceptions are the female age groups between 35 and 64 years of age. The employment allocated to these two groups is the difference between the projected total employment and the employment allocated to all other groups.

Given these assumptions and the projected level of total employment, it is seen that in the future, as in the recent past, employment of women 35 to 64 years of age will continue to grow more rapidly than their numbers. The figure indicates that three out of five middle-aged women will have full- or part-time employment by 1985. This compares with a 1960 ratio of two out of five and a 1940 ratio of one in five. In other words the figure depicts a future distribution of state employment by age and sex that implies little departure from postwar trends in labor supply and demand.

There are reasons for doubting that these trends will continue. For one thing it is problematical that middle-aged women, most of whom are married, will continue to offer themselves for employment at a rate exceeding the growth of their numbers. As the incomes of their husbands increase, the necessity of a second income will diminish. Secondly, it is unlikely that female employment opportunities will grow as rapidly as in the past in view of the certain future surge in the numbers of males between 25 and 64 years who must have employment because they are heads of households. In the past the rapid growth of female employment coincided with a slow growth in the numbers of prime-age males. Finally, female employment opportunities will diminish relative to the past if the state's industries do not maintain the high rate of growth of the past two decades.

Composition of Employment by Sex and Industry

Trends in the composition of total state employment by industry and sex are shown in Table 2-4 and Figure 2-6. Although employment is not stratified by age in the figure, the discussion will consider this dimension. In the first place it is plain to see that 1940 to 1960 was a period of rapid employment growth for most industries and both sexes. Between 1950 and 1960 only two modest absolute employment declines occurred among the industry groups exhibited. The distribution and service industries as a group had slightly more rapid growth than total employment. In all industries female employment tended to grow more rapidly than male employment, but it can be seen that the biggest share of female employment increase occurred in the distribution and service industries--particularly in trade and services.

The most noteworthy employment increase outside the distribution and service industries occurred in manufacturing between 1950 and 1960. In this period manufacturing employment grew 38.4 per cent, some 68,000 employees, and the share of total classifiable employment in manufacturing thereby increased from 21.6 per cent to 25.3 per cent.[5] Significantly, this manufacturing employment growth was almost twice as fast as that of the nation in the 1950's.[6] Equally significant is the fact that males from 25 to 64 years of age comprised the bulk of this employment increase, some 45,500 workers. Furthermore it is significant that there were only 50,000 more males of these ages employed in 1960 for the state as a whole. In the fifties, therefore, employable prime-age males in the state were scarce not only because of the slow growth in their numbers but also because they were in great demand from the state's manufacturers. In view of this development it is interesting to see what happened in other industries during this decade.

Between 1950 and 1960 the transportation industry lost some 3,000 employees. The decline was accounted for by males since concurrently female employment in this industry increased by some 1,150 employees. In 1960 there were some 2,050 fewer males between 25 and 64 in this industry. Industries comprising the "other industries" group--agriculture, communications, utilities, construction, mining, fishing and forestry--also lost employment in this decade, some 18,900 workers. Female employment in this group of industries increased by 1,000 workers. The 19,900 decline in male employment included 16,200 men between 25 and 64 years of age. Thus, between these two declining industry groups, some 18,250 prime-age males were released for employment elsewhere. In contrast, 2,150 more women were employed by these industries.

The finance, insurance and real estate industries had relatively more rapid growth in the 1950's than total employment (33.5 per cent compared with 19.3 per cent) and its share of total classifiable employment thereby increased

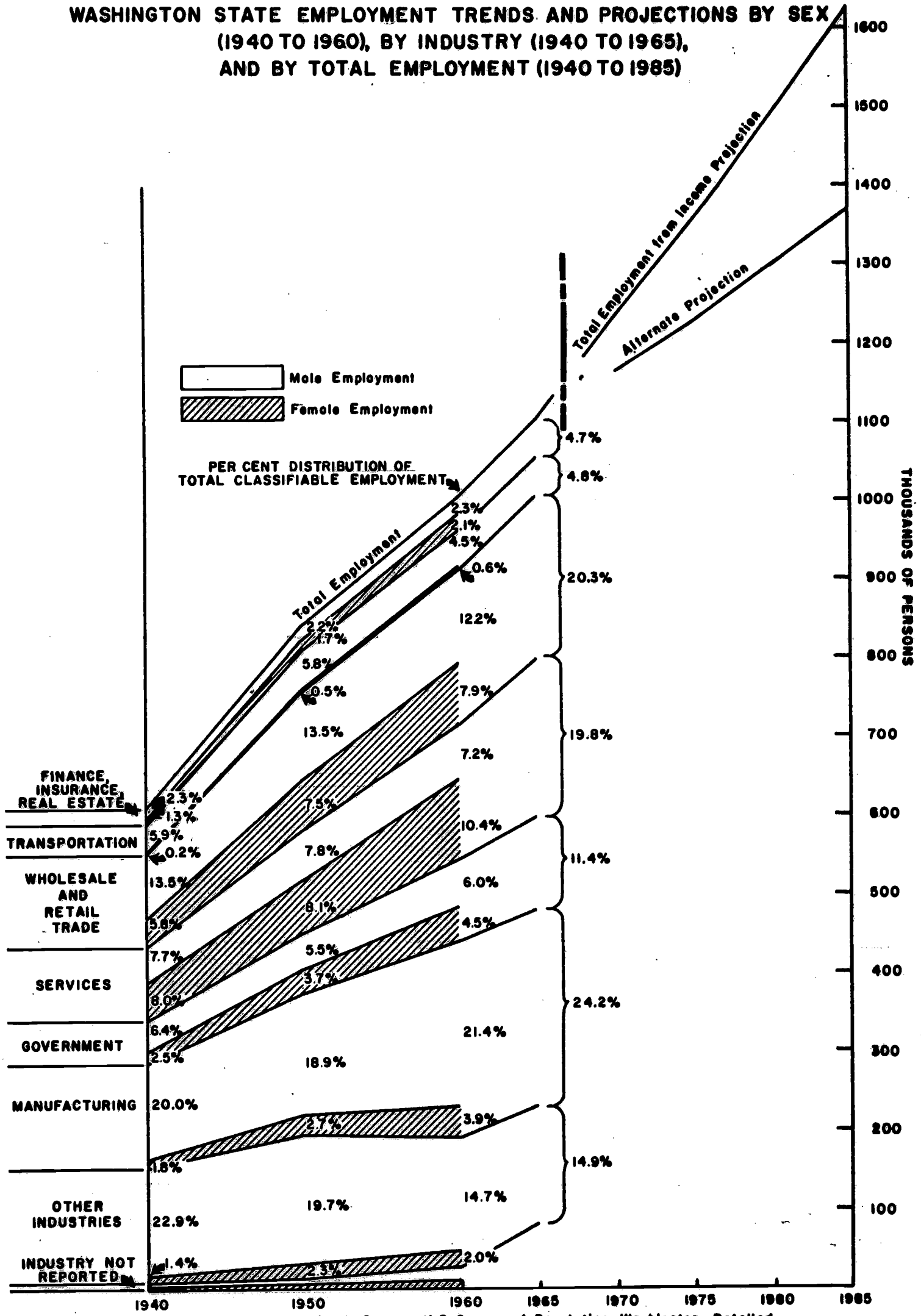
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[5] Classifiable employment is the total less employment where industry is not reported.

[6] Only 13 of the continental states had more rapid 1950 to 1960 manufacturing employment growth than Washington and only three of the 13--California, Texas, and Florida--had greater absolute growth of manufacturing employment than Washington.

FIG. 2-6

WASHINGTON STATE EMPLOYMENT TRENDS AND PROJECTIONS BY SEX (1940 TO 1960), BY INDUSTRY (1940 TO 1965), AND BY TOTAL EMPLOYMENT (1940 TO 1985)



Sources: U.S. Bureau of the Census, U.S. Census of Population, Washington, Detailed Characteristics, 1940, 1950, 1960.

State of Washington, Employment Security Department, Washington Labor Market June 1961 and June 1965.

Table 2-4

WASHINGTON STATE EMPLOYMENT TRENDS AND PROJECTIONS BY SEX (1940 TO 1960), BY INDUSTRY (1940 TO 1965), AND BY TOTAL EMPLOYMENT (1940 TO 1985)

Industry and Sex	1940	1950	1960	1965	1970	1975	1980	1985
Fin., Ins., Real Estate	21,444	32,055	42,802	48,238				
Male	13,737	18,157	22,144					
Female	7,707	13,898	20,658					
Transportation	37,062	52,709	49,684	48,541				
Male	35,623	48,299	44,108					
Female	1,439	4,410	5,576					
Whsle. & Retail Trade	116,117	173,932	196,256	207,050				
Male	81,206	111,762	118,991					
Female	34,911	62,170	77,265					
Services	94,197	131,855	171,197	202,012				
Male	46,286	65,019	69,961					
Female	47,911	66,836	101,236					
Government	53,818	76,075	103,052	116,140				
Male	38,618	45,760	58,827					
Female	15,200	30,315	44,225					
Manufacturing	131,007	178,443	246,938	246,938				
Male	120,019	156,142	208,641					
Female	10,988	22,301	38,297					
Other Industries	145,756	181,833	162,957	151,581				
Male	137,192	162,951	143,062					
Female	8,564	18,882	19,898					
Indus. Not Reported	8,272	12,871	29,023	81,004				
Male	5,645	8,399	17,543					
Female	2,627	4,472	11,480					
Total All Industries	607,673	839,773	1,001,909	1,101,504				
Male	478,326	616,489	683,274					
Female	129,347	223,284	318,635					
Total Employment Projection				1,101,504	1,232,363	1,354,748	1,487,757	1,628,451
Alternate Projection					1,163,403	1,226,463	1,297,727	1,370,395

SOURCES: U.S. Bureau of the Census, Census of Population, Washington, Detailed Characteristics, 1940, 1950, 1960; and State of Washington, Employment Security Department, Washington Labor Market, June, 1961, and June, 1965.

to 4.4 per cent from 3.9 per cent. Like other industries, female employment grew faster than male employment, and by 1960 virtually as many women were employed by the F.I.R.E. industries as men. In absolute numbers employment grew by 10,700 workers. Males between 25 and 64 accounted for 3,600 of these new workers and females 35 to 64 accounted for 4,700. Aside from manufacturing and government, this was the only industry where a significant portion of its employment growth was comprised of males aged 25 to 64.

Wholesale and retail trade added 22,300 employees in this decade but its share of total classifiable employment declined from 21.0 per cent in 1950 to 20.1 per cent in 1960. Females accounted for 15,100 of these new jobs, and since employment of females younger than 35 declined slightly middle-aged female employment grew by 15,600. Although the number of males employed by trade increased by 7,200 during the decade, significantly there was no growth in employment of males 25 to 64. Therefore, middle-aged females, boys and old men made up the growth of trade employment in the fifties.

Employment in the service industries grew more rapidly than trade employment (29.8 per cent compared with 12.8 per cent) and its share of total classifiable employment grew from 15.9 per cent to 17.6 per cent. Apart from this, however, the story is much the same as for wholesale and retail trade. Total service employment grew by 39,300 workers and only 4,900 of the new workers were male. Less than 1,000 additional males of the productive middle ages were employed while 21,500 women between 35 and 64 years of age were added to the payrolls of these industries as part- or full-time workers.

For all of the distribution and service industries, then, total employment grew by some 69,000 workers between 1950 and 1960, about the same absolute growth as in manufacturing. However, whereas manufacturing employed 52,500 more males, the distribution and service industries added but 12,000 males and only 2,300 of these were of the productive middle ages. Of the 57,000 additional females employed by the distribution and service industries, 43,000 were from 35 to 64 years of age. The significance of these industries as an employer of women of these ages is seen when this increase is compared with the 72,000 growth in employment of middle-aged women for the state as a whole. In contrast, manufacturing employed 16,000 more females, 11,400 of which were of the middle ages.

Summing up past developments, employment in the distribution and service industries grew more rapidly than total state employment; but these industries provided surprisingly few new jobs for males between 25 and 64 years of age. Yet the growing employment demand of these industries was a major reason why females, particularly middle-aged females, entered the work force at a rate faster than the growth in their numbers. Underlying these developments was an apparent scarcity of males of the productive middle ages. The numbers of males between 25 and 64 grew slowly in the fifties, principally because there was an absolute decline of some 17,000 in the numbers of males between 25 and 34. There was some compensation for this demographic development in the fact that middle-aged males increased their rate of work force participation. Moreover, as noted above, some of these males were released from employment in agriculture and other industries. At the same time, however, there was an exceptional growth in the state's manufacturing that required almost all the available males of these ages.

Future Trends

Looking at the future, the situation seems sure to change. In the absence of a massive trend toward early retirement or a large scale war mobilization, there is certain to be a rapid future growth in the availability of males of prime working age. Secondly, it is unlikely that the growth of manufacturing employment in the next decade or two will match its postwar growth, much less grow rapidly enough to absorb the markedly increased number of these males. Nor is it likely that there will be compensating employment growth in the "other industry" group, which traditionally has employed a large fraction of these males.

Several consequences seem to follow. The increasing trend in the ratio of female to male employment in all industries will be arrested, if not reversed. Specifically, unlike the recent past, the trade and service industries will absorb a significant fraction of the growth in the numbers of prime-aged males. We can only surmise what impact this shift may have upon the operations of these industries. One possibility suggested by the next chapter is that worker productivity in the distribution and service industries will be improved by replacing women who are mostly working wives with men, who are apt to be well-motivated heads of households. And if this happens these industries will be better able than in the past to pay wages suitable for such men. A related consequence is that relatively fewer women will seek and be given employment than in the past. That is to say, the future growth of female employment may be less than the growth in the numbers of working-age women. For this reason, even if there is no trend toward early male retirement, total employment in the state may not grow as rapidly as projected or, for that matter, as rapidly as in the recent past.

A preview of some of these changes is seen in the section of Figure 2-6 dealing with 1965. According to the estimates of a recent issue of the Washington Labor Market, the total employment for 1965 projected from our income model is a few tens of thousands in excess of the actual total.[7] Projecting 1960 to 1965 industry trends on the basis of changes in data reported in this publication, we get the following results.[8] Most significantly, manufacturing employment showed no growth from 1960 to 1965, and its share of total

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[7] State of Washington Employment Security Department, Washington Labor Market, June, 1961, and June, 1965. Total state employment projected for 1965 is 1,101,504. April, 1965, employment was estimated to be 1,062,200 by the Employment Security Department.

[8] April, 1960, to April, 1965, percentage changes in the number of wage and salary workers in each industry as reported in the Washington Labor Market were applied to 1960 industry employment totals from the 1960 Census of Population. The resulting sum of industry employment totals in 1965 is less than the projected total employment shown in Figure 2-6. One reason for this is that the projected growth of total employment exceeds that shown by the Employment Security Department. This difference is reflected by a sharp increase in the industry not reported component. This component is not included in total employment for purposes of computing relative industry shares. But it is unlikely that general conclusions about relative industry trends would change if it were possible to allocate the not reported component among the various industries.

classifiable employment declined from 25.3 per cent to 24.2 per cent. Moreover, other traditionally male-dominated industries--transportation and the group consisting of agriculture, construction, mining, forestry and fisheries, communications, and utilities--continued their postwar employment declines. On balance, therefore, it appears that industries comprising the so-called economic base of the state provided fewer jobs in 1965 than five years earlier.

Government employment continued to grow more rapidly than total employment, and its share of classifiable employment grew from 10.5 per cent to 11.4 per cent in the five-year period. Also, except for transportation, the distribution and service industries continued their postwar growth. By 1965 virtually half the classifiable employment was accounted for by these industries. The most rapid growth occurred in services and the share of classifiable employment in these industries grew from 17.6 per cent in 1960 to 19.8 per cent in 1965. Finance, insurance, and real estate, and wholesale and retail trade employment grew less rapidly than service employment. Nevertheless, these industries approximately maintained their growth rates of the fifties, and the shares of total employment in these industries increased from 1960 to 1965. Thus, the growth of the distribution and service industries employment was not apparently affected by the failure of economic base employment to grow in the early years of this decade.

Information concerning the distribution of industry employment by sex and age is not available for 1965. However, it is likely that increasing numbers of males between 25 and 64 years of age found employment in the trade and service industries. This departure from the experience of the 1950's seems probable because employment in manufacturing and other male-dominated state industries tended to decline in the early years of this decade while, at the same time, it is estimated that the numbers of Washington males of these ages grew by about 24,000.

Alternate Total Employment Projection

From what has just been said there is reason to doubt that total state employment will grow as much in the coming decades as projected by the income model. Therefore the question arises as to the plausibility of the assumptions underlying the earlier income projection. More particularly, are the projections of total income and population too high? Recalling the assumptions of the income model, this need not be the case. The selected total income projection can be made consistent with a lower employment projection by modifying the assumed productivity growth rate and average workweek. Similarly, the selected total population projection can be made plausibly consistent with a lower employment total even without contemplating such unpleasant possibilities as a higher rate of unemployment, lower mandatory retirement age, and increased manpower demands by the armed forces.

To give the discussion a quantitative basis, Figure 2-6 depicts a lower total employment projection. This alternative projection is based upon judgments reflecting the relative industry prospects just discussed. First, the state's manufacturing employment is projected to grow less rapidly than in the last two decades. From 1965 it is projected to grow at a rate of ten per cent per decade. Despite its declining past trend, employment in the industry group consisting of agriculture, construction, forestry and fisheries, communications, utilities, and mining is projected to remain at its 1965 level. Similarly the industry not reported component is assumed to remain unchanged

from 1965. The growth of government employment is projected to be somewhat less rapid than in the recent past, 20 per cent per decade. Finally, employment in the distribution and service industries is projected to grow at a slightly higher rate than in the past, 15 per cent per decade.

Given these assumptions, total state employment is projected to be some 250,000 less in 1985 than the total originally projected. Despite the magnitude of this difference comparatively minor changes in the average workweek and productivity are required to make the previously selected income projection consistent with the lower employment projection. If the average workweek remains at 40.2 hours instead of declining to 35.7 hours as initially assumed, the lower projection of employment would yield the same total income with a 2.2 per cent productivity growth rate instead of the initially assumed 2.0 per cent rate. Alternatively, if the average workweek declines as initially assumed, a 2.7 per cent annual growth in output per man hour will enable the alternative employment projection to produce the same stream of total income as before.

Similarly, future state population need not be less than the B-Series projection even though total state employment grows more slowly than initially assumed. As noted above, much of the growth in state employment in the past has been the result of the fact that female employment grew faster than male employment and faster than the growth in the numbers of women of working age. If this past trend is arrested, much of the observable difference between the two employment projections could be accounted for by a tendency for relatively fewer Washington wives of the future seeking employment outside the home. In other words, if there is sufficient growth of productive and well-paying jobs to accommodate the rapidly growing number of male heads of households, relatively fewer Washington wives will feel compelled to supplement their husbands' incomes. Therefore total population may grow as much as projected even though total employment does not.

However, if the relative industry prospects are as described above, the question arises as to whether there will be sufficient growth in well-paying jobs for males. More particularly, can the state's distribution and service industries supply a rapidly growing number of these jobs? In the postwar period they have not, and the proportion of employment in these industries consisting of prime-age males declined from 54.2 per cent in 1940 to 42.8 per cent in 1960. However, as already noted, males between 25 and 64 years of age were in short supply and most were able to find more productive and higher paying jobs outside the distribution and service industries. This trend was evident in the nation generally, and possibly because of it, productivity growth in the distribution and service industries was less than that of commodity producing industries.

Barring an unforeseeable rapid growth in employment of traditionally male-dominated industries, a rapidly increasing number of prime-age males will be seeking employment with the distribution and service industries in Washington by the early 1970's. By one set of assumptions, there will be more than 30,000 males of the ages between 25 and 64 added to the payrolls of the state's distribution and service industries in the present decade. In the 1970's, because of the surge in the numbers of males between 25 and 34, virtually 100,000 more males of prime age will be employed by these industries. In contrast, the distribution and service industries added but 2,300 males of these productive middle ages in the 1950's.

If these employment expectations are to be fulfilled, it seems necessary that there be productivity and wage improving changes in the character of operations by these industries. Despite a presumed edge in productivity, males might be hard-pressed to outcompete lower paid females for many jobs that are presently available in the distribution and service industries. In any event, if worker productivity in these industries does not increase faster than in the past, the expected relative shift in employment from commodity-producing industries to these industries may result in the state's economy failing to achieve the expected growth of personal income.

Chapter 3

SOME FACTORS AFFECTING EMPLOYMENT IN THE DISTRIBUTION AND SERVICES INDUSTRIES

The nationwide gain in employment in the distribution and services industries in comparison with commodity-producing industries has been especially significant during the postwar period, but this merely constitutes an acceleration of a long-time trend. From 1870 to 1920, the shift in employment can be explained entirely by the relative decline of agriculture. This is not true, however, of the period since 1920; the production of nonagricultural goods has shown less increase in employment than has the distribution and services sector. During the last decade, in fact, there has been no growth at all in employment in the nonagricultural commodity-producing sector. [1]

Whether and to what extent this trend in employment will continue in the future depends upon a number of factors, including certainly those which have influenced it in the past. Some of the possible factors are as follows:

1. Hours worked per person per week in the distribution and services industries have fallen more rapidly than have the hours worked in commodity-producing industries, thus requiring an increase in employment to maintain output.

2. Productivity, or output, per employee has risen more rapidly in the commodity industries than in the distribution and services sector, thus requiring relatively fewer employees for a given level of output. The causes of this greater productivity in the commodity industries include a more rapid rise in the quality of labor employed, a more rapid increase in the amount of capital utilized per worker, and greater technological changes.

3. Consumer demand for services has risen more rapidly than for commodities because of rising consumer incomes and as a result of certain structural factors such as the trend toward urbanization, the movement of population from the central cities to suburbs, and increasing leisure time.

We shall now attempt to evaluate the influence of these factors upon past trends in employment and speculate upon their future influence. Much of the analysis concerns the entire United States economy rather than the economy of the state of Washington because data are readily available only for the nation. The trends involved, however, are nationwide, and the conclusions of the analysis with perhaps a few exceptions should be equally applicable to the state and to the nation.

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[1] Victor R. Fuchs, "Some Implications of the Growing Importance of the Service Industries," The Task of Economics, 45th Annual Report (New York: National Bureau of Economic Research, June, 1965), p. 6.

Hours of Work

According to studies of the National Bureau of Economic Research, hours worked per person per week in commodity production, including agriculture, declined from 52 in 1869, to 47 in 1929, to 43 in 1949. In wholesale and retail trade, the corresponding figures were 66 in 1869, 54 in 1929, and 44 in 1949.[2] In the entire distribution and services sector between 1929 and 1961, hours worked per week decreased 0.4 per cent per year faster than in the commodity industries, although most of this decrease took place before 1947.[3]

It is thus evident that the much greater decline in the work week shown by the distribution and service industries has been an important factor in the past in the relatively greater growth in employment obtained in these industries. It is also evident that this factor will not be an important one in the future in sustaining this growth trend. As of 1949, hours worked per week in wholesale and retail trade were virtually the same as in commodity production, although still approximately ten per cent higher than in the manufacturing segment of commodity production. At the present time, any difference between the two sectors as to hours worked per week per employee is undoubtedly negligible.

The Productivity Factors

It is the conclusion of the National Bureau of Economic Research that productivity in the distribution and services industries has grown less rapidly in the past than has productivity in the commodity-producing industries, thus requiring a constantly increasing number of employees in the former relative to the latter. Output per man-hour between 1869 and 1949 grew at a mean annual rate of 2.6 per cent in commodity production compared with a rate of 1.0 per cent in distribution. The productivity differential was especially great between 1909 and 1949, amounting to 3.0 per cent for commodity production compared with 0.9 for distribution.[4] For the entire distribution and services sector between 1929 and 1961, output per man-hour increased by 1.57 per cent per year compared with 2.92 per cent for commodity production.[5] The major reasons for these differentials appear to be a more rapid rise in the quality of labor, a more rapid growth in the amount of capital used per worker and greater technological change in the commodity-producing industries than in the distribution and services industries.

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[2] Harold Barger, Distribution's Place in the American Economy since 1869 (Princeton, N. J.: Princeton University Press for National Bureau of Economic Research, 1955), p.11.

[3] Victor R. Fuchs, Productivity Trends in the Goods and Services Sectors, 1929-61, A Preliminary Survey, Occasional Paper No. 89 (New York: National Bureau of Economic Research, 1964), p. 12. In this study, the services sector includes general government, and the commodity sector includes transportation and public utilities as well as agriculture.

[4] Barger, op. cit., p. 39.

[5] Fuchs, Occasional Paper No. 89, op. cit., p. 13.

Labor Quality

The quality of labor is a somewhat intangible characteristic which is difficult to measure. Age and education, however, are two characteristics which presumably contribute to labor quality and which are measurable. The analysis of the National Bureau of Economic Research indicates that between 1930 and 1960 the percentage of workers between the ages of 25 and 64 increased much more rapidly in the commodity sector than in distribution and services. There was also apparently a relative gain in the proportion of workers with twelve years or more of education, although the data are less complete.[6] Accepting the conclusion that in the past labor quality has risen more rapidly in commodity production than in distribution and services, the question is whether this will continue in the future. The answer is difficult, perhaps impossible, to determine but would appear to be a qualified "yes."

One reason for this conclusion is that the service industries currently make, and have always made, more use of persons with a higher education.[7] This is not true for all service industries, but it is true on the average. On the one hand, the service sector includes medicine, law, education, finance and similar professions which have always attracted persons with a high degree of education, thus presumably a high quality of "labor." On the other hand, there are a number of relatively low-pay service trades which attract the more poorly educated and presumably a somewhat low quality of labor. In neither of these categories does it appear that the quality of labor will increase significantly in the future in such a way as to expand materially output per worker, at least in the sense in which output is now measured.

Another possible factor in the situation is that the service and distribution industries employ relatively more women and more older workers than do the commodity-producing industries.[8] The significance of this fact is that many of these workers are part-time employees, and even with respect to the full-time employees there is a relatively high rate of turnover in comparison with younger male workers. The incentive to improve the quality of performance is often lacking and additional training is seldom undertaken because the particular job is not regarded as involving a permanent career. Thus improvement in the quality of labor does not take place as it often does with younger male employees who desire job advancement.

In addition, it would seem that the advances in technology that have been made recently, and that will continue to be made, in the commodity-producing industries will require more and more the employment of a higher quality of person. Similar advances have not taken place in the past in the distribution and services industries, and despite certain recent developments which will be mentioned in the next section they are not likely to take place in the future on a scale comparable with that of the commodity-producing industries.

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[6] Ibid., p. 29.

[7] Ibid., p. 27.

[8] About 45 per cent of all distribution and service workers are women compared with one-fifth in production. Ibid., p. 29

Thus it would appear that increases in the quality of labor will continue to be greater in commodity production than in distribution and services. On the other hand, as has been pointed out in Chapter 2, the greater supply of male employees that will be available in the future in the prime-age groups should result in an upgrading of the quality of labor available to the service and distribution industries. It may be noted, moreover, that the impact of labor quality upon employment is difficult to measure quantitatively and that its effect may well be less in the future than it has been in the past. Improvement in the quality of labor presumably would be most effective in reducing the employment of the less skilled workers. So much progress in technology has been made already that there are presently some commodity-producing industries which have little if any unskilled and semi-skilled labor to displace. In other words, there may be less potential for this type of improvement in the future than there has been in the past, although it seems likely that the same general trend will continue in some degree.

Technological Change and Capital Input

The commodity industries employ about twice as much capital per worker as do the distribution and services industries. This ratio, however, has probably not changed a great deal since 1929. Fuchs indicates that the effect on output per employee of relatively greater capital inputs during the 1929-61 period in the commodity industries appears to be small.[9]

Although specific information is lacking, it would appear that the commodity-producing industries make better use of their capital inputs than do the distribution and services industries in the sense that there has been more technological advance in the former than in the latter. Improved machinery, equipment and processes have increased output much more rapidly than employment in the commodity industries. The crux of the argument here really involves the long-time trends, as well as the more recent developments, in mechanization and automation. It is general knowledge that many of these developments have been nothing short of spectacular in the commodity-producing sector.

In the distribution and service area, however, developments have been much more modest. It is true, of course, that many wholesale warehouses have automated their order-picking procedures. Automatic handling equipment and improved building layout have permitted a more rapid and mechanized handling of stocks both in wholesale warehouses and in retail stores. Automatic conveyors and better cash registers have speeded up supermarket check-out operations to some extent. Laundries, dry cleaners and repair shops have improved both the quantity and quality of their machines and equipment. And other examples could be mentioned such as teaching machines.

But on the whole, the distribution and service industries by the very nature of the services they render must rely upon human skill in large part. And this is likely to continue to be the case during the foreseeable future. It is true that investment analyses are beginning to be made on computers. And from time to time, someone reactivates the dream of a completely automated supermarket where the shopper's list of items will be collected, billed and

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[9] Ibid., p. 39 and Section 5.

delivered without the use of human hands. But the investor is likely still to want to talk to his account executive, and the supermarket shopper apparently still prefers to shop and to see the merchandise before final selection. Therefore, it appears that for a long while the commodity-producing industries will continue to advance more rapidly in automation and mechanization than will the distribution and services industries. In other words, the more rapid rise in productivity, as measured by output per man-hour of labor or per person employed, will continue. Possibly the differences between the two sectors will not be so great in the future as they have been in the past, but the general trend shows little sign of reversal at the present time.

The Significance of Productivity

The previous analysis would indicate then that, so far as the productivity factors are concerned, employment will continue to rise more rapidly in the distribution and services industries than in the commodity-producing industries. This does not mean, however, that the distribution and services industries will necessarily achieve the full measure of their growth potential so long as these differences in productivity exist. There are at least two important reasons for this.

The first reason involves the competition for labor between the commodity industries and the distribution and services industries. With a slower rate of productivity growth in the latter, wage rates have tended to lag behind those in the commodity industries, except for certain professional service categories, such as medicine and law, where monetary remuneration has risen quite rapidly during the postwar period. The result is that the commodity industries have attracted generally not only an adequate supply of labor but also a higher quality of personnel. This has left the distribution and services industries with inadequate manpower, both quantitatively and qualitatively, which has hindered their development. At the present time, there would undoubtedly be even greater employment than there is in the distribution and services industries if adequate skilled manpower were available.

The second reason grows out of the first and involves consumer satisfaction and demand. With only a poor quality of service available in many instances, consumers have increasingly adopted a do-it-yourself philosophy. With an inadequate quantity of service and relatively low productivity, which has led to higher real prices for virtually all types of services, consumers have often chosen to forego the purchase of services, e.g. to buy new products rather than to have old ones repaired. The next section of this chapter will explore in much greater detail certain aspects of consumer demand. For the moment, so far as productivity is concerned, it may be concluded that there are two sides to the coin. On the one hand, a slower rate of productivity increase in the services industries will continue to result in increasing employment. On the other hand, for those services with an elastic demand, failure to increase productivity will result in constantly rising real prices and thus a relatively low growth rate. On balance, the productivity factors appear to point for the future toward a relatively greater rate of employment growth for the distribution and services industries than for the commodity-producing industries.

The Consumer Demand Factors

The purpose of this section is to attempt to determine the effect upon service industry growth of such factors as rising incomes, the trend toward urbanization, the movement to the suburbs, and increasing leisure time. It seems evident from the preceeding discussion that the factors which in the past have led to a relatively greater growth in employment in the distribution and services industries will not be so influential in the future. In particular, reduction in hours worked per week per employee will be of relatively little consequence. Although the productivity factors are likely to continue to favor employment in distribution and services at the expense of commodities, much depends upon the future consumer demand for services. The question then is whether continually rising incomes and changes in the style of living will result in a greater relative demand for services than for commodities.

The answer to this question is not easy to obtain since it involves forecasting changes in consumer tastes. However, we have had during the postwar era a virtually uninterrupted period of rising income, which we may assume will continue indefinitely. Most people have also had increasing amounts of leisure, a trend which also appears likely to continue. Population shifts have taken place from rural to urban areas and from city centers to suburbs, movements which may well continue although perhaps on a reduced scale. In particular, the shift from rural to urban dwelling has progressed so far that there are not too many people remaining to move. In addition, there has been some evidence recently of a slowing down in the "trek to the suburbs."

In any event, the analysis in this section assumes that the changes in income and in the style of living prevalent since World War II will continue in the future. With this assumption in mind, trends will be examined in the proportion of consumer expenditures made for various commodities and services during the postwar period. For the future, it is assumed that in large part these trends will continue. Undoubtedly, there will be exceptions as unanticipated factors influence consumer spending patterns in the future. However, many of these trends have existed for a longer period of time than merely the postwar era and undoubtedly will continue into the foreseeable future. Before proceeding to this analysis, however, it is desirable to discuss briefly the influence of these factors upon the pattern of consumer expenditures.

Relation of Certain Demand Factors to Consumer Expenditures

In considering the relative demand for services vs. commodities, there is a tendency for one to assume that increasing incomes, more leisure, and other similar changes will automatically result in relatively greater expenditures for services than for commodities. After all, there would appear to be a limit of some type to the amount of food, clothing and shelter that can be consumed, and relatively few families should be able to use advantageously more than two or three automobiles. The problem, however, is a somewhat more complex one than might appear at first glance.

In the first place, there is little evidence that the income elasticity of demand for services is as yet significantly higher than that for commodities. Fuchs states that for the period since 1929 the income elasticity of demand may have been slightly higher for services than for commodities but not higher than

for commodities excluding agriculture.[10] Of course, there are no doubt a number of services, as there are a number of commodities, for which the income elasticity of demand is high. But these must be located, and at present it is not possible to state categorically that rising incomes in the future will increase the demand for services in total relative to the demand for commodities in total. This may actually occur in the future as incomes continue to rise, but undoubtedly the increase in demand will not be spread uniformly over all of the service industries. And for that matter, there will be service industries that will decline in relative importance in the future as they have in the past regardless of any general changes that may take place in the income elasticity of demand.

Nor does it follow that a factor such as increased leisure will necessarily result in a demand for services at the expense of commodities. With more leisure time, a man may become a do-it-yourself enthusiast thus increasing his demand for tools and possibly reducing his demand for repair and similar services. When he had only a half day off on Saturday, he spent the time watching a baseball game. Now with a full day off he plays golf, thus dividing his recreational expenditures between commodities and services rather than concentrating them entirely on the latter. The man with one week of vacation in the summer took his family to a lake resort or a mountain cabin. Now that his vacation period has been lengthened to three weeks or a month, he finds it preferable to buy a house trailer or camper and uses it for living quarters during his vacation. Thus changes in the style of living do not necessarily result in increased expenditures for services in relation to commodities.

Population Changes: While changes in the population, such as the age distribution and the location of residence, can be predicted in some degree, the effect of these changes upon consumer expenditure patterns is more difficult to discern. The most notable effect of the postwar surge in the birth rate was the rapid growth in demand for educational services from government. This demand will remain at a high level, but future growth after 1970 will depend more upon increases in the average number of years of schooling received per student than upon a large year-to-year increase in the numbers of students.

As a matter of fact, the adult population of the entire nation, as well as of the state of Washington as shown in Chapter 2, is becoming increasingly dominated by persons under 35 years of age. It is possible that this could have an adverse effect upon the demand for personal services. For one thing, young adults tend to spend less for such items as medical care than do older people. Of more importance is the effect of new household formation upon the demand for commodities and services. The great increase in number of new households that will take place during the next ten years will create a greater demand for items for which the family is the consuming unit--such as housing, furniture, and other consumer durables--than for items for which the individual is the consuming unit, which includes most services. Eventually, a more "normal" age distribution of the population will be achieved, and past trends in consumption expenditures will probably be resumed. It may be noted also that, with a rising level of real income, the new generation of households will have many more consumption options at any stage of the life cycle than did its parents. Thus it is hazardous to attempt to predict future trends in consumer expenditures.

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[10] Fuchs, The Task of Economics, op. cit., p. 7.

Changes in the location of the population are perhaps even more difficult to interpret. In Figure 3-1 changes are shown in the location of the population of the state of Washington between 1940 and 1960 with partial projections to 1985 by the Washington State Census Board. Between 1940 and 1960, the state's three metropolitan areas--Seattle, Spokane, and Tacoma--grew relatively faster than total population. This trend of greater relative growth in the metropolitan areas is expected to continue in the future but at a somewhat less rapid rate than in the past.

From 1940 to 1960, population in suburban areas tended to grow much faster than central city population, and despite annexation of some of these areas central city population declined as a share of population in the metropolitan areas. Outside metropolitan areas, urban population tended to grow at the expense of rural population. Rural farm population declined absolutely during this period. In summary, population has tended to move from rural areas--particularly farms--to the state's large cities, and within large city areas population has tended to move from central cities to suburbs.

These trends are significant for several reasons. For one thing, as population has tended to concentrate in the large metropolitan areas it is probable that employment in retail stores has increased less rapidly than it would have had population remained more dispersed. More retail stores are required per unit of population to serve smaller cities and rural areas than are necessary for larger cities. Moreover, sales volume in relation to population tends to be higher in the medium-sized and small cities than in the largest ones.[11] There is also some evidence, although a complete study has not been made, that states with a more dispersed population have more retail store employees per unit of population than do similar states with a more concentrated population.

Apart from this, a shifting population may result in changes in the composition of consumption spending. A cross-section view of consumer uses of income such as provided by the 1960-61 Survey of Consumer Expenditures (see Table 3-1) reveals that the pattern varies according to location of residency. In the West, as in the nation, rural farm consumers tend to spend relatively less of their income for consumption. Therefore, the trend to move from the farm is a force for a higher ratio of spending to disposable income in the state as a whole.

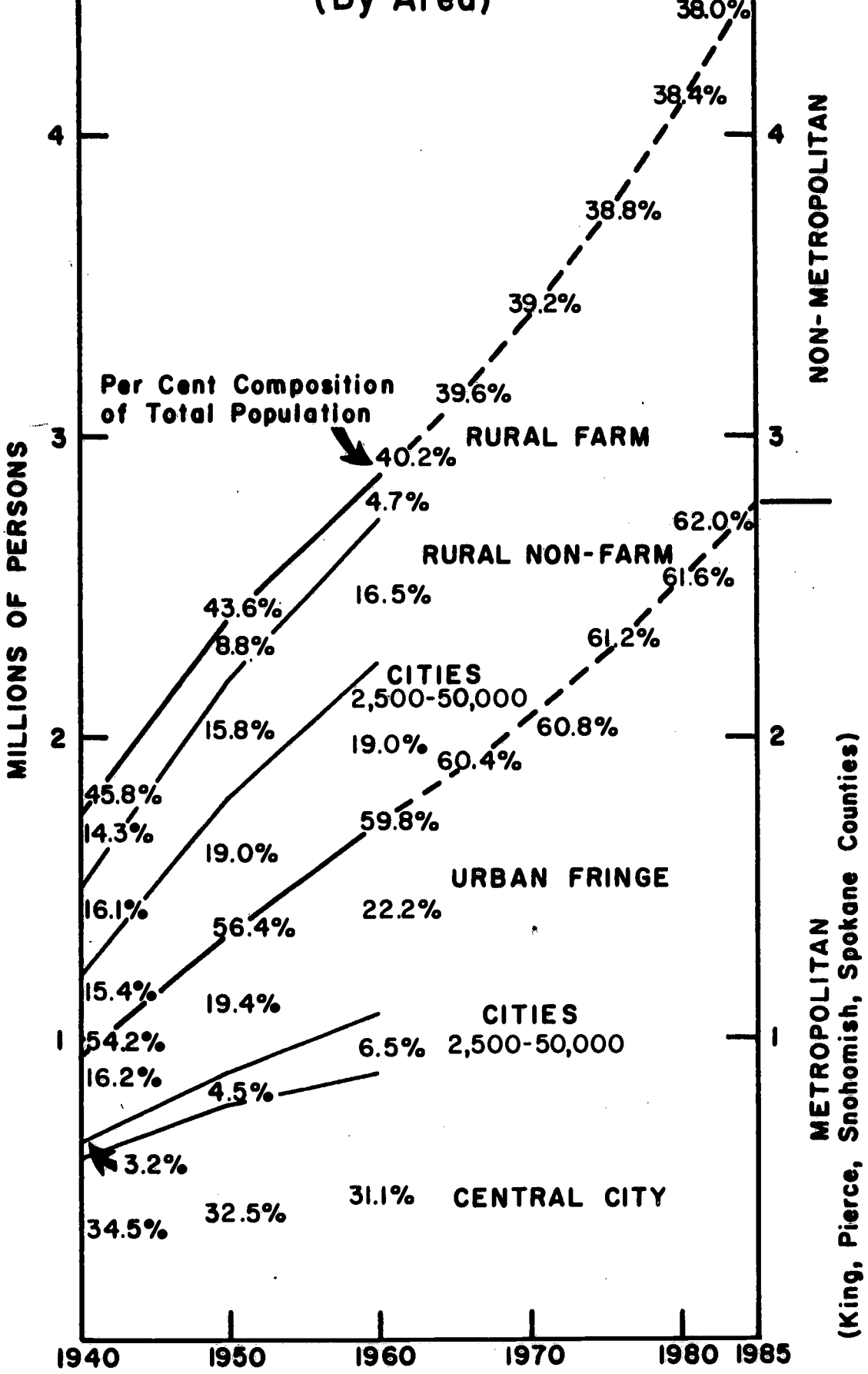
Rural consumers--especially nonfarm residents--tend to allocate more of their consumption spending to food than do metropolitan residents. City consumers spend relatively more for housing and for household operation than rural consumers but less for utilities and furniture. City consumers, who are becoming relatively more numerous, tend to spend relatively less for clothing than do rural farm consumers. As might be expected, suburban consumers tend to spend relatively more for transportation than central city residents; so the shift of population from city to suburbs tends to favor an increase in this allocation for the aggregate of consumers. On the other hand, suburban consumers allocate relatively less to this purpose than do rural nonfarm

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[11] For data on these matters, see R. D. Tousley, E. Clark and F. E. Clark, Principles of Marketing (New York: Macmillan Co., 1962), pp. 169-71.

FIG. 3-1

WASHINGTON STATE
POPULATION TRENDS AND PROJECTIONS
1940 TO 1985
(By Area)



Sources: U.S.Census of Population, Washington, Detailed Characteristics, 1940, 1950, 1960. Washington State Census Board, Population Trends and Forecasts, Washington: 1870 to 1985. Seattle, 1965.

Table 3-1

CONSUMER INCOME AND EXPENDITURES FOR AREAS OF THE WEST AND THE UNITED STATES, 1961

	West				United States			
	SMSA		Non-SMSA		SMSA		Non-SMSA	
	Central City	Suburban	Rural Farm	Rural Non-Farm	Central City	Suburban	Rural Farm	Rural Non-Farm
Income, before taxes	$6,704	$7,742	$6,316	$5,393	$6,265	$8,309	$4,579	$4,516
Consumption expend.	5,251	6,231	4,235	4,535	5,029	6,437	3,509	3,806
Expend. as % of income	78.4%	80.5%	67.1%	84.1%	80.3%	77.5%	76.6%	84.3%
Consumption expend.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Food	23.6	22.2	23.7	24.0	25.0	23.2	24.1	25.9
Tobacco	1.6	1.4	1.5	1.7	1.8	1.6	1.9	2.1
Alcohol	2.0	1.8	0.7	1.4	1.9	1.5	0.7	1.1
Housing	28.4	28.6	25.9	26.0	29.8	29.4	25.3	26.7
Shelter	14.9	14.4	8.9	9.9	14.8	13.9	8.3	9.4
Utilities	3.1	3.7	6.2	5.4	4.0	4.6	6.4	6.7
Household oper.	6.3	5.5	4.4	5.0	6.1	5.8	4.3	5.0
Furniture	4.1	5.1	6.4	5.7	4.9	5.2	6.2	5.6
Clothing	10.0	9.7	13.0	9.4	10.7	10.4	12.1	9.4
Personal care	2.9	2.6	2.9	2.8	3.0	2.7	3.0	2.9
Medical care	7.6	7.2	8.7	7.3	6.8	6.5	8.5	7.0
Recreation	4.3	4.5	4.4	4.7	3.8	4.3	3.5	3.7
Reading	0.8	0.8	0.9	1.0	0.9	0.9	0.7	0.8
Education	1.1	0.8	1.6	0.6	1.0	1.3	1.1	0.7
Transportation	15.2	17.9	14.8	18.3	13.1	15.7	17.1	17.6
Others	2.4	2.4	1.9	2.8	2.1	2.3	2.1	2.0

SOURCE: Bureau of Labor Statistics, Survey of Consumer Expenditures 1960-61; No. 237-37, Suppl. 1; No. 237-92, Suppl. 1; No. 237-38, Suppl. 1; No. 237-93, Suppl. 1.

consumers outside metropolitan areas. And rural farm consumers tend to spend relatively more for medical care than do city residents.

Of course, the dynamics of consumption spending cannot be wholly explained by location of residence. In particular, it should be noted that city consumers tend to have higher incomes than do rural residents, and some of the expenditure differences noted here are undoubtedly a result of income differences. Nevertheless, we must consider the possibility that past trends in the pattern of aggregate consumption spending may not be maintained if the movement of population slackens from farms and small towns to metropolitan areas and from central city to suburbs. This should be kept in mind in evaluating the following analysis.

Analysis of Consumer Expenditure Patterns

In Chapter 2, it has been noted that there has been a slight decline in recent years in the state of Washington in the ratio of personal consumption expenditures to income. To determine the exact effect of this decline upon the demand for services requires an analysis of expenditure trends by categories of commodities and services. Unfortunately such data are not available for the state of Washington, although they are available for the entire national economy. These data show personal consumption expenditures for twelve major expenditure categories such as food and tobacco (including beverages); clothing, accessories and jewelry; personal care; transportation; recreation; and for a large number of subcategories. Each subcategory is further classified as to whether it involves nondurable commodities, durable commodities, or services. Generally speaking this classification presents no significant problem of interpretation for the purpose of this study except that all housing expenditures are stated in terms of rental values and are classified as services. It is necessary, however, to make the assumption that the spending patterns of Washington consumers are similar to those for the nation. This assumption is probably not justified with respect to the proportional amounts of spending for the various categories but should be a valid assumption for the purpose of showing trends. There is no reason to believe that expenditure trends in Washington are materially different from those for the nation.

To determine trends in these expenditures, two approaches have been used. In the first, data have been computed showing the percentage expenditure of each major category to total personal consumption expenditures for each year from 1948 to 1963. Projections have also been made to 1985 using the 1948-63 trends with some modifications on a judgment basis. In this computation, each major category of consumer spending has been deflated by a relevant component of the consumer price index, thus eliminating the influence of uneven price changes among expenditure categories.

Although this approach presents a good general picture of the trends in real expenditures, it does not give a sufficiently detailed breakdown of expenditures by subcategories, which is necessary to separate services expenditures from those for commodities. The main reason that the analysis has not been extended to the subcategories is the inability to obtain reasonably reliable price indexes for deflating purposes. In addition there may well be a question, in view of the productivity aspects of the analysis discussed previously in this chapter, of whether prices should be deflated. Since prices for services have risen more rapidly than those for commodities and are likely to continue to

rise more rapidly, it is possible that a more accurate picture of trends will be obtained by using the actual nondeflated figures.

Accordingly, a second approach has been used in which data have been computed showing the percentage expenditure for each major category and for the various subcategories to total personal consumption expenditures for selected years between 1929 and 1963. Since the figures are in percentages, it is possible to see the growth or decline of each subcategory relative to other subcategories and to total expenditures. Since the subcategories are classified as to commodities and services, it is also possible to make over-all comparisons between the two. It is not possible, however, to bring out of this analysis any data regarding wholesale and retail trade as such. As a matter of fact, growth in the distribution sector is dependent upon the demand for commodities not services, despite the fact that in economic growth analysis, especially with regard to employment, distribution is considered a part of the service sector.

All that is involved in these two approaches then is a comparison of trends in expenditures, and by implication in consumer demand, for various kinds of commodities and services, using the latter word in its narrow sense. The analysis will be concerned primarily with the postwar period starting in 1948. Earlier data will be cited, however, when it seems appropriate.

The General Trends: The percentage distribution of actual consumption expenditures is shown in Figure 3-2 for nondurable commodities, durable commodities, and services from 1929 to 1963. In particular, it should be noted that the proportion of total consumption expenditures devoted to services increased from 31.88 per cent in 1948 to 41.43 per cent in 1963, an average increase per year of 0.64 of a percentage point. Moreover, this increase was a steady and consistent one except for two years, 1955 and 1962. Looking at the deflated data in Table 3-3, it will be seen that a portion of this increase was a result of higher relative prices for services. The average increase per year in real expenditures amounted to 0.39 of a percentage point. If the average figure of 0.64 per year were to be attained in the future as it has been in the past, some 55 per cent of total consumption expenditures would be made in the services sector (including housing) by 1985, leaving only 45 per cent for commodities. At the average rate of increase of 0.39, the 1985 figure would be almost 50 per cent for services.

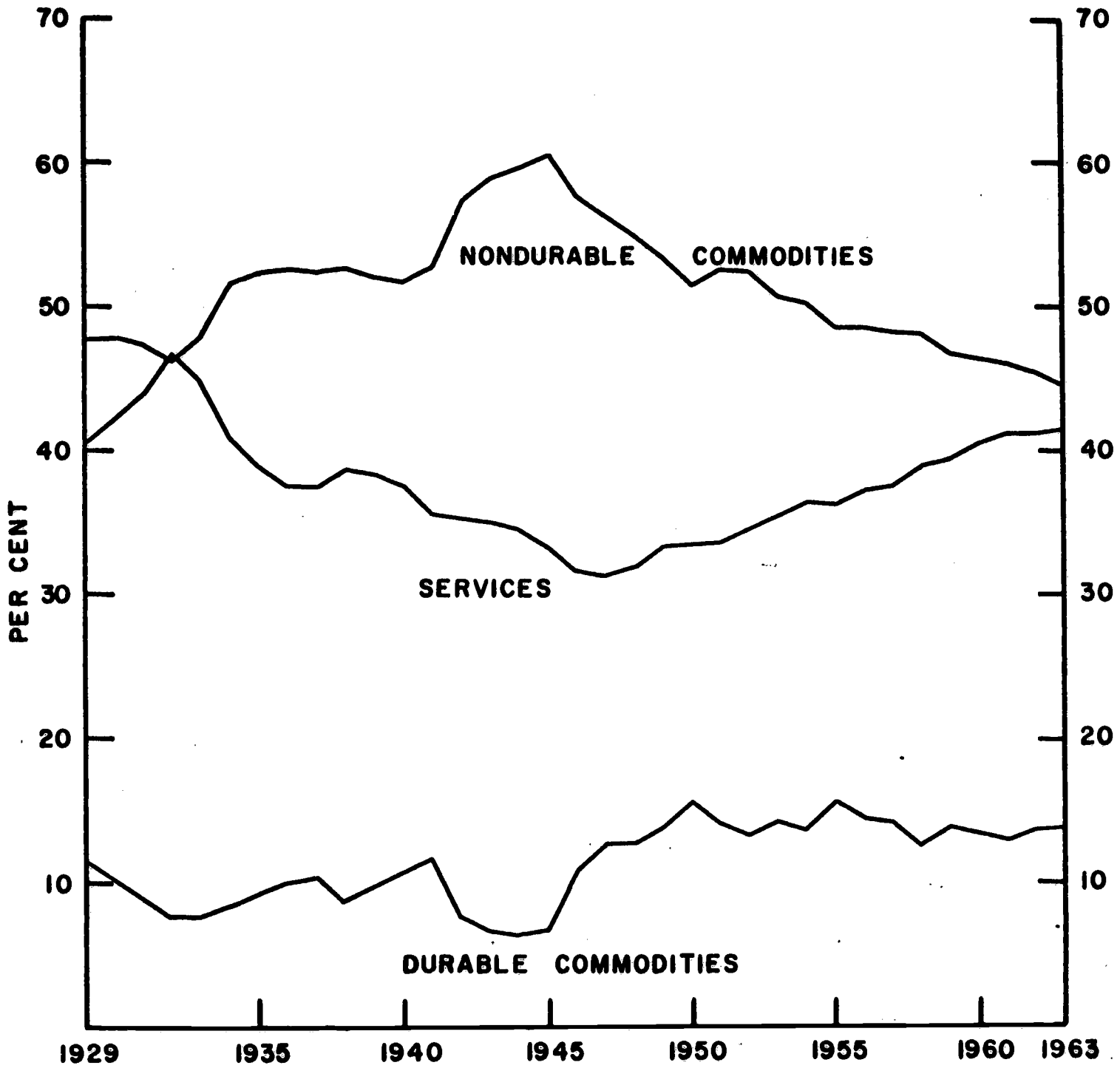
Whether services expenditures will continue to grow at this rather high rate is difficult to determine, but there are reasons for thinking that they may not. For one thing, the high rate of new household formation already mentioned will probably affect adversely expenditures for services. In addition the figures since 1961 do show some signs of a leveling off in the growth rate. Between 1961 and 1963, services expenditures increased only nominally. Also, the present level of services expenditures has been attained previously in our economy and then dropped off. Actually, it was not until 1961 that the percentage of services expenditures exceeded the 1929 figure of 40.61, and it has not yet exceeded the 1932 high of 46.45. Of course, the latter figure merely helps to substantiate the fact that expenditures for services are depression resistant. Unfortunately, there is little to guide us in the prewar experience since the period was one of such great economic fluctuation.

The trends shown in Figure 3-2, however, are suggestive of the conclusion that services expenditures will continue to grow relative to commodities. Expenditures for durable commodities since 1950 show a horizontal straight-line trend with relatively minor fluctuations. Those for nondurable

commodities have declined steadily for an even longer period of time, thus balancing the consistent increase in services expenditures already noted. Barring war and depression, these trends will probably continue, although possibly not at the somewhat high rates of decrease and increase obtained during the 1950's. All services industries, however, will not participate equally in this general growth. In the next section, we shall look at expenditure trends for

FIG. 3-2

EXPENDITURES FOR MAJOR EXPENDITURE CATEGORIES AS A PER CENT OF TOTAL PERSONAL CONSUMPTION EXPENDITURES IN THE UNITED STATES, 1929 TO 1963



Sources: Computed from data contained in the Survey of Current Business, July 1964, and (Suppl. "U.S. Income and Output") 1958.

Table 3-2

WASHINGTON STATE PERSONAL CONSUMPTION EXPENDITURES TRENDS AND PROJECTIONS, PER CENT DISTRIBUTION BY COMMODITIES AND SERVICES AND BY TYPE OF CONSUMPTION, SELECTED YEARS, 1948 to 1985

	1948	1953	1957	1960	1963	1970	1975	1980	1985
Commodities	64.8	61.4	62.0	60.0	58.9	57.6	56.4	55.1	55.1
Services	35.2	38.6	38.0	40.0	41.1	42.4	43.6	44.9	44.9
Personal cons. exp.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
I Food & tobacco	31.3	29.2	28.6	27.0	26.1	24.7	23.3	21.9	21.9
II Clothing	11.6	10.8	10.3	10.5	10.3	10.0	9.8	9.5	9.5
III Personal care	1.4	1.3	1.4	1.6	1.7	1.8	1.9	2.0	2.0
IV Housing	10.6	12.1	12.3	12.8	13.2	13.4	13.6	13.8	13.8
V Household oper.	15.4	14.5	14.1	13.9	13.7	13.8	13.9	14.0	14.0
VI Medical care	5.7	5.7	5.9	6.2	6.3	6.5	6.7	6.9	6.9
VII Personal bus.	4.3	4.9	5.6	6.0	6.4	6.9	7.5	8.0	8.0
VIII Transportation	11.4	12.7	12.9	12.5	12.6	12.7	12.7	12.8	12.8
IX Recreation	5.2	5.5	5.6	5.9	5.9	6.1	6.4	6.6	6.6
X Pvt. Ed. & research	1.0	1.0	1.1	1.3	1.5	1.7	1.8	2.0	2.0
XI Religion & welfare	1.5	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3
XII For. travel (net)	0.6	1.0	0.9	0.9	0.9	1.0	1.1	1.2	1.2
Personal cons. exp.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Computed from Survey of Current Business, various years.

specific commodity and services industries. The basic data are to be found in Tables 3-2 and 3-3, the percentages computed from actual data being shown in the latter and the percentages based on deflated data in the former.

Specific Industries: The general category of food and tobacco is classified entirely in the commodity sector. The trend in relative expenditures for the entire category has been consistently downward since 1948, and expenditure figures for the 1960's are below the 1929 percentage. We may conclude that the long-time trend for this industry is a declining one and that it probably will continue to decline. The picture is much the same for the various subcategories, although purchased meals and beverages have not declined too much since 1960, and recent percentages are still considerably above the 1929 figure. Food produced and consumed on farms has shown, of course, the greatest and most consistent relative decline. The subcategory, tobacco productes, is resisting the declining trend but can hardly be viewed as a growth industry.

The general category of clothing, accessories and jewelry has also shown a moderately declining trend in relative expenditures not only since 1948 but essentially since 1929. The picture is much the same for all of the commodity subcategories--footwear, clothing and accessories, and jewelry and watches. There are four subcategories of services in this general category which make up at present only a little more than one per cent of total consumption expenditures. These are shoe cleaning and repair, laundering in establishments, cleaning and repair of garments, and "other" services. All of these except the last show generally downward trends since 1948, and the first two since 1929.

Table 3-3

PERSONAL CONSUMPTION EXPENDITURES BY TYPE OF PRODUCT OR SERVICE, PERCENTAGE DISTRIBUTION FOR SELECTED YEARS

Product or Service	1929	1937	1948	1953	1957	1960	1963
Food & tobacco.	26.89	32.04	33.77	30.35	28.19	26.62	25.39
Food purchased for off-premise consumption (n) . .	18.72	21.99	22.61	20.56	19.59	18.42	17.56
Purch. meals & bev. (n) . . .	3.69	5.25	6.73	5.90	5.47	5.17	5.06
Furn. govern. & commercial employees (n).	.33	.40	.57	.71	.43	.37	.36
Produced & consumed on farms	2.01	1.91	1.53	.87	.58	.38	.25
Tobacco products (n)	2.15	2.49	2.33	2.31	2.13	2.28	2.16
Clothing, access., & jewelry. . .	14.18	12.03	13.66	11.46	10.78	10.31	9.90
Footwear (n).	2.12	1.90	1.73	1.40	1.34	1.36	1.25
Shoe cleaning & repair(s) . . .	.21	.18	.12	.09	.08	.08	.08
Clothing & access.	9.73	8.25	9.44	7.96	7.55	7.17	6.92
Women's & children's (n). .	5.90	4.87	6.12	5.13	4,81	4.59	4.39
Men's & boys' (n)	3.83	3.37	3.32	2.84	2.74	2.57	2.52
Milit. personnel clothing (n). .	.02	.02	.11	.07	.02	.01	.02
Cleaning, storage & repair of garments (s)	.60	.57	.80	.72	.65	.61	.88
Laundering in estab. (s). . . .	.60	.48	.47	.37	.31	.26	
Jewelry & watches (d).	.71	.50	.81	.69	.67	.65	.60
Other (s)	.19	.14	.18	.16	.16	.17	.16
Personal care.	1.41	1.43	1.30	1.28	1.41	1.60	1.73
Toilet art. & prep. (n)	.75	.64	.72	.73	.77	.88	.94
Beauty parlors, barbers (s). . .	.66	.79	.58	.55	.65	.72	.79
Housing	14.50	12.54	9.86	11.81	12.36	12.83	13.05
Owner-occupied-rental value (s)	7.43	5.87	5.47	6.67	7.68	8.09	8.42
Tenant-space rent (s).	5.70	5.41	3.21	4.03	3.67	3.74	3.64
Rent value-farmhouse (s) . . .	1.05	.95	.84	.76	.63	.61	.56
Other (s)	.32	.31	.34	.36	.39	.38	.42
Household operation.	13.60	14.16	14.71	13.87	14.09	13.94	13.97
Furniture (d).	1.52	1.37	1.56	1.54	1.56	1.45	1.44
Appliances (d).	.97	1.26	1.94	1.71	1.62	1.43	1.36
Tableware & utensils (d) . . .	.80	.77	.82	.72	.67	.63	.66
Other durable furn.(d). . . .	1.45	1.32	1.52	1.23	1.21	1.11	1.11
Semidurable furn. (n).	.91	.95	1.32	1.10	.94	.90	.95
Household supplies (n). . . .	.61	.73	.91	.87	.97	1.01	1.02
Writing supplies (n).	.18	.19	.26	.29	.32	.35	.34
Household utilities	3.86	4.52	3.60	3.56	3.80	3.89	3.93
Electricity (s).	.78	1.14	.88	1.17	1.37	1.47	1.51
Gas (s).	.69	.79	.54	.67	.82	.97	.99
Water (s).	.35	.49	.27	.31	.34	.35	.39
Other fuel & ice (n)	2.04	2.11	1.92	1.41	1.26	1.11	1.04
Communications (s)	.72	.81	.89	1.12	1.24	1.34	1.44
Domestic service (s)	2.17	1.76	1.33	1.16	1.15	1.15	1.02
Other (s)	.40	.49	.56	.58	.61	.69	.70
Medical care and death expenses .	4.49	4.73	4.86	5.24	5.88	6.48	6.78
Drugs & sundries (n)	.77	.83	.82	.92	1.07	1.19	1.16
Ophthalmic & orthopedic products (d).	.17	.25	.24	.26	.35	.37	.38
Physicians (s)	1.21	1.27	1.31	1.22	1.33	1.51	1.57

Table 3-3--Continued

Product or Service	1929	1937	1948	1953	1957	1960	1963
Medical care--continued							
Dentists(s)	.61	.52	.50	.53	.61	.61	.64
Other prof. services (s)	.32	.25	.25	.25	.26	.27	.29
Priv. hosp. & sanit. (s)	.51	.68	.91	1.17	1.36	1.58	1.76
Medical care & hosp. ins. (s).	.14	.18	.31	.40	.42	.47	.50
Funeral & burial exp. (s).	.77	.76	.52	.48	.48	.49	.48
Personal business	6.44	5.45	3.67	4.63	5.54	6.26	6.65
Brokerage charges & int. & invest. counsel. (s).	2.16	.42	.16	.15	.21	.27	.34
Bank services (s)	.10	.19	.16	.18	.22	.25	.27
Services furn. by finan. interm--no payment (s)	1.62	1.30	.99	1.20	1.36	1.60	1.66
Expense of handling life insurance (s).	1.11	1.52	.91	1.02	1.23	1.35	1.42
Legal services (s)	.51	.60	.43	.43	.48	.56	.59
Int. on personal debt (s)	.74	1.05	.69	1.35	1.73	1.92	2.07
Other (s).	.21	.37	.33	.30	.31	.31	.30
Transportation	9.64	9.69	9.98	12.73	12.79	12.38	12.59
User-operated trans.	7.55	7.86	8.19	11.32	11.64	11.32	11.60
New cars & net purchases of used cars (d)	3.28	2.96	3.21	5.08	5.11	4.80	5.16
Tires, parts, etc. (d).	.82	.64	.94	.95	.89	.86	.89
Auto repair & upkeep (s)	.98	.81	1.24	1.44	1.43	1.53	1.49
Gasoline & oil (n)	2.30	3.19	2.49	3.24	3.63	3.53	3.42
Toll payments (s)	.05	.07	.04	.06	.08	.09	.09
Auto ins. less claims (s).	.12	.20	.28	.55	.50	.51	.54
Purchased local trans.	1.41	1.29	1.18	.91	.69	.61	.53
Street car & bus (s).	1.04	1.02	.79	.59	.43	.38	.33
Taxicab (s)	.28	.22	.35	.28	.22	.19	.17
Railway (s)	.10	.06	.04	.04	.04	.04	.03
Purchased intercity trans.	.68	.53	.61	.51	.45	.45	.46
Railway (s)	.52	.34	.34	.21	.14	.10	.07
Intercity bus (s)	.07	.12	.18	.14	.10	.09	.09
Airline (s).	.00	.01	.08	.16	.20	.25	.29
Other (s)	.08	.06	.02	.01	.01	.01	.01
Recreation	5.49	5.03	5.50	5.54	5.64	5.90	6.05
Books & maps (d)	.39	.36	.33	.36	.40	.45	.47
Mag., newspapers & sheet music (n)	.68	.77	.77	.76	.73	.73	.74
Nondurable toys & sport supplies (n)	.43	.40	.61	.73	.73	.76	.77
Durable sports equip., boats, etc. (d).	.28	.31	.55	.47	.62	.62	.68
Radio & TV receivers, records & instru. (d)	1.28	.57	.83	1.12	1.05	1.10	1.15
Radio & TV repair (s)	.03	.03	.10	.18	.23	.26	.27
Flowers, seeds & plants (d).	.28	.28	.27	.29	.29	.30	.31
Admissions to amusements	1.16	1.22	1.08	.69	.58	.62	.54
Motion pictures (s)	.91	1.01	.84	.50	.39	.42	.34
Theater & opera (s).	.16	.08	.10	.09	.10	.11	.12
Spectator sports (s)	.08	.13	.13	.10	.09	.08	.08
Clubs & organizations, exc. insurance (s).	.38	.30	.25	.23	.24	.23	.22
Commercial participant amusements (s)	.26	.29	.24	.23	.25	.29	.33

Table 3-3--Continued

Products or Service	1929	1937	1948	1953	1957	1960	1963
Recreation--continued							
Pari-mutuel net receipts(s)	.01	.06	.14	.16	.15	.17	.16
Other(s)	.30	.44	.34	.32	.36	.39	.42
Private educ. & research	.84	.89	.87	.96	1.13	1.36	1.51
Higher education (s)	.28	.37	.40	.42	.48	.59	.72
Elem. & secondary sch. (s)	.21	.26	.26	.31	.37	.50	.53
Other (s)	.36	.26	.21	.24	.28	.27	.26
Religious & welfare activities (s)	1.51	1.34	1.25	1.19	1.33	1.42	1.45
Foreign travel & remit. net	1.01	.67	.56	.91	.88	.90	.93
Travel by US resident (s)	.80	.64	.41	.50	.61	.71	.76
Expense by US govern. personnel abroad (n)	.03	.03	.23	.59	.48	.42	.40
Personal remit. to for. country less remit. to US by foreigners (s)	.36	.31	.12	.09	.09	.08	.04
Less expend. in US by foreigners (s)	.18	.21	.21	.27	.29	.31	.28
Total pers. consump. expend.	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Durable commodities (d)	11.67	10.30	12.74	14.13	14.15	13.47	13.89
Nondurable comm. (n)	47.72	52.31	55.37	50.70	48.30	46.33	44.68
Services (s)	40.61	37.39	31.88	35.17	37.55	40.20	41.43

SOURCE: Computed from Survey of Current Business (Suppl. "U. S. Income and Output"), 1958; and Survey of Current Business, July, 1964.

All show some signs of leveling off at the recent level of relative expenditures. It seems unlikely that the future will bring any significant growth in these services.

The general category of personal care has shown a slightly increasing trend in relative expenditures since the early 1950's, and the present percentages are above those for 1929. The rise in relative expenditures has taken place in both the commodity subcategory of toilet articles and preparations and in the services subcategory of beauty parlors and barbers. Presumably this trend will continue in the future in both the commodity and service sectors.

Housing expenditures, measured by rental values, have increased relative to other personal consumption expenditures since 1948 although they have not yet reached the percentage level of 1929. The growth has been entirely in the rental values of owner-occupied dwellings. This trend presumably will continue since it is undoubtedly influenced a great deal by rising incomes. For the next few years, however, relative expenditures for rented dwellings may well increase since there will be a significant increase in the number of newly married couples who will not be able to buy or build their own homes immediately.

Actually, whether housing expenditures are made for owner-occupied dwellings or for rental units is not too important for this analysis. All housing expenditures are classified in the service category of consumption expenditures,

but for the purposes of this study they belong in the commodity sector. The percentages spent for housing will probably continue to rise gradually for a time, although there presumably is some upward limit to this type of expenditure.

It might be assumed that expenditures for household operation would show a similar trend to those for housing. Such, however, is not the case. Relative expenditures for household operation, measured by the actual data, have shown neither an upward nor a downward trend since 1929, although expenditures during the late 1940's were at a peak level as consumers purchased appliances and other durables which became available after the war. The deflated data in Table 3-3 indicate a slightly declining trend since the early 1950's, a trend which may well be reversed in the near future as a result of the rise in new household formation expected in the late 1960's and early 1970's. With respect to the actual expenditures in the subcategories, the trend since 1948 has been essentially a declining one in furniture, appliances, furnishings, tableware and utensils, and a rising one in the services areas. Relative expenditures for electricity, gas, communications, and "other" services have risen considerably not only since 1948 but also since 1929. Partially offsetting this is a decline in the expenditures for domestic service. These trends in the services sector of household operation appear to be well established and should continue in the future.

The actual data for medical care and death expenses show a consistent and significant growth in relative expenditures since 1929 not only in the commodities subcategory of drugs but also in the services areas. In the latter, however, the trends for various subcategories are not uniform. For physicians' services, private hospital care, and medical insurance, growth has been substantial. Dental services, other professional services, and funeral and burial expenses show more of a straight-line trend, although dental expenses have increased somewhat since 1948. Other professional services show reasonably constant percentages throughout the period. Funeral and burial expenses have been essentially constant since 1948 but are presently considerably below prewar figures. Looking at the deflated figures in Table 3-3 for medical care and death expenses, which show relatively constant percentages, it is evident that the increasing expenditures for drugs, physicians' services and hospital care are mainly a result of higher relative prices. Secondary influences are probably product improvements in drugs and in medical techniques and a change in the age distribution of the population. For some time in the future, the age distribution of the population will be such that this increasing trend in actual expenditures may be slowed down to some extent. However, it would appear that this will be more than offset by other factors and that continued growth in medical expenditures will take place.

The general category of personal business is concerned entirely with services--financial, life insurance and legal. The over-all picture and the situation for most of the subcategories is one of growth since 1948, but present expenditure percentages are not necessarily above prewar levels. Probably the greatest increase has taken place in interest on personal debt. The growth in certain financial services and in life insurance handling expenses is probably related to rising incomes and should continue in the future. The situation with respect to legal services is not so evident. Perhaps only minor changes will take place.

The transportation category includes both user-operated transportation and purchased transportation. The latter, which is classified entirely in the services sector, has shown a continuous decline during both the postwar and

prewar periods except for airline travel which, of course, has increased steadily. Railway, bus, street car and taxicab service--whether local or intercity--all show a declining trend or a stabilized pattern at a low level of expenditure. Obviously, the gap has been filled by user-operated transportation where most of the expenditures are for commodities rather than for services. Although the relative expenditures for the purchase of automobiles, tires, repair parts, gasoline and oil do not show an upward trend since the early 1950's, the data do indicate a level of spending about three percentage points above that of the prewar period. The service subcategories of automobile repair and upkeep and automobile insurance less claims follow a pattern similar to that for commodities--a higher but relatively constant percentage since the early 1950's.

Despite increased congestion both on the highways and on urban streets, there is no indication as yet that these patterns of expenditure will change. Public transportation in urban areas continues to deteriorate despite civic efforts to sustain it. New highways and more one-way street patterns apparently have made traffic congestion bearable if nothing else. Perhaps some day the pendulum will swing back of sheer necessity, but at present there is no indication of this.

The recreation category shows a generally rising level of relative expenditures since 1948 with a percentage presently above the 1929 figure. About two thirds of recreation expenditures involve commodities while one third is concerned with services. Both durable and nondurable toys and sporting equipment (including boats) have shown a rising trend of expenditures. Books and maps follow a similar trend, but magazines and newspapers have varied little in proportional expenditures over the years. Relative expenditures for radio and television sets and musical instruments appear to have reached a plateau since the early 1950's and at a lower level than the expenditure percentage in 1929. Here the situation appears to be that greater spending for radio and television has come at the expense of other commodities designed to provide a similar type of entertainment. Of considerable importance also is the fact that the prices of radio and television sets have tended to decline as the market widened.

Expenditures for recreation services show a mixed pattern. The percentages for radio and television repairs have risen, but relative expenditures for motion pictures and clubs and organizations have declined. Spectator sports have declined somewhat while commercial participant amusement has increased since 1948. Between 1953 and 1963, relative expenditures for all recreational commodities increased by more than 10 per cent compared with a 7 per cent increase for services. Comparisons of other years within this time period show the same general picture. It would appear that increased leisure, or perhaps other factors, during the postwar period, has tended to stimulate the demand for recreational commodities somewhat more than the demand for recreational services. Moreover, there is probably also a trend toward greater participation in outdoor recreational activities although the data are not sufficiently detailed to make certain of the conclusion.

Relative expenditures for private education and research, a services category, have risen rapidly during the postwar period, although the rise from 1948 to the late 1950's was mainly due to higher relative prices. The figures do not include, of course, expenditures through taxes for public education which obviously have also risen rapidly. Higher incomes certainly have contributed to these increases but probably do not constitute the entire explanation. More and better education is simply becoming a way of life. Past trends in

this category may be expected to continue in the future, although there may be some leveling off after 1970 as the school-age population becomes a smaller percentage of the total population.

Relative expenditures for religious and welfare activities, another services category, have increased since 1948 but mainly because of higher prices. Moreover, the 1963 figure is still below that of 1929. Presumably further increases will take place in the future, probably to about the same degree and for the same reason as in the past.

Finally, there is the major category of foreign travel and remittances. The items of interest here are the service subcategories of foreign travel by United States residents and expenditures in the United States by foreigners. The former represents an outflow from the national economy and the latter an inflow. Expenditures abroad by United States residents are two to two and one-half times those of foreigners in the United States. The unfavorable balance for the state of Washington is probably even greater. Relative expenditures for both subcategories have shown consistently upward trends since 1948, although expenditures abroad of United States residents have increased more rapidly than those of foreigners in the United States. Interestingly enough, the expenditures abroad of U. S. residents have not yet reached the relative level of 1929. The effects of higher incomes in the future is certain to increase relative expenditures in both subcategories. In all probability, the gap between the two will continue to widen assuming no drastic governmental restrictions.

An Input-Output Approach

In order to check the general conclusions of the above analysis of personal consumption expenditures and to attempt to obtain some idea of trends in wholesale and retail trade in the state of Washington, the problem of distributing consumption expenditures will now be approached through input-output analysis. The procedure is simply to make use of the coefficients from the 1958 national input-output study as shown in Table 1-4. Two assumptions are involved, neither of which is entirely defensible. One assumption is that the 1958 coefficients are constant for the entire period. The other is that these national coefficients apply to the state of Washington. Using these coefficients it is possible to redistribute consumption expenditures among the industries directly affected by consumer demand. The resulting industrial composition is shown in Table 3-4. Since the allocating coefficients are constant over time, changes in the industrial composition of consumer spending are wholly a function of changes in the major categories of personal consumption expenditures.

Generally speaking, the changing composition of consumer spending has resulted in relatively greater demand for the distribution and services industries. In 1948 some 54. 3 per cent of consumption spending was allocated to the combined outputs of wholesale and retail trade; transportation; finance, insurance, and real estate; and personal and business service industries, leaving only 45. 7 per cent for manufacturing, utilities, and other industries. By 1963, the share of spending allocated to the distribution and service industries had reached 58. 3 per cent, and it is projected to reach 60. 6 per cent by 1985. Because of the projected relative increase in consumer demand for these industries, $267 million more will be spent for the output of the distribution and services industries in 1985 than would be the case if the 1963 proportions obtained. It should be noted, however, that this projected increase

Table 3-4

WASHINGTON STATE PERSONAL CONSUMPTION EXPENDITURES TRENDS AND PROJECTIONS, PER CENT DISTRIBUTION BY TYPE OF INDUSTRY, SELECTED YEARS, 1948 TO 1985

	1948	1953	1957	1960	1963	1970	1975	1980	1985
Personal cons. exp.	100.0	99.9	100.1	99.9	99.9	99.9	100.0	99.9	99.9
Whsle. & retail trade	22.3	21.6	21.4	20.9	20.6	20.2	19.9	19.5	19.6
Transportation	3.0	3.1	3.1	3.0	3.0	2.9	3.0	2.9	2.9
Fin., ins., & r. estate	14.6	16.6	17.3	18.1	18.8	19.4	20.1	20.7	20.7
Services	14.4	14.4	14.8	15.5	15.9	16.5	16.9	17.4	17.4
Other industries	45.7	44.2	43.5	42.4	41.6	40.9	40.1	39.4	39.3

SOURCES: Table 1-4 and Table 3-3.

in all probability only partially offsets the adverse impact upon these industries of the previously (see Chapter 2) projected decline in the ratio between consumption and personal income.

The detailed anatomy of the relative increase in consumer demand for the distribution and service industries is interesting. As a notable exception to the general trend, the relative consumer demand for the services of wholesale and retail trade declines over the period. This is principally due to the relative decline in consumer spending for food, which requires comparatively large inputs from wholesale and retail trade. To a lesser extent, the declining consumer allocations to clothing and household goods have also contributed to the relative decline of wholesale and retail trade. This result is borne out subsequently in Chapter 4 which indicates that Washington wholesale and retail sales have declined relative to disposable income in the state.

Consumer demand for transportation services is shown to remain relatively unchanged over the period. The demand for the services of finance, insurance, and real estate, in contrast, has increased from 14.6 per cent of consumption spending in 1948 to 18.8 per cent in 1963. A relatively large percentage of consumer spending for housing and personal business is allocated to this industry group and these household uses of consumer income have increased rapidly. Services, a group consisting of hotels, personal services, business services, repair services, amusements, medical, educational and non-profit industries, and household domestic services, is projected to increase in 1985 to 17.4 per cent of total spending, up from 15.9 per cent in 1963. Increasing consumer allocations to personal care, medical care, personal business, recreation, private education, and travel account for this increased relative demand.

In general, this approach to the analysis of consumer spending reinforces the conclusions reached in the analysis of personal consumption expenditures in the preceding section. In addition, it casts some light upon trends in the spending for wholesale and retail trade. The entire analysis in this chapter, however, has the limitation that it is based generally on data for the entire nation. Although most of the conclusions indicated should be reasonably valid for the state of Washington, undoubtedly some differences exist between the

state and the nation with respect to the pattern of consumer spending. Therefore, we shall refrain from drawing definite conclusions until more specific analyses are presented for the various distribution and services industries based upon other types of data applicable to the state of Washington. These analyses are presented in the next three chapters.

Chapter 4

RETAILING, WHOLESALING AND SERVICES

The magnitude of expenditures, the number of employed persons and the size of payrolls for the retail, wholesale and service trades is considerable and impressive. A substantial portion of the economic activity of a state or nation is comprised of employment and other business activities connected with these industries. As has been previously stated, much of this study is concerned with the economic or business activity stemming from the retail, wholesale and service trades. This section of the study is concerned primarily with an overall analysis of these areas. In other words, the task at this juncture is to analyze in somewhat quantitative terms the growth and development of the retail, wholesale and service trades industries for the United States as a whole and, more specifically, the development and growth of these industries in Washington State. An effort will be made to evaluate qualitatively many of the developments in these areas. Emphasis will be placed on such aspects as historical growth and development and the nature, size, structure and complexity of these industries.

Retailing

Even the uninitiated are impressed with the ubiquitousness of retailing. That is to say, retailers are nearly omnipresent. It is difficult in this day and age to remove oneself from the presence of some sort of retailing activity. Naturally this is so because retailers must be located in close proximity to the customers they serve; and because customers are strewn indiscriminately across the length and breadth of the land, so then must retailers be widely dispersed as well as, in some instances, geographically concentrated in order to meet the needs of both the rural and urban customer.

In order to proceed in a concise and orderly fashion, some consensus must be reached regarding what one is to consider as retailing. Retailing is the act of selling goods or services to ultimate consumers. Thus, the motive of the consumer becomes the fundamental criterion for distinguishing sales at retail from other forms. Retail selling may be performed by a host of individuals, firms or companies. That is, manufacturers may make sales at retail; so, too, can wholesalers or private individuals whose primary vocation is not retailing. Our concern, at this point, will be with sales and other activities of institutions that are primarily, as classified by the Bureau of the Census, retail stores or retailing institutions.

Growth and Development of Retailing Institutions

Much can be discerned about the nature of a nation's economic activity by examining the ways and means in which it trades. The sophistication evidenced by a nation in the techniques employed in marshalling and distributing resources is often a key to the overall sophistication of its political and economic system. The United States today demonstrates a unique capacity for meeting the needs of its retail consumers by possessing, perhaps, one of the

most streamlined and efficient distribution systems in the history of all mankind. Such, however, has not always been the case.

The early forms of retailing were largely crude affairs but, generally speaking, were about as streamlined as the social, political and economic systems could support. The earliest retail stores in the United States were the trading posts that sprang up along the trading and travel routes. Activities of these trading posts, where, incidentally, barter was as much the common form of exchange as money, were supplemented by Yankee peddlers who carried small packs of wares on their backs or in carts or horse-drawn wagons to the more remote sections of an exceedingly rural America.

It is axiomatic in economic development that specialization is limited by the extent of the market. That is to say, by way of example, that early rural, fractionalized and decentralized America could support nothing more than the most rudimentary of retailing institutions. However, as cities began to replace the frontier outposts, trading posts tended to be replaced by general stores which carried, necessarily and because the economic base could now support it, broader assortments of merchandise in greater depth and varieties. So, as the economy expanded and as towns and cities became more populated and, further, as highways and other forms of transportation continued to develop and improve, thus making for more and greater mobility, retail stores in turn become more and more complex, increased the size and scope of their operations, and began to develop along the lines required by large and diverse sections of the consuming population. Thus, brought about by the changing nature of the economy were such institutions as the department store which served the needs of the urban and close-in rural consumer and the mail-order house which focused its services on the rural resident and which brought to him large selections of merchandise which his local area would have been unable to provide.

The impressive development of manufacturing and its ability to pour forth an unending stream of low-priced goods in turn helped to support the growth and development of such specialized retail institutions as the variety or 5¢ and 10¢ store, specialty shops, supermarkets and other modern forms of retailing institutions.

Improved methods of communication and improved managerial techniques are largely responsible for the development of the corporate chain organization --a development, incidentally, which tended to threaten the conventional pattern of both retailing and wholesaling activities but which was stymied largely by the independent's capacity and flexibility for adapting to change.

The supermarket, which emerged in the early 1930's and which was largely the result of the customer's increased mobility brought about by automobile ownership and his urgent desire to reap price advantages by performing certain of the marketing functions, was, at least to date, the last great and significant retailing institution to emerge. This institution with its emphasis on simplified selling and cash and carry merchandising has had a cataclysmic effect on the entire structure of retail distribution, leading to self-service merchandising strategies in many kinds of retailing institutions and to the widespread adoption of discount merchandising strategies.

Since World War II, retailing has been largely an unsettled industry--an industry characterized by new growth and general expansion but characterized also by such trends as scrambled merchandising, decentralized locations, costs and profit squeezes and other manifestations of turmoil.

The Structure of Retail Distribution

A fuller appreciation of the magnitude of retail distribution may be had by looking at some relevant statistics regarding the size and nature of retail distribution. Table 4-1 should facilitate this task. As shown in Table 4-1 over

Table 4-1

DOLLAR AND PHYSICAL VOLUME OF SALES OF RETAIL ESTABLISHMENTS AND PHYSICAL VOLUME PER CAPITA: UNITED STATES, CENSUS OF BUSINESS YEARS 1929-63

Year	Sales (millions of current dollars)	Retail Price Index 1957-59 = 100	Sales (millions of 1957-59 dollars)	Population (millions)	Sales Per Capita (in 1957-59 dollars)
1929	48,330	59.7	80,955	121.8	665
1939	42,042	48.4	86,864	130.9	664
1948	130,521	83.8	155,753	146.1	1,066
1954	169,968	93.6	181,590	161.9	1,122
1958	199,646	100.7	198,258	174.1	1,139
1963	244,202[a]	106.7	228,868	188.5	1,214

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1948, Vol. III, p. 0.04; 1954, Vol. I, p. 1-5; 1958, Vol. I, p. 1-7; 1963, Vol. I, p. 1-7. Data for 1929 revised to exclude automotive service establishments; and data for 1929, 1939 and 1948 revised to exclude retail milk dealers that operate bottling plants, both of which are beyond the scope of present census coverage. Method of enumeration in the Census of 1954 also varied somewhat from previous procedures, resulting in reduced coverage of the smallest stores without payroll. Data for 1948 were retabulated for comparability with later years, but this was not done for 1929 and 1939. The differences involve a small per cent of the total number of establishments and but a minute fraction of the total sales volume; hence they do not have a substantial effect upon the comparisons here presented; and Index of Retail Prices, All Items.

the decades covered by the Census of Business, sales of retail stores are tied rather closely to the ebb and flow of general business conditions. In current dollars retail sales declined during the years 1929-39, a fact accounted for undoubtedly by the generally depressed business conditions of this period. Sales of retail institutions increased markedly during the 1939-63 period in current values (column 1). After converting the sales figures of column 1 into figures which represent 1957-59 dollars, it is apparent that an actual increase was obtained during the years 1929-39. The longer run increases in sales of retail institutions is quite significant when viewed in terms of 1957-59 dollars (column 3). Physical volume had increased by nearly three times in 1963 over that of the 1929 period. Much of the growth resulted from increases in population, but a significant amount resulted from actual expansions in the business economy; i. e., increases in levels of real per capita purchasing power. (See per capita figures in column 5.)

Number of Establishments

From the period 1929 to 1963 the number of retail establishments or institutions has remained relatively constant. And if the period 1939 to 1963

is considered, very little change in the total number of establishments is witnessed (see Table 4-2).

Table 4-2

NUMBER OF RETAIL ESTABLISHMENTS AND PHYSICAL VOLUME OF SALES PER ESTABLISHMENT UNITED STATES, CENSUS OF BUSINESS YEARS 1929-63

Year	Number of Establishments	Volume of Sales (in 1957-59 dollars)	
		Total Amount (millions)	Per Establishment
1929	1,476,365	$ 80,955	$ 54,834
1939	1,770,355	86,864	49,066
1948	1,769,540	155,753	88,019
1954	1,721,650	181,590	105,474
1958	1,788,325	198,258	110,862
1963	1,707,931[a]	228,868	134,003

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1939, Vol. III, p. 0.04; 1954, Vol. I, p. 1-5; 1958, Vol. I, p. 1-7; 1963, Vol. I, p. 1-7; and Table 4-1, Column 3, of this study.

From 1929 to 1939 the number of establishments increased markedly. This, in many respects, is a strange phenomenon. It is a bit paradoxical that the number of retail institutions would increase with a downturn in the business cycle. However, the explanation probably is that many who become unemployed from their regular occupations during a downturn invest small sums in retail ventures in the hope of maintaining some means of livelihood. The volume of business in 1957-59 prices increased somewhat during the period 1929-39; but due to the increased number of establishments, volume per establishment declined by about $6,000 during this period. From 1939 to 1963, while the number of establishments remained nearly constant, the total amount of sales nearly tripled and sales per establishment increased almost threefold. This undoubtedly reflects, inasmuch as total number of establishments has remained constant, a persistent and marked increase in the size or scale of the individual establishments. Such a trend may very well reflect the more efficient utilization of both physical and human resources in retail enterprise.

Classification of Retail Stores

Space will not permit a complete analysis or discussion of the myriad ways in which retail stores are classified. The field of retail distribution is in many respects a hodgepodge of different kinds of establishments of different sizes, each possessing different and distinguishing characteristics. Table 4-3 may help at least to clarify to the reader the different classification schemes that may be employed. It might be pointed out that the listing here is by no means an exhaustive one.

Further, it might be pointed out that for most purposes the important references for classification center around (1) ownership, (2) extent and

Table 4-3

CLASSIFICATION OF RETAIL STORES

I. On the basis of merchandise carried:
   1. General stores.
   2. One-line stores and specialty stores. One-line and specialty stores may derive the majority of their business from a single line of merchandise such as groceries, shoes, filling station supplies, and so on; or from a number of lines of merchandise that are closely related.
   3. Multiple-line or "convenience" stores. This type is a limited edition of the old general store. It carries related merchandise but on a much wider base than the one-line or specialty store. Examples of such stores are those that carry all home furnishing items, present-day auto accessory stores, drugstores, supermarkets, and so on.
   4. Department stores.
   5. Variety stores.

II. On the basis of functions performed or services rendered:
   1. Self-service stores.
   2. Cash-and-carry stores.
   3. Service stores.
   4. Supermarkets.
   5. Mail-order houses.
   6. Direct selling.
   7. Automatic vending.

III. On the basis of ownership:

   A. Extent of ownership:
      1. Independent retailers.
      2. Voluntary chains.
      3. Ownership groups.
      4. Chain stores.
      5. Branch stores.

   B. Character of ownership:
      1. Manufacturers' retail outlets.
      2. Leased departments.
      3. Company stores.
      4. Utility operated stores.
      5. State stores.
      6. Consumers' co-operative associations.

IV. On the basis of location:
   1. Neighborhood stores.
   2. Secondary shopping district stores.
   3. Shopping district stores.
      a. In shopping centers.
      b. In central downtown districts.
   4. Market stalls and stands.
   5. Roadside stands and markets.
   6. Mobile stores.
   7. Country stores.
   8. Pushcarts.

nature of lines handled and (3) location. However, the Bureau of the Census does not gather information separately for single-line and specialty stores but rather lumps both these institutional kinds into a category referred to as a Kind of Business grouping. Such a classification is shown in Table 4-4. The reader can, without too much difficulty, separate for himself the single line and specialty store operations.

Table 4-4

NUMBER OF RETAIL ESTABLISHMENTS AND PER CENT OF TOTAL RETAIL ESTABLISHMENT SALES BY KIND OF BUSINESS, UNITED STATES, 1948, 1958 AND 1963

Kind of Business	Number of Establishments (thousands)			% of Total Sales[a]		
	1948	1958	1963[b]	1948	1958	1963[b]
United States Total	1,770	1,788	1,708	100.0	100.0	100.0
Lumber, building materials	99	108	93	8.5	7.2	6.0
General merchandise	74	87	62	13.1	10.9	12.3
Food stores	504	356	319	23.7	24.5	23.3
Automotive dealers	86	94	99	15.4	15.9	18.6
Gasoline service stations	188	206	211	5.0	7.1	7.3
Apparel, accessory stores	115	119	116	7.5	6.3	5.7
Furniture, home furnishings	92	103	94	5.6	5.0	4.5
Eating and drinking places	347	345	344	8.2	7.6	7.5
Drug, proprietary stores	56	56	55	3.1	3.4	3.5
Other retail stores	208	240	245	9.9	9.2	8.7
Non-store retailers	n.a.	75	80	n.a.	2.7	2.5

n.a. Not available

[a]Total sales: 1948, $130,520,548,000; 1958, $199,646,463,000; 1963, $244,201,777,000.

[b]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1948, Vol. III, p. 0.04; 1958, Vol. I, pp. 1-7 to 1-8; 1963, Vol. I, pp. 1-7 to 1-8.

Another revealing classification of retail institutions is that of location. See Table 4-5. As Table 4-5 reveals, retail establishments and sales volume conform rather closely to the distribution of population and disposable income.

Further observation shows that retail trade has to some extent tended to become localized. Since 1954, the proportion of the total population residing in metropolitan areas has not increased by quite the same rate as the proportion of retail sales accounted for by these areas. Per capita retail sales in non-metropolitan areas have risen slightly faster than in metropolitan areas, and non-metropolitan areas have become relatively more important as retail distribution centers than would be expected on the significance of their population size.

To some extent, this condition may reflect the consumer's general dislike of the large downtown central shopping district and his preference for the generally more attractive, less congested, decentralized planned shopping center, many of which are located outside the boundaries of large metropolitan areas.

Importance of Retail Trade in Washington State

Table 4-6 shows the relative importance of the retail, wholesale and selected services industries for Washington State. In terms of total number of

Table 4-5

ESTABLISHMENTS AND SALES VOLUME OF RETAIL ESTABLISHMENTS; POPULATION; AND PER CAPITA RETAIL SALES BY STANDARD METROPOLITAN STATISTICAL AREAS AND REMAINDER OF COUNTRY AS A PER CENT OF TOTAL UNITED STATES, 1954, 1958 and 1963[a]

Area	Establishments (thousands)	Establishments %	Sales Volume (millions)	Sales Volume %	Population (thousands)	Population %	Per Capita Retail Sales
1954							
SMSA[b]	498	28.9	$ 57,894	34.1	44,440	29.5	$1,302.73
SMSA[c]	458	26.6	52,103	30.7	40,690	27.0	1,280.49
Rest of U. S.	765	44.4	59,970	35.3	65,567	43.5	914.65
U. S. total	1,722	100.0	169,968	100.0	150,697	100.0	1,127.87
1958							
SMSA[b]	559	31.3	77,191	38.7	61,196	34.1	1,261.38
SMSA[c]	460	25.7	55,847	28.0	50,998	28.4	1,095.08
Rest of U. S.	769	43.0	66,609	33.4	67,129	37.4	992.25
U. S. total	1,788	100.0	199,646	100.0	179,323	100.0	1,113.33
1963							
SMSA[b]	523	30.6	91,811	37.6	61,196	34.1	1,500.29
SMSA[c]	488	28.6	77,999	31.9	54,682	30.5	1,426.41
Rest of U. S.	697	40.8	74,392	30.5	63,446	35.3	1,172.53
U. S. total	1,708	100.0	244,202	100.0	179,323	100.0	1,361.80

[a]Totals may not add due to rounding.

[b]Population over one million.

[c]Population under one million.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, pp. 1-102 to 1-104; 1958, Vol. I, pp. 1-66 to 1-67; 1963, Vol. I, pp. 1-74 to 1-113.

establishments for the three categories, retailing, by far, is the most important, accounting for 52.6 per cent of the total. However, in terms of sales wholesaling shows a greater importance, accounting for 53.0 per cent of the total sales revenue for the three classifications. This is the only area in which wholesaling shows a measure of greater importance to the Washington economy. In terms of both number of paid employees and magnitude of payroll, retailing tends to show a greater contribution to the state's economy than either wholesaling or the selected services industries. Much more will be said of the fact that total wholesale sales exceed retail sales for the state of Washington in the section on wholesaling which follows.

Table 4-6

EMPLOYMENT, NUMBER OF ESTABLISHMENTS, PAYROLLS AND SALES IN RETAIL, WHOLESALE AND SERVICE INDUSTRIES IN WASHINGTON, 1963

Kind of Industry	Establishments (Number)	%	Number Paid Employees[a] (thousands)	%	Payroll (millions)	%	Sales (millions)	%
Total	50,241	100.0	223.8	100.0	$946	100.0	$9,756	100.0
Retail	26,430	52.6	132.3	59.1	492	52.0	4,043	41.4
Wholesale	5,593	11.1	52.1	23.3	304	32.1	5,173	53.0
Services[b]	18,218	36.3	39.4	17.6	150	15.9	540	5.5

[a]Workweek ended nearest November 15. [b]Includes SIC categories 70-79.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. II, Retail Trade--Area Statistics, p. 49-6; Vol. VII, Selected Services--Area Statistics, p. 49-6; Vol. V, Wholesale Trade--Area Statistics, p. 49-6.

Employment

Information gathered and compiled from the Washington Employment Security Department and shown as Table 4-7 illustrates some interesting employment patterns for the state. The so-called distributive trades, i.e., retailing, wholesaling and selected service industries account for approximately 40 per cent of the total nonagricultural employment. Further illustrative of the importance of the distributive trades and their various components is the fact that retailing is the single most important segment of nonagricultural employment with the exception, of course, of manufacturing. Very little change in the relative importance of the various categories of nonagricultural employment is shown in Table 4-7. As a matter of fact, a rather stable relationship among the "mix" of nonagricultural employment opportunities is shown.

Washington, in many respects, conforms more closely to many national averages of economic activity than do other regions or states in the nation. This can be attributed to the state's status as a leading producer in both agriculture and industry. Washington's trade pattern is not characteristic of a rural, farming economy or of an urban, industrial economy but rather represents something of a balance between both.

These conclusions about the state's conformity with national statistics on retail activity and growth trends appears to be borne out by data contained in four tables which compare Washington's retail employees, establishments, payroll and sales for 1954 and 1963 with corresponding statistics for the nation as a whole. Table 4-8 shows paid employees in retailing by kind of business in the United States and Washington, with the percentage change between 1954 and 1963 and the percentage distribution by kind of retail employment in 1963.

Between 1954 and 1963, the number of employees in all retail establishments in the United States increased 18 per cent while such employment in Washington increased by slightly more than 22 per cent. In Washington, every Census of Business classification by kind of business showed employment

Table 4-7

DISTRIBUTION OF ESTIMATED AVERAGE MONTHLY NONAGRICULTURAL EMPLOYMENT IN WASHINGTON BY INDUSTRY GROUPS, 1954, 1958 AND 1963

Industry Group	1954 Number of Employees (thousands)	1954 %	1958 Number of Employees (thousands)	1958 %	1963 Number of Employees (thousands)	1963 %
Total	545.2	100.0	585.6	100.0	623.8	100.0
Mining and quarrying	2.3	0.4	1.9	0.3	1.9	0.3
Contract construction	48.5	8.9	44.0	7.5	43.2	6.9
Manufacturing	190.0	34.8	219.3	37.4	224.1	35.9
Transportation, communication, utilities	47.2	8.7	45.9	7.8	46.8	7.5
Retail trade	112.8	20.7	118.6	20.3	132.4	21.2
Wholesale trade	44.3	8.1	52.3	8.9	54.5	8.7
Finance, insurance, real estate	30.8	5.6	34.1	5.8	41.3	6.6
Services and misc.	62.2	11.4	65.9	11.3	75.8	12.2
Government	n.a.	--	3.5	0.6	3.8	0.6

n.a. Not available.

SOURCE: Washington Employment Security Department, Washington Employment and Payrolls, Summaries for 1954, 1958 and 1963. (Mimeographed.)

increases except the category, "lumber, building materials." Even here, the decline for Washington was only half the size of the decline in this category for the United States as a whole.

In addition, the percentage distribution of employment by kind of business in 1963 was very nearly the same for Washington as for the United States. One point is also markedly clear, in the majority of 11 major kind-of-business classifications used by the Census of Business, Washington showed greater percentage increases in retail employment between 1954 and 1963 than did the national percentage increases.

Establishments

During the period 1954 through 1963, there were declines in the numbers of establishments in four classes of Washington's retail trade. As can be seen in Table 4-9, the number of food stores, general merchandise stores, apparel stores, and lumber and building materials stores declined during this ten-year period. And with one exception, the decline in the number of establishments in these categories of retail trade in Washington were greater than the declines in these categories for the United States as a whole.

In the apparel group, which includes clothing, millinery, hoisery, lingerie, shoe and fur stores, there was a 4.5 per cent decline in the number of establishments in Washington between 1954 and 1963, while the total number of such establishments declined by only 2.9 per cent for the United States.

Table 4-8

NUMBER OF EMPLOYEES IN RETAIL TRADE FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Number of Paid Employees[a] (thousands)				% Change 1954 to 1963		% Distribution 1963	
	United States		Washington					
	1954	1963[b]	1954	1963	United States	Wash-ington	United States	Wash-ington
All groups	7,124	8,410	108.4	132.3	18.0	22.1	100.0	100.0
Lumber, building materials	447	399	6.9	6.6	(10.7)	(4.5)	4.7	5.0
General merchandise	1,259	1,468	22.0	22.1	16.6	0.4	17.5	16.7
Food stores	1,026	1,274	14.1	20.4	24.2	45.2	15.2	15.4
Automotive dealers	711	794	11.8	12.9	11.7	10.0	9.4	9.8
Gasoline service stations	358	520	5.6	8.6	45.0	52.8	6.2	6.5
Apparel, accessory stores	607	630	6.4	6.9	3.8	7.5	7.5	5.2
Furniture, home furnishings	352	352	5.1	5.5	0.1	8.3	4.2	4.1
Eating, drinking places	1,353	1,762	19.7	29.1	30.2	47.6	20.9	22.0
Drug, proprietary stores	300	361	4.2	5.7	20.1	36.9	4.3	4.3
Other retail stores	511	606	9.4	10.8	18.5	14.6	7.2	8.2
Non-store retailers	200	244	3.2	3.6	22.1	12.9	2.9	2.7

[a]Workweek ended nearest November 15. [b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D.C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, pp. 1-5 to 1-6; 1963, Vol. I, pp. 1-7 to 1-8; Retail Trade--Area Statistics, 1954, Vol. II, p. 47-4; 1963, Vol. II, pp. 49-6 to 49-7.

The rather marked declines in food store establishments does not indicate by any means a decline in the importance of food store sales. Quite the contrary. The decline does, however, dramatize the change which has come about in the type of food store establishment currently popular with retail food store customers. The trend toward larger retail food stores has been underway for some time. During this period many chain organizations have closed small stores or combined two or more of them into larger units. The small corner grocery store which once dominated the American neighborhood is rapidly vanishing and being replaced with the large, more streamlined supermarket. As a matter of fact, the shift toward larger unit retailing is visibly evident from the fact that employment in some categories in which number of establishments has declined has increased rather decidedly as can be seen by examining Table 4-8 once again. As Table 4-8 shows, employment in Washington food stores increased considerably more than the national average between 1954 and 1963. It can be further observed from Table 4-8 that Washington employment increased more than United States employment (or decreased less) in all cases where Washington establishments decreased more than United States establishments. (See the lumber, building materials category and food and apparel.)

As might be expected, this rather prosperous decade, 1954-63, has seen a very modest decline in the total number of retail establishments in Washington but with large increases in total number of paid employees and, as we shall shortly see, rather large increases in sales volumes. This has largely resulted from retail operators' desires to manage larger economic units and thus to reap efficiencies through attaining economies of scale.

Table 4-9

NUMBER OF ESTABLISHMENTS IN RETAIL TRADE IN THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Number of Establishments (thousands)				% Change 1954 to 1963		% Distribution 1963	
	United States		Washington					
	1954	1963[a]	1954	1963	United States	Wash-ington	United States	Wash-ington
All groups	1,722	1,708	26.8	26.4	(0.8)	(1.4)	100.0	100.0
Lumber, building materials	101	93	1.7	1.5	(7.8)	(12.6)	5.4	5.8
General merchandise	76	62	1.0	0.8	(18.6)	(17.2)	3.6	3.1
Food stores	385	319	5.4	3.9	(17.0)	(26.5)	18.7	14.9
Automotive dealers	86	99	1.5	1.8	14.6	22.8	5.8	6.9
Gasoline service stations	182	211	3.4	3.9	16.4	16.5	12.4	14.8
Apparel, accessory stores	120	116	1.5	1.4	(2.9)	(4.5)	6.8	5.4
Furniture, home furnishings	92	94	1.5	1.6	2.0	4.9	5.5	5.9
Eating and drinking places	320	334	5.1	5.4	4.6	5.8	19.6	20.6
Drug, proprietary stores	56	55	0.9	0.9	(2.3)	6.0	3.2	3.4
Other retail stores	227	245	3.6	3.7	7.9	2.4	14.3	14.1
Non-store retailers	79	80	1.2	1.3	1.6	8.5	4.7	5.0

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, pp. 1-5 to 1-6; 1963, Vol. I, pp. 1-7 to 1-8; Retail Trade--Area Statistics, 1954, Vol. II, pp. 47-4 to 47-5; 1963, Vol. II, pp. 49-6 to 49-7.

Payrolls

From 1954 through 1963, payrolls in Washington's retail stores increased 52 per cent. As shown by Table 4-10, payroll increases in Washington exceeded national increases between 1954 and 1963 by only the barest amount. As a matter of fact, Washington's percentage increases in payrolls exceeds the United States' increases in six of the eleven total categories. The percentage distribution of payrolls by kind of retail business was not significantly different for Washington than for the United States in 1963. Table 4-10 shows this very marked similarity. One should also observe that the increases in payrolls naturally accompany the increases in employment shown in Table 4-8. One may observe further that the data show an increase in Washington employment in relation to the United States, but no real increase in payrolls. This could perhaps mean that Washington wage rates in relation to U. S. averages are lower for this industry.

Sales

The consumer dictates the level of retail sales. That is to say, consumer demand or lack of demand determines the level of retail sales. To create demand, consumers must have money to spend, the willingness to spend it and a need or desire to purchase goods. The American consumer has shown an unusual capacity for conjuring up a near endless variety of wants and desires. The money people have available to spend depends largely on their disposable income. And to a large extent psychological factors affect

Table 4-10

PAYROLLS FOR RETAIL STORES IN THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Payroll (millions of dollars) United States 1954	United States 1963[a]	Washington 1954	Washington 1963	% Change 1954 to 1963 United States	% Change 1954 to 1963 Washington	% Distribution 1963 United States	% Distribution 1963 Washington
All groups	18,199	27,632	323.6	491.8	51.8	52.0	100.0	100.0
Lumber, building materials	1,495	1,727	26.1	32.8	15.5	25.7	6.3	6.7
General merchandise	2,648	4,184	53.7	75.3	58.0	40.2	15.1	15.3
Food stores	2,536	4,249	41.3	77.6	67.5	87.9	15.4	15.8
Automotive dealers	2,790	4,111	51.0	72.9	47.3	42.9	14.9	14.8
Gasoline service stations	836	1,510	15.7	25.7	80.6	63.7	5.5	5.2
Apparel, accessory stores	1,486	1,957	18.2	24.8	31.7	36.3	7.1	5.0
Furniture, home furnishings	1,166	1,536	18.3	26.9	31.7	47.0	5.6	5.5
Eating and drinking places	2,512	4,065	45.1	73.4	61.8	62.7	14.7	14.9
Drug, proprietary stores	658	1,170	12.0	22.4	77.8	86.7	4.2	4.6
Other retail stores	1,473	2,229	31.4	44.8	51.3	42.7	8.1	9.1
Non-store retailers	598	893	11.0	15.3	49.3	39.1	3.2	3.1

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, pp. 1-5 to 1-6; 1963, Vol. I, pp. 1-7 to 1-8; Retail Trade--Area Statistics, 1954, Vol. II, p. 47-4; 1963, Vol. II, pp. 49-6 to 49-7.

consumers' willingness or propensity to spend. That is, people's expectations about future conditions, among other things, determine the proportion of income that is spent as opposed to saved. For example, if one feels reasonably secure about the future in such matters as finances and health, then the percentage of current income spent as opposed to the percentage saved is likely to be greater than if contrary expectations are held.

During the years 1954, 1958 and 1963, Washington's percentage of total United States retail sales exceeded her percentage of population. The relationships are shown in tabular form below. Notice that between 1958 and 1963,

Year	Washington's Per Cent of Total Retail Sales	Washington's Per Cent of Total Population
1954	1.69	1.55
1958	1.71	1.59
1963	1.66	1.62

the gap between percentage of population and percentage of retail sales has narrowed considerably.

Table 4-11 shows the relationship between disposable personal income and retail sales for the total United States and Washington. Washington's income as a per cent of the United States total has fallen somewhat since 1954 while retail sales in Washington as a percentage of the total United States has remained reasonably steady during this same period.

Table 4-11

DISPOSABLE PERSONAL INCOME AND RETAIL SALES FOR THE UNITED STATES AND WASHINGTON
1954, 1958 AND 1963

	United States				Washington					
	Income		Retail Sales		Income			Retail Sales		
Year	Total (millions)	Per Capita	Total (millions)	Per Capita	Total (millions)	As A Per Cent of U. S.	Per Capita	Total (thousands)	As A Per Cent of U. S.	Per Capita
1954	$252,758	$1,568	$169,968	$1,050	$4,435	1.75	$1,747	$2,874	1.69	$1,142
1958	315,476	1,821	199,646	1,146	5,247	1.66	1,885	3,419	1.71	1,233
1963	398,251	2,122	244,202	1,295	6,544	1.64	2,210	4,043	1.66	1,326

SOURCES: Survey of Current Business, April, 1965, pp. 21-2; and U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, p. 1-42; 1958, Vol. I, p. 1-42; 1963, Vol. I, p. 1-42. The Survey of Current Business defines Disposable Personal Income as the income remaining to persons after deductions of personal tax and non-tax payments to general government.

As was mentioned earlier, the level of spending is partially determined by income. Survey of Current Business estimates show that per capita disposable income in Washington has exceeded that for the United States as a whole for the period 1958-63.

PER CAPITA DISPOSABLE INCOME

Year	Washington	United States
1958	$1,885	$1,821
1959	1,985	1,900
1960	2,018	1,932
1961	2,104	1,980
1962	2,194	2,057
1963	2,210	2,122

SOURCE: Survey of Current Business, April, 1965, p. 22.

Unquestionably, Washington's relatively high per capita disposable income is an important factor influencing retail sales. However, psychological expectations about the future are elusive to trace and investigate. Usually, a consumer's behavior in the past and present is, other things being equal, a rather good index of what his behavior is likely to be in the future. Table 4-11 shows that, from 1958 through 1963, Washington's per capita retail sales have continued to be in excess of the comparable national figure.

Several categories of retail trade witnessed a greater percentage increase in sales between 1954 and 1963 than did the United States as a whole. This is shown in Table 4-12 where the percentage change in retail sales by kind of business has been calculated for the United States and Washington State. Retail sales increases for all kinds of retail businesses were slightly less than the percentage increases for all kinds of retail businesses for the U. S. as a whole.

Important sales percentage increases from 1954 to 1963 in Washington were recorded for the food group, general merchandise, automotive group, gasoline service stations, and the drug and proprietary group.

The percentage distribution of the various kinds of retail business for Washington shows a strong degree of similarity with the percentage distribution for the United States as a whole.

Table 4-12

RETAIL SALES FOR UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Sales (millions of dollars) United States 1954	United States 1963[a]	Washington 1954	Washington 1963	% Change 1954 to 1963 United States	% Change 1954 to 1963 Washington	% Distribution 1963 United States	% Distribution 1963 Washington
All groups	169,968	244,202	2,874	4,043	43.7	40.6	100.0	100.0
Lumber, building materials	13,124	14,606	224	257	11.3	14.7	6.0	6.4
General merchandise	7,872	30,003	346	512	281.1	48.0	12.3	12.7
Food stores	39,762	57,079	670	960	43.6	43.3	23.4	23.7
Automotive dealers	29,915	45,376	453	696	51.7	53.6	18.6	17.2
Gasoline service stations	10,744	17,760	197	297	65.3	50.8	7.3	7.3
Apparel, accessory stores	11,078	14,040	132	173	26.7	31.1	5.7	4.3
Furniture, home furnishings	8,619	10,926	132	175	26.8	32.6	4.5	4.3
Eating and drinking places	13,101	18,412	212	297	40.5	40.1	7.5	7.3
Drug, proprietary stores	5,252	8,487	95	163	61.6	72.5	3.5	4.0
Other retail stores	15,987	21,309	332	423	33.3	27.4	8.7	10.5
Non-store retailers	4,514	6,204	81	88	37.4	9.0	2.5	2.2

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, pp. 1-5 to 1-6; 1963, Vol. I, pp. 1-7 to 1-8; Retail Trade--Area Statistics, 1954, Vol. II, p. 47-4; 1963, Vol. II, pp. 49-6 to 49-7.

The category, other retail stores, may require a word or so of explanation. This category consists of stores which cannot readily be classified under the other Census of Business headings and includes jewelry, book, stationery, sporting goods, gift, luggage, optical, camera and office equipment stores. Many of the products sold by these stores are referred to by economists and others as "above-average-sensitivity" goods. For such products, a given change in disposable income is accompanied by a more than proportionate change in quantity purchased. [1] The large postwar increases in sales of sporting goods, for instance, might readily be explained by the fact that these are

[1]Income sensitivity change of the expenditure for a commodity or service is measured by a coefficient which is derived by correlating dollar expenditures with disposable income for a period in question. The coefficient expresses the average per cent by which expenditure varies, in the base, corresponding to a one per cent change in disposable income. If the coefficient for a specified commodity or service is less than 1, this indicates that changes in expenditure for the item were proportionately smaller on the average than the changes in aggregate disposable personal income. A coefficient greater than 1 implies that fluctuations in income were associated with relatively larger fluctuations in outlays for the corresponding good or service. For example, the consumption of luxuries increased and fell off more sharply than income, and hence these goods have sensitivity coefficients greater than 1. In contrast, expenditures on certain basic necessities are much more stable than income, and these items accordingly have coefficients much less than one. For a fuller and more descriptive discussion of this topic, see Clement Winston and Mabel Smith, "Income Sensitivity of Consumption Expenditures," Survey of Current Business, January, 1950, pp. 17-20.

goods with an above average coefficient of sensitivity. That is, the increase in disposable income plus the greater amount of leisure time has greatly accelerated the demand for these types of goods. Automobiles and furniture are also considered to be of "above average sensitivity." In Washington, automotive group sales increased 53.6 per cent while furniture group sales increased 32.6 per cent between 1954 and 1963. Table 4-12 shows that these were greater percentage increases than was the case for some of the less sensitive classes of retail trade. A logical assumption would be that with rising postwar disposable incomes, sales of such "above-average-sensitivity" goods should increase more than those of less sensitive goods such as drug, tobacco and hardware items.

Even many of the "less sensitive" classes in Washington have, nonetheless, had very large percentage increases during the last ten years. The lumber, building and hardware group sales have increased 14 per cent from 1954 to 1963. This amounts to about three percentage points more than the increase in this category for the U. S. as a whole. This group includes building materials dealers; paint, glass and wallpaper stores; heating and plumbing equipment dealers; and hardware stores. Much of this increase can possibly be attributed to the postwar boom in home ownership combined, to some extent, with the increased trend toward do-it-yourself activities.

With more and more families owning their own homes, pride of ownership is perhaps causing greater expenditures for home maintenance and improvement. This pride of ownership, combined with high hourly wage rates in the building trades, has stimulated the home owner to effect many improvements himself. With shorter hours of work, many owners have the necessary leisure time to be handymen in their homes. To some extent, these trends may help explain the growth in the lumber, building and hardware group's sales.

As was previously mentioned, the last two columns of Table 4-12 show that the percentage of distribution of Washington's retail sales by kinds of business is not significantly different from the national distribution. These relationships are graphically illustrated by Figure 4-1. Washington's sales are greater in the food group, general merchandise group, gasoline service station group, hardware-lumber-building materials group, drug and proprietary group and in the other retail store group than the national percentage distribution.

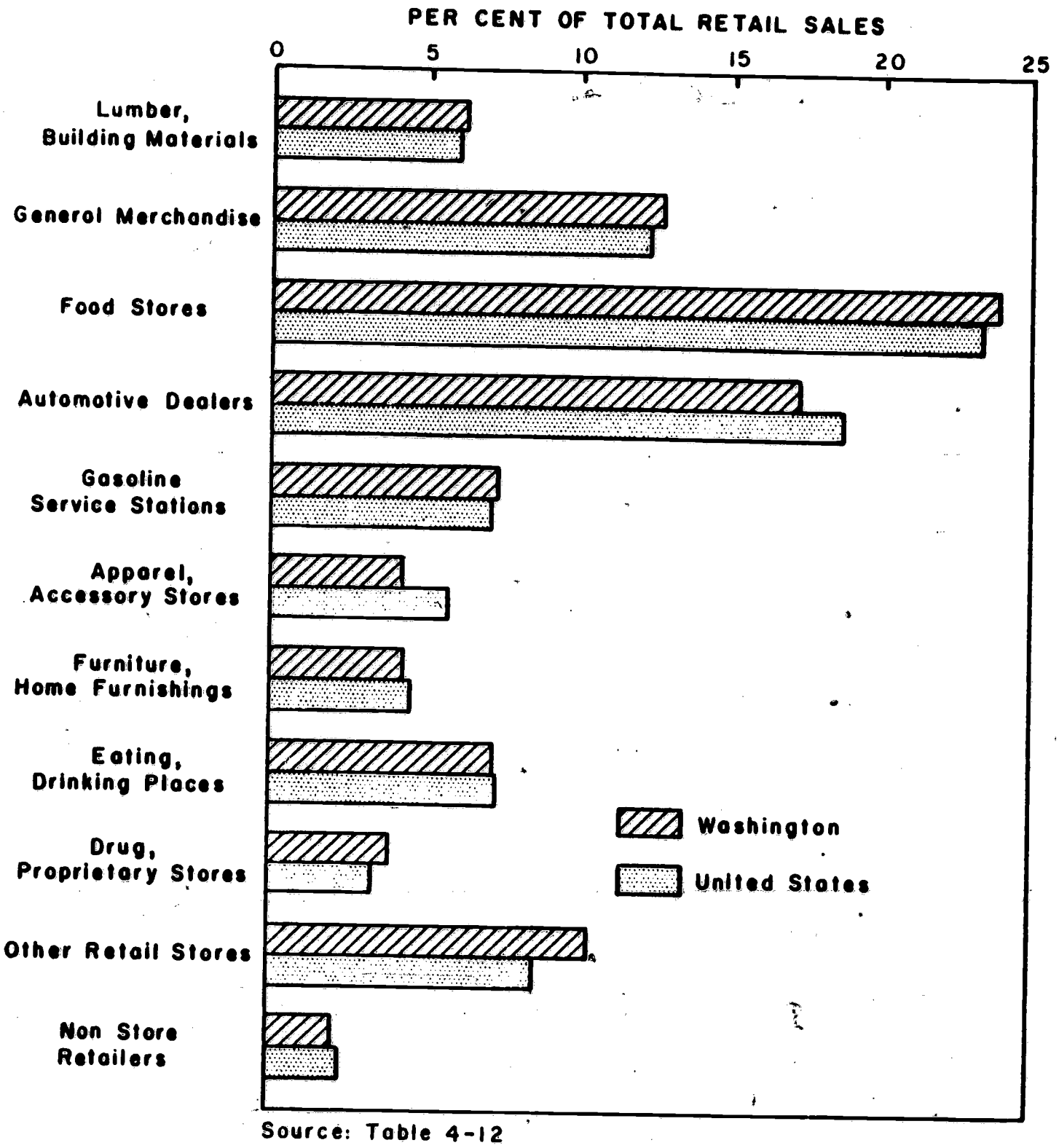
Retail Trade of Washington Compared with Nearby States

It is interesting to compare retail trade statistics of Washington with Oregon and Idaho. Oregon is, perhaps, the state more comparable with Washington considering both its size and the nature of its economic base.

Table 4-13 shows that the total number of retailing establishments in the United States and in two of the three northwest states decreased from 1954 to 1963. Nationally, there was a slight shrinkage in the number of retailing institutions. This fact supports, along with other evidence, the thesis that there is a definite trend toward increased size of individual stores. That is, fewer stores are doing a larger and larger volume of business. Of the three states compared, notice that only Idaho has witnessed an increase in the number of establishments for this period. This is not too unusual, however, when interpreted in the light of Idaho's late start in terms of economic and business development and, therefore, considering the small base on which its expansion

FIG. 4-1

PERCENTAGE DISTRIBUTION OF RETAIL SALES BY KIND OF BUSINESS WASHINGTON AND THE UNITED STATES, 1963



Source: Table 4-12

rests. Oregon's contraction in the number of retailing institutions was slightly in excess of nine per cent, while Washington's shrinkage in this category amounted to slightly less than 1.5 per cent. These figures assume a slightly different dimension when viewed against other magnitudes. Nationally, while the number of establishments shrank slightly, the number of paid employees increased by 18 per cent, and the amount of total payroll increased by 51.8 per cent. The general conclusion, then, which one would draw is that stores are undoubtedly becoming larger, employing more people and paying them considerably higher wages. The statistics for the individual states would generally conform to this pattern. Oregon shows the largest percentage increase in total paid employees, and in size of payroll its increase lags behind Idaho by the narrowest margin.

Table 4-13

RETAIL ESTABLISHMENTS, PAID EMPLOYEES AND PAYROLL
UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

Area	Number of Establishments 1954	Number of Establishments 1963	% Change 1954-63	Number of Paid Employees[a] 1954	Number of Paid Employees[a] 1963	% Change 1954-63	Payroll (millions) 1954	Payroll (millions) 1963	% Change 1954-63
U. S. Total	1,721,650	1,707,931[b]	(0.8)	7,124,331	8,410,199[b]	18.0	$18,199	$27,632[b]	51.8
Washington	26,806	26,430	(1.4)	108,399	132,323	22.1	324	492	51.9
Oregon	19,073	17,276	(9.4)	69,643	90,182	29.5	205	318	55.1
Idaho	7,096	7,311	3.0	24,837	30,256	21.8	66	102	54.5

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, p. 1-39; 1963, Vol. I, p. 1-11.

Notice that the percentage increase in payroll from 1954 to 1963 in all three states--Washington, Idaho and Oregon--was larger than the national percentage increase.

Tables 4-14 and 4-15 show comparisons of Washington's retail sales and those of the adjoining states of Idaho and Oregon. The first of these tables shows the absolute dollar sales and percentage change between 1954 and 1963 for the total United States and for Washington, Oregon and Idaho. The significant columns are those showing the percentage changes in sales volume.

Table 4-14

RETAIL SALES IN THE UNITED STATES
WASHINGTON, OREGON AND IDAHO, 1954, 1958 AND 1963

Area	Sales (millions of dollars) 1954	Sales (millions of dollars) 1958	Sales (millions of dollars) 1963	% Change 1954-63
U. S. Total	169,968	199,646	244,202[a]	43.7
Washington	2,874	3,419	4,043	40.7
Oregon	1,921	2,137	2,679	39.5
Idaho	670	818	947	41.3

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Summary Statistics, 1954, Vol. I, p. 1-40; 1958, Vol. I, p. 1-42; 1963, Vol. I, p. 1-42.

Between 1954 and 1963 neither Washington, Oregon nor Idaho showed relative increases equal to that of the United States as a whole. Washington's percentage increase during this period was barely above that of Oregon but slightly below that of Idaho. In absolute magnitudes, however, Washington's increases were above those for both Oregon and Idaho.

In Table 4-15 retail sales and disposable income data have been converted to per capita figures in order to make comparisons among states without

considering population differences. Washington has higher per capita retail sales and higher per capita disposable income than the figures for United States total. The same situation exists regarding Washington in relation to Idaho except 1958 and 1963 per capita retail sales where Idaho is slightly higher than Washington. However, a somewhat confusing picture emerges

Table 4-15

PER CAPITA RETAIL SALES AND DISPOSABLE PERSONAL INCOME FOR THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954, 1958 AND 1963

Year	United States		Washington		Oregon		Idaho	
	Sales	Income	Sales	Income	Sales	Income	Sales	Income
1954	$1,050	$1,568	$1,142	$1,747	$1,181	$1,540	$1,117	$1,341
1958	1,146	1,821	1,233	1,885	1,244	1,763	1,266	1,543
1963	1,295[a]	2,122[a]	1,326	2,210	1,467	2,116	1,328	1,738

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: (A) Sales--U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Sales--Summary Statistics, 1954, Vol. I, p. 1-40; 1958, Vol. I, p. 1-42; 1963, Vol. I, p. 1-42 and (B) Income--Survey of Current Business, April, 1965, p. 22.

when Washington's per capita retail sales figures and disposable income are compared with Oregon. For the years 1954, 1958 and 1963, Oregon has had a lower per capita disposable income than Washington, yet Oregon's per capita retail sales are higher than Washington's. This phenomenon is not easy to explain. Perhaps it can partially be attributed to Washington residents who, desiring to avoid the sales tax or for other reasons, shop in Oregon. This might be especially true in the Vancouver, Washington-Portland, Oregon, area. It appears from this data at least that Oregon shoppers simply prefer to spend a larger proportion of their incomes for goods purchased at retail.

Intrastate Retail Patterns

Counties: As would be expected, there are marked differences in growth trends for Washington's 39 counties. Table 4-16 reports the percentage of population growth in each county between 1950 and 1960. Each county's percentage increase in retail sales between 1954 and 1963 is also given along with estimates from Sales Management of Disposable Personal Income for the various counties for 1954 and 1963. The general argument is that sales are a function of both income and population. Some relationship between these variables can be observed. However, the relationship is not always direct nor as significant as would be imagined. Numerous influences often act to upset such a relationship. For instance, trading areas frequently overlap, and larger trading areas have a tendency to pull customers away from smaller areas which may be located across county boundaries. Topography and transportation facilities including the nature and state of repair of state and county highways may also affect the extent to which residents of one county shop in another.

Table 4-16

POPULATION, RETAIL SALES AND DISPOSABLE PERSONAL INCOME FOR WASHINGTON COUNTIES, 1954 AND 1963

(thousands of dollars)

	Population			Retail Sales			Disposable Personal Income		
	1950	1960	% Change	1954	1963	% Change	1954	1963	% Change
Washington	2,378,963	2,853,214	19.9	$2,873,694	$4,042,629	40.7	$4,480,047	$6,617,685	47.7
Adams	6,584	9,929	50.8[a]	13,227	18,878	42.7[a]	18,470	23,227	25.8
Asotin	10,878	12,909	18.7	5,547	7,184	29.5	16,841	24,608	46.1
Benton	51,370	62,070	20.8[a]	66,206	78,312	18.3	116,828	137,815	18.0
Chelan	39,301	40,744	3.7	57,578	64,571	12.1	63,957	82,219	28.6
Clallum	26,396	30,022	13.7	30,513	41,212	35.1	44,569	57,374	28.7
Clark	85,307	93,809	10.0	70,842	106,051	49.7[a]	137,950	201,186	45.8
Columbia	4,860	4,569	(6.0)	6,044	8,596	42.2[a]	6,540	8,327	27.3
Cowlitz	53,369	57,801	8.3	54,267	82,109	51.3[a]	101,342	111,923	10.4
Douglas	10,817	14,890	37.7[a]	6,012	7,571	25.9	18,827	26,059	38.4
Ferry	4,096	3,889	(5.1)	1,693	1,899	12.2	4,342	5,590	28.7
Franklin	13,563	23,342	72.1[a]	33,067	47,734	44.4[a]	39,766	50,280	26.4
Garfield	3,204	2,976	(7.1)	5,346	4,735	(11.4)	5,871	7,594	29.3
Grant	24,346	46,477	90.9[a]	40,112	67,092	67.3[a]	62,969	86,162	36.8
Grays Harbor	53,644	54,465	1.5	60,089	78,051	29.9	90,101	114,519	27.1
Island	11,079	19,638	77.3[a]	8,712	16,448	88.8[a]	18,050	34,029	88.5[a]
Jefferson	11,618	9,639	(17.0)	7,246	9,461	30.6	17,111	15,991	(6.5)
King	732,992	935,015	27.6[a]	1,008,056	1,524,673	51.2[a]	1,582,761	2,686,136	69.7[a]
Kitsap	75,724	84,176	11.2	78,035	100,482	28.8	142,049	173,292	22.0
Kittitas	22,235	20,467	(8.0)	23,971	30,995	29.3	33,159	38,565	16.3
Klickitat	12,049	13,455	11.7	10,600	12,975	22.4	16,595	24,311	46.5
Lewis	43,755	41,858	(4.3)	47,256	61,771	30.7	60,076	75,147	25.1
Lincoln	10,970	10,919	(0.5)	15,673	14,340	(8.5)	24,794	24,749	(0.2)
Mason	15,022	16,251	8.2	12,569	17,648	40.4	24,702	31,809	28.8
Okanogan	29,131	25,520	(12.4)	24,481	29,111	18.9	39,422	37,807	(4.1)
Pacific	16,558	14,674	(11.4)	13,257	16,448	24.1	22,550	24,494	8.6
Pend Oreille	7,413	6,914	(6.7)	7,227	5,891	(18.5)	10,149	9,943	(2.0)
Pierce	275,876	321,590	16.6	283,244	413,799	46.1[a]	515,063	708,743	37.6
San Juan	3,245	2,872	(11.5)	2,118	3,605	70.2[a]	4,452	4,278	(3.9)
Skagit	43,273	51,350	18.7	52,865	73,057	38.2	59,921	97,063	62.0[a]
Skamania	4,788	5,207	8.8	2,343	2,611	11.4	6,383	9,613	50.6[a]
Snohomish	111,580	172,199	54.3[a]	123,331	223,145	80.9[a]	202,799	367,518	81.2[a]
Spokane	221,561	278,333	25.6[a]	313,703	370,246	18.0	440,968	626,803	42.1
Stevens	18,580	17,884	(3.7)	14,853	16,716	12.5	19,983	24,820	24.2
Thurston	44,884	55,049	22.6[a]	52,640	76,796	45.9[a]	78,363	114,449	46.0
Wahkiakum	3,835	3,426	(10.7)	1,884	2,297	21.9	4,429	5,119	15.6
Walla Walla	40,135	42,195	5.1	47,170	64,465	36.7	74,359	97,175	30.7
Whatcom	66,733	70,317	5.4	79,398	98,123	23.6	95,705	130,393	36.2
Whitman	32,469	31,263	(3.7)	34,130	40,896	19.8	60,963	73,305	20.2
Yakima	135,723	145,112	6.9	158,389	202,635	27.9	196,868	245,250	24.6

[a]Counties showing greater percentage increase than the state as a whole.

SOURCES: U. S. Bureau of the Census, U. S. Census of Population, Washington, General Social and Economic Characteristics, 1950 and 1960; U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Area Statistics, 1954, Vol. II, pp. 47-6 to 47-8; 1963, Vol. II, pp. 49-8 to 49-10; Sales Management (Special Issue, "Survey of Buying Power"), May 10, 1955, pp. 726-32; June 10, 1964, pp. 564-65.

Twelve counties have relative increases in retail sales greater than the state average. Ten counties have relative increases in population greater than the state averages and only five counties have increases in disposable income greater than the state. Only in King, Snohomish and Island counties were the relative increases in population, retail sales and disposable income greater than the increases for the entire state. The twelve counties showing the largest percentage increases in sales volume in 1963 over 1954 are: Adams, Clark, Columbia, Cowlitz, Franklin, Grant, Island, King, Pierce, San Juan, Snohomish and Thurston. In addition to changes in population and income which are subsumed under the general explanation of an extended economic base, these increases can, in some instances, be attributed to shifting patterns of retail trade and perhaps to the impact of tourism brought about by the recent World's Fair.

Clark in the southern portion of the state and Yakima in the south-central portion have retail sales in excess of $100 million yearly. Spokane is the only county in the extreme eastern portion of the state with sales in excess of $100 million annually, and the three contiguous western counties of Snohomish, King and Pierce each have sales in excess of $100 million yearly.

Metropolitan Areas: The percentage of total Washington retail sales taken into account by each of the state's three Standard Metropolitan Areas is shown in Table 4-17. A Standard Metropolitan Area is a Bureau of the Census concept. It is an integrated economic unit with a large volume of traffic and communication between a central city and the outlying parts of the area. In Washington, each area consists of the city and the county in which it is

Table 4-17

TOTAL RETAIL SALES FOR WASHINGTON STANDARD METROPOLITAN AREAS BY KIND OF BUSINESS, 1963

(millions of dollars)

Kind of Business	Washington Sales	Total Metropolitan Sales as a % of State Sales	Seattle-Everett SMSA Sales	% of State Sales	Tacoma SMSA Sales	% of State Sales	Spokane SMSA Sales	% of State Sales
Total retail sales	4,043	62.6	1,748	43.2	413	10.2	370	9.2
Lumber, building materials	257	47.3	89	34.6	18	7.2	14	5.5
General merchandise	512	74.6	253	49.4	64	12.6	64	12.6
Food stores	960	61.3	417	43.4	87	9.1	85	8.8
Automotive dealers	696	63.3	290	41.7	80	11.5	70	10.2
Gasoline service stations	297	58.9	117	39.4	32	10.6	26	8.9
Apparel, accessory stores	173	65.7	81	46.9	16	9.5	16	9.2
Furniture, home furnishings	175	66.7	74	42.6	25	14.3	17	9.8
Eating and drinking places	297	65.8	142	47.8	30	10.2	23	7.8
Drug, proprietary stores	163	59.9	69	42.6	15	9.0	14	8.3
Other retail stores	423	56.5	166	39.2	40	9.4	33	7.9
Non-store retailers	88	70.5	50	56.6	6	6.9	6	7.0

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. II, Retail Trade--Area Statistics, pp. 49-6 to 49-7, 49-12 to 49-17.

located.[2] The Bureau of the Census has designated Spokane, Tacoma and Seattle-Everett as Washington's Standard Metropolitan Areas. Clark County is a part of the Portland, Oregon, Standard Metropolitan Area.

Table 4-17 gives the percentage of total Washington retail sales in each metropolitan area. Furthermore, the table shows the percentage of total Washington retail sales accounted for by the three areas collectively. The Seattle-Everett Standard Metropolitan Area is accountable for the largest proportion of total retail sales in the state. The three SMA categories collectively account for over 62 per cent of all retail sales in the state. The data also show that there are significant differences in the percentages which the three areas account for by kinds of business. Together, the three areas do nearly 75 per cent of the state's general merchandise group sales. This group consists largely of department and dry goods stores which tend to draw customers much greater distances than do some of the other business classifications. The three SMA cities also account for over 65 per cent of the volume of the state's eating and drinking places. Large cities most generally can offer the number, size and variety of establishments required to induce large numbers to eat out. Furthermore, large cities require more eating and drinking establishments to service the number of out-of-town visitors such as tourists and those attending conventions and professional meetings. The furniture, furnishings and appliance group represents sales to the extent of 66 per cent in the three Standard Metropolitan Areas. Inasmuch as these are "big-ticket" shopping goods items, this reflects the consumers' desire to go where

[2] In most instances, the areas designated by the Census are considerably more restricted than the "market" or trading area.

assortments are large and where the number of firms is likely to engender some price competition.

The trading area of each of these Standard Metropolitan Areas is considerably larger than the geographical boundaries of the area itself. A trading area is normally defined as a geographical area or region around and including a central city from which trade normally flows to that city. Consumers are generally willing to travel longer distances to purchase some classes of goods than others. As an illustration, a consumer would drive to the local supermarket for bread or milk; but, if interested in buying a complete fall wardrobe might likely drive considerable distance to a central city for assortments or a choice on styles or colors. The largest trading areas are generally those concerned with shopping goods, and the smaller trading areas exist for convenience items such as groceries. Trading areas are further determined and delineated by considering, among other factors, transportation facilities and the flow between the central city and the outlying parts of the area, length of time required to travel to the central market by common carrier or private automobile, newspaper coverage, volume of charge account business with stores in the central market from outlying areas and a host of other considerations.

One generalization about trading areas which is nearly self-evident is that the larger the central city which forms the nucleus of the trading area, the larger will be the trading area itself. Washington State has three major or primary trading areas, and these would coincide basically with the three Standard Metropolitan Areas mentioned previously. In keeping with an earlier statement, however, it should be pointed out that the actual trading area is generally larger than just the Standard Metropolitan Area. While no attempt will be made here to delineate carefully the various trading areas, it is reasonably safe to say that each would comprise several whole counties and parts of other counties. It should further be pointed out that there are far more than three trading areas in the state. The three mentioned were designated as primary trading areas meaning that they are the foremost trading areas and service the widest geographical area. Each small city has its own trading area and trading areas overlap to a considerable degree. It is not at all unusual to find customers crossing city, county, state and even national boundaries in search of goods and services to fulfill their needs.

Per capita 1963 retail sales by kinds of business are given in Table 4-18 for each of the three metropolitan areas and for the state of Washington as a whole. Retail sales per capita in the Seattle-Everett Standard Metropolitan Area exceed sales per capita for the state as a whole while sales per capita in each of the two remaining Standard Metropolitan Areas is slightly below the state-wide per capita retail sales figure. The diversity of the economic base of the various areas and the types of institutions and services available are largely responsible for the wide differences in per capita sales among the various kinds of business classifications. Notice that the Seattle-Everett area statistics in nearly all categories exceed the state-wide figures.

Wholesaling

Wholesaling is a vital part of our overall marketing and economic system. The wholesaler, in many instances, is the strong connecting link between manufacturers of goods and the retail institutions whose task it is to sell these

Table 4-18

RETAIL SALES PER CAPITA FOR WASHINGTON STANDARD METROPOLITAN AREAS BY KIND OF BUSINESS, 1963

Kind of Business	Washington State	Seattle-Everett SMSA	Tacoma SMSA	Spokane SMSA
Total per capita retail sales	$1,342	$1,460	$1,202	$1,279
Lumber, building materials	85	74	53	49
General merchandise	170	211	187	223
Food stores	319	348	253	293
Automotive dealers	231	242	232	245
Gasoline service stations	99	98	92	91
Apparel, accessory stores	57	68	48	55
Furniture, home furnishings	58	62	73	59
Eating, drinking places	99	119	88	80
Drug, proprietary stores	54	58	42	47
Other retail stores	140	139	115	116
Non-store retailers	29	42	18	21

SOURCE: Table 4-17.

goods to ultimate consumers. The wholesaler's fundamental task is threefold. First, he must aggregate goods from a large number of manufacturers. This task is usually referred to as the concentration function. Second, he then must attempt to balance out his stocks of goods with the existing or expected demand. This is known as the equalization function. Finally, the wholesaler must disseminate the goods he has acquired by placing these goods or facilitating their placement into the hands of retailers or other resellers or users. This final task is called the dispersion function.

Without the activities of the many wholesale intermediaries, our whole distribution system would suffer a decided setback in both economy and efficiency.

Much ambiguity surrounds wholesaling activity; and, in order that the reader may not himself be confused, let us proceed to define several of the more important terms in this field.

Wholesaling includes the undertaking of marketing transactions in which the purchaser is motivated by a profit or business motive. The goods purchased for resale may remain in the same form or may be altered in the business or industrial process. A wholesale establishment or institution is a recognizable place of business that is primarily engaged in performing marketing functions on the wholesale level of distribution. A wholesaler is one who engages in the act of wholesaling or a firm or agency primarily engaged in selling to business buyers.

By examining the above definitions, it becomes obvious that there is a distinct difference between a wholesaler and a wholesale establishment. Manufacturers do considerable wholesaling; i.e., make sales at wholesale. However, much of the wholesaling activity undertaken by manufacturers evades the Bureau of Census enumeration. Large retailers, also, conceivably engage in some wholesale selling activity inasmuch as they resell goods to other

resellers or retailers. Our major concern here is with the marketing activity of wholesale establishments or institutions. Our interest embraces a concern with their economic significance and behavior, first on the national level, and later in terms of their operation within Washington and surrounding areas.

Growth and Development of Wholesaling Establishments

Like most other marketing institutions, wholesale establishments have grown and developed without much pattern. Generally speaking, wholesale institutions of a given nature and specializing in the performance of certain marketing functions have tended to emerge and develop where an economic need was seen to exist. Wholesaling developments have tended to fall into three general periods in the United States.

Prior to the 1800's, there was little if any separation between the functions of wholesaling and retailing firms. Both activities were centered in the same firms, and they performed many of their activities in the import and export business. The essential feature of this common marketing firm was that of importing wares from abroad such as fabrics, herbs, spices of all sorts, iron and tin products, some tools and implements; and in the local and regional areas of gathering for export purposes such commodities as furs, hides and tobacco. Many of the export commodities tended to be in the form of raw or semi-processed materials. Goods which were imported were largely in the nature of finished goods.

During the period 1800-1929, especially the period following the American Civil War, the real separation of functions between wholesaling and retailing firms began. This came about largely via the process of vertical disintegration. As institutions continued to grow and, concomitantly, as the economic base and general economic environment which surrounded and supported these institutions expanded, it was discovered that economies could be attained by separation of functions, leading to specialization and division of labor. Thus, wholesalers tended, by spinning off their retailing activities, to develop more specialized marketing programs to meet the needs of their retail customers whom they served, as well as other industrial buyers and resellers. It was during this period that most of the modern-day wholesale institutions came into existence.

From the period 1929 to the present, much of the activity of wholesale institutions has centered around modifying and adapting their institutions and behavior to the changing needs of the market place. Conditions since World War II especially could be described as highly dynamic. And much of the typical wholesaler's activity has been directed toward assuring him some competitive niche in the distribution structure of the nation.

Problems and Recent Developments in Wholesaling

Wholesaling activity since World War II is largely characterized by adaptive behavior. Wholesalers have streamlined their operations, changed the nature and character of many of their services, developed and improved their own private brands and sharpened their overall business practices in an effort to meet the more stringent challenge of modern merchandising.

Much of the difficulty of the independent wholesale establishments is that someone is always trying to eliminate them; either it is a retailer who thinks

their costs are too high or it is a manufacturer who wishes to develop a more direct channel of distribution. Many erroneously conclude that some forms of wholesaling are archaic--vestiges of a former era which have little place in a streamlined, modern, mass-production and distribution economy. This attitude reflects the failure to appreciate that wholesaling, in one sense, is a bundle of marketing services or functions which must be performed by someone.

Thus the basic challenge of the wholesaler since World War II to the present has been to combat the steadily rising cost of doing business. Like all businessmen, wholesalers have a constant battle to keep costs down. To accomplish this, they have pursued the majority of the conventional methods of keeping down expenses, such as increasing merchandise turnover, eliminating waste and the like. And there are certain areas in cost cutting in which wholesalers have made a great progress in the last few years. One has been the simplification of warehouse and office jobs. Wholesalers, as experts in distribution, have done an outstanding job in eliminating wasted motion and effort. Most wholesale operations today are handling a greater tonnage of goods with fewer people than in the past. This is quite an achievement in an industry that is not highly mechanized though large amounts of labor-saving devices and methods have been introduced into the physical handling and storage aspects of the wholesalers' operation.

A very large percentage of wholesalers are now using labor-saving devices in their accounting and general offices departments. Several wholesalers located on the West Coast have installed mechanical warehouse machines for storing, picking and packing merchandise. Tabulating cards are fed into the machine, and thousands of individual items are picked by the machine and fed through a belt to the shipping platform for customer pick-up or delivery.

Another program for cutting costs, which wholesalers are following aggressively, is selectivity, and especially selective selling and selective servicing of customers. Wholesalers have learned that not all customers are entitled to all services: only those customers who will concentrate their purchases with a wholesaler are entitled to his red carpet services. Selective selling and servicing of customers are being practiced by practically every wholesaler in the country. Selective selling, automation where possible, efforts designed to increase order size on high-line extension and on promoting fast-selling merchandise are all efforts currently being employed by progressive wholesalers to bring down costs and thus enhance their competitive position.

Wholesalers play a vital role in the assistance given to retailers. Today most any individual retailer can go to his wholesaler for assistance on location analysis. Wholesalers have developed programs and means for evaluating the amount of business that can be done in an area. They know about the growth trend in cities and suburbs, and their judgment in this regard is widely sought by individual retailers. Wholesalers also offer to many retailers extensive services regarding store design, layout and modernization. Wholesalers also offer store opening services and comprehensive services in regard to sales training and merchandising. Some wholesalers are providing many special services to retailers. For example, rack jobbers will select, price-mark, shelve, inventory and advertise merchandise for their retail customers. They will often provide fixtures; all the retailer has to provide is space, collect the money, pay for the merchandise that disappears--the rest is all done by the wholesaler.

The wholesaler's relative position in our economy is about the same today as it was 20 or 30 years ago; and this, perhaps, shows that he has done a rather successful job of adjusting his operations to the changing competitive conditions of this highly dynamic merchandising era.

The Structure of Wholesale Distribution

A rather common misconception among laymen is that retail sales volume exceeds the volume of business done by wholesale establishments. The reason is that retail prices are higher than wholesale prices and that wholesalers sell only to retail establishments. Of course the definition alone of wholesaling readily tends to dispel this idea. It will be recalled that wholesale establishments sell not only to retailers but other resellers as well, including other wholesalers and, most importantly, to manufacturers who buy goods for use in their own production functions or for use in facilitating the conduct or operation of their business. Therefore, sales of wholesale establishments generally tend to run somewhere in the vicinity of 140 to 150 per cent of retail sales.

Table 4-19 reveals that wholesale sales in current dollars declined from 1929 to 1939. This reflects primarily the state of general business conditions prevailing during this period. The physical volume equivalents show that sales volume data at current prices often convey misleading information. While dollar-wise volume declined markedly during the depression years of the 30's, the actual quantity of goods distributed at wholesale did not decline nearly so substantially. Also, while the dollar volume of goods expanded quite materially between 1929 and 1963, it should be observed that some part of this change reflected simply a higher level of wholesale prices.

Table 4-19

WHOLESALE SALES IN CURRENT PRICES AND IN CONSTANT 1957-59 PRICES FOR THE UNITED STATES, 1929-63

Year	Sales (millions of current dollars)	Index of Wholesale Prices 1957-59 = 100	Sales (millions of 1957-59 dollars)
1929	66,740	52.1	128,100
1939	54,888	42.2	130,066
1948	188,689	87.9	214,663
1954	234,974	92.9	252,932
1958	284,971	100.4	283,836
1963[a]	358,386	100.3	357,314

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: Government Printing Office) Wholesale Trade--Summary Statistics, 1948, Vol. IV, p. 1.05; 1954, Vol. III, p. 1-4; 1958, Vol. VI, p. 1-5; 1963, Vol. V, p. 1-10.

Types of Wholesale Establishments

There are at least as many ways of classifying wholesale institutions as there are for retailing institutions. Usual classification schemes are those based upon such factors as ownership, method of operation, kind of business, size, location and other factors. Here, it will perhaps suffice to examine the structure of wholesaling on the basis of, at most, two or three of these schemes.

Considering types of establishments, the wholesaling structure consists of five major segments:[3]

1. Merchant wholesalers: Establishments that take title to goods and usually physical possession. They ordinarily deal in large quantities and buy goods for purposes of resale to retailers or industrial users.

2. Manufacturers' sales branches and offices: Concerns that are integrally a part of a manufacturing organization but located apart from the major manufacturing operations. Sales branches maintain stocks of goods whereas sales offices do not.

3. Agents and brokers: Wholesale intermediaries that do not take title to goods and in some instances do not even have physical possession. Their primary function is to negotiate sales or purchases for clients.

4. Petroleum bulk stations: Wholesale establishments whose major function is the storage and wholesale distribution of gasoline, oil or other bulk petroleum products.

5. Assemblers: Wholesale intermediaries whose main task is generally the aggregating of stocks of goods such as farm products or sea foods in the producing region for dispersal to institutions in the areas of more general consumption.

Table 4-20 gives in rather complete detail the breakdown of wholesale institution activity by type of wholesaler for the Census of Business years 1954 through 1963. As can be observed, the number of wholesalers has increased from 252, 318 in 1954 to 308, 177 in 1963. However, this growth in total numbers has not been uniform in all categories, or among all types of wholesale institutions. The wholesale firms characterized as merchant are and have been the most numerous type. The three types--merchant wholesalers, manufacturers' sales branches and offices, and agents and brokers--together account for about 85 per cent of total wholesale trade.

From 1954 to 1963 wholesale sales gained slightly more than retail sales. Retail sales increased from $169, 968 million in 1954 to $244, 202 million in 1963 in current dollars, or by 43. 7 per cent. Wholesale sales

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[3]This is the most typical classification scheme and the one employed by the Census of Business. However, one authority and textbook writer employs a six-fold classification and includes sales of chain store warehouses in the wholesale category. See Theodore N. Beckman, Nathanael H. Engle and Robert D. Buzzell, Wholesaling (3rd ed.; New York: The Ronald Press, 1959), especially Chapter 6, pp. 100-04.

Table 4-20

NUMBER AND SALES VOLUME IMPORTANCE OF TYPES OF ESTABLISHMENTS WITHIN THE WHOLESALING STRUCTURE: UNITED STATES SELECTED YEARS

Type of Operation	Number of Establishments		Sales Volume % of Total				
	1954	1963[a]	1939	1948	1954	1958	1963
Total[b]	252,318	308,177	100.0	100.0	100.0	100.0	100.0
Merchant wholesalers	165,153	208,997	41.0	42.2	43.0	42.6	43.9
Merchants, distributors	155,150	194,754	n.a.	38.5	38.7	38.1	38.7
Importers	2,571	5,754	n.a.	1.5	1.8	2.0	2.6
Exporters	2,361	2,664	n.a.	2.1	1.9	1.9	2.3
Truck distributors	5,071	5,825	n.a.	0.1	0.6	0.5	0.3
Manufacturers' sales branches sales offices	22,590	28,884	26.0	27.9	29.6	30.7	32.5
Sales branches	14,759	16,408	17.5	15.5	15.6	14.6	15.3
Sales offices	7,831	12,476	8.5	12.4	13.9	16.1	17.2
Petroleum bulk plants	29,189	30,873	6.9	5.6	6.8	7.0	6.0
Refiner-marketer	17,837	17,565	n.a.	3.9	4.7	4.7	4.2
Other petroleum	11,352	13,308	n.a.	1.7	2.2	2.3	1.8
Agents, brokers	22,131	25,313	21.5	18.3	16.7	16.2	14.9
Brokers	4,359	5,083	n.a.	5.2	4.6	3.5	3.9
Commission merchants	3,568	3,416	n.a.	4.0	3.7	4.1	2.7
Manufacturers' agents	8,720	11,189	n.a.	2.2	3.0	3.4	3.1
Selling agents	2,336	2,574	n.a.	2.7	2.6	2.4	2.3
Other types	3,148	3,051	n.a.	4.2	2.7	2.8	3.0
Assemblers	13,255	14,110	4.6	5.8	3.8	3.1	2.7

n.a. Not available.

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

[b]Totals for sales volume are as follows: 1939, $54,888,480; 1948, $188,688,801; 1954, $234,974,422; 1958, $284,970,807; 1963, $358,385,749.

SOURCES: Compiled and computed from data from U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1948, Vol. IV, pp. 1.05, 1.10, 1.16; 1954, Vol. III, p. 1-4; 1958, Vol. III, p. 1-11; 1963, Vol. IV, p. 1-11.

increased from $234, 974 million in 1954 to $358, 386 million in 1963 or by 52. 5 per cent. In the overall picture, wholesaling as a segment of our economy seemed to be of approximately the same relative importance in 1963 as in 1929. The economy expanded and wholesaling, likewise, expanded with it. Such was the story for wholesalers in the main. However, some types of wholesalers improved their position, while others lost position. In terms of the five classes of types of institutions from 1954 to 1963, it can be seen that the largest gains were made by manufacturers' sales offices, and the smallest gains were made by assemblers and brokers.

Unlike retail trade and institutions, wholesale establishments and trade show a marked tendency toward concentration. This is shown via the information in the following table.

Table 4-21

NUMBER AND SALES VOLUME OF WHOLESALE ESTABLISHMENTS
BY STANDARD METROPOLITAN STATISTICAL AREAS
AND REMAINDER OF COUNTRY, UNITED STATES
1958

	Wholesale Establishments (% of total)	Sales of Wholesale Establishments (% of total)
24 largest metropolitan areas with population of more than one million each	41.7	59.0
165 metropolitan areas with population of less than one million each	26.2	25.9
Remainder of country	32.1	15.1

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1958 (Washington, D. C.: U. S. Government Printing Office), Vol. III, Wholesale Trade--Summary Statistics, pp. 1-45 to 1-52.

Notice that in 1958, 59 per cent of total wholesale trade is concentrated in the 24 largest metropolitan areas. Quite naturally, the degree of concentration varies among the various types of wholesale institutions. Where wholesalers specialize in selling to industrial users such as manufacturers' branches and offices, the degree of concentration appears greatly pronounced. In fact, it can be generalized that where wholesalers cater to retail buyers, especially in convenience and shopping goods lines, their concentration is considerably less. Conversely, where wholesalers cater to industrial users and/or retailers purchasing specialty type goods, concentration tends to increase.

Importance of Wholesale Trade in Washington

According to the statistics shown in Table 4-22 and gathered from Census of Business sources, wholesale sales in Washington totaled $5, 173 million for 1963; this was an increase of 49. 6 per cent over the comparable figure for 1954. During the same period, wholesale sales for the United States increased from slightly more than $234 billion to more than $358 billion or 52. 5 per cent. Thus, Washington's relative growth in total wholesale sales was slightly less than the relative growth in wholesale sales for the entire nation. By type of operation, the wholesaling institutions in Washington showing the greatest percentage increases in 1963 over 1954 are manufacturers' sales branches and sales offices. This is a form of integrative activity whereby manufacturers attempt to perform all or some part of the wholesale distribution function in connection with the manufactured product. Agents and brokers also show considerably large percentage increases in 1963 over 1954 figures.

By comparing Census of Business figures for wholesale sales by type of operation for the United States as a whole with the same figures for Washington, while some divergence is seen between the two, generally speaking wholesale trade patterns in Washington do not differ significantly with the national picture.

Table 4-22

WHOLESALE SALES FOR UNITED STATES AND WASHINGTON BY TYPE OF OPERATION
1954 AND 1963

Type of Operation	Sales, Entire Year (millions of dollars)				% Change 1954 to 1963		% Distribution 1963	
	United States		Washington					
	1954	1963[a]	1954	1963	United States	Wash-ington	United States	Wash-ington
All types	234,974	358,386	3,458	5,173	52.5	49.6	100.0	100.0
Merchant wholesalers	101,101	157,392	1,725	2,567	55.7	48.8	43.9	49.6
Manufacturers' sales branches, sales offices	69,534	116,443	799	1,402	67.5	75.4	32.5	27.1
Petroleum bulk plants	16,038	21,485	340	387	34.0	14.0	6.0	7.5
Agents, brokers	39,251	53,245	389	597	35.7	53.7	14.9	11.5
Assemblers	9,051	9,820	205	220	8.5	7.3	2.7	4.2

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-4; 1963, Vol. IV, p. 1-11; Wholesale Trade--Area Statistics, 1954, Vol. IV, p. 47-4; 1963, Vol. V, p. 49-7.

Tables 4-23 through 4-24 are presented to show additional information regarding wholesale activities in Washington. In 1963, according to Census of Business data and shown in Table 4-23, there were 5,593 wholesaling establishments of all types in Washington. Nearly two thirds of this total was

Table 4-23

NUMBER OF WHOLESALE ESTABLISHMENTS IN THE UNITED STATES AND WASHINGTON BY TYPE OF OPERATION, 1954 AND 1963

Type of Operation	Number of Establishments				% Change 1954 to 1963		% Distribution 1963	
	United States (thousands)		Washington					
	1954	1963[a]	1954	1963	United States	Wash-ington	United States	Wash-ington
All types	252.3	308.2	4,658	5,593	22.2	20.1	100.0	100.0
Merchant wholesalers	165.2	209.0	2,796	3,557	26.5	27.2	67.8	63.6
Manufacturers' sales branches, sales offices	22.6	28.9	500	610	27.9	22.0	9.4	10.9
Petroleum bulk plants	29.2	30.9	698	686	5.8	(1.7)	10.0	12.3
Agents, brokers	22.1	25.3	355	422	14.5	18.9	8.2	7.5
Assemblers	13.3	14.1	309	318	6.0	2.9	4.6	5.7

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-4; 1963, Vol. IV, p. 1-11; Wholesale Trade--Area Statistics, 1954, Vol. IV, p. 47-4; 1963, Vol. V, p. 49-7.

comprised of merchant wholesalers or those who take title and own the goods in which they deal. The number of wholesaling establishments did not increase too markedly during the 1954-63 interval. While the number of wholesalers of all types in the total United States increased slightly more than 22 per cent, wholesalers of all types in Washington increased by 20.1 per cent. The number of establishments in all categories increased from 1954 to 1963 except petroleum bulk stations and terminals, and some actual shrinkage in this category was evidenced in Washington. It is interesting to note that Washington, percentage-wise, has fewer merchant wholesalers than the national percentage. At the same time Washington has a greater proportion of manufacturers' sales branches and offices, petroleum bulk stations and assemblers than does the United States as a whole.

Tables 4-24 and 4-25 summarize the status of wholesaling in Washington in comparison with United States figures regarding payroll and number of paid

Table 4-24

PAYROLL IN WHOLESALE TRADE FOR UNITED STATES AND WASHINGTON BY TYPE OF OPERATION, 1954 AND 1963

Type of Operation	Payroll, Entire Year (millions of dollars)				% Change 1954 to 1963		% Distribution 1963	
	United States		Washington		United States	Washington	United States	Washington
	1954	1963[a]	1954	1963				
All types	11,021	18,101	201	304	64.2	51.2	100.0	100.0
Merchant wholesalers	7,018	11,545	128	197	64.5	53.9	63.8	64.8
Manufacturers' sales branches, sales offices	2,605	4,377	40	66	68.0	65.0	24.2	21.7
Petroleum bulk plants	540	792	12	13	46.7	8.3	4.4	4.3
Agents, brokers	531	990	6	13	86.4	116.7	5.5	4.3
Assemblers	328	398	15	15	21.3	---	2.2	4.9

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-4; 1963, Vol. V, pp. 1-25 to 1-30; Wholesale Trade--Area Statistics, 1954, Vol. IV, p. 47-4.

employees. These are both considered important measures when evaluating the performance of a given phase of economic or business activity.

Payrolls of persons employed in wholesale trade increased over 51 per cent between 1954 and 1963 while for the same period for the U. S. as a whole the increase amounted to nearly 65 per cent. This bears out the earlier contention that wholesale trade is not as important to the overall economy of Washington as it is in some other states. This contention receives heavier support when the increases in paid employees are considered. From 1954 to 1963, the percentage increase in paid employees in wholesale trade amounted to 19.2 per cent for the total United States. This percentage increase for Washington amounted to 7.1 per cent. A caveat would appear in order. When percentage increases for Washington are compared only with United States

Table 4-25

PAID EMPLOYEES IN WHOLESALE TRADE FOR UNITED STATES AND WASHINGTON BY TYPE OF OPERATION, 1954 AND 1963

Type of Operation	Number of Paid Employees[a] United States (thousands) 1954	1963[b]	Washington 1954	1963	% Change 1954 to 1963 United States	Washington	% Distribution 1963 United States	Washington
All types	2,590	3,089	48,617	52,071	19.3	7.1	100.0	100.0
Merchant wholesalers	1,667	2,064	29,821	32,988	22.3	10.6	66.8	63.4
Manufacturers' sales branches, sales offices	516	600	8,150	8,834	16.3	8.4	19.4	17.0
Petroleum bulk plants	133	144	2,703	2,218	8.3	(17.9)	4.7	4.3
Agents, brokers	131	170	1,454	2,845	29.8	95.7	5.5	5.5
Assemblers	124	111	6,489	5,186	(10.5)	(20.1)	3.6	10.0

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-4; 1963, Vol. V, pp. 1-25 to 1-30; Wholesale Trade--Area Statistics, 1954, Vol. IV, p. 47-4.

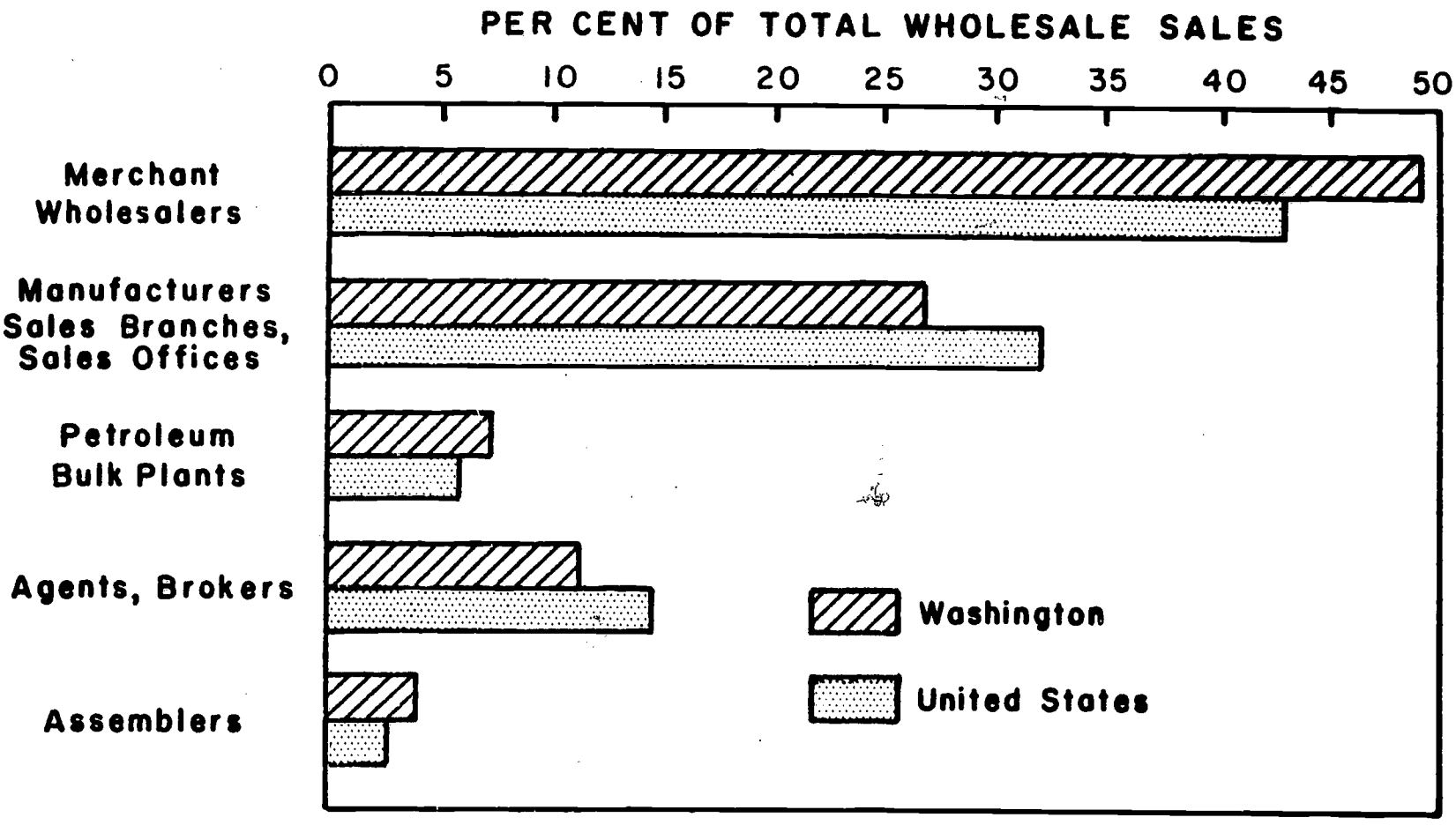
totals, it appears to detract somewhat from the absolute importance of a given economic activity. Such should not necessarily, however, be the case. The total payroll of persons employed in wholesale trade for 1963 was $304 million. Thus, wholesaling, in addition to its other contributions, provided a livelihood in 1963 for over 52 thousand persons. Surely these are important considerations.

Type of Operation: Merchant wholesalers account for nearly 50 per cent of wholesale trade in Washington State (see Table 4-22 and Figure 4-2). Merchant wholesalers are generally those having the largest gross margins; but, of course, these margins are necessary to cover the costs incurred by the merchant wholesaler in performing the wide range of his services. Manufacturers' sales branches and offices account for over 27 per cent of Washington's wholesale sales. A manufacturer's branch typically carries an inventory of goods at a strategically located spot to facilitate fast delivery and thus provide good service to his customers. Manufacturers' sales offices generally provide facilities for the manufacturer's field selling force. Nationally, there has been a considerable tendency toward direct selling; that is, efforts are being made increasingly to circumvent the independent wholesaler. The rise in numbers of manufacturers' sales branches and offices attest to this merchandising trend. Table 4-26 shows at a glance the further breakdown of wholesale sales in Washington by type of operation and further by kind of business in which the various operators are principally engaged.

Agents and brokers, middlemen who do not own the goods in which they trade but instead act in an agency capacity for a principal, account for 11.5 per cent of Washington wholesale trade. Agents and brokers generally have very streamlined merchandising operations. They are specialists thriving in an age of specialization. The range of services they perform, while extremely important, are special and limited. Consequently, their margins are usually much smaller than those of the full service wholesaler.

FIG. 4-2

WHOLESALE TRADE BY TYPE OF OPERATION WASHINGTON AND THE UNITED STATES, 1963



Source: Table 4-22

Assemblers deal mainly in farm commodities, and their task is to gather commodities from a number of producers and aggregate them for distribution in primary city markets. Petroleum bulk stations and terminals are wholesale distribution centers for petroleum and natural gas products. In Washington they account for 7.5 per cent of total wholesale sales.

Kind of Business: As would be expected, there is some considerable difference when comparing the percentage distribution of wholesale sales by kind of business for Washington with that of the United States as a whole. When viewed from the standpoint of kind of business, the grocery, confectionary and meats category is the largest in Washington's total. As a matter of fact, the category accounts for nearly 17 per cent of total wholesale sales for Washington while it amounted to only 12.3 per cent of the United States total. One would thus assume that Washington is an important wholesaler of items of this category. Other categories by kind of business in which Washington outranks the national percentage distribution figures are lumber and construction materials; and machinery, equipment and supplies. These are two important industrial goods categories and underwrite the significance of Washington as an industrial state (see Table 4-27).

To facilitate this comparison and aid the reader in his visual perusal of this report, Figure 4-3 has been prepared, which in bar chart form compares wholesale trade by kind of business in Washington and the United States for

Table 4-26

WHOLESALE SALES FOR WASHINGTON
BY TYPE OF OPERATION AND KIND OF BUSINESS, 1963

(millions of dollars)

Kind of Business	Total	Merchant Wholesalers	% of Total	Mfrs. Sales Branches, Sales Offices	% of Total	Agents, Brokers	% of Total	Assemblers	% of Total	Petroleum Bulk Plants	% of Total
Total, all kinds	5,172.9	2,567.0	49.6	1,401.6	27.1	597.3	11.5	219.5	4.3	387.5	7.5
Groceries, meats	1,243.3	571.4	45.9	241.9	19.5	320.9	25.8	109.0	8.8		
Beer, wine, distilled spirits	81.3	69.9	86.4	(D)		(D)					
Drugs, chemicals	190.5	87.1	45.8	97.5	51.1	5.9	3.1				
Tobacco and products	41.6	(D)		(D)							
Dry goods, apparel	47.5	25.8	54.2	14.4	29.2	7.4	15.4				
Furniture	91.5	56.8	62.6	29.6	33.0	5.1	5.6				
Paper and products	155.0	72.2	46.5	(D)		(D)					
Farm products (raw materials)	273.8	142.1	51.8			31.6	11.5	100.1	36.5		
Automotive equipment	408.2	155.6	38.2	238.2	58.3	14.4	3.5				
Electrical products	332.3	160.3	48.2	122.1	36.7	49.9	15.0				
Hardware	151.7	126.0	82.9	12.7	8.6	13.1	8.6				
Lumber	582.8	310.7	53.3	206.4	35.3	65.7	11.3				
Machinery, supplies	537.7	319.0	59.3	180.3	33.5	38.4	7.1				
Metal, metal work	205.6	85.9	41.7	117.0	56.8	2.7	1.3				
Waste materials	36.6	36.6	100.0								
Other	406.0	(D)		(D)		38.7	9.5	10.4	2.5		
Petroleum bulk plants	387.5									387.5	100.0

(D) Withheld to avoid disclosure.

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. V, Wholesale Trade--Area Statistics, p. 49-7.

1963. Table 4-28 shows the kinds of wholesale business in which Washington is relatively lower than the United States in percentage distribution of wholesale sales for 1963. Notice that the largest percentage point differences occur in the categories dry goods and apparel, and farm products (raw materials). Compared to national figures, Washington is not an important wholesaler of farm products in the form of raw materials. Washington also lags to a considerable extent behind the United States' averages in such categories as: (1) beer, wine and distilled spirits; (2) drugs, chemicals and allied products; (3) motor vehicles and automotive equipment and (4) metals and metal work (excluding scrap). Our study now turns toward some general analysis and discussion as to what determines whethera state is an important distributor of goods at wholesale.

The Determinants of Wholesale Trade

A state's relative importance as a wholesaling center depends essentially on the comparative advantages which it enjoys. That is to say, it depends upon the relative mix of industrial and economic opportunities, raw materials, natural resources, transportation facilities and other factors. Commodities sold at wholesale are classified into consumer goods and industrial goods. Consumer goods include those commodities which are generally sold without further processing through retail stores to ultimate consumers. All other goods are classified as industrial goods. Industrial goods fall into two major categories: (1) fixed plant and equipment and (2) raw materials and supplies. Installations constitute the major part of the fixed plant group. The installations groups include heavy equipment such as steam boilers, machine tools

Table 4-27

WHOLESALE TRADE FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1958[a] AND 1963

(millions of dollars)

Kind of Business	Sales, Entire Year				% Change 1958-63		% Distribution, 1963	
	United States		Washington		United States	Washington	United States	Washington
	1958	1963[b]	1958	1963				
Total	284,971	358,386	4,316	5,173	25.8	19.9	100.0	100.0
Groceries, meats	35,417	43,987	713	871	24.2	22.2	12.3	16.8
Farm products (edible)	13,643	14,894	339	372	9.2	9.7	4.2	7.2
Beer, wine, distilled spirits	8,726	10,739	77	81	23.1	7.0	3.0	1.6
Drugs, chemicals	16,577	20,829	177	190	25.6	7.3	5.8	3.7
Tobacco and products	5,439	5,374	52	42	(1.2)	(19.2)	1.5	0.8
Dry goods, apparel	13,574	17,468	44	48	28.7	9.1	4.9	0.9
Furniture	4,814	6,565	69	91	36.4	31.9	1.8	1.8
Paper and products	6,659	9,831	110	155	47.6	40.9	2.7	3.0
Farm products (raw materials)	28,584	34,831	285	274	21.9	(3.9)	9.7	5.3
Automotive equipment	23,488	36,584	297	408	55.8	37.4	10.2	7.9
Electrical products	16,444	22,035	285	332	34.0	16.5	6.1	6.4
Hardware	7,913	9,352	166	152	18.2	(8.4)	2.6	2.9
Lumber	10,551	13,787	441	583	30.7	32.2	3.8	11.3
Machinery, supplies	25,740	33,408	389	538	29.8	38.3	9.3	10.4
Metals, metal work	22,104	26,593	173	206	20.3	19.1	7.4	4.0
Waste materials	3,120	3,701	17	37	18.6	117.6	1.0	0.7
Other	22,046	26,923	294	406	22.1	38.1	7.5	7.8
Petroleum bulk plants	20,131	21,485	388	387	6.7	(0.3)	6.0	7.5

[a] 1958 data is used in this table because 1954 listing was not comparable to 1963.

[b] Includes Alaska and Hawaii. These states are not included in 1958 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1958, Vol. III, pp. 1-5 to 1-7; 1963, Vol. IV, p. 1-10; Wholesale Trade--Area Statistics, 1958, Vol. IV, p. 47-5; 1963, Vol. V, p. 49-5.

and similar equipment. Minor equipment generally refers to smaller, more portable items. In a manufacturing plant, minor equipment would include portable drills and other small or hand tools. In offices, typewriters and similar office equipment are included.

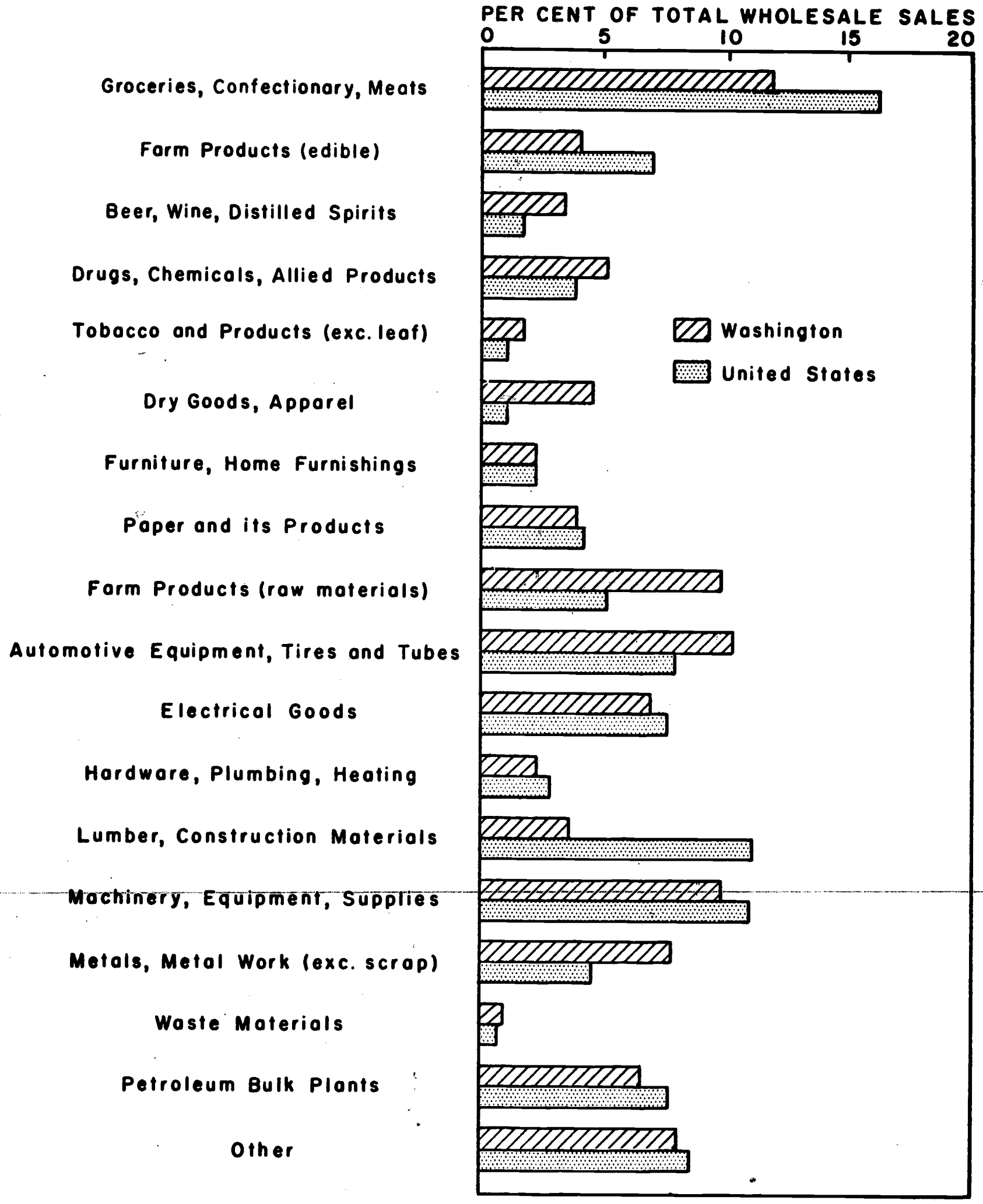
The second group of industrial goods includes raw materials, semi-manufactured goods, parts and supplies. Raw materials refers primarily to products of farm, mine, forest and sea; semi-manufactured goods includes those materials which are fabricated into a finished product in the manufacturing process; operating parts includes those items which are incorporated into a finished product without requiring further processing; and supplies are such expendable products as sweeping compound, lubricating oil, paper towels and similar products necessary for the operation of plants.

In many instances, industrial goods, especially heavy equipment and installations, are sold directly by manufacturers to industrial users. Semi-manufactured goods, parts and supplies are marketed directly to the final customer or through merchant wholesalers, industrial distributors, and jobbers. Such assemblers as cooperative marketing associations, country buyers and grain elevators, together with brokers and agents, are important in the distribution of raw material farm products.

In the case of consumer goods, the demand at the retail level depends upon the size of the population and its composition, income and its distribution, consumers' expectations and other miscellaneous factors which influence a

FIG. 4-3

WHOLESALE TRADE BY KINDS OF BUSINESS IN WASHINGTON AND THE UNITED STATES, 1963



Source: Table 4-27

Table 4-28

KINDS OF WHOLESALE BUSINESS IN WHICH WASHINGTON IS RELATIVELY LOWER THAN THE UNITED STATES IN PERCENTAGE DISTRIBUTION OF WHOLESALE SALES, 1963

Kind of Business	% of Total Wholesale Sales		% Difference
	United States	Washington	
Beer, wine, distilled spirits	3.0	1.6	1.4
Drugs, chemicals, allied products	5.8	3.7	2.1
Tobacco and products	1.5	0.8	0.7
Dry goods, apparel	4.9	0.9	4.0
Farm products (raw materials)	9.7	5.3	4.4
Motor vehicles, automotive equip.	10.2	7.9	2.3
Metals, metal work (exc. scrap)	7.4	4.0	3.4
Waste materials	1.0	0.7	0.3

SOURCE: Table 4-27.

consumer's willingness and ability to purchase. The demand for consumer goods at the wholesale level is derived from the demand at the retail level. Changes in the rate of consumption, therefore, are reflected within a relatively short time by changes in demand at the wholesale level.

Much like consumer goods, the demand for industrial goods at the wholesale level is also a derived demand, but the cause-and-effect linkage is not so clear cut. In the shorter run, the demand for raw materials and semi-manufactured goods and parts will respond to changes in demand for the finished products at retail. The demand for capital or investment goods, such as fixed plant and equipment, is based upon longer run considerations concerning the level or rate of consumption in the future.

Within a given state or area, the importance of wholesale trade depends not only upon the relative importance of consumption, agricultural production and manufacturing activity but also upon a number of modifying factors which, if present, tend to favor the development of wholesaling centers in specific locations. Some of these factors are geographic; others are economic.

The intersection of principal trade routes, as in earlier days, still provides a basis for the development of wholesale centers. Likewise, the availability of transportation facilities and the speed and frequency of service affect the market area of trade centers. The transportation rate structure is also important in determining the extent of the trading area.

Also to be considered is the effect of competition from other cities, as well as competition within the distribution channel, which effectively limits the size of the wholesale center and, in turn, the volume of wholesale sales. The assumption of wholesaling functions by chain stores and the adoption of direct selling methods by manufacturers tends to lessen the volume of wholesale trade and, hence, the importance of some trading areas.

For the most part, the determinants of trading areas are beyond the control of the individual wholesale institution. A wholesaler may effectively meet the limiting influences on his trading area by adopting sales policies

which favorably influence retailers in deciding from which wholesalers and which wholesale center they shall obtain their supplies. In this respect, the aggressiveness and ability of the wholesaler, as well as the size and variety of the stock of merchandise carried, are of importance. Specialization in wholesaling has also paralleled specialization in manufacturing and agriculture. Chicago has the American Furniture Mall and the Merchandise Mart, making this city the leading wholesale market for furniture and home furnishings. The concentration of motor vehicle production has made Michigan a most important wholesale distribution center for these products. Similarly, Akron, Ohio, because of the concentration of tire and rubber products is likewise an important wholesale distribution center for these commodities. A concentration of production facilities for apparel has made New York and Los Angeles the leading wholesale markets for these items. With its Board of Trade, Chicago has a large wholesale trade in grain.

By comparing the census data for the nearby contiguous states of Idaho and Oregon and for various metropolitan areas within the state of Washington as well as the state as a whole, an attempt is made in this study to explain some of the peculiarities of Washington's wholesale trade and to discover trends which indicate the future pattern of development.

The Wholesale-Retail Trade Ratio

In most instances, total wholesale sales at wholesale prices are greater than total retail sales at retail prices. This is true for several reasons. In the first place, the components of a product may be "sold" several times in various forms before the finished product reaches the final user--first as a raw material, then as a semi-finished part and later as a part of a completed product. The second reason for greater wholesale sales is that wholesalers sell both consumer and industrial goods, whereas the retailer sells only consumer goods. The third reason is found in the complex channels of distribution through which some commodities move in the marketing process. Some products may pass through the hands of several different wholesalers before they reach the final user. For example, sales negotiated by agents and brokers between manufacturers and other wholesalers are, according to Census usage, included twice in wholesale figures.

In 1963, the Bureau of the Census reported United States wholesale sales of approximately $358 billion and in the same year retail sales of about $244 billion. This is a ratio of $1.47 of wholesale sales for each dollar of retail sales (see Table 4-29). Washington's wholesale-retail ratio is considerably lower than the ratio for the nation. In 1963, Washington's wholesale sales totaled $5.17 billion, and retail sales were $4.04 billion, or wholesale sales of $1.28 for each $1.00 of retail sales.

The relatively lower wholesale-retail ratio for Washington is the result of several factors. Wholesale sales tend to concentrate in major population, market and industrial centers so that a maximum of trade can be served with a minimum of expense. Such centers are classified by the Bureau of the Census as Standard Metropolitan Areas. Washington has only three of the total 217 Standard Metropolitan Areas (as defined in 1964). Yet, with total wholesale sales in Washington for 1963 totaling $5.17 billion, these three Standard Metropolitan Areas--Seattle-Everett, Tacoma and Spokane--account for slightly more than $4.0 billion of this account. The conclusion is rather clear: without a large number of markets in the standard metropolitan class,

Table 4-29

WHOLESALE SALES, RETAIL SALES, AND WHOLESALE-RETAIL RATIO FOR THE UNITED STATES, WASHINGTON, OREGON, AND IDAHO SELECTED YEARS, 1948-63

State and Year	Wholesale Sales (millions)	Retail Sales (millions)	Wholesale-Retail Ratio
United States			
1948	$188,689	$130,520	1.45
1954	234,974	169,968	1.38
1958	284,971	199,646	1.43
1963[a]	358,386	244,202	1.47
Washington			
1948	2,643	2,221	1.19
1954	3,458	2,874	1.20
1958	4,316	3,419	1.26
1963	5,173	4,043	1.28
Oregon			
1948	1,891	1,597	1.18
1954	2,432	1,921	1.27
1958	3,259	2,137	1.53
1963	4,448	2,679	1.66
Idaho			
1948	416	582	0.71
1954	483	670	0.72
1958	669	818	0.82
1963	779	947	0.82

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1948, Vol. IV, p. 1.18; 1954, Vol. III, p. 1-48; 1958, Vol. III, pp. 1-25 to 1-31; 1963, Vol. IV, pp. 1-25 to 1-31; Retail Trade--Summary Statistics, 1948, Vol. I, p. 1.03; 1954, Vol. I, p. 1-40; 1958, Vol. I, p. 1-42; 1963, Vol. I, p. 1-42.

wholesale sales are not likely to be as important in their size and magnitudes as in states where these conditions exist. Table 4-30 shows quantitatively the relationship of wholesale sales in the Standard Metropolitan Areas affecting our region of consideration. Of the total wholesale sales accounted for by the Standard Metropolitan Areas of our region (Washington, Idaho and Oregon), those SMA regions located in Washington account for over 51 per cent of the total. The largest single Standard Metropolitan Area of the region, in terms of its importance regarding wholesale trade, is Portland, Oregon. As a matter of fact, the influence of Portland, Oregon, plus California from San Francisco southward has something of a dampening effect on wholesale trade for Washington. It is a well known fact that major wholesaling centers in nearby states act as a magnet to pull wholesale trade toward themselves and away from Washington firms. The principal instance in the case of Washington being Portland, Oregon, and its influence on the southwestern portion of the state.

The wholesale-retail ratio for Washington has been increasing. The information shown in Table 4-29 attests to this fact and also shows something

Table 4-30

WHOLESALE SALES OF PRINCIPAL METROPOLITAN AREAS IN WASHINGTON, OREGON AND IDAHO, 1963

Metropolitan Area	Wholesale Sales (millions of dollars)	% of Total
Total	8,024	100.0
Seattle-Everett	3,147	39.2
Spokane	569	7.1
Tacoma	402	5.0
Portland	3,465	43.2
Eugene	246	3.1
Boise	195	2.4

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. V, Wholesale Trade--Area Statistics, pp. 14-10, 39-10, 49-10 to 49-11.

of a comparative analysis regarding Washington, total United States, Oregon and Idaho. The wholesale-retail ratio has changed only minutely for the United States as a whole from 1948 through 1963. Washington has shown a very favorable improvement in its wholesale-retail ratio, moving from 1.19 in 1948 to 1.28 in 1963. Oregon's improvement in its wholesale-retail ratio has been even more favorable, changing from 1.18 in 1948 to 1.66 in 1963. No doubt, the increasing importance of Portland as a major port city and its strategic locational advantages in relation to both northern and southern markets of the West Coast has been largely responsible for this improved showing. Idaho has the least favorable wholesale-retail ratio and this ratio has shown little improvement during the 1948-63 interval. As can be seen, Washington's wholesale-retail ratio has grown somewhat faster than the national ratio and given the continued industrialization and urbanization of the state, it would appear most likely that Washington's wholesale-retail ratio would expand materially between now and the early 1980's.

Wholesale Trade in Washington and Nearby States

The relative importance of agriculture, manufacturing and trade differs rather significantly for Washington in comparison with the nearby states of Idaho and Oregon. Without engaging in invidious comparisons, one could conclude that Washington and Oregon are considerably more advanced than Idaho. Most of the business or economic indicators would support such a conclusion. Oregon and Washington, with their large coastal cities which have become important international distribution centers have largely overshadowed Idaho's growth and development. The concentration of rail, truck, water and air transportation facilities in the large cities of Seattle, Washington, and Portland, Oregon, have made them important wholesale centers. These differences in the importance of trade, agriculture and manufacturing, plus other economic and geographical factors, account for the variations in the structural patterns of wholesale trade in Washington and nearby states as shown in Tables 4-31 through 4-38.

Table 4-31

WHOLESALE SALES OF THE UNITED STATES, WASHINGTON, OREGON, AND IDAHO, STATE SALES AS A PER CENT OF UNITED STATES SALES, AND PER CENT CHANGE IN SALES, 1954 AND 1963

State	Sales (millions of dollars) 1954	Sales (millions of dollars) 1963	% of United States Total 1954	% of United States Total 1963	% Change 1954 to 1963
United States	234,974	358,386[a]	100.0	100.0	52.5
Washington	3,458	5,173	1.5	1.4	49.6
Oregon	2,432	4,448	1.0	1.2	82.9
Idaho	483	779	0.2	0.2	61.3

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-48; 1963, Vol. IV, pp. 1-25 to 1-31.

Sales: The three states of Washington, Oregon and Idaho together account for only 2.8 per cent of total United States wholesale sales. Washington, of the three, was the only state not to increase its wholesale sales from 1954 to 1963 by a percentage equal to that of the national increase for this same period. Oregon witnessed the largest percentage increase from 1954 to 1963. This increase amounted to nearly 83 per cent. Idaho's increase for this same period amounted to slightly more than 61 per cent. It is important to point out, in the light of previous discussion pertaining to wholesale-retail ratios and percentage changes, that Washington is by far the most important wholesaling center in the Pacific Northwest in terms of dollar volume of goods moved in trade. Washington outranks Oregon as a wholesaling center by nearly $750 million a year--no small magnitude. The data pertaining to sales for the three states are presented in further detail in Tables 4-32 and 4-33.

Establishments: Washington, Oregon and Idaho account for 3.5 per cent of the total wholesaling establishments in the United States. Recalling from the earlier section on sales, it will be remembered that these three states were responsible for 2.8 per cent of total wholesale sales in the United States. Consequently, it can readily be deduced that sales per establishment in these three states must be below the national average. Table 4-34 shows that Washington witnessed the largest absolute increase in number of establishments, increasing from 4,658 in 1954 to 5,593 in 1963 or a total of 935. Oregon was next with an increase of 773 followed by an increase of 200 in Idaho.

In terms of relative growth, however, Washington was below the national percentage increase for the United States as a whole and was outstripped by Oregon which had the largest percentage increase of the three states compared and a percentage increase which outran the national increase by about 3.7 percentage points.

Sales per Establishment: In 1963, the average sales per wholesaling establishment in the United States amounted to $1.16 million per year. This represents a percentage increase in sales per establishment of 24.9 per cent from 1954 to 1963. Average sales per establishment for both Washington and

Table 4-32

WHOLESALE SALES FOR THE UNITED STATES, WASHINGTON, OREGON AND IDAHO BY TYPE OF OPERATION, 1963

Type of Operation	Sales (millions of dollars) United States	Washington	Oregon	Idaho
Total, all types	358,386	5,173	4,448	779
Merchant wholesalers	157,392	2,567	2,537	329
Manufacturers' sales branches, sales offices	116,443	1,402	1,020	38
Petroleum bulk stations	21,485	387	294	107
Agents and brokers	53,245	597	488	141
Assemblers	9,820	220	108	164

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. IV, Wholesale Trade--Summary Statistics, pp. 1-25 to 1-31.

Table 4-33

PERCENTAGE DISTRIBUTION OF WHOLESALE SALES FOR UNITED STATES, WASHINGTON, OREGON AND IDAHO BY TYPE OF OPERATION, 1963

Type of Operation	% Distribution United States	Washington	Oregon	Idaho
Total, all types	100.0	100.0	100.0	100.0
Merchant wholesalers	43.9	49.6	57.0	42.2
Manufacturers' sales branches, sales offices	32.5	27.1	22.9	4.9
Petroleum bulk stations	6.0	7.5	6.6	13.7
Agents and brokers	14.9	11.5	11.0	18.1
Assemblers	2.7	4.3	2.4	21.1

SOURCE: Computed from Table 4-32.

Idaho are below the national average sales per establishment figure. However, there exists a considerable difference in magnitude in the disparity of the figures for the two states. Idaho's sales per establishment is hardly half that of the national average, while Washington figures show considerably less variance. Of these three states shown in Table 4-35, only Oregon has a sales per establishment figure which exceeds the national figure. Relative growth is a peculiar statistical phenomenon. For instance, when one child is one year old and another two, the latter is twice or 50 per cent older than the first. The next year, however, each child advances one year in age. The one-year-old child is 50 per cent older than before; the two-year-old child is 33-1/3 per cent older; and the three-year-old is only 33-1/3 per cent older than the two-year-old. Thus, in only one year, the relative magnitudes of the age change have been altered markedly. There is some parallel between this example

Table 4-34

NUMBER OF WHOLESALE ESTABLISHMENTS IN THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

State	Establishments		% of United States Total		Net Increase	% Change
	1954	1963	1954	1963	1954 to 1963	1954 to 1963
United States	252,318	308,177[a]	100.0	100.0	55,859	22.1
Washington	4,658	5,593	1.8	1.8	935	20.1
Oregon	2,995	3,768	1.2	1.2	773	25.8
Idaho	1,273	1,473	0.5	0.5	200	15.7

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-48; 1963, Vol. IV, pp. 1-25 to 1-31.

Table 4-35

WHOLESALE SALES PER ESTABLISHMENT FOR THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

State	Sales per Establishment (thousands of dollars)		% Change
	1954	1963	1954 to 1963
United States	931.3	1,162.9[a]	24.9
Washington	742.4	924.9	24.6
Oregon	812.0	1,180.5	45.4
Idaho	379.4	528.9	39.3

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: Computed from Table 4-31 and Table 4-34.

and the comparative statistics between states. While Washington has been a more important wholesaling center in the past than either Oregon or Idaho, it may be that it is becoming relative to growth and development of these two states, relatively less important even though in absolute magnitude it continues to be one of the major wholesale trade centers in the Pacific Northwest.

Payrolls and Employment: Payrolls for wholesale establishments in Washington, Oregon and Idaho and for the United States as a whole are shown in Table 4-36. Payrolls in wholesale trade for these three states amounted to 3. 1 per cent of total wholesale payroll in the United States. Washington, of the three states, makes the greatest contribution, both in dollars and percentage-wise, to total wholesale payroll in the U. S. However, Washington,

of the three states, was the only one to show a smaller percentage change in size of payroll for 1963 over 1954 than the average for the United States. Idaho recorded the largest percentage change, increasing total payroll in wholesaling in 1954 from $27 million to nearly $47 million in 1963, or a 74 per cent increase. For the state of Washington, payrolls in wholesale trade contributed $304 million to the state's economy in 1963.

A total of 52,071 persons were employed in wholesale trade in Washington during 1963, and the average pay received per employee in wholesale trade for 1963 was $5,838. The number of paid employees in wholesale trade increased by 19.2 per cent for the United States as a whole from 1954 to 1963. Neither Washington, Oregon nor Idaho increased employment in wholesale trade for this period by as large an amount. Tables 4-37 and 4-38 give rather complete

Table 4-36

PAYROLLS IN WHOLESALE TRADE IN THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

State	Payroll Entire Year (millions of dollars)		% of United States Total		% Change 1954 to 1963
	1954	1963	1954	1963	
United States	11,021	18,101[a]	100.0	100.0	64.2
Washington	201	304	1.8	1.7	51.2
Oregon	125	206	1.1	1.1	64.8
Idaho	27	47	0.2	0.3	74.1

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-48; 1963, Vol. IV, pp. 1-25 to 1-31.

Table 4-37

PAID EMPLOYEES IN WHOLESALE TRADE IN THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

State	Employees[a]		% of United States Total		% Change 1954 to 1963
	1954	1963	1954	1963	
United States	2,590,236	3,088,706[b]	100.0	100.0	19.2
Washington	48,617	52,071	1.9	1.7	7.1
Oregon	29,068	33,766	1.1	1.1	16.2
Idaho	10,003	11,405	0.4	0.4	14.0

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Summary Statistics, 1954, Vol. III, p. 1-48; 1963, Vol. IV, pp. 1-25 to 1-31.

Table 4-38

PAYROLL PER EMPLOYEE IN WHOLESALE TRADE IN THE UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954 AND 1963

State	Payroll per Employee 1954	Payroll per Employee 1963	% Change 1954 to 1963
United States	$4,254.8	$5,860.4[a]	37.7
Washington	4,134.4	5,838.2	41.2
Oregon	4,300.3	6,100.8	41.9
Idaho	2,699.2	4,121.0	52.7

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: Computed from Table 4-36 and Table 4-37.

information on both paid employees and payroll per employee for Washington, Oregon, Idaho and the United States for both 1954 and 1963. Appropriate percentage changes have also been computed.

Wholesale Trade Variations in Washington

In accordance with the Census definition, there are three Standard Metropolitan Areas in Washington. These are Seattle-Everett, Tacoma and Spokane. The economic and geographic factors which contribute to the growth of wholesale trade centers, which in turn causes variations in the importance of wholesale trade between states, also explain to a considerable degree the differences in the relative importance of wholesale trade centers within the state. As shown in Table 4-39, the Seattle-Everett Standard Metropolitan

Table 4-39

POPULATION, WHOLESALE SALES AND THE WHOLESALE-RETAIL RATIO FOR WASHINGTON AND PRINCIPAL METROPOLITAN AREAS, 1963

State and Metropolitan Area	Population, 1964 Numbers	Population, 1964 % of Total	Wholesale Sales (millions)	Wholesale Sales % of Total	Wholesale-Retail Ratio
Washington State	3,012,300	100.0	$5,173	100.0	1.28
Seattle-Everett SMSA	1,197,500	39.8	3,147	60.8	1.80
Spokane SMSA	289,200	9.6	569	11.0	1.54
Tacoma SMSA	344,300	11.4	402	7.8	0.97

SOURCES: Seattle Area Industrial Council, Our Growing Market (Seattle: Research and Information Department, December, 1964), pp. 1-2; and U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. V, Wholesale Trade--Area Statistics, pp. 49-6 and 49-10 to 49-11; Vol. II, Retail Trade--Area Statistics, pp. 49-12 to 49-17. Retail trade totals in millions of dollars in 1963 were: Washington--$4,043; Seattle-Everett--$1,748; Spokane--$370; Tacoma--$414.

Area contains nearly 40 per cent of the total state's population yet accounts for over 60 per cent of the state's total wholesale trade. The importance of wholesale trade in this area also accounts for the much higher wholesale-retail ratio in this area (1.80), the wholesale-retail ratio for the state as a whole being only 1.28. Competition with other wholesale centers in nearby states may limit the volume of trade in cities located at or near the state boundary. For instance, the growing importance of Portland, Oregon, as a wholesale trade center on the West Coast may be siphoning off wholesale volume that otherwise would move through the Seattle-Everett or the Tacoma trade centers. The Portland SMSA has a wholesale-retail ratio of 2.7, considerably higher than similar ratios for Seattle-Everett and Tacoma. As a matter of fact Portland has been increasing its wholesale-retail ratio at a rate considerably faster than either Seattle or Spokane. As shown by Table 4-40, the wholesale-retail ratio for the Seattle-Everett SMA has remained

Table 4-40

WHOLESALE-RETAIL RATIO FOR SEATTLE-EVERETT, TACOMA, SPOKANE AND PORTLAND STANDARD METROPOLITAN AREAS
SELECTED YEARS, 1939 TO 1963

	Wholesale Sales (millions)	Retail Sales (millions)	Wholesale-Retail Ratio
1939			
Seattle-Everett	$468	$267	1.75
Tacoma	63	67	0.94
Spokane	79	71	1.11
Portland	352	227	1.55
1948			
Seattle-Everett	1,465	842	1.74
Tacoma	219	215	1.02
Spokane	312	222	1.41
Portland	1,378	765	1.80
1954			
Seattle-Everett	1,999	1,131	1.77
Tacoma	274	283	0.97
Spokane	412	314	1.31
Portland	1,840	905	2.03
1958			
Seattle-Everett	2,565	1,443	1.78
Tacoma	295	333	0.89
Spokane	560	367	1.53
Portland	2,470	1,039	2.38
1963			
Seattle-Everett	3,147	1,748	1.80
Tacoma	402	414	0.97
Spokane	569	370	1.54
Portland	3,465	1,279	2.71

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Area Statistics, 1939, Vol. II, pp. 1000 and 1015; 1954, Vol. III, pp. 1-51 to 1-52; Vol. IV, p. 47-13; 1958, Vol. III, pp. 1-50 to 1-52; 1963, Vol. V, pp. 1-51 to 1-53; Retail Trade--Area Statistics, 1939, Vol. I, pt. 3, pp. 551 and 568; 1954, Vol. I, p. 1-51, Vol. II, p. 47-16; 1958, Vol. I, p. 1-67; 1963, Vol. II, p. 1-72.

relatively constant since 1939. Spokane has fared somewhat better in terms of improving its wholesale-retail ratio but growth in this index has decreased considerably for Spokane since 1948. Portland, on the other hand, has shown considerable growth in its ratio from 1939 to 1958. The ratio has remained relatively stable during the 1958 to 1963 period.

Spokane, Washington, is the largest metropolitan city in a vast geographical area referred to as the Inland Empire. This region covers nearly all of eastern Washington from north to south, western Montana and northern Idaho. As the center of such a vast economic and geographical region, Spokane serves as the hub of wholesale trade activity. However, this entire region generally has a low density of population, relatively few major market areas or population centers and, hence, does not call forth an unusually high level of wholesaling activity. However, Spokane has a wholesale-retail ratio considerably above the state's average. Tacoma, as shown by the relative statistics, is largely dominated by the Seattle-Everett area, at least in regard to wholesale trade activity. Tacoma has 11.4 per cent of the state's total population but does only 7.8 per cent of total wholesale sales and has a wholesale-retail ratio of 0.97. Given the continued growth and development of the state of Washington, both the Seattle-Everett and Spokane areas would appear to have bright futures as wholesaling trade centers.

One should not be left with the impression, however, that only Seattle and Spokane have any real future in wholesale trade developments. As was stated earlier in this section, where wholesalers specialize in selling to industrial users such as manufacturers' branches and offices, the degree of concentration appears greatly pronounced. Such appears to be the case regarding Seattle and Spokane. On the other hand where wholesalers cater to retail buyers, especially in convenience and shopping goods lines, their concentration is considerably less. Therefore, as population and trade centers in other parts of the state expand, there should exist ample opportunity for wholesale trade to expand and develop likewise. If a generalization were to be drawn, it would be that Seattle and Spokane are likely to remain the major or primary wholesale distribution centers for the state. Secondary centers which are likely to grow in the future would include such cities as Yakima, Pasco-Kennewick, Wenatchee and perhaps others.

As Table 4-41 shows there are presently nine counties out of the thirty-nine counties of the state which have a higher wholesale-retail ratio than the state average. This table also shows a considerable variation in the wholesale-retail ratio among counties from the period 1954 to 1963. The counties with wholesale-retail ratios exceeding the state's as a whole are: Adams, Chelan, Douglas, Garfield, King, Lincoln, Skamania, Spokane and Whitman. The high ratios for King and Spokane have already been accounted for. Douglas, Grant, Lincoln and Adams counties have increased their wholesale-retail ratio largely as a result of expanding the base of their agricultural economy to a considerable degree via irrigation. Chelan County which contains Wenatchee has already been listed as a secondary wholesale center of increasing economic potential. Skamania and Garfield have higher wholesale-retail ratios for perhaps peculiar reasons. In the case of Garfield, a rather large number of retail shoppers may find Whitman County facilities more adequate and extensive thus reducing the retail sales figures for this county and significantly altering the wholesale-retail ratio. Such may also be the case regarding Skamania County in relation to Clark County. A heavy concentration in one crop could also partially explain a large wholesale-retail ratio as is the case with Skamania and cranberries and perhaps Garfield with green peas.

Table 4-41

WHOLESALE SALES, RETAIL SALES AND WHOLESALE-RETAIL RATIO OF SALES FOR WASHINGTON STATE BY COUNTY, 1954 AND 1963

(thousands of dollars)

County	Wholesale Sales		Retail Sales		Wholesale-Retail	
	1954	1963	1954	1963	1954	1963
Total State	3,457,631	5,172,895	2,873,694	4,042,629	1.2	1.3
Adams	11,364	28,208	13,227	18,878	0.9	1.5[a]
Asotin	(D)	5,076	5,547	7,184	(D)	0.7
Benton	18,331	24,380	66,206	78,312	0.3	0.3
Chelan	80,306	130,094	57,578	64,571	1.4	2.0[a]
Clallam	12,719	16,113	30,513	41,212	0.4	0.4
Clark	97,916	56,101	70,842	106,051	1.4	0.5
Columbia	(D)	8,585	6,044	8,596	(D)	1.0
Cowlitz	14,550	33,137	54,267	82,109	0.3	0.4
Douglas	(D)	11,057	6,012	7,571	(D)	1.5[a]
Ferry	1,185	612	1,693	1,899	0.7	0.3
Franklin	22,070	31,824	33,067	47,734	0.7	0.7
Garfield	(D)	7,654	5,346	4,735	(D)	1.6[a]
Grant	23,877	41,874	40,112	67,092	0.6	0.6
Grays Harbor	24,698	42,461	60,089	78,051	0.4	0.5
Island	1,630	1,782	8,712	16,448	0.2	0.1
Jefferson	1,331	1,753	7,246	9,461	0.2	0.2
King	1,953,677	3,033,448	1,008,056	1,524,673	1.9	2.0[a]
Kitsap	20,049	18,011	78,035	100,482	0.3	0.2
Kittitas	8,316	11,820	23,971	30,995	0.3	0.4
Klickitat	8,068	5,087	10,600	12,975	0.8	0.4
Lewis	20,281	27,263	47,256	61,771	0.4	0.4
Lincoln	19,166	35,220	15,673	14,340	1.2	2.5[a]
Mason	3,141	8,554	12,569	17,648	0.2	0.5
Okanogan	20,082	27,967	24,481	29,111	0.8	1.0
Pacific	4,434	6,145	13,257	16,448	0.3	0.4
Pend Oreille	(D)	1,406	7,227	5,891	(D)	0.2
Pierce	273,524	401,946	283,244	413,799	1.0	1.0
San Juan	(D)	1,183	2,118	3,605	(D)	0.3
Skagit	22,360	28,532	52,865	73,057	0.4	0.4
Skamania	(D)	6,437	2,343	2,611	(D)	2.5[a]
Snohomish	45,301	113,091	123,331	223,145	0.4	0.5
Spokane	411,977	569,000	313,703	370,246	1.3	1.5[a]
Stevens	3,087	7,274	14,853	16,716	0.2	0.4
Thurston	16,370	34,832	52,640	79,796	0.3	0.4
Wahkiakum	(D)	473	1,884	2,297	(D)	0.2
Walla Walla	56,896	62,485	47,170	64,465	1.2	1.0
Whatcom	41,292	49,296	79,398	98,123	0.5	0.5
Whitman	28,392	55,275	34,130	40,896	0.8	1.4[a]
Yakima	175,037	227,439	158,389	202,635	1.1	1.1

(D) Withheld to avoid disclosure.

[a]Ratios greater than state ratio.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Area Statistics, 1954, Vol. IV, pp. 47-6 to 47-7; 1963, Vol. V, pp. 49-8 to 49-9; Retail Trade--Area Statistics, 1954, Vol. II, pp. 47-6 to 47-8; 1963, Vol. II, pp. 49-8 to 49-10.

Wholesale Sales by Kind of Business: The preparation and completion of a study of this type always confronts one with the possibility that some taste will be left unsatisfied. And while this is a comprehensive undertaking, some effort will now be made to report the status of wholesale trade by kind of business. "Kind of business" is a Census reporting category which conforms quite closely to what in business is most frequently referred to as product line.

Table 4-42 shows the absolute dollar figures of wholesale sales for the entire state and for the major wholesaling trade centers and further shows the percentage distribution of wholesale sales for Washington and for the major wholesale trade centers.

Table 4-42

WHOLESALE SALES FOR WASHINGTON AND METROPOLITAN AREAS BY KIND OF BUSINESS, 1963

(millions of dollars)

Kind of Business	Washington	% Distribution	Seattle-Everett	% Distribution	Spokane	% Distribution	Tacoma	% Distribution
Total	5,173	100.0	3,147	100.0	569.0	100.0	401.9	100.0
Groceries, meats	871	16.8	533	16.9	147.8	26.0	101.9	25.4
Farm products (edible)	372	7.2	95	3.0			20.5	5.1
Beer, wine, distilled spirits	81	1.6	41	1.3	5.8	1.0	7.9	2.0
Drugs, chemicals	190	3.7	153	4.9	11.4	2.0	10.5	2.6
Tobacco and products	42	0.8	19	0.6	(D)	(D)	(D)	(D)
Dry goods, apparel	48	0.9	42	1.3	4.0	0.7	(D)	(D)
Furniture	91	1.8	82	2.6	6.0	1.1	2.7	0.7
Paper and products	155	3.0	101	3.2	11.1	2.0	21.4	5.3
Farm products (raw materials)	274	5.3	33	1.0	22.9	4.0	(D)	(D)
Automotive equipment	408	7.9	319	10.1	39.1	6.9	14.6	3.6
Electrical products	332	6.4	273	8.7	33.4	5.9	12.3	3.1
Hardware	152	2.9	97	3.1	22.5	4.0	16.9	4.2
Lumber	583	11.3	379	12.0	60.3	10.6	104.2	25.9
Machinery, supplies	538	10.4	384	12.2	82.6	14.5	18.4	4.6
Metals, metalwork	206	4.0	175	5.6	12.4	2.2	3.1	0.8
Waste materials	37	0.7	30	1.0	(D)	(D)	3.0	0.7
Other	406	7.8	231	7.3	71.3	12.5	21.6	5.4
Petroleum bulk plants	387	7.5	159	5.1	30.6	5.4	32.1	8.0

(D) Withheld to avoid disclosure.

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. V, Wholesale Trade--Area Statistics, pp. 49-6 and 49-10 to 49-12.

Table 4-43 reports Washington metropolitan area sales as a per cent of total state sales by kind of business. This is a most revealing and dramatic table inasmuch as it shows the nearly overwhelming importance and influence of the Seattle-Everett area on wholesale sales in nearly all product categories for the state as a whole.

The Service Trades

The service trades are an extensive and conglomerate part of the United States business scene. Much confusion arises from this conglomerate aspect of the service trade industry. There are many kinds of services sold to many different kinds of buyers and users. In the main, however, the service trade industry can be classified into two major categories: consumer services and

Table 4-43

WASHINGTON METROPOLITAN AREA WHOLESALE SALES AS A PER CENT OF STATE SALES BY KIND OF BUSINESS, 1963

Kind of Business	Washington	Seattle-Everett	Spokane	Tacoma
Total	100	60.8	11.0	7.8
Groceries, meats	100	61.2	11.9	11.7
Farm products (edible)	100	25.5		5.5
Beer, wine, distilled spirits	100	50.6	7.2	9.8
Drugs, chemicals	100	80.5	6.0	5.5
Tobacco and products	100	45.2	(D)	(D)
Dry goods, apparel	100	87.5	8.3	(D)
Furniture	100	90.1	6.6	3.0
Paper and products	100	65.2	7.2	13.8
Farm products (raw materials)	100	12.0	8.4	(D)
Automotive equipment	100	78.2	9.6	3.6
Electrical products	100	82.2	10.1	3.7
Hardware	100	63.8	14.8	11.1
Lumber	100	65.0	10.3	17.9
Machinery, supplies	100	71.4	15.4	3.4
Metals, metalwork	100	85.0	6.0	1.5
Waste materials	100	81.1	(D)	8.1
Other	100	56.9	17.6	5.3
Petroleum bulk plants	100	41.1	7.9	8.3

(D) Withheld to avoid disclosure.

SOURCE: Computed from Table 4-42.

business services. As would be expected, consumer services are those purchased by ultimate consumers for their own personal satisfaction. Business services, on the other hand, are those purchased by business firms for use in facilitating the operation of the business. These expenditures then become, for the business firms, expense items.

Ideally, our concern with the service trade industries encompasses a survey of that entire area of services included under the Standard Industrial Classification items 70-89. This division includes establishments primarily engaged in rendering a wide variety of services to individuals and business establishments. Hotels and other lodging places, establishments providing personal service, repair and amusement services, medical, legal, engineering and other professional services, educational institutions, non-profit membership organizations and other miscellaneous services are included.

However, because of the lack of adequate data, consistency problems and the general untidyness of information pertaining to the service trade industry, this may prove to be an all-too-ambitious task. Consequently, necessity will force the use of a procrustean bed approval for the treatment of this area.

Definitions

Because so much of the terminology of this area suffers from a lack of precise meaning, explicit definitions of several of the frequently employed terms may be in order.

Services refers to intangibles for which consumers and business make expenditures. They include all expenditures made by consumers and business firms for which no physical commodity is received.

Service establishment is a business firm primarily engaged in the production and marketing of a service, i.e., an intangible commodity.

Similarly, the service trade industry is the total firms or aggregate of service establishments.

The Structure of the Service Trades Industry

As was mentioned at the outset of this section, the service trades industry represents a conglomerate of service establishments catering to a diverse and heterogeneous market. The "product" sold, that is the service commodities marketed, range from such mundane items as hair cuts and pressed trousers to the management of a large industrial firm's legal affairs. Unfortunately, our mechanisms for gathering and reporting information pertaining to business enterprise has done less than a sufficient job for the service trades classifications. Considering the whole of the service trades as SIC classifications 70-89, the Census of Business gathers information only for the classifications 70 through 79 or the categories listed as follows:

70 - Hotels and other lodging places
72 - Personal services
73 - Miscellaneous business services
75 - Automobile repair, services and garages
76 - Miscellaneous repair services
78 - Motion pictures
79 - Amusement and recreation services

The following SIC classifications are thus omitted from Census of Business statistics:

80 - Medical and health services
81 - Legal services
82 - Educational services
84 - Museums, botanical and zoological gardens
86 - Nonprofit membership organizations
88 - Private households
89 - Miscellaneous services

Of course the omission of these latter classifications is a rather serious one and does impair, to a degree, the utility of a study which wishes to report on the overall service trades industry. However, the magnitude and the importance of the service trade industry is largely determined by those areas or classifications for which we do have significant and adequate data. The relative magnitude and importance of those areas for which we do not have Census of Business statistics or other data can be inferred or deduced by examining information available from other sources.

Our examination of the structure of the service trade industry shall consist of an examination of the size of the service trade industry in terms of sales volume, establishments, and number of employees. The size and significance of the various establishments in terms of sales and employees shall be scrutinized and, finally, an examination of the forces behind the growth and development of the service trade industry will be explored.

Sales by Service Establishments

Sales volume is considered an important index of the economic contribution and significance of a given distributive segment of our economy. The service trade industries are no exception. Sales volume has grown steadily among most types of service trade establishments, and growth has been dramatic and accelerated in several categories. Table 4-44 is a visual exposition pertaining to growth and change regarding sales volume in service trade industries, SIC categories 70-79. These are presented in 1957-59 dollars to offset or deflate the effects of price level changes as well as in current dollars. The retail price index is weighted somewhat more heavily with physical commodities than with services, and this may inject some slight bias in our deflated figures. This is not considered a major problem, however, nor sufficient cause to deter us from using the index for our general purpose.

Sales volume in 1957-59 dollars for these categories of service trade has increased considerably from 1948 to 1963, moving from just slightly more than $16 billion in 1948 to nearly $42 billion in 1963 in constant dollars. Most of this increase came about as a result of the generally increasing affluence of the United States during this period. Personal services represented the largest single category of expenditures in 1948. Establishments in this category are primarily engaged in providing services involving the care of the person or his apparel such as laundries, cleaning and dyeing plants, photographic studios, barber and beauty shops, and cleaning and pressing shops. By 1963, this category no longer was dominant among the service trade industries having been replaced by the miscellaneous business services category which includes establishments such as advertising agencies, consumer credit reporting agencies and other establishments providing services on a fee or contract basis and not otherwise classified.

Sales of all service trade industries dramatically increased during the period 1948-54. This, of course, includes the accelerated growth period immediately following World War II. Percentage increases in all categories shown in Table 4-44 reflect these dramatic increases. For instance, miscellaneous business services increased 247.0 per cent in 1954 over 1948. This undoubtedly reflects something about the overall growth in United States business enterprise generally during this period and the increasing tendency of business toward the use of "specialized" providers of essential business services. Other changes in the mix of service industry activities reflect other more fundamental changes in the character of business and consumer behavior.

Quite substantial changes in the automobile repair, services and garages category can be witnessed. Receipts in this category increased by 61.1 per cent between 1954 and 1958 and by 33.4 per cent between 1958 and 1963. This change, no doubt, was stimulated and encouraged by the increased incidence of automobile ownership and the increased number of automatic appliances which grace the homes of U. S. consumers. As even more complicated appliances

Table 4-44

RECEIPTS OF SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES BY KIND OF BUSINESS, 1948-63

Year and Kind of Business	Receipts (millions of current dollars)	Retail Price Index 1957-59=100	Receipts (millions of 1957-59 dollars)	Kind of Business as a % of Total	% Change
1948					
Total selected services receipts	13,619	83.8	16,252	100.0	
Hotels, other lodging places	2,368		2,826	17.4	
Personal services	4,440		5,298	32.6	
Miscellaneous business services	1,630		1,945	12.0	
Automobile repair, services, garages	1,561		1,863	11.5	
Miscellaneous repair services	947		1,130	7.0	
Motion pictures	1,614		1,926	11.9	
Amusement and recreation services	1,059		1,264	7.8	
					1954 over 1948
1954					
Total selected services receipts	23,508	93.6	25,115	100.0	54.5
Hotels, other lodging places	3,027		3,234	12.9	14.4
Personal services	5,773		6,168	24.6	16.4
Miscellaneous business services	6,317		6,749	26.9	247.0
Automobile repair, services, garages	2,223		2,375	9.5	27.5
Miscellaneous repair services	1,796		1,919	7.6	69.8
Motion pictures	2,352		2,513	10.0	30.5
Amusement and recreation services	2,021		2,159	8.6	70.8
					1958 over 1954
1958					
Total selected services receipts	32,376	100.7	32,151	100.0	28.0
Hotels, other lodging places	3,888		3,861	12.0	19.4
Personal services	7,394		7,343	22.8	19.0
Miscellaneous business services	9,897		9,828	30.6	45.6
Automobile repair, services, garages	3,853		3,826	11.9	61.1
Miscellaneous repair services	2,262		2,246	7.0	17.0
Motion pictures	2,421		2,404	7.5	(4.3)
Amusement and recreation services	2,661		2,643	8.2	22.4
					1963 over 1958
1963[a]					
Total selected services receipts	44,586	106.7	41,786	100.0	30.0
Hotels, other lodging places	5,049		4,732	11.3	22.6
Personal services	9,163		8,588	20.6	17.0
Miscellaneous business services	15,193		14,239	34.1	44.9
Automobile repair, services, garages	5,444		5,102	12.2	33.4
Miscellaneous repair services	3,022		2,832	6.8	26.1
Motion pictures	2,725		2,554	6.1	6.2
Amusement and recreation services	3,990		3,739	8.9	41.5

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1948, Vol. VII, pp. 0.02 to 0.04; 1954, Vol. V, pp. 1-4 to 1-5; 1958, Vol. V, pp. 1-6 to 1-7; 1963, Vol. VI, pp. 1-7 to 1-8.

become available, the need for increased service centers would appear warranted. However, with improvements in automobile manufacturing technology and the tendency for five-year or 50,000-mile warranties to increase, decreases in expenditures for auto repair services become a distinct possibility. This

might be offset, however, by an increasing accident rate plus the greater number of automobiles being driven. The miscellaneous repair service category has also shown substantial growth increasing by 17.0 per cent between 1954 and 1958 and by 26.1 per cent between 1958 and 1963.

Motion picture sales receipts have generally been the most sluggish category, especially from about 1954, due of course to the advent of television. Yet, expenditures for the general category of amusement and recreation have increased spectacularly. This reflects perhaps the consumer's increased economic affluence and his greater amount of leisure time.

Thus, service trade industries capture a rather significant portion of the consumer's dollar. And considering several trends underway at present such as increased earnings, shorter work weeks, increased leisure time and the tendency to live in urban areas, this industry may soon capture an even larger share of each consumer's total expenditure.

Employment in Service Trades Industry

Another measure of considerable importance when evaluating a given economic activity is the number of persons employed in that activity. The rationale of this is perhaps that those employed generate incomes, and these incomes find their way into the overall general income streams adding to the overall purchasing power or demand for the economic unit in question.

Table 4-45 shows employment data for the same industry classifications reported in Table 4-44. As can be seen, personal services dominates the employment statistics rather completely; and while miscellaneous business services outstripped personal services in sales volume increases from 1948 to 1963, such has also been the case in terms of employment figures. In number of persons employed, the categories of miscellaneous business services and automobile repair, services and garages now account for a substantially larger proportion of the total than they did in 1948 and 1954. These two categories respectively accounted for 17.1 and 6.7 per cent in 1954. In 1963, after only a ten-year period, these categories respectively accounted for 26.8 and 8.8 per cent. During the same period (1954-63) the personal services category declined from 34.7 per cent of the total to 29.3 per cent. Employment trends in the motion picture category and the amusement and recreation services category have paralleled rather closely the developments in sales figures reported in Table 4-44.

Service Trade Industry Establishments

Some insight into the nature and significance of the service trade industries can be had by examining growth and development in the total number of establishments representing these categories. Again, we are reporting SIC categories 70-79 and for the census years 1948-63. Table 4-46 reports these statistics. In 1948 the predominant category in number of establishments was the personal services category accounting for 52.9 per cent of the total. By 1963, this figure had dropped to 42.1 per cent. The categories of continued importance are the miscellaneous business service category, automobile repair, services and garages category, and the miscellaneous repair services category.

Table 4-45

PAID EMPLOYEES IN SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES BY KIND OF BUSINESS, 1948-63

Year and Kind of Business	Paid Employees[a] (thousands)	Kind of Business as a % of Total	% Change
1948			
Total selected services employment	2,100	100.0	
Hotels, other lodging places	415	19.8	
Personal services	851	40.5	
Miscellaneous business services	243	11.6	
Automobile repair, services, garages	154	7.3	
Miscellaneous repair services	95	4.5	
Motion pictures	187	8.9	
Amusement and recreation services	155	7.4	
			1954 over 1948
1954			
Total selected services employment	2,362	100.0	12.5
Hotels, other lodging places	420	17.8	1.2
Personal services	820	34.7	(3.6)
Miscellaneous business services	405	17.1	66.7
Automobile repair, services, garages	157	6.7	1.9
Miscellaneous repair services	126	5.3	32.6
Motion pictures	208	8.8	11.2
Amusement and recreation services	225	9.5	45.2
			1958 over 1954
1958			
Total selected services employment	2,889	100.0	22.3
Hotels, other lodging places	502	17.4	19.5
Personal services	919	31.8	12.1
Miscellaneous business services	617	21.3	52.3
Automobile repair, services, garages	256	8.9	63.1
Miscellaneous repair services	134	4.6	6.3
Motion pictures	196	6.8	(5.8)
Amusement and recreation services	265	9.2	17.8
			1963 over 1958
1963[b]			
Total selected services employment	3,262	100.0	12.9
Hotels, other lodging places	526	16.1	4.8
Personal services	954	29.3	3.8
Miscellaneous business services	875	26.8	41.8
Automobile repair, services, garages	288	8.8	12.5
Miscellaneous repair services	162	5.0	20.9
Motion pictures	162	5.0	(17.3)
Amusement and recreation services	295	9.0	11.3

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1948, Vol. VII, pp. 0.02 to 0.04; 1954, Vol. V, pp. 1-4 to 1-5; 1958, Vol. V, pp. 1-6 to 1-7; 1963, Vol. VI, pp. 1-7 to 1-8.

Table 4-46

ESTABLISHMENTS IN SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES BY KIND OF BUSINESS, 1948-63

Year and Kind of Business	Establishments (thousands)	Kind of Business as a % of Total	% Change
1948			
Total selected services	665.5	100.0	
Hotels, other lodging places	55.6	8.4	
Personal services	352.0	52.9	
Miscellaneous business services	32.0	4.8	
Automobile repair, services, garages	95.5	14.4	
Miscellaneous repair services	80.0	12.0	
Motion pictures	18.6	2.8	
Amusement and recreation services	31.7	4.8	
1954			1954 over 1948
Total selected services	785.6	100.0	18.0
Hotels, other lodging places	67.0	8.5	20.5
Personal services	348.8	44.4	(0.9)
Miscellaneous business services	88.7	11.3	177.2
Automobile repair, services, garages	94.3	12.0	(1.3)
Miscellaneous repair services	113.4	14.4	41.8
Motion pictures	20.8	2.7	11.8
Amusement and recreation services	52.5	6.7	65.6
1958			1958 over 1954
Total selected services	975.2	100.0	24.1
Hotels, other lodging places	85.6	8.8	27.8
Personal services	411.5	42.2	18.0
Miscellaneous business services	113.9	11.7	28.4
Automobile repair, services, garages	125.2	12.8	32.8
Miscellaneous repair services	144.8	14.8	27.7
Motion pictures	19.5	2.0	(6.2)
Amusement and recreation services	74.7	7.7	42.3
1963[a]			1963 over 1958
Total selected services	1,061.7	100.0	8.9
Hotels, other lodging places	84.7	8.0	(1.1)
Personal services	447.1	42.1	8.7
Miscellaneous business services	147.7	13.9	29.7
Automobile repair, services, garages	139.6	13.1	11.5
Miscellaneous repair services	146.8	13.8	1.4
Motion pictures	16.4	1.5	(15.9)
Amusement and recreation services	79.5	7.5	6.4

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1948, Vol. VII, pp. 0.02 to 0.04; 1954, Vol. V, pp. 1-4 to 1-5; 1958, Vol. V, pp. 1-6 to 1-7; 1963, Vol. VI, pp. 1-7 to 1-8.

In 1948 these categories respectively accounted for 4.8, 14.4 and 15.0 per cent of total establishments. However, by 1963 these categories had increased respectively to 13.9, 13.1 and 13.8 per cent of total establishments. Notice that establishments as a per cent of total in the latter two categories have remained nearly constant while the big growth in establishments relatively has been in the miscellaneous business service category. One would postulate that the reasons or explanations underlining these changes in establishments data would coincide closely with the reasons advanced for changes in sales and employment statistics.

Table 4-47 is an attempt to condense in one visual presentation the changes in sales volume, employment and establishment statistics for the service trade industry classifications with which we are concerned.

The SIC Categories of Service Trade Industries 80-89

At the outset of this presentation, the objective of treating the service trades industry including SIC categories 70-89 was stated. Yet the treatment of the service trades industry to this juncture has included only SIC categories 70-79. Consequently, the study lacks a degree of completeness. The reason for this gap in the study was largely explained earlier; namely, the unavailability of the data in any suitable and comparable form.

The SIC categories 80, 81, 82, 84, 86, 89 constitute unquestionably an important component of economic activity. As a matter of fact, the essence of these categories would constitute the heart of the "professional" structure of an economic unit. The important categories of this unreported area are medical and other health services (80), legal services (81), educational services (82), and miscellaneous services (89). The two remaining classifications, museums, botanical and zoological gardens (84) and nonprofit membership organizations (86), seemingly would be less important both in terms of receipts and employees.

Some rather crude indication of the relative importance of the SIC categories 80-89 will now be attempted.

Employment: Table 4-48 presents selected employment data for totals which parallel SIC categories 80, 81, 82, 86, 88 and 89. Categories 88, 80, 81 and 86 are complete and conform closely with SIC categories. Categories 82 and 89 are only partially complete due to a variation in gathering and reporting between the Survey of Current Business and Census agencies.

Total services industries employment, it will be observed, is from the Survey of Current Business and includes roughly the whole range of SIC categories 70-89. It will be recalled that the Census of Business gathers service industry data only for SIC categories 70-79. As reported by the Survey of Current Business, total employment in the service trade industry in 1963 amounted to approximately 10,050,000 persons. Total employment in the service industries increased by 17 per cent in 1963 over 1958. The largest gains in employment in these industries percentage-wise was in 1958 over 1954. During this period, employment increased by 20.6 per cent. The largest individual gains in 1963 over 1958 were in the respective categories of legal services, medical and other health services, and educational services. Notice that the category, other service industries, refers generally to SIC categories 70-79 as reported in the Census of Business. These categories

Table 4-47

RECEIPTS, PAID EMPLOYEES AND ESTABLISHMENTS OF SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES BY KIND OF BUSINESS, 1948-63

Year and Kind of Business	Receipts (millions 57-59 dollars)	Paid Employees (thousands)	Establishments (thousands)	Receipts per Employee (57-59 dollars)	Receipts per Establishment (57-59 dollars)
1948					
Total selected services	16,252	2,100	665.5	7,739	24,421
Hotels, other lodging places	2,826	415	55.6	6,810	50,827
Personal services	5,298	851	352.0	6,226	15,051
Miscellaneous business services	1,944	243	32.0	8,000	60,750
Automobile repair, services, garages	1,863	154	95.5	12,097	19,508
Miscellaneous repair services	1,130	95	80.0	11,895	14,125
Motion pictures	1,926	187	18.6	10,299	103,548
Amusement and recreation services	1,263	155	31.7	8,148	39,842
1954					
Total selected services	25,116	2,362	785.6	10,633	31,970
Hotels, other lodging places	3,234	420	67.0	7,700	48,269
Personal services	6,168	820	348.8	7,522	17,683
Miscellaneous business services	6,749	405	88.7	16,664	76,088
Automobile repair, services, garages	2,375	157	94.3	15,127	25,186
Miscellaneous repair services	1,919	126	113.4	15,230	16,922
Motion pictures	1,747	208	20.8	8,399	83,990
Amusement and recreation services	2,925	225	52.5	13,000	55,714
1958					
Total selected services	32,149	2,889	975.2	11,128	32,967
Hotels, other lodging places	3,861	502	85.6	7,691	45,105
Personal services	7,342	919	411.5	7,989	17,842
Miscellaneous business services	9,827	617	113.9	15,927	86,277
Automobile repair, services, garages	3,826	256	125.2	14,945	30,559
Miscellaneous repair services	2,246	134	144.8	16,761	15,511
Motion pictures	2,404	196	19.5	12,265	123,282
Amusement and recreation services	2,642	265	74.7	9,970	35,368
1963[a]					
Total selected services	41,787	3,262	1,061.7	12,810	39,359
Hotels, other lodging places	4,732	526	84.7	8,996	55,868
Personal services	8,588	954	447.1	9,002	19,208
Miscellaneous business services	14,239	875	147.7	16,273	96,405
Automobile repair, services, garages	5,102	288	139.6	17,715	36,547
Miscellaneous repair services	2,832	162	146.8	17,481	19,292
Motion pictures	2,554	162	16.4	15,765	155,732
Amusements and recreation services	3,740	295	79.5	12,678	47,044

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: Table 4-44, Column (3); Table 4-45; and Table 4-46.

accounted for 38.9 per cent of total services industries employment as reported by the Survey of Current Business in 1948, 35.8 per cent in 1954, 33.2 per cent in 1958 and 33.9 per cent in 1963. The general conclusion regarding employment, therefore, would be that SIC categories 80, 81, 82, 86, 88 and 89 account for a larger percentage of total services industry employment than categories 70 through 79.

Table 4-48

EMPLOYEES IN SERVICE INDUSTRIES FOR THE UNITED STATES BY KIND OF BUSINESS, 1948-63

Year and Kind of Business	Employees[a] (thousands)	Kind of Business as a % of Total	% Change
1948			
Total service industries employment[b]	6,441	100.0	
Private households	1,888	29.3	
Medical and other health services	818	12.7	
Legal services	121	1.9	
Engineering and other professional services	106	1.6	
Educational services	400	6.2	
Nonprofit membership organizations	602	9.3	
Other service industries	2,506	38.9	
			1954 over 1948
1954			
Total service industries employment	7,124	100.0	10.6
Private households	1,985	27.9	5.1
Medical and other health services	1,204	16.9	47.2
Legal services	149	2.1	23.1
Engineering and other professional services	167	2.3	57.5
Educational services	454	6.4	13.5
Nonprofit membership organizations	615	8.6	2.2
Other service industries	2,550	35.8	1.8
			1958 over 1954
1958			
Total service industries employment	8,591	100.0	20.6
Private households	2,550	29.7	28.5
Medical and other health services	1,449	16.9	20.3
Legal services	139	1.6	(6.7)
Engineering and other professional services	222	2.6	32.9
Educational services	544	6.3	19.8
Nonprofit membership organizations	834	9.7	35.6
Other service industries	2,853	33.2	11.9
			1963 over 1958
1963[c]			
Total service industries employment	10,054	100.0	17.0
Private households	2,656	26.4	4.2
Medical and other health services	1,867	18.6	28.8
Legal services	183	1.8	31.7
Engineering and other professional services	275	2.7	23.9
Educational services	682	6.8	25.4
Nonprofit membership organizations	979	9.7	17.4
Other service industries	3,412	33.9	19.6

[a]Annual average.

[b]Corresponds approximately with SIC categories 70-89.

[c]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: Survey of Current Business, July, 1957, p. 19; July, 1962, p. 29; July, 1964, p. 30; and (Suppl. "National Income") 1954, p. 199.

Sales Volume: Sales volume is generally regarded as an important measure of the economic contribution of a given enterprise. To obtain some crude measure or indication of the level of sales for the entire range of service trades, some considerable license has been taken in aggregating data. Table 4-49 shows consumer expenditures in the United States for several categories of service industries; namely, medical and other health services, legal services, and educational services or the SIC categories 80, 81 and 82, respectively. The line reporting receipts of selected service industries shows sales as reported by Census of Business for SIC categories 70-79. Assuming that a consumer expenditure for an item is also concomitantly a sales receipt, then by adding expenditures for the three SIC categories 80, 81 and 82 to the total sales of categories 70-79, we have a more nearly complete picture of the total sales of the entire range of service trade categories. It must be remembered, however, that the expenditures for the three categories 80, 81 and 82 are somewhat understated inasmuch as only "consumer" expenditures are

Table 4-49

CONSUMER EXPENDITURES IN UNITED STATES FOR SELECTED SERVICE INDUSTRIES BY KIND OF BUSINESS, 1948-63

Kind of Business	Consumer Expenditures (millions of current dollars) 1948	1954	1958	1963[a]	Consumer Expenditures (millions of 1957-59 dollars) 1948	1954	1958	1963[a]	% Change 1954 over 1948	% Change 1958 over 1954	% Change 1963 over 1958
Medical and other health services[b]	5,050	7,328	11,124	15,984	6,026	7,829	11,047	14,980	29.9	41.1	35.6
Legal services	799	1,021	1,507	2,218	953	1,091	1,497	2,079	14.5	37.2	38.9
Private education and research	1,589	2,708	3,641	5,663	1,896	2,893	3,616	5,307	52.6	25.0	46.8
Total consumer expenditures for selected services	7,438	11,057	16,272	23,865	8,876	11,813	16,159	22,366	33.1	36.8	38.4
Receipts of selected service industries (Table 4-44)					16,252	25,115	32,151	41,786	54.5	38.0	30.0
Total					34,003	48,741	64,470	86,518	43.3	32.3	34.2

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

[b]In an attempt to conform as closely as possible with SIC definition, the following items were taken from personal consumption expenditures for medical care and death expenses to yield expenditures for medical and other health services: physicians, dentists, other professional services, privately controlled hospitals and sanitariums.

SOURCES: Survey of Current Business, July, 1957, p. 21; July, 1962, p. 14; July, 1964, p. 16; and (Suppl. "National Income") 1954, p. 207.

included. Expenditures by business firms for medical and health services, legal, and educational services are excluded from these totals. However, with the possible exception of legal services, these omissions would generally amount to a relatively small proportion of the totals. Therefore, the crude estimations of sales volume figures including SIC categories 80, 81 and 82 plus categories 70-79 are as follows and as shown on Table 4-49: 1948, $34 billion; 1954, $49 billion; 1958, $64 billion; 1963, $87 billion. Other relative percentage changes are also shown in Table 4-49.

Generalizations Pertaining to Service Trade Industry Operations and Developments

The service trades industry is a large and important part of total economic activity. We have examined the basic components or categories of this industry and have traced the growth and development of the industry from 1948 to the near present. The most dramatic period of growth and development

for the service industry was the post World War II period. Important trends and developments in this industry are, however, still underway.

Several reasons underlying the widespread expansion and acceleration of the service trades industry were briefly mentioned at the outset of this discussion. Foremost reasons for this development are probably the same as those advanced for growth and development of other sectors of economic activity; namely, the large increases in real income evidenced during this period and the increase in total number of consumers stemming from the population explosion. The change in the mix of population also accounts, undoubtedly, for some of the overall increase in service trade activity. A larger proportion of persons in the zero- to nine-year-old category stimulates demand for many added services including baby sitting agencies, diaper services, nursery school developments, etc. A larger proportion of the population over 65 years of age generates considerable demand for increased health and medical services as well as other service activities designed for "senior citizens."

As the number of women in the work force increases, further demands for specialized service activities increase. Also, as we become increasingly more urbanized, the need for service establishments tends to increase, stemming largely from the increased tendency toward economic or work specialization.

The well-known Clark-Fisher hypothesis is that agriculture, forestry, hunting and fishing generally receive major attention in "primary or low-level economies, and that secondary-stage emphasis turns to manufacturing . . . defined as a process not using the resources of nature directly, producing on a large scale and by a continuous process, transportable goods."[4]

Tertiary-level activities, however, emphasize trade and transport; finance and communications; building and construction; and professional, personal and governmental activities. Since these activities are mostly services, then a teriary-level economy should perhaps experience a rising share of expenditures in the service sector.

This pattern of growth would serve to enunciate more specifically the essence of Ernst Engels' "law" set forth in 1857--one part of which stated that as income increases, the percentage spent for sundries increases rapidly.

Importance of Service Trade Industries in Washington State

Let us turn now to the role of service trade industries in Washington. To get some measure of the relative importance of the service trades in comparison with other sections previously investigated; namely, retail and wholesale trade, Table 4-50 is presented. This table shows, to some extent, the importance of the service trades industry (SIC categories 70-79) in relation to retailing and wholesaling along such dimensions as establishments, paid employees, payroll and sales. Of total sales volume for these three areas, services as reported by the Census of Business accounted for only 5.6 per cent

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[4]William J. Regan, "The Service Revolution," The Journal of Marketing, July, 1963, p. 60.

Table 4-50

EMPLOYMENT, ESTABLISHMENTS, PAYROLLS AND SALES IN RETAIL, WHOLESALE AND SERVICE INDUSTRIES IN WASHINGTON, 1963

Kind of Industry	Establishments (number)	%	Paid Employees[a] (number)	%	Payroll Entire Year (millions)	%	Sales (millions)	%
Total	50,241	100.0	223,832	100.0	$946	100.0	$9,756	100.0
Retail	26,430	52.6	132,323	59.1	492	52.0	4,043	41.4
Wholesale	5,593	11.1	52,071	23.3	304	32.1	5,173	53.0
Services[b]	18,218	36.3	39,438	17.6	150	15.9	540	5.5

[a]Workweek ended nearest November 15.

[b]Includes SIC categories 70-79.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. II, Retail Trade--Area Statistics, p. 49-6; Vol. V, Wholesale Trade--Area Statistics, p. 49-6; Vol. VII, Selected Services--Area Statistics, p. 49-6.

of total volume. In terms of the dimensions investigated, services ranks below both retailing and wholesaling in terms of economic importance.[5] There are, however, considerably more service establishments than wholesaling establishments. This can be attributed readily to the smaller size of the typical service institution. We shall continue the analysis of the various dimensions of the service trade industry by examining each in greater detail.

Employment: While Table 4-50 shows employment in service industries in Washington State for 1963 to be 39,438, Table 4-7 (see page 67) reports employment to be approximately 75,800 for 1963. The difference, of course, is largely to be accounted for in the different categories for which data are collected by these two agencies. The data in Table 4-7 are collected by the Washington Employment Security Department, and the service segment includes figures for the entire range of SIC categories 70-89 regarding services. Table 4-7 is somewhat more indicative of the real magnitude of employment in the service industries for Washington State. While the percentage distribution which shows relative importance of employment in the service industries to total nonagricultural employment has not changed markedly from 1954 to 1963, the actual number of persons employed in this segment has increased rather materially. In 1954, employees in the service trades amounted to 11.4 per cent of total nonagricultural employment; in 1958 the percentage decreased slightly to 11.3 per cent and by 1963 it had increased to 12.2 per cent. Actual employment, however, in the service trades has increased from 62.2 thousand in 1954 to 75.8 thousand in 1963, or an actual employment increase for the ten-year period of over 13 thousand.

[5]It appears worthy of mention here, however, that services might appear in a better light if some measure of output other than sales were employed. For instance, the value added concept would undoubtedly reflect a better showing for services relative to retailing and wholesaling for in these instances sales include the value of the manufacturing effort.

The employment mix and some relative changes in this mix are reported in Table 4-51. These data show employment figures by kind of business for Washington State and for the entire United States for the years 1954 and 1963

Table 4-51

PAID EMPLOYEES IN SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Paid Employees[a] United States (thousands) 1954	1963[b]	Washington 1954	1963	% Change 1954 to 1963 United States	Wash-ington	% Distribution 1963 United States	Wash-ington
Selected services, total	2,362	3,262	32,771	39,438	38.1	20.3	100.0	100.0
Hotels, other lodging places	420	526	6,883	6,975	25.2	1.3	16.1	17.7
Personal services	820	954	10,576	11,017	16.3	4.2	29.2	27.9
Miscellaneous business services	405	875	4,411	8,945	116.0	102.8	26.8	22.7
Automobile repair, services, garages	157	286	2,329	4,150	83.4	78.2	8.8	10.5
Miscellaneous repair services	126	162	1,925	2,246	28.6	16.7	5.0	5.7
Motion pictures	208	162	2,991	2,051	(22.1)	(31.4)	5.0	5.2
Amusement and recreation services	225	295	3,656	4,054	31.1	10.9	9.0	10.3

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1963, Vol. VI, pp. 1-7 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 47-4 to 47-5; 1963, Vol. VII, pp. 49-6 to 49-7.

for the SIC categories 70-79. Observe that the U. S. figures for 1963 include Alaska and Hawaii and, therefore, the changes between 1954 and 1963 in the U. S. figures are somewhat overstated. In the total United States, employment increased in these categories of service trades by 38.1 per cent. Washington's increase amounted to 20.3 per cent. It is, perhaps, readily explainable why Washington's increase lags the United States' increase. Other than the inclusion of Alaska and Hawaii, the difference is largely due to the fact that a great portion of the state consists of rural and semi-rural communities. As has been mentioned, there are few large population centers, and it is essentially the large population centers, concentrations of people, trade and industrial areas which are required to support a heavy overhead of service trade activities.

Note also that nationally, the category, hotels and other lodging places, increased employment by 25.2 per cent while Washington increased employment in this category by only 1.3 per cent. Several reasons could account for this. Overall growth in the category during the 1954-63 period could have been modest, therefore not necessitating an increased number of employees. On the other hand, given the more efficient utilization of work force, growth could have exceeded a rate indicated by the small percentage increase witnessed in this category during the period. Miscellaneous business services employment increased in the United States by 116 per cent and in Washington by 102.8 per cent. The major explanation for the marked increases in this

category was advanced earlier, namely, the overall growth at both the national and state level of the business sector and the increasing use by business of business specialists, i.e., consultants, tax advisors, advertising agencies and public relations firms. The decline in employment in the motion picture category in Washington exceeds somewhat the decline nationally in this category. The period of the 1950's was a period of great shrinkage in popularity in motion pictures, due no doubt to the considerable saturation of the home television industry. Of late, however, motion pictures have begun to recapture some share of their lost market to other entertainment forms. Another somewhat disturbing observation is that pertaining to the category, "amusement and recreation services." From 1954 to 1963 employees in this category increased by 31.2 per cent nationally while in Washington for the same period the increase amounted to only 10.9 per cent. The rather poor showing in this category along with hotels and other lodging places poses several critical questions. Is it that Washington's brand of primarily outdoor recreation does not require large numbers of employees? Is productivity higher in Washington for these industries than for the nation as a whole and the surrounding states? Is Washington getting across its message regarding tourism and recreational opportunities?

Further research along these lines is badly needed. Partial answers, however, are supplied when we move to the discussion of growth in establishments and payrolls for the service industries. The final two columns of Table 4-51 show the percentage distribution of the SIC categories 70-79 to the total for these categories. Some difference in the "mix" between Washington and the total United States is evident. However, in no instance, are the deviations of any great magnitude.

The economic researcher is often faced with one of two problems, either a lack of data or a superabundance of it. And, a further complication arises when his data lacks consistency. Such is the case here. In an effort to give insight, because definitive conclusions are impossible in light of data problems mentioned at the outset, Table 4-52 is presented. County Business Patterns data was employed here because this source gives information for both the individual states and for the nation, thus facilitating comparisons. Employment Security data is for Washington only.

Table 4-52 shows employment changes in a different aggregation of service trade categories. Several important findings of this table are now discussed. Employment in this grouping of selected service trades increased nationally by 82.1 per cent while increasing 64.1 per cent at the state level. It will be observed that percentage change increases for several of these categories greatly outstrip increases for categories listed in the SIC range 70-79. For instance, employment increases in medical and other health services increased nationally by 327 per cent and in Washington by 214 per cent. This reflects, unquestionably, the increasing attention to health and welfare being paid by the individual. In a purely quantitative sense, it characterizes perhaps a better state of readiness by those concerned with health and welfare to render more and better services. A further category experiencing what might conservatively be called phenomenal increases in employment is educational services.[6]

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[6]Increases in employment and payrolls in the education category are to be viewed skeptically because of changes in gathering and reporting of data by County Business Patterns.

Table 4-52

EMPLOYEES IN SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1953 AND 1962

Kind of Business	Employees[a] (thousands) United States 1953	United States 1962	Washington 1953	Washington 1962	% Change 1953 to 1962 United States	% Change 1953 to 1962 Washington
Total services industries employment	3,628	6,606	58.4	95.8	82.1	64.1
Medical and other health services	386	1,649	9.7	30.4	327.0	214.0
Legal services	112	159	1.4	2.1	42.4	46.3
Miscellaneous services	144	367	1.8	5.0	155.4	171.2
Educational services, nec[b]	58	480	0.7	4.0	722.8	475.7
Nonprofit membership organizations, nec	274	756	6.7	12.1	176.4	81.1
Other services	2,655	3,194	38.1	42.3	20.3	11.1

[a]Mid-March.

[b]Increases in the education category are not valid because of changes in coverage.

SOURCES: U. S. Department of Commerce, County Business Patterns (Washington, D. C.: U. S. Government Printing Office) 1953, pt. 1, p. 3, pt. 10, p. 104; 1962, pt. 1, p. 21, pt. 10, pp. 209-10.

Employment in this category increased nationally by 722.8 per cent for the period 1953 to 1962, and in Washington the increase amounted to 475.7 per cent. These marked increases reflect the burgeoning increases in school-age populations at nearly all levels, including elementary, high school and college. The significant disparity between Washington and U. S. growth rates in these important social welfare categories begs the question: "Is Washington State keeping up?" This certainly appears to be an important question worthy of future exploration.

Establishments: Data for establishments are shown in Table 4-53. One might add at this juncture, that data for establishments, while limited, are somewhat less ambiguous. Statistics for number of establishments in the selected services trade are available only for the SIC categories 70-79. Table 4-53 shows that for the period 1954 to 1963, the number of establishments engaged in service trade activities increased by 35.1 per cent in the entire United States and by 28.9 per cent for Washington. Thus, establishments in Washington for this period increased by a larger percentage than employment (see Table 4-52).

The explanation for this situation is a bit elusive. One possible reason might be sought by examining in greater detail the scale of operations for the service trades. It is conceivably possible that in more highly developed states, when population and income increases warrant expansion, this expansion comes in the form of increasing the scale or size of firm via adding employees. In a less developed state, as small communities become larger, the expanding economic base calls forth for increased number of establishments relative to increased number of employees. As in the case of hotels and other lodging places, the disparity between rates of increase in establishments versus

Table 4-53

ESTABLISHMENTS IN SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Establishments United States (thousands) 1954	Establishments United States (thousands) 1963[a]	Establishments Washington 1954	Establishments Washington 1963	% Change 1954 to 1963 United States	% Change 1954 to 1963 Washington	% Distribution 1963 United States	% Distribution 1963 Washington
Selected services, total	785.6	1,061.7	14,138	18,218	35.1	28.9	100.0	100.0
Hotels, other lodging places	67.0	84.7	1,734	2,090	26.4	20.5	8.0	11.5
Personal services	348.8	447.1	5,342	6,441	28.2	20.6	42.1	35.4
Miscellaneous business services	88.7	147.7	1,522	2,627	66.5	72.6	13.9	14.4
Automobile repair, services, garages	94.3	139.6	1,967	2,602	48.0	32.3	13.1	14.3
Miscellaneous repair services	113.4	146.8	2,294	2,704	29.5	17.9	13.8	14.8
Motion pictures	20.8	16.4	349	236	(21.2)	(32.4)	1.5	1.3
Amusement and recreation services	52.5	79.5	930	1,518	51.4	63.2	7.5	8.3

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1963, Vol. VI, pp. 1-7 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 47-4 to 47-5; 1963, Vol. VII, pp. 49-6 to 49-7.

employees might be explained in terms of a structural difference; that is to say, in terms of the mix between full service types of establishments such as hotels and more limited service institutions such as motels. If Washington's expansion in terms of establishments has come via the latter, then our increases in employees are not likely to match the increases in employment brought about by areas or states that have witnessed heavy growth in the larger, fuller service establishments such as hotels.

The category witnessing the largest percentage gains in terms of increased number of establishments was miscellaneous business services. This held for both the entire United States as well as for Washington. Notice further that rather healthy growth in terms of increases in numbers of establishments was recorded for all categories with the exception of motion pictures. The number of motion picture establishments declined from 349 in 1954 to 236 in 1963, a shrinkage of nearly 33 per cent.

Payroll: Statistics for amount and percentage increases in payroll are reported in the same manner as was data for employment. That is, Table 4-54 reports on only Census of Business data for SIC categories 70-79. Table 4-55 expands these categories by utilizing data from County Business Patterns for a fuller coverage of the entire service trade category range. The same problems of incomparability of data between these two sources exists as did previously.

For the period 1954 to 1963, payroll in selected service trades increased in the entire United States by 86.6 per cent while for Washington payroll increases in these trades amounted to 65.2 per cent. These payroll increases reflect both the increased numbers of persons engaged in service trade employment as well as the increased level of wages and salaries earned by persons in these categories. Payroll increases have resulted in all categories for the

Table 4-54

PAYROLL IN SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Payroll (millions of dollars) United States 1954	United States 1963[a]	Washington 1954	Washington 1963	% Change 1954 to 1963 United States	% Change 1954 to 1963 Washington	% Distribution 1963 United States	% Distribution 1963 Washington
Selected services, total	6,534	12,192	90.7	149.8	86.6	65.2	100.0	100.0
Hotels, other lodging places	896	1,439	16.1	20.3	60.6	26.1	11.8	13.6
Personal services	1,960	2,933	30.0	41.1	49.6	37.0	24.1	27.4
Miscellaneous business services	1,483	4,103	14.8	37.9	176.7	156.1	33.7	25.3
Automobile repair, services, garages	488	1,135	8.6	20.2	132.6	134.9	9.3	13.5
Miscellaneous repair services	455	744	7.6	11.4	63.5	50.0	6.1	7.6
Motion pictures	657	732	5.8	5.0	11.4	(13.8)	6.0	3.3
Amusement and recreation services	594	1,105	7.8	13.9	86.0	78.2	9.1	9.3

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1963, Vol. VI, pp. 1-7 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 47-4 to 47-5; 1963, Vol. VII, pp. 49-6 to 49-7.

Table 4-55

PAYROLL IN SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1953 AND 1962

Kind of Business	Payroll (millions of dollars) United States 1953	United States 1962	Washington 1953	Washington 1962	% Change 1953 to 1962 United States	% Change 1953 to 1962 Washington
Total service industries payroll	2,304	5,859	38.0	82.4	154.3	116.6
Medical and other health services	210	1,219	6.0	24.3	480.7	304.6
Legal services	77	163	1.0	2.0	110.7	108.9
Miscellaneous services	168	553	2.2	6.5	229.8	197.4
Educational services	37	498	0.3	3.4	1,262.4	1,009.2
Nonprofit membership organizations	174	600	4.6	9.7	245.1	112.0
Other services	1,639	2,826	24.0	36.6	72.5	52.2

SOURCES: U. S. Department of Commerce, County Business Patterns (Washington, D. C.: U. S. Government Printing Office) 1953, pt. 1, p. 3; pt. 10, p. 104; 1962, pt. 1, p. 4, pt. 10, pp. 209-10.

United States and for all categories except motion pictures for Washington.

For Washington, the largest percentage increases in payrolls for 1954 to 1963 have occurred in the categories of miscellaneous business services (156.1 per cent), automobile repair, services and garages (134.9 per cent), and amusement and recreation services (78.2 per cent).

Of the total payroll of persons employed in the service trade categories reported in Table 4-54, personal services accounts for 27.4 per cent followed closely by miscellaneous business services which accounts for 25.3 per cent.

Table 4-55 shows payroll for an expanded range of service trade categories and reports specifically on the important categories of medical and other health services, legal services and educational services. The line showing total service industries payroll reported from County Business Patterns includes essentially the whole range of service trade classifications, SIC categories 70-89. For the United States as a whole, payroll in these categories has increased by 154.3 per cent, while the increase for these categories in Washington amounted to 116.6 per cent. Other important changes to be observed for Washington are as follows: payroll increases from 1953 to 1962 in the medical and other health services categories amounted to 304.6 per cent; legal services payrolls increased by 108.9 per cent; and miscellaneous services increased by nearly 200 per cent. The increases in payroll for these categories represent both a cause and an effect. The effect, in part, is the continually rising price level for services generally, and the cause is the increasing demand on the part of consumers for more services. As a matter of fact, as other sections of this report will show, there is considerable evidence to suggest that consumers are altering the "mix" of their expenditures by buying relatively fewer goods and consequently more services. Further research would be warranted in this area.

Sales: Sales receipts of selected service industries on a per capita basis are considerably lower for Washington State than for the United States as a whole. This occurs in spite of the fact that per capita disposable income for Washington is higher than per capita disposable income for the United States as a whole. Table 4-56 shows some interesting relationships between per capita disposable income and per capita selected service sales receipts for the United States as a whole as opposed to Washington. Notice that Washington has consistently during the years 1954, 1958 and 1963, had a higher per capita disposable income than the United States as a whole. At the same time per capita sales receipts in Washington for selected service industries have just as consistently lagged the same measure for the entire United States. The conclusion no doubt rests with the choices made by the Washington consumer. His mix of expenditures consists of more goods relative to service expenditures than does the "average" U. S. consumer, and the possibility exists that his propensity to save is higher than the "average" U. S. consumer. Washington's contribution to total United States disposable personal income in 1963 was 1.6 per cent; the state's contribution to total United States receipts of selected service industries was only 1.2 per cent.

A further breakdown of sales receipts for selected service industries (SIC categories 70-79) is shown in Table 4-57. The findings are relatively straightforward and consequently warrant little or no further elaboration. Increases in sales receipts for Washington industries show some lag behind United States overall increases and increases by categories. Where given categories for the United States show large increases, Washington increases for these same categories typically show parallel and consistent increases. The motion picture category, however, for Washington shows a marked

Table 4-56

DISPOSABLE PERSONAL INCOME AND RECEIPTS OF SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON, 1954, 1958, 1963

Year	United States[a]				Washington					
	Disposable Personal Income		Selected Services Receipts[b]		Disposable Personal Income			Selected Services Receipts[b]		
	Total (millions)	Per Capita	Total (millions)	Per Capita	Total (millions)	% of U. S.	Per Capita	Total (millions)	% of U. S.	Per Capita
1954	$252,758	$1,568	$23,508	$145	$4,435	1.8	$1,747	$328	1.4	$130
1958	315,476	1,821	32,376	186	5,247	1.7	1,885	437	1.3	158
1963	398,251	2,122	44,378	235	6,544	1.6	2,210	540	1.2	177

[a]Excludes Alaska and Hawaii.

[b]Includes SIC categories 70-79.

SOURCES: Survey of Current Business, April, 1965, pp. 21-2; Table 4-44, Col. (1); and U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Area Statistics, 1954, Vol. VI, pp. 47-4 to 47-5; 1958, Vol. V, p. 1-40; and 1963, Vol. VII, pp. 49-6 to 49-7.

Table 4-57

RECEIPTS OF SELECTED SERVICE INDUSTRIES FOR THE UNITED STATES AND WASHINGTON BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Receipts (millions of dollars)				% Change 1954 to 1963		% Distribution 1963	
	United States		Washington					
	1954	1963[a]	1954	1963	United States	Wash-ington	United States	Wash-ington
Selected services, total	23,508	44,586	328.4	540.2	89.7	64.5	100.0	100.0
Hotels, other lodging places	3,027	5,049	54.0	72.9	66.8	35.0	11.3	13.5
Personal services	5,773	9,163	87.3	126.7	58.7	45.1	20.6	23.5
Miscellaneous business services	6,317	15,193	53.3	116.0	140.5	117.6	34.1	21.5
Automobile repair, services, garages	2,223	5,444	42.2	99.8	144.9	136.5	12.2	18.5
Miscellaneous repair services	1,796	3,022	31.4	50.0	68.3	59.2	6.8	9.3
Motion pictures	2,352	2,725	30.7	24.2	15.9	(21.2)	6.1	4.5
Amusement and recreation services	2,021	3,990	29.5	50.4	97.4	70.8	8.9	9.3

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

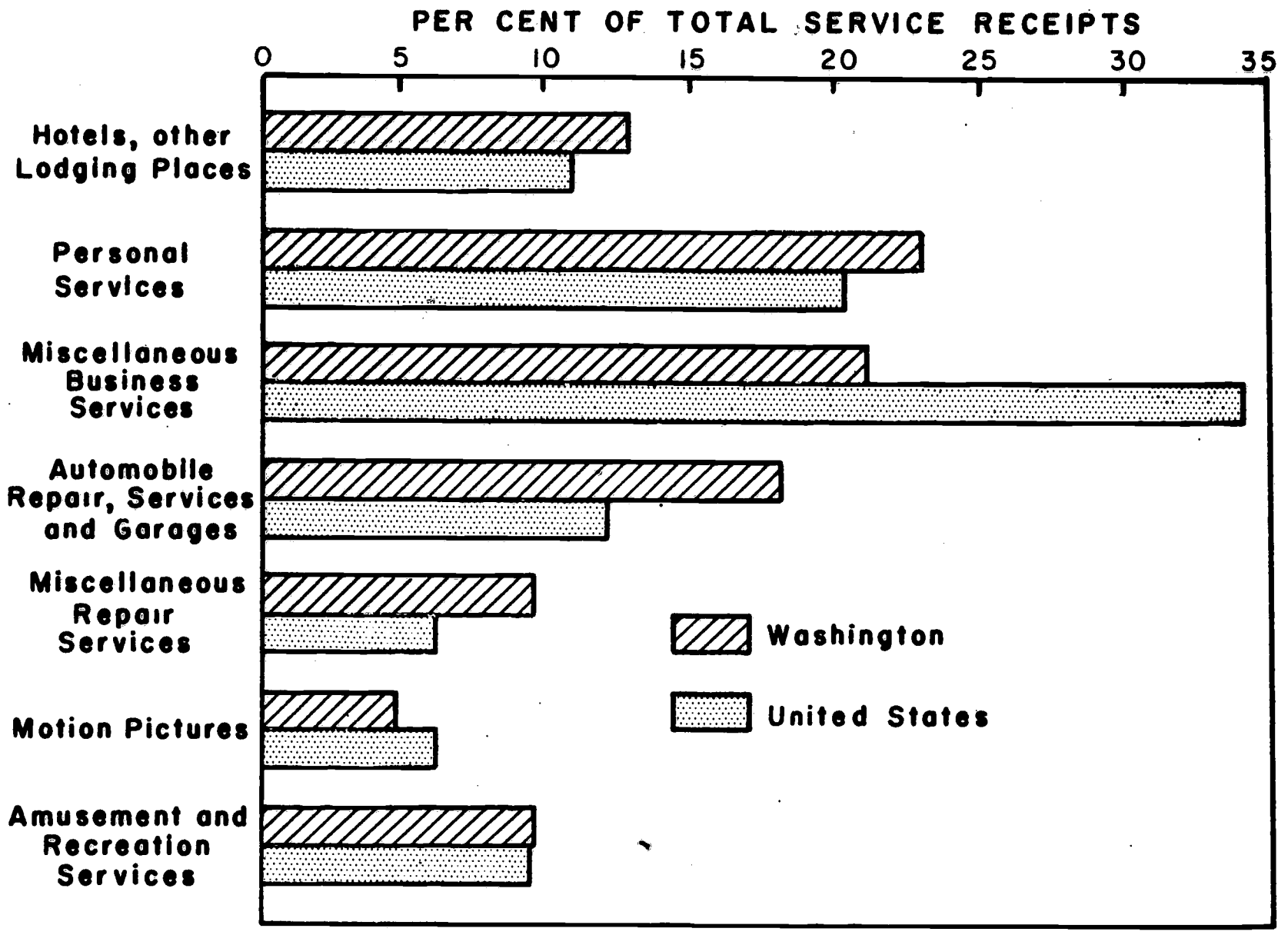
SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1963, Vol. VI, pp. 1-8 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 47-4 to 47-5; 1963, Vol. VII, pp. 49-6 to 49-7.

deviation from the U. S. pattern. Where receipts by kind of business as a per cent of total are shown in the last two columns for both Washington and the

United States, no startling variations are to be found (see Figure 4-4). Washington expenditures for the categories medical and other health services,

FIG. 4-4

PER CENT DISTRIBUTION OF SELECTED SERVICE INDUSTRIES RECEIPTS BY KIND OF BUSINESS WASHINGTON AND THE UNITED STATES, 1963



Source: Table 4-57

legal services and educational services, are not reported in Census of Business tabulations or in other data sources but have been determined by calculating United States percentage expenditures for these categories and applying this percentage to Washington's total personal consumption expenditures. Therefore, the figures are crudely approximate and are devised solely in an effort to get some approximate measure of a more complete total of sales receipts for the expanded range of service trade industries. By aggregating consumer expenditure figures for these categories with sales receipts totals for SIC categories 70-79, we more nearly approximate sales receipts totals for Washington. Thus, as shown in Table 4-58, sales receipts for "total" service trade industries were approximately $518 million in 1954 and had reached approximately $928 million in 1963.

Table 4-58

CONSUMER EXPENDITURES IN THE UNITED STATES AND WASHINGTON FOR SELECTED SERVICE INDUSTRIES BY KIND OF BUSINESS, 1954 AND 1963

Kind of Business	Consumer Expenditures (millions of dollars) United States 1954	United States 1963[a]	Washington 1954	Washington 1963	% Change 1954 to 1963 United States	% Change 1954 to 1963 Washington
Medical and other health services	7,328	15,984	128	261	118.1	103.9
Legal services	1,021	2,218	17	36	117.2	111.8
Educational services	2,708	5,663	45	91	109.1	102.2
Total consumer expenditures for selected services	11,057	23,865	190	388	115.8	104.2
Receipts of selected service industries (Table 4-57)	23,508	44,586	328	540	89.7	64.6
Total service industries	34,565	68,451	518	928	98.0	79.2

[a]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. data from Survey of Current Business, July, 1957, p. 21; July, 1964, p. 16; Washington data estimated from data in Survey of Current Business.

Comparison of Selected Service Industry Trade in Washington with Nearby States

In an effort to continue the format established in the earlier sections dealing with retail and wholesale trade, let us now compare several dimensions of the selected service industry in Washington with that of the near-by states of Oregon and Idaho. Table 4-59 shows statistics for the three states and for the United States as a whole for SIC categories 70-79. As has been done previously, in Table 4-60 we shall expand our coverage to include several categories in the SIC range 80-89.

Table 4-59 reports several magnitudes of importance in the selected service industry trades for Washington, Idaho and Oregon. In terms of absolute figures, Washington leads the three-state group in the overall size and importance of its selected service industry. As the data show, Washington leads in terms of total number of establishments, total paid employees and in size of payroll. Washington's rate of growth in the service trade industry reflects less favorably with the nation as a whole and somewhat more favorably with the two nearby states. While Washington increased the number of its selected service industry establishments by nearly 30 per cent between 1954 and 1963, Oregon increased its number by about 11 per cent. Idaho, because of its small base for comparative measurement, shows something of a misleading percentage gain in nearly all three dimensions reported.

Oregon shows a sharper percentage increase in the number of paid employees from 1954 to 1963; but, considering their relatively small gains in increased number of institutions, this must imply that the average size of their institutions in terms of number of employees is likely to be increasing. Washington makes its poorest showing in the relative growth figures shown in

Table 4-59

SELECTED SERVICE INDUSTRIES ESTABLISHMENTS, PAID EMPLOYEES AND PAYROLL, UNITED STATES, WASHINGTON, OREGON AND IDAHO BY KIND OF BUSINESS, 1954 AND 1963

Area	Establishments 1954	Establishments 1963	% Change 1954 to 1963	Paid Employees[a] 1954	Paid Employees[a] 1963	% Change 1954 to 1963	Payroll (thousands of dollars) 1954	Payroll (thousands of dollars) 1963	% Change 1954 to 1963
U. S. total	785,589	1,061,673[b]	35.1	2,361,821	3,261,541[b]	38.1	6,533,715	12,192,105[b]	86.6
Hotels, other lodging places	66,962	84,706	26.5	420,352	526,050	25.1	895,528	1,439,496	60.7
Personal services	348,843	447,080	28.2	820,281	954,179	16.3	1,960,442	2,932,752	49.6
Miscellaneous business services	88,661	147,668	66.6	404,755	874,865	116.1	1,483,399	4,103,006	176.6
Automobile repair, services, garages	94,342	139,611	48.0	157,437	288,025	82.9	487,655	1,135,091	132.8
Miscellaneous repair services	113,429	146,776	29.4	125,685	161,533	28.5	455,056	744,459	63.6
Motion pictures	20,843	16,381	(21.4)	208,413	161,740	(22.4)	657,166	731,963	11.4
Amusement and recreation services	52,509	79,451	51.3	224,898	295,149	31.2	594,469	1,105,338	85.9
Washington total	14,138	18,218	28.9	32,771	39,438	20.3	90,706	149,751	65.1
Hotels, other lodging places	1,734	2,090	20.5	6,883	6,975	1.3	16,123	20,305	25.9
Personal services	5,342	6,441	20.6	10,576	11,017	4.2	30,044	41,062	36.7
Miscellaneous business services	1,522	2,627	72.6	4,411	8,945	102.8	14,761	37,904	156.8
Automobile repair, services, garages	1,967	2,602	32.3	2,329	4,150	78.2	8,558	20,226	136.3
Miscellaneous repair services	2,294	2,704	17.9	1,925	2,246	16.7	7,601	11,360	49.5
Motion pictures	349	236	(32.4)	2,991	2,051	(31.4)	5,777	5,038	(12.8)
Amusement and recreation services	930	1,518	63.2	3,656	4,054	10.9	7,842	13,856	76.7
Oregon total	10,008	11,064	10.6	20,459	27,697	35.4	56,051	95,126	69.7
Hotels, other lodging places	1,524	1,533	0.6	3,840	5,521	43.8	8,187	14,941	82.5
Personal services	3,412	3,673	7.6	6,760	7,727	14.3	17,957	24,623	37.1
Miscellaneous business services	1,167	1,656	41.9	2,920	6,023	106.3	10,152	24,255	138.9
Automobile repair, services, garages	1,349	1,570	16.4	1,676	3,204	91.2	6,259	13,728	119.3
Miscellaneous repair services	1,600	1,623	1.4	1,174	1,510	28.6	4,557	7,218	58.4
Motion pictures	324	217	(33.0)	2,140	1,359	(36.5)	4,056	2,760	(32.0)
Amusement and recreation services	632	792	25.3	1,949	2,353	20.7	4,883	7,601	55.7
Idaho total	2,959	4,458	50.7	6,175	9,080	47.0	14,248	33,291	133.7
Hotels, other lodging places	542	768	41.7	1,508	2,135	41.6	3,924	6,003	53.0
Personal services	976	1,460	49.6	2,056	2,295	11.6	4,736	6,372	34.5
Miscellaneous business services	251	446	77.7	490	2,309	371.2	1,306	13,880	962.8
Automobile repair, services, garages	384	615	60.2	297	764	157.2	874	3,021	245.7
Miscellaneous repair services	490	718	46.5	335	341	1.8	1,139	1,325	16.3
Motion pictures	153	99	(35.3)	996	550	(44.8)	1,308	856	(34.6)
Amusement and recreation services	163	352	116.0	493	686	39.1	961	1,834	90.8

[a]Workweek ended nearest November 15.

[b]Includes Alaska and Hawaii. These states are not included in 1954 United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1963, Vol. VI, pp. 1-7 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 12-4 to 12-5, 37-4 to 37-5 and 47-4 to 47-5; 1963, Vol. VII, pp. 12-6 to 12-7, 39-6 to 39-7 and 49-6 to 49-7.

Table 4-60

EMPLOYEES AND PAYROLL IN SERVICE INDUSTRIES IN UNITED STATES, WASHINGTON, OREGON AND IDAHO BY KIND OF BUSINESS, 1953 AND 1962

Kind of Business	Employees[a] 1953	Employees[a] 1962	% Change 1953 to 1962	Payroll (thousands of dollars) 1953	Payroll (thousands of dollars) 1962	% Change 1953 to 1962
U. S. total	3,628,326	6,605,804	82.1	2,303,932	5,858,548	154.3
Medical and other health services	386,259	1,649,254	327.0	209,936	1,219,147	480.7
Legal services	111,775	159,176	42.4	77,235	162,743	110.7
Educational services[b]	58,384	480,380	722.8	36,535	497,751	1,262.4
Nonprofit membership organizations	273,595	756,224	176.4	173,912	600,172	245.1
Miscellaneous services	143,531	366,599	155.4	167,571	552,712	229.8
Other services	2,654,782	3,194,171	20.3	1,638,743	2,826,023	72.5
Washington total	58,382	95,798	64.1	38,044	82,402	116.6
Medical and other health services	9,674	30,374	214.0	6,002	24,287	304.6
Legal services	1,429	2,090	46.3	959	2,003	108.9
Educational services[b]	687	3,955	475.7	303	3,361	1,009.2
Nonprofit membership organizations	6,670	12,077	81.1	4,590	9,730	112.0
Miscellaneous services	1,845	5,003	171.2	2,171	6,456	197.4
Other services	38,077	42,299	11.1	24,019	36,565	52.2
Oregon total	36,476	61,432	68.4	23,346	49,788	113.3
Medical and other health services	6,090	19,265	216.3	3,822	14,777	286.6
Legal services	1,084	1,529	41.1	700	1,458	108.3
Educational services[b]	476	3,374	608.8	292	2,855	877.7
Nonprofit membership organizations	3,554	7,322	106.0	2,610	5,616	115.2
Miscellaneous services	670	3,011	349.4	646	3,646	464.4
Other services	24,602	26,931	9.5	15,276	21,436	40.3
Idaho total	10,812	16,766	55.1	5,744	12,423	116.3
Medical and other health services	1,561	5,070	224.8	790	3,088	290.9
Legal services	331	435	31.4	144	277	92.4
Educational services[b]	142	750	428.2	72	614	752.8
Nonprofit membership organizations	1,114	1,591	42.8	624	996	59.6
Miscellaneous services	951	745	(21.7)	960	936	(2.5)
Other services	6,713	8,175	21.8	3,154	6,512	106.5

Note. Totals may be larger than components because (a) some components did not meet publications standards or (b) some reporting units could not be classified into detailed kinds of business.

[a]Mid-March.

[b]Increases in education employment and payroll are not valid because of changes in coverage.

SOURCES: U. S. Department of Commerce, County Business Patterns (Washington, D. C.: U. S. Government Printing Office) 1953, pt. 1, p. 3, pt. 9, pp. 45-6, pt. 10, pp. 77 and 104; 1962, pt. 1, p. 21, pt. 9, pp. 80-1, pt. 10, pp. 167-68 and pp. 209-10.

Table 4-59 in the employment category. Obviously Washington firms in the service industries are not adding employees at a rate equal to that of the U. S. as a whole or Oregon or Idaho.

Table 4-60 continues our three-state comparative analysis regarding service industries by examining employees and payroll. The reader should bear in mind that Table 4-60 represents an attempt to provide further insight into an expanded range of service trades not covered by Census of Business figures. The line "other services" is roughly equivalent to the SIC categories 70-79, so the total more nearly represents or reflects the actual employee and payroll magnitude. When these further categories are included, the comparative analysis changes to some degree. While in absolute figures, Washington continues to dominate the service trade industry in the Pacific Northwest, Oregon shows a slightly larger percentage increase in number of employees. In terms of percentage increase in payroll between 1954 and 1963, Washington shows only the barest edge over Idaho and some slight edge over Oregon.

Each state seems to show growth in essentially the same general categories. The two major categories of greatest relative growth as revealed by

Table 4-60 are the categories of medical and other health service and educational service. Washington lags both Oregon and Idaho in relative growth in number of employees in the medical and other health categories. In terms of educational service figures, Washington lags considerably behind Oregon in terms of percentage increases in numbers of employees. Idaho's percentage change in this category from 1953 to 1962 is lower than Washington's. In terms of percentage increase in payroll for this period, Washington is higher than either Oregon or Idaho.

Our three-state comparative analysis of selected service industries continues with the presentation of Table 4-61. Observe that this is Census of Business data and includes SIC categories 70-79. Data are shown in absolute dollar magnitude, and percentage changes are shown for both the 1954 to 1958 period and for the 1958 to 1963 period. Generally speaking, Washington fares reasonably well in this comparison. Growth in sales receipts for Washington generally lags national growth for this period. And relatively speaking, Washington appears to have done slightly better than Oregon for the 1954 to 1958 period; but, for the 1958 to 1963 period, Washington's relative growth in sales receipts lags both Oregon and Idaho in several important categories, most notable of which are hotels and other lodging places, miscellaneous business services, automobile repair, services and garages, and amusement and recreation.

Our comparison of the three states of Washington, Oregon and Idaho regarding growth and development in service trade industries is concluded with an examination of Table 4-62. This table shows per capita disposable personal income and selected service industry receipts for the years 1954, 1958 and 1963. As was mentioned at an earlier juncture, Washington's per capita receipts of selected service industries is considerably less than the national figure even though per capita disposable income for the state exceeds national per capita income by a slight margin. Oregon's per capita receipts of selected services trades exceeds Washington's by about $23 per person while per capita disposable income in Washington is approximately $94 higher than in Oregon. The obvious presumption is that Oregon residents spend, on the average, more for service activities than Washington residents. Service industry receipts typically increase with increases in disposable income both because of price increases in service trade and because of the propensity of consumers to spend more generally with income increases.

Intrastate Retail Patterns: The Role of Metropolitan Areas

Earlier the hypothesis was advanced that Washington lags national statistical averages in the service trade industries because of the nature of the economic base, small size of population and the lack of a large number of complex population and trade centers. As a matter of fact, the reasons advanced as explanation of the forces that make for strong wholesale centers, in many respects, apply with equal force and vigor to the service trade industry. Consumers are ubiquitous and their needs for goods and services nearly unlimited. Regardless of where consumers are located, their basic need for goods and services such as food, clothing and shelter manifest themselves. However, as persons tend to congregate in towns and cities and in larger metropolitan areas, the role of the individual as well as the business firm becomes highly specialized. But to perform in this highly specialized role, the individual and the firm must rely more and more on the support of other specialized individuals and operators.

Table 4-61

SELECTED SERVICE INDUSTRY RECEIPTS IN THE UNITED STATES
WASHINGTON, OREGON AND IDAHO, 1954, 1958 AND 1963

Kind of Business	Receipts (millions of dollars) 1954	1958	1963	% Change 1954 to 1958	1958 to 1963
U. S. total	23,508.0	32,376.0	44,586.8[a]	37.7	37.7
Hotels, other lodging places	3,026.9	3,888.1	5,049.3	28.5	29.9
Personal services	5,773.9	7,394.3	9,163.2	28.1	23.9
Miscellaneous business services	6,317.3	9,896.7	15,192.6	56.7	53.5
Automobile repair, services, garages	2,222.7	3,852.9	5,443.9	73.3	41.3
Miscellaneous repair services	1,795.8	2,266.3	3,022.0	26.0	33.6
Motion pictures	2,351.8	2,420.8	2,725.0	2.9	12.6
Amusement and recreation services	2,020.7	2,661.0	3,990.3	31.7	50.0
Washington total	328.4	436.9	540.2	33.0	23.6
Hotels, other lodging places	54.0	69.0	72.9	27.8	5.7
Personal services	87.3	109.7	126.7	25.7	15.5
Miscellaneous business services	53.3	85.2	116.0	59.8	36.2
Automobile repair, services, garages	42.2	71.1	99.8	68.5	40.4
Miscellaneous repair services	31.4	39.0	50.0	24.2	28.2
Motion pictures	30.7	24.3	24.2	(20.8)	(0.4)
Amusement and recreation services	29.5	28.8	50.4	31.5	29.9
Oregon total	217.5	276.1	364.4	26.9	32.0
Hotels, other lodging places	32.8	39.7	57.9	21.0	45.8
Personal services	53.9	66.8	79.6	23.9	19.2
Miscellaneous business services	37.2	58.9	83.1	58.3	41.1
Automobile repair, services, garages	31.6	47.4	68.4	50.0	44.3
Miscellaneous repair services	22.0	29.4	32.7	33.6	11.2
Motion pictures	21.8	12.6	12.3	(42.2)	(2.4)
Amusement and recreation services	18.3	21.2	30.3	15.8	42.9
Idaho total	60.2	81.7	123.2	35.7	50.8
Hotels, other lodging places	14.0	18.7	22.9	33.6	22.5
Personal services	15.5	20.9	23.3	34.8	11.5
Miscellaneous business services	6.2	10.1	34.2	62.9	238.6
Automobile repair, services, garages	6.8	14.2	20.3	108.8	43.0
Miscellaneous repair services	6.7	8.0	9.3	19.4	16.2
Motion pictures	11.1	4.6	4.0	(10.8)	(13.0)
Amusement and recreation services		5.3	9.2		73.6

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Selected Services--Summary Statistics, 1954, Vol. V, pp. 1-4 to 1-5; 1958, Vol. V, pp. 1-6 to 1-7; 1963, Vol. VI, pp. 1-7 to 1-8; Selected Services--Area Statistics, 1954, Vol. VI, pp. 12-4 to 12-5, 37-4 to 37-5, 47-4 to 47-5; 1958, Vol. VI, pp. 12-6 to 12-7, 37-6 to 37-7, 47-6 to 47-7; 1963, Vol. VII, pp. 12-6 to 12-7, 39-6 to 39-7, 49-6 to 49-7.

As a consequence, as the size of the community increases, there is almost a geometrical increase in the rate at which specialized trade institutions develop. Thus, it was shown in the wholesaling section that large

Table 4-62

PER CAPITA DISPOSABLE PERSONAL INCOME AND SELECTED SERVICE INDUSTRIES RECEIPTS
UNITED STATES, WASHINGTON, OREGON AND IDAHO, 1954, 1958 AND 1963

Year	United States		Washington		Oregon		Idaho	
	Receipts	Income	Receipts	Income	Receipts	Income	Receipts	Income
1954	$145	$1,568	$131	$1,747	$134	$1,540	$100	$1,341
1958	186	1,821	158	1,885	161	1,763	126	1,543
1963	236[a]	2,122	177	2,210	200	2,116	173	1,738

[a]Includes Alaska and Hawaii. These states are not included in earlier United States totals.

SOURCES: Table 4-61 and Survey of Current Business, April, 1965, p. 22.

trading centers are required to support a high level of wholesaling activity. Such is the case for service trade industries. Table 4-63 shows service trade activities in major metropolitan areas for Washington State. The three Standard Metropolitan Areas in Washington are Spokane, Tacoma and Seattle-Everett. Notice that, of total receipts of selected services industries in Washington, 72.7 per cent are accounted for by sales in the three Standard Metropolitan Areas. These three areas account for nearly 60 per cent of the state's population. Notice further that as the size of the Standard Metropolitan Area increases, the proportion of receipts accounted for also increases. Thus, the Seattle-Everett area, which accounts for 38.8 per cent of the state's total population, accounts for more than 50 per cent of the state's total receipts for selected service industries.

Table 4-63

SELECTED SERVICE INDUSTRY RECEIPTS FOR WASHINGTON STANDARD METROPOLITAN AREAS
BY KIND OF BUSINESS, 1963

(millions of dollars)

Kind of Business	Wash-ington	Total SMSA as % of State	Seattle-Everett SMSA	% of State	Tacoma SMSA	% of State	Spokane SMSA	% of State
Total selected services receipts	540.2	72.7	285.7	52.9	48.1	8.9	58.8	10.9
Hotels, other lodging places	72.9	60.8	31.9	43.8	3.5	4.8	8.9	12.2
Personal services	126.7	69.0	61.8	48.8	13.6	10.7	12.0	9.5
Misc. business services	116.0	88.1	76.5	65.9	11.4	9.8	14.3	12.3
Automobile repair, services, garages	99.8	69.7	50.3	50.3	8.6	8.6	10.8	10.8
Misc. repair services	50.0	68.2	24.3	48.6	3.9	7.8	5.9	11.8
Motion pictures	24.2	78.1	15.9	65.7	1.4	5.8	1.6	6.6
Amusement & recreation services	50.4	71.8	25.3	50.2	5.6	11.1	5.3	10.5

SOURCES: U. S. Department of Commerce, Bureau of the Census, Census of Business: 1963 (Washington, D. C.: U. S. Government Printing Office), Vol. VII, Selected Services--Area Statistics, pp. 49-6 to 49-7, 49-10 to 49-15.

Table 4-64 shows selected service receipts per capita for Washington and for the three Standard Metropolitan Areas. While the state as a whole

Table 4-64

PER CAPITA SELECTED SERVICE INDUSTRY RECEIPTS FOR WASHINGTON STANDARD METROPOLITAN AREAS BY KIND OF BUSINESS, 1963

Kind of Business	Washington State	Seattle-Everett SMSA	Tacoma SMSA	Spokane SMSA
Total per capita selected service receipts	$179	$239	$140	$203
Hotels, other lodging places	24	27	10	31
Personal services	42	52	40	41
Miscellaneous business services	39	64	33	49
Automobile repair, services, garages	33	42	25	37
Miscellaneous repair services	17	20	11	20
Motion pictures	8	13	4	6
Amusement and recreation services	17	21	16	18

SOURCE: Table 4-63.

has per capita selected service receipts of $179, the Spokane SMA has $203, the Tacoma SMA has $140 and the Seattle-Everett SMA has per capita selected service receipts of $239.

Thus, a general conclusion regarding the service trade industry appears somewhat obvious. As Washington continues to grow and develop and communities and cities become more developed and complex; as the state becomes increasingly more urbanized; and as incomes continue to increase; we shall witness not just growth in the service trade but rather rapid and accelerated growth and expansion. For, seemingly, specialization begats specialization, and specialization in the service trade industries is, perhaps, both desirable and inexorable.

Projections: Looking Ahead to 1985

We study the past and the present in order that we may be better able to appraise and understand the future. From the outset of this study the intent has been to analyze the past and present developments in these given industries in order that we might forecast or project ahead, by five-year intervals, major developments to 1985. The major magnitude of seemingly greatest importance is that of sales volume for these industries. Business management today stresses, and succeeds largely on the basis of the efficacy of its planning. To plan is to decide in advance what needs to be done. Deciding what needs to be done for the immediate future is not a major task. We are constantly upon tomorrow and therefore little vision or clairvoyance is required. However, business planning is required not just for one or two

days ahead but for next year or the next ten or fifteen years. Planning far in advance requires some knowledge or appraisal of what conditions are likely to be far in advance. In other words, the essence of planning then becomes anticipation, looking ahead and making judgments on the basis of your knowledge and "feel" for a given situation.

Forecasting and projecting trends is perhaps one-third science and two-thirds art. It is not, however, a haruspical black art but is instead highly involved in the technique or manner in which the scientific aspect is applied.

Sales volume has been chosen as the major magnitude to be projected in this section for several reasons. The first and foremost is the fact that, for the firm, the item of greatest importance for its entire management scheme is the sales forecast. It is hoped then that in many instances individual firms might take our overall industry forecasts for the state as a whole and from these develop their own market share or market potential forecasts. From the market share forecasts, firms could then develop their own individual sales forecasts. It is important to remember that, in the business firm, the sales forecast is the key to integrated business planning. For from the sales forecast comes the firm's whole series of budgets and schedules: the production schedule, personnel requirements, cash budgets, etc. Our efforts in forecasting and projecting sales volume figures then is an attempt to aid businessmen, economists or others interested in anticipating the future.

As a matter of fact, the importance of sales forecasts is illustrated most vividly in our projections of employment which accompany the sales volume forecast. Once sales are forecast, it becomes a relatively easy task to extrapolate on the basis of employees per $1,000 sales, or some similar method, the number of employees required to service a given level of sales.

A Word about Methodology

Sales for most major industries or commodities depend upon a number of factors--income, population, distribution of income, mix of population, consumer expectations or their propensity to consume to mention a few. A model incorporating all these variables would be very sophisticated on the one hand and, perhaps, on the other very unreliable. For such a model attempting to forecast sales and thus anticipating future conditions would necessarily rest on the adequacy of the underlying assumptions regarding all these variables and on the accuracy with which these could be predicted in advance. In the language of the model builders, "garbage in surely means garbage out." In other words, we would probably be confronted with the phenomenon known as spurious accuracy.

The predictions and projections regarding the retail, wholesale and service trades industries hinge primarily upon two variables, income and population. These two variables have been projected in Chapter 2, and the projections of this section are based on those projections of income and population. Accordingly, our projections then proceed along these two variables. We have projected sales for these industries by three techniques utilizing both income and population. Projections are shown both numerically and graphically via tables and figures.

Retailing

Retailing activity will expand markedly during the 1965 to 1985 period. Table 4-65 shows the projections for retail sales on the basis of population. Here the assumption, certeris paribus, is that retail sales are largely a function of people. That is, the mainstay of a given market is people. Three methods for projecting sales on the basis of population have been employed. In method one, per capita retail sales were left constant at the 1963 level; and thus, by multiplying per capita retail sales at the 1963 level times the population figure for the given year, we arrive at a figure for total retail sales. Thus, in 1985, on the basis of method one, retail sales would be $5.75 billion.

In method two, per capita retail sales were increased by 1.5 per cent every five years. This 1.5 per cent was the per cent increase apart from price increases from 1958 to 1963, a period of considerable normalcy. The 1958-63 period was a period of relative increased growth. There was a slight recession in 1958 and another in 1961. However, during this period there has also been considerable growth in most of the major economic indicators such as GNP, Disposable Personal Income and Personal Consumption Expenditures. It is, therefore, assumed that this growth rate for the 1965-85 period is both reasonable and realistic. Method two projects retail sales for 1985 at $6.14 billion.

In method three, retail sales were increased by $391 million every five years. This $391 million represents the average five-year increase from 1948 to 1963. Method three projects retail sales for 1985 at $5.63 billion.

Table 4-65 shows in detail the projections for five-year intervals by the three methods on the basis of population. However, population alone does not make for an effective market. It is people plus purchasing power that makes for dynamic marketing opportunities. Consequently, our projections shown in Table 4-66 more nearly represent a realistic appraisal of the future inasmuch as the projections are based upon estimations regarding Disposable Personal Income. However, the reader will observe some approximate degree of similarity between the two sets of projections for retail sales. In Table 4-66, three methods are employed which are essentially the same as the methods employed in Table 4-65. The basic difference is that in Table 4-66 we are projecting on the basis of income instead of population as in Table 4-65. The projections for 1985 by the three methods show retail sales to be respectively $7.77 billion, $6.19 billion and $5.63 billion. The second estimate of $6.19 billion appears to be the most realistic. Sales per dollar of disposable income have been decreasing markedly since 1948. This occurs for numerous reasons, the principal one being that, as has been explained earlier and in greater detail, the consumer is changing the mix of his expenditures. Perhaps the basic explanation is that a consumers' income increases, the amounts spent for necessities tend to decline. Today's and tomorrow's consumer may be (obviously is) buying relatively fewer physical goods purchased through retail stores and relatively more goods in the form of intangible services such as travel, packaged culture, better and longer vacations, better homes, second homes, insurance, stocks and bonds, and all the other accouterments of an affluent society. Figure 4-5 shows visually how sales per dollar of disposable income have fallen from 1945 to the present, and this decline is then projected to 1985. Figure 4-6 shows our numerical projections on the basis of income and population via the three described methods in graphic form. Method number two, both on the basis of population and income, appears to be the most

Table 4-65

WASHINGTON STATE RETAIL SALES, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985
BY PER CAPITA SALES

(1960 dollars)

Year	Population (thousands)	Method One		Method Two		Method Three	
		Per Capita Retail Sales	Retail Sales (millions)	Per Capita Retail Sales	Retail Sales (millions)	Per Capita Retail Sales	Retail Sales (millions)
1948	2,326	1,175	2,732	1,175	2,732	1,175	2,732
1954	2,516	1,258	3,165	1,258	3,165	1,258	3,165
1958	2,773	1,262	3,499	1,262	3,499	1,262	3,499
1963	3,050	1,281	3,906	1,281	3,906	1,281	3,906
1965	3,107	1,281	3,980	1,289	4,005	1,307	4,062
1970	3,387	1,281	4,339	1,308	4,430	1,315	4,453
1975	3,715	1,281	4,759	1,328	4,934	1,304	4,844
1980	4,086	1,281	5,234	1,348	5,508	1,281	5,235
1985	4,489	1,281	5,750	1,368	6,141	1,253	5,626

Method one: Per capita retail sales were left constant at their 1963 value.

Method two: Per capita retail sales were increased by 1.5% (per cent increase from 1958 to 1963) every five years.

Method three: Retail sales were increased $391 million (average five-year increase from 1948 to 1963) every five years.

SOURCES: Population from Current Population Reports, series P-25, and projections by Washington State Census Board, 1948 to 1963. Retail Sales from the Census of Business, adjusted to 1960 dollars.

logical and, therefore, presumably the most satisfactory for our purposes. Retail sales for 1985, therefore, should approximate $6.15 billion.

The unequal changes in retail sales by kind of business between 1948 and 1963 have already been discussed. Many of the factors which influenced those changes can be expected to continue through 1985. For example, higher disposable incomes in the future will mean increased sales of "above average sensitivity goods." For such goods a given change in disposable income is accompanied by a more than proportionate change in quantity purchased. Examples of such "above average sensitivity goods" are boats and pleasure aircraft, phonographs such as hi-fi and stereophonic equipment, musical instruments, automobiles, jewelry and certain types of furniture. At the same time, of course, sales of "average sensitivity" and "below average sensitivity" goods will increase, too, but not as rapidly as those of "above average sensitivity."[7]

Employment: Employment in retailing will continue to expand with increases in sales volume. However, several trends or developments have been underway in the recent past which will continue into the future and will affect employment in the retail trade. As Figure 4-7 shows, employment in

[7]Winston and Smith, op. cit., p. 18.

Table 4-66

WASHINGTON STATE RETAIL SALES, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1963
BY SALES PER DOLLAR OF DISPOSABLE INCOME

(1960 dollars)

Year	Disposable Personal Income (thousands)	Method One		Method Two		Method Three	
		Sales Per Dollar of DPI	Retail Sales (millions)	Sales Per Dollar of DPI	Retail Sales (millions)	Sales Per Dollar of DPI	Retail Sales (millions)
1948	3,983	686	2,732	686	2,732	686	2,732
1954	4,884	648	3,165	648	3,165	648	3,165
1958	5,371	651	3,499	651	3,499	651	3,499
1963	6,323	618	3,906	618	3,906	618	3,906
1965	6,765	618	4,181	606	4,100	600	4,062
1970	7,771	618	4,802	575	4,468	573	4,453
1975	9,131	618	5,643	546	4,986	530	4,844
1980	10,739	618	6,637	518	5,563	487	5,235
1985	12,579	618	7,774	492	6,189	447	5,626

Method One: Sales per dollar of Disposable Personal Income were left constant at their 1963 value.

Method Two: Sales per dollar of Disposable Personal Income were decreased by 5.1 per cent (per cent decrease from 1958 to 1963) every five years.

Method Three: Retail sales were increased $391 million (average five-year increase from 1948 to 1963) every five years.

SOURCES: Survey of Current Business, April, 1965, and Census of Business data.

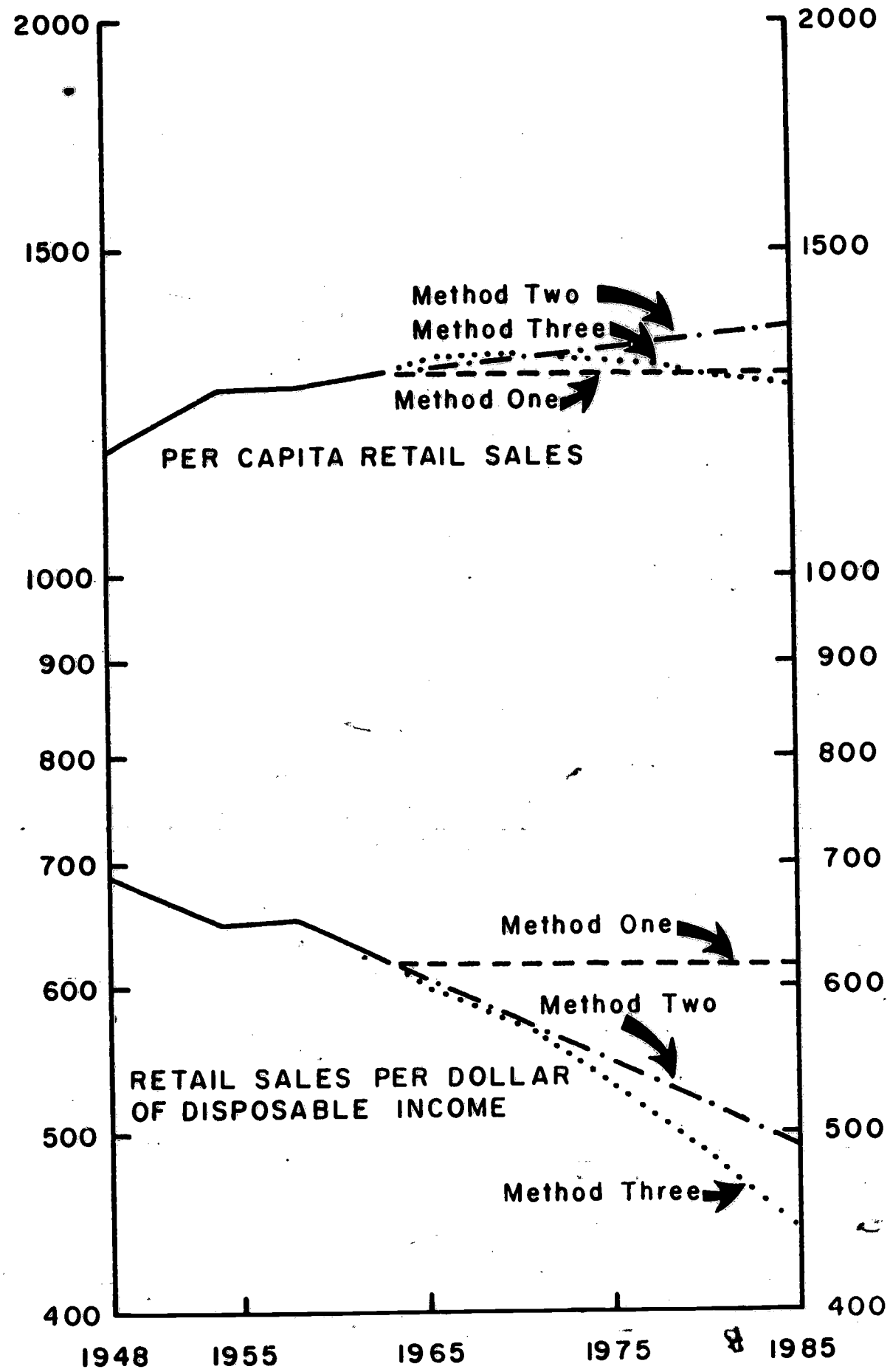
retailing has continued to expand since 1939. As a matter of fact, both the past trends and the subsequent extrapolation shows employment increasing rather constantly over time. Given the expansion of retail trade from 1939 and, especially during the post World War II period, such an increase in employment seems both natural and logical.

However, as Figure 4-8 shows, retail employees in Washington State per $1,000 of retail sales have been declining at a rather constant rate. Figure 4-8 is a semi-log or ratio chart. The slope of a line indicates the percentage change between any two points of time.

As one can readily discern, employees per $1,000 of sales is the converse of "sales per employee." That is, as sales per employee go up, employees per $1,000 of retail sales would fall in direct proportion. Figure 4-8 shows that employees in retail trade for Washington per $1,000 of retail trade have been declining by a rather constant rate, especially since 1948. There are several reasons for this. For one thing, the incidence of self-service merchandising or what is sometimes called simplified selling is manifesting itself through the whole range of retailing institutions from supermarkets to department stores. This tends to result in increased sales per employee or what might be loosely termed an increase in "productivity." In manufacturing, productivity is usually brought about by changes in the capital-labor ratio. Retailing, not being a highly capital intensive industry has attained increases in productivity largely as a result of shifting cost

FIG. 4-5

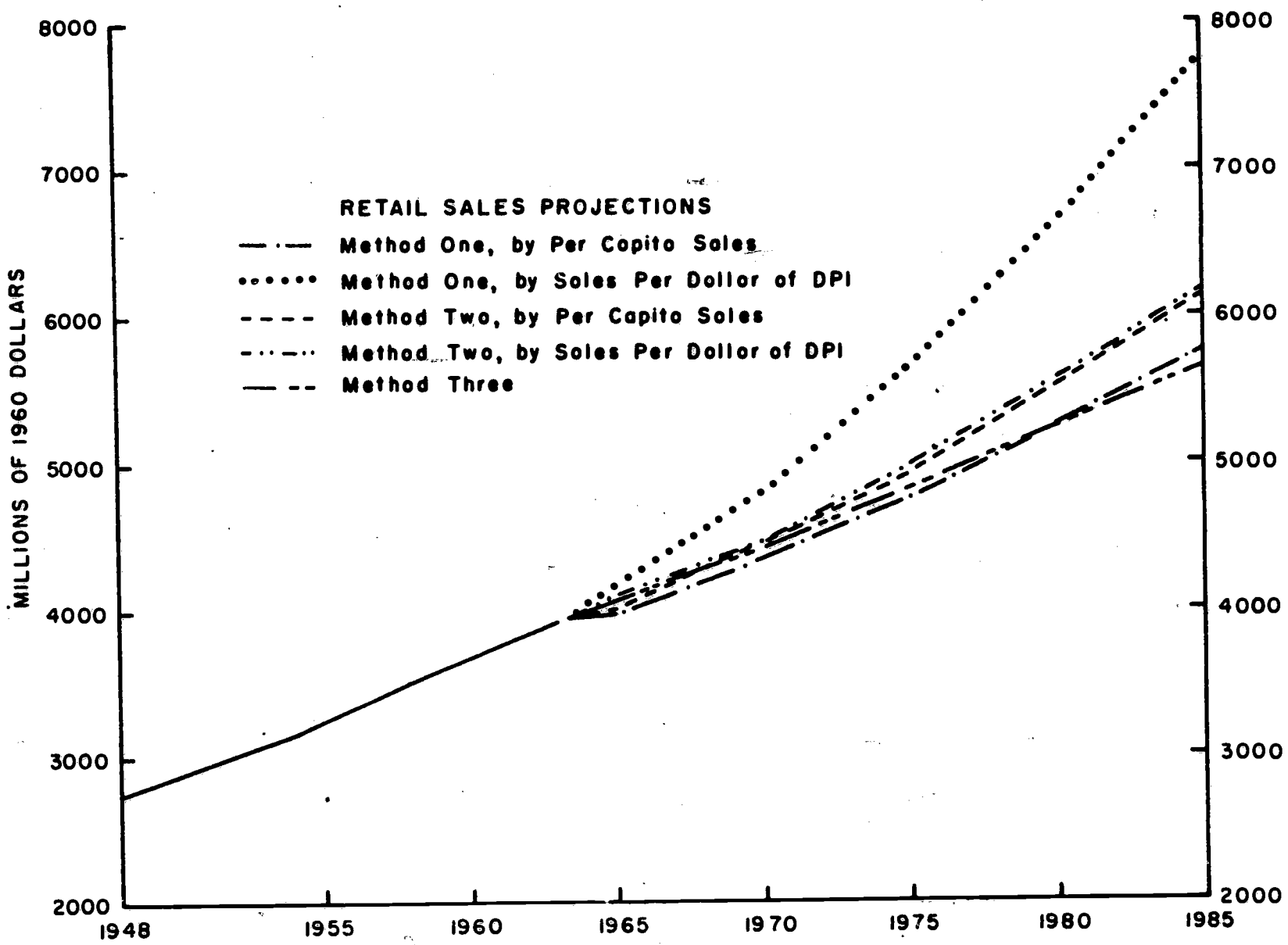
WASHINGTON STATE TRENDS AND PROJECTIONS OF PER CAPITA RETAIL SALES AND RETAIL SALES PER DOLLAR OF DISPOSABLE PERSONAL INCOME FOR SELECTED YEARS, 1948 TO 1985



Sources: Tables 4-65 and 4-66

FIG. 4-6

WASHINGTON STATE RETAIL SALES, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985



Sources: Table 4-65 and Table 4-66

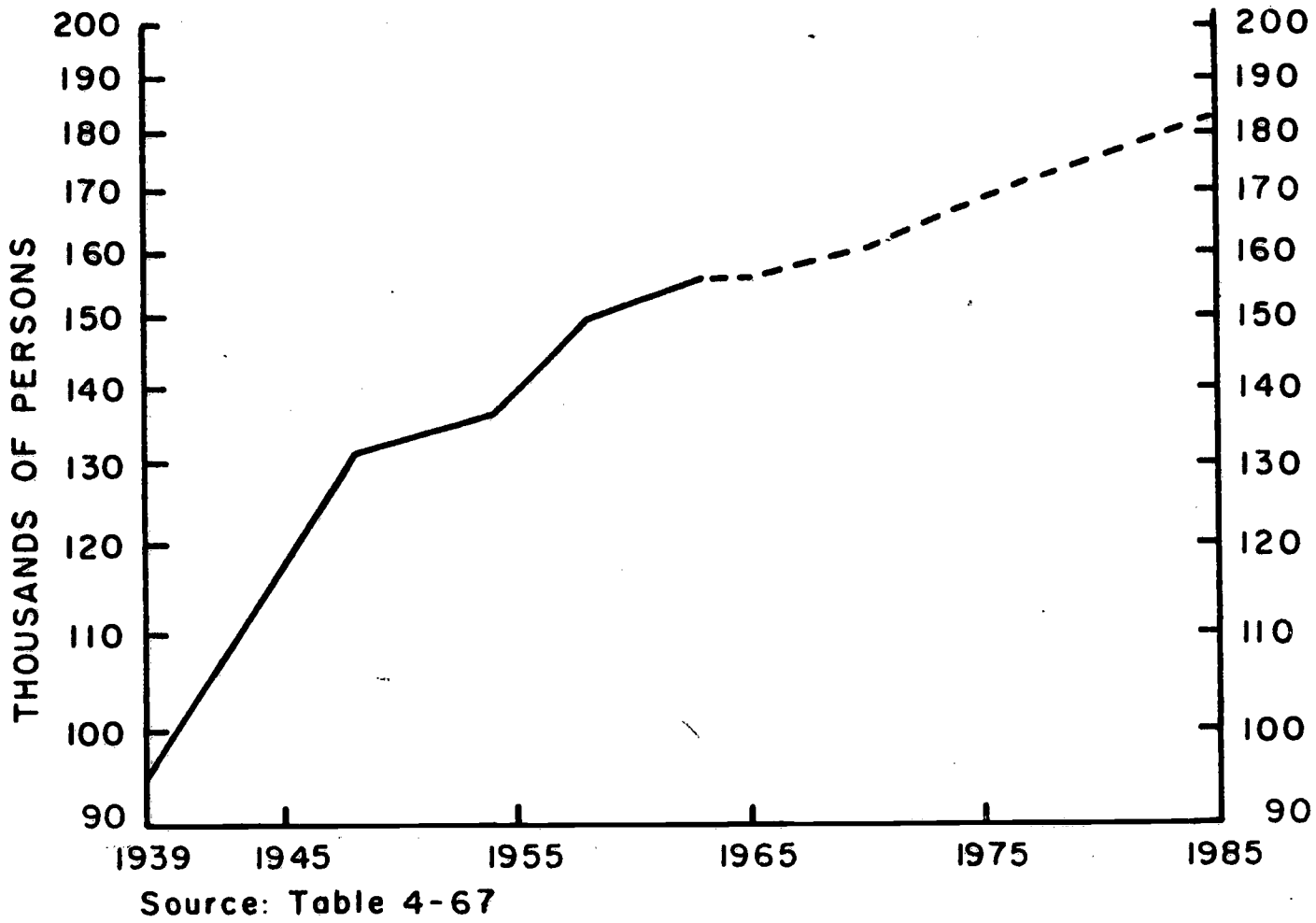
inducing functions either forward to the consumer or backward onto the manufacturer or other suppliers. When a variety store implements self-service merchandising, they reduce the total number of employees while maintaining, usually, present sales volumes. In some instances, sales volumes actually increase when self service is implemented largely as a result of increase in the average size of order per customer. This, of course, results in a reduced number of employees per $1,000 of sales.

Secondly, retailers have, in many instances, learned that they can reduce the number of their employees per given volume of sales and thus reduce wage costs by pushing certain activities back up the channel of distribution ultimately to the manufacturer of the goods. Noticeable examples of this are the prepackaging of merchandise by manufacturers and especially of the practice known as preticketing, whereby goods are price marked by the manufacturer for the added convenience of the retail purchaser.

Automation of store "systems" such as data processing in inventory management, credit selling, personnel record keeping and other areas has also tended to increase the effective output of retail workers. It is expected that these trends will continue in the future.

FIG. 4-7

WASHINGTON STATE RETAIL EMPLOYMENT TRENDS AND PROJECTIONS, SELECTED YEARS, 1939 TO 1985



Source: Table 4-67

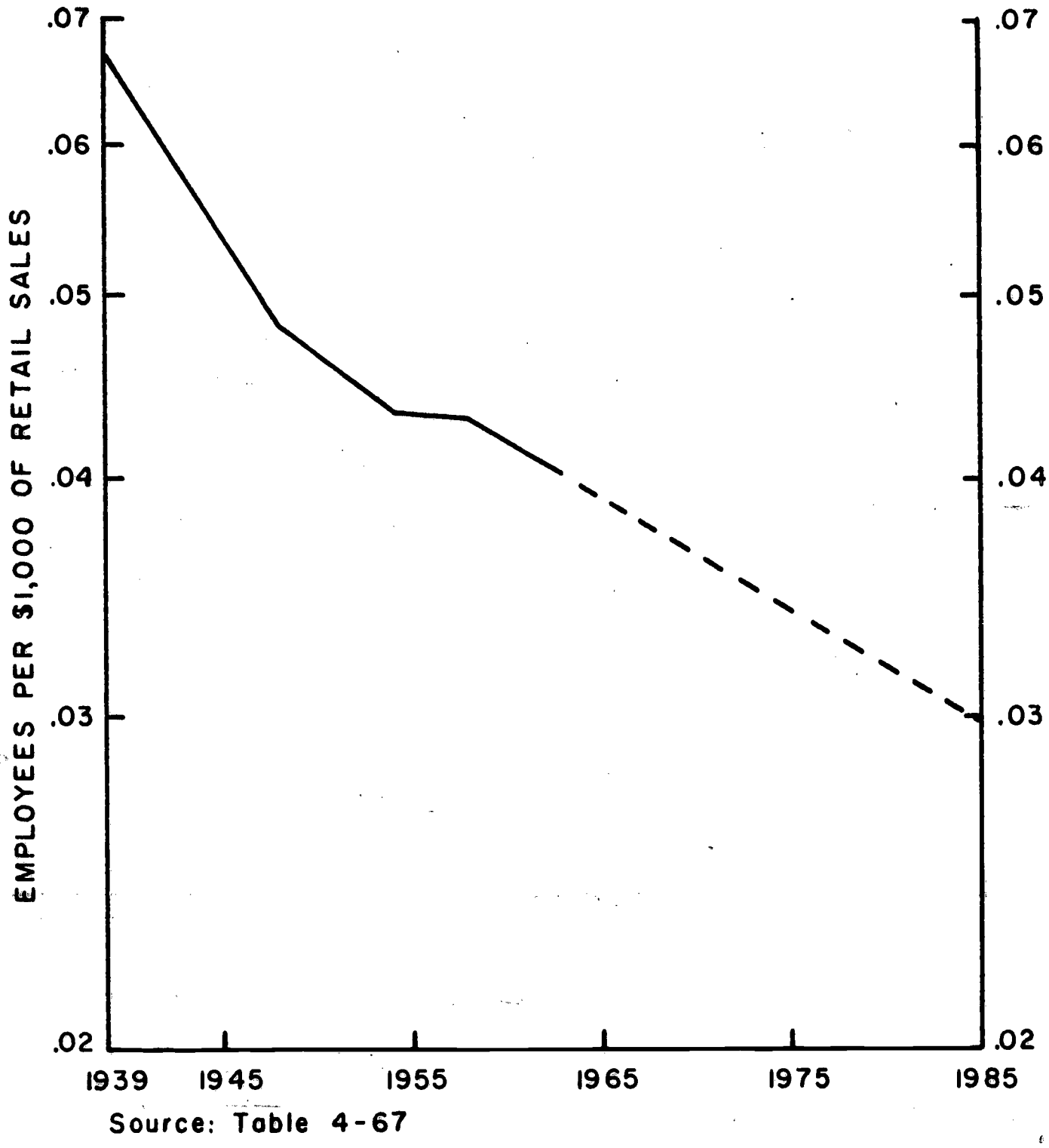
Figures 4-7 and 4-8 are drawn from the data of Table 4-67. Using the data in column 2, which are taken from our earlier projections of retail sales, and the trend in employment per $1,000 of retail sales, retail employment is projected by five-year intervals to 1985. The basis of the projection in employment per $1,000 of retail sales is the percentage decrease experienced in this variable between 1958 to 1963. It will be recalled that this period was chosen as being the most logical and, therefore, the most satisfactory for the purpose of our projections. Employees per $1,000 of retail sales declined by 6.5 per cent between 1958 and 1963. Our projections, therefore, assume a 6.5 per cent reduction in employees per $1,000 of sales every five years. In effect it is tacitly assumed that technology in retailing will increase at a rate at least equal to that of the 1958-63 period. That is, between 1958 and 1963, "technology" including automation and the improvement in merchandising systems will increase to such an extent that employment per $1,000 of retail sales will be reduced by 6.5 per cent. Employment projections for retail trade are thus shown in Column 1 of Table 4-67.

Wholesaling

Washington will, perhaps, lag somewhat in terms of relative growth in comparison with U. S. averages; but wholesaling will, relatively speaking, increase in importance in terms of Washington's distributive trades for reasons largely explained in the wholesaling section.

FIG. 4-8

WASHINGTON STATE RETAIL EMPLOYEES PER $1,000 OF RETAIL SALES, SELECTED YEARS, 1939 TO 1985



Source: Table 4-67

Tables 4-68 and 4-69 show the projections for wholesale sales by five-year intervals for Washington State. The three methods of projecting are essentially the same as those used for projecting retail sales. Here again, method two, on the basis of both population and income appears to offer the greatest realism for our purposes. Figure 4-9 shows the trend and projection of both sales per dollar of Disposable Personal Income and per capita wholesale sales. Figure 4-10 shows graphically our numerical projections depicted in Tables 4-68 and 4-69. Wholesale sales for 1985 are thus projected at approximately $8.3 billion.

The Wholesale-Retail Ratio: The wholesale-retail ratio for Washington State has increased by nine percentage points from 1948 to 1963 as shown in

Table 4-67

WASHINGTON STATE RETAIL TRADE EMPLOYMENT, TRENDS AND PROJECTIONS
SELECTED YEARS, 1939 TO 1985

Year	Retail Employment[a]	Retail Sales (millions of 1960 dollars)	Employees Per $1000 of Retail Sales[b]
1939	94,569	1,426	0.0663
1948	131,507	2,732	0.0481
1954	136,830	3,165	0.0432
1958	149,662	3,499	0.0428
1963	156,256	3,906	0.0400
1965	156,195	4,005	0.0390
1970	161,695	4,430	0.0365
1975	168,249	4,934	0.0341
1980	175,705	5,508	0.0319
1985	183,002	6,141	0.0298

[a]Paid employees and active proprietors.

[b]Employees per $1,000 of retail sales were projected by decreasing them 6.5% (per cent decrease from 1958 to 1963) every five years.

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Retail Trade--Area Statistics.

Table 4-68

WASHINGTON STATE WHOLESALE SALES, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985
BY PER CAPITA SALES

(1960 dollars)

		Method One		Method Two		Method Three	
Year	Population (thousands)	Per Capita Wholesale Sales	Wholesale Sales (millions)	Per Capita Wholesale Sales	Wholesale Sales (millions)	Per Capita Wholesale Sales	Wholesale Sales (millions)
1948	2,326	1,398	3,251	1,398	3,251	1,398	3,251
1954	2,516	1,513	3,808	1,513	3,808	1,513	3,808
1958	2,773	1,593	4,418	1,593	4,418	1,593	4,418
1963	3,050	1,639	4,998	1,639	4,998	1,639	4,998
1965	3,107	1,639	5,092	1,659	5,155	1,684	5,231
1970	3,387	1,639	5,551	1,707	5,782	1,716	5,813
1975	3,715	1,639	6,089	1,757	6,527	1,722	6,395
1980	4,086	1,639	6,697	1,808	7,387	1,708	6,977
1985	4,489	1,639	7,357	1,860	8,350	1,684	7,559

Method One: Per capita wholesale sales were left constant at their 1963 value.

Method Two: Per capita wholesale sales were increased by 2.9 per cent (per cent increase from 1958 to 1963) every five years.

Method Three: Wholesale sales were increased $582 million (average five-year increase from 1948 to 1963) every five years.

SOURCE: From Current Population Reports, Series P-25, and projections by Washington State Census Board. 1948 to 1963 wholesale sales from the Census of Business adjusted to 1960 dollars.

Table 4-69

WASHINGTON STATE WHOLESALE SALES, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985
BY SALES PER DOLLAR OF DISPOSABLE INCOME

(1960 dollars)

Year	Disposable Personal Income (thousands)	Method One		Method Two		Method Three	
		Sales Per Dollar of DPI	Wholesale Sales (millions)	Sales Per Dollar of DPI	Wholesale Sales (millions)	Sales Per Dollar of DPI	Wholesale Sales (millions)
1948	3,983	816	3,251	816	3,251	816	3,251
1954	4,884	780	3,808	780	3,808	780	3,808
1958	5,371	823	4,418	823	4,418	823	4,418
1963	6,323	790	4,998	790	4,998	790	4,998
1965	6,765	790	5,344	777	5,256	773	5,231
1970	7,771	790	6,139	746	5,797	748	5,813
1975	9,131	790	7,213	716	6,538	700	6,395
1980	10,739	790	8,484	687	7,378	650	6,977
1985	12,579	790	9,937	660	8,302	601	7,559

Method One: Wholesale sales per dollar of Disposable Personal Income were left constant at their 1963 value.

Method Two: Wholesale sales per dollar of DPI were decreased by 4.0 per cent (per cent decrease from 1958 to 1963) every five years.

Method Three: Wholesale sales were increased $582 million (average five-year increase from 1948 to 1963) every five years.

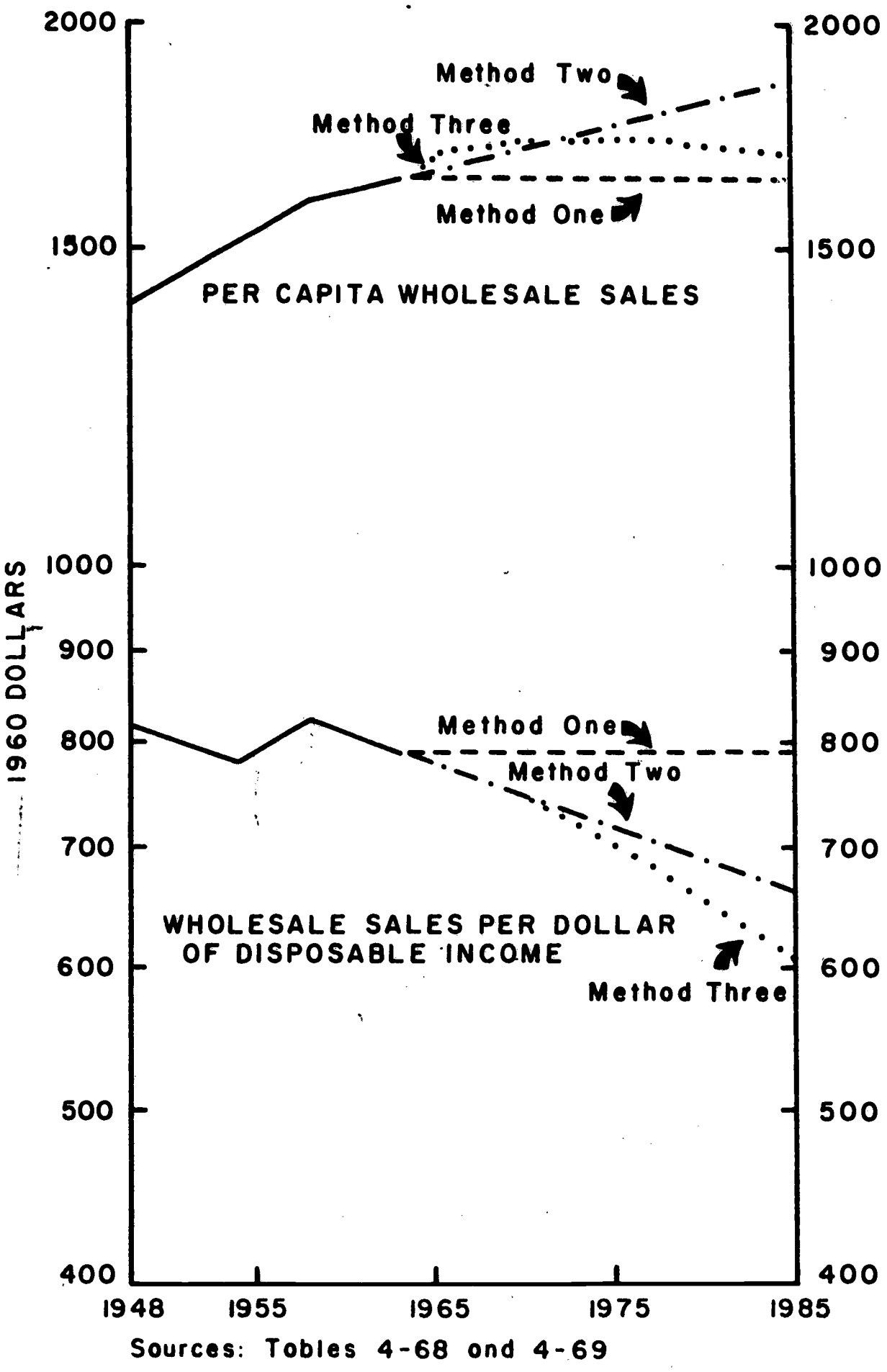
SOURCES: Disposable Personal Income from Survey of Current Business, April, 1965; and 1948 to 1963 wholesale sales from Census of Business, adjusted to 1960 dollars.

Table 4-70. Table 4-70 also shows some projections for the wholesale-retail ratio by three methods. Method two on the basis of per capita retail sales and sales per dollar of Disposable Personal Income appears the most relevant for our consideration. It is not likely that the wholesale-retail ratio will continue to grow with the same relative speed as it did from 1948 to 1963. After all, the dynamic growth following World War II was an unusual phenomenon and one which is not likely to be repeated, in total, for some time to come. However, given the acceleration of population growth, incomes, increased number of trading or population centers and the general overall increasing economic importance of the Pacific Northwest, the wholesale-retail ratio will by 1985 reach approximately 1.34. That is, for every dollar of goods sold at retail, $1.34 in wholesale sales will take place. Given retail sales of $6.15 billion and a wholesale-retail ratio of 1.34 we, thus, compute wholesale sales in 1985 to be approximately $8.3 billion. This approximation of wholesale sales via the wholesale-retail ratio is quite similar to our beforestated projection of wholesale sales in 1985 at $8.2 billion. Figure 4-11 shows visually, for Washington State, wholesale-retail ratio trends and projections to 1985.

Certain general trends in wholesaling can and have been noted nationally. These have been indicated for Washington but appear to warrant comment here. The number of assemblers is declining and the relative importance of agents and brokers is increasing. Wholesaling of agricultural products is also tending

FIG. 4-9

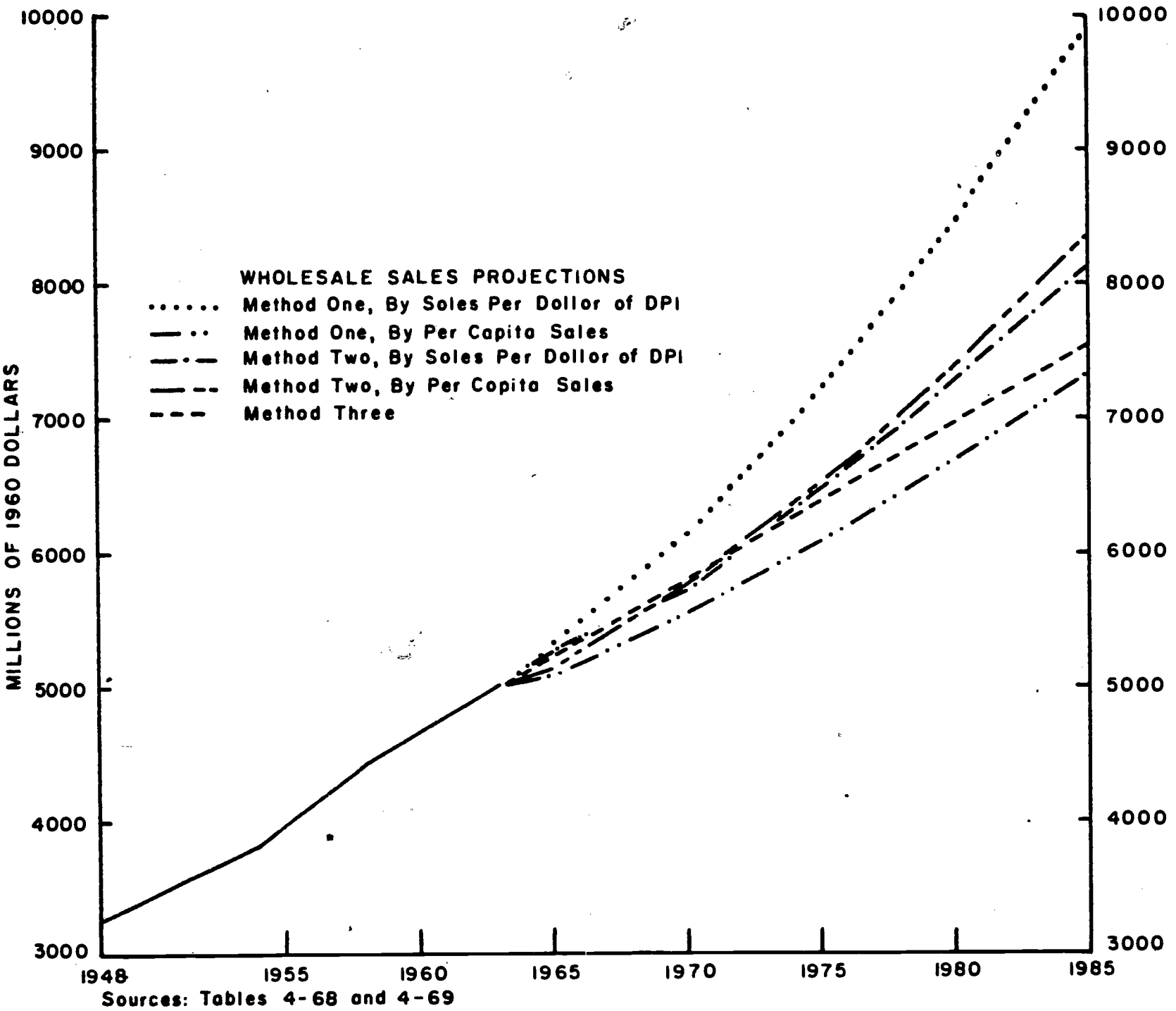
WASHINGTON STATE TRENDS AND PROJECTIONS OF PER CAPITA WHOLESALE SALES AND WHOLESALE SALES PER DOLLAR OF DISPOSABLE PERSONAL INCOME FOR SELECTED YEARS, 1948 TO 1985



Sources: Tobles 4-68 ond 4-69

FIG. 4-10

WASHINGTON STATE WHOLESALE SALES, TRENDS AND PROJECTIONS, SELECTED YEARS, 1948 TO 1985



Sources: Tables 4-68 and 4-69

to increase at a slower rate than for other products. Consumer goods wholesaling is expanding at approximately the same rate as total wholesale trade. For Washington wholesale trade to make further progress as compared to the nation and neighboring states, industrial development will have to continue at a pace at least equal to that of national expansion.

Wholesale trade pyramids in major cities and markets, particularly those whose size makes them relatively independent. Due to its very favorable location and considerable distance from other wholesale centers and its excellent overland, air, and water transportation facilities, Seattle appears to have a most favorable future in wholesaling. In the eastern half of the state, Spokane should continue to improve its position as the wholesaling trade center for the Inland Empire consisting of northern Idaho, western Montana and eastern Washington. Substantial increases in population or improvements in transportation would undoubtedly lead to a great expansion of Spokane wholesale trade.

Table 4-70

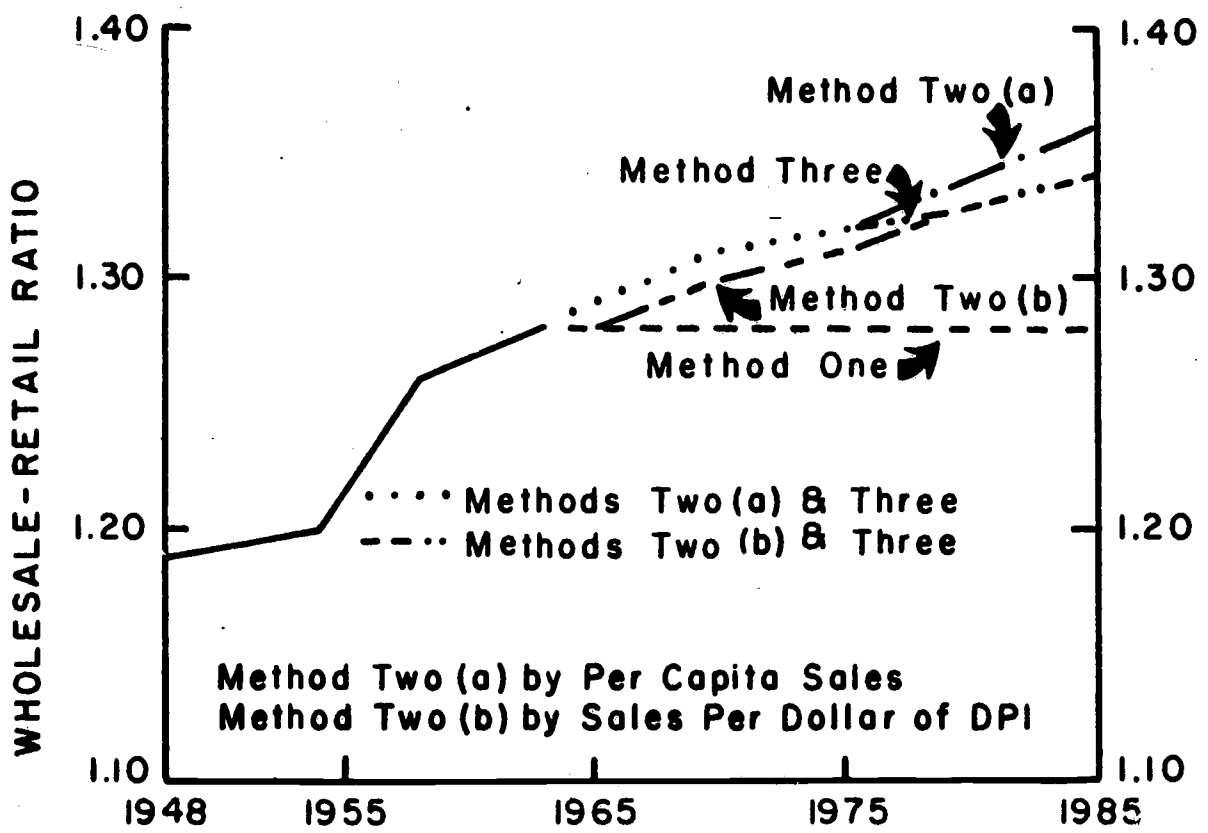
WASHINGTON STATE WHOLESALE-RETAIL RATIO, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985

Year	Method One	Method Two		Method Three
		by Per Capita Sales	by Sales per Dollar of DPI	
1948	1.19	1.19	1.19	1.19
1954	1.20	1.20	1.20	1.20
1958	1.26	1.26	1.26	1.26
1963	1.28	1.28	1.28	1.28
1965	1.28	1.29	1.28	1.29
1970	1.28	1.31	1.30	1.31
1975	1.28	1.32	1.31	1.32
1980	1.28	1.34	1.33	1.33
1985	1.28	1.36	1.34	1.34

SOURCES: Tables 4-65, 4-66, 4-68 and 4-69.

FIG. 4-11

WASHINGTON STATE TRENDS AND PROJECTIONS IN WHOLESALE - RETAIL RATIO FOR SELECTED YEARS, 1948 TO 1985



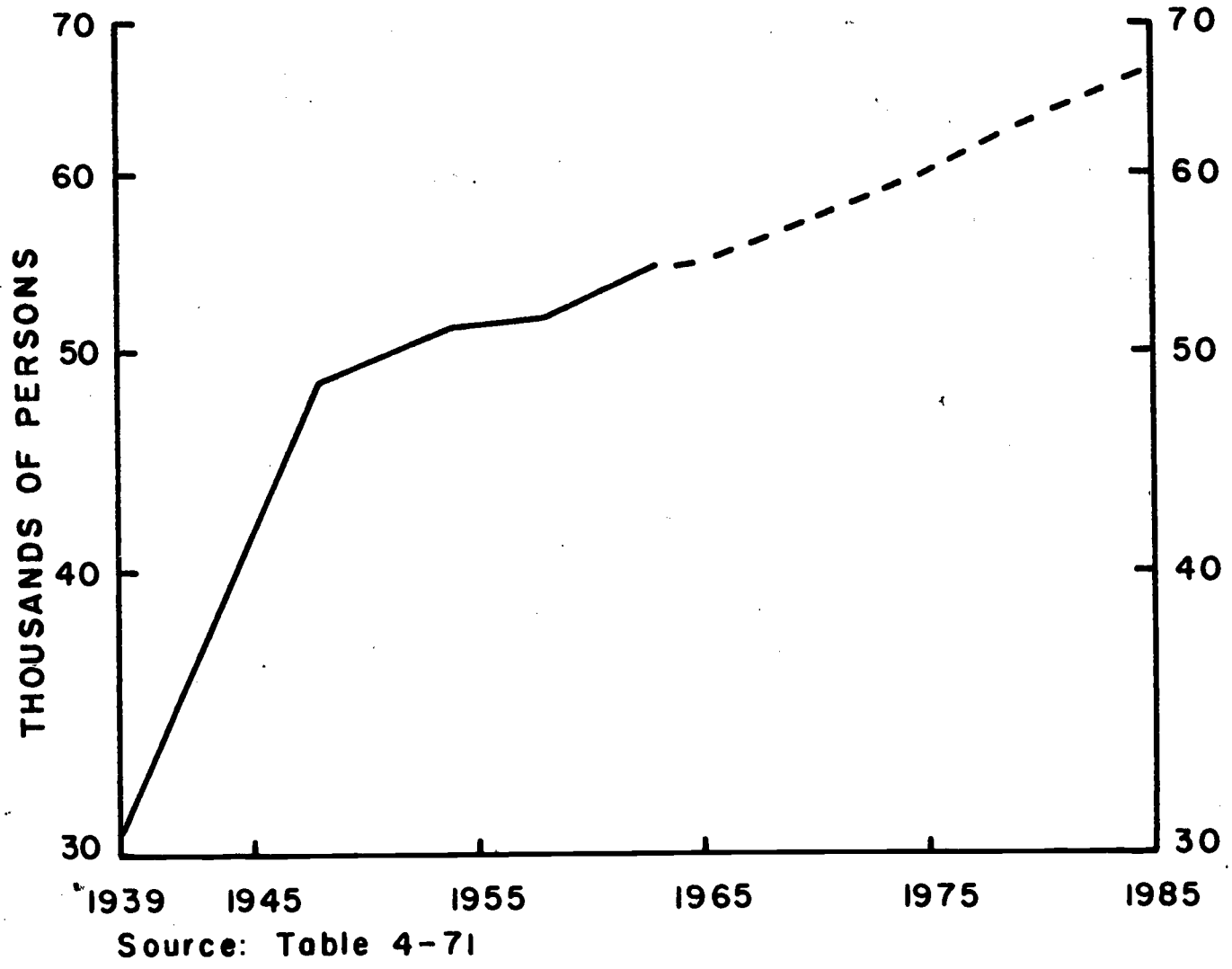
Sources: Tables 4-65, 4-66, 4-68, 4-69 and 4-70.

Employment: As shown by Figure 4-12, employment trends in Washington State in wholesale trade show a rather gradual expansion. As sales volume in wholesale trade continues to expand, employment opportunities will also expand. However, sales per employee have always been considerably higher in wholesale trade than in retail trade. The differing structure of the two trade categories largely explains this difference. Wholesale buyers purchase in very large quantities and frequently they are specification buyers requiring considerably less personal selling activity than the retail buyer. The incidence and magnitude of both telephone and mail order buying is considerably higher in wholesale trade than in retail trade.

As shown by Figure 4-13, employees per $1,000 of wholesale sales have declined markedly during the period 1939 to 1963. Wholesaling, to a considerably greater extent than retailing, is a capital intensive industry. That is to say, capital equipment can replace labor to effectively increase productivity. This is especially true in that part of wholesaling usually referred to as physical distribution. Physical distribution involves essentially the transportation, storage and materials handling aspects of wholesaling. In these areas, real economies have been witnessed during the post World War II era as a result of increased mechanization of these functions. Other important trends and developments in wholesaling which have tended to increase productivity and consequently sales per employee have been discussed more fully in the wholesaling section of this study. As shown by Table 4-71, employees per $1,000 of wholesale trade in Washington decreased by 6.8 per cent between 1958 and 1963. In projecting employment trends in wholesale trade for Washington

FIG. 4-12

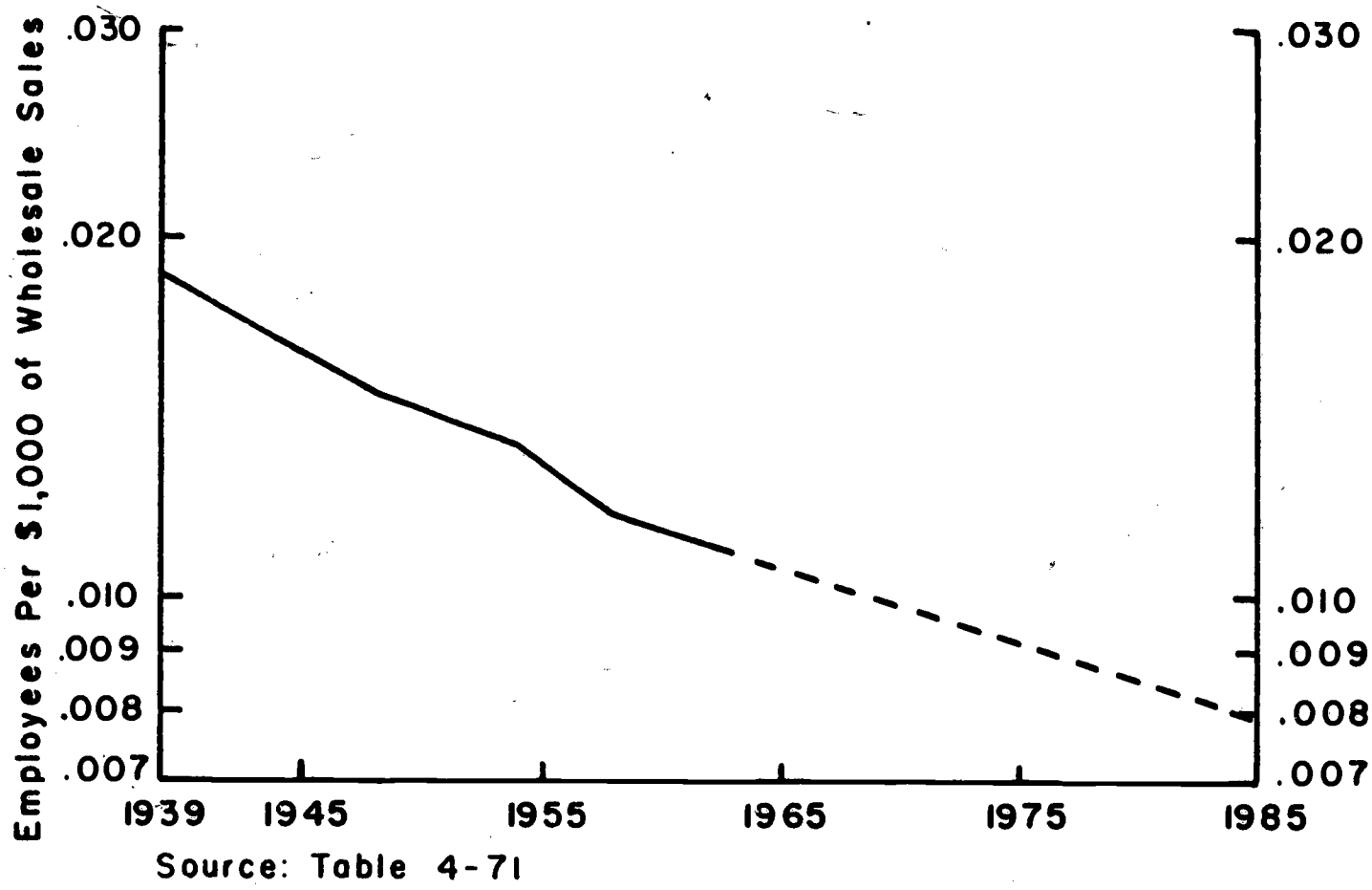
WASHINGTON STATE WHOLESALE EMPLOYMENT TRENDS AND PROJECTIONS, SELECTED YEARS, 1939 TO 1985



Source: Table 4-71

FIG. 4-13

WASHINGTON STATE WHOLESALE EMPLOYEES
PER $1,000 OF WHOLESALE SALES
SELECTED YEARS, 1939 TO 1985



Source: Table 4-71

State, the same assumption regarding technological innovation is used as was used for projecting retail trade employment. That is to say, the rate of technological innovation in wholesale trade during 1958-63, which tended to reduce employment per $1,000 of wholesale trade by 6.8 per cent will be in force during the five-year intervals beginning 1965 to 1985. Projections of employment in wholesale trade to 1985 by five-year periods are shown in Table 4-71, column 1.

The Service Industry

We complete our projections by looking now at the services industry. Our analysis has thus far led us to the conclusion that the services industries offer a dynamic and lucrative opportunity for Washington entrepreneurs. The specialization necessitated by 20th Century living conditions dictates both rapid and accelerated growth in this area.

Tables 4-72 and 4-73 show numerically the projections for the services industries. The techniques employed in the projections are similar to those employed in projecting retailing and wholesaling figures. Table 4-72 shows projections on the basis of population, and Table 4-73 shows projections on the basis of income. Method two on both Tables 4-72 and 4-73 is considered the most realistic and useful of the three projections. Projections on the basis of income also seem to offer greater possibilities and ring with greater reality than projections based upon population. Therefore, our projections for the services industries would be those listed under method two on Table 4-73.

Table 4-71

WASHINGTON STATE WHOLESALE TRADE EMPLOYMENT, TRENDS AND PROJECTIONS
SELECTED YEARS, 1939 TO 1985

Year	Wholesale Employment[a]	Wholesale Sales (millions of 1960 dollars)	Employees Per $1,000 of Wholesale Sales[b]
1939	30,597	1,627	0.0188
1948	48,392	3,251	0.0149
1954	51,232	3,808	0.0135
1958	51,769	4,418	0.0117
1963	54,325	4,998	0.0109
1965	54,643	5,155	0.0106
1970	57,242	5,782	0.0099
1975	60,048	6,527	0.0092
1980	63,528	7,387	0.0086
1985	66,800	8,350	0.0080

[a]Paid employees and active proprietors.

[b]Employees per $1,000 of wholesale sales were projected by decreasing them 6.8 per cent (per cent decrease from 1958 to 1963) every five years.

SOURCE: U. S. Department of Commerce, Bureau of the Census, Census of Business (Washington, D. C.: U. S. Government Printing Office) Wholesale Trade--Area Statistics.

Table 4-72

WASHINGTON STATE SERVICE RECEIPTS, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985
BY PER CAPITA SALES

(1960 dollars)

		Method One		Method Two		Method Three	
Year	Population (thousands)	Per Capita Receipts	Service Receipts (millions)	Per Capita Receipts	Service Receipts (millions)	Per Capita Receipts	Service Receipts (millions)
1948	2,326	177	411	177	411	177	411
1954	2,516	227	570	227	570	227	570
1958	2,773	260	722	260	722	260	722
1963	3,050	294	897	294	897	294	897
1965	3,107	294	913	309	960	310	962
1970	3,387	294	996	349	1,182	332	1,124
1975	3,715	294	1,092	395	1,467	346	1,286
1980	4,086	294	1,201	447	1,826	354	1,448
1985	4,489	294	1,320	506	2,271	359	1,610

Method One: Per capita service receipts were left constant at their 1963 value.

Method Two: Per capita service receipts were increased by 13.1 per cent (per cent increase from 1958 to 1963) every five years.

Method Three: Service receipts were increased $162 million (average five-year increase from 1948 to 1963) every five years.

For method of computing trends in service receipts, see text, page 127.

SOURCES: Population from Current Population Reports, Series P-25, and projections by Washington State Census Board.

Table 4-73

WASHINGTON STATE SERVICE RECEIPTS, TRENDS AND PROJECTIONS
SELECTED YEARS, 1948 TO 1985
BY RECEIPTS PER DOLLAR OF DISPOSABLE INCOME

(1960 dollars)

Year	Disposable Personal Income (thousands)	Method One		Method Two		Method Three	
		Receipts Per Dollar of DPI	Service Receipts (millions)	Receipts Per Dollar of DPI	Service Receipts (millions)	Receipts Per Dollar of DPI	Service Receipts (millions)
1948	3,983	103	411	103	411	103	411
1954	4,884	117	570	117	570	117	570
1958	5,371	134	722	134	722	134	722
1963	6,323	142	897	142	897	142	897
1965	6,765	142	961	145	981	142	962
1970	7,771	142	1,103	154	1,197	145	1,124
1975	9,131	142	1,297	163	1,488	141	1,286
1980	10,739	142	1,525	173	1,858	135	1,448
1985	12,579	142	1,786	183	2,302	128	1,610

Method One: Service receipts per dollar of Disposable Personal Income were left constant at their 1963 value.

Method Two: Service receipts per dollar of DPI were increased 6.0 per cent (per cent increase from 1958 to 1963) every five years.

Method Three: Service receipts were increased $162 million (average five-year increase from 1948 to 1963) every five years.

For method of computing trends in service receipts, see text, page 127.

SOURCE: Disposable Personal Income from Survey of Current Business, April, 1965.

For 1985, receipts of the services industries considered--SIC categories 70-78 and 80, 81 and 82 will approximate $2.3 billion. Figure 4-14 shows a depiction of per capita sales receipts trends and projections and sales per dollar of Disposable Personal Income for the three projecting methods employed.

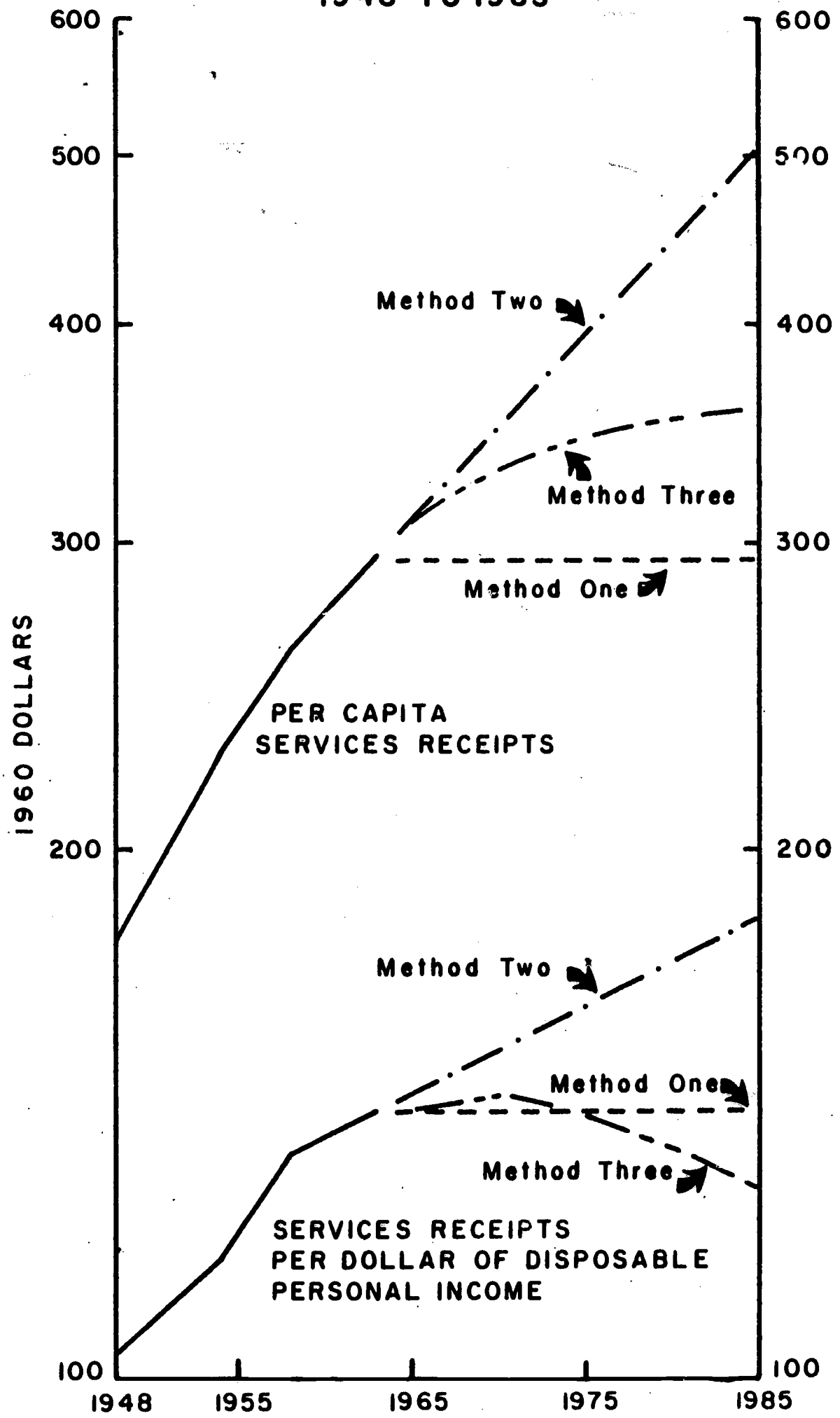
Figure 4-15 summarizes the trends and projections of sales receipts for the three methods used for projecting on the basis of both population and income.

A frequently quoted aphorism of business is that "a rising tide lifts all ships." As both income and population in the state of Washington tend to increase, business in all major categories will tend to increase also. However, not all businesses are assured a place in this Nirvana of the future. Businesses that are only "run" will not necessarily succeed nor survive. Businesses that are "managed," that is, where conditions are anticipated and attempts to manipulate the environment are undertaken, will no doubt enjoy the fruits of tomorrow's prosperity.

The service trades offer unusual opportunities for growth and development in the years ahead. The service trades, like retailing, possess a number of "above average sensitivity goods." Examples of these are legitimate theater and opera admissions, fur storage and repair, jewelry repair, rug,

FIG. 4-14

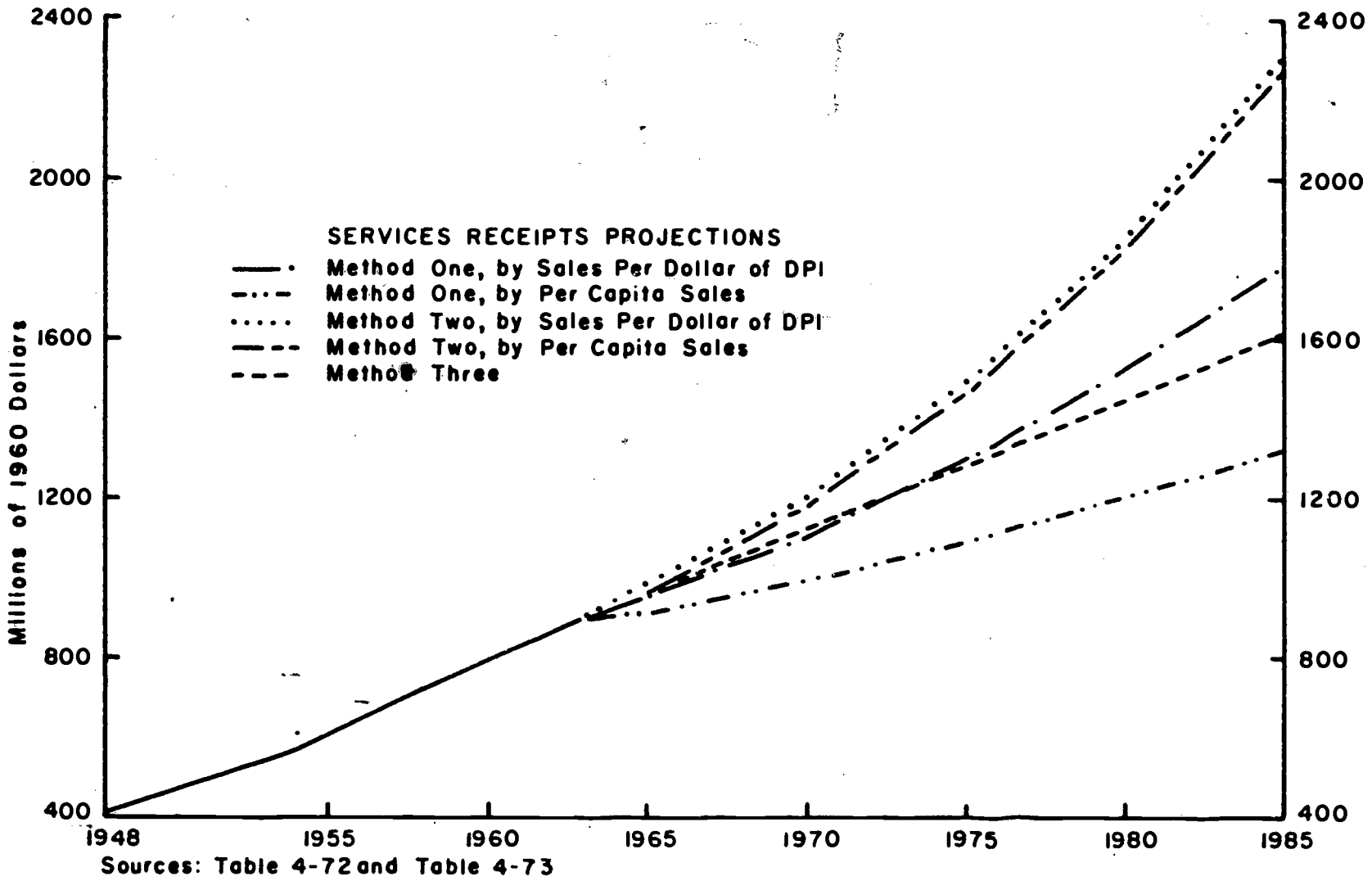
WASHINGTON STATE TRENDS AND PROJECTIONS IN PER CAPITA SERVICE RECEIPTS AND SERVICE RECEIPTS PER DOLLAR OF DISPOSABLE PERSONAL INCOME FOR SELECTED YEARS, 1948 TO 1985



Sources: Table 4-72 and Table 4-73

FIG. 4-15

WASHINGTON STATE SERVICES RECEIPTS, TRENDS AND PROJECTIONS, SELECTED YEARS, 1948 TO 1985



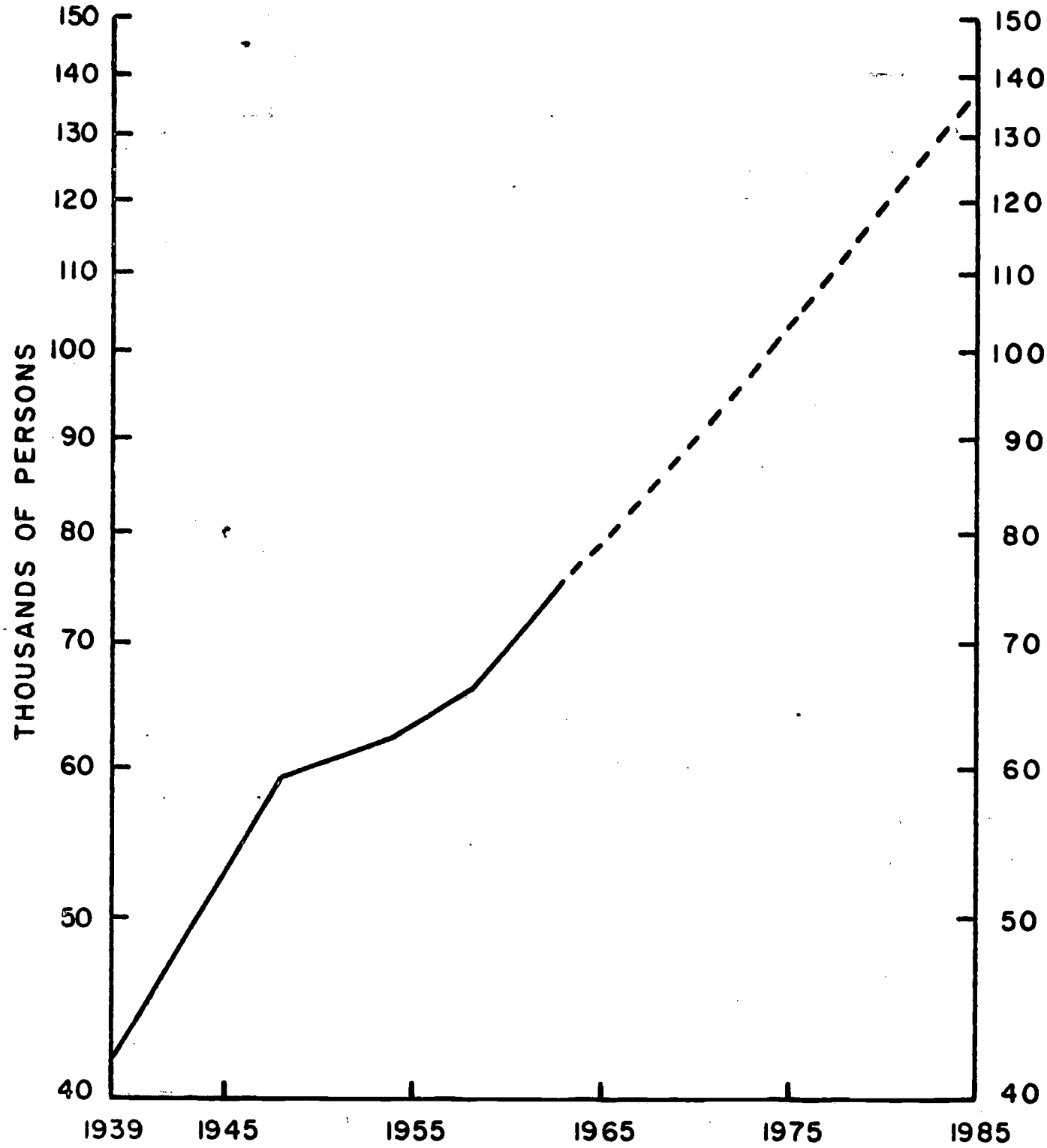
Sources: Table 4-72 and Table 4-73

drapery and mattress cleaning services and the whole gamut of miscellaneous personal services. As the state grows and expands economically, a whole range of needed business services are called into being such as advertising agencies, management consulting services, legal services and others. The changing mix in the population structure calls forth a whole new host of market service opportunities. The senior citizen market offers special market segmentation opportunities for both goods and services; the teenagers, the preschoolers, the infant, all offer new but assured market opportunities.

Employment: Employment opportunities in the services industries appear quite favorable as shown by Figure 4-16. As sales volume expands for this industry, employment opportunities will expand likewise. As a matter of fact, the projections for employment in the service trades are considerably greater than for wholesale trade employment but somewhat less than retail trade employment. Changing technology including the improvements in management systems will offset employment per $1,000 of service trade receipts to much the same extent as it has affected employment in wholesale and retail trade. The very nature of the service industry rules out the possibility of it being a capital intensive industry. Yet increases in productivity brought about by those factors subsumed under the heading of "technological innovations" have resulted in increased output per worker or its converse measure, a reduction in employees per $1,000 of service sales receipts. As Figure 4-17 shows, however, the decrease in employees per $1,000 of sales receipts in the service trades has not been by a rate equal to that occurring in the wholesale and retail

FIG. 4-16

WASHINGTON STATE SERVICES EMPLOYMENT TRENDS AND PROJECTIONS, SELECTED YEARS, 1939 TO 1985



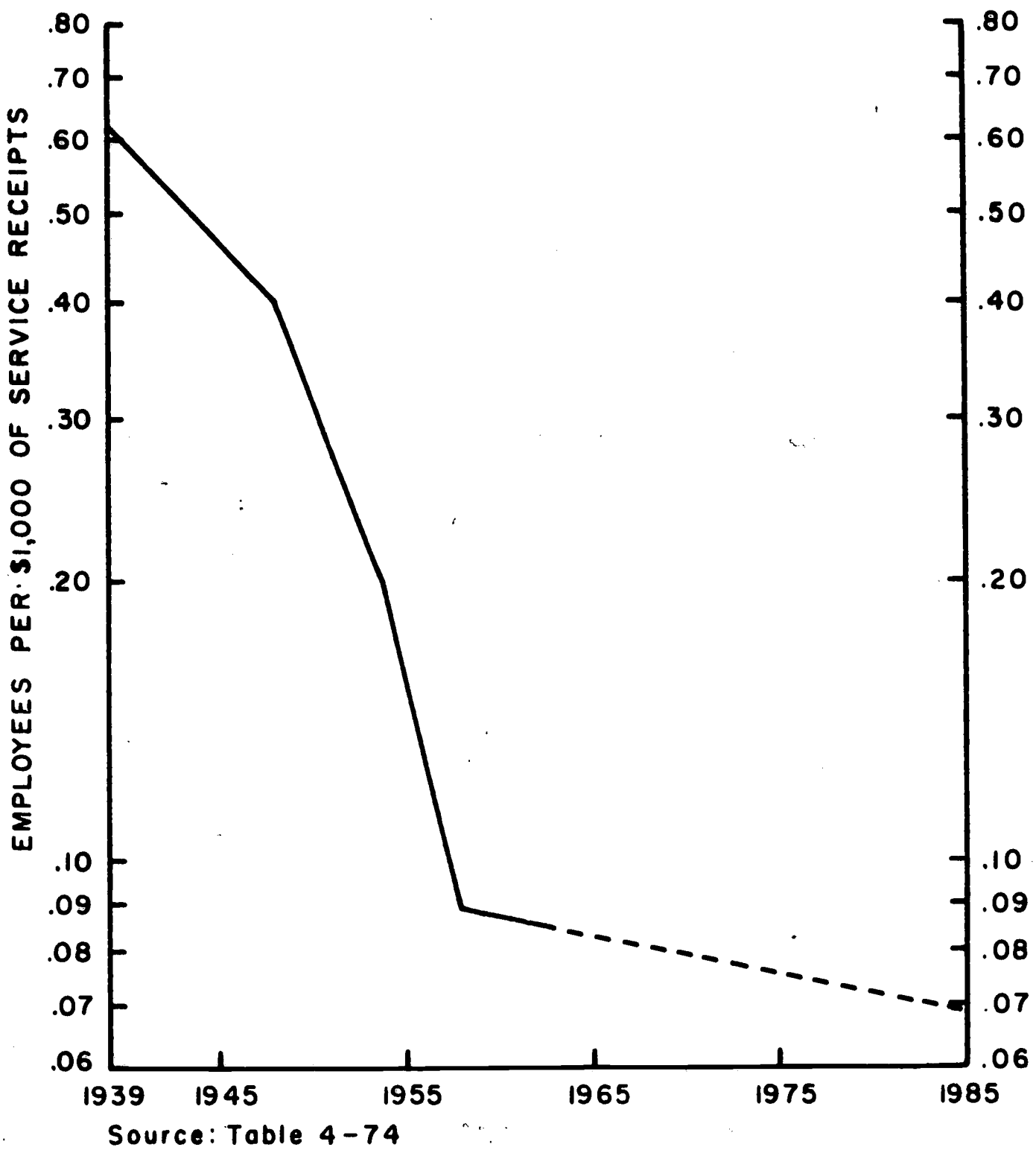
Source: Table 4-74

trades. The reduction of employees per $1,000 of service receipts amounted to 7.3 per cent between 1958 and 1963, the years chosen as our base period for projections.

Consequently, by reducing employees per $1,000 of receipts by 7.3 per cent every five years between 1965 and 1985, we obtain estimates of employees per $1,000 of receipts for these years. Using this figure, projections of employment in the service trades to 1985 are made. These are shown in column 1 of Table 4-74. It is seen that employment in Washington in these industries in 1985 will be an estimated 137,623.

FIG. 4-17

WASHINGTON STATE SERVICES EMPLOYEES PER $1,000 OF SERVICE RECEIPTS SELECTED YEARS, 1939 TO 1985



Source: Table 4-74

Table 4-74

WASHINGTON STATE SERVICES EMPLOYMENT, TRENDS AND PROJECTIONS
SELECTED YEARS, 1939 TO 1985

Year	Services Employment[a]	Services Receipts (millions of 1960 dollars)	Employees Per $1,000 of Services Receipts[b]
1939	41,800	256	0.1633
1948	59,415	411	0.1446
1954	62,190	570	0.1091
1958	65,919	722	0.0913
1963	75,849	897	0.0846
1965	78,816	960	0.0821
1970	89,950	1,182	0.0761
1975	103,424	1,467	0.0705
1980	119,420	1,826	0.0654
1985	137,623	2,271	0.0606

[a]Paid employees. Does not include self-employed.

[b]Employees per $1,000 of services receipts were projected by decreasing them 7.3 per cent (per cent decrease from 1958 to 1963) every five years.

SOURCES: State of Washington, Employment Security Department, "Employment and Payrolls in Washington State by County and by Industry," various years. (Mimeographed,) and Table 4-73.

Chapter 5

FINANCE, INSURANCE AND REAL ESTATE

The importance of this sector to the Washington economy cannot be measured by employment totals, important as these totals may be. All economic activity of the state funnels through this sector as it performs its vital tasks of check clearing, gathering the savings of the economy and allocating these savings among the competing productive uses. While it is true that activity in this sector reflects the performance of the entire Washington economy, it is equally true that dynamic and imaginative leadership by the financial institutions of this state is vital to the continued growth and prosperity of the economy of Washington.

Banks and Other Credit Agencies

The principal financial institutions in this group are the commercial banks, mutual savings banks, savings and loan associations, personal credit institutions and business credit institutions. While commercial banks employ approximately two thirds of the total employees in this group, the smaller financial institutions are registering more rapid rates of employment growth and, for the period 1960-63, greater absolute increases in total employment. Among the factors which will shape future employment trends in this group are the rate of economic growth in the Pacific Northwest, the initiative and resourcefulness of management, and future state and federal regulation of these institutions.

Commercial Banks

Commercial banks perform checking account services for individuals, firms and governmental agencies, a service which is indispensable to the functioning of a modern capitalistic economy. It is estimated that in excess of 90 per cent of business transactions are paid by checking account, and approximately 80 per cent of the money supply of the United States consists of checking account balances.

In addition to checking account services, commercial banks compete with other financial institutions for the savings of individuals and firms and, in competition with these financial institutions, allocate these funds among individuals, agriculture and business firms to meet the financing needs of the economy. Commercial banks further serve the economy by providing financial advice to individuals and firms and by providing the business community with credit information, data processing services, a variety of international trade services, various bank trust services and business and economic data. Although commercial banking accounts for only one per cent of total employment in Washington, its contribution to the economy is quite significant.

Deposit Growth: In recent years, the economy of the state of Washington has grown at a somewhat slower rate than the economy of the United States. During the period from 1948 through 1963, personal income in the United States increased 123 per cent while Washington personal income rose 110 per cent. In view of this slower growth rate of personal income in Washington, it

is not surprising that during the period 1948-62 total deposits of commercial banks in Washington increased at a slower rate than total deposits of commercial banks for the entire United States. As shown in Table 5-1, total deposits of Washington commercial banks grew at a substantially slower rate than the commercial banking system as a whole, but total deposits grew slightly more rapidly than total deposits for the three northwestern states shown.

Table 5-1

PER CENT OF INCREASE IN TOTAL DEPOSITS IN COMMERCIAL BANKS, 1948-62

Area	All Commercial Banks	National Banks	State Chartered Banks
Washington	69%	70%	60%
United States	90	81	102
Northwest (Washington, Oregon, Idaho)	67	63	93

SOURCES: United States Treasury, 100th Annual Report, 1962 Comptroller of the Currency (Washington, D. C.: U.S. Government Printing Office), pp. 319, 347; Board of Governors of the Federal Reserve System, All-Bank Statistics, United States, 1896-1955 (Washington, D. C.: U. S. Government Printing Office, 1959), pp. 40, 44, 300, 304, 850, 854, 1062, 1066.

National banks play a more prominent role in the economy of Washington and in the three northwestern states than in the entire United States. In the entire commercial banking system, national banks held approximately 54 per cent of the total deposits in 1960 while the comparable market shares for Washington and for northwest national banks were 88 per cent and 86 per cent respectively. As shown in Table 5-1, total deposits of state-chartered commercial banks in Washington grew at a slower rate during the 1948-62 period than total deposits of national banks in Washington, while total deposits in state-chartered commercial banks in the three northwestern states and for the entire United States grew at a more rapid rate than national banks. Since 1960, however, total deposits of state banks in Washington have been increasing at a more rapid rate than national banks, and by 1963 the market share of national banks in Washington had dropped to 86 per cent.

Total deposits of Washington commercial banks have grown at a substantially slower rate than total deposits in commercial banks for the nation as a whole. This is partially explained by the slower rate of increase in personal income for the state of Washington during these years. As shown in Table 5-1, state-chartered commercial banks in Washington have, until recent years, grown at a much slower pace than national banks in Washington and state chartered banks in the northwest or the nation. An additional area for study in the Washington banking system is the less rapid rate of growth of time deposits in the commercial banking system of Washington.

Time deposits in Washington commercial banks grew at a much slower pace during the 15-year period studied than the rate of growth in time deposits in the commercial banks of the other northwest states or the nation as a whole (Table 5-2). This slower rate of growth was true for both national banks and state-chartered banks in the state of Washington. It is interesting to note that the national banks in Washington increased their demand deposits at almost the

Table 5-2

COMPARISON OF THE RELATIVE RATE OF INCREASE OF DEMAND DEPOSITS AND TIME DEPOSITS, 1948-62

	Washington	United States	Oregon	Idaho
Total Deposits				
All commercial banks	69%	90%	62%	77%
National banks	70	81	54	64
State banks	60	102	133	118
Demand Deposits				
All commercial banks	47	60	23	40
National banks	49	50	17	29
State banks	34	71	75	76
Time Deposits				
All commercial banks	122	176	150	203
National banks	124	177	138	184
State banks	108	174	258	267

SOURCES: United States Treasury, 100th Annual Report, 1962 Comptroller of the Currency (Washington, D.C.: U.S. Government Printing Office), pp. 319, 347; Board of Governors of the Federal Reserve System, All-Bank Statistics, United States, 1896-1955 (Washington, D.C.; U.S. Government Printing Office, 1959), pp. 40, 44, 300, 304, 850, 854, 1062, 1066.

same rate as the average for all national banks in the United States; but, because of their much slower growth in time deposits, total deposits of national banks in Washington grew at a substantially lower rate than the average for all national banks. National banks in Washington increased their demand deposits at a substantially greater rate than the national banks in Oregon and Idaho.

The slower rate of increase in commercial bank time deposits in Washington is reflected in the relative importance of various savings media within the state. As shown in Table 5-3, the commercial banks in Washington are relatively less important as savings institutions than commercial banks in Oregon, Idaho or the United States as a whole.

If commercial banks in Washington are to prosper and to continue to serve the credit needs of the community, they will need to win a larger share of the increase in personal savings than they did during the 1950's. Demand deposit velocity has risen during the postwar period as individuals and firms have reduced their working balances and invested the funds thus released. Demand deposits have thus become more stable, but they are growing at a slower rate than the economy. In contrast, over the past decade, deposit-type savings have increased 150 per cent while gross national product has increased 60 per cent.[1] Clearly, this trend has important implications for the future deposit growth of Washington commercial banks.

[1] E. Sherman Adams, "Implications of the Big Trend in Banking," (New York: First National City Bank, 1963), p. 8.

Table 5-3

PERCENTAGE DISTRIBUTION OF SAVINGS IN SELECTED MEDIA
1963

	Washington	Oregon	Idaho	United States
Savings associations	45	36	42	36
Savings banks	14	3	--	17
Commercial banks	36	56[a]	54[a]	44
Credit unions	5	5	4	3

[a]Oregon and Idaho commercial banks data are for June 30, 1963. Other data are for December 31, 1963.

SOURCES: Savings and Loan Fact Book (Chicago: U. S. Savings and Loan League), 1964, p. 14 and 1965, p. 15; United States Treasury, 101st Annual Report 1963 Comptroller of the Currency (Washington, D. C.: U. S. Government Printing Office), pp. 32, 282; Washington State Department of General Administration, Division of Banking, Fifty-Seventh Annual Report of the Supervisor of Banking, 1963 (Olympia: State Printing Office), p. 8.

The commercial banking system in Washington has had a slower growth since 1948, as measured by deposits, than the national average. What have been the employment effects of this growth, and what might we expect in the future?

Employment: Banking employment in Washington has increased less rapidly than the national average and less rapidly than the average increase for the Pacific Northwest states, as measured by County Business Pattern (CBP) data. Based upon CBP data, Washington banking employment increased approximately 58 per cent during the period 1948-62 while banking employment in the northwest states increased approximately 76 per cent during the same period. Banking employment in the northwest states increased somewhat more rapidly than banking employment in Washington in spite of the fact that total deposits increased more rapidly in Washington than in the three northwest states as a group (Table 5-1). This difference is probably explained by differences in population density in Washington, Oregon and Idaho.

The increases in banking employment in Washington, however, have been steady and have made a substantial contribution to the Washington economy. Employment in the banking sector, including mutual savings banks, increased from a 1948 average employment of 6,465 to a 1963 average employment of 11,255 as reported by the Washington Employment Security Administration. (Employment Security Administration data are not directly comparable with County Business Pattern data.) This increase of 74 per cent was a steady year-to-year increase; and, in spite of the fact that the period included four business recessions, banking employment recorded an increase each year.

What factors influence growth in employment in commercial banking, and what will be their effect in the future? A 1960 study concludes that employment growth in commercial banks is largely the net result of changes in four measures of banking "output"; namely, consumer credit, "all other loans,"

investments and trust functions.[2] These factors are, in turn, influenced by many factors including bank automation, competition among bank and non-bank financial intermediaries, changes in federal and state regulations governing financial institutions and new and expanded bank services.

Consumer Credit: No measure of banking "output" better illustrates the vagaries of projecting future developments in banking than consumer credit. Each of the factors listed previously--automation, competition, regulation and services--play an important role in determining future "output" of consumer loans and the amount of labor inputs required to achieve this output.

It has been said that commercial banks are becoming less "commercial" and more "retail" every year. As banks become more retail and less commercial, problems as diverse as public relations and cost accounting press for solutions. Is retail banking worth the additional effort needed to make it succeed?

Sherman Adams reports on a study of 193 banks, each with 20 per cent to 40 per cent of their total deposits in savings deposits.[3] As savings accounts reach this percentage range of total deposits, banks must learn how to operate profitably as part savings institutions. Of the 193 banks studied, 94 banks were rated "high profitability," and 99 banks were rated "low profitability." The interest rate paid on deposits was identical between the two groups, and their proportionate holdings of mortgages were similar. The two main differences between the two groups of banks were that the "high profitability" banks had a higher average loan ratio, and the ratio of personal installment loans was more than 50 per cent higher than for the "low profit" banks. Retail banking would appear to be a necessity for most commercial banks as they become more dependent upon savings accounts.

Banks compete directly with sales finance companies, consumer finance companies and credit unions for consumer loans and compete at the margin with savings and loan associations and mutual savings banks for certain types of consumer loans. These firms specialize in retail, as compared with commercial, operations and frequently enjoy a tax or other cost advantage.

Commercial banks are the leading source of consumer installment credit in the United States. As shown in Table 5-4, commercial banks held approximately 40 per cent of total consumer installment credit in both 1950 and 1962 while sales finance companies held approximately 25 per cent. During the period 1950-62, credit unions replaced consumer finance companies as the third most important institutional source of consumer installment credit. As shown in Table 5-5, commercial banks are particularly important as suppliers of credit for purchasing of automobiles and for the repair and modernization of homes; however, they are important suppliers of consumer installment credit to all four categories examined.

Savings and loan associations and mutual savings banks presently are restricted from lending for many consumer uses such as the purchase of a new

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[2] Sidney M. Robbins and Nestor E. Terleckyj, Money Metropolis: A Locational Study of Financial Activities in the New York Region (Cambridge: Harvard University Press, 1960), p. 82.

[3] Adams, op. cit., pp. 13-14.

Table 5-4

PROPORTION OF TOTAL CONSUMER INSTALLMENT CREDIT HELD
BY MAJOR TYPES OF LENDERS
DECEMBER 31, 1950 AND DECEMBER 31, 1962

Type of Lender	Amount Outstanding (millions of dollars) 12-31-50	12-31-62	% Held 12-31-50	12-31-62
Commercial banks	5,798	19,005	39.4	39.6
Sales finance companies	3,711	12,194	25.2	25.4
Credit unions	590	4,902	4.0	10.2
Consumer finance companies	1,286	4,131	8.7	8.6
Other financial institutions[a]	420	1,550	2.9	3.2
Total financial institutions	11,805	41,782	80.2	87.0
Retail outlets	2,898	6,252	19.8	13.0
All lenders	14,703	48,034	100.0	100.0

[a]Includes industrial loan companies, mutual savings banks, savings and loan associations, and other lending institutions holding consumer installment loans.

SOURCE: Federal Reserve Bulletin, various issues, quoted in Paul W. McCracken, James C. T. Mao, Cedric V. Fricke, Consumer Instalment Credit and Public Policy (Ann Arbor, Michigan: Bureau of Business Research, The University of Michigan, 1965), p. 8.

automobile. If these two institutions continue their present rate of deposit growth and commercial banks and life insurance companies continue to compete vigorously with them for mortgages, savings and loan associations and mutual savings banks may seek broader lending powers in order to increase their yields. While this would require regulatory changes, it appears well within the realm of possibility. Savings and loan associations and mutual savings banks concentrate their efforts on lending to individuals rather than firms and probably would make the transition to consumer installment lending without great difficulty.

As one views the actual and potential competition in consumer credit, the most optimistic factor from the standpoint of the lending institutions is the potential size of the market. Installment credit is increasing as a per cent of disposable personal income while non-installment credit remains stable. New household formation will be very large in the years just ahead, and new families will be heavily dependent upon installment credit for several years.[4]

Bank automation has been a significant factor in recent years in speeding the process of record keeping within the bank and in reducing the need for

[4]For an interesting analysis of future growth prospects of consumer installment buying, see Paul McCracken, James C. T. Mao and Cedric V. Fricke, Consumer Instalment Credit and Public Policy (Ann Arbor, Michigan: Bureau of Business Research, 1965), Chapter IX.

Table 5-5

PROPORTION OF EACH CLASS OF CONSUMER INSTALLMENT CREDIT HELD BY MAJOR TYPES OF LENDERS, DECEMBER 31, 1962

(per cent)

Type of Lender	Automobile Paper	Other Consumer Goods Paper	Repair and Modernization Loans	Personal Loans
Commercial banks	49.3	21.9	68.0	33.7
Sales finance companies	38.1	24.3	5.2	11.4
Consumer finance companies, credit unions, and other financial institutions	10.8	6.0	26.8	54.9
Retailers	1.8	47.8	a	a
All lenders	100.0	100.0	100.0	100.0
Total outstanding (In millions of dollars)	19,384	12,855	3,290	12,714

[a]Magnitude insignificant.

SOURCE: Federal Reserve Bulletin, various issues, quoted in Paul W. McCracken, James C. T. Mao, Cedric V. Fricke, Consumer Instalment Credit and Public Policy (Ann Arbor, Michigan: Bureau of Business Research, The University of Michigan, 1965), p. 10.

additional clerical help. One of the most significant developments, however, is the fact that banks are using their computers to expand services, thus increasing bank profitability while reducing the unemployment effects of the computers. BankAmericard presents a good case study in the application of computers and new customer services applied to consumer lending.

Bank of America launched BankAmericard in 1959 as a consumer credit card.[5] The credit records for the 1.2 million cardholders are maintained on computers for recordkeeping, routine credit checks and billing. In 1961, Bank of America added the "cash advance" feature which allows any cardholder to go to any Bank of America branch and borrow $350 without loan applications or additional credit checks. Under normal procedures, banks rarely break even on personal loans of less than $350; but under the credit card system, the smaller personal loans become profitable.

Consumer lending is a high-cost but profitable area of bank operations. It involves personal contact and low average loan size; thus, an expanding consumer loan volume will be reflected in increased employment. Employment may be further stimulated by bank policies designed to service the total banking requirements of borrowers. At present, this includes checking and

[5]"The charge-it plan that really took off," Business Week, February 27, 1965, pp. 58-63.

savings accounts, mortgage lending and trust services, but additional banking services to the consumer are a probability. This is "retail" banking.

Retail banking will probably be one of the most competitive areas of future bank operations. Regulatory changes will need to occur before much of this competition materializes, but it is probably a question of "when" the changes occur, not "if". No other financial institution, however, can offer to the consumer the full range of financial services of a commercial bank, and this will probably remain as their biggest competitive advantage in retail banking.

"All Other Loans": The original and historic purpose of banks was to finance commerce; hence, we have the name, commercial banks. As shown in Table 5-6, commercial and industrial loans are the largest category in the loan portfolio of Washington banks, followed by real estate loans. The loans in this "all other loans" classification can be characterized as generally being much larger in dollar value per loan than the classification "personal loans" and, therefore, requiring less labor inputs per given volume of loans.

Table 5-6

PERCENTAGE COMPOSITION OF LOAN PORTFOLIO, WASHINGTON BANKS, 1963

	National Banks	State Banks
Real estate loans	26	32
Loans to financial institutions	8	--
Loans for securities	1	1
Loans to farms	6	8
Commercial and industrial	36	36
Personal	21	23
Other loans	2	--
	100	100

SOURCES: United States Treasury, 101st Annual Report 1963, Comptroller of the Currency (Washington, D. C.: U. S. Government Printing Office), p. 287; and State of Washington, Fifty-Seventh Annual Report, Year of 1963, Supervisor of Banking (Olympia: State Printing Plant), p. 11.

There is intense intermedia competition for real estate mortgages between commercial banks, mutual savings banks, savings and loan associations and life insurance companies. Partially because of the resulting lower yields, it is doubtful that commercial banks, as a group, presently desire to increase their share of the real estate mortgage market above present percentages. The opportunity of furnishing other bank services to the mortgagor, however, may motivate the commercial bank to pursue an aggressive mortgage policy in spite of low yields. These ancillary sources of revenue from the mortgagor are not available to any of the banks' competitors in the real estate loan market.

As mentioned previously, this intense competition for mortgages may lead to some important changes. Mutual savings banks and savings and loan associations have experienced a very rapid growth in funds available for

lending. If the mortgage market cannot absorb these funds plus the mortgage funds from life insurance companies and commercial banks at yields in excess of their cost, mutual savings banks and savings and loan associations may seek broad consumer lending authority.

Many commercial banks, in a move to strengthen their mortgage departments more rapidly, have purchased mortgage companies. The intense competition for mortgages may force many of the smaller mortgage companies either to merge into large mortgage companies or to merge with a commercial bank, resulting in a few large mortgage companies dominating the industry.

Banks do not face nearly as intensive competition in commercial and industrial loans as in real estate loans. Banks compete with various business credit institutions for commercial loans in the shorter maturities and with life insurance companies and SBIC's for certain term loans. A few banks have entered factoring of accounts receivable and thus compete with factors and, to some extent, regular accounts receivable financing. A few banks have entered equipment leasing and thus compete with term lenders as well as equipment leasing companies. In addition, large firms may go directly to the money markets to secure short-term and long-term funds. The most intensive competition for commercial and industrial loans, however, is between commercial banks rather than between a bank and a non-banking financial intermediary.

Fiduciary Activities: The services of a commercial bank trust department are varied and include personal trusts (living trusts, testamentary trusts, guardian accounts and funds of incompetents), estates, personal agencies, custody and safekeeping accounts, pension and profit-sharing trusts, investment advisory and management accounts, corporate trusts and agencies, unfunded insurance trusts and funded insurance trusts. Corporate trusts and agencies include transfer agents, registrars, and trusteeships under indentures. Trust departments are an important business service of "full service" commercial banks.

Personal trusts and personal agencies are the most important area in the trust departments of Pacific Northwest banks as they are in all areas outside New York City. Corporate trusts and agencies are more important in New York money market banks. As an indication of their importance, personal trust departments in 1958 and 1959 ranked fourth in terms of total assets among financial institutions following commercial banks, life insurance companies and savings and loan associations.[6] Trust departments, however, present many data problems; consequently, the data must be treated with care.

Personal trust assets have been rising rapidly in recent years, both nationally and in the state of Washington. In 1958, the American Bankers Association conducted their first annual survey of personal trust accounts in banks and trust companies in the United States. The trust assets of personal trust accounts totaled an estimated $49.7 billion in 1958; and, at the end of 1963, trust assets of personal trusts amounted to an estimated $82.2 billion. It is estimated that $12.3 billion of the 1958-63 gain resulted from rising stock

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[6] The American Bankers Association, The Commercial Banking Industry (Englewood Cliffs, N. J.: Prentice Hall, 1962), p. 302.

prices while the remaining $20.2 billion came mainly in new business.[7] No data for Washington are available, but indications are that trust departments in the state experienced a comparable growth.

Personal trusts should continue their rapid growth in Washington. Increasing population is a factor in the growth of personal trusts; but, additionally, a growing awareness of the trust device by lawyers appears to play a significant role in the growth of personal trusts in Washington.

Corporate trusts and agencies are a growing area of trust department activity in Washington as firms grow and stock registering and transferring become more burdensome for these firms. This area of trust department activity is not particularly profitable, however, and is mainly a service the bank performs to cement corporate-bank relations. It remains a small part of the total trust department activity.

Another growing and important trust department activity is employee-benefit plans, pension funds and profit-sharing plans. Nationally, these activities accounted for $6.1 billion of trust department assets in 1950 and by 1963 they accounted for $43 billion of trust department assets.[8] No data are available for Washington.

Trust departments in Washington must compete vigorously with insurance companies for employee-benefit plans, pension funds and profit-sharing plans. In addition, when a firm becomes large enough that it must turn to New York banks for financing, it usually transfers its trust business to the New York bank.

Trust departments will probably continue to grow and contribute a growing share of total bank profits. Trust department employment has been growing despite the introduction of computers for bookkeeping and other routine tasks. A steady, though not spectacular, increase in employment in trust departments can be anticipated in the future.

Bank Automation and Bank Services: "In the next 10 years, automation advances promise to be the single most significant factor in the changing complexion of banking."[9] Mr. Reistad, Director of Automation and Marketing Research for the ABA, notes that banking ranks fourth and insurance companies sixth among all industries in estimated data transmission investment and states that by 1975 it is possible that banking may be the single largest user of machine-to-machine communications. The major impact of this potential development will be the extension of customer service.

As banks install computers, they seek to utilize more fully the excess capacity of the machine during the time when internal operations are being changed from mechanical to electronic methods. Hence, customer services are added, larger machines purchased and additional services added. Among

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[7] "Scope of Trusts is Unknown," Business Week, March 20, 1965, p. 140.

[8] Ibid.

[9] Dale L. Reistad, "Banking Automation--1975," Banking, July, 1964, p. 45.

the services presently offered by various banks in the United States are customer payrolls, account reconciliation, accounts receivable for department stores, accounts payable, correspondent bank demand deposit accounting, savings accounting, mortgage installment loan accounting, mutual fund accounting, insurance premium processing, small business accounting, freight plans, income and disbursement analysis, portfolio analysis, security analysis and market research studies. [10]

Machine-to-machine communication applications are receiving considerable attention in banking. Banks are installing data transmission devices to provide machine-to-machine communications within and between bank offices, between correspondent banks, between banks and holding companies and between banks and their foreign offices. Machine-to-machine communications may be in present use between banks and major corporate customers, and several banks are soliciting computer business from doctors, lawyers and small businesses that are based on transmission of input data direct from the office or place of business. [11] Among the possible future applications suggested by Mr. Reistad are nationwide bank credit cards, bill-paying through a call to your bank's computer and nationwide marketing research statistics.

It has been said that banks are potentially the greatest service mechanism in our economy. This broadening of services has probably been the key factor in the steadily increasing employment in banking in spite of the extensive automation of bookkeeping tasks. If banks continue aggressively to expand banking services, employment in banking should continue to expand despite the rapid pace of technological change forecast for banking.

Commercial banks in Washington have been slower to develop the potential of the computer in servicing the needs of their customers than have the larger banks in the East and Middle West. This is not due to a lack of awareness of the potential of the computer, however; and commercial banks in Washington can be expected to aggressively develop the market for computer services in the years ahead.

Mutual Savings Banks

Mutual savings banks are specialized financial institutions organized primarily to encourage thrift. In addition to providing regular savings accounts, savings banks offer special purpose accounts, such as Christmas, vacation and school savings accounts. Lending by savings banks is primarily consumer lending with heavy emphasis on home loans. However, savings banks also lend to consumers for home improvements and home furnishings and make commercial property loans.

Savings banks have broader investment powers than savings and loan associations but more limited investment authority than commercial banks. Savings banks can invest in high-grade corporate securities, U. S. government obligations and state and municipal obligations. In general, they maintain

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[10] William J. Kenny, "The Role of Data Transmission in a Customer Services Program," Banking, July, 1964, p. 41.

[11] Reistad, op. cit., p. 46.

substantially greater liquidity than savings and loan associations, thus sacrificing some additional yield.

Savings banks operate in only 18 states, and their strength is concentrated in the northeastern United States; therefore, comparison of national data for savings banks with competing savings institutions is deceptive. This is best demonstrated by reference to Table 5-3. As shown, nationally, savings banks hold approximately 20 per cent of the savings type deposits. However, savings banks do not operate in 32 states while all of the competing savings institutions shown in the table operate in all 50 states. In some northeastern states, savings banks hold over 50 per cent of all savings type deposits. Comparison of the share of savings deposits in Washington with national totals, therefore, is not meaningful; however, it is meaningful to compare share of savings deposits between Washington financial institutions.

As shown in Table 5-7, savings deposits in commercial banks and in mutual savings banks have grown more slowly than savings shares in savings and loan associations. These comparative rates of growth are examined by time period in Table 5-8, and it will be noted that commercial bank time deposits grew at approximately the same rate during the period 1958-63 as mutual savings bank time deposits. Savings share in savings associations grew at a more rapid rate during all three time periods studied than either of their two principal rivals.

Table 5-7

COMPARISON OF SAVINGS IN SELECTED MEDIA IN THE STATE OF WASHINGTON FOR SELECTED TIME PERIODS

	1952-53	1961-62
Savings associations	30%	46%
Savings banks	20	15
Commercial banks	46	35
Credit unions	--	4
Postal savings	4	--
	100%	100%

SOURCES: Savings and Loan Fact Book (Chicago: U. S. Savings and Loan League) 1963, p. 14; 1954, p. 15.

Employment in mutual savings banks appears to be directly related to the growth in time deposits. As shown in Table 5-9, employment in mutual savings banks had grown at approximately one half the rate of growth of time deposits through 1963. This pattern did not continue in 1964, however, and apparently this change reflects the increased utilization of accounting machines. Most mutual savings banks in Washington are small and computer usage is limited; however, as smaller computers are developed and these firms grow, extensive use of computers can be expected. Employment growth in this industry, therefore, appears to depend partially upon the ability of mutual savings banks to expand their services to the public.

Projections of employment in a regulated industry, such as the firms in the finance and insurance sector, must always recognize the effects of

Table 5-8

COMPARATIVE GROWTH OF SAVINGS IN WASHINGTON SAVINGS MEDIA

	Commercial Banks			Mutual Savings Banks			Savings Associations		
Year	Time Deposits (millions)	Index	% Increase for Period	Time Deposits (millions)	Index	% Increase for Period	Savings (millions)	Index	% Increase for Period
1954	616	100	--	277	100	--	550.2	100	--
1958	877	142	42	357	129	29	908.2	165	65
1960	945	153	8	382	138	7	1,132.0	206	25
1963	1,261	205	33	511	184	34	1,623.4	295	43

SOURCE: Savings and Loan Fact Book (Chicago: U. S. Savings and Loan League), various years.

Table 5-9

COMPARISON OF EMPLOYMENT GROWTH AND
DEPOSIT GROWTH IN WASHINGTON MUTUAL SAVINGS BANKS

Year	Employment Index	Time Deposit Index
1958	100	100
1960	103	107
1963	119	143
1964	121	158

SOURCES: State of Washington, Employment Security Department, "Employment and Payrolls in Washington State by County and by Industry," various years. (Mimeographed); and State of Washington, Annual Report, Supervisor of Banking (Olympia: State Printing Plant), various years.

changes in federal and state regulations. This is especially true of the mutual savings bank industry at this time.

Several proposals have been introduced in recent years in Congress to provide for federally chartered mutual savings banks.[12] The proposed legislation would allow mutual savings banks to be chartered in all states and thus could significantly change the national growth pattern of mutual savings banks. Some of the more important provisions of the proposed federal charters are: (1) they would allow the present state mutual savings banks and all savings and loan associations to convert to federally chartered mutual savings banks, (2) branching would be permitted in each state in accordance with that state's most liberal branching provisions among commercial banks, mutual savings banks or savings and loan associations, (3) expanded customer

[12] For example, see U. S. Congress, House, Hearings on H. R. 258, Federal Charter Legislation for Mutual Savings Banks, October 29, 30 and 31, 1963.

lending powers, (4) expanded investment powers and (5) mortgage lending powers similar to savings and loan associations. If legislation similar to the above becomes law, the effect on Washington financial institutions could be substantial.

The most probable immediate effect of the law would be to increase sharply deposits and employment in mutual savings banks at the expense of the savings and loan associations. The proposed federally chartered mutual savings banks would have substantial advantages over present state chartered mutual savings banks and federal or state chartered savings and loan associations; therefore, it must be assumed that many savings and loan associations would apply for federal savings bank charters.

The long-run effect on commercial banks is less predictable but potentially more significant. Deposits of savings institutions are not payable upon demand (although in practice they usually are paid without requiring prior notice); and, thus, savings institutions are not required to maintain the liquidity required of commercial banks. Less demand for liquidity enables savings institutions to lend a greater proportion of their assets and to lend for longer maturities than commercial banks. If the proposed federally chartered mutual savings bank lending and investment powers are competitive with commercial banks in several areas, the resulting competition could be intense.

Some proposals introduced in Congress provide for commercial lending and investment powers for federal mutual savings banks. Savings banks in most European countries have commercial lending powers, and competition is quite intense between commercial banks and savings banks.[13] One result of this competition has been a much greater number of banking offices per unit of population than in the United States.

At the present time, no legislation of this type has been approved in Congress although both the Commission on Money and Credit and the President's Committee on Financial Institutions recommended the establishment of a federally chartered mutual savings bank system. A federal mutual savings bank system with broad lending and investment powers could significantly alter the estimates for all the institutions in the finance sector of this report. However, because of the many uncertainties involved, the projections in this report will assume that any federal mutual savings bank system established will be similar to the present state chartered mutual savings banks and not too disruptive of the competitive balance between existing Washington savings institutions.

Savings and Loan Associations

Savings and loan associations are specialized financial institutions and can be federally chartered or state chartered. Some states permit privately owned, capital stock savings associations, but all federally chartered associations are mutual organizations. The purpose of savings and loan associations, as viewed by themselves, is best expressed in the following quotation:

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[13] "Commercial Banking Trends in Western Europe," Report on Western Europe, (New York: Chase Manhattan Bank, 1965), No. 34.

Why do we have savings and loan associations? The fundamental reason for their existence is to finance the purchase of existing homes and the construction of new homes with the funds accumulated .... The underlying premise of savings and loan operations, as carried out today, is that widespread, economical home ownership is the primary 'raison d'être' of the business. There is reason to believe that legislation sanctioning the modern development of these associations would not have come to pass if their principal objective were to promote thrift.

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Savings and loan associations differ from other deposit-type savings institutions in one very important respect. The other deposit-type institutions have as one of their primary objectives the mobilizing of funds (savings) and the providing of a return to depositors and shareholders. They are thrift institutions first, and they hold themselves to be simply that. The attitudes of such institutions toward diversification in risk assets, liquidity, borrowing from reserve pools of credit, such as the Federal Home Loan Bank System and the Federal Reserve, are a reflection of their concern for depositors and shareholders and for the safety of their investments. In contrast, savings and loan associations, as specialized institutions, hold quite different attitudes toward diversification of risk assets and borrowing from central credit pools. Although they, too, are concerned about the welfare of savers, their concern is prompted by the need to secure funds to support home financing and home ownership in this nation. [14]

The above emphasis on mortgage lending and the geographical restraints imposed upon their mortgage lending have important effects upon savings and loan associations. Some of these effects and their implications for Washington savings and loan associations, will be examined.

One effect of the above emphasis on mortgages, and the geographical restraints, is the tendency of savings and loan assocation growth to be concentrated in those geographical areas of rapid population growth. Thus, as shown in Table 5-10, savings and loan association deposit growth in Florida, California and Arizona was much more rapid than the national average while Indiana, Ohio, and Pennsylvania savings and loans experienced somewhat slower deposit growth than the national average. Population growth, hence mortgage demand, is not the only factor influencing deposit growth of Washington savings and loan associations, but it is a limiting factor.

Another effect of the emphasis on mortgages, and the geographical restraints on lending, is the tendency of savings and loan association growth to be more rapid in urban areas. With few urban areas within the state to be served, and these areas experiencing slow growth in recent years, Washington savings and loan association growth is restricted.

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[14] Leon T. Kendall for the United States Savings and Loan League, The Savings and Loan Business (Englewood Cliffs, N. J.: Prentice Hall for the Commission on Money and Credit, 1962), pp. 1, 2.

Table 5-10

PER CENT INCREASE IN SAVINGS IN SAVINGS AND LOAN ASSOCIATIONS DURING THE PERIOD 1953-63 FOR SELECTED STATES

United States	374
Washington	345
Oregon	363
Idaho	434
Florida	685
California	835
Arizona	1,093
Indiana	259
Ohio	216
Pennsylvania	266

SOURCE: Computed from Savings and Loan Fact Book 1954 (Chicago: U. S. Savings and Loan League), p. 15; and 1964, p. 14.

In addition to these effects, Washington savings and loan associations have the competition of mutual savings banks as well as the competition of commercial banks and life insurance companies. As was shown earlier, personal income in Washington has been growing at a slower rate than personal income nationally, and this adversely affects savings in all media.

In view of the above factors limiting growth, it is somewhat surprising that savings associations in only seven states (Ohio, New Jersey, Nevada, Illinois, Florida, Colorado and California) have greater assets per capita than Washington associations. Washington associations have $607 per capita in assets compared with per capita assets of $398 in Oregon, $383 in Idaho and $565 nationally. [15]

This performance is reflected in Table 5-3 which shows that Washington savings and loan associations are the most important savings media among the deposit type financial institutions, while commercial banks are the leading media in Oregon and Idaho.

Productivity and Employment: Employment in savings and loan associations has increased rapidly, both nationally and in the state of Washington. Table 5-11 examines the national employment and productivity data for savings associations and shows a rapid increase in employment accompanied by a steady decline in the number of employees needed per million dollars of assets. Employees needed to service each 1000 accounts has increased very slowly (the sharp 1963 increase is attributed to special factors). Employment by Washington savings and loan associations has increased rapidly and steadily; and between 1958 and 1964 average employment in savings associations increased 52 per cent.

[15] United States Savings and Loan League, Savings and Loan Fact Book 1964, p. 82.

Table 5-11

PERSONNEL OF SAVINGS AND LOAN ASSOCIATIONS, UNITED STATES

Year End	Number Employed[a] Total	For Every $1 Million of Assets	For Every 1,000 Accounts[b]
1948	18,900	1.44	1.59
1950	23,100	1.37	1.60
1952	27,300	1.21	1.55
1954	35,300	1.12	1.62
1956	43,700	1.02	1.63
1958	51,000	0.93	1.61
1960	61,000	0.85	1.63
1962	73,200	0.78	1.66
1963[c]	80,500	0.75	1.72

[a]Full-time officers and employees, part-time personnel converted to full-time equivalent.

[b]Total savings and mortgage loan accounts.

[c]Preliminary.

SOURCE: Savings and Loan Fact Book 1964 (Chicago: U. S. Savings and Loan League, 1964), p. 108.

There is some disagreement as to whether economies of scale exist in the savings and loan industry. A recent publication reviewed the previous studies on economies of scale in the industry and examined industry operating data using various statistical techniques. It concluded:

> The industry, at least in 1961, did not appear to be subject to very significant internal economies of scale. The operating cost ratios fail to show marked declines as size increases, if very new and, therefore, atypical associations are removed from the sample. This lack of importance of scale economies seems to hold regardless of whether operating efficiency is measured by costs, returns on assets, or profits and regardless of whether or not public holding company affiliates are treated as one institution.[16]

Assuming that significant economies of scale are not present in the industry and assuming that any future federally chartered mutual savings bank system does not significantly change the market positions of the various media, employment in savings and loan associations in Washington should continue to expand with the growth of the mortgage market in the state. Previous studies indicate that the percentage of total spending that is spent on housing is relatively constant in all income levels.[17] Therefore, as per capita income in Washington increases, expenditures on housing should increase, and demand for mortgage funds should increase.

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[16]Les Grebler and Eugene F. Brigham, Savings and Mortgage Markets in California (Pasadena: California Savings and Loan League, 1963), p. 158.

[17]Kendall, op. cit., p. 54.

The post-war baby boom is presently causing a rapid increase in the marriage age population. Net household formation should increase rapidly during the next decade, resulting in substantial apartment demand. As the size of the new families increases and their income increases, demand for single family dwellings will be stimulated. These factors stimulating demand for mortgages should offer savings and loan associations continued opportunity for rapid growth of deposits and, hence, employment.

Other Credit Agencies

Two other important credit agencies which must be recognized are personal credit institutions and business credit institutions. These institutions were not examined in depth; however, it must be noted that personal credit institutions have more employees than savings and loan associations, and their employment is growing more rapidly. Business credit institutions employed fewer employees than savings associations, but their total employment increased at a more rapid rate than savings and loan associations. During the six years, 1958-64, employment in savings and loan associations increased 52 per cent, employment in personal credit institutions increased 78 per cent and employment in business credit institutions increased 57 per cent.

These credit agencies fill a credit need which is not met by other lenders. This credit gap will always exist at the margin; however, the question remaining unanswered is the response of competing financial institutions to this growth. Commercial banks and credit unions may retard the growth of personal finance companies and commercial banks may compete more vigorously with commercial finance companies. This study assumes a continued growth in employment for personal credit institutions and business credit institutions but at a somewhat reduced rate.

Insurance

The contribution of the insurance industry to the economy of Washington is incalculable. It is difficult to imagine a modern business economy having to assume all risks of property damage losses and liability suits. Of what value is a mortgage held by a bank on business or personal property that is destroyed and was uninsured? It quickly becomes an unsecured loan. Without insurance, all loans, either secured or unsecured, would have greater risk, and this greater risk would be reflected in the cost of money.

Business firms without insurance would have to increase profit margins to compensate for the additional risk, and trade credit would be costlier. Optimum business investment decisions would stress rapid capital recovery rather than long-run profitability. Business failures would become more commonplace and employment less secure.

The repercussions on individuals who were denied all insurance would be more severe than the effects upon the business community because few individuals would be able to accumulate the capital to protect against the adverse occurrences of life. These contributions of insurance, however, do not lend themselves to quantification; and, hence, this report must concentrate on the more mundane value of insurance to the Washington economy; namely, its contribution as a financial institution and as an employer.

Insurance Carriers as Financial Institutions

Life insurance firms accumulate reserves because of the level-premium plan used for many types of policies. The level premium plan uses a specified and unchanging premium over the entire life of the policy even though the likelihood of death increases during the life of the policy. For the group of insureds, death claims during the early years are substantially less than the premium income, and this excess income is accumulated in reserves for use in paying later death benefits. These reserves of life insurance companies are invested in the economy, and the returns realized are used to reduce the net cost of insurance.

Reserves on a life insurance policy typically accumulate for many years; but at maturity, the life insurance policy pays a specified amount. Life insurance firms, therefore, typically invest their reserves in long-term, fixed income obligations rather than variable income obligations such as common stock. The main investments of life insurance reserve funds are mortgages, high-grade corporate bonds and government securities.

At the end of 1964, U. S. life insurance companies had assets of $149,470,000,000 which represented an increase of approximately $8.3 billion during 1963. Approximately 45 per cent of these assets were corporate and governmental bonds while approximately 37 per cent of the assets were mortgages on personal and business property. At the end of 1964, U. S. insurance companies had invested in excess of $1.1 billion in mortgages in the state of Washington. No data are available on the volume of business loans to Washington firms by U. S. life insurance companies, but they are an important source of long-term funds to business through term loans (private placements) for maturities greater than commercial banks can commit themselves and mortgages on business property, an especially important source of funds for small businessmen.

Property and casualty insurers do not accumulate reserves as large as life insurers because of the much shorter maturity dates of the policies; however, at the end of 1963, Washington insurers (domestic) and foreign and alien insurers licensed to transact business in Washington had assets in excess of 31 billion dollars. Fire and casualty firms, with shorter maturities and less predictable cash flows, place greater emphasis upon liquidity than life insurers. This need for liquidity causes fire and casualty firms to tend to supply business firms with funds through the organized capital markets rather than by direct negotiation with the firm.

The Insurance Industry as an Employer

In 1963, the insurance industry employed approximately 1.1 million persons. Approximately 700,000 employees were non-sales personnel, with approximately one half of these employed in carrier home offices and one half employed as non-sales personnel in insurance agencies or brokerage offices.

In Washington, the insurance industry employs in excess of 13,000, a number somewhat greater than is employed in banking. Over 9,000 persons are employed in carrier home office operations with the remainder employed as insurance agents and brokers. In general, premium growth by domestic firms stimulates carrier home office employment in Washington while premium growth by foreign firms stimulates carrier home office employment in the

state of domicile. Alien firms are insurers domiciled in a foreign country. However, the large insurers (domestic, foreign and alien) usually establish regional branch offices, therefore, the increase in home office employment may not be in the state of domicile for large insurers. Employment prospects will be analyzed in detail in the following sections.

Life Insurance

Premium Income: The relationship between disposable personal income and life insurance premium income has been relatively stable over time. This is demonstrated in Table 5-12 which shows a very gradual increase in premiums as a percent of DPI. This suggests that income is an important factor but not necessarily the only factor influencing the purchase of life insurance.

Table 5-12

PREMIUMS PAID TO LIFE INSURANCE CARRIERS AS A PER CENT OF DISPOSABLE PERSONAL INCOME 1948-63, UNITED STATES

(1954 dollars)

Year	Premiums as a % of DPI	Year	Premiums as a % of DPI
1948	3.5	1956	3.7
1949	3.6	1957	3.8
1950	3.5	1958	3.9
1951	3.5	1959	3.9
1952	3.5	1960	3.9
1953	3.6	1961	3.9
1954	3.7	1962	3.9
1955	3.8	1963	4.0

SOURCES: Regional Economics Division Staff, "Disposable Personal Income by States in Current and Constant Prices," Survey of Current Business, April, 1965, p. 21; and Life Insurance Fact Book 1965 (New York: Institute of Life Insurance), p. 54.

Robbins and Terleckyj suggest that the other factors may have been offsetting one another and suggest the following as important influences:[18] (1) life and annuity insurance have become important fringe benefits in labor negotiations, (2) increased consumer credit has increased use of credit insurance, (3) life insurance companies have vigorously promoted additional sales, (4) increased use of group policies and term insurance reduce average premium per unit of insurance in force, and (5) increased efficiency has lowered internal costs and decreased premiums per unit of insurance in force.

[18] The information in the two paragraphs on DPI premium income is based upon Robbins and Terleckyj, op. cit., pp. 121-123.

The relationship between life insurance premiums and DPI is further indicated by studies by J. L. Miner which suggest that, except in the very highest and the very lowest income brackets, families tend to invest about the same proportion of their income on insurance at all income levels. Robbins and Terleckyj also found that, in general, the states with the most rapid increase in personal income between 1947 and 1956 also had the largest gains in life insurance premiums with roughly equal proportionate increases in both factors.

Premiums received by life insurance firms in the northwest states are shown in Table 5-13. The premiums received by domestic firms in Washington did not increase as rapidly during the period 1948-63 as foreign and alien life

Table 5-13

COMPARISON OF PREMIUMS RECEIVED FOR SELECTED YEARS
LIFE INSURANCE COMPANIES, NORTHWESTERN STATES

(millions of dollars)

	1948		1954		1960		1963	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index
Washington								
Domestic	7.3	100	9.1	125	12.8	175	14.7	201
Foreign & Alien	63.0	100	93.8	149	139.4	221	165.3	262
Total	70.3	100	102.9	146	152.2	216	180.0	256
Domestic % of total	10.4%		8.8%		8.4%		8.2%	
Oregon								
Domestic	2.8	100	4.2	150	8.1	289	17.5	625
Foreign & Alien	45.5	100	71.3	157	102.0	224	112.7	248
Total	48.2	100	75.5	157	110.1	228	130.2	270
Domestic % of total	5.8%		5.6%		7.4%		13.4%	
	1947		1953				1962	
Idaho								
Domestic	0.1	100	2.6	2,600			5.2	5,200
Foreign & Alien	12.6	100	19.1	152			31.6	251
Total	12.6	100	21.7	172			36.8	292
Domestic % of total	0.8%		12.0%				14.1%	

SOURCE: Compiled from the Insurance Commissioner's annual reports for the states of Idaho, Oregon and Washington, various years.

insurance companies. Premiums received by Oregon and Idaho domestic life insurance firms, on the other hand, increased much more rapidly than foreign and alien life insurers. Total life insurance premiums received by all insurers increased more rapidly in Oregon and Idaho than in Washington. As shown in Table 5-13, Washington life insurance firms receive eight per cent of the life insurance premiums collected within the state while the comparable percentage for Oregon is thirteen per cent and for Idaho fourteen per cent.

Total assets of life insurance firms admitted to the three northwestern states are shown in Table 5-14. In the case of Washington, we see an interesting paradox. In Table 5-13, premiums received by Washington firms were increasing more slowly than foreign and alien firms. In Table 5-14, total assets of Washington firms are increasing much more rapidly than those of foreign and alien firms. Total assets reflect nationwide activity; however, Washington firms may be selling less group life and individual term life insurance than foreign and alien firms. These policies do not accumulate savings; therefore, they do not add to an insurance company's reserves to the extent that ordinary life insurance policies do. Additionally, group insurance, because of strong competition, is not as profitable as ordinary life insurance.

Table 5-14

COMPARISON OF TOTAL ASSETS FOR SELECTED YEARS
LIFE INSURANCE COMPANIES, NORTHWESTERN STATES

(millions of dollars)

	1948		1954		1960		1963	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index
Washington								
Domestic	83.9	100	153.7	173	258.1	290	321.1	361
Foreign & Alien	52,434.0	100	79,458.0	152	111,706.3	213	132,755.0	253
Total	52,522.9	100	79,611.7	152	111,964.4	213	133,076.1	253
Domestic % of total	0.2%		0.2%		0.2%		0.2%	
Oregon								
Domestic	48.7	100	67.4	138	107.7	221	139.2	286
Foreign & Alien	52,096.0	100	78,660.5	151	111,523.9	214	131,605.7	253
Total	52,144.7	100	78,727.9	151	111,631.6	214	131,744.9	253
Domestic % of total	0.1%		0.1%		0.1%		0.1%	
Idaho							1962	
Domestic	0.5	100	8.7	1,740			23.9	4,780
Foreign & Alien	43,254.0	100	87,067.0	201			121,685.0	281
Total	43,254.5	100	87,075.7	201			121,708.9	281
Domestic % of total	a		a				a	

[a]Less than 0.1%.

SOURCE: See Table 5-13.

Oregon life insurers present the opposite results. Assets of Oregon domestic firms did not increase nearly so rapidly as their premium income and did not increase as rapidly as the assets of Washington domestic firms. The growth of Idaho domestic life insurers was quite impressive as measured by either premiums received or total assets.

Employment: Home office employment of life insurance carriers expanded steadily until 1962 when a slight decrease in employment was recorded, both nationally and in the state of Washington. During the period from 1954 to

1962, life insurance home office employment in Washington rose by 32 per cent, then dropped one percentage point during 1963. Home office employment by Washington life insurers resumed its upward trend in 1964, however, and increased by four percentage points.

There has been no recent study on productivity in life insurance, and the difficulty of projecting future employment is illustrated by the following description of the factors involved:

> The trend in the ratio of premiums per worker is the result of various factors. Changes in productivity, in the composition of the companies' business, and in the relative importance of new business versus renewals, have differing effects on employment. It requires more work, for instance, to sell and issue a new policy than to service an old one for a year; yet both generate about the same amount of premiums. Similarly, group business produces more premiums per man day worked than does individual insurance.[19]

It might be noted that prior to estimating premiums per worker you must estimate DPI and premiums.

Robbins and Terleckyj found that premiums per employee (1955 dollars) remained relatively stable between $25,000 - $30,000 from 1930 to 1956. They included the sales force with the home office employment to arrive at their data. Home office tasks lend themselves to computerization, sales does not; therefore, it seems advisable to consider the employee groups separately.

Fire and casualty insurance firms in recent years have been involved in a strongly competitive environment. There is reason to believe that life insurance companies may be entering a like situation. Cost cutting will assume greater importance, and automation will be emphasized. Group life policies should continue to expand, possibly at the expense of ordinary life policies. Home office employment should continue to grow but more slowly than it has in the past unless the life insurance companies develop new products.

The sales force in life insurance has continued to grow despite experiments with new marketing channels. Life insurance is sold by direct mail, by a few commercial banks, mutual savings banks and department stores. The industry maintains that life insurance must be sold, that people do not purchase it without salesmanship. At present, these channels do not appear important.

Of greater importance is the movement toward multi-line selling. Fire and casualty insurers are buying life insurance firms to enable their agents to handle all of the personal insurance needs of their policy holders. Some life insurers have purchased property and casualty insurers. Other life insurers are using agents representing several insurers. Will this trend continue or has it run its course? It would seem that if this trend continues it could slow the growth of the life insurance industry.

New Developments: At present, the industry is sharply divided upon the merits and advisability of variable annuities and mutual fund tie-ins. Many

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[19] Robbins and Terleckyj, op. cit., p. 126.

feel that it is inconsistent with the "guaranteed return" philosophy of life insurance while others feel that it is a logical extension of financial planning by the insurance sales force. There are those in the industry who foresee a future merger between life insurance firms and mutual funds; there are those in the industry who say "Never!" The outcome is in doubt.

The mutual fund industry contains great potential for expansion. The life insurance industry contains the investment expertise and the sales force trained in financial planning. Change will come slowly and variable annuities will probably precede mutual funds in acceptance by the industry. This writer is inclined to believe, however, that mutual funds will gradually be accepted as a legitimate part of program planning by professional life insurance underwriters.

Another promising area for life insurance firms is the tax favored employee annuities for 501-C3 organizations. These organizations are charitable, educational, scientific, literary or religious organizations, and their employees can negotiate a reduction in their cash pay and have the amount paid into an annuity. These payments are not taxable until retirement and frequently the organization will match the employee payment. The tax favored employee annuity lends itself to group plans and could prove popular with large school systems.

Fire and Casualty Insurance

Premiums: Since World War II, the rising volume of premiums in non-automobile lines has tended to remain a fairly constant percentage of gross national product; in automobile lines, premiums have slowly increased as a per cent of gross national product. (See Table 5-15) This steady growth has been reflected in steadily rising levels of employment in the industry.

Premiums received by domestic and foreign insurers for the three Pacific Northwest states are shown in Table 5-16. In Washington, premium income for domestic insurers is growing more rapidly than foreign and alien firms; however, in both Idaho and Oregon, foreign and alien insurers are increasing their share of the market.

Total assets for foreign and alien and domestic firms are shown in Table 5-17. Total assets reflect the nationwide activity of the firms and, again, domestic insurers in Washington are increasing their assets more rapidly than the foreign and alien firms.

Employment: Employment by fire, marine and casualty insurers in Washington has increased 60 per cent in the ten-year period, 1954-64, which included a six per cent increase in 1964. This strong growth is particularly impressive in view of the steady application of computers and other data processing equipment to home office tasks. Among large insurers, it is doubtful that future computer applications will be labor saving; but among smaller insurers, new smaller computers may reduce their manpower requirements.

Fire, marine and casualty firms furnish considerable service to the policyholder other than through the agent. The most numerous of these employees are claims adjusters, especially in automobile insurance; however, inspectors and accident prevention specialists are used extensively in the

Table 5-15

PREMIUMS[a] IN MAJOR PROPERTY INSURANCE LINES AS A PERCENTAGE OF GROSS NATIONAL PRODUCT, SELECTED YEARS, 1947-63, UNITED STATES

(current dollars)

Year	Automobile[b]	Fire and Related Lines[c]	Other Property[d]
1947	0.7	0.8	0.8
1951	0.9	0.8	0.8
1954	1.1	0.8	0.9
1956	1.0	0.8	0.9
1960	1.2	0.7	0.9
1963	1.3	0.7	0.9

[a]These are "net premiums written" for each company; this means direct writing plus premiums received for reinsurance minus premiums paid to other companies for reinsurance. When the data reported by individual companies are aggregated for the country as a whole, they are equal to direct writings.

[b]Includes liability to others for physical damage and for bodily injury as well as coverage for physical damage to one's own car.

[c]Includes fire, extended coverage, allied lines, earthquake, glass, burglary and theft, boiler and machinery, and homeowners' policies.

[d]Includes accident (individual), accident and health (individual and group), hospital and medical, and non-cancellable workmen's compensation policies; ocean and inland marine policies; and hail (growing crop), liability other than auto, aircraft physical damage, fidelity, surety, credit, livestock and miscellaneous policies.

SOURCES: Spectator Fire Index; Spectator Handy Chart; Spectator Property; Liability Insurance Index; Spectator Yearbook. Premiums are for stock, mutual and reciprocal companies; computed in current dollars.

Table 5-16

COMPARISON OF PREMIUMS RECEIVED FOR SELECTED YEARS
FIRE, MARINE AND CASUALTY

(millions of dollars)

	1948		1954		1960		1963	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index
Washington								
Domestic	11.5	100	34.0	296	55.8	485	63.2	550
Foreign & alien	43.5	100	96.9	223	157.1	361	173.0	398
Total	55.0	100	130.9	238	212.9	387	236.2	429
Domestic % of total	20.9%		26.0%		26.2%		26.8%	
Oregon								
Domestic	10.4	100	13.9	134	24.1	232	33.7	324
Foreign & alien	68.8	100	129.4	188	220.2	320	235.2	342
Total	79.2	100	143.3	181	244.3	308	268.9	340
Domestic % of total	13.1%		9.7%		9.9%		12.5%	
Idaho	1947		1953				1962	
Domestic	2.0	100	4.1	205			6.2	310
Foreign & alien	11.9	100	26.5	223			45.0	378
Total	13.9	100	30.6	220			51.2	368
Domestic % of total	14.4%		13.4%				12.1%	

SOURCE: See Table 5-13.

Table 5-17

COMPARISON OF TOTAL ASSETS FOR SELECTED YEARS
FIRE, MARINE AND CASUALTY COMPANIES
NORTHWESTERN STATES

(millions of dollars)

	1948		1954		1960		1963	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index
Washington								
Domestic	128.9	100	284.4	221	452.5	351	546.9	424
Foreign & alien	8,771.1	100	16,175.9	184	27,292.6	311	30,525.0	348
Total	8,900.0	100	16,460.3	185	27,745.1	312	31,071.9	349
Domestic % of total	1.4%		1.7%		1.6%		1.8%	
Oregon								
Domestic	23.9	100	18.0	75	22.0	92	33.1	138
Foreign & alien	8,250.1	100	16,362.6	198	27,907.8	338	34,257.2	415
Total	8,274.0	100	16,380.6	198	27,929.8	338	34,290.3	414
Domestic % of total	0.3%		0.1%		0.1%		0.1%	
Idaho							1962	
Domestic	3.1	100	12.6	406			12.5	403
Foreign & alien	3,526.0	100	15,621.3	443			27,532.8	781
Total	3,529.1	100	15,633.9	443			27,545.3	781
Domestic % of total	0.1%		0.1%				a	

[a]Less than 0.1%.

SOURCE: See Table 5-13.

commercial lines of insurance. The present competitive environment prevailing in property and casualty insurance should insure the continued growth of employees involved in customer services.

The number of insurance agents and brokers should continue to grow. There is no indication as yet that automation can be applied to any great extent to the field force. New marketing channels for distributing insurance are being tested, and the results are largely unknown. Department stores and oil companies are utilizing their credit card system for insurance sales, and this would appear to have promise. These channels, however, would be restricted to personal insurance. Most of these policyholders do not have the needed knowledge of insurance coverages and, therefore, may feel compelled to utilize traditional insurance marketing channels.

Accident and Health Insurance

The accident and health insurance industry in Washington is relatively a small industry in terms of employees. In view of its record of growth,

however, it cannot be overlooked as one attempts to view the next two decades. If the increase in employment in the industry continued for the next 20 years at the rate prevailing in the last ten years, accident and health insurers would employ in excess of 10,000 employees in 1985. In 1964, all insurance carriers in Washington employed somewhat less than 10,000 employees.

Premiums received by accident and health insurers have increased rapidly. Table 5-18 compares domestic and foreign and alien insurers for Washington and Oregon. Using 1948 as the base, premiums of domestic insurers have increased much more rapidly than foreign and alien firms; however, using 1954 as a base, premiums of domestic insurers have grown more slowly than foreign and alien firms. In 1963, almost 44 per cent of the health and accident premium volume was received by firms domiciled in Washington.

As shown in Table 5-19, foreign and alien life insurers are a much more important factor in the accident and health insurance market than domestic life insurers. Domestic health care contractors account for a

Table 5-18

COMPARISON OF PREMIUMS RECEIVED FOR SELECTED YEARS
ACCIDENT AND HEALTH INSURANCE

(millions of dollars)

	1948		1954		1960		1963	
	Amount	Index	Amount	Index	Amount	Index	Amount	Index
Washington								
Domestic	2.1	100	27.5	1,310	53.8	2,562	67.4	3,210
				100		196		245
Foreign & alien	9.2	100	31.8	346	65.6	713	87.4	950
				100		206		275
Total	11.3	100	59.3	525	119.4	1,057	154.8	1,370
				100		201		261
Domestic % of total	18.6%		46.4%		45.1%		43.5%	
Oregon								
Domestic	11.2	100	15.3	137	36.9	329	44.0	393
Foreign & alien	8.4	100	25.2	300	46.6	555	55.1	656
Total	19.6	100	40.5	207	83.5	426	99.1	506
Domestic % of total	57.1%		37.8%		44.2%		44.4%	

SOURCE: See Table 5-13.

substantial amount of the remaining premium volume.

Employment increased 356 per cent during the period from 1954 to 1962 to an average employment of 770 in 1962. During the following two years, however, average employment decreased in 1963, then increased in 1964 to an average of 791 employees. It will be assumed that recent growth trends reflect the achievement of economies of scale by health care contractors and that future employment increases will be at a somewhat slower pace.

Table 5-19

DIRECT PREMIUMS RECEIVED FOR DISABILITY INSURANCE BY ALL AUTHORIZED COMPANIES, SOCIETIES AND HEALTH CARE CONTRACTS, 1963, STATE OF WASHINGTON

	Domestic	Foreign & Alien	Total
Life companies	4.4	71.8	76.3
Property and casualty	2.0	9.6	11.6
Fraternal benefit societies	---	0.2	0.2
Health care contractors	61.0	4.4	65.4

SOURCE: Insurance Commissioner's Seventieth Annual Report, pp. 120-121.

Real Estate

Employment in the real estate sector has grown very slowly and erratically since 1948 to an average employment of approximately 9,800 in 1963. As shown in Table 5-20, employment in real estate increased in excess of 25 per cent between 1948 and 1955 then declined steadily through 1958 to a level almost equal to 1948 employment. Employment has fluctuated up and down since 1959 and in 1963 was 16 per cent greater than 1948.

Table 5-20

AVERAGE EMPLOYMENT IN REAL ESTATE, 1948-63, WASHINGTON

Year	Average Employment	Year	Average Employment
1948	8,479	1956	9,671
1949	8,327	1957	9,159
1950	8,721	1958	8,669
1951	8,388	1959	9,677
1952	8,446	1960	8,921
1953	8,424	1961	8,990
1954	9,516	1962	10,011
1955	10,627	1963	9,816

SOURCE: State of Washington, Employment Security Department, "Employment and Payrolls in Washington State by County and by Industry," various years. (Mimeographed.)

The main components of the real estate sector are real estate operators and lessors; agents, brokers and managers; subdividers and developers; and operative builders. Real estate operators and lessors, comprising almost one half of the employment in the real estate sector, declined steadily until 1960 and then increased slowly during the period 1960-63. Employment in the category "agents, brokers and managers" has increased approximately 50 per cent in the last ten years while employment by operative builders has increased by about 12 per cent since 1958. Employment by subdividers and developers increased approximately 50 per cent between 1958 and 1963.

Due to the high birth rates immediately after World War II, new household formation will increase rapidly in the latter part of the 1960's. Apartment units and then single family units will be stimulated. Employment in real estate should continue a slow growth, although some categories may continue to decline.

Projections

Finance

Nationally, and in the state of Washington, commercial bank demand deposit velocity has increased as firms and individuals invest surplus funds in interest earning assets. Total demand deposits decreased in Washington from 1962 to 1963 as the economy continued its upward climb while the ratio of total demand deposits to Washington personal income has declined steadily since 1948. The projection of demand deposits in Washington commercial banks, shown in Table 5-21, assumes that the increase in velocity of demand

Table 5-21

PROJECTED DEMAND DEPOSITS IN WASHINGTON COMMERCIAL BANKS, 1965-85

Year	Washington Personal Income (millions of 1960 dollars)	Demand Deposits Washington Commercial Banks (millions of 1960 dollars)
1965	$ 7,817	$ 1,798
1970	9,052	1,991
1975	10,721	2,359
1980	12,695	2,793
1985	14,954	3,290

deposits will continue at a reduced rate during the middle 1960's and will cease to increase by 1970 as demand deposits are reduced to necessary working balances. It is further assumed that an equilibrium will be achieved when demand deposits approximate 22 per cent of Washington personal income.

Deposit type savings (commercial bank savings deposits, mutual savings bank deposits, savings and loan shares and credit union shares) have shown consistent growth as a per cent of Washington personal income, and this growth has been particularly rapid in the early 1960's. It is assumed that deposit type savings will continue to grow rapidly but at a decreasing rate as individuals' desire for additional liquidity declines and additional resources are committed to developing more adequate insurance programs. Corporate security markets, particularly mutual funds, should benefit from the declining rate of increase in deposit type savings. These assumptions are incorporated in the projections shown in Table 5-22.

Employment in the finance sector of the Washington economy has had a very strong growth trend. During the ten-year period from 1954 to 1963,

average employment in finance increased 61 per cent. Based upon the previous examination of the individual financial institutions and the growth assumptions in earlier chapters, this projection assumes a continuing strong growth trend for the finance sector.

Table 5-22

PROJECTED DEPOSIT TYPE SAVINGS IN WASHINGTON FINANCIAL INSTITUTIONS
1965-85

Year	Washington P. I. (millions of 1960 dollars)	Deposit Type Savings Washington Financial Institutions (millions of 1960 dollars)
1965	$ 7,817	$ 4,221
1970	9,052	6,155
1975	10,721	8,577
1980	12,695	11,426
1985	14,954	14,954

Table 5-23

PROJECTED TOTAL EMPLOYMENT IN FINANCE, 1965-85

Year	Employment
1965	18.800
1970	23,500
1975	29,375
1980	36,700
1985	45,875

Insurance

Nationally, and in the state of Washington, life insurance premiums have slowly increased as a per cent of personal income. Health and accident insurance premiums have increased even more rapidly as a per cent of personal income. It was assumed earlier that the rate of growth in savings type deposits will slowly decrease as individuals' desire for liquidity is satisfied and additional savings are invested in life insurance and health and accident insurance programs. Fire, marine and casualty premiums increased rapidly during the 1950's as a per cent of personal income but have remained a fairly constant relationship to personal income during the 1960's. The increasing insurance premiums in auto insurance have been offset by the slower growth of premiums among the other insurance coverages. These trends are reflected in the projections in Table 5-24, but no attempt will be made to allocate premiums between domestic and foreign and alien insurers.

Table 5-24

PREMIUM INCOME FROM WASHINGTON OPERATIONS
SELECTED CATEGORIES, ALL INSURERS, 1965-85

(millions of 1960 dollars)

Year	Life	Accident & Health	Fire, Marine & Casualty	Total
1965	195	109	242	546
1970	253	163	281	697
1975	332	236	332	900
1980	432	330	394	1,156
1985	553	449	464	1,466

Employment in the insurance industry increased 46 per cent during the ten-year period 1954-63. Assuming the growth posited in Table 5-24 and assuming that Washington insurers can maintain their past competitive performance, employment in insurance should continue a strong although somewhat slower growth. These assumptions are incorporated in the projections shown in Table 5-25.

Table 5-25

PROJECTED TOTAL EMPLOYMENT IN INSURANCE, 1965-85

Year	Employment
1965	14,000
1970	16,520
1975	19,500
1980	23,010
1985	27,150

Real Estate

Growth in employment in the real estate sector has been very erratic. This projection includes SIC 66 (combinations of real estate, insurance, loans, law offices) with real estate, and this classification has shown a steady decline during the past ten years. However, as discussed previously in this chapter, employment in certain sectors in real estate has increased rapidly, and it will be assumed that the increase in net household formation will stimulate total employment in real estate. Table 5-26 shows projected employment in real estate by 5-year intervals to 1985.

In summary, the finance, insurance, and real estate sector of the Washington economy should continue to make a substantial and stable contribution to total employment. General business conditions, quality of management, and future federal and state regulation will largely determine the future growth and vitality of this sector. Automation will increase in importance as firms

Table 5-26

PROJECTED TOTAL EMPLOYMENT IN REAL ESTATE, 1965-85

Year	Employment
1965	10,000
1970	10,500
1975	11,025
1980	11,575
1985	12,150

struggle to remain competitive and service the needs of the community. Automation, to the extent that it promotes strong and competitive industries and is used by progressive management, will upgrade the quality of employment and stimulate total employment.

Chapter 6

TRANSPORTATION

Introduction

This chapter is concerned primarily with the future growth prospects of for-hire transportation and transportation employment in the state of Washington. This involves some consideration of the entire national for-hire transportation system, however, as well as consideration of competitive or substitute private freight and passenger transport, including automobile traffic.

In general, the level of an area's transportation activity is closely related to the size of its population and the level of its economic development or Gross National Product. Further, of course, freight transportation is related to the existing pattern of interregional and intra-regional product exchange, and passenger transportation to cultural interrelationships and the average level of affluence and leisure. Transportation employment, in turn, is dependent both upon the level of transport activity and upon the users' choices between alternative competing transport modes. Finally, users' choices are related to the state of transport technology and to the users' needs or convenience.

With equal validity, it can also be said that a region's level and type of economic activity is related to its type of transportation system and interregional transport connections. Transportation is a catalyst for economic development. No region can develop beyond the limits set by its transport.

This does not necessarily mean, of course, that a region will always develop up to the capacity permitted by its available transportation, or that more efficient transportation in itself will necessarily bring a higher level of economic development. Rather, transportation is a permissive and a limiting factor in economic growth. That is, a given level of transport efficiency allows, but does not force, other factors to reach a maximum efficient level of performance. Beyond this, further growth requires more efficient transport. Research which may have the ultimate effect of improving transportation, therefore, may contribute to economic growth.

The recent past performance of the various modes of transport (rail, water, motor, pipeline, air) and their affiliated services is the starting point of this chapter. This involves the collection, sorting, re-arrangement, and interpretation of a considerable quantity of descriptive and historical statistical data, much of which already has been published in some form (usually widely scattered) but some of which is obtainable only from more basic and less complete (and perhaps less reliable) sources. This condensed and systematic presentation of past behavior and trends may have some merit in itself, but its principal purpose here is to provide a basis for viewing future patterns and relationships.

Section two, entitled General Transportation Employment Patterns and Trends, presents an historical picture and some analysis of recent employment and employment trends among the various transport modes in the nation and in the state of Washington. Section three considers in some detail recent freight trends by rail, water, truck, oil pipeline, and air carriage, as well as intermodal carriage and affiliated services. Major emphasis is given to the more important forms for Washington freight transport and transport employment,

that is, to rail, water, and truck carriage. Section four discusses recent intercity and local passenger traffic, for-hire and private.

Section five presents our estimates of freight and passenger traffic growth, in the nation and in Washington, by mode of carriage and in total, during the next twenty years. The output definitions, assumptions and projection methods used are described in this concluding section. Other analysts working with the same data, of course, might make different predictions. Disagreement with our conclusions concerning the future, however, should not prejudice the remainder, and by far the larger portion, of the study. This study has at least brought the horses to the starting gate and named the handicaps. Opinions may differ concerning the race's outcome.

In summary, this chapter does at least six things, as follows:

(1) It brings together within one relatively short presentation a considerable amount of statistical data, most previously published but some not, about the recent past and contemporary performance of all modes of transport, with emphasis upon the state of Washington;

(2) It provides some interpretive comment on these data;

(3) It predicts future freight and passenger traffic trends in the United States and in Washington;

(4) It predicts future transport employment in Washington;

(5) It presents forecasting techniques and assumptions which, if proven valid by future developments, may be of use in future analyses;

(6) It establishes an up-to-date statistical reference point from which possible future similar studies can start.

Finally, it should be pointed out that one conducting a study of this kind always is in the paradoxical situation of having both too much and too little data. That is, he can select only a few pertinent items for emphasis from among many available pieces of information, while he also is restricted by the lack of many other equally pertinent items. But an analyst can at least console himself with the thought that no one can ever know everything about anything. If knowledge were perfect, research and researchers would be unnecessary.

General Transportation Employment Patterns and Trends

National

Most forms of modern commercial transportation are very capital intensive.[1] In round figures, net capital investment in this country's oil pipeline industry amounts to at least $175,000 per employee. Comparable

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[1] Based upon computations made from data in Transportation Facts and Trends (Transportation Association of America, 1965), supplemented by data published by several industry and governmental sources.

figures for other modes are: railroads, $40,000; airlines, $32,000; inland water carriers, $11,000; and classes I and II common and contract trucking firms, $3,500. Investment in local transit facilities (rail, trolley, and bus, publicly and privately owned) amounts to $32,000 per employee, while each intercity bus employee is backed by a net investment of $8,500.

In contrast, the 1963 median assets per employee was $16,751 for the nation's 500 largest industrial firms.[2] The petroleum refining industry had the highest 1963 median, with $73,739 per employee. Other industries included: chemicals, $27,473; lumber and wood products, $18,878; motor vehicles and parts, $15,078; textiles, $10,932; and aircraft and parts, $8,881.

Further, as modern transportation facilities are expanded or are improved in quality, relatively less manpower is used in proportion to capital resources and to output. Actually, improvement or expanded capacity may mean less total manpower use.[3]

For example, during the decade of the 1950's, net capital investment in oil pipelines almost doubled, while employment declined by almost one fourth. During the same period, railroad investment increased by around ten per cent, while employment decreased by more than one third, and airline investment increased approximately 500 per cent with only a doubling of employment. In inland water carriage, employment remained fairly stable during the 1950's, despite an investment increase of one third. Trucking investment increased a little more than 40 per cent, with a slightly less than proportionate employment increase. Intercity and rural bus employment declined more than 25 per cent during the decade, while investment was increasing by almost 10 per cent. Local transit investment remained about the same, but employment declined by around one third.

Table 6-1 shows the distribution of transportation employment among the various modes, and how this employment changed from 1955 to 1964. Although not shown on this table, it should be noted that almost 90 per cent of the total employment decrease pictured here occurred between 1955 and 1960.

It seems clear that we should not expect any spectacular increases in employment in the transportation industry itself as a result of even large additional investments in the present modes. Whereas an investment of only a few hundreds of dollars provided employment for a Nineteenth Century waggoner or a 1920's truck driver, today's $6 million jet aircraft or $2 million freight train may be operated with crews of six or less, while a typical large over-the-road trucking rig, operated by one man, may represent an investment of $40,000.

As shown in Table 6-1, total national employment in transportation service decreased from 2,656,000 to 2,389,000 between 1955 and 1964--a decrease of approximately ten per cent. Stated in another way, this represents a change from a little more than 4.2 per cent of the 1955 total employed civilian labor force to slightly less than 3.4 per cent of 1964 employment.

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[2] The Fortune Directory, 1964.

[3] See note 1.

Table 6-1

TRANSPORTATION EMPLOYMENT BY MODE IN THE UNITED STATES, 1955 AND 1964

(thousands)

Mode	1955	1964
Railroad	1,205	760
Trucking & Warehousing	765	948
Water	237	227
Oil Pipe Line	27	40
Air	128	194
Bus, Intercity & Rural	43	43
Local Transport	127	86
Taxi	124	111
Total	2,656	2,389

SOURCE: Transportation Association of America, Transportation Facts and Trends, 1965.

Another study indicates that from 1953 to 1963 transportation employment as a percentage of services employment declined from more than 9.4 to approximately 6.7 per cent.[4]

Such figures, of course, must be viewed in the context of private versus for-hire transportation. For example, a manufacturer shipping his product by common or contract carriage ten years ago was contributing to employment in the "transportation industry." If today, however, he ships by his own private truck fleet "transportation employment" may be decreased while "manufacturing employment" is correspondingly increased. Or a farmer formerly shipping his produce by for-hire carriage may now sell directly to an itinerant "buy-and-sell" trucker operating under the guise of an independent merchant.

Estimates on the amount of tonnage diverted from for-hire to private truck or water carriage vary, but there is general agreement that the shift has been large and is increasing. This, of course, does not account for all of the decrease in transportation employment; in fact, it would be difficult to establish that it has caused any total decrease. But at least it clearly has kept for-hire transportation tonnage from growing as rapidly as it otherwise would and thus has affected employment trends.

Transportation employees as a group are relatively well paid. Average annual earnings in the industry as a whole, excluding fringe benefits, was $6,530 in 1963, as compared to $5,337 in finance, insurance, and real estate;

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[4] Victor R. Fuchs, "Some Implications of the Growing Importance of the Service Industries," The Task of Economics, Forty-Fifth Annual Report, (National Bureau of Economic Research, Inc., June, 1965).

$5,911 in manufacturing; and $6,376 in communications and public utilities.[5] Comparable figures for 1955 were respectively $4,697, $3,968, $4,351, and $4,426.

Pipeline transportation employees were best paid during 1963, with annual average earnings of $7,850. Next came water transport with $7,812, followed by common carrier air transport with $7,760, and railroads with $6,762. Trucking and warehousing employees earned an average of $6,642, intercity bus employees $6,485, and local railways and bus lines $5,454. Note that average earnings in all these transportation categories except local passenger transportation exceeded average earnings in communications and public utilities and manufacturing, while even local transport average earnings were higher than the average for finance, insurance, and real estate.

Various factors may affect earnings' levels in different categories of employment. Certainly the conditions of employment and the required level of skills and responsibilities must be included among these factors. Transportation service, especially the line-haul portion, is a continuing function. Generally, it does not close down for weekends or between 5:00 P.M. and 8:00 A.M. Line-haul employees often work odd hours and spend considerable time away from home. A high degree of skill and a high level of responsibility often is required. Many human lives and millions of dollars worth of equipment and cargo may depend upon an operative's split-second decision or reaction. Even clerical, sales, and lower level administrative personnel in transportation usually are required to have considerable specialized knowledge beyond that generally expected of their counterparts in many other occupations. Finally, most phases of transportation employment are highly unionized, and unions have a strong bargaining position due to the public's reluctance or inability to endure protracted service discontinuance. It is likely that transportation employees will continue to be relatively well paid in comparison to employees in many other occupations.

Washington

Table 6-2 and Figure 6-1 illustrate transportation employment patterns and trends in the state of Washington.

Railroad data upon which these illustrations are based were furnished by the Association of American Railroads and the Washington Railroad Association. These data are compiled for the March payroll period during alternate years from special reports made by individual class I line-haul railroads and switching and terminal companies. Data for 1964 were not available for this study, but information from the Washington Railroad Association indicates that the state's rail employees decreased by only 27 between March, 1963, and March, 1965. Class I railroads in the country as a whole reported that their average annual employment declined by approximately 2.2 per cent from 1963 to 1964; that is, by about 15,000 employees.[6]

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[5] Transportation Facts and Trends, 1965. Other sources, perhaps using somewhat different classifications, report slightly different figures for some categories. More recent industry reports indicate some increases in transportation average earnings.

[6] Association of American Railroads, Yearbook of Railroad Facts, 1965.

Table 6-2

WASHINGTON AVERAGE TRANSPORT EMPLOYMENT, BY MAJOR CATEGORIES, SELECTED YEARS, 1953-64

	1953	1959	1963	1964
Trucking:	9,309	12,414	12,324	12,099
Water, ocean:				
Foreign	1,316	615	628	660
Domestic	1,600	1,037	1,228	1,184
Total ocean water	2,916	1,652	1,856	1,844
Water, other:	2,652	1,905	2,001	2,267
Total all water	5,568	3,557	3,857	4,111
Air:				
Certificated	3,094	3,661	4,001	4,033
Other	192	273	208	291
Total air	3,286	3,934	4,209	4,324
Local transit & intercity bus:				
Taxicab	2,176	1,448	1,414	1,400
Other local transit	(NC)	979	808	800
Intercity bus	(NC)	765	713	712
Total L-T & intercity bus	4,375	3,192	2,935	2,912
Oil pipelines:	(NA)	(NA)	(NA)	28
Allied services:				
Freight forwarding	(NC)	329	399	454
Trucking services	(NC)	1,195	1,044	1,043
Water services	(NC)	4,071	4,093	4,224
Miscellaneous services	(NC)	712	790	801
Total services	9,049[a]	6,307[a]	6,326[a]	6,522
Total non-rail transport & services:	31,587	29,404	29,651	29,996
Railroad:	20,784	14,378	12,350	(NA)
TOTAL ALL TRANSPORT & SERVICES	52,371	43,782	42,001	(NA)

(NC) Not comparable.
(NA) Not available.

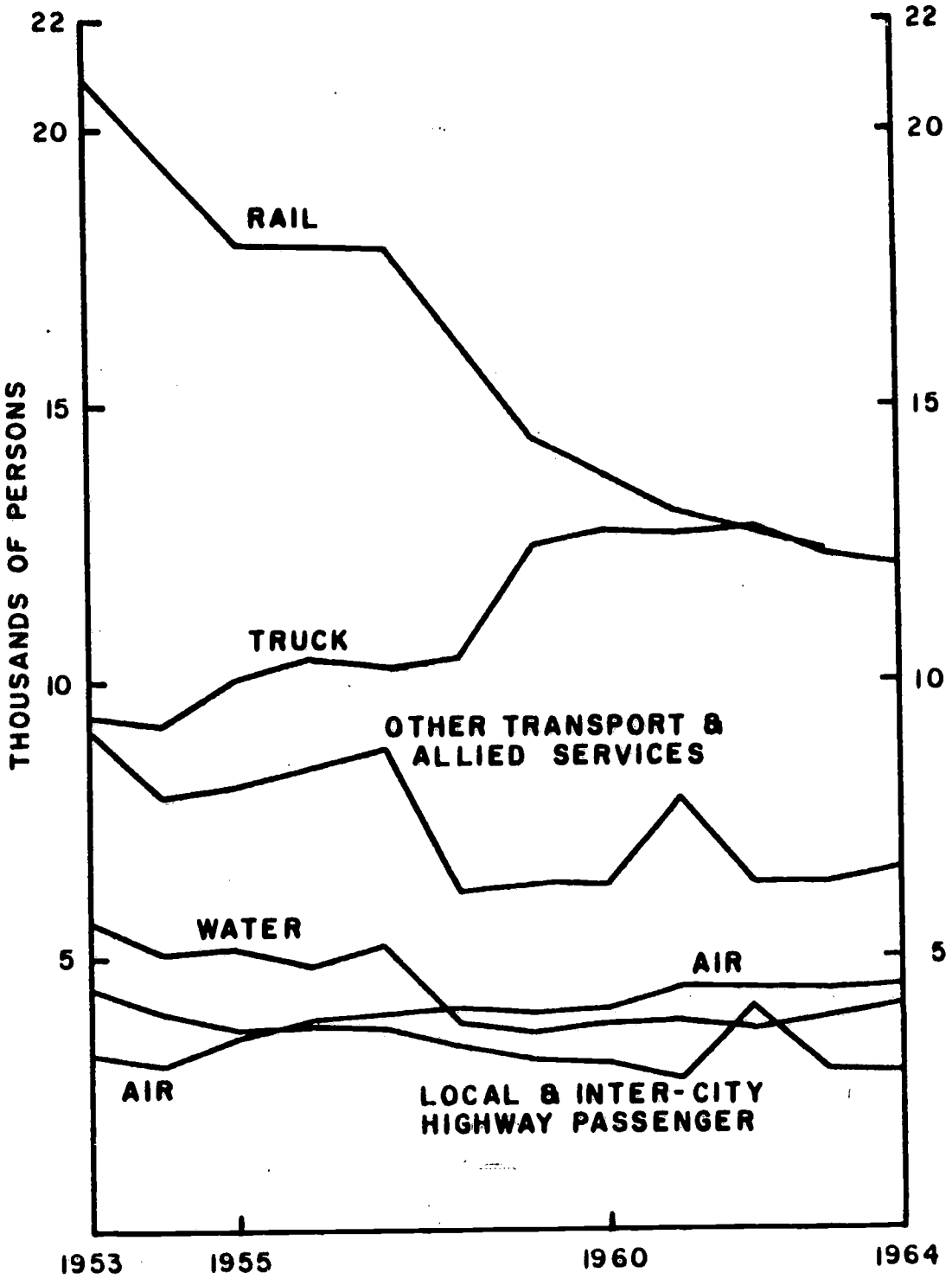
[a]Includes oil pipelines.

SOURCE: Computed from data furnished by the Association of American Railroads (or by the Washington Railroad Association--same data) for railroad employment, and from State of Washington Employment Security data for other employment. Text, page 195, shows how computations made.

Non-rail employment figures used are quarterly averages for the third quarter of each year, as computed from State of Washington Employment Security data. The use of other quarters or of annual averages no doubt would have slightly altered the specific figures, but this refinement appeared unnecessary for purposes of this study of patterns and trends. Some classification changes occurred in Employment Security data during the period studied. We believe, however, that these changes have been taken fully into account and that most if not all of the figures shown in Table 6-2 and those upon which

FIG. 6-1

WASHINGTON STATE AVERAGE TRANSPORT EMPLOYMENT
BY MAJOR CATEGORIES, 1953 TO 1964



Source: Table 6-2

Figure 6-1 is based, are consistent over the entire period; at worst, inconsistencies are few and insignificant.

Most of the categories shown in Table 6-2 and Figure 6-1 are self-explanatory or are readily identifiable from Employment Security classifications. Some, however, are combined or presented under different labels. "Other" air transport includes non-certificated carriers and fixed facilities and services related to air transport. "Other Local Transit" includes local and suburban passenger transportation, passenger transportation charter service, and terminal and service facilities for motor vehicle passenger transport.

"Trucking Services" is made up of public warehousing and terminal and maintenance facilities for motor freight transportation. Finally, "miscellaneous services" consists of arrangement of transportation, stockyards, rental of railroad cars, and miscellaneous services incidental to transport. Lack of specific employment figures due to the disclosure rule and lack of comparability due to classification changes made it necessary that some categories for some years be grouped into more comprehensive totals. Also, convenience led to further grouping in Figure 6-1.

In 1964, Washington contained a little less than 1.56 per cent of the nation's population.[7] A comparison of the totals shown on Table 6-1 and 6-2, however, indicates that Washington's transportation employment during 1964 was almost 1.76 per cent of total United States transportation employment. Or, from another viewpoint, transportation accounted for a little less than 3.4 per cent of total 1964 U. S. employment (see above), and for a little more than 3.6 per cent of non-agricultural employment. In Washington, however, during 1964, transportation apparently accounted for more than 3.9 per cent of total employment and for more than 4.2 per cent of non-agricultural employment.[8]

Although the reported figures upon which the above computations are based may not be completely comparable, and the percentages are small, these comparisons do strongly suggest that transportation employment is of somewhat greater importance as a proportion of both total employment and non-agricultural employment in Washington than in the country as a whole.

Washington and national trends of transportation employment differed somewhat by mode from 1955 to 1964. Total Washington transport employment apparently decreased by more than 12.8 per cent during this period, while the U. S. total declined by about ten per cent. In the country as a whole, however, rail employment declined almost 37 per cent as compared to approximately 32.5 per cent in Washington. On the other hand, U. S. non-rail transport employment increased by almost 12.3 per cent, while Washington non-rail employment in 1964 was approximately the same as in 1955. Trucking and air transport employment increased substantially both in Washington and the nation, while employment in other modes remained relatively stable or declined.

Table 6-2 indicates that rail and trucking employment each currently accounts for a little less than 29 per cent of Washington's transportation employment. Air carriage accounts for a little more than ten per cent, water carriage for a little less than ten per cent, and all other transportation and allied services for a little more than 22 per cent.

Comparison with Table 6-1 reveals that trucking is of considerably greater relative importance in the national than in the Washington transportation picture (this is true even by including Washington public warehousing with

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[7] Computed from U. S. Census Bureau estimates.

[8] Computations based upon U. S. nonagricultural and Washington total and nonagricultural employment as reported by Wallace I. Little, "Long-Range Economic Optimism for Washington," University of Washington Business Review, April-June, 1965.

trucking employment for greater comparability with Table 6-1--this only increases the relative share of Washington trucking by about two per cent). Likewise, rail's relative national percentage ranking is slightly higher than that of Washington. Washington ranks considerably higher relatively in the amount of its transportation employment attributable to air carriage and to other forms of transportation services, however, while water carriage ranking is about the same. (It should be noted that the national and Washington employment classifications may differ slightly, but in our opinion this has no significant effects on the comparative rankings indicated.)

Figure 6-1 dramatically pictures Washington's transportation employment changes from 1953 to 1964. While total employment decreased around 19 per cent, rail employment decreased by 40 per cent (U. S. class I rail employment decreased by 45 per cent during the same time). Local and intercity highway passenger employment decreased by 33 per cent, other transport and allied services decreased by 28 per cent, and water transport by 26 per cent. On the other hand, air carriage employment increased by 32 per cent and trucking employment by 30 per cent.

Inspection of Figure 6-1 also reveals, however, that the big declines and the big increases tended to occur during the earlier and middle portions of the time period covered. During the most recent years of this period total employment, as well as employment in each of the six pictured categories, seems to have stabilized.

Based upon extensions of 1963 third quarter earnings as revealed by Washington Employment Security data, it appears that annual 1963 average earnings in the state's water transport employment were around $8,620, in air transport about $9,080, and in intercity bus transport approximately $7,035. These earnings all are substantially higher than the 1963 national average earnings in these modes as estimated by the Transportation Association of America (see above). The Association of American Railroads estimates Washington average earnings in rail transport as equivalent to the national average, ($6,762 in 1963, according to the Transportation Association of America).

Washington average earnings apparently were below the 1963 national average, however, in trucking and warehousing ($6,508), local bus and railroad passenger transport ($4,500), and in pipeline employment ($7,230 for 1964).

Calculations based upon data from the above sources indicate that the average annual wage for all forms of Washington transportation and allied services, including railroads, was approximately $7,000 in 1963, or some $470 higher than the above mentioned national average. It should be noted, of course, that these calculations do not purport to be exact, but rather are intended to show reasonably good approximate comparisons. But even when allowances are made for methodological crudeness, and perhaps some differences in employment classifications, it seems apparent that Washington transportation employees as a group, and in several--but not all--important individual categories are paid more than the national average for similar types of work.

Summary

Present-day American transportation is very capital intensive. Thus, large additional capital investments for expansion or improvement may lead to relatively small, if any, increases in employment. Actually, transportation employment in the nation and in the state of Washington has declined rather consistently, relatively and absolutely, for well over a decade, while investment has increased substantially. This decrease, apparently due both to improved technology and to traffic diversion to private carriage, has been led by declining railroad employment. On the other hand, a partial offset has come from increased trucking and air carriage employment. The rate of overall decline seems to have diminished during the past three or four years, however, both in Washington and the nation.

It appears that total transportation employment is relatively more important in Washington than in the nation as a whole, although this is not true for all modes and particularly not for trucking. Washington and national transport employment trends have differed during the past decade or more. Notably, rail employment in the state has decreased less sharply than in the nation as a whole, while national non-rail employment has increased more than non-rail employment in Washington.

Transportation employees as a group are relatively well paid in comparison to other principal classifications of employment. Further, it appears that they are better paid in Washington than in the country as a whole, although this is not true for all modes.

Freight Traffic Patterns and Trends

General Trends

The nation's estimated 1963 freight bill, including expenditures for both for-hire and private carriage, was a little less than $52 billion, or approximately 8.9 per cent of Gross National Product.[9] Freight transportation costs as a percentage of GNP have not changed substantially for a good many years, varying from slightly below to slightly above nine per cent.

GNP expenditures, however, are made up of expenditures for services as well as for goods. Freight expenditures, therefore, if considered only as a percentage of goods produced, are considerably higher than nine per cent. Rough calculations indicate that freight transportation costs generally average around 15 per cent of goods produced in the nation as a whole.[10]

The total national intercity freight ton mileage (one ton moved for one mile, a commonly used measure) in 1964 was a little more than 1.5 trillion. A comparison of trends during the past twenty years shows that ton mileage increases have corresponded with increases in GNP and population although at different rates of increase. Ton mileage fluctuates both upward and

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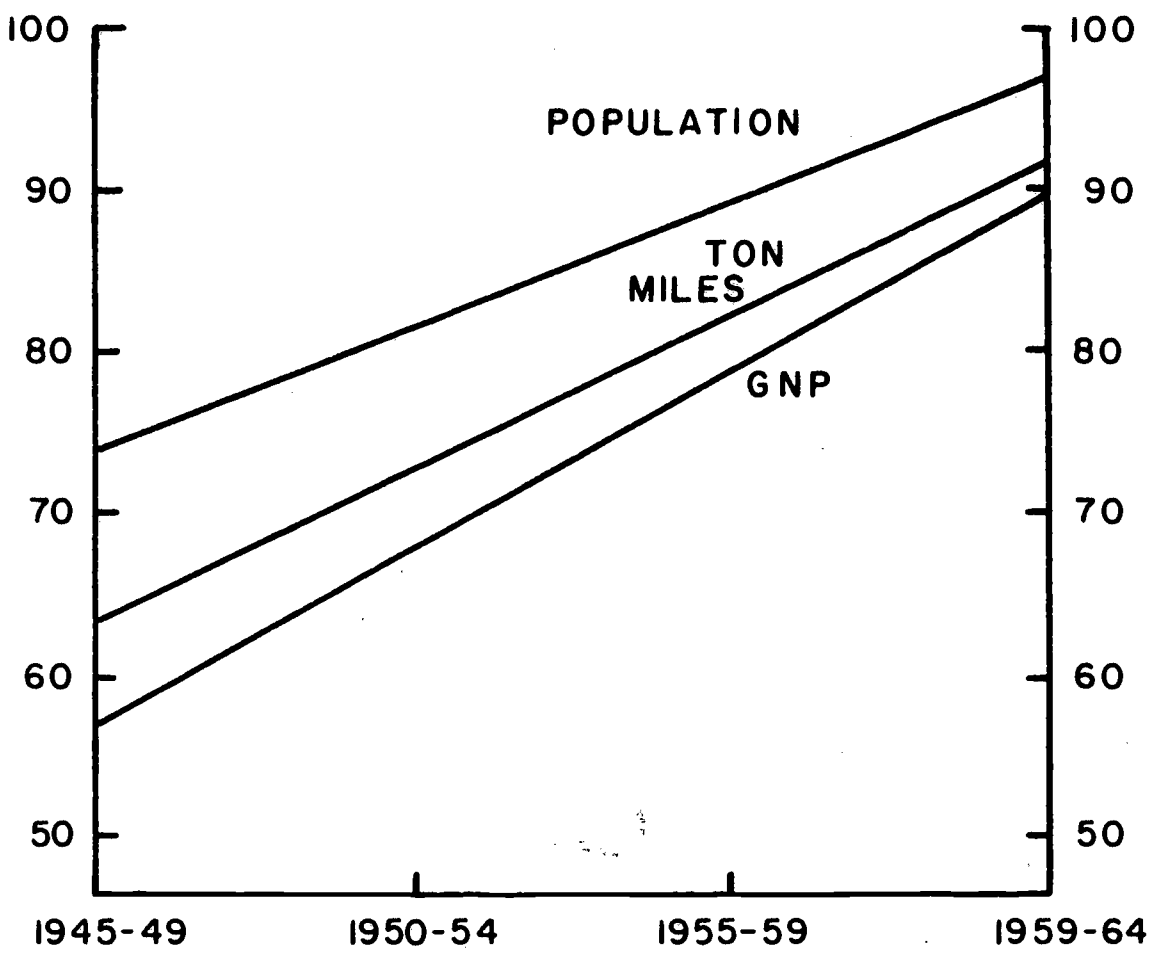
[9] Transportation Facts and Trends, 1965.

[10] Based upon analysis of GNP components.

downward from year to year in a much sharper fashion than does GNP. If fluctuations are smoothed out over five-year periods from 1945 to 1964, though, it can be seen that ton mileage has been increasing at a slower rate than GNP but at a slightly higher rate than population. In comparing GNP and population trends with ton mileage, population appears to be a better indicator and predictor of ton mileage trends than does GNP (see Figure 6-2).

FIG. 6-2

U.S. INTERCITY FREIGHT TON MILEAGE, POPULATION, AND GNP PERCENTAGE INCREASES, BASED UPON 5-YEAR AVERAGES, 1945 TO 1964 (1964=100)



Source: Calculated from data presented in Transportation Association of America, Transportation Facts and Trends, 1965.

If ton mileage growth rates for the next twenty years are similar to those of the past twenty, based upon the 1945-49 five-year average and the 1959-64 period, ton mileage moved in 1985 will be approximately 34 per cent higher than in 1964. If other five-year base periods are compared with the 1959-64 period, 1985 increases over 1964 range from 31 to 36 per cent.

A 34 per cent increase between 1964 and 1985, resulting in an intercity ton mileage figure of approximately 2.09 trillion in the latter year, appears conservative and reasonable and will be assumed for purposes of this study.[11] The U. S. Census Bureau estimates a population increase of around 38 per cent (to 265.5 million) during this same period. Also, the 2.09 trillion estimate for 1985 is in the neighborhood of the "low" estimate of 1.85 trillion for 1980 presented in a recent study.[12]

Table 6-3 shows both how freight ton mileage has increased and how its carriage has been redistributed between the various modes of transport during recent years. The great percentage decrease in rail ton mileage, and the corresponding increase of other modes, especially trucks, is most notable. It should also be noted, however, that despite their percentage decrease, railroads actually moved more ton mileage in 1964 than in 1948, and that both relatively and absolutely their ton mileage traffic share has been moving upward since 1961. The available statistics indicate that traffic shares are becoming somewhat stabilized between rail and non-rail modes.

Railroad Freight Traffic

An Overall Picture: Railroads, all regulated common carriers, are by far our most important mode of carriage in terms of ton mileage moved, and there is no indication that this will be changed within the foreseeable future. The present railroad plant consists of a little less than 220,000 route miles (or 380,000 track miles), 1.8 million freight cars (not all railroad owned, however), 29,000 locomotives, and other transportation properties, all of which represent a net investment of more than $30 billion. No other mode or combination of modes could conceivably handle the large ton mileage volume of freight now handled by railroads in the present stage of transport technology--to say nothing of anticipated volume increases.

Currently, the average freight car moves about 38 tons of freight for a distance of 470 miles (or 250 miles per individual carrier) at a speed of a little more than 20 miles per hour between origin and destination, and at a charge of approximately 1.3 cents per ton mile. By any measure, this is efficient land transportation. A double track railroad with Centralized Traffic Control, for example, can move at least 70 per cent more freight ton mileage during a given period than can be moved by truck on a four-lane two-way superhighway devoted exclusively to truck use, and the railroad's fuel cost will be only one-fourth and its operating manpower use one-twentieth that of the truck movement.[13]

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[11] See Table 6-27.

[12] Hans H. Landsberg, Leonard L. Fischman, and Joseph L. Fisher, Resources in America's Future, Resources for the Future, Inc., (Baltimore: The Johns Hopkins Press, 1963), p. 141. The 1980 "medium" estimate of these authors was 2.64 and the "high" estimate was 3.81 trillion ton miles.

[13] Computations, based upon data in Chapter 7 of William W. Hay, An Introduction To Transportation Engineering (New York: John Wiley & Sons, Inc., 1961).

Table 6-3

TOTAL U. S. FREIGHT TON MILEAGE, AND ITS PERCENTAGE DISTRIBUTION AMONG VARIOUS MODES OF CARRIAGE SELECTED YEARS, 1948 TO 1964

	1948	1952	1956	1960	1964
Ton mileage (billions)	1,045	1,145	1,356	1,328	1,557
Percentage distribution	100.0	100.0	100.0	100.0	100.0
Rail	61.9	54.4	48.4	43.6	43.5
Truck	11.1	17.0	18.4	22.5	23.9
Oil pipeline	11.5	13.8	17.0	17.2	16.7
Inland water	15.5	14.8	16.2	16.6	15.9
Air	0.01	0.03	0.04	0.07	0.10

SOURCES: Compiled from Transportation Association of America, Transportation Facts and Trends, 1965. TAA figures drawn from Interstate Commerce Commission data, except 1964 estimates from carrier associations and governmental agencies.

Considerable gloom has been expressed about the future prospects of railroads during recent years, particularly from around 1956 to 1962. Certainly the rails have had, and still have, serious problems which are beyond the scope of the present study.[14] It is significant, however, that a turning point apparently came in 1961. Since that year, railroad freight tonnages, revenues, and net incomes have been moving upward. And, as indicated above, the percentage share of rail intercity ton mileage, after a long decline, appears to have stabilized. Actually, in absolute terms, railroads moved more ton-mileage during 1964 than in any previous peacetime year.

The long run rail future looks good. Adversity has trimmed off a considerable amount of loose practice and excess facilities and personnel. Railroad managements now are aware of competition from other modes. Investment averaging more than $1 billion a year since World War II (more than $1.4 billion in 1964) has provided a completely different and much improved plant. Although all problems are not solved, and future problems will no doubt arise for individual railroads and for the industry as a whole, railroads will continue to play their important role in our economy.

Even if their present ton mileage share of traffic does not increase, if total intercity ton mileage continues to grow at the conservative rate predicted above railroads will be moving more freight by 1972 than they handled during their all-time peak year of 1944. Further, it is entirely possible that the rail traffic share will increase and that our growth prediction will be exceeded--the reverse is very unlikely.

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[14] For an excellent review and analysis of many of these problems, see James C. Nelson, Railroad Transportation and Public Policy (Washington: The Brookings Institution, 1959).

Washington's Railroad Freight Traffic

The state of Washington is served directly by four transcontinental railroads, and by several smaller lines. Also, it has transcontinental connections with the railroads serving Canada and Oregon. In 1963, the state contained 4,958 miles of line, or approximately 2.3 per cent of the nation's rail route mileage.[15]

Unless otherwise indicated, the following discussion of the composition and nature of Washington's railroad freight traffic and its comparison with national patterns, including Tables 6-4 through 6-14, is based upon compilations and computations made from data published in the Interstate Commerce Commission's Carload Waybill Statistics for various years. The figures shown in this study have been adjusted upward by 100 per cent to take account of the one per cent sample reported by the Interstate Commerce Commission.

Like all samples, the Carload Waybill Statistics have weaknesses. The range of probable error apparently tends to vary inversely with the amount of tonnage reported. Also, the disclosure rule eliminates specific reports on some products. Less-than-carload shipments are not included (but these are an insignificant percentage of total rail movements). However, based upon considerable study of these data and various checks upon their validity, we believe that they do reflect rail freight traffic patterns and trends reasonably well, especially when some of the smaller figures are grouped by product and geographic region as they are in this study. In any case, no better data are available.

Unfortunately, there is a considerable lag in the publication of Carload Waybill Statistics data. Figures for 1962 and 1963, scheduled for publication during the late summer and early fall of 1965 according to information received from the Interstate Commerce Commission, were not available in time to be used in this study. Analysis of an October, 1964, survey of leading Pacific Northwest rail shippers, including 66 Washington shippers, made for the Pacific Northwest Advisory Board, however, does not reveal any significant changes in Washington rail traffic patterns between 1961 and 1964.[16]

During 1960, Washington contained approximately 1.6 per cent of the coterminous United States population. In that year, the state originated slightly more than 1.3 per cent of all U.S. class I rail tonnage, and terminated a little more than 1.4 per cent of the U.S. total. Or stated in another way, the state originated a little more than 5.5 tons and terminated a little less than six tons of rail freight per inhabitant, as compared to a little more than 6.7 tons per capita originated and terminated in the other coterminous states.

Washington ranked twenty-second from the top among the coterminous states in rail freight originations and twenty-fourth from the top in terminations during 1961. In that same year, Washington's originations were about 42 per cent of California's and 91 per cent of Oregon's originations, while its terminations were 35 per cent of California's and 175 per cent of Oregon's.

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[15] Association of American Railroads data.

[16] A preliminary report on the findings of this survey was published in the January, 1965, Proceedings of the Pacific Northwest Advisory Board.

The "average" ton of rail freight originated in Washington during 1961 moved approximately 865 miles (including both intrastate and interstate movements), or about 84 per cent further than the national average of 470 miles between origin and destination. The charge for moving this average ton was $11.40, or a rate of about 1.3 cents per ton mile (equivalent to the U.S. average ton mile rate). For tonnage originated and terminated within the state, however, the average length of haul was 121 miles at a charge of $2.62, or a rate of approximately 2.16 cents per ton mile. Most rate structures, of course, are based on a tapering principle; that is, the rate per ton mile decreases as distance increases.[17]

The total rail freight charge on traffic originating in Washington during 1961 apparently was in the neighborhood of $175.9 million, or roughly $58.60 per inhabitant. This compares to $53 per capita for the country as a whole, and reflects the longer distances moved by Washington rail freight. With about 1.6 per cent of the population, the state accounted for almost 2.2 per cent of the national revenues on originated rail freight.

Tables 6-4 and 6-5, respectively, compare Washington rail tonnage originations with U.S. originations and Washington's inbound, outbound, and intrastate tonnages for selected years.

Analysis of these tables shows that Washington's outbound tonnage increased by more than nine per cent in 1961 as compared to 1953, while its inbound tonnage decreased by almost seven per cent and its intrastate tonnage by 20 per cent. Presumably, and logically, short-haul rail traffic was more susceptible to competing modes of transport. It appears, too, that Washington's interstate rail traffic (inbound and outbound) was much more resistant to diversion by other modes than was the country's rail traffic as a whole. Again, this can be explained by the greater distances involved in the movement of Washington's traffic.

Another significant fact revealed by Tables 6-4 and 6-5 is that Washington's terminations consistently exceed its originations and its inbound traffic exceeds its outbound. This surplus of inbound tonnage, coupled with the fact that inbound cars are not as heavily loaded (the inbound per car average in 1961 was 30 tons, as compared to 33 tons for outbound and 44 tons for intrastate cars) brings more rail cars into the state than are used to ship out its products. Actually, in 1961, loaded inbound cars exceeded loaded outbound cars by almost nine per cent. No doubt some of these "surplus" cars find their way into Oregon, where outbound tonnage and loaded freight cars greatly exceed inbound.[18] It would appear that the almost chronic freight car shortage prevalent in the Pacific Northwest during recent years, insofar as it can be attributed to an unbalanced traffic flow, must be attributed to Oregon rather than to Washington.

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[17] Descriptions and discussions of Pacific Northwest outbound and inbound rail freight rate structures, including those of Washington, are contained in Roy J. Sampson, Railroad Shipments and Rates From the Pacific Northwest, 1961, and Railroad Shipments and Rates Into the Pacific Northwest, 1963, both published at Eugene by the Bureau of Business Research, University of Oregon.

[18] For a detailed description and analysis of the quite different Oregon rail traffic flow pattern, see Roy J. Sampson, Oregon Rail and Water Commodity Flow Trends (Eugene: University of Oregon, Bureau of Business and Economic Research, 1965).

Table 6-4

TOTAL RAIL CARLOAD TONNAGES ORIGINATED AND TERMINATED IN WASHINGTON COMPARED WITH U.S. ORIGINATIONS, ALL COMMODITIES, SELECTED YEARS, 1953 TO 1961

(thousands of tons)

Year	Washington		United States
	Originated	Terminated	Originations
1953	16,662	18,526	1,384,301
1955	19,099	20,211	1,396,339
1957	16,637	17,981	1,380,327
1959	14,764	15,339	1,232,201
1961	15,369	16,004	1,193,740

SOURCE: From data published in Interstate Commerce Commission, Carload Waybill Statistics (Washington: Interstate Commerce Commission, Bureau of Transport Economics and Statistics), various years.

Table 6-5

WASHINGTON INBOUND, OUTBOUND, AND INTRASTATE RAIL CARLOAD TONNAGES, ALL COMMODITIES, SELECTED YEARS, 1953 TO 1961

(thousands of tons)

Year	Inbound	Outbound	Intrastate
1953	8,797	6,933	9,729
1955	9,404	8,292	10,807
1957	9,929	8,585	8,052
1959	8,753	8,178	6,586
1961	8,220	7,585	7,784

SOURCE: See Table 6-4.

Table 6-6 shows Washington's originating rail tonnage by major ICC commodity groups for selected years, while Table 6-7 shows the originating tonnages attributable to the 15 leading specific ICC commodity classes during 1961.

It can be noted from Table 6-6 that forest products originations decreased substantially between 1953 and 1961, while slight decreases occurred in agricultural and animal products and mines products. Manufactured and miscellaneous products originations, however, increased slightly. Also, in 1961, forest products still was the leading commodity group tonnage originator, with 34 per cent of the total originations, followed by manufactured and miscellaneous products with 33 per cent, agricultural and animal products with 23 per cent, and mines products with ten per cent.

Table 6-6

RAIL CARLOAD TONNAGES ORIGINATED IN WASHINGTON BY MAJOR COMMODITY GROUPS, SELECTED YEARS, 1953-61

(thousands of tons)

Year	Forest Products	Manufactured & Miscellaneous Products	Agricultural & Animal Products	Mines Products
1953	7,473	5,044	3,732	1,674
1955	8,791	5,171	3,538	1,626
1957	6,189	5,343	3,674	1,418
1959	6,249	5,194	3,800	1,514
1961	5,297	5,167	3,528	1,554

SOURCE: See Table 6-4.

Table 6-7

FIFTEEN SPECIFIC LEADING COMMODITY CLASSES IN RAIL CARLOAD TONNAGE ORIGINATING IN WASHINGTON, 1961

(thousands of tons)

Commodity	Rail Carload Tonnage
Lumber, shingles, & lath	1,930
Logs, butts, & bolts	1,625
Wheat	1,255
Crushed stone	930
Pulpwood	884
Woodpulp	863
Veneer & plywood	663
Barley & rye	465
Paperboard & fiberboard	428
Aluminum bars etc.	340
Wheat flour	298
Feed, A & P, NOS	298
Portland cement	251
Food products NOS	249
Newsprint paper	219

SOURCE: See Table 6-4.

Washington originated 80 of the 262 specific ICC rail commodity classes in 1961. Of these, the 15 listed in Table 6-7 accounted for almost 70 per cent of the state's total originations. Seven of these 15 commodity classes are associated with the state's forest economy, five with its agricultural sector, and three others (stone, aluminum bars, and cement) are necessarily localized in production. This suggests that if the state's economic sectors represented by these commodities remain strong railroad transportation also will remain strong, as most of these commodities seem better suited for rail than for truck transport under present economic and technological conditions.

Tables 6-8 through 6-12 show the regional destinations of Washington-originated rail products for selected years. "Eastern" states are those east of the Mississippi River, while "mountain-plains" states are those between the Mississippi and the three Pacific coast states.

Examination of Table 6-8 shows that the amounts of Washington rail tonnage going to each of the named outside states and regions increased between 1953 and 1961, while the intrastate amount declined substantially. Of the total outbound tonnage in 1961, about 37 per cent went to eastern states, 28 per cent to mountain-plains states, 21 per cent to California, and a little more than 14 per cent to Oregon. These outbound percentage distributions were not greatly different from those of 1953.

Table 6-9 shows that forest products terminations declined in every indicated region and state (including Washington itself) except Oregon, which is relatively unimportant as a rail destination for Washington forest products. Approximately 52 per cent of the total outbound tonnage terminated in the eastern states and 37 per cent in mountain-plains states during 1961.

As shown in Table 6-10, the amounts of manufactured and miscellaneous tonnage going to Washington itself and to eastern states declined between 1953 and 1961, while quantities to other areas increased. In 1961, approximately 31 per cent of the outbound tonnage went to California and to eastern states, while 26 per cent went to the mountain-plains states and 11 per cent to Oregon.

Table 6-8

DESTINATIONS OF RAIL CARLOAD TONNAGE
ORIGINATING IN WASHINGTON, ALL COMMODITIES,
SELECTED YEARS, 1953-61

(thousands of tons)

Year	Washington	Oregon	California	Mountain-Plains States	Eastern States
1953	9,729	1,071	1,287	2,026	2,549
1955	10,807	1,139	1,280	1,887	3,462
1957	8,052	1,387	1,157	2,795	3,247
1959	6,586	1,023	1,438	2,720	2,996
1961	7,784	1,109	1,577	2,161	2,738

SOURCE: See Table 6-4.

Table 6-11 shows that Washington terminated almost 64 per cent of its originating agricultural and animal products tonnage in 1953, and almost 59 per cent in 1961. Relative terminations in Oregon and California increased slightly during this period, while a sharp decrease occurred in the mountain-plains states and a slight decrease in the eastern region.

Approximately 80 per cent of mines products were intrastate terminations in 1953 and 86 per cent in 1961, as indicated by Table 6-12. Neither total originations nor out-of-state terminations changed significantly during this period.

Table 6-9

DESTINATIONS OF RAIL CARLOAD TONNAGE ORIGINATING IN WASHINGTON, FOREST PRODUCTS, SELECTED YEARS, 1953-61

(thousands of tons)

Year	Washington	Oregon	California	Mountain-Plains States	Eastern States
1953	4,555	50	228	1,331	1,308
1955	5,895	60	171	1,336	1,328
1957	3,599	65	149	1,152	1,233
1959	3,239	42	177	1,551	1,236
1961	2,806	64	216	916	1,295

SOURCE: See Table 6-4.

Table 6-10

DESTINATIONS OF RAIL CARLOAD TONNAGE ORIGINATING IN WASHINGTON, MANUFACTURED AND MISCELLANEOUS PRODUCTS, SELECTED YEARS, 1953-61

(thousands of tons)

Year	Washington	Oregon	California	Mountain-Plains States	Eastern States
1953	1,738	336	851	594	1,525
1955	1,663	383	850	698	1,576
1957	1,675	452	830	828	1,557
1959	1,851	366	1,069	728	1,180
1961	1,558	415	1,135	910	1,108

SOURCE: See Table 6-4.

In view of national and state population growth and the general growth in total national freight ton mileage, it is not logical to believe that Washington's total freight tonnage originations have declined during the period under study. It is obvious, therefore, that the above described rail declines largely must be attributed to diversion of traffic from rail to non-rail modes, in accordance with the national pattern. Actually, in effect, during the period under study, non-rail forms absorbed more than the net increase in freight traffic.

One may legitimately ask whether or not this trend may be expected to continue. As indicated above, there is evidence to support the supposition that the national trend away from the rails has at least slowed down. We believe that this may be true for Washington, also. As shown by Tables 6-4 and 6-5, Washington's interstate rail traffic has fared much better than that of the nation as a whole, although its intrastate traffic has not fared as well. Also, recent information from the Pacific Northwest Advisory Board shows

Table 6-11

DESTINATIONS OF RAIL CARLOAD TONNAGE ORIGINATING IN WASHINGTON, AGRICULTURAL AND ANIMAL PRODUCTS SELECTED YEARS, 1953-61

(thousands of tons)

Year	Washington	Oregon	California	Mountain-Plains States	Eastern States
1953	2,164	600	197	312	459
1955	1,804	691	258	270	506
1957	1,653	830	177	622	391
1959	2,231	606	189	253	521
1961	2,088	610	220	187	421

SOURCE: See Table 6-4.

Table 6-12

DESTINATIONS OF RAIL CARLOAD TONNAGE ORIGINATING IN WASHINGTON, MINES PRODUCTS, SELECTED YEARS, 1953-61

(thousands of tons)

Year	Washington	Oregon	California	Mountain-Plains States	Eastern States
1953	1,340	81	11	177	64
1955	1,439	4	(NS)	134	50
1957	1,125	39	9	193	51
1959	1,265	9	3	186	51
1961	1,331	20	5	147	50

(NS) None shown.

SOURCE: See Table 6-4.

that rail carload originations in the Board's territory (Washington, Oregon, and northern Idaho) were more than 6.5 per cent higher during the first six months of 1965 than during the comparable months of 1961 (and presumably, due to heavier carloadings, tonnage increases were even greater).

Transportation costs, although not the only important factor in freight allocation and not the most important in many cases, certainly do play a role in determining intermodal allocation. It is appropriate, then, to look at Washington rail ton mileage transportation costs.

In 1961, products of agriculture (excluding animals and animal products) moved intrastate in Washington by rail for an average distance of 203 miles at a rate of 1.69 cents per ton mile. Comparable figures for mines products were 86 miles at 1.88 cents, for forest products 81 miles at 2.23cents, and

for manufactured and miscellaneous products 115 miles at 3.32 cents. Animal and animal products, a very small quantity, moved an average of 127 miles at 8.64 cents per ton mile.

Looking more specifically at the intrastate movement of the 15 leading originating commodity classes shown in Table 6-7, lumber moved for an average distance of 136 miles at a rate of 2.83 cents per ton mile, and logs, butts, and bolts moved for 59 miles at a ton mileage rate of 2.13 cents. Other comparable distances and rates were: wheat, 282 miles at 1.62 cents; crushed stone, 56 miles at 2.11 cents; pulpwood, 112 miles at 1.98 cents; woodpulp, 64 miles at 4.03 cents; veneer and plywood, 124 miles at 1.13 cents; paperboard and fiberboard, 116 miles at 4.34 cents; aluminum bars, 69 miles at 3.05 cents; wheat flour, 208 miles at 0.44 cents; feed, A and P, NOS, 117 miles at 1.81 cents; Portland cement, 148 miles at 2.36 cents; food products NOS, 51 miles at 7.49 cents; and newsprint paper, 98 miles at 7.76 cents.

When these intrastate ton mileage rates are considered, along with the above-mentioned 1.3 cents average on all Washington originations (intrastate and interstate), and with the national average class I and class II common carrier truck rate of 6.5 cents per ton mile, it would appear that non-cost factors of considerable importance will be required to divert much additional traffic from rails to trucks. Water carriers and oil pipelines have considerably lower average rates than rail carriers, of course, but these two competing modes are limited by geographical or commodity constraints. Generally, air freight is not competitive with rail freight.

The terminations side of Washington rail freight traffic is summarized in Table 6-13. This table shows a rather steady decline in terminations of forest products (down 27 per cent), manufactured and miscellaneous products (down 20 per cent), and mines products (down 30 per cent) between 1953 and 1961. Agricultural and animal products terminations, on the other hand, improved by about 9 per cent. During 1961, manufactured and miscellaneous products accounted for approximately 29 per cent of the state's rail terminations, forest products for 28 per cent, agricultural and animal products for 25 per cent, and mines products for 18 per cent.

Washington supplied about 76 per cent of its forest products rail terminations in 1953, but only 64 per cent in 1961. During the same period, Oregon increased as an originator of Washington-terminated forest products tonnage both absolutely and relatively, accounting for 30 per cent of the total in 1961. Tonnage from other states, principally Idaho and Montana, amounting only to six per cent of the total during 1961, decreased slightly during the years studied.

Around 34 per cent of Washington's manufactured and miscellaneous terminations came from within the state during 1961. Eastern states supplied 21 per cent, California 20 per cent, the mountain-plains states 16 per cent, and Oregon 9 per cent. Between 1953 and 1961 the proportions supplied by Washington, Oregon, and California declined slightly, due perhaps to truck competition, while amounts supplied by eastern states increased slightly, as did traffic from the mountain-plains states after 1955.

Washington originated 47 per cent of its mines products rail terminations in 1961, while 37 per cent came from mountain-plains states, and only 16 per cent from all other states. The absolute amount of this tonnage supplied by Washington remained fairly stable between 1953 and 1961. Tonnage from the

Table 6-13

RAIL CARLOAD TONNAGES TERMINATED IN WASHINGTON BY MAJOR COMMODITY GROUPS, SELECTED YEARS, 1953-61

(thousands of tons)

Year	Forest Products	Manufactured & Miscellaneous Products	Mines Products	Agricultural & Animal Products
1953	5,974	5,589	4,116	3,672
1955	7,449	4,845	4,042	3,971
1957	5,322	4,519	4,036	4,013
1959	4,809	4,735	3,255	4,592
1961	4,365	4,495	2,860	4,003

SOURCE: See Table 6-4.

mountain-plains states decreased steadily during this period, however, reaching a 1961 level of less than half that of 1953.

Approximately 52 per cent of the agricultural and animal products terminated in Washington during 1961 came from intrastate sources, while 35 per cent came from mountain-plains states and 13 per cent from Oregon, California and Eastern states. The increase in the state's terminations between 1953 and 1961 is attributable to a sharp increase (about 42 per cent) in agricultural and animal products tonnage from the mountain-plains states.

Table 6-14 lists the 15 leading specific ICC rail freight commodity classes terminated in Washington during 1961. Comparison with Table 6-7 reveals that ten of these leading terminating classes also are among the 15 leading originating classes, although in a different sequence. The five items in Table 6-14 which are not also in Table 6-7 are bituminous coal, manufactured iron and steel, manufactures and miscellaneous NOS, products of mines NOS, and gasoline.

Coal terminated in Washington during 1961 came principally from Utah. California was the leading supplier of manufactured iron and steel and of manufactures and miscellaneous NOS. Products of mines NOS came mainly from Washington and Oregon, followed by California and Montana. Gasoline principally came from within the state, with small amounts from Oregon and California.

Altogether, 156 of the 262 ICC specific commodity classes were terminated in Washington during 1961 (as compared to only 80 originated). Even so, the 15 leading classes shown in Table 6-14 accounted for almost 64 per cent of the state's rail tonnage terminations.

To summarize the Washington rail traffic situation briefly, the state is well served by rail facilities. Rail lines serving the state, like those in the nation as a whole, suffered traffic declines during the period between 1953 and 1961, but Washington declines were relatively less than those of the nation. The state's outbound tonnage actually increased. This can be attributed in part to Washington's terminal position; that is, the state is a substantial

Table 6-14

FIFTEEN SPECIFIC LEADING COMMODITY CLASSES IN RAIL CARLOAD TONNAGE TERMINATING IN WASHINGTON, 1961

(thousands of tons)

Commodity	Rail Carload Tonnage
Wheat	2,181
Pulpwood	1,927
Logs, butts and bolts	1,635
Crushed stone	951
Bituminous coal	631
Barley and rye	470
Manufactured iron and steel	398
Lumber, shingles and lath	365
Feed, A & P, NOS	285
Food products, NOS	273
Veneer and plywood	259
Portland cement	258
Manufactures and misc., NOS	197
Products of mines, NOS	195
Gasoline	176

SOURCE: See Table 6-4.

originator and terminator of traffic rather than a bridge territory between terminal areas. Also, average rail shipments originated in the state move much farther than those in the country as a whole, at ton mileage rates about equivalent to the national average. This means that the state's rail tonnage is less susceptible to truck competition than is true nationally. Further, even intrastate ton mileage rates on most principal originating products are well below national average truck rates of large common carriers.

The state's rail terminations exceed its originations, both in terms of tonnage and loaded freight cars. A substantial, but decreasing, proportion of terminating tonnage originates within the state itself.

Both originations and terminations are heavily concentrated within a few specific classes of traffic, but originations are considerably more concentrated than terminations. The bulk of the state's originating tonnage is closely related to forestry and agriculture, or is the kind of production which tends to be localized because of production or transportation costs. Well over half of the state's outbound tonnage goes to the mountain-plains region or to California, but more than one-third moves east of the Mississippi River.

Despite their severe traffic and financial problems during recent years, railroads still are the backbone of national and Washington long-haul transport. This is unlikely to change during the foreseeable future. Actually, there are indications that a turning point has been reached, or at least that the rail situation is no longer steadily deteriorating. Although they will not again approach their long-haul "monoploy" position of the pre-motor carriage era, the railroads' long-run future in freight traffic looks reasonably bright.

Water Freight Traffic

An Overall Picture: Compared with the nation's railroads, all of which are regulated common carriers engaged in domestic commerce, water carriage presents a complex organizational structure. Basically, it is divided into ocean and inland segments. Ocean carriage may be further sub-divided into foreign and domestic commerce. Most ocean transport is by steamship, although some is by barge or raft. Inland water carriage, except on the Great Lakes, mainly utilizes barges or rafts.

A great deal of water transport, especially the inland variety, is private rather than for-hire carriage, and a substantial proportion of the for-hire traffic is exempt from economic regulation. The Interstate Commerce Commission, for example, has estimated that not more than 12 per cent of the nation's domestic water carriage is subject to federal economic regulation, as contrasted with approximately one third of intercity truck carriage and virtually all rail and oil pipeline transport. (The Federal Maritime Commission applies such economic regulation as exists in our foreign ocean transport.)

The active American ocean merchant fleet has declined greatly in importance during recent years--from 2,300 ships at the end of World War II to a little more than 900 generally overage vessels today. As recently as ten years ago, American-registered vessels carried around 28 per cent of our foreign trade tonnage. Now, the figure is less than nine per cent. The once-thriving intercoastal steamship business is in even worse shape, although Sea-Land's recently instituted trailer-ship service has been expanding.

Space limitations preclude extended discussion of the ills of the American ocean transport industry. Basically, however, the problem is one of costs and competition. Lower cost foreign operators have cut deeply into our foreign ocean carriage, while competition from land modes, especially rail and truck, have devastated domestic ocean transport. Although many American ship operators have been attempting to hold the line on costs by means of containerization, partially automated ships, and other devices, the results at best have been that the situation has deteriorated less rapidly than it otherwise would have. Barring some as yet unforeseeable technological development, or massive governmental action, no great business upturn for American ship operators is in view within the foreseeable future. Further, even if technological innovations should allow American ships to again become competitive, this probably would not bring any substantial increase in the employment of American seamen.

The inland water carriage story, however, is quite different. As shown by Table 6-3, this segment of the industry during recent years has maintained a fairly constant percentage of an increasing volume of traffic. Further, employment in this service has remained fairly stable in the country as a whole. Substantial technological improvements have been made in barge and towboat operations during the past three decades, along with expanded and improved waterways, enabling them to move cargoes at around one-fourth the average ton mileage charges of railroads. Where available, and where speed is not of great importance, inland water transport is very efficient in moving bulk cargoes such as grain, logs, lumber, petroleum, mineral products, and even several varieties of manufactured items. Future prospects for this form of carriage appear to be satisfactory even if not expansionary.

Washington's Water Freight Traffic: Pacific Northwest seaports, including those of both Washington and Oregon, are located in a favorable geographic position for trade with the vast potential markets of Asia. Unfortunately, with the exception of Japan, Asian economic and political conditions have been such that this trade still is far below its potential. As economic development occurs in Asia, and if political conditions permit, foreign trade through Washington ports could increase substantially.

An effective port, of course, requires much more than a good natural or man-made harbor. It must have, among other qualities, institutions and personnel specialized in many aspects of maritime commerce, good handling and storage facilities for the products involved, and inland transportation connections and rates into its hinterland which will permit goods to flow into and out of the port area. In addition, a port must be aggressively sold to its potential users.

Washington ports have the harbors, a maritime tradition, and inland transportation connections. A recent study, however, points out that the Puget Sound ports relatively have been falling behind U. S. ports in general and other west coast ports, especially Portland, in world trade tonnage.[19] This suggests that the lagging ports may be deficient in facilities, hinterland rates, or advertising.

A recent report provides some pertinent comparisons between Portland and Seattle port facilities.[20] It indicates that Portland has more than twice as much grain storage space as Seattle (considerably more than Seattle and Tacoma combined). Also, Portland has several times as much liquid storage space, seven times as much shipside rail trackage, and almost as much covered warehouse space as does Seattle. The two ports do not differ greatly in the quantity of available steamship, railroad, and heavy lift equipment service. The Port of Portland, however, is served by 16 shallow draft water lines as compared to three for Seattle, and by 34 trucking lines and 54 local pickup and delivery firms as compared to 17 trucking and 60 pickup and delivery carriers for Seattle.

Another report states that Seattle's commercial warehouse floor space available for public storage of general goods declined from 1, 190 thousand to 996 thousand square feet between 1958 and 1963, while Portland's space expanded from 1, 133 to 1, 283 thousand; further during the same period, Portland's revenue from warehousing increased from around $2. 9 million to $5. 1 million, while Seattle's declined from $3. 2 million to $2. 7 million.[21]

In terms of inland transportation rates, the geography of the Pacific Northwest, specifically the Columbia River and its paralleling "water level" land routes and low-priced barge transportation have contributed to Portland's

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[19] Stanley H. Brewer, The Competitive Position of Seattle and Puget Sound Ports in World Trade (Management Series No. 7; Seattle: University of Washington, College of Business Administration, 1963).

[20] "Terminal Facilities at United States and Canadian Ports," Traffic World, June 26, 1965, pp. 75-109.

[21] Marple's Business Roundup, June 2, 1965.

advantage over Puget Sound ports. Portland's preferential rate zone, for example, covers all of Oregon, southern Idaho, western Wyoming, and even southwestern and portions of southern Washington. Seattle's preferential zone, on the other hand, is limited to that portion of Washington lying west of and somewhat to the north of the Columbia River. The two ports have rate parity from and to other hinterland areas.[22]

Geography further favors Portland over Puget Sound ports as a central distributing point for the Pacific Northwest (for land-borne goods from California and eastern points as well as for water-borne goods, incidentally). Although population density is greater in the area in which Puget Sound ports have a favorable rate differential, Portland's differential area is larger in size and population, and some portions of it are becoming industrially and commercially developed at a rapid rate.

We feel, however, that the relative growth of Portland's maritime activity, or Puget Sound's relative decline, cannot be explained entirely by geography. Although it cannot be documented, one gets the impression that Puget Sound marine interests were content to bask in past glories following World War II, and were somewhat shocked to find that their aggressive counterparts in Portland had succeeded in diverting a considerable amount of ocean-borne tonnage away from Puget Sound. Certainly Puget Sound groups are wide awake now, but whether they can easily overcome Portland's momentum and its geographic advantages is at least questionable. For example, in July, 1965, despite Seattle resistance, the Interstate Commerce Commission granted substantial rate reductions on Sea-Land trailership freight between Portland and Anchorage, thus giving Portland shippers greater access to Seattle's traditional Alaskan markets.

Table 6-15 shows the trends in Washington water freight tonnage, except on the Columbia River and its tributaries, from 1955 to 1963, while Table 6-16 shows tonnage handled by the state's ports on the Columbia and its tributaries. Water tonnage figures shown on these tables, and others mentioned in this section of this study, were compiled from U. S. Army Corps of Engineers data.[23]

The Seattle district's foreign tonnage, both inbound and outbound, and its outbound domestic tonnage, steadily increased during the period shown. Inbound domestic tonnage, on the other hand, decreased just as steadily. Internal tonnage, consisting of both receipts and shipments (that is, involving considerable double counting) of goods moved on inland waterways, inside ports, and between adjacent ports, increased slightly. Inbound tonnage greatly exceeded outbound in 1955 but the gap between the two had grown very narrow by 1963. Also, by the latter year, the gap between domestic and foreign tonnage had decreased substantially.

During 1963, the Port of Seattle accounted for almost 35 per cent of the Seattle district's ocean tonnage, Tacoma for almost 19 per cent, and Anacortes

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[22] Based upon a map published and distributed by Portland's Commission of Public Docks. For example, see Portland Harbor Fact Book, n. d., p. 7.

[23] Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, Part 4. Waterways and Harbors: Pacific Coast, Alaska and Hawaii, various calendar years.

Table 6-15

WATER FREIGHT TONNAGE, SEATTLE DISTRICT,[a] SELECTED YEARS, 1955-63

(millions of tons)

Year	Foreign		Domestic		Internal[b]
	Inbound	Outbound	Inbound	Outbound	
1955	2.00	1.79	6.73	1.74	22.18
1957	2.15	2.94	5.49	2.17	23.14
1959	5.02	2.10	5.56	3.55	24.20
1961	3.96	2.97	5.14	4.16	23.11
1963	3.92	3.69	4.75	4.32	24.15

[a]Includes Washington ports except those on the Columbia River and its tributaries.

[b]Includes both receipts and shipments moving within and between Washington ports.

SOURCE: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States. Part 4. Waterways and Harbors: Pacific Coast, Alaska and Hawaii, various calendar years.

for almost 27 per cent (predominately petroleum products). In internal traffic, a little less than 32 per cent was attributable to Seattle, around 12 per cent to Tacoma, and less than nine per cent to Anacortes.

The vessel traffic of Washington's Columbia River ports, as shown by Table 6-16, increased significantly between 1955 and 1963, reaching a total tonnage volume of approximately one third that of Seattle during the latter year. Most of this traffic is foreign outbound. Trends in the state's Columbia River rafted traffic, however, were less stable, although the 1963 volume slightly exceeded that of 1955.

Table 6-17 compares the vessel tonnage growth of Portland, Seattle and Tacoma, and Longview and Vancouver. Whereas the Seattle-Tacoma tonnage increase between 1955 and 1963 was less than 16 per cent, Portland's increase was approximately 20 per cent. Longview-Vancouver tonnage, however, increased by around 75 per cent during the same period. The Puget Sound ports have regional rivals other than Portland.

Comparison of Washington's water tonnages with rail tonnages for 1961 (see Table 6-5 above) indicates that the state's total inbound and outbound water tonnages to all destinations during that year exceeded total inbound and outbound rail tonnages by approximately 18 per cent. Because of the nature of Corps of Engineers data, intrastate comparisons are more difficult and probably less accurate. It appears, however, that intrastate water tonnage during 1961, including rafted traffic, was at least in the neighborhood of 50 per cent higher than intrastate rail tonnage.[24] Water traffic, both external and internal, clearly plays a significant role in the state's economy.

[24]Computations from the above described data.

Table 6-16

TONNAGE HANDLED BY WASHINGTON'S COLUMBIA RIVER PORTS, SELECTED YEARS, 1955-63

(millions of tons)

Year	Vessel Traffic	Rafted Traffic
1955	2.58	2.16
1957	3.69	1.84
1959	3.53	1.79
1961	4.16	1.74
1963	4.35	2.36

SOURCE: See Table 6-15.

Table 6-17

COMPARISON OF VESSEL TONNAGES, SEATTLE-TACOMA, LONGVIEW-VANCOUVER, AND PORTLAND, SELECTED YEARS, 1955-63

(millions of tons)

Year	Seattle & Tacoma	Longview & Vancouver	Portland
1955	15.15	2.44	12.12
1957	17.20	3.57	12.49
1959	15.23	3.42	12.46
1961	15.10	3.99	13.24
1963	17.51	4.24	14.55

SOURCE: See Table 6-15.

The state's water traffic, like its rail traffic, is highly concentrated among a few commodity classes. For example, during 1963, Seattle's outbound foreign tonnage included 131 classes, but wheat accounted for 52 per cent and 11 other products for an additional 35 per cent of the total. The port's foreign inbound included 116 classes with six accounting for 73 per cent, its domestic outbound consisted of 127 classes with eight accounting for 49 per cent, and its domestic inbound included 76 classes with the five leading items, all petroleum products, making up 87 per cent of the tonnage in this category. Even in Seattle's internal traffic, four items (sand, gravel and crushed stone, gasoline, fuel oil, and rafted logs) accounted for 73 per cent of the total tonnage handled.

Approximately 32 per cent of Tacoma's 1963 outbound foreign tonnage was wheat, and 28 per cent logs. During the same year, 93 per cent of the tonnage handled at Anacortes was made up of petroleum and petroleum products, while 84 per cent of the combined tonnages of Longview and Vancouver consisted of grain and forest products and their manufactured derivatives.

It would appear that foreign traffic, so highly concentrated among a few items, is very vulnerable to changing international economic and political conditions, as well as to domestic freight rate changes and competition from other ports, over which the state's port authorities and commercial interests have little control. More diversification among the products handled and among trading areas might insure more stability and growth. Domestic and internal traffic, on the other hand, is much more subject to the influence of the officials and businessmen concerned.

In conclusion, if the state's port officials and maritime interests aggressively seek additional business and more favorable domestic freight rate structures, and provide the necessary facilities for handling an enlarged quantity and variety of goods, there is no reason why foreign traffic, both inbound and outbound, should not increase somewhat more rapidly than that of the nation as a whole.

Domestic water traffic, on the other hand, barring the unlikely reversal of policies which have allowed competing modes to divert substantial amounts of tonnage from intercoastal and coastwise carriers, does not appear to have a promising future. Although services such as containerization, trailerships, hydro-trains, and ocean-going barges may be individually successful, and may continue to expand, their gains probably cannot be expected to offset losses in the more traditional form of domestic water transport.

Internal water transport should at least hold its own, or perhaps increase slightly faster than transportation in general in the nation and in Washington. This assumes no unpredictable developments such as the construction in Washington of the sometimes discussed deep water canal between Puget Sound and the Columbia River. This proposed canal would no doubt greatly alter the state's water transportation picture, internally as well as externally.[25] There is some question, however, whether the benefits of such a canal would be commensurate with its costs (recently estimated at $400 million by the Corps of Engineers) if its probably adverse effects upon other modes of transport are considered. In any case, whether this canal will be built within the next generation, or ever, is in the realm of speculation.

Truck Traffic

An Overall Picture: Truck transportation, like water transportation, has a complex organizational pattern. As a starting point, it can be segregated into for-hire and private (not for-hire) carriage. For-hire services can be further broken down into common carriers, that is, those firms holding themselves out to haul for everyone (although not necessarily all products or between all points) and contract carriers who haul only for a few customers with whom they have individual contractual arrangements. Also, for-hire carriage may be either subject to economic regulation or exempted from regulation, and the regulated portions may be regulated by the federal government (the Interstate Commerce Commission) or by state government, or both, depending upon whether or not operations are interstate or intrastate.

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[25] For some discussion of this, see page 3 of Robert A. Nelson, Water Transportation in the Pacific Northwest (Olympia: Washington State Department of Commerce and Economic Development, 1959).

Table 6-3, above, shows that trucking's share of the nation's intercity ton-mileage increased from 11. 1 per cent in 1948 to 23. 9 per cent in 1964. Total ton-mileage handled by all modes also has increased, of course. The actual amount of ton-mileage carried by trucks increased by about 310 per cent during this period. The revenues of regulated for-hire truck carriers, however, increased only by around 60 per cent.[26] This discrepancy between ton-mileage and revenue increases gives some indication of the rapid increase of private and exempt carriage. Only around one third of the total truck intercity ton-mileage moved under ICC regulation in 1964, for example.[27] A considerable portion of this non-federally regulated traffic, of course, is subject to state regulation. Unfortunately, statistical information about intrastate regulated movements is far from complete, and information about private and exempt carriage is even less available.

Truck registrations in the United States numbered about 13, 300, 000 in 1964, up from 8, 239, 000 in 1950. Of the current registrations, about 92 per cent are private vehicles, including some 3, 000, 000 farm trucks.[28] Between 1950 and 1964, while truck registrations were increasing by almost 62 per cent, vehicle miles increased by around 55 per cent.

Class I and class II truck carriers (annual operating revenues of $1, 000, 000 or more, and from $200, 000 to $1, 000, 000, respectively) moved an average load of 10. 7 tons for an average distance of 234 miles in the country as a whole during 1962.[29] These class I and II carriers have an average investment of around $480, 000 each, including 60 pieces of equipment, employ an average of 140 persons each, and receive an average of approximately 6. 5 cents per ton-mile for their carriage services, or an average total revenue of around $2. 2 million each.

The amount of traffic diverted from other modes, particularly rail, to trucks does not give a complete picture. Much of this diversion has been high revenue producing traffic, leaving low revenue products for the railroads.[30] The greatest rate of traffic growth among class I and class II carriers, in order, has been in refrigerated solid products, heavy machinery, motor vehicles, agricultural commodities, and general freight.[31]

The switch from rail to truck carriage can be attributed primarily to the greater flexibility and higher quality of trucking services. Trucks can depart and arrive more nearly in accordance with customer's demands, move smaller

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[26] American Trucking Associations, 1964 American Trucking Trends (Washington, D. C., 1965).

[27] Transportation Facts and Trends, 1965.

[28] 1964 American Trucking Trends.

[29] 1964 American Trucking Trends.

[30] For some discussion of the significance of this, see James C. Nelson, op. cit., Chapter 3.

[31] 1964 American Trucking Trends.

orders and make more frequent stops for partial loading or unloading, provide door-to-door service, move faster between most points, and serve points not directly available to rail cars. Protection of the lading often is better. Although their charges usually (not always) are higher than rail charges for comparable movements, service factors often considerably outweight current total cost differences. It is not likely that much of the traffic already diverted to trucks will be regained easily by the rails.

Likewise, the diversion of traffic from for-hire to private trucking can be explained largely by services features, although comparative cost factors are of some importance.[32] In cases where an industrial or commercial firm can operate with a two-way haul, private truck transport may be considerably less costly than for-hire services. Many firms succeed in developing a back-haul of exempt commodities if their own operations do not provide a back-haul, and some have been known to engage in illegal for-hire transport of regulated commodities in order to maintain their private fleet. Like truck transportation in general, private carriage, even the legal variety, has a well-established niche in the transportation scheme and probably will continue to increase.[33]

Washington's Truck Traffic

Table 6-18 shows the growth of truck registrations in the state of Washington and in the nation from 1950 to 1964. During this period, Washington registrations increased by about 97 per cent, while national registrations increased only by some 62 per cent. This more rapid increase in Washington, no doubt, is attributable in considerable part to the rapid diversion of intrastate rail traffic to truck carriage--a diversion that may already have been further under way in many other states.

A profile of Washington trucking is presented by the 1963 Census of Transportation.[34] This shows that 63.3 per cent of the state's registered trucks during 1963 were pickups, and that 76.2 per cent altogether were of 10,000 pounds or less gross vehicle weight. About 19.2 per cent were in the 10,001 to 26,000 pounds weight bracket, while only 4.6 per cent had gross vehicle weights of above 26,000 pounds.

The Census revealed that 39.7 per cent of the state's trucks were used primarily for personal purposes, 27.8 per cent were used in agriculture, 20.5 per cent by manufacturing, distributing, and various services establishments,

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[32] See James E. Rosenzweig and Borje O. Saxberg, A Study of Motor Freight Private Carriage: With Special Emphasis on Puget Sound Area Firms (Transportation Advisory Council Research Report No. 1, Seattle: University of Washington, College of Business Administration, n.d.).

[33] See Borje O. Saxberg and James E. Rosenzweig, A Questionnaire Survey Study of Businessmen's Attitudes Toward Freight Transportation Media In The Puget Sound Area With Special Emphasis on Common Carriage (Transportation Advisory Council Research Report No. 2, Seattle: University of Washington, College of Business Administration, n.d.).

[34] U.S. Census Bureau, 1963 Census of Transportation, Truck Inventory and Use Survey: Washington, Advance Report, November, 1964.

Table 6-18

UNITED STATES AND WASHINGTON TRUCK REGISTRATIONS, PRIVATE AND FOR-HIRE, SELECTED YEARS, 1950-64

(thousands)

Year	United States	Washington
1950	8,239	156
1952	8,817	169
1954	9,374	185
1956	10,233	212
1958	10,630	221
1960	11,353	251
1962	12,158	272
1964	13,300[a]	307

[a]Estimated.

SOURCE: U. S. registrations from American Trucking Associations, 1964 American Trucking Trends; and Washington registrations from Motor Vehicle Division, Department of Licenses, State of Washington.

and eight per cent in contract construction. Only four per cent, or around 10,900, were in for-hire carriage service.

Further, the Census reported that 75.2 per cent of the state's trucks were used only locally, that is, within a short distance of the vehicle's home base, while 8.6 per cent were used for intermediate and long distances. Only 3.2 per cent were driven more than 30,000 miles annually, while 29.3 per cent were driven less than 5,000 miles. Clearly, in Washington as in the nation, a very few trucks do a large part of the hauling.

Table 6-19 shows the growth of class I and class II common and contract carriage in Washington from 1957 to 1963 (due to a classification change in carrier sizes, pre-1957 data are not comparable). It should be emphasized that this table does not show private or exempt carriage, or the operations of smaller for-hire truckers. Rather, it covers only those large carriers subject to state regulation, numbering 101 in 1963. Also, intrastate and interstate tonnage is not segregated, and the tons carried include some double counting due to the same shipment being handled by more than one carrier in some instances.

The 101 regulated carriers in 1963 included 27 general freight haulers, who accounted for some 80 per cent of the vehicles owned and of the ton-mileage of the entire group, as well as accounting for 75 per cent of the employees, two thirds of the miles operated, and 60 per cent of the tons carried. Other categories of truckers included 23 local cartage firms, 12 liquid petroleum haulers, 11 household goods movers, nine haulers of building materials, and six agricultural products carriers. The remaining 12 carriers handled several miscellaneous commodities. The entire group owned about 10,500 trucks and tractors plus about 13,200 trailers and semi-trailers. Their tonnage handled was equivalent to about 6.4 tons per capita of the state's population (1961 rail originations were 5.5 and terminations a little less than six tons per capita).

Table 6-19

TONS OF FREIGHT CARRIED AND MILES OPERATED IN INTERCITY SERVICE BY CLASSES I AND II COMMON AND CONTRACT CARRIERS TRUCKERS IN WASHINGTON, 1957-63

(millions)

Year	Tons Carried	Miles Operated
1957	11.9	277.7
1958	11.5	254.5
1959	13.9	297.2
1960	14.9	322.4
1961	16.5	347.7
1962	17.1	359.6[a]
1963	19.2	532.2

[a]Tons and miles not available for one liquid petroleum carrier.

SOURCE: Washington Utilities and Transportation Commission (formerly Washington Public Service Commission), Statistics of Class I and II Common and Contract Motor Carriers of Property, various years.

Tonnages shown on Table 6-19 increased about 61 per cent between 1957 and 1963, while miles operated increased 92 per cent. Altogether, the 101 carriers accounted for more than 6.5 billion ton miles in 1963, with an average vehicle load of 12.24 tons and an average length of haul of 339.5 miles (comparable national average figures, as noted above, were 10.7 tons and 234 miles for 1962).

Revenues received by this group of carriers during 1963 amounted to about $440.5 million, a considerably larger per carrier average than for class I and II carriers in the country as a whole. This amounted to about $145 per capita for the state's population, and might be contrasted with the $59 per capita average (or $176 million total) for the state's 1961 rail originations. Actually, the truck "tons carried" figures perhaps are most comparable to Washington's railroad "originations" plus "inbound" (see Tables 6-4 and 6-5, above) which amounted to 23.6 million tons in 1961.

The average ton-mile revenue received by these carriers during 1963 was about 6.3 cents, or slightly below the national average for comparable carriers. Average ton-mile revenues received, however, varied from more than eight cents for the local cartage group to less than two cents for the household goods movers. General freight and liquid petroleum carriers averaged more than five cents and miscellaneous carriers almost four cents per ton-mile. Railroad revenues on all Washington-originated traffic averaged 1.3 cents, and 2.2 cents on the intra-state portion, during 1961.

A look at truck versus rail movements of several specific commodities may aid in understanding what is happening and what may be expected in intermodal competition.

Table 6-20 compares truck and rail movements of Washington and Oregon frozen fruits and vegetables to various destinations from 1956 to 1964, while Table 6-21 does the same for Pacific Northwest canned fruits, berries, and vegetables. The data from which these tables were derived do not segregate Washington traffic, except its intra-state movements, from other traffic.

Table 6-20

TRUCK TONNAGE AS A PERCENTAGE OF RAIL TONNAGE OF WASHINGTON AND OREGON FROZEN FRUITS AND VEGETABLES MOVED TO VARIOUS DESTINATIONS, SELECTED YEARS, 1956-64

Year	Mountain-Pacific Area[a]	Washington Intra-State	Rockies to Mississippi R.	East of Mississippi R.
1956	169.0	223.0	(NC)	(NC)
1958	467.0	876.0	(NC)	(NC)
1960	462.0	542.0	65.5	14.2
1962	317.0	341.0	57.6	17.5
1964	313.0	326.0	30.8	13.4

[a]Interstate traffic only.

(NC) Not comparable.

SOURCE: Computed from data furnished by Northwest Canners and Freezers Association. See text for explanation.

Table 6-21

TRUCK TONNAGE AS A PERCENTAGE OF RAIL TONNAGE OF PACIFIC NORTHWEST CANNED FRUITS, BERRIES, AND VEGETABLES MOVED TO VARIOUS DESTINATIONS, SELECTED YEARS, 1956-64

Year	Mountain-Pacific Area[a]	Washington Intra-State	Rockies to Mississippi R.	East of Mississippi R.
1956	114.0	980.0	(NC)	(NC)
1958	152.0	344.0	(NC)	(NC)
1960	122.0	662.0	1.0	b
1962	131.0	571.0	2.8	b
1964	106.0	512.0	4.9	b

[a]Interstate and intra-state traffic.

(NC) Not comparable.

[b]Less than 1%.

SOURCE: See Table 6-20.

There is no reason to suspect, however, that Washington's portion of this traffic behaves significantly differently from the traffic originating in the other Pacific Northwest states. The figures shown cover from 66 to 88 per cent of the region's frozen pack (varying by years) and from 84 to 95 per cent of the canned pack. Frozen potato products are included only for 1964 in Table 6-20.

During 1964, 43.8 per cent of the total frozen pack (truck plus rail) went to the mountain-Pacific area, that is, to the three Pacific coast states, Idaho, Nevada, Arizona, Utah, Montana, and western portions of New Mexico,

Colorado, Wyoming, South Dakota, and North Dakota. About 26.8 per cent went to the area between the mountain-Pacific territory and the Mississippi River, while 29.4 per cent went east of the Mississippi. An upward trend exists in total shipments to the two regions west of the Mississippi, while eastern shipments are trending downwards. The total frozen pack, however, was about 30 per cent larger in 1964 than in 1956 (even if frozen potato products are excluded), thus both truck and rail shipments were higher in the latter year than in the former.

The Pacific Northwest canned pack also was substantially higher, about 24 per cent, in 1964 than in 1956, thus shipments increased to all regions by both truck and rail (intra-state rail declined, however). The 1964 distribution of the pack was 58.3 per cent to the mountain-Pacific area, 12.8 per cent between the Rockies and the Mississippi, and 28.9 per cent east of the Mississippi River.

Table 6-22 shows truck movements as a percentage of rail movements of both canned and frozen fruits, vegetables, and berries to all destinations from 1956 to 1964. Truck tonnage clearly is significant, although less so in 1964 than in some earlier years of the period studied. In absolute terms, truck tonnage increased by about 74 per cent and rail tonnage by about 25 per cent from 1956 to 1964. The trucking increase was consistent throughout until the 1964 decrease, but the biggest increase, relatively and absolutely, was between 1956 and 1958. Rail tonnage increases, in absolute terms, have occurred since 1958.

Table 6-22

TRUCK TONNAGE AS A PERCENTAGE OF RAIL TONNAGE, PACIFIC NORTHWEST CANNED AND FROZEN FRUITS, VEGETABLES, AND BERRIES MOVED TO ALL DESTINATIONS, SELECTED YEARS, 1956-64

Year	Truck as % of Rail
1956	41.7
1958	66.4
1960	64.1
1962	67.2
1964	57.1

SOURCE: See Table 6-20.

Examination of Tables 6-20, 6-21, and 6-22 suggests that the relative balance between truck and rail tonnage, after a truck upsurge, now is stabilizing or even shifting back toward the rails, at least for interstate traffic. Every trend on each of the three tables indicates this except canned goods to the area between the Rockies and the Mississippi River. This does not mean, of course, that truck shipments are declining or will decline significantly in an absolute sense. Rather, it indicates that truck shipments are not diverting as much of the increased total traffic as formerly.

Table 6-23 shows truck tonnages as a per cent of rail tonnages of Washington apples to all destinations. The data upon which this table is based cover an estimated 95 per cent of the state's commercial apple production. Again, a rapid relative increase in trucking, followed by a leveling-off around 1960, is apparent. Railroad shipments still dominate, although only slightly so. During the years covered by this table, total apple shipments increased by about 15 per cent and truck shipments by 105 per cent, while rail shipments declined absolutely by some 18 per cent.

Table 6-23

TRUCK TONNAGE AS A PERCENTAGE OF RAIL TONNAGE, WASHINGTON APPLES MOVED TO ALL DESTINATIONS, SELECTED YEARS, 1954-55 TO 1964-65

Year	Truck as % of Rail
1954-55	36.4
1956-57	47.7
1958-59	63.7
1960-61	90.5
1962-63	93.4
1964-65[a]	92.0

[a]Preliminary estimate.

SOURCE: Computed from data supplied by Wenatchee Valley Traffic Association. See text for explanation.

According to a recent study, trucking accounts for about ten per cent of grain receipts at terminal markets in the Pacific Northwest.[35] This percentage remained fairly constant (varying only between 9.4 and 10.6 per cent) from the 1958-59 through the 1961-62 seasons. Elevator operators and processors cite the major trucking advantages as lower rates and smaller quantities, while the major rail advantages are transit services and faster handling. Some of this movement is handled by grain merchandisers themselves. The for-hire portion usually involves a back-haul in which the trucker does not have to receive a full-cost rate (grain, like other agricultural commodities, is exempt from rate regulation when moved by truck).

Specific data regarding Washington truck shipments of lumber and plywood were not available for this study. Statistics from the Western Wood Products Association (formerly West Coast Lumbermen's Association), however, indicate that truck and barge movements of lumber from Washington origins to domestic destinations amounted to about 34.8 per cent of rail movements during 1964. This compares with 31.2 per cent in 1955 and a high of 37.7 per cent in 1960. Although the data as available could not be segregated between truck and barge tonnage, it is clear that one or the other of these

[35]U. S. Department of Agriculture, An Analysis of Grain Transportation in the Northwest. (Economic Research Service, ERS 200, Washington, D. C.: U. S. Department of Agriculture, December, 1964).

modes, or both, are diverting some traffic from the rails. Informed industry sources estimate that truck tonnage movements of Washington plywood are not more than around ten per cent of rail movements.

Recurrent or continuing rail car shortages, and other sources of dissatisfaction with rail service, are stimulating experiments in truck movements of lumber and plywood. Small but increasing amounts of Washington lumber and plywood are now moving by truck, on a back-haul basis, into the Chicago area and even further east. Industry sources say that rates for these movements are slightly higher than rail rates, but that offsetting advantages are realized through mill to job-site transport, better protection of shipments, and faster delivery. Several midwestern or southwestern truck carriers recently have been investigating the possibility of expanding their operations into the Pacific Northwest based upon a lumber and plywood back-haul. Some individuals in the lumber and plywood industries expect that these and other truck movements will increase. Even if this is so, however, it probably will be some time before such operations can make significant dents into rail transcontinental lumber and plywood traffic.

A survey of several Washington paper and paper product producers which we made in connection with this study reveals that truck versus rail shipments vary widely. One firm reported that its truck shipments amounted to only about five per cent of rail shipments, while another reported an approximate 70-30 balance between truck and rail. Others were between these two extremes. The shipper reporting the highest percentage of truck movement indicated a belief, however, that after a gradual truck climb an apparent stability now has been reached and that it is likely that the truck percentage will decline slightly in coming years.

In summary, it appears that in Washington, as in the nation, truck transportation has expanded rapidly both absolutely and relatively since the early 1950's (actually, since World War II). Much of this expansion has been in traffic which otherwise would have moved by rail, and has been in high-grade commodities which product high freight revenues. All segments of trucking, regulated for-hire, exempt for-hire, and private, have shared in this expansion. In some instances cost factors have been responsible for the increase in trucking, especially where back-hauls of private or exempt commodities have been available. In general, however, the higher quality of trucking services has been most important to shippers. The supply of these services, of course, has been greatly facilitated by advances in trucking technology and organization and by the provision of more and better highways.

The available evidence, however, suggests that the greatest expansion of trucking services, at least on longer hauls, is in the past. In other words, barring unforeseen and unpredictable developments, trucks now have obtained those types of traffic most easily diverted from other modes. This does not mean, of course, that trucking will decline, either absolutely or relatively. In fact, it probably will become even more important for many types of short-haul and small-lot traffic, and no doubt will penetrate even further into some areas of large-lot and long-haul movement. In total, however, although trucking may be expected to continue to grow a little faster than transportation in general, it will not maintain its former or present rate of increase. Also, it seems likely that private trucking will grow faster than the for-hire variety.

Other Forms of Freight Traffic

Oil pipelines and air carriers are the two remaining primary modes of freight transportation. Secondary modes, such as freight forwarding and express services, and various other allied services, complete the roster. These modes and allied services, due to their smaller employment impact in the state of Washington, and the resource limitations of this study, will be considered more briefly than the previously discussed modes.

Oil Pipeline Traffic: As indicated in Table 6-3, oil pipelines have grown into the nation's third largest mode of freight transport in terms of ton miles. Despite this, however, pipeline employment has decreased substantially during recent years (see Table 6-1).

The oil pipeline network is made up of gathering lines which collect oil in the field and carry it to central distribution points, crude lines which pump the unrefined oil to refineries, and product lines which distribute the refined products from refineries. Only the latter type of line is of current importance in the Pacific Northwest, and its employment contribution has been negligible (see Table 6-2).

Pipeline operations are very capital intensive, and highly mechanized and automated, requiring few operatives. The average ton-mile cost of pipeline movements is around 0.3 cents, much lower than for any other form of transport except water, and even competitive with water in some cases. Rising costs in other modes have created an interest in moving various other products, such as coal, ore, grain, and wood chips, by pipeline during recent years. Pulverized coal, suspended in water, was moved successfully in an Ohio commercial operation from 1957 to 1961, and chips are being moved by pipeline in a Canadian operation.

Due to the pattern of the state's resources and production, there is little likelihood that pipeline employment will become of significant importance in Washington within the foreseeable future. Rather, pipeline operations are more likely to divert tonnage from and restrain employment increases in other modes.

Air Freight Traffic: Commercial air freight transportation has grown rapidly in a relative sense since its World War II origin (see Table 6-3). It still is an insignificant part of the nation's freight ton mileage, however, and with the exception of the few struggling all-cargo carriers accounts for only a small part of airline revenues.

In certificated domestic airline operations, scheduled and chartered, passengers account for about 88 per cent of the industry's transportation revenues, as contrasted with approximately 7.5 per cent for freight, 2.5 per cent for mail, a little more than one per cent for express, and a little less than one per cent for excess baggage. In international operations of American carriers, passenger revenues make up about 77.5 per cent of total revenues, freight about 11.5 per cent, mail a little less than ten per cent, and excess baggage charges more than one per cent. International air express revenues are a very minor part of one per cent.[36]

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[36] From data published in Civil Aeronautics Board, Handbook of Airline Statistics, 1963 ed. (Washington, D. C.: Superintendent of Documents, April, 1964).

Domestic air freight rates of certificated carriers averaged more than three times as high as truck rates and sixteen times as high as rail rates per ton-mile in 1962. These averages can be misleading, however. Rates are much closer together on the types of traffic actually moving by air, and airline distances (and the ton mileage for equivalent shipments) usually are smaller than by rail or truck.

The airline industry faced a serious financial problem with the introduction of jet aircraft. After 1961, however, its outlook improved considerably. Profits after taxes for the U. S. trunk lines as a group amounted to around 10. 1 per cent on investment in domestic operations, and to about 11 per cent on investment including foreign operations, during 1964. The demonstrated financial health of this segment of the industry has led to speculations that decreased rates and fares may soon appear.[37] If so, it might reasonably be expected that even more traffic will be diverted to airlines from other modes.

Actually, the rate gap between air freight and other modes of freight transport has decreased consistently and substantially since the 1940's. Although there are exceptions, rates of other modes in general have increased or at least remained stable on the types of traffic most suitable for air transport. The rapidly improving technology and organization of the younger air freight carriers, however, has lowered line-haul costs considerably. If present trends continue, air freight rates will be comparable to trucking rates for a substantial volume of traffic within the next decade. It is not likely, though, that air freight rates will decline to the neighborhood of long-haul rail or domestic water carrier rates, or to ocean carrier rates for bulk movements. Trucks stand to lose the most by an increase in air freight. Terminal handling costs and delays, which are being recognized and overcome, are one of the principal obstacles confronting air freight service.[38]

In addition to lowered costs, airlines have benefitted from aggressive advertising based upon the "total distribution cost" concept; that is, fast transportation, even though more expensive, may reduce inventory and warehousing costs more than enough to offset higher freight rates, while at the same time providing better customer service. These factors, plus the greatly increased capacity, availability, frequency, and reliability of airline services have contributed substantially to air freight growth. Also, interline arrangements with motor carriers, who may feed traffic into airports for distances up to 50 to 150 miles, have brought air freight services to many thousands of communities not served by major airports.

Table 6-3 shows that the airlines' relative share of U. S. freight ton mileage increased ten-fold between 1948 and 1964. During the past ten years, their absolute ton mileage has risen from about 0. 4 billion to 1. 5 billion.

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[37] For example, see "The Small, Small Cloud," Forbes, April 1, 1965, pp. 15-16, and "Will CAB Get Tough Now?" Business Week, August 7, 1965, p. 34.

[38] See Stanley H. Brewer, Air Cargo -- The Gold is in the Terminals (Management Series No. 5, Seattle: University of Washington, College of Business Administration, 1962).

In the international sphere, a recent report points out that air freight exports between 1962 and 1964 rose by 53 per cent and imports by 31 per cent, while exports and imports by scheduled ocean liners rose only by five per cent and two per cent respectively (air tonnage, however, amounted to less than one-half of one per cent of liner tonnage).[39] Another report predicts that overseas air freight will continue to increase even more rapidly than domestic air shipments, and that its revenues will eventually be as large as overseas passenger revenues.[40] This has particular significance for Washington, and especially for Seattle, which is strategically located to profit from an increase in international air cargoes.[41]

During 1963, Washington originated approximately 1.09 per cent of the nation's air freight tonnage, 0.48 per cent of the express tonnage, and 2.03 per cent of the mail tonnage. Of the state's total originations, the Seattle-Tacoma International Airport accounted for 86.3 per cent of the freight, 69.0 per cent of the express, and 87.6 per cent of the mail. The state's next leading airport, Spokane, accounted for an additional 8.7 per cent of the freight, 20.0 per cent of the express, and 8.3 per cent of the mail.[42] Some perspective on the overall relative size of Washington's air freight movement can be obtained by comparing it with the state's volume of rail traffic. On an "average" day in 1961, the state's railroads handled 64 per cent more freight tonnage than was handled by its airlines during the entire year of 1964.[43]

Table 6-24 shows the tonnages of freight, express, and mail handled through the Seattle-Tacoma International Airport from 1956 to 1964. The total volume of express declined between these two years, due to the sizeable relative decrease in outbound tonnage with relatively modest inbound increases. Mail volume increased substantially, as might be expected. The impact of the Seattle World's Fair is noticeable in the 1962 mail volume. Total air freight also increased substantially, more than doubling during the period shown, but inbound increases were of much greater magnitude than outbound.

Alaska, either as an originator or a terminator, accounts for 36 per cent of the Seattle-Tacoma International Airport's freight, followed by the Atlantic seaboard states with 21 per cent, the Midwest with 19 per cent, and California with 14 per cent. Other states and foreign countries account for

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[39] Joseph S. Coyle, "Just What the Market Ordered," Traffic Management, July, 1965, p. 36.

[40] Jack M. Slichter, "Airlines Boost Spending on Handling Facilities as Air Cargo Ton-Mileage Spirals Upward," Traffic World, June 26, 1965, pp. 54-58.

[41] See Stanley H. Brewer, The Competitive Position of Seattle and Puget Sound Ports in World Trade (Management Series No. 7, Seattle: University of Washington, College of Business Administration, 1963), pp. 26-33.

[42] Calculated from data published in Civil Aeronautics Board and Federal Aviation Agency, Airport Activity Statistics of Certified Route Carriers, 12 Months Ended December 31, 1963 (Washington: Superintendent of Documents, June, 1964).

[43] Calculated from reported air and rail traffic data.

Table 6-24

AIR FREIGHT, EXPRESS, AND MAIL, INBOUND AND OUTBOUND, SEATTLE-TACOMA INTERNATIONAL AIRPORT, SELECTED YEARS, 1956-64

(tons)

Year	Freight		Express		Mail	
	In	Out	In	Out	In	Out
1956	5,919	10,211	879	1,419	4,679	4,757
1958	6,460	15,062	867	528	5,831	5,761
1960	9,605	11,316	1,006	660	6,918	6,860
1962	14,000	14,124	1,183	693	8,559	8,985
1964	17,680	17,663	1,093	719	8,766	7,839

SOURCE: Port of Seattle, Seattle-Tacoma International Airport: Report on Operations, various years.

the remainder. Machinery and parts, accounting for 34 per cent of the total tonnage, is by far the leading traffic item.[44]

Comparison of Table 6-24 and of Washington's total air freight traffic with national growth patterns clearly indicates that in proportion to population the state's air freight growth has lagged considerably behind that of the nation. This is not surprising in a state with production heavily reliant upon agriculture and forestry. It may be expected that as the state's economy becomes more diversified and more industrialized its air freight traffic will grow somewhat faster than in the past and faster than that of the nation as a whole for a time.

Intermodal Coordination: Intermodal coordination as used here refers to freight line-haul movement by more than one mode of carriage. The Interstate Commerce Commission has had authority to require such coordination between rail and water carriers for decades, but cannot require it between other modes.

The modern era of coordination got under way during the early 1950's, with the beginning of present-day piggyback or TOFC (trailer-on-flatcar) movements. Piggyback combines the local flexibility of trucks with the national flexibility and line-haul economies of railroads into a service advantageous to truck and rail carriers as well as to shippers and receivers. In addition, it relieves highway traffic congestion.

Piggyback grew from a movement of 168,000 carloads in 1955 to 890,000 in 1964.[45] This was an increase of some 430 per cent, as compared to an increase in air freight ton mileage of around 206 per cent during the same period. Piggyback growth, however, although still increasing rapidly, seems to be leveling off more than air freight growth.

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[44] Port of Seattle Commission, Seattle-Tacoma International Airport and its Impact upon the Economy of King County, n. d.

[45] Burton N. Behling, A Review of Railroad Operations in 1964 (Washington, D. C.: Association of American Railroads, 1965).

Washington had not shared as fully in piggyback transportation as it might have, and as it no doubt will in future years. This appears largely to be due to the unwillingness of major rail lines directly serving the state to enter into piggyback arrangements with motor carriers; instead, they seem to prefer the various "all-rail" piggyback plans.[46] It does not seem likely that this attitude will endure indefinitely, however.

The Puget Sound area is well located for participation in various types of "fishyback" operations, involving the movement of trailers or rail cars on barges or specialized vessels. This type of movement is peculiarly well adapted to the Alaskan trade and to some types of coastwise and intercoastal traffic. Although small at present, it can be expected to continue to grow moderately.

The recent interest and developments in freight containerization has increased the possibilities and the likelihood for more intermodal coordination between rail, motor, water, and air carriers. Although numerous technological and operational problems remain to be solved, the principal obstacles to its further development are institutional. It is inconceivable that institutional barriers to transport efficiency can long endure in a profit-motivated economy. Intermodal coordination, with or without common ownership of the different modes, is destined to grow.

Allied Freight Services: Services directly related to freight transportation include such activities as surface, air, and ocean freight forwarding, express services, public warehousing, transportation brokerage, equipment rentals, terminal and maintenance installations, purveyors of supplies and services, and the like. Altogether, this group accounts for around 15 per cent of Washington's employment in the transportation and allied services category (see Table 6-2).

This, of course, does not include those persons engaged full-time in transportation work for government, trade associations or cooperatives, civic organizations, industrial or commercial firms, or those fully engaged in catering to various other needs of transportation (as equipment manufacturers and dealers, highway construction and service station employees, etc.). If this latter group were included, transportation and "related employment" figures would be increased by at least around 300 per cent.[47]

The number of persons engaged in "allied freight services" cannot be expected to fluctuate directly with the volume of freight moved. Although volume has some influence, how the freight moves and broad distribution patterns are more influential. For example, surface freight forwarding may be expected to increase as rail and truck carriers discontinue handling or increase rates on small-lot shipments. Public warehousing is significantly affected by local inventory maintenance policies of out-of-state firms.

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[46] Strong evidence supporting this statement is found in Gerald Burr Halverson, Trailer on Flatcar Policies of Rail and Motor Common Carriers Serving Oregon and Washington, an unpublished Master's thesis presented to the School of Business Administration and the Graduate School of the University of Oregon, Eugene, Oregon, December, 1964.

[47] Based upon U. S. employment figures for transportation and related industries published in Transportation Facts and Trends, 1965.

Maintenance, supply, and service needs of the various modes of carriage are quite different.

The above described allied services, however, are as essential to the transportation process as is the line-haul movement itself. Further, those engaged in such personalized functions are not as susceptible to replacement by automation or improved technology as are some other transportation occupations. It is reasonable to expect, therefore, that "allied freight services" will continue to account for a substantial percentage of total transportation employment in Washington as elsewhere.

Passenger Traffic Patterns and Trends

Americans spend about one-fourth more on transporting themselves than on transporting their goods. The Transportation Association of America estimated the nation's total 1963 passenger traffic expenditure for intercity, international, and local transport at $64.7 billion, or about 11.1 per cent of Gross National Product.[48] The proportion of GNP spent on passenger transport has fluctuated between 10.4 per cent and 11.2 per cent for the past several years.

Computations based upon the TAA data show that 88.1 per cent of the nation's 1963 passenger bill was spent for private transport. About 98.3 per cent of this private transport expenditure (more than $56 billion) was for automobile transport, with the remainder going into private air carriage.

The more than $7.7 billion for-hire transport expenditure was divided into intercity transport, which accounted for 48 per cent of the total, local transport, 37.5 per cent, and international transport, 14.5 per cent. Air carriage accounted for 72 per cent and water carriage for 28 per cent of the international expenditure. In intercity for-hire transport, air carriers received 69.2 per cent of the total revenues, busses 17 per cent, railroads 13.4 per cent, and water carriers about 0.4 per cent.

Based upon the number of reported employees engaged in intercity bus, taxi and other local transit services, plus an allocation of air and water employees proportionate to the revenues attributable to the passenger services of these modes, and an allocation of railroad employees proportionate to railroad expense allocation between freight and passenger services, it is possible to make at least a rough division of for-hire transport employment between freight and passenger carriage, and further, between intercity and local passenger carriage. Using such assumptions and data, we estimate that about 20.7 per cent of national for-hire transport employment and 20.2 per cent of Washington for-hire transport employment is attributable to passenger carriage. Further, on the national scene, local transport accounts for about 45.5 per cent of for-hire passenger employment, but only for about 37.5 per cent in Washington. These estimates are not precise, of course, but they probably reflect the described relationships fairly well.

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[48] Transportation Facts and Trends, 1965.

Intercity Passenger Traffic

Intercity passenger mileage (one passenger for one mile) amounted to about 875 billion in 1964. Between 1950 and 1964, while GNP (in constant dollars) increased by a little less than 64 per cent and population by approximately 26.3 per cent, intercity passenger mileage increased by almost 85 per cent, and intercity automobile passenger mileage by more than 87.1 per cent.[49]

The 1963 Census of Transportation provides a considerable amount of information about American intercity travel patterns.[50] About 61 per cent of all trips (overnight, or 100 or more miles from home) are for pleasure, including visiting. Another 21 per cent are for business, and 18 per cent are for personal or family reasons.

Automobiles moved 89 per cent of the 1963 travelers (94 per cent of those traveling less than 50 miles and 61 per cent of those going more than 500 miles). Commercial air carriage accounted for four per cent, bus for three per cent, and rail for two per cent. Another two per cent moved by other means, such as private air transport, water, or a combination of modes. Air transport accounted for 16 per cent and water transport for 14 per cent of travelers going outside the United States. Persons in the western region (Montana, Wyoming, Colorado, New Mexico, and westward) did more intra-regional travel, 89 per cent of their total trips, than did residents of the northeastern, north central, and southern regions.

The Census data reveal a positive relationship between family income and the amount of travel. Also, definite relationships are apparent between income level and mode of travel. The greatest relative concentration of automobile travel occurs in the family income range of $5,000 to $10,000, while air travel is more concentrated among those families with incomes of $10,000 and up. Air travel increases steadily as incomes increase, bus travel decreases steadily, and auto travel first moves up until the $5,000 to $10,000 bracket is reached then declines again. There is less variation by income level in rail travel than in any other mode.

Table 6-25 shows how the 875 billion 1964 passenger mileage and the 473 billion for 1950 was divided between private automobiles and public carriers, and how the public portion was distributed between the various modes. In absolute terms during this period, automobile passenger miles increased by 87.1 per cent, air by 387.1 per cent, and water by 130.7 per cent. Bus passenger miles were virtually the same in 1964 as in 1950, although there were increases from 1950 through 1953, decreases between 1954 and 1961, and increases from 1961 to 1964. Railroad passenger mileage decreased by 43.4 per cent. It is clear that private automobile traffic has been increasing more rapidly than for-hire passenger traffic, and that air carriage has cut deeply into rail traffic.

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[49] Calculations based upon data published in Transportation Facts and Trends, 1965.

[50] U. S. Census Bureau, 1963 Census of Transportation, Passenger Transportation Survey: National Travel, Advance Report, November, 1964.

Table 6-25

PERCENTAGES OF INTERCITY PASSENGER MILEAGE ATTRIBUTABLE TO VARIOUS MODES OF TRANSPORT, 1950 AND 1964

	1950	1964
Private automobile	85.8	89.3
For-hire carriers	14.2	10.7
	100.0	100.0
Relative for-hire shares:		
Air	15.2	52.3
Bus	34.1	24.2
Rail	50.4	18.4
Water	0.3	3.8

SOURCE: Computed from data in Transportation Facts and Trends, 1965.

Private automobile ownership in the nation increased by about 38.4 per cent between 1950 and 1962.[51] This increase was about 65 per cent greater than the increase in population, and about 77 per cent as large as the increase in GNP during the same period.

Automobile registration in the state of Washington, however, increased by 68.7 per cent from 1950 to 1964, or almost 58 per cent between 1950 and 1962.[52] That is, Washington's rate of auto registration growth was almost 92 per cent faster than the national rate, and about 312 per cent of the rate of the state's population growth. Washington's 1964 auto registration, approximately 1,254,800, was the equivalent of one automobile for every 2.4 inhabitants, compared with one auto for every 2.9 inhabitants in the country as a whole.

The nation's railroads in 1964 received about 5.9 per cent of their total operating revenues from passenger service, and showed a loss on passenger operations (according to ICC accounting rules) of around $410 million, or an amount equivalent to almost 59 per cent of their net profits.[53]

As indicated above, railroads' relative share of for-hire intercity passenger traffic has declined substantially during recent years. Actually, rail passenger mileage, with the exception of 1951, has declined every year since 1944. This is not an entirely new phenomenon, however, as rail passenger mileage also declined every year from 1923 to 1934.[54]

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[51] Based upon data from Transportation Facts and Trends, 1965.

[52] Based upon data from State of Washington, Department of Licenses, Motor Vehicle Division.

[53] From data in Association of American Railroads, Yearbook of Railroad Facts, 1965.

[54] Association of American Railroads, Railroad Transportation: A Statistical Record, 1921-1963, April, 1965.

The railroad passenger traffic decline has been reflected in decreased rail passenger facilities--or vice versa. For example, between 1950 and 1963, rail route mileage operated in passenger service decreased by 42.7 per cent, to 84,744 miles (during the same period, airline passenger route mileage increased 36 per cent, to 105,196 miles).[55]

Further, according to Association of American Railroads data, passenger train cars decreased by 46.6 per cent, and passenger train car miles by 45 per cent, between 1950 and 1964.[56] The number of passengers carried, including commuters, decreased by 35.6 per cent during the same period, to a 1964 figure of 313 million. Commuter traffic accounted for 23 per cent of all railroad passenger miles in 1964, as compared to only 15.7 per cent in 1950, or, stated differently, while non-commuter passenger miles have declined more than 43 per cent since 1950, commuter passenger miles have declined only by about 15.7 per cent.

The three major railroads providing direct passenger service to Washington (Great Northern; Northern Pacific; and Spokane, Portland, and Seattle), however, present a picture somewhat different from the national average. Their combined passenger revenues were only 3.6 per cent of total 1963 revenues (down from 4.4 in 1950), and their passenger business has declined less than that of railroads as a whole.[57] Between 1950 and 1963, the number of passengers carried by these railroads decreased 31 per cent. Passenger revenues, however, decreased only by 6.5 per cent, and passenger miles only by 4.2 per cent. Actually, two of these three railroads had higher passenger miles and higher passenger revenues in 1963 than in 1950. According to data furnished by the Washington Railroad Association, though, rail passengers carried within, from, or to the state of Washington decreased from a little more than 1.6 million in 1955 to a little more than one million in 1964.

The total number of passengers enplaned in Washington's scheduled airline service in 1963 was 1,015,385, or approximately 1.51 per cent of continental United States enplanements.[58] Of these, about 69.3 per cent were enplaned at Seattle-Tacoma International Airport and 15 per cent at Spokane.

Inbound passengers at Seattle-Tacoma International Airport totaled 1,009,000 in 1964, and outbound 995,000. The total number handled, inbound

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[55] Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Transport Economics, November, 1964.

[56] Yearbook of Railroad Facts, 1965.

[57] Based upon the author's computations from data published in Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Sixty-Fourth Annual Report on the Statistics of Railways in the United States for the Year Ended December 31, 1950; and Seventy-Seventh Annual Report on Transport Statistics in the United States for the Year Ended December 31, 1963.

[58] Civil Aeronautics Board and Federal Aviation Agency, Airport Activity Statistics of Certified Route Air Carriers, 12 Months Ended December 31, 1963, June, 1964.

and outbound, increased by about 269 per cent between 1950 and 1964.[59] (As noted above, U. S. air passenger mileage increased by 387 per cent during this same period.)

Based upon the average length of journey and the average charges per passenger mile by the various for-hire modes, it is clear that each mode serves, in part at least, a different travel market. The average trip by scheduled domestic air carriage in 1963 was 602 miles, as compared to 456 miles by first-class rail, 108 miles by rail coach (excluding commuters), and 86 miles by class I intercity bus.[60] The average 1963 passenger mile charge for first-class air travel was about 7. 2 cents, for air coach 5. 6 cents, for all rail service except commutation 3. 2 cents, and for bus travel 2. 7 cents.[61] The most competitive services would seem to be air versus first-class rail and bus versus rail coach. Also, at least to the author, it appears that there is a place for all these services in Washington and in the nation.

Local Passenger Traffic

The automobile has had the same kind of impact upon local as upon intercity passenger transport. More than one half of the people entering or leaving large metropolitan areas travel by auto.[62] Although local automobile travel usually is considerably more costly than for-hire mass transport to individuals and to the public which must provide ways and other facilities for this traffic, the growth of suburban residential, commercial and industrial fringes, plus the greater flexibility and degree of choice associated with individualized as opposed to mass transportation, make it likely that the automobile trend will not be reversed.[63] Perhaps the best that can be hoped for during the next two decades in those areas choking on automobile traffic is that the trend can be slowed down and that a considerable amount of this traffic can be expedited and diverted by strategically placed high-speed traffic routes and interchanges. One recent study predicts that urban motor vehicle travel miles will increase 135 per cent from 1960 to 1980.[64]

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[59] Computed from Port of Seattle Commission, Seattle-Tacoma International Airport: Report on Operations, various years.

[60] Transport Economics, February, 1965.

[61] Transportation Facts and Trends, 1965.

[62] See Dudley F. Pegrum, Transportation: Economics and Public Policy (Homewood, Ill. : Richard D. Irwin, Inc., 1963), pp. 514-19.

[63] For a concise discussion of this, see Mark Reinsberg, Growth and Change in Metropolitan Areas and Their Relation to Metropolitan Transportation: A Research Summary (Evanston, Ill. : Northwestern University, The Transportation Center, 1961), pp. 7-23.

[64] Automobile Manufacturers Association, Highway Economics Research Committee, Urban Transportation Issues and Trends. A presentation to the Subcommittee on Roads, Committee on Public Works, United States House of Representatives, on June 26, 1963.

According to a recent report, 41 private and public organizations, excluding taxicab companies, operate in the neighborhood of 1,000 local for-hire passenger transportation vehicles in the state of Washington.[65] Around 60 per cent of these vehicles are operated in Seattle. We were unable to obtain much information concerning the patronage of most of these organizations. From the relatively small number of for-hire vehicles in most areas of the state, however, and the relatively small number of local transportation employees and the large number of automobiles (see above), it is obvious that private automobiles are the mainstay of local transportation in the state in general. The relatively light existing and projected population densities (presently about 45 persons per square mile for the state as a whole, and 20 per square mile in eastern Washington) suggest that this reliance upon the automobile is likely to continue for some time.

It is only in the area adjacent to Puget Sound, extending from Everett to Tacoma, that serious automobile traffic congestion has occured or is likely to occur during the next two decades. The four counties concerned, King, Kitsap, Pierce, and Snohomish, have a population density of 257 per square mile, and contain more than one half of the state's population. King County alone has one third of Washington's population and a density of 470 persons per square mile.[66] Even these figures do not accurately picture the population concentration, as large areas of these counties are in national forests or other thinly populated districts.

Even in this congested metropolitan area, however, reliance upon private automobiles has increased tremendously since the immediate post-World War II period. Ferry traffic increased only by about 5.2 per cent between 1954 and 1963.[67] The Puget Sound Regional Transportation Study staff found that while population in the Seattle area increased by 36 per cent between 1946 and 1961, private vehicle ownership increased by 116 per cent and the total trips made by all modes increased by 76 per cent. Transit trips, though, declined by 55 per cent while private vehicle trips increased by 149 per cent. Or, stated another way, transit trips declined from 30.3 per cent of total trips in 1946 to 7.3 per cent in 1961. A similar situation was found in the Tacoma area, where transit trips actually declined relatively more than in the Seattle area.[68] Further, this study group projects that household automobile ownership within the geographic area covered by its study will increase by 122 per cent between 1961 and 1985.[69]

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[65] 1965 Metropolitan Management, Transportation, and Planning Directory (Wheaton, Ill., Hitchcock Publishing Co., 1964).

[66] 1964 estimates from Seattle Area Industrial Council, Our Growing Market: Population Trends in the State of Washington, Seattle, December, 1964.

[67] Based upon figures in Department of the Army, Corps of Engineers, op. cit.

[68] Puget Sound Regional Transportation Study, Comparisons of Previous Seattle and Tacoma Origin and Destination Surveys with 1961 PSRTS Data, Staff Report No. 3 (Revised), by John R. Walker and Gary R. Cowan, March 20, 1964.

[69] Puget Sound Regional Transportation Study, 1985 Forecasts of Trucks and Passenger Vehicles owned at Households, Staff Report No. 9, by Gary R. Cowan and John R. Walker, April 23, 1964.

The Puget Sound Regional Study has devoted almost four years to a study of the future local transportation needs of the Everett-to-Tacoma area. Its final report and recommendations, scheduled for late summer or early fall, 1965, release, were not available for the present study. From late press reports and other sources, however, it appears that the final report will include, among other features, recommendations for additional bridges and freeway extensions, and for expanded and integrated bus service, including more express busses. It is also expected that the final report will make suggestions concerning a subway or monorail rapid transit system for the Seattle area. Such recommendations, if adopted, are not likely to bring any great increase in local transportation employment.

If the Study's recommendations are as indicated above, and if they are followed, the result will be more in the nature of an accomodation to the existence of private auto passenger traffic than an attempt to reduce it substantially. Probably this is the most realistic approach. Increasing population, leisure, and affluence seem to assure increasing automobile use. The public interest, perhaps, is best served by providing a reasonably adequate for-hire passenger service for those who cannot use or choose not to use private automobiles, while at the same time expediting traffic flow and relieving congestion as much as possible for the larger number which prefers the mobility and flexibility of individualized passenger transport.

Summary

Substitution of private automobiles for for-hire passenger transportation, both intercity and local, has been a striking characteristic of the past few decades. This has had a pronounced effect upon the profitability, availability, and quality of for-hire passenger services, and upon employment in these services.

Residents of the state of Washington during recent years apparently have relied more upon automobiles for intercity and local passenger transport than have residents in the nation as a whole. Washington auto ownership on a per capita basis is higher, and has shown a more rapid relative growth, than national ownership and growth. Correspondingly, it appears that employment in for-hire intercity passenger transport is slightly less, and in local passenger transport considerably less, in proportion to population, than in the nation. Population and other projections do not indicate that this situation will change significantly within the next several years.

Another striking recent development has been the growth of intercity air passenger transport at the expense of railroad travel. Apparently Washington is near, or only slightly behind, the national level in the use of this newer passenger mode. Major railroads serving the state, however, have not been harmed as much by air passenger travel as have the nation's railroads in general. A smaller proportion of the operating revenues of these rail lines comes from passenger service and their passenger mileage and revenues have declined less than the national average.

Future Traffic and Employment Trends

The existing Washington and related United States transportation pattern and its trends during recent years have been explored in some detail in this chapter. It is appropriate now, therefore, to look into the future. In doing

this, one must assume in general that distribution, technological, and other pertinent trends will continue to evolve as they have during the recent past. Although prediction must include judgment and whatever modifying information an analyst has available, completely unforeseeable events cannot be predicted by any method other than crystal gazing.

As a beginning we assume that population in the United States will be about 38 per cent greater in 1985 than in 1964 (based upon a U. S. Census Bureau estimate of a population of approximately 265. 6 million by the later year). It is also assumed, based upon a study by Washington State Census Board personnel, that Washington's population will increase by 13 per cent over the 1964 level by 1970, 24 per cent by 1975, 37 per cent by 1980, and by 50 per cent by 1985.[70]

Further, based upon our projections of recent growth rates and comparison with various other projections, we assume that the nation's GNP will be 25 per cent higher than the 1964 level by 1970 (in constant dollars), 50 per cent higher by 1975, 80 per cent higher by 1980, and 117 per cent higher by 1985. Lastly, we assume that average income growth in Washington will be approximately equivalent to the national percentage growth.[71]

Although they have certain weaknesses, ton miles and passenger miles are easily understandable, useful, and commonly used measures of transport output in a relatively closed transport system such as the domestic system of the United States. These measures will be used, therefore, in projecting national transport growth as a basis for predicting Washington's transport output growth.

Ton miles and passenger miles in measuring output changes for a particular state, however, are of limited usefulness. A state's traffic consists of movements originating within the state which may be terminated either inside or outside its boundaries, and conversely, of terminating movements which may or may not have originated within the state. Furthermore, reliable data showing total ton mileage or passenger mileage for individual states for particular years are not available. An analyst using these concepts for prediction for a single state is in the position of projecting changes in an unknown quantity of an undefinable output.

In projecting intercity freight and passenger traffic growth for Washington, therefore, we use "Washington-connected" ton miles and passenger miles as units of output measurement. Washington-connected refers to movements which originate, terminate, or both, within the state. These concepts, perhaps, are not completely satisfactory, but they are at least definable. Their employment effects, of course, may vary depending upon the proportions of intra-state to interstate traffic and originating to terminating movements. In using these output concepts, projected Washington changes are expressed as percentages above their probable 1964 levels.

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[70] See population projections, B-Series, in Chapter 2.

[71] This is consistent with the Washington personal income projection selected in Chapter 2.

Ton mileage means little in ocean freight, of course. In projecting changes in ocean traffic, therefore, "tonnage handled," including both foreign and domestic inbound and outbound, will be used as a measure of output.

Freight Traffic Projections

Intercity Freight: According to the Transportation Association of America data discussed above, 1964 U. S. intercity ton mileage amounted to 1, 557 billion. By projecting recent ton mileage growth trends, and their relationships to past and projected population and GNP growth, we estimate that U. S. ton mileage totals will grow to 1, 706 billion in 1970, 1, 831 billion in 1975, 1, 962 billion in 1980, and 2, 086 billion in 1985. This we feel is a straightforward, reasonable, and fairly conservative projection. As a comparison, Resources for the Future (see footnote 12) has made a "low" estimate of 1, 854 billion for 1980.

The relative shares of total intercity ton mileage going to each mode of carriage was projected by an "added traffic" method. That is, from a base year the amount of additional total ton mileage going to each mode was calculated for the period 1954 to 1964 (see Table 6-26). This was reduced to modal percentages, and these percentage trends for the past six years (ten years for air freight) were extended to 1985. Then, the projected added traffic for 1970 over 1964 was divided between modes according to each mode's 1970 percentage extension and added to the 1964 traffic for each particular mode to determine the mode's total 1970 ton mileage. Projected added traffic for 1975 over 1970, using the 1975 percentage extension for each mode, was added to that mode's 1970 projection, and so on for 1980 and 1985. This method, although cumbersome, gave results more in accord with our expectations (or intuition) than did any of several other methods of projection used.

Table 6-27 shows our estimated total U. S. intercity ton mileages, and the estimated amounts and percentage shares of each mode, by five-year periods from 1970 to 1985. Again, a comparison with Resources for the Future modal estimates for 1980 is appropriate. Our railroad share is very close to the medium railroad estimate of that group (912 billion), our truck and pipeline estimates are slightly below their low estimate (526 and 331 billion, respectively), our water estimate is slightly higher than their low estimate (322 versus 306), and our air estimate is between their medium estimate of 2. 7 and their high estimate of 4. 2 billion. We believe that this projection is as reasonable as any other that would purport to show total U. S. intercity freight ton mileage and its intermodal distribution for a 20-year period.

There is no reason at this point in time to expect that Washington connected ton mileage relative modal shares will differ significantly from national shares over the next 20 years. Because of its projected more rapid population growth, however, it is reasonable to expect that total Washington-connected ton mileage will increase more rapidly than national ton mileage. By applying an increase factor equivalent to the anticipated difference between national and Washington population growth (38 per cent versus 50 per cent for 1985, for example) to the projected U. S. percentage growth rate for each mode, one can arrive at the projected percentage increases over 1964 in Washington-connected ton mileage carried by each mode during various future years. The results of such a calculation are shown in Table 6-28.

Table 6-26

AMOUNT OF U.S. FREIGHT TON MILEAGE INCREASE
AND PERCENTAGE OF INCREASE CARRIED BY VARIOUS MODES, SELECTED YEARS

Year	Increase over 1954 (billion ton miles)	% Increase over 1954 by				
		Rail	Truck	Pipeline	Water	Air
1956	233	42.5	15.5	21.5	19.7	0.04
1958	93	2.1	47.3	34.4	16.1	0.34
1960	205	10.7	41.9	24.4	22.4	0.20
1962	270	15.9	43.7	21.9	18.1	0.34
1963	339	21.2	39.8	20.9	17.7	0.27
1964	434	25.4	36.2	20.5	17.5	0.26

SOURCE: Computed from data in Transportation Facts and Trends, 1965.

Table 6-27

PROJECTED TOTAL U.S. INTERCITY TON MILEAGE BY MODE, 1964 TO 1985

(billions of ton miles)

Year	Total	Rail	Truck	Pipeline	Water	Air
1964						
Ton miles	1,557	667	370	268	251	1.50
Per cent	100.0	43.5	23.9	16.7	15.9	0.10
1970						
Ton miles	1,706	715	420	292	277	2.16
Per cent	100.0	41.9	24.6	17.1	16.2	0.13
1975						
Ton miles	1,831	766	456	307	299	2.79
Per cent	100.0	41.9	24.9	16.8	16.3	0.15
1980						
Ton miles	1,962	832	487	317	322	3.72
Per cent	100.0	42.4	24.8	16.2	16.4	0.19
1985						
Ton miles	2,086	907	511	321	342	4.76
Per cent	100 0	43.5	24.5	15.4	16.4	0.23

Note: See text for explanation.

The projections pictured on this table indicate that Washington-connected ton mileage by all modes will increase substantially over the next two decades. Truck traffic will grow more rapidly than the traffic of other surface modes during the next decade, but the rate of growth of rail and water carriers will close the growth rate gap (mainly because of a decreasing

Table 6-28

PROJECTED PERCENTAGE INCREASES OVER 1964
IN WASHINGTON-CONNECTED INTERCITY TON MILEAGE
CARRIED BY VARIOUS MODES, 1964 TO 1985

Year	Percentage Increase				
	Rail	Truck	Pipeline	Water	Air
1970	9.0	16.8	11.2	13.0	55.0
1975	18.5	29.0	17.1	23.9	107.5
1980	30.9	40.2	22.9	35.4	185.0
1985	45.0	46.6	24.8	45.4	263.4

Note: See text for explanation.

rate of truck growth) after the mid-1970's. Further, as indicated in our earlier discussion of freight traffic patterns and trends, it is likely that a substantial portion of the increase in truck traffic, probably as much as sixty per cent, will be handled by private rather than by for-hire carriers.

Ocean Freight: An analyst is on considerably less solid grounds in predicting future ocean freight traffic volumes for a particular port or state than in predicting intercity traffic volumes. International relationships, facilities to meet changing traffic needs, competition from other ports, domestic transportation rates, and a host of other unpredictable variables may significantly influence what occurs in a particular port or group of ports.

In order to predict what Washington may expect in future ocean-borne freight traffic, therefore, we simply extended the combined vessel traffic trends reported for Seattle, Tacoma, Longview, and Vancouver (see Table 6-17) during the period from 1955 to 1963. This extension indicates that ocean-borne tonnage handled will increase about 15.8 per cent above the 1963 level by 1970, 29.5 per cent above by 1975, 40.8 per cent above by 1980, and 52.6 per cent above the 1963 level by 1985. As suggested in the section on freight traffic patterns and trends, it is likely that most of this expansion, if it comes, will be in foreign rather than in domestic trade.

Passenger Traffic Projections

During the period 1950 to 1964, according to our computations made from the Transportation Association of America data described above, intercity passenger miles in the country as a whole increased at a rate of about 133 per cent of GNP increases and 323 per cent of population increases. Comparable data are not available for local passenger travel, but it seems reasonable to assume that its rate of increase may have been almost as great.

By applying this increase formula to the state of Washington, using the state's population and GNP assumptions described earlier in this chapter we predict that Washington-connected passenger miles will be 37 per cent higher than the 1964 level by 1970, 68 per cent higher by 1975, 108 per cent higher by 1980, and 153 per cent higher by 1985.

It is likely that the great bulk of this passenger traffic increase, at least 90 per cent or more, will be handled by private automobiles. Even so, however, a considerable expansion in for-hire traffic and traffic facilities is indicated.

Present trends indicate little, if any, increase in rail passenger traffic. It seems clear, therefore, that most of the long-distance for-hire passenger traffic increases will be handled by air, while most of the for-hire short-distance and local travel will be by bus.

Washington Transportation Employment Projections

There is no formula for translating anticipated increases in traffic into increases in transportation employment, and historical or other evidence for constructing such a formula is far from satisfactory. Certainly a simple projection of recent employment trends, even if related to equivalent recent traffic trends, might be extremely misleading.

After considering several alternatives, therefore, we based employment increases over 1964 for each mode of carriage upon that mode's anticipated traffic increases together with a ratio of additional employment to additional traffic equivalent to each mode's national average ratio of labor cost to revenues during the recent past. It was assumed that a 100 per cent increase in domestic water carriage, for example, would bring a 33 per cent increase in employment. The employment increase ratio used for ocean water carriage was 35 per cent; for air carriage, 40 per cent; for bus and local carriage, 42 per cent; for rail carriage, 47 per cent; and for truck carriage, 55 per cent for a 100 per cent traffic increase.

It was assumed that 85 per cent of air carriage employment is attributable to passenger transport and 95 per cent of rail employment to freight transport. Further, it was assumed that rail carrier efforts to overturn the so-called full-crew law and the pending Northern Lines merger will be successful, thus leading to an overall rail employment decrease of about five per cent in Washington freight service employment by 1970, with increases beginning during the early 1970's. No change was assumed in rail passenger service employment. Based upon existing relationships, which have not varied greatly during recent years, it was assumed that other transport and allied services would maintain employment at a level of about 28 per cent of the combined employment in rail, truck, and water carriage.

Table 6-29 based upon these assumptions, and upon the traffic increase projections shown above for each mode, shows estimated Washington employment for each mode and in total for the years 1970, 1975, 1980, and 1985. Total employment is projected to increase by a little more than 33 per cent over 1964 levels by 1985.

Figure 6-3, based upon these projections, compares expected Washington-connected ton mileage and passenger mileage percentage increases over 1964 with expected increases in transportation and allied services employment in the state. Most of the passenger mileage increase, of course, will be handled by private automobile, thus contributing little to transportation employment. Ton mileage also will increase more rapidly than employment because of the considerably less than one-to-one ratio assumed between additional traffic and additional employment both in freight and passenger carriage.

Table 6-29

PROJECTED WASHINGTON TRANSPORTATION EMPLOYMENT BY MODE, 1964 TO 1985

	1964	1970	1975	1980	1985
Railroad	12,300[a]	11,713	12,555	14,101	14,764
Truck	12,099	13,213	13,924	14,774	15,198
Water:					
Ocean	1,844	1,945	2,034	2,108	2,182
Other	2,267	2,364	2,446	2,532	2,609
Air	4,324	5,009	5,582	6,353	7,198
Bus & local transport	2,912	3,263	3,751	4,234	4,782
Other transport & allied services	6,522	8,130	8,820	9,300	9,695
Total	42,268	45,637	49,112	53,402	56,428

Note: See text for explanation.

[a]Estimated.

Conclusion

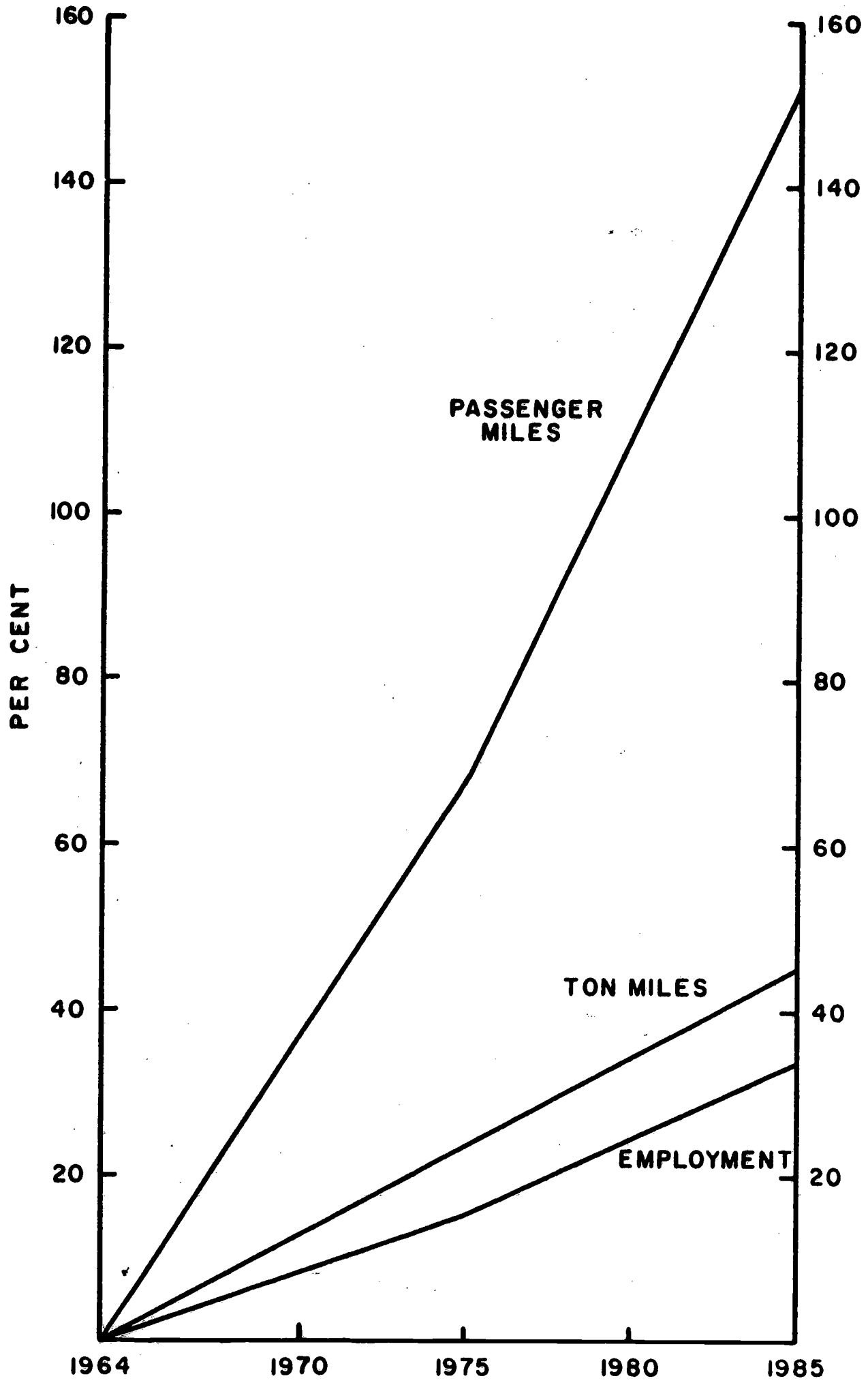
The above forecasts are intended to reflect future trends and relationships in Washington's transportation output and employment growth. Preciseness cannot be expected in these or any other long-range forecasts. The projections, of course, are highly qualitative. We, however, make no apologies for the methodology or the assumptions used. Possible criticisms have been considered. Within the constraints of this study, though, the projected results seem more reasonable in our judgment than results given by various other methodologies and assumptions considered.

Clearly, transportation and allied services employment cannot be expected to be a large percentage of Washington's total employment. It should be remembered, however, that for every person employed in this category, probably at least two others, reported as employees in other categories, actually are fully employed in supplying, servicing, regulating, or otherwise dealing with transportation firms.

Finally, the economic usefulness of transportation cannot be measured by its contribution to employment. Without adequate and efficient transportation services modern economic society, with production, distribution, and consumption as we know it, could not survive. No modern industrial nation, or any geographic part of such a nation, can afford to have its internal transport system or its transport connections with other areas fall into disrepair.

FIG. 6-3

ESTIMATED PERCENTAGE INCREASE OVER 1964 IN WASHINGTON-CONNECTED TON MILES, PASSENGER MILES, AND WASHINGTON EMPLOYMENT IN TRANSPORTATION AND ALLIED SERVICES, TO 1985



Chapter 7

SUMMARY AND CONCLUSIONS

For almost one hundred years, employment in the distribution and service industries in the United States has been increasing more rapidly than has employment in the commodity-producing industries. This long-time trend has now progressed to the point that less than one half of the nation's employed population is engaged in the production of commodities. Moreover, there has been no growth at all during the past decade in employment in the commodity-producing industries, even when agriculture is excluded, despite a very large gain in the output of these industries.

The factors contributing in the past to these changes in employment include the following: (1) that hours worked per person per week in the distribution and service industries have fallen more rapidly than have the hours worked in the commodity-producing industries, (2) that productivity per employee has risen more rapidly in the commodity industries than in distribution and services, and (3) that the consumer demand for services has risen more rapidly than has the demand for commodities. All of these factors have played some part, although a variable one, from time to time in the development of the present "service economy" of the nation.

In view of this development, it is apparent that the state of Washington, along with the remainder of the nation, must rely in the future even more than it has in the past upon the distribution and service industries as a source of employment for its working population. Accordingly, this study has examined the past trends and future growth potential of the state's distribution and service industries including wholesale and retail trade; professional, business and personal services; finance, insurance and real estate; and transportation. Employment projections for these industries have been made as of the year 1985. Since such projections must be based in part at least upon projections of the state's population and income, these have also been made.

Population and Income

If, as is assumed in the study, the future trends in Washington population and income approximate the growth of the postwar period, the number of Washington residents will increase from a present total of about three million to almost four and one-half million in 1985. In this same period, total state personal income in 1960 dollars will almost double. Accordingly, per capita real personal income is projected to reach $3,300 by 1985, $800 more per person than in 1965.

The growth potential of the distribution and service industries depends upon the ability of the state to maintain these postwar trends in the coming decades. At the same time, the state's economic growth will depend increasingly upon the ability of these so-called tertiary industries to supply a rapidly increasing number of productive and well-paying jobs. More specifically, in the very near future these industries must provide well-paying jobs for a large increase in the number of males between 25 and 64 years of age.

In the past fifteen years, employment in the distribution and service industries has grown more rapidly than total state employment. It presently comprises approximately one half the state's workforce. However, this employment growth has resulted in surprisingly few new jobs for males in the prime age group of 25 to 64. The bulk of the new distribution and service jobs have been taken by lower paid, and perhaps less productive, working wives--not by male heads of households. In part, this development is explained by the increasing availability of females seeking employment to supplement family income. Concurrently there has been a scarcity of males. Since 1950 the number of prime-age males has grown slowly because of the low birth rates of the 1930's. Balanced against this limited growth in the supply of productive males has been the exceptional postwar growth in employment opportunities for them in the state's manufacturing industries.

Looking into the future, it is unlikely that the growth of manufacturing employment in the next decade or two will match its postwar record, much less that it will grow rapidly enough to absorb the greatly increased number of males in the 25 to 64 age group that will be needing employment in the early 1970's. Nor is it likely that there will be compensating employment growth in other commodity-producing industries that have traditionally employed a large fraction of the male family heads in the state. Indeed, the evidence suggests that in the first half of the present decade there has been little, if any, growth in the total employment of the so-called "basic" industries of the state. Furthermore, because these prospects apply to the nation as a whole, it is unlikely that there will be a mass exodus of these males and their families to take employment in commodity-producing industries outside the state.

We conclude, therefore, that there must be a shift of prime-age males to employment in the state's distribution and service industries. By one set of assumptions, there will be more than 30,000 males of ages 25 to 64 to be added to the payrolls of the state's distribution and service industries in the present decade. In the 1970's virtually 100,000 more males of prime age will be available for employment in these industries, with an additional 55,000 indicated for the period from 1980 to 1985. In contrast, between 1950 and 1960, only 2,300 more males of these productive middle ages were employed by the distribution and service industries. The question then is whether these greatly increased numbers can be absorbed into the distribution and service industries.

The Retailing, Wholesaling and Service Trades

The growth and development of the retailing, wholesaling and service industries in the state of Washington have, in most instances, compared favorably with developments for the nation as a whole as well as with the near-by states of Idaho and Oregon. In terms of number of establishments, number of paid employees and payroll, retailing appears to be the most important of the three. Wholesaling, however, is the most important when judged solely on the basis of sales volume. The service industries follow both retailing and wholesaling in terms of measures such as number of establishments, number of paid employees, payroll and sales volume. However, the service industries show more potential for future growth and expansion than do retailing and wholesaling.

Washington has several features which characterize its economic base. Its major economic activity can neither be classified as industrial nor

agricultural; it is, however, a combination of both. By the same token, the dominant characteristic of the population is that it is neither rural nor metropolitan based. Rather, the population tends to be reasonably dispersed among small- and medium-sized communities with some noticeable aggregation along the coastal areas, especially around the Seattle-Tacoma area. These particular features affect, in a rather significant way, the types and nature of operation of its retailing, wholesaling and service industries. It is axiomatic in economics that "specialization is limited by the extent of the market." The development and growth of retailing, wholesaling and service industries in Washington thus rest largely upon the nature and extent of the market. The size of population, the mix and composition of this population, the income or purchasing power of consumers and their willingness or propensity to consume, plus a number of other factors, all affect the state of development of a given community's retailing, wholesaling and service industries.

The projected increases in population and in income and increased urbanization all portend important changes in the retailing, wholesaling and service categories for the state of Washington. The future promises an increased number of retailing institutions throughout the state to service the increasing needs of Washington shoppers. Ever-changing consumer tastes promise, in turn, to call forth an ever-changing product and services mix on the part of Washington retailers. As the number of retailing institutions increases and as their scale of operations also increases along with the continued expansion of the industrial and agricultural industries, wholesaling will continue to grow in importance. Washington, at the moment, has a favorable wholesale-retail ratio. This ratio can be expected to improve. As consumers tend to become more urbanized, as income increases and tastes expand and widen, the need for specialized consumer services increases likewise. Business services have increased at a rapid rate in Washington, also tending to swell opportunities in this area.

Given a favorable climate for development and expansion, Washington retail sales should approximate $6.15 billion in 1985, and the retailing area should employ in the neighborhood of 183,000 persons, some 27,000 more than in 1965. Wholesale sales will approach $8.3 billion in 1985, and wholesaling will employ 66,800 persons compared with 54,600 in 1965. Service industry volume will reach the vicinity of $2.3 billion by 1985, and the service trades and professions will employ 137,600 persons, or 58,800 more than the 78,800 employed in 1965. Thus wholesaling, retailing and the service industries should constitute a source of employment in 1985 for almost 100,000 more persons than were employed in 1965. Approximately 60 per cent of this added employment will be in the service industries and only 40 per cent in retailing and wholesaling.

Finance, Insurance and Real Estate

Washington's economic growth has been somewhat slower than the national average during the postwar period. This slower economic growth adversely affects the growth of the finance, insurance and real estate sector. All economic activity of the state funnels through this sector as it performs its vital tasks of check clearing, gathering the savings of the economy and allocating these savings among the competing productive uses. The level of economic activity and the rate of population growth of the state of Washington strongly influence the rate of growth of its financial institutions; yet, the efficient operation and the dynamic and imaginative leadership of its financial institutions are vital to the future economic growth of Washington.

The steady and vigorous employment growth in the finance sector has contributed substantially to the Washington economy. Of even greater importance to the state's economy, however, is the employment generated by businesses and individuals whose activities are made possible by the services furnished by the financial intermediaries of the state.

The performance of the insurance sector is not so closely tied to the economic performance of the Washington economy as is that of the finance sector. Insurance firms domiciled in Washington may sell interstate; consequently, insurance company assets and premium income may thus be influenced by economic conditions in several states. Washington domestic fire and casualty insurers have been particularly effective in competing for the insurance dollar in other states.

Employment by the insurance industry in Washington, while not increasing as rapidly as employment in the finance sector, increased steadily and at a more rapid rate than total employment in Washington. Growth in the insurance sales forces in Washington will be strongly influenced by the economic growth of the state. Home office employment by domestic insurers selling interstate will be influenced by the economic growth in various states and by their success in competing with foreign and alien insurers.

Employment in the real estate sector has grown rather slowly during the postwar period and has fluctuated greatly from year to year. Population growth, personal income, the availability of financing and the rate of technological change are major determinants of employment in this sector.

Future employment in finance, insurance and real estate in Washington will be influenced by many factors including: quality of management, technological change, state and national economic conditions, governmental economic policy and federal and state regulation. Nonetheless, by 1985, approximately 45,875 should be employed in finance, approximately 27,150 should be employed in insurance, and approximately 12,150 should be employed in real estate. These figures indicate an increase in employment in comparison with 1965 of more than 40,000 persons in the three areas.

Transportation

Washington's geographic setting both handicaps and favors it in transportation matters. The state is distant from the country's major northeastern population, consuming and industrial centers. Many of its inbound and outbound products, therefore, must bear high freight charges.

This locational disadvantage, however, is offset to some extent by Washington's proximity to the large and growing California producing and consuming complex. The latter state, for example, accounted for more than 20 per cent of Washington's total outbound railroad tonnage and for more than 30 per cent of its inbound rail-borne manufactured goods tonnage during 1961. In contrast, during that same year, all states east of the Mississippi River absorbed about 36 per cent of Washington's total outbound rail tonnage and furnished a little less than 20 per cent of its rail inbound manufactured tonnage.

In addition, Washington's geographic location and features bring it the benefits of both ocean and inland water transportation and permit it to serve as

a terminal for long-haul rail, motor and air carriers. The state's location, abundance and diversification of transportation facilities (except oil pipelines), and its other economic characteristics, have made Washington transportation and allied employment relatively more important and apparently somewhat less vulnerable to capital-intensive technological change than is characteristic of the nation as a whole. This situation is not likely to change within the foreseeable future.

Further, Washington's production and consumption patterns are such that its inbound and outbound rail freight shipments are fairly evenly balanced (actually, with a slight excess of inbound movements). This is very beneficial to a state so heavily dependent upon rail transport of its outbound production, especially during the periods of rail car shortages which seem to have become almost chronic.

Washington inhabitants apparently tend to rely more heavily upon private automobiles than do the country's inhabitants as a whole. Despite its terminal location, therefore, passenger transportation employment, especially in local transit, appears to be relatively less important in the state than in the nation. The state's population concentration and dispersion pattern is such that automobile traffic congestion is not likely to be a serious problem outside the Puget Sound area from Everett to Tacoma during the next several years, and even here congestion may be considerably alleviated by proper long-range planning and action.

Population and income are important determinants of the amounts of both freight and passenger transportation. The volume of transportation, therefore, in the nation and in Washington, can be expected to increase as these determinants grow. Based upon anticipated population and income growth rates, national intercity ton mileage should be at least 34 per cent higher and Washington-connected intercity ton mileage at least 44 per cent higher in 1985 than in 1964. Likewise, Washington-connected passenger mileage should increase by at least 153 per cent between 1964 and 1985. The different modes of transport, though, will not share equally in these increases.

Transportation employment, due to the capital-intensive nature of the various modes, unequal traffic sharing among the modes, and the growth of private transportation (with its employment generally classified under non-transport categories), cannot be expected to increase as much as transportation volume. By 1985, however, Washington's transportation employment should be at least in the neighborhood of 33 per cent higher than in 1964, thus adding some 14,000 jobs to the state's economy.

This will not be a large portion of the state's total employment. The significance of transport, though, is not in the direct employment which it creates. Rather, its importance is that its presence in adequate quantity and quality allows other factors to operate at a high and efficient level while its absence or inadequacy assures economic deterioration.

Conclusions

It is evident that some of the factors which have been instrumental in the past in increasing employment in the distribution and services industries at a more rapid rate than in the commodity-producing industries may not be so effective in the future as they have been in the past. In particular, decline

in hours worked per week will not continue to be a factor of any importance in determining relative employment. Both sectors of the economy should be about equally affected by any further decreases in the length of the workweek.

Productivity factors, especially technological change, will continue to favor increasing employment in the distribution and services industries. One problem in the postwar period appears to have been the lack of availability of labor for these sectors of the economy. Higher wage rates in the commodity sector, as a result of greater productivity, have drawn the more highly skilled and better educated workers to that sector in increasing proportions. This situation, however, is changing. There should be an adequate supply of labor in the future for the distribution and services industries. In fact, considering present trends in employment in the commodity-producing industries, there may be no employment outlet other than distribution and services for the increasing supply of workers expected in the near future. These people, however, will not be absorbed easily into the distribution and services sector unless the necessary training and educational facilities are available to qualify them for such employment. This is a matter of great importance considering the fact that this sector has always required persons of greater skill and educational attainment than has the commodity-producing sector.

In the final analysis, the growth in employment in the service trades and professions will depend more upon increasing consumer demand in the future than it has in the past. Although consumer expenditures for services have increased more rapidly for some time than have expenditures for commodities, part of this change has come about because commodity prices have declined relative to, or have increased less than, those for services. This, of course, is related to productivity changes. Nevertheless, the evidence is convincing that rising income and changes in the style of living are shifting consumer demand from commodities, especially the nondurables, to services--at least certain services.

Based on past trends in expenditures, it is to be expected that the greatest growth in the future will take place in education, in communications and public utilities, in hospital and physicians' services, in certain financial services, in airline travel and perhaps in repair services associated with automobiles and other durable goods. For these services, generally, there has been a long-time trend toward increasing relative expenditures, a trend that is not likely to be reversed assuming that qualified people can be obtained to supply the services. Even with increasing prices, these services presumably will continue to be in demand since there is no readily available economic alternative for most of them. In most of these services, also, increasing consumer expenditures will mean a commensurate growth in employment although there may be one or two exceptions; e.g., employment in communications and public utilities has declined in recent years despite the growth in demand.

Another group of services which also are expected to receive an increasing share of consumer expenditures in the future include legal services, life insurance, religious and welfare activities, personal care services, and commercial participant amusements. For these services, demand is probably more elastic and more difficult to predict. Although they have shown growth in the past, the pattern is not so consistent as for the first group of services. Many of these services could show in the future a greater growth rate in expenditures and in employment than some of the services in the first group if incomes continue to increase and consumer attitudes are favorable. On the other hand, some of these services in the past have been slow to respond to

increased incomes, and others are subject to direct competition from commodities. For the future, much depends on consumer attitudes and the style of living adopted.

The third group of services includes those which are not expected to grow significantly on a relative basis in the years ahead: cleaning and repair services associated with clothing, domestic service, funeral and burial services, purchased transportation except for airline travel, and spectator amusements and sports. Most of these have shown a declining trend over a considerable period of time. It should be noted, however, that most of these service categories have shown a tendency in recent years to resist further decline in relative expenditures and thus to stabilize at present levels. They should not constitute so much of a drag on service employment in the future as they presumably have in the past.

On the whole then, the outlook for increased employment in the service trades and professions is a favorable one from the standpoint of the consumer demand trends. The same conclusion is not necessarily valid for the distribution trades since they depend in large part upon the demand for commodities. Here the productivity factors may be more important in determining the relative growth in future employment. In this connection, it is interesting to note that between 1948 and 1958 retail sales volume in constant dollars rose by 36 per cent in the entire United States while the number of persons engaged in retailing rose by only 10 per cent. Improvement in productivity was no doubt a factor in this development, although the shift of certain marketing functions to the consumer through self-service certainly played an important role. Although employment in the distribution trades during the past ten years has increased more rapidly than has employment in production, it has increased less rapidly than employment in the service trades and professions. This is likely also to be true in the future in the state of Washington as well as in the nation.

The estimates contained in this study indicate that some 155,000 additional jobs will become available between 1965 and 1985 in retail and wholesale trade; finance, insurance and real estate; transportation; and the service trades and professions. Of this total, some 60,000 jobs are accounted for by the service trades and professions. This figure, however, is significantly understated since it does not include, for lack of available data, employment in certain service categories such as nonprofit clubs and organizations; engineering, architectural and accounting services; and domestic services. Of even greater importance is the fact that self-employed persons are not included. Inclusion of these omitted groups gives an employment figure in 1965 for the service trades and professions of approximately 200,000 compared with a figure of 78,800 cited earlier in this chapter. If the same rate of increase in employment is assumed for the omitted categories as for those included, an additional 90,000 persons would be employed in 1985 in the service trades and professions.

Thus it would appear that some 245,000 jobs may be available by 1985 in the distribution and service industries covered in this study to absorb the 185,000 additional males between the ages of 25 and 64 that will not be able to find employment in other industries. However, it must be remembered that almost half of the employment in the distribution and service industries consists of women. To avoid a significant amount of unemployment, there must be either an even greater increase in employment in the distribution and service industries than is forecast in this study or the withdrawal of a large number of women from the labor force and their replacement by these

prime-age males. It may be that, with rising incomes, relatively fewer wives in the future will need to work to supplement the family income. On the other hand, it is likely that a considerable proportion of women will continue to seek employment, and men may well find it difficult to compete with them for many of the jobs presently available in the distribution and service industries. In addition, because of the low pay, many of these jobs would be inadequate for a male head of a household.

It would appear, therefore, that even greater expansion of the distribution and service industries will be required in the future than has occurred in the past if reasonably full employment is to be attained. The potential for further development appears to be greatest in certain of the service trades and professions, including finance and insurance. With rising incomes, it is probable that there will be a sufficient consumer demand for these services to create the necessary jobs. An important question then is whether those seeking employment will have the necessary education and skills to qualify for the types of jobs that are available. Expanded educational and training facilities may well be necessary.

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Simpson, Elizabeth J.; Barrow, Joseph M.
The Setting for the Home Economics Program at the Secondary Level: A New Look.

MF AVAILABLE IN VT-ERIC SET.
Illinois Teacher of Home Economics; v8 n2 1964.
Pub Date - 64 14p.

*HOME ECONOMICS EDUCATION; *SECONDARY SCHOOLS; *EDUCATIONAL FACILITIES; FLEXIBLE FACILITIES; CLASSROOM ARRANGEMENT; *FACILITY GUIDELINES

Home economics for the present and foreseeable future at the secondary level proposes to prepare students for homemaking, wage earning, and college. These purposes, among others, must be considered in planning educational facilities. Laboratories to prepare students for homemaking have tended to simulate home settings. Broader educational objectives would be served in a highly accomodative, multi-purpose laboratory. Concepts and generalizations are more likely to be developed in a generalized environment than in a more specific "like-a-house" setting. Flexibility, variability, generality, and accomodativeness are key guidelines for educational facilities which will aid the transfer of learning for homemaking and apply equally well to wage earning programs. Facilities for occupation preparation must take into consideration the extent that skills and abilities will be developed in the classroom, whether cooperative or on-the-job training will be offered, and whether the content suggests facilities different from those now in use. For college oriented students, facilities for individual study and research, such as study carrels, are suggested. A high school home economics department incorporating the suggested criteria is descirbed and illustrated. (FP)

VT 003 446

Vol. VIII, No. 2

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ILLINOIS TEACHER
OF HOME ECONOMICS

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VT003446

HOME ECONOMICS EDUCATION · UNIVERSITY OF ILLINOIS

FLEXIBILITY TO MEET NEW CHALLENGES IN HOME ECONOMICS EDUCATION

--in facilities

THE SETTING FOR THE HOME ECONOMICS PROGRAM AT THE SECONDARY LEVEL--A NEW LOOK.

Elizabeth J. Simpson
and
Joseph M. Barrow

About the Authors

Elizabeth J. Simpson, one of the editors of the Illinois Teacher of Home Economics, served as educational consultant to the architects in planning the Home Economics Department for the new Champaign, Illinois High School.

Joseph M. Barrow is a member of the architectural firm of Atkin-Barrow and Graham, Incorporated in Urbana, Illinois. He has had wide experience in planning educational facilities. During recent months, Mr. Barrow has served as campus planner for Njala University College in Njala, Sierra Leone, West Africa.



A major question that provides direction for the planning of educational facilities is "What are the purposes of the educational program?" In the present and foreseeable future, home economics at the secondary level will serve three major purposes which provide a base for the planning of facilities. It will prepare students for homemaking through the development of those understandings, abilities, and attitudes which contribute toward effectiveness in the homemaking role. It will prepare some students for employment in home economics-related occupations. It will provide a basis for professional preparation for the college-bound girl who plans a career in home economics or a related field.

Facilities for the Purpose of Preparation for Homemaking

Paramount in the thinking of those who have planned home economics departments has been the first of these purposes. However, the concept of "home economics as preparation for homemaking" has often been somewhat limited. In spite of the greater emphasis given management and relationships in a home economics program geared to present family practices and needs, the facilities have often blantantly announced, "Cooking and sewing taught here--and not much else"! And, the cooking and sewing laboratories have often provided a "playhouse" setting reflecting more concern with duplication of the facilities of an attractive middle-class home complete with the visual distractors inherent in such a setting than with providing for effective teaching-learning situations.

Should not the setting for the teaching of home economics to achieve homemaking purposes clearly reflect current emphases in the curriculum? Should it not also be based on the "teaching-learning centered" concept--to facilitate the educational program?

If our replies are affirmative, what does this imply for the planning of the home economics department? First, it would seem apparent that major consideration should be given the development of facilities for the most effective teaching of human relationships and personal development; child development and guidance; and home management, including consumer education. Of course, not to be ignored in such planning are the other areas of home economics: housing and home furnishings, food and nutrition, clothing and textiles, home care of the sick and aged, and art related to the home. What would appear to be suggested by current program emphases are the following:

.settings for--presentations and demonstrations to small groups; presentations, such as lectures, demonstrations, films to large groups of 100 or so

small and large group discussions

individual study

observation of and experiences with caring for small children

.adaptable facilities for essential laboratory experiences in food preparation, home furnishings, and clothing

.as a matter of program interpretation, avoidance of the "cooking-sewing" appearance of the usual home economics laboratory

The authors believe that a home economics laboratory cannot be

constructed so as to simulate a home setting and at the same time provide optimal accommodativeness for meeting educational objectives. It has been argued that students will see the possibilities of "carry-over" learnings into their own homes if the setting in which they learn resembles a home. Supportive evidence for this belief appears to be lacking. In addition, this argument fails on the following counts. First, it is very difficult and perhaps inordinately expensive to make one laboratory that would be even a reasonable replication of the many types of home situations in which students will live and work. Secondly, the broader educational objectives seem logically better served in a highly accommodative, multipurpose laboratory.

We are interested in the development of concepts and generalizations rather than the learning of specific facts. Rationale for teaching in terms of concepts and generalizations has been well developed in many recent publications and addresses at professional meetings in the field. It would seem that these can be developed more effectively and efficiently in a "generalized" environment rather than the more specific "like-a-house" setting. The following example may serve to clarify.

> The usual type of unit kitchen in the home economics laboratory looks like the kitchen in an attractive above-average house. Frequently, work areas and spaces are designed for use by one person, as in the home. Visual distractors in the form of various "homey" touches are provided. BUT--this is not a child's playhouse; it is an educational facility where students should learn through observing and doing and generalizing. The specificity of the setting may actually interfere with the development of generalizations and their application to situations that may be quite different from the classroom setting. A student may experience frustration when the physical setting in which he learns a homemaking ability is very superior to his home situation. Flexibility, variability, generality, accommodativeness--these may be the keys to the laboratory situation that will best facilitate transfer of learning for most students.
>
> A film on family life makes use of asterisks to represent family members--a large asterisk for the father, a middle-sized asterisk for the mother, a tiny asterisk for the baby. Asterisks for people? The viewer has no difficulty with this idea. AND--biases are not introduced in the form of social class level suggested in subtle ways, color of the family members, and so on! What is proposed in respect to home economics facilities is a parallel of this notion: an asterisk home economics laboratory; if you will, an asterisk unit kitchen![1]

---

[1] Statements relating to transfer of learning have been reviewed by Professors Glenn Blair and Stewart Jones of the Department of Educational Psychology, College of Education, University of Illinois.

Facilities for the Purpose of Preparation for Employment

Thus far, we have considered facilities for the teaching of home economics geared to the homemaking purpose. What facilities are needed for preparing students for employment in home economics-related occupations? This question would appear to be a significant one that is unanswerable at the present time! Just how the employment-education program will develop in home economics is still very much a subject for conjecture and speculation!

Questions that have relevance for the planning of home economics facilities include: To what extent will the employment-education program be a cooperative one with the laboratory experiences provided in on-the-job learning situations outside the formal school setting? To what extent will abilities and skills for employment be developed within the classroom? Does this latter possibility suggest a new and different emphasis on some of the skills? Does it suggest kinds of facilities that are different from those now in use? Should the school setting simulate the business and industrial setting? Or, is this another case of "asterisk possibilities"? Could the commonalities of vocational education be taught very large groups of students at one time--and, if so, what physical features are required in a setting for such a class?

Doubtless there are other questions that urgently require answers, but these would appear to be some of the problems of concern to those setting up new home economics departments or remodeling old ones.

Facing the uncertainties of employment education in home economics, the reasonable answer would again appear to hinge on the concepts of: accommodativeness, variability, flexibility, generalness, even ambiguity. It would seem that classrooms and laboratories sufficiently adaptable could, and should, be set up for educational purposes, the specifics aspects of which are yet to be determined.

Facilities for the Purpose of Pre-Professional Preparation

Whether there are many considerations unique to the planning of facilities for the purpose of preparing the college-bound girl for a career in home economics or a related field is doubtful. Perhaps such students will be few in number in most home economics student groups at the secondary level. They are likely to be better-than-average students. Probably they will be guided to do more individual studies in depth than may be true for others in the program. Hence, it might be well to make certain that adequate provision is made for individual study and research for such students. Perhaps study carrels could be provided either in the classroom, in corridors, or in the school library.

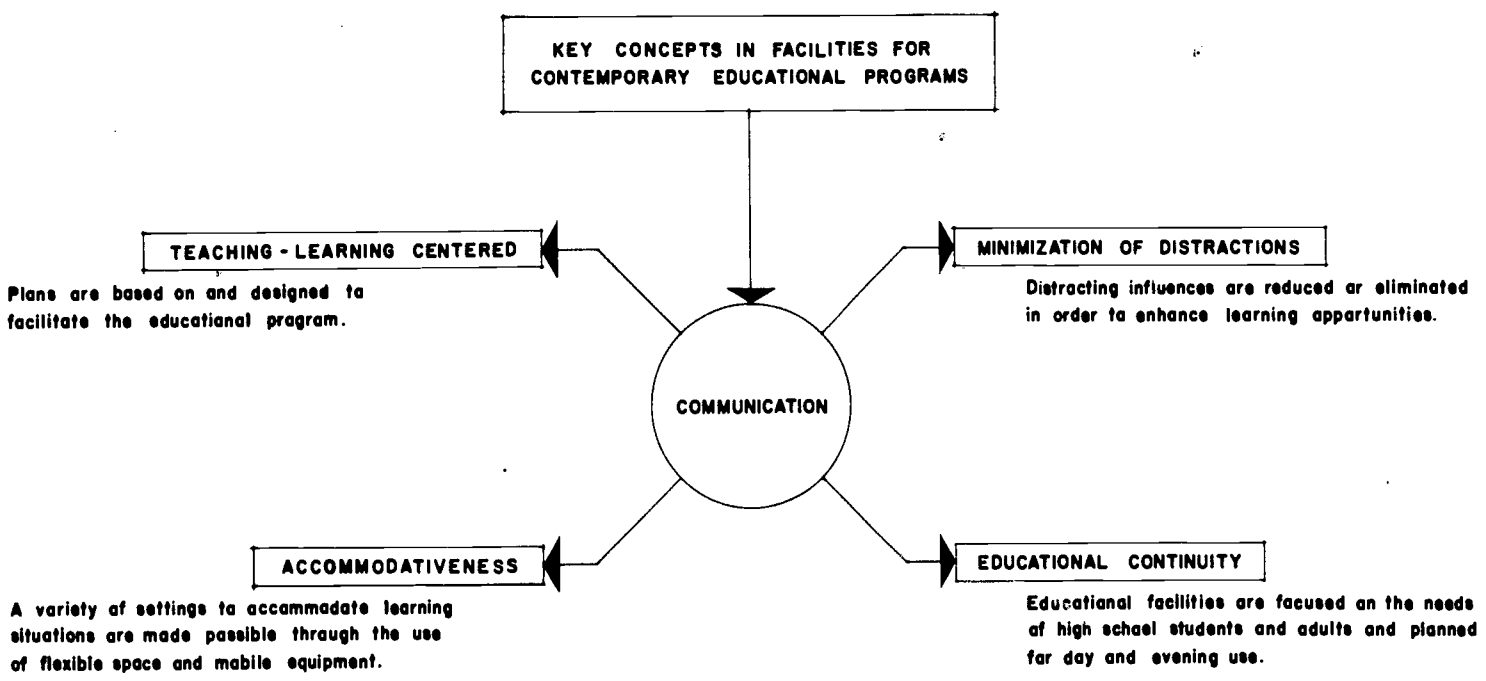
Key Concepts in Respect to Educational Facilities

In the foregoing discussion, reference has been made to several concepts that are basic to the planning of any educational facility. Some applications of these key concepts to the planning of home economics facilities have been presented. These concepts are: teaching-learning centered; accommodativeness; and minimization of distractions.

Another equally important basic idea is that of "educational continuity." That is, the educational facilities should be such that they can serve effectively the needs of both youth and adults and be used during the day and the evening.

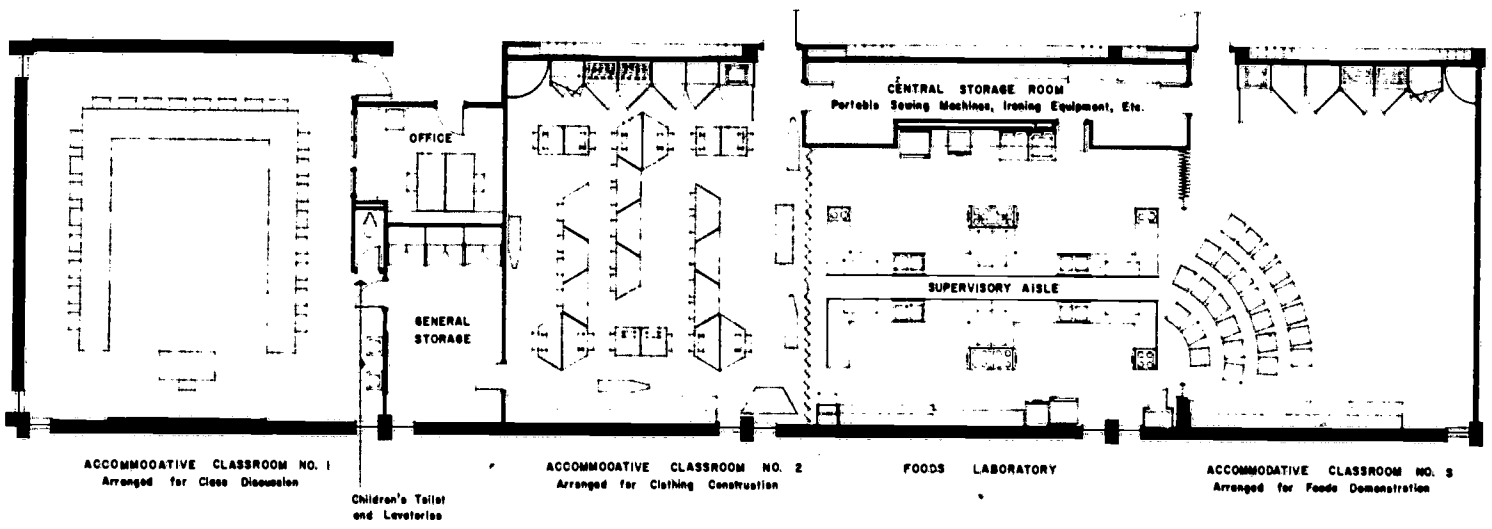
In addition, and in a sense encompassing all four of the basic concepts just mentioned, is the idea of communication. When the physical setting is such that communication is facilitated, learning opportunities are enhanced.

The following schematic presentation may serve to point up these key concepts in the development of educational facilities.



A High School Home Economics Department Planned in Terms of These Concepts to Provide a Setting for the Home Economics Program, Contemporary and Future

In designing the new Champaign, Illinois Senior High School, definite efforts were made to develop within the practical limits of the available budget an ideal environment for communication to generate the highest teacher instructional efficiency and maximum student learning performance. Spaces were analyzed in terms of the actual learning situations involved--lecture, recitation, laboratory, demonstration, conference, seminar, individual study, etc. This approach is quite different from setting out to design a classroom, a laboratory, a sewing room, or an office.



Floor Plan of Home Economics Department,
new Champaign, Illinois High School

(Not shown is the large lecture room which will be used by several departments)

The home economics department consists of four large rooms and auxiliary spaces having a total area of approximately 4,000 square feet. A large lecture room located near the department is available as scheduled for large group (100 or so students) presentations. The classroom located at one end of the department near an entrance is equipped to accommodate a variety of instructional activities. Standards mounted on the front wall support chalk boards for regular classroom activities; bulletin boards or other decorative elements for activities for pre-school children; and display bars for drapery materials during fabric studies. The department office located adjacent to this room has a glazed partition and a view window for observation of classroom activities. Also provided are a juvenile toilet, low wall-mounted lavatories, and a large storage room for children's play equipment and other materials.

The foods and clothing unit consists of a foods laboratory and a large storage room containing such equipment as portable sewing machines

and ironing equipment. The storage room is located between the two accommodative classrooms. It has direct access from each classroom as well as from the foods laboratory. A folding partition separates the foods laboratory from the classrooms. With this arrangement the classroom may be readily adapted to accommodate to either a foods unit by opening the folding partition; or a clothing unit by rearranging the tables and securing the portable sewing machines and other clothing equipment from the storage room, or the room may be used as a regular classroom with seating arranged to suit the particular activity desired. Arrangements for the variety of teaching-learning activities possible are shown on the following page.

A number of the possible room arrangements are shown to illustrate the accommodative character of the room in adapting to the variety of teaching-learning situations which are fairly typical. It is this quality of accommodativeness which we believe will permit the use of new teaching materials and methodology as they are developed for improving the efficiency and performance of those for whom the department was designed.

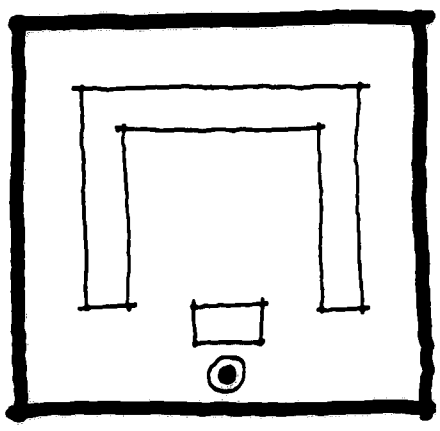
Walking into the home economics department, one is impressed with the fact that this is a setting for learning. There is none of the playhouse atmosphere. Here a student can concentrate on the important business of learning. Here, too, the teacher can function with a minimum of lost motion and expenditure of energy.

Of course, the teacher is a key element in the situation. On her shoulders rests responsibility for making use of the facilities as they were planned to be used. In this instance, the teacher shared in planning the facilities and a number of the ideas incorporated in the plan originated with her. Learning opportunities for her students are enhanced through her teaching competence in a setting that gives full rein to her abilities and provides for conservation of her energies.

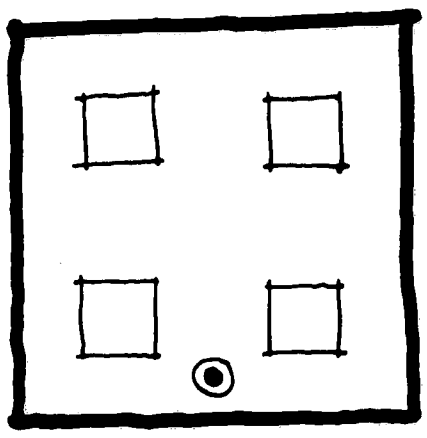
Mrs. Lila Jean Eichelberger is home economics teacher in this new high school. A staff of three home economics teachers is anticipated for the near future.

The authors asked Mrs. Eichelberger how the new facilities were working out in practice. Her comments follow:

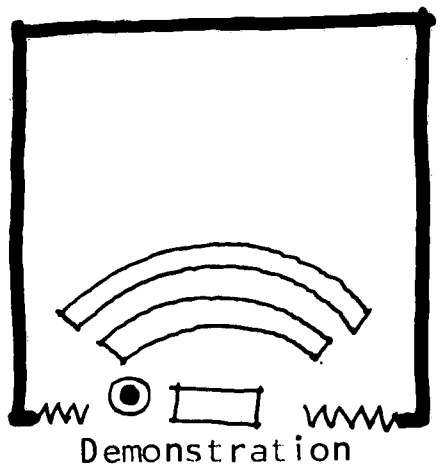
> Home economics rooms can be efficiently used by other classes by storing clothing equipment and closing multifold walls.
>
> With the foods' laboratory located between the two classrooms, it is possible for each class to use the laboratory without changing or switching classrooms as is often done in multi-teacher departments.
>
> Only one set of clothing and foods equipment is needed in this department. The clothing equipment can be moved from room to room. The foods' equipment is easily accessible to both rooms.



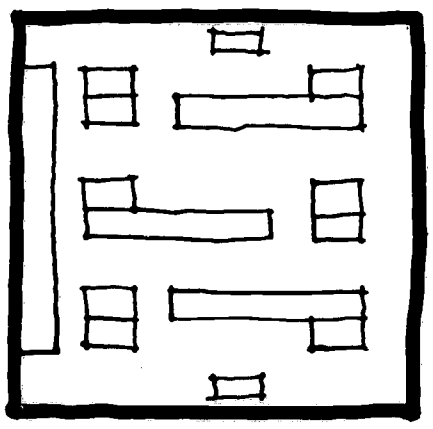
Recitation or large group discussion



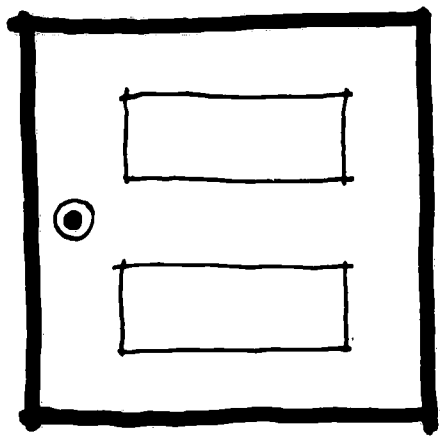
Small group Projects, "Buzzing"



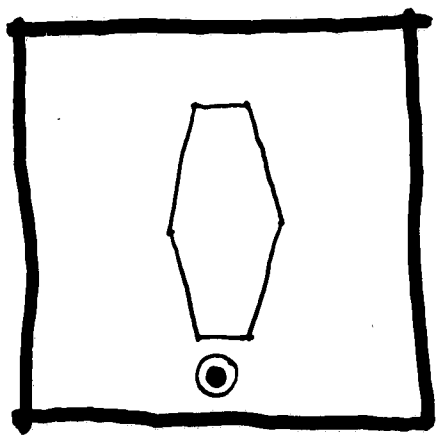
Demonstration



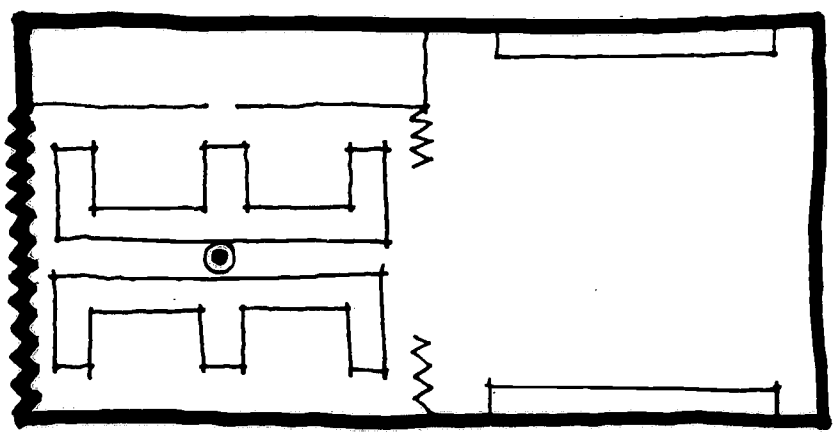
Clothing Laboratory



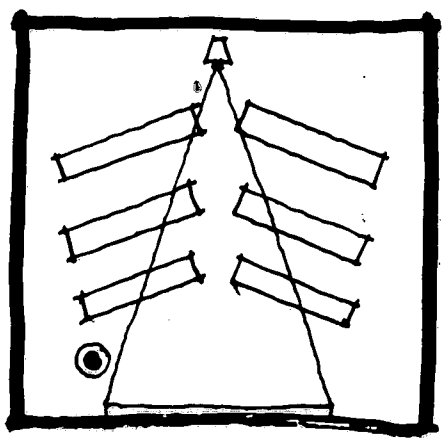
Small group discussion



Large group discussion



Foods Laboratory



Projection and Small Lecture

Possible Arrangements for a Vari .y of Teaching-Learning Situations

Furnishings (trapezoid tables, multifold wall, etc.) are easily moved by the teacher and students. If necessary or advantageous, the room may be rearranged furing a class period for large group discussion, small group projects, and individual concentration.

Distractions are kept at a minimum. Only the equipment and supplies needed for the lesson are in evidence in the room.

The wider (more nearly square) rooms are more conducive to group discussion than the rectangular rooms in which I have taught before.

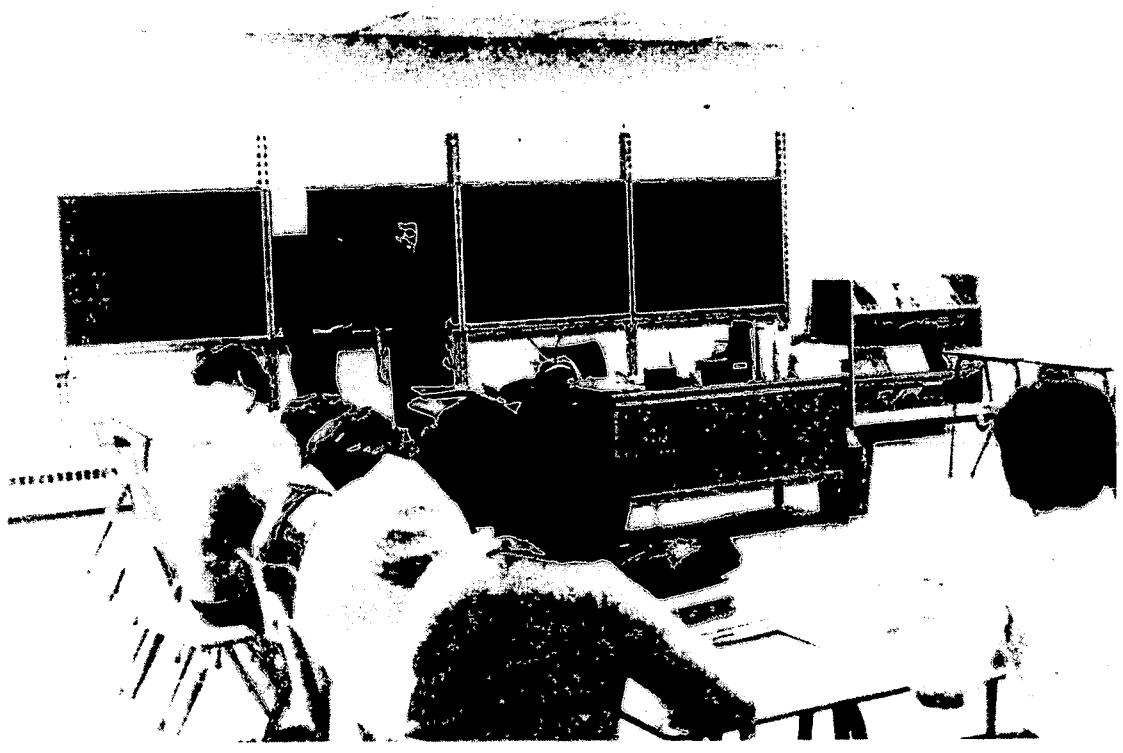
The unit kitchens seem to provide more working space for groups of girls than other types of such arrangements.

There is increased face-to-face contact between teacher and students during the laboratory work in foods.

The "supervisory aisle" in the foods laboratory keeps at a minimum the steps taken by the teacher.

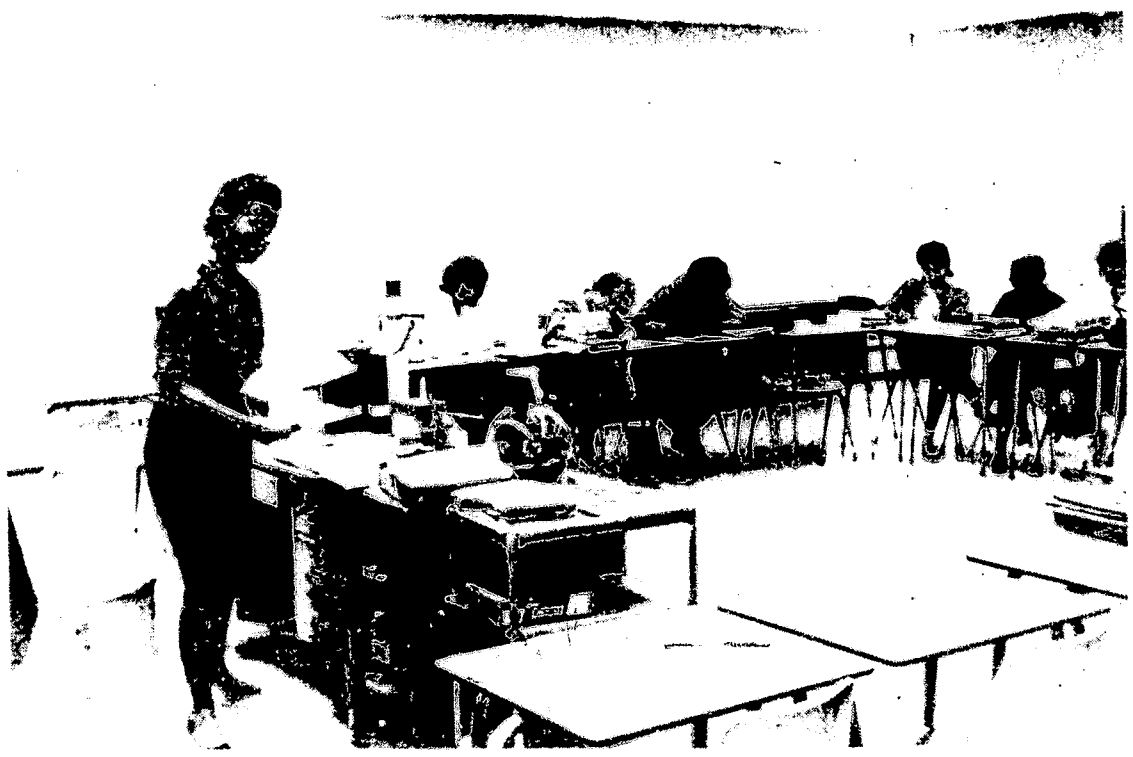
For employment education, the laboratory arrangement in both clothing and foods is flexible enough to provide a large number of stations for individuals to develop specific skills.

The photographs on the following pages serve to point up some special features of the plan described.



Accommodative classroom, No. 1

Note flexibility and avoidance of distractors. Draping of the windows is planned to avoid the distractions of school activities taking place outside.







Provision for student and teacher demonstrations is made. See the floor plan for the arrangement used here.



The "supervisory aisle" was developed from an idea suggested by the teacher.



The authors would like to suggest the following questions for consideration by those planning new home economics departments or remodeling old ones.

.What are the educational purposes of the program? What do these imply for facilities?

.What are the teaching-learning activities to be accommodated in this setting? What are the facilities best suited to each type of activity?

.How may provision for flexibility be accomplished so that a variety of teaching-learning activities may be accommodated?

.How may the facilities be planned so as to make most effective use of the abilities, energies, and time of the teacher and students?

.What special provisions should be made for the various groups that will use the facilities--high school students, adults, and small children attending play groups?

.How may distractors of an audio, visual, and tactile nature be reduced or eliminated in order to enhance learning opportunities?

VT 003 498
Potentials for Industrial Development in Vermont.

Sargent-Webster-Crenshaw and Folley, Syracuse, N.Y.
Vermont State Central Planning Office, Montpelier
MF AVAILABLE IN VT-ERIC SET.
Pub Date - May64 49p.

*LABOR FORCE; DEVELOPMENT; INDUSTRY; STATE AGENCIES; AGENCY ROLE; INDUSTRIALIZATION; *INDUSTRIAL STRUCTURE; EMPLOYMENT TRENDS; *OCCUPATIONAL SURVEYS; EDUCATIONAL NEEDS
VERMONT

This report of the fourth study in the series of the inventory study of the State comprehensive planning program covers (1) Patterns of Industrial Development in Vermont, (2) The Role of the Industrial Development Department in the Overall Program, (3) Labor Force Development Program, (4) Improving the Productivity of Smaller Firms, (5) Transportation, (6) Potentials for Industrial Developments within the State, and (7) The Present Structure of Industry in Vermont. Tables cover (1) Industrial Losses in Vermont Since World War II, (2) Industrial Growth in Vermont Since World War II, and (3) Vermont Trends in Manufacturing, Mining, and Services, 1939-1962. Some of the implications for education are: (1) Adult vocational education is needed in some sections of the state, (2) Combining academic and vocational education in high schools should be considered, and (3) General adult education is often neglected. (EM)

VT 003 498

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POTENTIALS FOR INDUSTRIAL DEVELOPMENT IN VERMONT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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December, 1963

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Central Planning Office
Office of the Governor
State of Vermont

003498

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Richard G. RuBino
Director of Planning
Central Planning Office

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SECTION I
INTRODUCTION

The first three studies of this series --Population-State of Vermont, Income-State of Vermont, and Labor Force-State of Vermont -- presented the fundamental economic background material on the state. This study of Potentials for Industrial Development in Vermont is the fourth in the series of the inventory study of the state comprehensive planning program. This report is directed toward new development programs that should be considered for the state.

Various state agencies have been making continuous study of statistical data on industrial activity. Little is to be gained from repeating the analysis of the Vermont Development Department, the Vermont Unemployment Compensation Commission, and other public and private groups that have been studying various aspects of the problem. The purpose of this report is to point to new directions for growth and indicate weaknesses in the state that must be corrected if a dynamic industrial development program is to be furthered.

Rather than review the volumes of available data in this report, the interested reader is referred to the following bibliography of basic studies:

(1) Covered Employment by County and Industry: issued annually by the Research and Statistics Section of the Vermont Unemployment Compensation Commission.

(2) Vermont's Changing Industrial Pattern: Changes in Manufacturing and Mining Establishments, 1955 and 1957: Vermont Development Department.

(3) An Audit of Vermont-Statistical Summary of Recent Economic Changes-1962: Vermont Development Department.

(4) Statistics on Vermont's Economy-1960: Vermont Development Department.

(5) Vermont Industrial Prospectus, 1963: Vermont Development Department.

(6) Community Data Audit (for various cities and towns): issued through the Vermont Development Department, Industrial Division.

(7) Nadworny, Milton J. -- A Survey of the Labor Movement in Vermont -- Vermont Development Department.

(8) Vermont Area Economic Study (issued for eleven areas in the state): Vermont Department of Highways, Real Estate Appraisal Section.

(9) Small Business Operations in Selected Areas in Vermont: prepared by the Vermont Development Department for the Small Business Administration.

(10) Smith, David K. -- The Financial Environment of Vermont -- sponsored by the Associated Industries of Vermont and the Vermont Bankers Association.

This report on industrial potentials sketches briefly the changes in industrial activities within the state since World War II in terms of plant locations. It is then concerned with the basic socio-economic factors inducing these changes. Much of the information on factors affecting industries is derived from personal interviews of firm managers throughout

the state. In this respect the report provides the Vermont manager's views of his own state.

Following this analysis are the proposals for industrial development which are divided into five broad groups:

(1) The role of the Industrial Development Division of the Vermont Development Departments in the overall program;

(2) labor force development program;

(3) improving the productivity of smaller firms;

(4) transportation;

(5) potentials for industrial development within the state.

The last two sections of the report provide some additional basic data on location concentrations of industry in Vermont and trends of growth of broader sectors of the economy. They have been included to give the reader some indications of the areas of the state that are being affected by present trends.

SECTION II
PATTERNS OF INDUSTRIAL DEVELOPMENT IN VERMONT

The results of the analyses made of the Vermont economy in the preceding reports in this study point directly toward proposals for developing industrial potentials for the state. To complete this analysis, a survey team interviewed over 100 industrialists, government administrators, bankers and industrial development specialists in every part of the state. A wide spectrum of industries by type and size was covered. The objectives of these interviews were to determine: (1) qualitative judgements concerning the future potentials for firms now operating in the state; (2) the strengths and weaknesses of Vermont in attracting new industries and holding present firms; and (3) potential new industries that would complement present economic activities, or could be spawned by government and industry cooperation.

The opinions of the interviewees on the conditions of their firms and their own economic problems within the state were often frank and their confidentiality will be maintained in this report. The gist of the discussions is presented without identifying firms, locations or individuals. The suggestions for state and local programs to strengthen firms and attract new ones represent the combined thinking of Vermont industrialists, government administrators, bankers and the consultants who interviewed and analyzed the results. Programs outlined in this report range from a number of more-immediate action proposals that apply to specific areas and firms, to longer-range programs that necessitate basic changes in

institutions and require integrated state and local action. Some of the major proposals will require federal assistance to effect widespread changes in natural resources, structure of towns, and training of personnel.

A number of significant industrial patterns are developing in Vermont. These must be fully considered in evolving a vital industrial program. Since World War II the basic industry structure of Vermont has been changed by the out and in-migration of firms. Nearly 4,300 jobs have been lost in textile, metalworking, woodworking and miscellaneous industries due to relocations of plants outside the state. The nine textile mills that were removed accounted for 3,200 jobs directly; six woodworking plants accounted for 475 jobs (see Table 1).

Offsetting the out-movement of the twenty-three plants recorded has been an influx of thirty-three plants providing approximately 6,875 jobs. Metalworking firms have become more important as eight firms provided 2,560 jobs; electronics have grown as six firms added 1,570 jobs (see Table 2).

It is evident that the relocation of industry has diversified the industrial structure of Vermont. Plastics and electronics industries are among the faster growing industries in the state. On the other hand, textiles have practically disappeared completely from the scene. One distressing pattern in these plant movements that should not be overlooked is the loss of woodworking firms. The neglect of timber resources and the implications for the agricultural economy of the losses in this industry will be explored further in this report.

TABLE 1

INDUSTRIAL LOSSES IN VERMONT SINCE WORLD WAR II

	Number of Employees	
Textiles		
John Slack Coporation, Springfield	100	
Berkshire-Hathaway, Brattleboro	200	
American Woolen Company, Winooski	1,500	
E-Z Mills, Bennington	500	
A. C. Dewey Corporation, Quechee	300	
Bradford Mills, Bennington	100	
Woolart, Inc., Ludlow	100	
Van Raalte, Randolph	100	
Gay Brothers, Cavendish	300	
Total		3,200
Woodworking		
C. I. Church Company, Brattleboro	100	
Pilgrim Plywood Corporation, Waterbury	100	
Atlas Plywood Corporation, Richford	100	
Jacksonville Wood Products, Jacksonville	50	
Jay-Crawf Lumber Company, East Burke	50	
Draper Corporation, Woodford	75	
Total		475

Source: Associated Industries of Vermont
Montpelier, Vermont

TABLE 1 (Cont.)

INDUSTIRAL LOSSES IN VERMONT SINCE WORLD WAR II

	Number of Employees	
Stone and Minerals		
Various Granite Firms	100	
Total		100
Metal Wcrking		
Lincoln Iron Works, Rutland	50	
Windsor Foundries, Windsor	75	
Docley-Wright Company, Waterbury	50	
Ripley Brass Foundries, Windsor	25	
Total		200
Miscellaneous		
Estay Organ Company, Brattleboro	150	
Sterling Drug Company, Brattleboro	60	
McGraw-Edison Company, Burlington	100	
Total		310
GRAND TCTAL		4,285

TABLE 2

INDUSTRIAL GROWTH IN VERMONT SINCE WORLD WAR II

	Number of Employees	
Plastics		
Polymers, Inc. Middlebury	100	
Waterbury Corporation, Randolph	100	
Mack Molding Corporation, Arlington	200	
Reddy Company, Montpelier	40	
		440
Electronics		
IBM Corporation, Essex Junction	500	
American Super-Temperature Wire, Inc., Winooski	150	
Warren Wire Company, Pownal	200	
Transitor Electronics, Bennington	300	
Ladd Industries, Colchester	20	
Rock of Ages Capacitor, Barre	400	
		1,570
Metal Working		
General Electric, Burlington	1,500	
General Electric, Rutland	400	
General Electric, Ludlow	100	
Simmonds Precision Products, Vergennes	400	
Great Eastern, Springfield	50	
Precision Metal Products, Swanton	40	
Vermont Research Corporation, Springfield	20	
Windsor Pippin Corporation, Windsor	50	
		2,560
Paper Processing		
Case Corporation, Brattleboro	50	
Samice Corporation, Rutland	50	
Mountair Paper Products, Bellows Falls	300	
Vermont Container Corporation, Bennington	40	
Albany Paper Works, Brattleboro	150	
Champlain Container and Box Corporation, Burlington	45	
		635

Scurce: Associated Industries of Vermont

TABLE 2 (Cont.)

INDUSTRIAL GROWTH IN VERMONT SINCE WORLD WAR II

	Number of Employees	
Printing		
McKibbin Corporation, Brattleboro	400	
Moore Business Forms, Rutland	100	
		500
Furniture		
Orleans Manufacturing Company, Orleans	400	
		400
Leather		
Margolin Company, Brattleboro and Bellows Falls	350	
		350
Stone and Minerals		
Vermont Kaolin Corporation, Bristol	50	
Green Mountain Marble, West Rutland	200	
		250
Wood Products		
Carris Reels, Rutland	70	
Rutland Plywood, Rutland	30	
		100
Miscellaneous		
O. E. McIntyre, Rutland	70	
		70
GRAND TOTAL		6,875

SUPPLEMENT TO INDUSTRY REPORT

by

Central Planning Office
State of Vermont
February 1964

Since the industry report of the Vermont State Comprehensive Planning Program was published in December 1963 additional information on patterns of industrial development has been compiled. This information, shown in the table on the following page, indicates that in the period from 1946 to 1964 a net loss of 170 industrial firms occurred in the State and industrial employment showed a net decrease of 155.

The high in terms of the total number of industrial firms in the State during this period was 1,040 in 1946, and a low of 870 was recorded in 1964. In regard to industrial employment during the same period, a high of 39,744 occurred in 1946 and a low of 35,902 was experienced in 1955.

Losses in firms have taken place primarily in the wood products industry (-244), whereas gains have occurred in the printing (+37), machinery (+33), and miscellaneous products (+26) industries.

Changes in employment showed the greatest losses to be in the wood products (-3,286) and textiles (-2,871) industries, and the greatest gains to be in the machinery (+2,547) and printing (+2,255) industries.

SUPPLEMENTARY TABLE

INDUSTRIAL CHANGE IN NUMBER OF PLANTS AND NUMBER OF EMPLOYEES*

1946 - 1964

(by type of industry)

Type of Industry	Industrial Plants **			Industrial Employees		
	1946	1955	1964	1946	1955	1964
Food & Food Products	147	137	139	3,451	2,831	3,579
Textiles	20	14	11	3, 567	1,076	696
Wearing Apparel	43	39	33	3,132	3,531	2,980
Wood Products***	410	237	166	7,553	4,350	4,272
Furniture	410	17	14	1,584	1,481	1,810
Paper & Paper Products	23	20	24	2,629	2,451	3,254
Printing	58	101	95	483	2,040	2,738
Stone & Cement Products	182	173	192	4,416	5,240	5,019
Machinery, etc.	81	111	114	9,537	9,935	12,084
Miscellaneous Products	56	76	82	3,387	2,967	3,157
TOTALS	1,040	925	870	39,744	35,902	39,589

* Annual average.

** Branch plants are counted as individual plants.

*** Criteria for classification of wood product industries were changed slightly in the period from 1946 to 1964, thus effecting the comparability of the number of plants in this category and also in the totals.

Source: Vermont Development Department, Industrial Development Division, 1964
Figures compiled from Vermont Directory of Manufactured Products; years 1946,1949,1953,1955,1957,1959, 1961,1964.

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Changes in employment showed the greatest losses to be in the wood products (-3,286) and textiles (-2,871) industries, and the greatest gains to be in the machinery (+2,547) and printing (+2,255) industries.

A second significant pattern has been evolving; the local character of industrial firm ownership is changing rapidly, especially in larger firms. Local owners see tax advantages in selling out to larger nationally-owned firms because of the relative advantages of capital gains taxes over inheritance taxes. Local owners often fear losses involved in selling off large blocks of stock to meet inheritance taxes in case of death. In some family-owned firms, the present owners lack a family successor; in other cases, they have drained the business and now lack capital to modernize and remain competitive.

For these and many other reasons, the shift is toward more national ownership, which offers both advantages and disadvantages to the state. On the positive side, there are a number of dynamic national firms who have modernized plants and improved wages and employment after buying out local concerns. A national firm has at times picked up an insolvent poorly managed concern and has breathed new life into it. However, the negative side of these takeovers cannot be overlooked. National firms may not consider local commitments in the same way as managers of traditional local family-run firms. Purely economic considerations tend to count more heavily with national boards of directors. The decision as to whether a plant should be kept open or closed in a town in Vermont is influenced more by economic alternatives than local social obligations for nationally operated firms. In the past, the attachments of local owners have clearly played a major part in keeping firms in Vermont. Many of these location decisions will, in the future, be made on colder economic calculations involving a large firm's national policies.

That such location decisions are significant is certainly a serious problem for Vermont when one realizes that very few managers interviewed, although they were strong supporters of the state, could point out major economic advantages for their firms for locating or expanding in Vermont. When asked in indicate if and why they would suggest further expansion of their firms in Vermont, they seldom answered positively. Most managers draw a distinction in their attitudes toward moving out of the state and moving a new plant in. They prefer not to shift the present facility out of Vermont because they like the advantages of living in the state. But, they are equally strong in the opinion that they doubt that if they were outside the state that they would bring their firm in.

Many Vermont firms are housed in obsolete structures, working with outdated machinery, and along poorly organized lines. A number of them are not holding their own in the market and may be lost to the state within a few years. Few firms are considering modernization, and very few have had recent studies of plant capital and efficiency.

A number of the locally-owned firms are managed by older men who have not kept up with current ideas of marketing and production. They tend to be highly tradition-oriented, not leaning toward product diversification, new product design, new marketing techniques, and management methods. They are maintaining a holding operation with a minimum of new risk capital. In short, these firms are milking the present as far as possible, but doing little about the future. Managers, both young and old, often complained about foreign competition

which is due to new machinery and lower wages. However, they admitted that they had moved slowly, if at all, toward plant modernization to meet the competition.

Many managers feel the Vermont's high income taxes makes it somewhat more difficult to get and keep high salaried employees. At times, the differential income tax must be made up by raising salaries. Taxes are minor deterrents in attracting professional and technical personnel when one considers the other limiting factors. Managers specified the following major considerations:

(1) Wives of potential employees are adversely influenced by the poor shopping facilities in most business districts. Merchandise is of lower quality, lacks variety, displays are poor and the entire shopping district often gives a shabby appearance. This is especially so in smaller communities. A few larger city business centers, such as Burlington, Barre, Rutland, Brattleboro and Bennington offer a wide array of quality merchandise. Perhaps the naturally smaller demands in the less urbanized centers makes this situation unavoidable. However, many actions can be taken to overcome such conditions in the larger communities./1 Furthermore, exclusive of rents, the cost of living in Vermont appears high to the potential employee.

(2) Inadequate educational opportunities are serious limitations. Elementary and high school education is below the quality standards that many managers indicated necessary

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/1 Also see the various planning surveys done for cities and towns in Vermont.

for modern industry. The inadequacies are generally more serious in smaller towns. Extension courses for adults and specialized college and post-graduate off-campus courses are seldom available. A professional employee often feels that by accepting a job in most areas of Vermont, he is cutting himself off from advancement opportunities in that he loses contact with new developments because of inadequate educational opportunities.

(3) The low density of population and industry also is a deterrent to getting new personnel. Many high quality engineers and professionals want to still retain their mobility and this is hard to do if alternative employment opportunities are not close at hand.

(4) Summer music festivals and theater programs meet some of the cultural needs during part of the year in some centers such as Marlboro, Woodstock, Burlington, Bennington and the Montpelier area. For other times of the year and most other less urbanized areas, inadequate cultural facilities, including theater, lectures and music are limitations.

(5) Inadequate rental housing for newcomers is a serious restriction. One can also add to this the relatively high cost and slow rate of constructing new homes. In general, there is widespread evidence that craftsmen such as reparimen, plumbers, electricians and carpenters are in short supply. A special study of training for the repair and construction trades appears essential.

(6) As a number of managers put it, "We look for 'snow engineers' when we want a man" (men interested in skiing and other outdoor winter sports).

In addition to the problems of getting skilled and technical men, a number of other matters were raised by employers. The personal property tax has some adverse effect on holding inventories in plants. Some firms follow a policy of holding low raw materials and finished goods inventories in the spring of the year. Wood-using plants are particularly hard hit because they generally have large log inventories in April.

Unemployment insurance levels are criticized primarily by managers of firms paying low wages and manifesting seasonal fluctuations in employment. These lower wage firms generally have high labor turnover, if they are located near other plants. However, turnover rates tend to be low in most plants, especially those in smaller towns where alternative jobs are not available.

The turnover rate is a peculiar dilemma in the state. At one extreme, managers of plants with high turnover rates complain that they have excessively high costs of training new workers. This condition is more prevalent in female-employing firms (especially in industries such as leather goods and textiles), foundries, which are primarily male-employing but where they work in less pleasant surroundings, and in highly seasonal work such as logging, sawmills and associated industries. This problem of high turnover costs is well known, but it is the low turnover problem in some Vermont firms that is particularly interesting.

Managers in a number of firms indicated that low turnover rates have been costly to their operations. The employed labor force of Vermont is aging and the average age of the employed is in the mid-forties in many plants, in rural areas

especially, is affected by the age factor by complacent attitudes of Vermont workers who too often are content to remain on one job, and who are at times rigidly set against change. Although Vermont workers are educable, they are not well educated now.

Interviewees generally stated that workers in Vermont were trainable and many had manual dexterity. But one cannot overlook the fact that many managers stressed the negative qualities as well. One manager put it as follows: "It's hard to draw the line between a Vermonter's rugged individualism and his downright stubbornness."

SECTION III
THE ROLE OF THE INDUSTRIAL DEVELOPMENT DEPARTMENT IN THE OVERALL PROGRAM

The Industrial Development Division of the Vermont Development Department in Montpelier and the development corporations sponsored by industries and localities throughout the state are the primary agencies presently working on the problems of attracting and keeping industry in the state. The stronger agencies are generally found in the larger cities; their effectiveness in attracting industries is evident by the influx of firms into or near areas such as Burlington, Brattleboro and Rutland. Industrial development agencies in more rural areas have been less successful, reflecting in part the fewer industrial advantages offered in these towns, and their more limited human and budget resources.

The organization and program of the State Industrial Development Division reflects many of its own serious limitations. These must be overcome if a more effective industrial development program is to be organized. The department is seriously hamstrung by inadequate budget, understaffing and a lack of technical personnel that make it unable to promote an effective program. The publicity program is broad and in most instances, less effective than the advertising done by many other cities and states. The publicity is not focused on particular industries, nor does it effectively present what the state is prepared to offer in the way of an industrial development program. Furthermore, the "Community Data Audit" releases/1 are often designed around small areas that have few advantages to offer and a

/1 These releases make available specific information on comparative wage rates, compapative shipping quotations, transportation classes and origin and destination surveys, comparative tax bills, water power, etc.

relatively small labor force to draw upon.

Although the employees of the Division diligently follow up each industrial lead, it is evident that the product they are selling could be supplemented by additional research and better-directed merchandising. The industrail opportunities in Vermont are pallidly offered in a few advertisements. Specific industrial feasibility stulies for industries with the best potential in Vermont are lacking and the particular advantages of the state are not being presented with sufficient strength. What the state is prepared to do specifically, beyond what other states are doing, does not come through. Attractive scenic vistas and trainable willing workers are good sales points but they must be strengthened by other economic advantages. /1

The programs of the individual industrial development agencies are independent, lacking in coordination or close cooperation. Perhaps a modicum of competition among these bodies is preferred and necessary, but there are wide areas for cooperation which would strengthen all of them.

The following suggestions are offered for strengthening the Industrial Development Division:

(1) The Industrial Development Division should be the research arm for the study of industrial potentials in the state. It should conduct through consultants and an augmented technical staff more industrial feasibility studies to determine industrial potentials and programs to attract concerns. This information should be made available to all industrial

/1 Feasibility studies may be covered by federal funds in ARA counties.

development organizations in the state. Studies would also cover industrial sites, public works programs that are essential to make a site available, training programs needed for workers, higher education programs, transportation problems, financial arrangements, etc.

(2) The public relations activities of the Division should be expanded budgetwise, but alsc focused toward selected industries.

(3) The budget and personnel of the Division should be increased to make it effective. More technically trained men are needed to deal with industrial development problems. The technical staff should prepare documented prospectuses for specific industries and suggest manpower training and natural resource development programs that are essential to strengthen the industrial base.

(4) The Industrial Division should control the "productivity" program suggested below in Section IV and maintain a direct and close liaison with the Governor's office.

SECTION IV
LABOR FORCE DEVELOPMENT PROGRAM

When Vermont officials or managers are asked about the strong economic elements in their state, they invariably point to the quality of the labor force. In broad terms, they indicate that Vermont workers have good character, offer a good honest day's work, have manual dexterity, and learn manual skills quickly. These positive qualities were emphasized in interviews throughout the state. Although these characteristics are generally present, there are certain serious inadequacies that should be recognized as handicaps for industrial growth.

Even where managers lauded their workers, they indicated that skill levels are generally not available, educational levels are inadequate, and work attitudes could be better. Opinion is widespread that vocational educational programs are needed in most industrialized towns, and the programs now operating need to be strengthened. Programs should focus on young workers to train them for new positions that should become available in the southern and western parts of the state. Youth training programs in forestry conservation, water pollution, and other natural resources development would complement the backgrounds and interested of many who are raised in rural areas. This program should also be extended to adults.

Adult vocational training in various industrail fields is required in many sections of

the state. In the Springfield-Brattleboro and the St. Albans areas, for instance, training could be profitably offered to males and females for metals occupations. The training would meet current needs of industry and would also provide a foundation for attracting new industry to complement the economy. Training in road construction is another possibility considering the dimensions of the road program and the fact that some construction crews are being imported from other states now. The Highway Department now operates a seven year training program that might be expanded further.

Employers recognize that high school curricula do not meet current needs. A program to cope with high school "drop outs" should be initiated. Employers indicated that a program for combining academic and vocational education in high schools should be considered seriously throughout the state.

A third educational program has been neglected in most areas: general adult education. This should cover high school and college courses of a general education nature. Many managers consider general education a vital element of labor force growth. The program should include courses to broaden the student's understanding of the economy and his acclimatization to a more industrialized and tourist oriented economy. Specific training in industrial management, foremanship, accounting, economics, tourist-management, drafting, and indutrial relations, etc. should also be parts of such programs.

Labor force development is promoted most effectively by keeping professionals, executives, and technical personnel abreast of the latest concepts and techniques in their specific

fields. In these areas, a serious lack is felt most strongly in the more industrialized communities. Where the opportunities for educational advances are lacking, the efficiency of firms is affected by their inability to hold aggressive men who see their horizons limited by inadequate advanced educational opportunities. Better men tend to move on and firms find difficulity ir attracting topnotch replacements.

The current dynamic segments of the industrial economy are most often dependent on research, e.g., new product development, design, market analysis, production analysis. These opportunities are now limited to Vermont because of the lack of training programs offered for college graduates in the technical fields. Most managers interviewed indicated that the state offered them few advantages for bringing research and development divisions into Vermont. The University of Vermont and Norwich College programs are presently felt to be inadequate for management needs, and extensive broadening of such programs appear to be required. The state offers its scenic beauty and its quiet contemplative atmosphere, but its inadequate educational system is not research oriented.

A number of special areas of training received special attention in our discussions with managers: forestry product development, tourism, and light industry production. Considering the importance of forestry products and tourism, the state now offers limited programs for the first and nearly nothing in the second. /1

/1 The Small Business Administration is initiating a seminar in resort management.

The following suggested measures are strongly urged if the state is to enhance its industrial growth:

(1) A full study of vocational cum academic training programs that might be combined in high schools. A special program for school drop-outs should be developed.

(2) A review and strengthening of vocational training programs currently operating in the state. Equipment and funds for vocational training programs are now being made available by the federal government.

(3) Expansion of Manpower Development Training Programs in the state. The need for a number of training areas is now apparent: foundry operations in the Springfield area, restaurant-motel training program, training for clerical positions, road construction, reforestation work, printing compositions, electricians, plumbers helpers, carpenters, molders, nurses and nurses aides, medical technicians, etc. Training programs should also be made available on a stand-by basis. These should be offered to any firm that might be interested in locating in Vermont. Certain growing industries, e.g., optics, specialized electronics, computer parts, and aluminum fabricated parts might be favorably inclined to expand in the state if training programs were offered as part of a package deal.

(4) Expand the adult education offerings in the state for technical and non-technical courses.

(5) Develop extension education programs in business management, advanced engineering, product design, and general edllege education for undergraduates and graduates. A cooper-

ative arrangement among the private and public educational institutions should be sought to provide coverage of most areas of the state. Managers in many parts of the state indicate that their firm would welcome course offerings and they already have a policy to cover part or all of the tuition costs.

The state is in the unfortunate position of having a small population spread over a large area. The cost of providing educational services would naturally be higher under these conditions. But this cost must be weighed against the cost of less efficient industries and the state's limited appeal to new industries.

(6) Strengthen the College of Forestry program and add a strong program of wood utilization and technology research to it. This might be done in cooperation with other New England states. Research programs on wood products, management of wood industries, reforestation, conversion of agricultural lands to woodlands, product design, marketing, etc. are essential for Vermont. The wood industry is significant, but not very dynamic now. Unless actions are taken to stimulate further development, the wood industries will lose their present momentum.

(7) Organize a program for training persons in the tourist trade. The program should offer short courses to all levels of managers and workers. Except for a few areas in the state, the tourist business has been slow to modernize and expand. The patterns of tourist activity are changing and many of these favor Vermont, but if the practices now followed persist, the opportunity will be lost. Managers of Vermont tourist resorts, exclusive

of a minority in a few areas, have not as yet realized that out-of-state tourists may have different vacation interests than Vermonters do. Native Vermonters tend to enjoy outdoor recreational activity generally associated with camping, fishing, hunting, etc. Certainly these have appeal to many vacationers from more urbanized areas. However, the state should not overlook the variety of vacation recreation of a less rugged nature that appeals to other vacationers. Theatre, music, hotel life and more sedentary recreation must also be promoted fully. Meeting these demands, rather than thwarting them, will bring business. It is interesting to note that the more successful tourist areas are managed to a large extent by non-Vermonters.

(8) Strengthen the College of Engineering of the University of Vermont so that it can widen its research and offer extension courses for industries. Develop research programs in fields that are presently part of the Vermont economy. Grants should be sought from local industry and the federal government to expand research, in electrical machine tools, computers, and optics.

SECTION V
IMPROVING THE PRODUCTIVITY OF SMALLER FIRMS

Vermont is to a large degree a state of small industrial firms. What can be done to improve the productive efficiency and marketing abilities of these small firms will strengthen the employment opportunities in the state. Larger firms have the resources to develop their own departments of management and marketing research, or they turn to engineering consultants for assistance on these problems. Small firms tend to delay solving such management problems, weakening their competitive positions and steadily losing out on their share of the market. A program to help small firms solve their management problems is, therefore, essential.

A Productivity Council for Industries, operated through the State Industrial Development Division and associated with a national industrial engineering consulting firm, could provide assistance to smaller firms. The Council should help firms develop quality producing technical assistance. Programs for modernizing plant facilities, diversifying products, expanding markets could be furnished by these technicians and tied into state financing arrangements. Methods for reducing absenteeism, raising outputs per manhour, improving plant layouts are just a few of the problems that should be tackled.

A note of caution should be emphasized on the Productivity Council program. Where it has been carefully organized and adequately manned, as in a number of European countries, it has worked well. Where it has been given half-hearted support and insufficient budget, it

has failed. The experience of some New England towns shoudl be carefully reviewed to avoid their difficulties.

The basic staff budget and retainer fees for such a program might be undertaken by the state. Fees charged the firms would defray costs. Arrangements for fee schedules and initial costs analyses should be undertaken by the appropriate agencies in the state.

A team of specialists from the Industrial Development Division might be used to circulate through groups of firms in the state. They could give some industrial management assistance on a fixed fee basis and suggest to managers where further consulting assistance may be obtained. Part of the team's work should be directed toward suggesting new products, studies for industrial development and training programs.

A significant part of the consulting program should be directed toward tourism. Small hotel and tourist camp management offers a wide field for improvement in the state.

A "Craft Design Education Program" appears essential if the sales potential of craft products is to be fully realized. Many craft items sold in Vermont are produced outside the state. From our observations and discussions with craftsmen, we are led to conclude that the crafts designs and production of other states have moved beyond Vermont. A design program to add new products and a production program to improve quality would enhance sales. In particular, the design program in furniture now underway should be expanded

SECTION VI
TRANSPORTATION

Although full analysis of the transportation problems of the state is being furnished in another report, it is of such significance to industries in Vermont that it should not be omitted as a program from this report. Firms located in the northern section of the state have fewer transportation problems because they rely heavily on the Canadian National Railroad. Trucking and air transportation are hindered somewhat by winter snows but firms have generally adjusted to these. Firms have some cost differentials to overcome due to freight rates. The northern area suffers with most of the rest of the state from the lack of parcel post service.

The east-central part of the state has had its transportation difficulties due to the absence of railroads and inadequate road connections. To compensate for the absence of parcel post, some firms ship by bus and often transship two or three times to reach some centers. The closing of the Rutland Railroad has made for similar problems for firms in the western section. Reopening the line should ease the situation somewhat.

Air service is a most serious limitation for some firms. The precision tool industry depends on being able to move buyers into its plants and servicemen out to all parts of the country. Firms producing light low bulk items often compete for contracts on a time schedule basis. These industries are seriously handicapped by the lack of air service. Some

type of air service covering the St. Johnsbury-Springfield-Brattleboro spine of the state and connecting up with flights to Boston, New York and Chicago should be thoroughly studied. Civilian Aeronautics Board subsidly for service to smaller areas should be considered.

To enhance the quality of truck service, the Interstate link to Boston should be pushed as rapidly as possible.

SECTION VII
POTENTIALS FOR INDUSTRIAL DEVELOPMENTS WITHIN THE STATE

The following suggestions for industrial potentials are based upon preliminary research done by the consulting team. These require further feasibility studies.

(1) Pharmaceutical Industry: the Burlington area offers many advantages that might be fully nutured by the expansion of the Medical School of the University.

(2) Beet Sugar Industry: a potential that combines advantages for agriculture and employment in industry. The major difficulties lie in getting an allotment from the United States Department of Agriculture and in the large capital outlay required for a refining plant. The market for this product is expanding and the by-products of the process can be used for fodder. The growth of this basic industry would spawn firms in associated industries.

(3) Nursing Homes Construction and Operation: the only in-migration age groups in the state tend to be over sixty years old./1 This group has retirement income and generally requires extensive medical treatment./2 A program of modern nursing home construction, coupled with a vigorous control of outmoded structures, would be essential. Construction and service will both generate employment opportunities and incomes over many years. Training programs for medical technicians and nurses aides are needed. The federal government offers to cover 90 percent of the construction in grants or loans.

/1 Refer to the study of population in this series of reports.
/2 Refer to the study of income in this series of reports.

(4) Foundry Operations: the potential is in the southern areas of the state but will require worker training programs. The potentials for both male and female employment are wide open because of labor shortage now.

(5) Optical Products: this industry is already well established in the state. Its potential for expansion is great as opthalmic and precision glass demands are rising. The state has little chance to get research departments of firms into Vermont but might be able to get more semi-skilled and skilled employment in present plants and new ones that might attract.

(6) Aluminum Fabricated Parts: (electrical components, containers, and consumer items): the western section of the state offers a potential for further expansion of aluminum parts fabrication. The proximity to aluminum strip and sheet in New York State and the light weight of the end product are two advantages. Skill levels required are moderate.

(7) Surgical Instruments: these are high value, low bulk products requiring moderate skills. The value of the raw material inputs tend to be a relatively small part of total value. With a large aging population/1 in the northeast, this industry should have growing demands. Servicing of laboratory equipment in hospitals and nursing homes offer potential employment.

(8) Small Computer and Missile Parts: the industry demand comes in great part from defense programs. Female employment opportunities are great in the industry. Our analysis

/1 Refer to the study of population in this series of reports.

of the labor market conditions in the state indicates that such industries, if located in the Springfield area, would complement labor market conditions very well by balancing off the cyclical nature of male employment prevalent in the machine tool industry.

(9) Tourist-related Industries: the following appear to offer good potentials--boat building yard (Champlain area); boat marina (Champlain area); canoe building; fishing equipment; ski clothing and supplies; hunting equipment. These are market oriented products that can be sold throughout New England, northern New York and Canada.

(10) Printing and Publishing: this is a rapidly growing industry, especially in the textbook field. The problem in Vermont is the availability of skilled compositors and wages in the state tend to be equal to Boston's. If a training program for compositors can be arranged with the union, the potentials for expansion are present.

(11) Insurance Company Offices: an expanding field but will require training of clerical personnel, computor center, record coordination, billing, etc. Available office space in Montpelier might be a lure if present owners can be approached with a workable proposition.

(12) Wood Using Industries: generally the wood using industries in the state will require a long-term program in reforestation, conservation and wood research plus specific industrial programs where major products and firms using by-products can be dovetailed. The unemployment problems indused by the decline in agriculture might be met in the northern areas by vigorous conservation, reforestation and water control programs. The skills needed in

these programs are already available and can be added to by a Youth Conservation Corps. The youth program should be associated with training to equip these young persons for later life.

The furniture and plywood industries are presently the backbone wood using industries in the state. Some expansion in the former may be expected, but overall wood using industries are probably on the decline unless a decisive program is organized. A long range program of wood improvement is an essential step. In the short run, these firms may be strengthened if by-products can be developed to absorb their waste wood. We suggest special study be made of industries such as wooden toys, caskets, shipboard (now in heavy competition) and pallet manufacturing.

(13) High Grade Papers (e.g., photographic paper): according to managers of paper mills, the wood fibers, chemical composition of water and general clean air opens this potential.

(14) Cedar Fencing Industry (only possible if cedar wood stands are adequate): to further this industry on a long-term basis, a careful timber program would be necessary.

(15) Information Recording Storing and Retrieval Services (for selected industries): a large and growing demand is presently developing for recording information and storing for further use. Transportation problems are nil in this activity; wire communication, storage facilities, reproduction techniques and mail services are the basic elements needed.

(16) Plastics: fiberglass manufacturing, plastic squeeze containers, fiberglass boats and asbestos products. There are growing demands for these products. They also have a slight foothold in the state's economy.

(17) Machine Tools: expansion may be expected in the established firms over the coming years. New types of machine tools are being designed which may well revolutionize the industry. With the expansion now in process, the labor market has become tight. The demands for skilled machinists and engineers (mechanical, hydraulic, electrical, etc.) by the industry will continue. In the St. Albans area, demands are high for tool makers and molders. If such skills are available, some general expansion of employment could be expected.

SECTION VIII
THE PRESENT STRUCTURE OF INDUSTRY IN VERMONT

The industrial strucutre of Vermont is considered in this section of the report in terms of (1) present location of firms and (2) trends of industrial activity as reflected by employment. Our purposes here are to round our background materials to further support the analysis of "Potential For Industrial Development in Vermont" in previous sections.

Location of Industry

Locational patterns of industry within the state are visually presented on the ten accompanying maps. A summary may clarify some of these patterns for the reader.

(1) Food and Food Products (Map I) include bakery products, beverages, candy, dairy products, feeds, maple products, meat products, etc. These products tend to be market oriented with minor exceptions. Their locations are distributed throughout the state and concentrate at the major population centers.

(2) Textile Products (Map II) cover the few remaining firms that produce blankets, woolens, yarn (including synthetics). The sharp decline in textile production is one of the major influences on the Vermont industrial structure. A number of the remaining firms are not in very strong economic situations considering plant, equipment and age of labor force. The few firms are scattered down the center of the state with some concentrations around Bennington and Ludlow.

(3) Wearing Apparel (Map III) includes apparel, sportswear and gloves. The industry has been relatively static with some decline in recent years. It concentrates in population centers generally where female power sewing machine operators are available. Major concentrations are found in St. Albans, Winooski, Burlington, Bennington, and Ludlow. Other major cities have smaller concentrations.

(4) Wood Products (except furniture) (Map IV) include building supplies, millwork, custom woodworking, veneers and plywood, and a large number of smaller wood products. There is a tendancy for the earlier production stages such as "dimension stock" producers to locate near the raw material supplies. The industry in general spreads out into small towns throughout the state; it does not tend to concentrate in larger cities.

(5) Furniture (Map V) includes a few major producers and a much larger number of small specialty companies. The larger firms have located in smaller towns where raw materials would be fairly close at hand and adequate transportation is available. Forest usage has tended to exhaust some of the raw materials in the immediate vicinity for some firms. Smaller producers are found in a few larger cities but quite a few concentrate around resort areas where their markets are found.

(6) Paper and Paper Products (Map VI) concentrates in six or seven areas of the state, generally fairly close to raw materials. Some specialty paper at some of the later production stages are in larger cities such as Brattleboro, Bellows Falls, Bennington and St. Albans. Town concentrations tend to be around East Ryegate and Gilman.

(7) Printing (Map VII) includes commercial and job printing, newspapers, business forms, books and art printing. The first two groups, commercial and newspapers, tend to keep close to markets, the concentrations are around population centers. Book printing and binding is not highly centered but Brattleboro tends to have some of the larger firms. Business forms printing have larger firms around Rutland.

(8) Stone and Cement Products (Map VIII) tend to be heavily raw material oriented. Major concentrations are around Barre for granite memorials, Rutland and Proctor for marble, Fairhaven and Poultney for quarry products. Cement mixed products tend to be market oriented around larger cities where construction is underway.

(9) Machinery, Tools and other Metal Products (Map IX) cover a wide variety to products from heavy machinery to small consumer products made of metals. The precision machinery and electrical group, generally manufacturing producers products, tend to concentrate around Burlington, Springfield, Windsor, Rutland and Brattleboro. Machine shops and foundries are generally close by. Smaller machine tools and parts are products in many small towns such as Derby Line and Lyndonville. Specialized machinery such as for stone working and maple sugar equipment are in large cities but close to these primary market centers. Consumer products are generally not as highly concentrated in the major cities.

Trends of Industry

Trends of industrial development in Vermont can be seen most clearly from trends of employment in selected industries released by the U.S. Department of Labor in 1963. We have

summarized these trends in Table 3.

Total non-agricultural employment has been increasing over the past decade and a half by about 1,100 to 1,200 jobs per year. In 1950, total employment in non-agricultural activities stood at 78.1 thousand; the war brought this to a level of over 90 thousand and a peak of 99.0 thousand in 1947. By 1940, employment was at 96.9 thousand and has grown quite steadily to a level of 109.3 thousand in 1962.

Breaking out this total employment into the major non-agricultural activities, it is clear that all sectors are not doing equally well. Mining is very static with some small decline since 1956. Total employment of 1,200 in 1962 is at the same level as in 1939, the peak of 1,400 occurred in the mid-fifties and the trough of 700 in the mid-forties. Contract construction employment manifests a long run mild increase of less than 150 new jobs per year since 1950. In 1962, about 5.5 thousand were employed in this field, a decline of about 600 jobs from the high levels in 1958 and 1959.

Manufacturing employment has been fluctuating year to year and declining slowly since World War II. Close to 8,000 jobs have been lost since the peak years of 1943 and 1944. The level of 35.6 thousand employed in 1962 is a decline of about 4,000 jobs in the past decade. (The details of employment by industry appear below.)

The Transportation and Public Utilities group is in a steady mild employment decline primarily due to reduced railway service and technological changes in communications. From the peak of 10.2 thousand employed in 1948, the decline has been at a rate of over 100 jobs

TABLE 3

VERMONT TRENDS IN MANUFACTURING, MINING AND SERVICES (000's)
1939 - 1962

	1939	1940	1941	1942	1943	1944	1945
Total Non-Agricultural Employment	74.8	78.1	87.9	91.5	90.7	91.0	90.6
Mining							
Contract Construction	1.2	1.1	1.0	0.9	0.9	0.7	0.7
Manufacturing	3.6	3.2	3.9	2.7	1.4	1.1	1.3
Durables	28.0	29.6	36.4	41.1	42.4	43.3	41.2
Wood & Lumber (Excl. Furniture)							
Furniture							
Stone, Clay and Glass							
Machinery (Excl. Electrical)							
Electrical Machinery							
Non-durable Goods							
Foods							
Textiles							
Apparel							
Paper and Allied Products							
Printing and Publishing							
Transportation and Public Utilities	7.2	7.3	7.7	7.9	7.9	7.9	6.0
Wholesale and Retail Trade	13.8	14.3	14.5	13.1	12.4	12.4	13.0
Wholesale Trade							
Retail Trade							
Real Estate, Insurance, and Finance	1.8	2.1	2.2	2.2	2.2	2.2	2.3
Services and Miscellaneous	9.7	9.7	10.3	10.8	10.4	10.5	10.8
Hotels and Lodging Places							
Government	9.5	10.8	11.9	12.8	13.1	12.9	13.3
Federal							
State and Local							

Source: Employment and Earning Statistics for States and Areas: 1939-1962
U.S. Department of Labor, 1963

TABLE 3 (Cont.)

VERMONT TRENDS IN MANUFACTURING, MINING AND SERVICES (000's)
1939 - 1962

	1946	1947	1948	1949	1950	1951	1952
Total Non-Agricultural Employment	96.3	99.0	98.8	95.2	96.9	99.8	99.8
Mining	0.9	1.0	1.1	1.1	1.1	1.1	1.0
Contract Construction	3.6	4.3	4.5	4.4	4.0	3.6	3.5
Manfacturing	41.3	40.8	38.8	35.3	36.9	39.9	39.3
Durables		22.1	20.5	18.7	20.0	23.2	23.8
Wood & Lumber (Excl. Furniture)		6.7	6.1	5.2	5.6	6.0	5.7
Furniture	1.8	1.8	1.8	1.5	1.6	1.6	1.3
Stone, Clay and Glass		3.9	4.2	3.8	3.6	3.7	2.9
Machinery (Excl. Electrical)		7.3	5.9	5.4	5.8	7.9	8.8
Electrical Machinery		0.6	0.8	1.0	1.0	1.0	1.3
Non-durable Goods		18.7	18.3	16.6	16.9	16.7	15.5
Foods		3.7	3.7	3.5	3.5	3.4	3.4
Textiles		5.5	5.4	4.4	4.8	4.5	3.5
Apparel		1.9	1.7	1.9	2.0	2.1	2.1
Paper and Allied Products		2.2	2.3	2.0	1.9	2.0	1.9
Printing and Publishing		1.3	1.4	1.5	1.5	1.4	1.4
Transportation and Public Utilities	8.9	9.7	10.2	9.4	9.0	8.9	8.8
Wholesale and Retail Trade	14.2	15.2	15.6	16.4	16.6	16.5	16.8
Wholesale Trade							
Retail Trade							
Real Estate, Insurance and Finance	2.4	2.7	2.7	2.8	2.8	2.9	3.0
Services and Miscellaneous	11.8	12.1	12.3	12.3	12.8	12.9	13.0
Hotels and Lodging Places							
Government	13.2	13.2	13.6	13.5	13.7	14.0	14.4
Federal							
State and Local							

TABLE 3 (Cont.)

VERMONT TRENDS IN MANUFACTURING, MINING AND SERVICES (000's)
1939 - 1962

	1953	1954	1955	1956	1957	1958	1959
Total Non-Agricultural Employment	103.5	101.6	102.1	106.0	106.0	103.2	106.7
Mining	1.4	1.3	1.4	1.4	1.4	1.3	1.2
Contract Construction	4.1	4.3	4.4	4.7	5.3	6.1	6.1
Manufacturing	41.4	37.1	37.1	39.3	37.1	33.3	35.6
Durables	26.2	23.6	22.6	23.9	22.9	20.2	21.7
Wood & Lumber (Excl. Furniture)	6.1	5.3	5.1	5.1	4.5	4.4	4.5
Furniture	1.3	1.3	1.4	1.4	1.5	1.5	1.7
Stone, Clay and Glass	3.7	3.7	3.7	3.8	3.5	3.4	3.3
Machinery (Excl. Electrical)	8.9	8.2	8.0	9.2	8.5	6.6	6.7
Electrical Machinery	1.7	1.5	1.6	1.2	1.3	1.9	3.2
Non-durable goods	15.2	14.1	14.5	15.4	14.2	13.1	14.0
Foods	3.4	3.3	3.2	3.5	3.6	3.6	3.5
Textiles	3.6	2.7	2.5	2.7	1.7	1.1	1.3
Apparel	2.1	2.1	2.3	2.4	2.4	2.1	2.2
Paper and Allied Products	1.9	1.9	1.9	1.9	1.9	2.0	2.2
Printing and Publishing	1.4	1.4	1.5	1.7	1.8	1.9	2.0
Transportation and Public Utilities	8.6	8.6	8.2	8.2	8.1	7.7	7.6
Wholesale and Retail Trade	17.3	17.8	18.1	18.6	19.4	19.6	20.1
Wholesale Trade						3.5	3.6
Retail Trade						16.1	16.5
Real Estate, Insurance and Finance	3.0	3.1	3.3	3.4	3.6	3.7	3.8
Services and Miscellaneous	13.1	14.1	14.6	15.2	15.8	15.9	16.4
Hotels and Lodging Places						3.2	3.3
Government	14.6	14.7	15.0	15.2	15.3	15.8	15.9
Federal						3.8	3.7
State and Local						12.1	12.3

TABLE 3 (Cont.)

VERMONT TRENDS IN MANUFACTURING, MINING AND SERVICES (000's)
1939 - 1962

	1960	1961	1962
Total Non-Agricultural Employment	107.0	106.2	109.3
Mining	1.3	1.2	1.2
Contract Construction	6.0	5.6	5.5
Manufacturing	35.3	33.8	35.6
Durables	21.9	20.8	22.6
Wood & Lumber (Excl. Furniture)	4.3	4.1	4.3
Furniture	1.7	1.5	1.6
Stone, Clay and Glass	3.2	3.1	3.2
Machinery (Excl, Electriaal)	6.8	6.1	6.5
Electrical Machinery	3.3	3.5	4.3
Non-durable Goods	13.5	13.1	13.1
Foods	3.3	3.2	3.2
Textiles	1.1	1.0	0.9
Apparel	2.1	2.0	2.0
Paper and Allied Products	2.1	2.1	2.1
Printing and Publishing	2.1	2.3	2.2
Transportation and Public Utilities	7.5	7.4	7.0
Wholesale and Retail Trade	20.4	20.7	21.1
Wholesale Trade	3.7	3.6	3.7
Retail Trade	16.7	17.1	17.5
Real Estate, Insurance and Finance	3.9	4.1	4.1
Services and Miscellaneous	16.7	17.2	18.3
Hotels and Lodging Places	3.3	3.3	3.5
Government	16.0	16.3	16.5
Federal	3.7	3.6	3.6
State and Local	12.4	12.8	12.9

per year to a level of 7.0 thousand in 1962.

The service groups manifests the rising employment patterns in Vermont as in nearly all areas of the United States. The Wholesale and Retail trades have opened an average of 300 to 400 new jobs each year for nealy two decades. At the beginning of World War II, employment wasabout 14 thousand, it had grown to 21.1 thousand by 1962. In general, retailing has been the major impetus.

Although a much smaller employer among the service group, the Real Estate, Finance and Insurance group has opened about 100 new jobs per year. The increase has been steady since the late 1930's; employment is now 4.1 thousand.

Employment in service occupations has nearly doubled from 1939 to 1962. Over 350 jobs have beer added per year in these occupations; the present level of employment is 18.3 thousand as contrasted with 9.7 thousand in 1939.

Government employment has grown in a similar manner. Nearly 250 new jobs have been added per year since 1939. At present, 16.5 thousand are employed by local, state and federal government.

Finally, turning to the patterns of individual industries we find:

(1) Durables manufacturers has been static in job opportunities since World War II. In 1962, about 22.6 thousand were employed, about one thousand fewer than a decade earlier. Employment in wood products (excluding furniture) has declined since the 1940's but has nearly

levelled off at 4,300 workers since 1957. Furniture manufacturing declined from 1947 to 1954 but has recovered somewhat since. At present, 1,600 are employed by this industry. Stone and clay industries are in steady decline, losing about 50 jobs per year probably due in part to mechanization and increased productivity. Non-electrical machinery is also in long run decline since 1956 when it was at a peak of 9,200. It now employes 6,500.

The one bright spot in this group is the electrical machinery group. Since 1956 it has been growing rapidly after a longer period of slow growth from 1947. About 4,300 are now employed in this industry.

The non-durable group is also in a long period of decline. The decline has been steady since 1947, losing 300 to 400 jobs per year. Food products have been employing about 30 fewer persons per year over these past 15 years. Employment in textiles has collapsed rapidly from a level of 5.5 thousand in 1947 to 900 in 1962. Apparel manufacture is stable at 2,000 after rising to a peak of 2,400 in 1956. Paper products continue to fluctuate around 2,000 to 2,100 employment with little long run trend. Printing and publishing has an upward trend since 1947, adding somewhat over 50 workers per year.

It is all too evident from the past trends and the problems now affecting Vermont, industry that further industrial declines can be expected unless a forthright program to strengthen the state is undertaken. Part of the industrial employment slack will be taken up by further expansion in service trades and government but even this transition will not be smooth unless planned for. The types of employment offered by the growing sectors do

not correspond to the jobs lost elsewhere. Many of the newer jobs in government and services are open to females; many of the declining areas hit males more heavily.[1] If new industry is to be attracted to the state, a program such as outlined in this report appears to be essential.

/1 Refer to report on labor force in this series for details.

VT 003 552
A Survey to Determine the Opportunities and Training Needs for Career Persons in Agriculturally Related-Distributive Businesses in the Geographical Area Served by George Wythe High School, Wythe, Virginia. Preliminary Report.

Wythe County Div. Superintendent of Public Schools, Wytheville, Va.
Virginia Polytechnic Institute, Blacksburg. Dept. of Vocational Education
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*EMPLOYMENT OPPORTUNITIES; *EDUCATIONAL NEEDS; EMPLOYER ATTITUDES; DISTRIBUTIVE EDUCATION; VOCATIONAL AGRICULTURE; *OFF FARM AGRICULTURAL OCCUPATIONS; *OCCUPATIONAL SURVEYS; EMPLOYMENT QUALIFICATIONS; INTERVIEWS; PROGRAM PLANNING; INTERDISCIPLINARY APPROACH
WYTHEVILLE; VIRGINIA

The owner or manager of each of 61 agriculturally related distributive businesses in the George Wythe High School area was interviewed to determine the opportunities and training needs for career persons. Findings included: (1) The 1,708 employees of the 61 businesses had 80 different job titles, (2) 95 percent of the employees were employed full-time while 5 percent were employed part-time, (3) 61 firms needed 128 additional employees, 78 of them immediately, and (4) Fewer than one-third of the firms had employed either agriculture or distributive education cooperative students. It was concluded that a great need exists for trained career persons in agriculturally related distributive businesses, opportunities for providing on-the-job training in agriculture and distribution are abundant, a wide variation exists in employee training needs in agriculturally related distributive businesses relative to subject matter areas and units. It was recommended that students in the high school be informed of these findings and that a course be offered in the area of agriculturally related distributive businesses if sufficient student interest and desire exists. The appendixes include the names of firms and employers included in the study, an outline of the study, the survey instrument, and a proposed course description. (WB)

VT 003 552

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PRELIMINARY REPORT

OF

A SURVEY TO DETERMINE THE OPPORTUNITIES AND TRAINING NEEDS FOR CAREER PERSONS IN AGRICULTURALLY RELATED - DISTRIBUTIVE BUSINESSES IN THE GEOGRAPHICAL AREA SERVED BY GEORGE WYTHE HIGH SCHOOL, WYTHEVILLE, VIRGINIA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Made by

The Agricultural Education
and
Distributive Education

Staffs of the

Vocational Education Department
Virginia Polytechnic Institute
Blacksburg, Virginia

In cooperation with the

Division Superintendent of Public Schools
Wythe County, Wytheville, Virginia

1963

VT003552

ERIC

PARTICIPANTS IN THE STUDY

The participation of the following individuals indicates, to some degree, the cooperative effort involved in planning and conducting the study.

Dr. R. W. Beamer, Head, Vocational Education Department, Virginia Polytechnic Institute, coordinated the planning and execution of the entire study.

Mr. G. L. Sandvig, State Director of Vocational Education, Mr. J. M. Campbell, State Supervisor of Vocational Agriculture, and Miss Louise Bernard, State Supervisor of Distributive Education, State Department of Education, endorsed and enthusiastically supported the study.

Mr. A. Strode Brockman, Division Superintendent of Wythe County Schools, granted permission for the study to be conducted in his school division, encouraged local school personnel to participate, and provided assistance and counsel in planning and conducting the study.

Mr. J. A. Hardy, Area Supervisor of Vocational Agriculture, and Mr. I. W. Baughman, Area Supervisor of Distributive Education, provided assistance and counsel in planning and conducting the study.

Mr. C. E. Warden, Director of Instruction, Wythe County Schools, assisted in planning the study and in preparing a list of agriculturally related-distributive businesses in the area served by the George Wythe High School.

Mr. Ralph C. Whitt, Principal, George Wythe High School, assisted in planning and conducting the study.

Mrs. Charlotte B. Greever, Guidance Teacher, George Wythe High School, assisted in preparing preliminary plans for the study.

Dr. E. G. Thompson, Head, Agricultural Education, Mrs. Lucy C. Crawford, Head, Distributive Education, and Dr. B. C. Bass, Associate Professor of Agricultural Education, Virginia Polytechnic Institute, prepared the detail outline of the study, developed the interview form used in securing the data, and assisted in planning and conducting the study.

Mr. C. E. Richard, Associate Professor of Agricultural Education and Mr. H. R. Cheshire, Instructor, Distributive Education, Virginia Polytechnic Institute, conducted the interviews and secured the data from the agriculturally related-distributive businesses.

Mr. E. F. Wilson, Mr. J. F. Bobbitt, Teachers of Vocational Agriculture, and Mr. Morris Witten, Coordinator of Distributive Education, George Wythe High School, assisted in planning the study, prepared a list of agriculturally related-distributive businesses in the area served by George Wythe High School and assisted the interviewers.

Dr. B. C. Bass, Associate Professor of Agricultural Education, and Mr. R. H. Ely, Graduate Assistant in Agricultural Education, Virginia Polytechnic Institute, tabulated and analyzed the data and prepared the written report of the study.

All members of the Agricultural Education and Distributive Education staffs, Virginia Polytechnic Institute, provided timely suggestions and guidance in planning and conducting the study.

The personnel of the agriculturally related-distributive businesses, took time from their busy schedules to provide the basic data for the study.

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INTRODUCTION

Title

A Survey to Determine the Opportunities and Training Needs for Career Persons in Agriculturally Related-Distributive Businesses in the Geographical Area Served by George Wythe High School, Wytheville, Virginia.

Situation

Vocational education teachers have the responsibility for providing vocational training for those who need, want, and can profit by such training. The kind of vocational training provided for individuals should be determined by the type of competencies needed for successful performance in their chosen fields of endeavor. The changing pattern of employment opportunities in many rural and semi-rural communities in 1963 indicated a need for determining the competencies individuals will need for successful careers in many of the agriculturally related-distributive businesses. It was the feeling of some business leaders and educators that a study should be made and pilot programs established to provide specific training for individuals who expect to pursue careers in these fields.

The possibility of making a study and establishing a cooperative training program in vocational agriculture and distributive education at Wytheville, Virginia, was discussed by the Head of the Vocational Education Department and the Head of Agricultural Education at Virginia Polytechnic Institute with the Superintendent and the Director of Instruction of Wythe County Schools.

The head of the Vocational Education Department at Virginia Polytechnic Institute discussed the proposal with the State Director of Vocational Education and the State Supervisors of Agricultural Education and Distributive Education and received their enthusiastic support of the study.

It was generally agreed that employment opportunities and the vocational programs being offered in 1963 at Wytheville should provide a satisfactory situation for making such a study. It was felt that the vocational agriculture and distributive education teachers in the Wytheville High School had the experience and qualifications needed to participate in the study and provide the instruction that may be needed in a pilot program.

Purposes

The purposes of this study were:

1. To determine the need for trained career persons in agriculturally related-distributive businesses in the area served by George Wythe High School, Wytheville, Virginia.

2. To determine the need and the opportunities for providing training through a cooperative part-time job in agriculturally related-distributive businesses in Wytheville, Virginia.

3. To determine any special characteristics of part-time jobs in agriculturally related-distributive businesses.

4. To determine the kind of training needed for various types of jobs in agriculturally related-distributive businesses.

Procedure

1. A survey was made of 61 agriculturally related-distributive businesses in the area served by George Wythe High School by the Agricultural Education and Distributive Education Departments of Virginia Polytechnic Institute during September 1963.

2. The list of agriculturally related-distributive businesses in the area served by George Wythe High School was prepared by the teachers of vocational agriculture, and the coordinator of distributive education at George Wythe High School, under the supervision of the Director of Instruction of Wythe County schools.

3. A form was developed to use in recording the information which was secured by personal interviews. A copy of the form is attached as Appendix B.

4. The procedure for conducting interviews was outlined and reviewed by each interviewer. A top official in each of the 61 businesses was interviewed. The interviews were conducted by members of the staff of the Vocational Education Department at Virginia Polytechnic Institute, with the assistance of the teachers of vocational agriculture, and the coordinator of distributive education at the George Wythe High School.

5. Members of the Agricultural Education staff at Virginia Polytechnic Institute tabulated and analyzed the data and prepared the written report of the study.

6. The written report and interpretations were reviewed by all participants concerned.

PRESENTATION OF DATA

It may be seen in Table I that the 61 agriculturally related-distributive businesses employed a total of 1,708 persons. Of these, 1,622 (95.0 per cent) were employed full-time while 86 (5.0 per cent) were employed part-time.

In this table (Table I) the number following each job title is the number of individuals employed with the job title.

TABLE I

CLASSIFICATION BY JOB TITLE OF EMPLOYEES OF THE 61 BUSINESSES

Job title	Number of employees: Full-time	Part-time	Total	Per cent of total employees
Engineer	5	0	5	0.3
Veterinarian	2	0	2	0.1
Supervisor (110), dept. head(4), district ranger (2), foreman (17), and service supervisor (1)	133	1	134	7.9
Manager (24), superintendent (23), town manager (1), and forest warden (3)	51	0	51	3.0
Sales (75), clerk (49), advertiser (2), route salesman (18), and parts salesman (1)	121	24	145	8.5
Stock clerk (10), and shipping clerk (23)	32	1	33	1.9
Plantman(1), warehouseman(3), and yardman(28)	31	1	32	1.9
Production (159), and manufacturing (88)	247	0	247	14.5
Bookkeeper(3), secretary (13), and weigh-master(1)	14	3	17	1.0
Office (90), and project workers(8)	97	1	98	5.7
Butcher (13), and meat processor (8)	16	5	21	1.2
Skilled (129), carpenter (4), mechanic (51), painter (2), plumber (2), pole tester (2), repairman (5), sheet metal worker (5), shop(40), forester (5), livestock grader (2), machinist (7), printer (1), typesetter (5), welder (6), cream tester (1), finisher (44), and mill operator (2)	304	9	313	18.3
Semi-skilled (113), food bagger (10), delivery boy (2), glassware washer (2), grower (2), helper(28), janitor (3), lookout (4), maid (3), service (13), traffic (1), Soil Conservation Service aid (1), greenskeeper (1), and maintenance (23)	175	31	206	12.1
Hatcheryman	3	0	3	0.2
Inspector (10), livestock inspector (1)	11	0	11	0.6
Technician (2), and laboratory technician (3)	5	0	5	0.3
Machinery operator	5	0	5	0.3
Floral designer	4	1	5	0.3
Lifeguard	0	2	2	0.1
Policeman	7	0	7	0.4
Pressman(3), radio announcer (4), and auctioneer (2)	4	5	9	0.5
Telephone operator (52)	52	0	52	3.0
Teller	2	0	2	0.1
Truck driver	26	1	27	1.6
Miner (underground worker)	194	0	194	11.4
Unskilled worker (32), and laborer (50)	81	1	82	4.8
Total	1,622	86	1,708	100.0
Per cent	95.0	5.0	100.0	

The data in Table II revealed that the officials interviewed (one in each of 61 businesses) indicated they needed 78 additional employees at the time the survey was made (September, 1963). The areas in which most of the additional employees were needed were in supervision, sales, production, skilled workers, and unskilled workers. The same employers also expressed the belief that they would need a total of 128 new employees (this includes the 78 mentioned above) in the foreseeable future. The areas in which they anticipated employing the largest numbers of additional employees were in supervision, sales, production and skilled workers. An anticipated reduction by 22 in the number of telephone operators employed at the time the survey was made noticeably lowered the total number of additional employees needed.

TABLE II

OPPORTUNITIES FOR EMPLOYMENT
IN THE 61 AGRICULTURALLY RELATED-DISTRIBUTIVE BUSINESSES

Job title	Number employed Sept. 1963	Additional employees needed immediately (Sept. 1963)	Anticipated future increase over Sept. 1963
(Note: See Table I, on page 3, for complete list of job titles).			
Engineer	5	0	0
Veterinarian	2	2	2
Supervisor, etc.	134	12	19
Manager, etc.	51	0	0
Sales, etc.	145	9	15
Stock clerk, etc.	33	1	3
Plantman, etc.	32	0	3
Production, etc.	247	10	40
Bookkeeper, etc.	17	5	3
Office, etc.	98	1	4
Butcher, etc.	21	4	4
Skilled, etc.	313	20	35
Semi-skilled, etc.	206	2	3
Hatcheryman.	3	0	0
Inspector, etc.	11	0	0
Technician, etc.	5	0	0
Machinery operator	5	0	0
Floral designe r	5	1	1
Lifeguard	2	0	0
Policeman	7	2	2
Pressman, etc.	9	1	2
Telephone operator	52	0	- 22 (decrease
Teller	2	0	0
Truck driver	27	0	0
Miner (underground worker).	194	0	6
Unskilled,etc.	82	8	8
Total	1,708	78	128

Table III contains information relative to the number of employees in the 61 businesses in September 1962, September 1963, and the anticipated number in the future. Between September 1962 and September 1963 the 61 businesses increased their employees by 15.5 per cent. The officials of the 61 firms stated, during September 1963, that 78 additional employees were immediately needed, and they anticipated increasing the employees by a total of 7.5 per cent in the foreseeable future.

TABLE III

EMPLOYEES OF THE 61 BUSINESSES IN SEPTEMBER 1962, SEPTEMBER 1963, AND THE ANTICIPATED INCREASE

	Number	Increase
Employees in September 1963	1708	15.5% (over previous year)
Employees in September 1962	1444	-----
Additional employees needed, September 1963	78	4.6%
Employees anticipated in the foreseeable future	1836	7.5% (over Sept. 1963)

The extent to which difficulty had been experienced in finding employees was investigated. The data summarized in Table IV revealed that "no difficulty" was experienced in filling 1,086 (or 63.6 per cent) of the positions in the 61 businesses. "Some difficulty" was experienced in filling 187 positions, "great difficulty" was experienced in filling 273 positions, and "extremely great difficulty" was experienced in filling 162 of the positions.

TABLE IV

EXTENT TO WHICH DIFFICULTY HAD BEEN EXPERIENCED IN FILLING JOBS BY THE 61 BUSINESSES

Extent of difficulty	Number of job positions	Per cent
No difficulty	1,086	63.6
Some difficulty	187	10.9
Great difficulty	273	16.0
Extremely great difficulty	162	9.5
Total Employees	1,708	100.0

The officials of a large majority of the 61 businesses stated that they had not employed agriculture or distributive education co-operative students (Table V), but 73.1 per cent of the firms expressed willingness to provide on-the-job training for students in these fields (Table VI).

TABLE V

EXTENT TO WHICH AGRICULTURE AND DISTRIBUTIVE EDUCATION CO-OPERATIVE STUDENTS HAD BEEN EMPLOYED IN THE 61 BUSINESSES

	Businesses that had employed co-operative students		Businesses that had not employed co-operative students		No response	
	Number	Per cent	Number	Per cent	Number	Per cent
Agriculture	5	8.2	55	90.2	1	1.6
Distributive Education	13	21.3	47	77.0	1	1.7

TABLE VI

EXTENT TO WHICH OFFICIALS OF THE 61 BUSINESSES WERE WILLING TO PROVIDE ON-THE-JOB TRAINING FOR STUDENTS

	Number of businesses	Per cent of businesses	Individuals employed by these businesses	Per cent of all (1,708) employees
Were willing to provide on-the-job training for students	44	73.1	1,115	65.3
Were not willing to provide on-the-job training for students	13	21.3	124	7.3
No response	4	6.6	469	27.4

A total of 26, or 42.6 per cent, of the businesses were "seasonal" (Table VII). This may determine the feasibility of these firms providing on-the-job training for students. The information in Table VI revealed that 21.3 per cent of the businesses were not willing to provide on-the-job training for students.

TABLE VII

EXTENT TO WHICH THE 61 BUSINESSES WERE SEASONAL

	Number businesses	Per cent	Individuals represented by these businesses	Per cent of all (1,708) employees
Business was seasonal . . .	26	42.6	395	23.1
Business was not seasonal . .	35	57.4	1,313	76.9

According to the officials interviewed, the size of the person was not an important factor relative to employment in 51, or 83.6 per cent, of the businesses (Table VIII).

TABLE VIII

EXTENT TO WHICH SIZE OF THE EMPLOYEE WAS A FACTOR RELATIVE TO EMPLOYMENT IN THE 61 BUSINESSES

	Number of businesses	Per cent of businesses	Individuals represented by these businesses	Per cent of individuals
Size of employee was a factor relative to employment	8	13.1	598	35.0
Size of employee was not a factor relative to employment	51	83.6	1,098	64.3
No response	2	3.3	12	0.7

The extent to which the officials interviewed in the 61 businesses considered a knowledge of certain subject matter areas and units of vocational agriculture to be important to employees is summarized in Tables IX and X^A, X^B, X^C, X^D, and X^E.

It is significant that leadership training was considered important for 59.8 per cent of the employees. Leadership training is designed to assist a person in developing such traits as a pleasing personality; the ability to meet people; and the ability to write, speak, and otherwise communicate ideas effectively.

It is also significant that a knowledge of agricultural mechanics was considered important for a majority (57.1 per cent) of the employees.

A knowledge of animal science, plant science, and farm management was considered important for 12.7 per cent, 21.6 per cent, and 8.8 per cent respectively of the employees. Only the employees in businesses closely related to production agriculture were expected to have a knowledge of these areas. Examples of such businesses are the veterinary business, forestry service, and the hatchery business.

The information summarized in Table IX strongly indicates that some vocational education in agriculture, especially in the areas of leadership training and agricultural mechanics, is needed by a majority of the employees of the 61 agriculturally related-distributive businesses included in this study.

TABLE IX

EXTENT TO WHICH HOLDERS OF JOB POSITIONS IN THE 61 BUSINESSES WERE REPORTED TO NEED TRAINING IN ONE OR MORE UNITS IN CERTAIN SUBJECT AREAS OF VOCATIONAL AGRICULTURE

Subject Matter Area	Number of job positions for which training was needed *	Per cent of total employees **
Animal Science	216	12.7
Plant Science	369	21.6
Agricultural Mechanics	976	57.1
Farm Management	151	8.8
Leadership Training	1,022	59.8

* Some employees were considered to need training in more than one of the subject matter areas.

** Per cent of total employees is the per cent of 1,708 employees needing training in the particular subject matter areas.

In deciding what subject matter should be taught students interested in receiving training in vocational agriculture and distributive education which will prepare them for employment in agriculturally related-distributive businesses in the vicinity of Wytheville, Virginia, preference should be given those subject matter units in which most employees need training. The subject matter units are listed in Tables X^A, X^B, X^C, X^D, and X^E, as well as in Table XI, in descending order according to the number of employees needing training in each. These tables were prepared in this order to facilitate the selection of subject matter units in which most employees need training.

Information gathered for this study also revealed that 18 employees needed training in "nurseries for wildlife" and that the employers preferred employees for 14 jobs who had received training in vocational agriculture. These items of information do not appear in any table in this report.

TABLE X^A

EXTENT TO WHICH 216 EMPLOYEES NEEDED TRAINING IN SPECIFIC SUBJECT AREAS OF ANIMAL SCIENCE

Subject matter area	Number employees needing training
1. Animal Science (General)	159
2. Feeding Animals	85
3. Maintaining Animal Health	73
4. Managing the Herd	51
5. Cuts of Meat	36
6. Selecting and Grading	30
7. Wildlife Management	23
8. Processing Meats	18
9. Housing Animals	17
10. Animal Breeding	6

TABLE X[B]

EXTENT TO WHICH 369 EMPLOYEES NEEDED TRAINING IN SPECIFIC SUBJECT AREAS OF PLANT SCIENCE

Subject matter area	Number employees needing training
1. Plant Science (General)	233
2. Soil Conservation	129
3. Fertilizing and Nutrients (and liming)	103
4. Weed Control (all methods)	61
5. Seedbed Preparation	59
6. Seeding and Management	51
7. Watershed Management	43
8. Managing the Forest (Timber)	43
9. Diseases	40
10. Planting	39
11. Insects	27
12. Selecting Varieties (Identification)	21
13. Processing Plant Products	20
14. Crop Rotations	15
15. Irrigation	8
16. Harvesting	7
17. Greenhouse Work	3

TABLE X[C]

EXTENT TO WHICH 976 EMPLOYEES NEEDED TRAINING IN SPECIFIC SUBJECT AREAS OF AGRICULTURAL MECHANICS

	Subject matter area	Number employees needing training
1.	Agricultural Mechanics (General)	509
2.	Machine Operation(Tractor)	391
3.	Maintenance and Repair (Auto and Truck)	368
4.	Welding	319
5.	Electricity	293
6.	Woodwork (Carpentry)	255
7.	Fuels and Lubricants	252
8.	Metals	166
9.	Wood Lathe Operation	111
10.	Water Systems (Pumps)	30
11.	Motors (Selecting, Operating, and Maintaining)	26
12.	Soldering	19
13.	Hydraulics	15
14.	Appliance Installation	14
15.	Painting	11
16.	Sheetmetal Work	10
17.	Plumbing	9
18.	Refrigeration	7
19.	Farm Buildings	5
20.	Small Engines (Operation, Repair and Maintenance)	2
21.	Farm Machinery (Operation, Repair, and Maintenance)	1

TABLE X[D]

EXTENT TO WHICH 151 EMPLOYEES NEEDED TRAINING IN SPECIFIC SUBJECT AREAS OF FARM MANAGEMENT

	Subject matter area	Number employees needing training
1.	Farm Management (General)	76
2.	Farm Planning	45
3.	Marketing (selling)	35
4.	Buying Farm Products	15
5.	Economics (Principles and Practices)	14
6.	Capital and Finance (Financing)	13
7.	Records and Accounts	11
8.	Procuring Equipment and Supplies	4
9.	Budgeting	1

TABLE X[E]

EXTENT TO WHICH 1,022 EMPLOYEES NEEDED TRAINING IN SPECIFIC SUBJECT AREAS OF LEADERSHIP TRAINING

	Specific areas of leadership	Number employees needing training
1.	Communications	842
2.	Public Relations	491
3.	Speaking	453
4.	Meeting People	428
5.	Writing	402
6.	Tact, Courtesy, and Manners	165
7.	Developing Leadership (General)	104
8.	Applying for Job	62
9.	Personality Development	55
10.	Radio and Television Programming	4

The information in Table XI is a summary of the extent employees in the 61 agriculturally related-distributive businesses were considered by the officials interviewed to need training in specific areas of distributive education.

It is significant that a majority of the employees needed training in "human relations" and "retail mathematics," while a large number of the employees needed training in each of the other areas. This is interpreted to mean that distributive education is very necessary for most employees of the agriculturally related-distributive businesses included in this study.

TABLE XI

EXTENT TO WHICH 1,708 EMPLOYEES NEEDED TRAINING IN SPECIFIC AREAS OF DISTRIBUTIVE EDUCATION

	Area	Number employees needing training	Per cent of all employees (1,708)
1.	Human Relations	1,230	72.0
2.	Retail Mathematics	1,034	60.5
3.	Orientation (Introduction to the Job)*	663	38.8
4.	Store Speech	618	36.2
5.	Merchandise Information	617	36.1
6.	How to Train and How to Supervise *	589	34.5
7.	Salesmanship	533	31.2
8.	Stockkeeping	439	25.7
9.	Store Operations	436	25.5
10.	Distribution in a Free Economy *	321	18.7
11.	Advertising	286	16.7
12.	Display	174	10.2

* Indicates areas that were not listed on the interview form and were written in by the interviewer only when mentioned during the interview.

The data in Table XII reveals the extent to which individual job title holders in the 61 agriculturally related-distributive businesses needed training in agriculture and distributive education. Because 89.2 per cent of the employees included in this study needed training in both agriculture and distributive education, there exists a great need at the George Wythe High School for courses which will provide training in both of these fields of vocational education for high school students who expect to seek employment in the vicinity of Wytheville, Virginia, in the future. It is logical to assume that firms in the Wytheville, Virginia, area will employ persons living in the locality as needed if such persons possess the necessary training.

Teachers who have the responsibility for planning vocational agriculture and distributive education courses should find the information in Tables X, XI, and XII helpful as a basis for planning such courses.

TABLE X I I

EXTENT TO WHICH INDIVIDUAL JOB TITLE HOLDERS NEEDED TRAINING IN AGRICULTURE AND DISTRIBUTIVE EDUCATION

Job title and number of employees with title	Needed training in neither agriculture nor distributive education	Needed training in agriculture but not in distributive education	Needed training in distributive education but not in agriculture	Needed training in both agriculture and distributive education
Engineer (5)	0	0	0	5
Veterinarian (2)	0	0	0	2
Supervisor (110)	0	0	4	106
Department head (4)	0	0	0	4
District ranger (2)	0	0	0	2
Foreman (17)	0	0	0	17
Service supervisor (1)	0	0	0	1
Manager (24)	0	0	0	24
Superintendent (23)	0	0	0	23
Town manager (1)	0	0	0	1
Forest warden (3)	0	0	0	3
Sales (75)	0	0	0	75
Clerk (49)	0	0	2	47
Advertiser (2)	0	0	0	2
Route salesman (18)	0	0	1	17
Parts salesman (1)	0	0	0	1
Stock clerk (10)	0	0	0	10
Shipping clerk (23)	0	0	23	0
Plantman (1)	0	0	0	1
Warehouseman (3)	0	0	0	3
Yardman (28)	0	0	1	27
Production (159)	0	0	0	159
Manufacturing (88)	0	0	0	88
Bookkeeper (3)	0	0	0	3
Secretary (13)	0	0	0	13
Weighmaster (1)	0	0	1	0
Office (90)	1	0	9	80
Project worker (8)	0	0	0	8

TABLE X II (continued)

Job title and number of employees with title	Needed training in neither agriculture nor distributive education	Needed training in agriculture but not in distributive education	Needed training in distributive education but not in agriculture	Needed training in both agriculture and distributive education
Butcher (13)	0	0	0	13
Meat processor (8)	0	0	0	8
Skilled worker (129)	0	0	0	129
Carpenter (4)	0	0	0	4
Mechanic (51)	0	1	2	48
Painter (2)	0	0	0	2
Plumber (2)	0	0	0	2
Pole tester (2)	0	0	0	2
Repairman (5)	0	0	0	5
Sheetmetal worker (5)	0	0	0	5
Shop (40)	0	0	1	39
Forester (5)	0	0	0	5
Livestock grader (2)	0	0	0	2
Machinist (7)	0	0	0	7
Printer (1)	0	0	1	0
Typesetter (5)	0	0	0	5
Welder (6)	0	1	0	5
Cream tester (1)	0	0	0	1
Finisher (44)	0	0	44	0
Mill operator (2)	0	0	0	2
Semi-skilled (113)	0	0	0	113
Bagger (food) (10)	0	0	0	10
Delivery boy (2)	0	0	0	2
Glassware washer (2)	0	0	2	0
Grower (2)	0	0	0	2
Helper (28)	0	18	0	10
Janitor (3)	2	0	1	0
Lookout (4)	0	0	0	4
Maid (3)	1	2	0	0
Service (13)	5	0	0	8
Traffic (1)	0	0	0	1
Soil Conservation Aid (1)	0	0	0	1
Greenskeeper (1)	0	0	0	1
Maintenance (23)	0	0	0	23
Hatcheryman (3)	0	0	0	3
Inspector (10)	0	0	10	0
Livestock inspector (1)	0	0	0	1

TABLE XII (continued)

Job title and number of employees with title	Needed training in neither agriculture nor distributive education	Needed training in agriculture but not in distributive education	Needed training in distributive education but not in agriculture	Needed training in both agriculture and distributive education
Technician (2)	0	0	0	2
Laboratory technician (3)	0	0	0	3
Machinery operator (5)	0	0	0	5
Floral designer (5)	0	0	0	5
Lifeguard (2)	0	0	0	2
Policeman (7)	0	0	7	0
Pressman (3)	0	0	0	3
Radio announcer (4)	0	0	0	4
Auctioneer (2)	0	0	0	2
Telephone operator (52)	0	0	0	52
Teller (2)	0	0	0	2
Truck driver (27)	0	3	2	22
Miner (underground) (194)	0	0	0	194
Unskilled (32)	0	0	25	7
Laborer (50)	0	13	1	36
Total (1,708 employees)	9	38	137	1,524
Per cent of all employees	0.6	2.2	8.0	89.2

Listed in Table XIII is the number of individuals by job title needing training in each of the five general areas of agriculture and the twelve specific areas of distribution. Each individual was included in as many areas as appropriate.

TABLE XIII

EXTENT TO WHICH EMPLOYEES NEEDED TRAINING IN CERTAIN AREAS OF AGRICULTURE AND DISTRIBUTIVE EDUCATION

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Areas of Training: Agriculture					Distributive Education											
	Animal Science	Plant Science	Agricultural Mechanics	Farm Management	Leadership Training	Salesmanship	Stockkeeping	Merchandise Information	Human Relations	Store Operations	Advertising	Display	Retail Mathematics	Store Speech	Distribution	Orientation	How to Train and How to Supervise
Engineer (5)	0	1	1	1	5	1	0	0	1	1	1	0	1	1	1	1	4
Veterinarian (2)	2	2	0	2	2	2	0	0	2	0	0	0	2	0	0	0	0
Supervisor (110)	14	21	45	18	83	90	45	49	68	60	47	28	56	79	44	43	25
Department head (4)	4	4	4	0	4	4	4	4	4	4	4	4	4	4	4	4	0
District ranger (2)	2	2	2	0	2	2	0	0	2	0	2	2	2	0	0	0	0
Foreman (17)	1	16	16	1	16	0	1	0	16	0	0	0	16	6	6	6	0
Service supervisor (1)	1	1	1	0	1	1	0	0	1	1	0	0	1	0	0	0	0
Manager (24)	15	17	17	15	24	24	19	23	24	19	23	18	24	17	0	0	2
Superintendent (23)	0	23	20	0	23	23	0	0	23	0	0	0	23	0	0	0	0
Town manager (1)	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0
Forest warden (3)	3	3	3	3	3	3	0	0	3	0	0	3	3	0	0	0	0

TABLE XIII (continued)

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Agriculture: Animal Science	Agriculture: Plant Science	Agriculture: Agricultural Mechanics	Agriculture: Farm Management	Agriculture: Leadership Training	Distributive Education: Salesmanship	Distributive Education: Stockkeeping	Distributive Education: Merchandise Information	Distributive Education: Human Relations	Distributive Education: Store Operations	Distributive Education: Advertising	Distributive Education: Display	Distributive Education: Retail Mathematics	Distributive Education: Store Speech	Distributive Education: Distributions	Distributive Education: Orientation	Distributive Education: How to Train and How to Supervise
Areas of Training																	
Sales (75)	42	54	53	38	60	75	63	75	75	59	57	58	75	66	37	26	0
Clerk, clerical (49)	14	3	0	1	42	38	38	44	43	38	15	12	49	38	14	14	10
Advertiser (2)	0	0	0	0	2	2	0	2	2	0	2	2	2	2	0	0	0
Route salesman (18)	3	8	15	8	17	15	18	16	18	9	7	2	18	17	6	13	0
Parts salesman (1)	0	0	1	0	1	1	1	1	1	1	0	1	1	1	0	0	0
Stock clerk (10)	1	1	1	1	10	10	10	10	10	10	3	3	10	10	2	2	0
Shipping clerk (23)	0	0	0	0	0	0	0	0	23	0	0	0	19	23	19	23	19
Plantman (1)	0	0	1	0	1	1	1	1	1	1	0	0	1	1	1	0	0
Warehouseman (3)	2	2	3	2	2	3	3	3	3	3	2	2	3	3	0	1	2
Yardman (28)	0	0	2	2	25	3	3	3	3	3	0	0	3	2	2	1	25
Production (159)	0	0	140	0	19	0	0	140	140	0	0	0	140	0	0	140	19
Manufacturing (88)	0	0	88	0	0	0	88	0	88	0	0	0	88	88	88	88	88
Bookkeeper (3)	0	0	1	0	3	1	3	3	3	3	2	1	3	2	1	1	0
Secretary (13)	0	0	0	3	12	7	9	9	12	9	3	3	13	8	2	2	0
Weighmaster (1)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Butcher (13)	13	13	0	0	13	0	13	13	13	0	0	0	13	13	0	0	0
Meat processor (8)	8	0	0	0	8	8	8	8	8	8	0	0	8	0	0	0	0

TABLE XIII (continued)

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Areas of Training: Agriculture					Distributive Education											
	Animal Science	Plant Science	Agricultural Mechanics	Farm Management	Leadership Training	Salesmanship	Stockkeeping	Merchandise Information	Human Relations	Store Operations	Advertising	Display	Retail Mathematics	Store Speech	Distribution	Orientation	How to Train and How to Supervise
Office (90)	3	9	36	2	70	42	36	35	66	47	34	6	57	42	43	58	59
Project Worker (8)	8	8	8	0	8	0	0	0	8	0	0	0	8	0	0	0	0
Skilled worker (129)	0	29	129	0	108	0	0	0	129	21	0	0	108	8	0	29	21
Carpenter (4)	0	0	4	0	0	0	0	4	4	0	0	0	4	4	0	4	0
Mechanic (51)	5	5	50	1	28	23	3	23	31	7	3	1	49	3	0	18	0
Painter (2)	0	0	2	0	0	0	0	2	2	0	0	0	2	2	0	2	0
Plumber (2)	0	0	2	0	0	2	2	2	2	0	0	0	2	0	0	0	0
Pole tester (2)	0	0	2	0	2	2	0	2	2	0	2	0	2	2	0	0	0
Repairman (5)	0	0	5	0	4	5	1	5	5	0	4	0	5	5	0	0	0
Sheetmetal worker (5)	0	0	5	0	5	5	5	5	5	5	0	0	5	0	0	0	0
Shop (40)	0	0	0	0	39	0	1	1	1	0	0	0	1	0	0	0	39
Forester (5)	5	5	5	1	5	5	0	0	5	0	5	5	5	0	0	0	0
Livestock grader (2)	2	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
Machinist (7)	0	0	7	0	7	7	7	7	7	0	0	0	7	7	0	0	0
Printer (1)	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	0
Typesetter (5)	0	0	0	0	5	0	0	0	5	0	0	5	5	0	0	0	0
Welder (6)	5	5	6	0	6	5	5	5	5	5	0	0	5	5	0	0	0
Cream tester (1)	1	1	0	0	1	1	1	1	1	1	0	0	1	1	0	0	0
Finisher (44)	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	44	0
Mill operator (2)	2	2	2	0	2	2	2	2	2	2	0	2	2	2	0	0	0

TABLE XIII (continued)

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Areas of Training: Agriculture					Distributive Education												
	Animal Science	Plant Science	Agricultural Mechanics	Farm Management	Leadership Training	Salesmanship	Stockkeeping	Merchandise Information	Human Relations	Store Operations	Advertising	Display	Retail Mathematics	Store Speech	Distribution	Orientation	How to Train and How to Supervise
Semi-skilled (113)	0	63	113	0	0	0	0	0	113	63	0	0	0	0	0	63	63
Food bagger(10)	0	0	0	0	10	10	10	10	10	10	0	0	10	10	4	4	0
Delivery boy (2)	2	2	0	2	2	2	2	2	2	2	0	0	2	2	0	0	0
Glassware washer (2)	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Grower (2)	0	2	2	0	2	2	0	2	2	0	0	0	2	2	2	0	0
Helper (28)	27	9	10	22	9	9	8	9	10	9	1	1	10	10	4	5	0
Janitor (3)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Lookout (4)	4	4	4	0	4	0	0	0	4	0	0	0	4	0	0	0	0
Maid (3)	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Service (13)	0	2	8	2	5	6	8	8	8	5	3	1	8	8	2	3	0
Traffic (1)	0	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0
Soil Conservation Service Aid (1)	1	1	1	1	1	1	0	0	1	0	0	1	1	0	0	0	0
Greens keeper (1)	0	1	1	0	1	1	1	1	1	1	0	0	1	1	0	0	0
Maintenance (23)	5	0	23	0	8	8	8	8	23	5	3	0	23	17	9	20	9
Hatcheryman (3)	3	3	3	3	3	0	0	0	3	3	0	0	3	3	0	3	0
Inspector (10)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	10
Livestock inspector (1)	1	1	0	1	1	1	0	0	1	0	0	0	1	0	0	0	0

TABLE XIII (continued)

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Areas of Training: Agriculture					Distributive Education											
	Animal Science	Plant Science	Agricultural Mechanics	Farm Management	Leadership Training	Salesmanship	Stockkeeping	Merchandise Information	Human Relations	Store Operations	Advertising	Display	Retail Mathematics	Store Speech	Distribution	Orientation	How to Train and How to Supervise
Technician (2)	2	2	2	2	2	2	0	0	2	0	0	2	2	0	0	0	0
Laboratory technician (3)	0	0	0	0	3	0	0	0	3	0	0	0	3	0	0	0	0
Machinery operator (5)	0	0	3	0	2	5	3	5	5	0	2	2	5	3	0	0	0
Floral designer (5)	0	5	0	0	5	5	2	5	5	2	0	5	5	5	3	0	0
Lifeguard (2)	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0
Policeman (7)	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	0	0
Pressman (3)	0	0	0	0	3	0	0	0	3	0	0	0	3	0	0	0	0
Radio announcer (4)	4	4	4	4	4	4	0	0	4	4	4	0	4	4	4	4	0
Auctioneer (2)	2	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0
Telephone operator (52)	0	0	52	0	52	52=	0	52	52	0	52	0	52	52	0	0	0
Teller (2)	0	0	0	0	2	2	0	2	2	0	2	2	2	2	0	0	0
Truck driver (26)	2	2	23	3	21	6	6	6	24	6	1	2	24	24	4	19	0

TABLE XIII (continued)

Job Title of Employees (Number in parenthesis following each job title is total number of employees with the job title.)	Areas of Training: Agriculture					Distributive Education											
	Animal Science	Plant Science	Agricultural Mechanics	Farm Management	Leadership Training	Salesmanship	Stockkeeping	Merchandise Information	Human Relations	Store Operations	Advertising	Display	Retail Mathematics	Store Speech	Distribution	Orientation	How to Train and How to Supervise
Miner (underground worker) (194) .	0	0	0	0	194	0	0	0	0	0	0	0	0	0	0	0	194
Unskilled worker (32)	0	0	0	0	7	0	0	0	32	0	0	0	7	7	0	7	0
Laborer (50) . . ./ . . .	7	32	49	7	7	1	1	5	37	7	0	0	12	5	0	4	0
TOTALS	216	369	976	151	1022	533	439	617	1230	436	286	174	1034	618	321	663	589

TABLE XIV[A]

NUMBER OF EMPLOYEES WHO NEEDED TRAINING IN CERTAIN UNITS IN

	Job Title*													
	Engineer	Veterinarian	Supervisor, etc.	Manager	Sales	Stock Clerk	Plantman	Production	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	
Total number of employees with job title	5	2	134	51	145	33	32	247	17	21	313	206	3	1
1.Animal Science(general)	0	2	19	15	52	1	2	0	0	8	17	13	2	
2.Animal Health (diseases, etc.)	0	2	1	11	15	1	2	0	0	21	7	4	0	1
3.Breeding Farm Animals	0	0	2	0	0	0	0	0	0	0	0	1	3	0
4.Feeding Animals	0	2	4	11	17	1	2	0	0	21	8	8	0	1
5.Selecting & Grading	0	0	4	0	0	0	0	0	0	0	2	19	3	0
6.Housing Farm Animals	0	0	1	3	4	1	2	0	0	0	2	1	0	0
7.Locker Plant Operation	0	0	0	2	3	0	0	0	0	13	0	0	0	0
8.Managing Farm Animals	0	0	2	8	12	1	0	0	0	8	5	5	0	0
9.Meat (cuts, processing,etc.)	0	0	0	3	5	0	0	0	0	21	0	0	0	0
10.Products Testing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.Wildlife Management	0	0	2	3	0	0	0	0	0	0	5	5	0	0

*Job titles have been condensed from 84 to 25. For specific jobs listed under these ge

TABLE XIV[A]

INING IN CERTAIN UNITS IN THE AREA OF ANIMAL SCIENCE

Job Title*	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector	Technician	Machinery Operator	Floral Designer	Life guard	Policeman	Pressman	Telephone Operator	Teller	Truck driver	Miner(underground)	Unskilled	Office	Totals
	17	21	313	206	3	11	5	5	5	2	7	9	52	2	27	194	82	98	1708
	0	8	17	13	2	1	2	0	0	0	0	4	0	0	2	0	7	11	159
	0	21	7	4	0	1	0	0	0	0	0	0	0	0	1	0	7	0	73
	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	0	21	8	8	0	1	2	0	0	0	0	0	0	0	1	0	7	0	85
	0	0	2	19	3	0	0	0	0	0	0	2	0	0	0	0	0	0	30
	0	0	2	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	17
	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
	0	8	5	5	0	0	2	0	0	0	0	0	0	0	1	0	7	0	51
	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	36
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	8	23	

jobs listed under these general groupings, refer back to Table I.

TABLE XIV[B]

NUMBER OF EMPLOYEES WHO NEEDED TRAINING IN CERTAIN UNITS

	Job Title														
	Engineer	Veterinarian	Supervisor, etc.	Manager	Sales	Stock Clerk	Plantman	Production	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector
Total number of employees with job title	5	2	134	51	145	33	32	247	17	21	313	206	3	11
1.Plant Science (general)	1	2	21	14	49	0	0	0	0	13	37	79	0	0
2.Cultivation	0	0	7	10	13	1	2	0	0	0	12	6	0	0
3.Diseases	0	0	10	5	16	0	0	0	0	0	4	2	3	0
4.Fertilization & liming	0	0	6	12	15	0	2	0	0	0	15	10	0	0
5.Grass seeding & management	0	0	5	1	3	0	0	0	0	0	4	5	0	0
6.Greenhouse work	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7.Harvesting	0	0	0	2	3	1	0	0	0	0	1	0	0	0
8.Insects	0	0	3	5	12	0	0	0	0	0	0	1	0	1
9.Irrigation	0	0	1	0	0	0	0	0	0	0	0	5	0	0
10.Planting	0	0	1	9	6	1	2	0	0	0	12	0	0	0
11.Processing plant products	0	0	0	2	5	0	0	0	0	13	0	0	0	0
12.Rotations	0	0	4	1	7	0	0	0	0	0	0	1	0	0
13.Seeds(seedbed prep.)	0	0	7	9	13	1	2	0	0	0	12	5	0	0
14.Soil conservation	0	0	23	33	15	1	2	0	0	0	11	5	0	0
15.Watershed managt.	0	0	3	0	0	0	0	0	0	0	4	1	0	0
16.Spraying	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.Timber	0	0	2	3	0	0	0	0	0	0	5	0	0	0
18.Varieties	0	0	0	4	4	1	2	0	0	0	2	0	0	0

E XIV[B]

NING IN CERTAIN UNITS IN THE AREA OF PLANT SCIENCE

...b Title	Skilled	Semi-skilled	Hatcheryman	Inspector	Technician	Machinery Operator	Floral Designer	Lifeguard	Policeman	Pressman	Telephone Operator	Teller	Truck driver	Miner(underground)	Unskilled	Office	Totals
...	313	206	3	11	5	5	5	2	7	9	52	2	27	194	82	98	1708
...	37	79	0	0	0	0	3	0	0	4	0	0	1	0	0	9	233
...	12	6	0	0	2	0	0	0	0	0	0	0	1	0	7	0	61
...	4	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	40
...	15	10	0	0	2	0	0	0	0	0	0	0	1	0	32	8	103
...	4	5	0	0	0	0	0	0	0	0	0	0	0	0	25	8	51
...	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
...	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
...	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	27
...	0	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	8
...	12	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	39
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	15
0	12	5	0	0	2	0	0	0	0	0	0	0	1	0	7	0	59
0	11	5	0	0	2	0	3	0	0	0	0	0	1	0	25	8	129
0	4	1	0	0	2	0	0	0	0	0	0	0	0	0	25	8	43
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	25	8	43
0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	21

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TABLE XIV[C]

NUMBER OF EMPLOYEES WHO NEEDED TRAINING IN CERTAIN UNITS IN T

	Job Title														
	Engineer	Veterinarian	Supervisor, etc.	Manager	Sales	Stock Clerk	Plantman	Production	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector
Total number of employees with job title	5	2	134	51	145	33	32	247	17	21	313	206	3	11
1.Agri.Mech.(general)	1	0	53	12	50	1	4	228	1	0	55	31	0	0
2.Appliance installation	0	0	4	0	7	0	0	0	0	0	0	3	0	0
3.Carpenter	0	0	14	0	0	0	0	140	0	0	25	69	0	0
4.Electricity	0	0	14	6	17	1	2	140	0	0	32	21	3	0
5.Farm Buildings	0	0	0	2	3	0	0	0	0	0	0	0	0	0
6.Farm Machinery	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7.Fuels & Lubricants	0	0	6	31	18	1	3	0	0	0	115	61	0	0
8.Hydraulics	0	0	0	4	2	0	0	0	0	0	5	4	0	0
9.Lathe operator (wood)	0	0	21	0	0	0	2	0	0	0	37	6	0	0
10.Machinery opr.(tractor)	0	0	33	20	10	0	3	0	0	0	155	125	0	0
11.Machine repair (auto & truck)	0	0	16	34	18	1	1	0	0	0	153	123	0	0
12.Masonry	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.Metals	0	0	11	8	11	0	0	0	0	0	22	113	0	0
14.Motors	0	0	1	6	6	1	2	0	0	0	7	2	0	0
15.Painting	0	0	1	1	0	0	2	0	0	0	2	1	3	0
16.Plumbing	0	0	1	1	0	0	0	0	0	0	7	0	0	0
17.Refrigeration	0	0	0	2	3	0	0	0	0	0	2	0	0	0
18.Sheetmetal work	0	0	0	2	0	0	0	0	0	0	8	0	0	0
19.Soldering	0	0	5	1	0	0	0	0	0	0	13	0	0	0
20.Small engines	0	0	1	0	0	0	0	0	0	0	1	0	0	0
21.Water systems (pumps)	0	0	6	1	6	0	4	0	0	0	4	4	3	0
22.Welding	0	0	33	27	14	0	0	0	0	0	160	74	0	0

TABLE XIV[C]

ING IN CERTAIN UNITS IN THE AREA OF AGRICULTURAL MECHANICS

Job Title	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector	Technician	Machinery Operator	Floral Designer	Lifeguard	Policeman	Pressman	Telephone Operator	TEller	Truck driver	Miner(underground)	Unskilled	Office	Totals
	21	313	206	3	11	5	5	5	2	7	9	52	2	27	194	82	98	1708
	0	55	31	0	0	2	3	0	0	0	4	0	0	22	0	14	28	509
	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
	0	25	69	0	0	0	0	0	0	0	0	0	0	0	0	0	7	255
	0	32	21	3	0	0	3	0	0	0	0	52	0	1	0	0	1	293
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	115	61	0	0	0	0	0	0	0	0	0	0	1	0	7	9	252
	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
	0	37	6	0	0	0	0	0	0	0	0	0	0	1	0	29	15	111
	0	155	125	0	0	0	3	0	0	0	0	0	0	1	0	17	16	391
	0	153	123	0	0	0	0	0	0	0	0	0	0	0	0	7	15	368
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	22	113	0	0	0	0	0	0	0	0	0	0	0	0	0	1	166
	0	7	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	26
	0	2	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	11
	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	0	4	4	3	0	0	0	0	0	0	0	0	0	2	0	0	0	30
	0	160	74	0	0	0	3	0	0	0	0	0	0	0	0	0	8	319

TABLE XIV[D]

NUMBER OF EMPLOYEES WHO NEEDED TRAINING IN CERTAIN UNITS I

	Job Title														
	Engineer	Veterinarian	Supervisor, etc.	Manager	Sales	Stock Clerk	Plantman	Production	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	Inseminator
Total number of employees with job title	5	2	134	51	145	33	32	247	17	21	313	206	3	1
1.Farm management (gen.)	1	2	0	13	33	1	0	0	2	0	2	6	0	
2.Budgeting	0	0	0	0	0	0	0	0	0	0	0	1	0	
3.Buying	0	0	0	4	8	0	0	0	0	0	0	0	3	
4.Economics	0	0	0	0	8	0	2	0	1	0	0	2	0	
5.Equipment & supplies	0	0	0	1	0	0	2	0	0	0	0	0	0	
6.Farm planning and rotations	0	0	18	5	12	0	2	0	0	0	0	2	3	
7.Financing	0	0	0	4	6	0	2	0	0	0	0	0	0	
8.Marketing (selling)	0	0	1	4	5	0	2	0	0	0	2	18	0	
9.Records & accounts	0	0	0	1	3	0	0	0	0	0	0	4	3	

TABLE XIV[D]

NING IN CERTAIN UNITS IN THE AREA OF FARM MANAGEMENT

Job Title	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector	Technician	Machinery Operator	Floral Designer	Lifeguard	Policeman	Pressman	Telephone Operator	Teller	Truck driver	Miner (underground)	Unskilled	Office	Totals
	21	313	206	3	11	5	5	5	2	7	9	52	2	27	194	82	98	1708
	0	2	6	0	1	0	0	0	0	0	4	0	0	2	0	7	2	76
	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	15
	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	14
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	00	0	0	4
	0	0	2	3	0	2	0	0	0	0	0	0	0	1	0	0	0	45
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	13
	0	2	18	0	0	0	0	0	0	0	2	0	0	1	0	0	0	35
	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11

TABLE XIV[E]

NUMBER OF EMPLOYEES WHO NEEDED TRAINING IN CERTAIN UNITS

	Job Title													
	Engineer	Veterinarian	Supervisor, etc.	Manager	Sales	Stock Clerk	Plantman	Production	Bookkeeper	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector
Total number of employees with job title	5	2	134	51	145	33	32	247	17	21	313	206	3	11
1. Leadership training (general)	1	0	36	1	13	1	0	0	1	0	7	6	0	0
2. Communications	4	2	68	50	99	9	28	19	13	13	192	38	0	1
3. Job application	0	0	6	1	2	0	0	0	0	8	8	0	0	0
4. Meeting people	0	2	27	45	78	8	2	0	10	21	118	22	3	1
5. Personality	0	0	3	3	25	3	0	0	4	0	6	6	0	0
6. Public Relations	0	2	28	49	76	8	2	0	12	13	161	24	0	1
7. Radio and T-V programming	0	0	1	0	0	0	0	0	0	0	0	1	0	0
8. Speaking	0	2	27	49	71	8	2	0	13	0	155	29	0	1
9. Tack; courtesy; manners	0	0	0	24	19	4	0	0	2	0	101	6	0	0
10. Writing	0	2	24	49	55	5	2	0	12	0	142	21	0	1
11. Others	0	0	5	2	9	0	0	0	0	0	4	4	0	0

ABLE XIV[E]

AINING IN CERTAIN UNITS IN THE AREA OF LEADERSHIP TRAINING

Job Title	Butcher	Skilled	Semi-skilled	Hatcheryman	Inspector	Technician	Machinery Operator	Floral Designer	Lifeguard	Policeman	Pressman	Telephone Operator	Teller	Truck driver	Miner(underground)	Unskilled	Office	Totals
	21	313	206	3	11	5	5	5	2	7	9	52	2	27	194	82	98	1708
	0	7	6	0	0	0	0	3	0	0	4	0	0	1	0	0	30	104
	13	192	38	0	1	5	2	2	2	0	3	52	2	2	194	0	42	842
	8	8	0	0	0	0	0	0	0	0	0	0	0	18	0	14	5	52
	21	118	22	3	1	3	0	2	2	0	0	52	0	2	0	7	23	428
	0	6	6	0	0	2	2	0	0	0	0	0	0	1	0	0	0	55
	13	161	24	0	1	5	2	2	2	0	3	52	0	20	0	7	22	491
	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4
	0	155	29	0	1	5	2	5	2	0	3	52	2	2	0	0	23	453
	0	101	6	0	0	0	0	0	0	0	0	0	0	1	0	0	8	165
	0	142	21	0	1	5	2	2	2	0	3	52	0	2	0	0	21	402
	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	8	32

The data in Table XV is a summary of the minimum age requirements for employees in the 61 businesses.

Most of the firms employed persons only after they reached 18 years of age. This condition should influence persons of high school age to take advantage of the high school training available and to complete high school before seeking employment.

TABLE XV

MINIMUM AGE REQUIREMENTS FOR EMPLOYEES OF THE 61 BUSINESSES

Age *	Number of firms requiring this minimum age	Number of individuals employed by these firms
16	8	121
18	34	1,231
19	2	16
21	3	23
Legal requirement	11	304
No requirement or uncertain of requirement	3	13

* If the minimum age for employees was reported as from 16 to 18 years of age, this was recorded as the younger age and put in the 16-year age group, etc.

It may be seen in Table XVI that a large majority of the employees in the 61 agriculturally related-distributive businesses did not need a farm background. However, the officials of these firms who were interviewed considered a farm background desirable for 310 (18.1 per cent) of the employees and essential for 127 (7.4 per cent).

TABLE XVI

EXTENT TO WHICH A FARM BACKGROUND WAS NEEDED BY EMPLOYEES OF THE 61 BUSINESSES

	Number of job positions	Per cent of total employees
Essential	127	7.4
Desirable	310	18.1
Unimportant	1,271	74.5
Total	1,708	100.0

Table XVII contains information relative to the extent the officials interviewed required and preferred employees to have attained certain levels of formal education.

A high school education was required for approximately half (49.6 per cent) of the employees and was preferred for 58.0 per cent. This indicates that a high school graduate had considerable advantage over a person who had not completed high school in securing employment.

Two years of technical training was required and preferred for less than four per cent of the employees.

A college education was required for 1.9 per cent of the employees and preferred for 4.0 per cent, while "some college" was required for 1.3 per cent and preferred for 10.2 per cent.

None of the formal educational requirements investigated (high school graduate being the lowest) was required for 40.8 per cent of the employees. This may have been at least partially due to the large number of unskilled workers employed (see Table I).

TABLE XVII

AMOUNT OF FORMAL EDUCATION
REQUIRED AND PREFERRED FOR EMPLOYEES

	Required		Preferred	
	Number	Per cent	Number	Per cent
High School	848	49.6	991	58.0
Two-year technical institute	54	3.2	58	3.4
Some college	23	1.3	175	10.2
College graduate	32	1.9	68	4.0
None of the above	697	40.8	413	24.2
Other	89	5.2	46	2.7
Total	1,743*	102.0*	1,751*	102.5*

* The total number of job positions listed under "required" and "preferred" exceeds the total number (1,708) employees because some individuals were considered to need more than one level of formal education, such as high school plus business college. Thirty-five individuals were required to have attained more than one of the levels of formal education investigated and the employers preferred that forty-three of the employees have more than one level. The percentages exceed 100 for the same reason.

SUMMARY AND INTERPRETATIONS

The purposes of this study were:

1. To determine the need for trained career persons in agriculturally related-distributive businesses in the area served by George Wythe High School, Wytheville, Virginia.

2. To determine the need and the opportunities for providing training through a cooperative part-time job in agriculturally related-distributive businesses in Wytheville, Virginia.

3. To determine any special characteristics of part-time jobs in agriculturally related-distributive businesses.

4. To determine the kind of training needed for various types of jobs in agriculturally related-distributive businesses.

The data for this study were secured by two staff members - one a member of the staff of agricultural education; one a member of the staff of distributive education -- of the Department of Vocational Education, Virginia Polytechnic Institute, Blacksburg, Virginia, from a top official (usually the manager or owner) of each of 61 agriculturally related-distributive businesses in the geographical area served by George Wythe High School, Wytheville, Virginia. The findings are summarized in statements below.

The 1,708 employees of the 61 businesses included in this study had 80 different job titles. Only one person was employed in some job titles (examples: parts salesman, Soil Conservation Service aid, and greenskeeper). The largest number in one job title was 194 people employed as miners (underground workers).

Ninety-five per cent of the employees were employed full time, while five per cent were employed part time. In connection with the third purpose for this study, no special characteristics of part-time employees were revealed by the findings. The relatively small number of part-time employees as well as the nature of the work for which they were employed probably influenced this. As far as could be determined, the part-time employees were expected to do similar work as full-time employees with the same job title.

The need for trained career persons (purpose 1 above) was at least partially determined by finding that the 61 firms needed 128 additional employees (78 of them immediately) (Table II). In only one of the 80 job titles was a reduction of employees expected (a reduction of 22 of the 52 telephone operators). The employees in the 61 businesses had increased 15.5 per cent during the twelve-month period prior to the time the study was made (Table III).

The officials of the 61 businesses who were interviewed reported some difficulty in filling 10.9 per cent of the job positions, great difficulty in filling 16.0 per cent, and extremely great difficulty in filling 9.5 per cent (Table IV). This means that the employers had some degree of difficulty in filling more than one-third(36.4 per cent) of the job positions. A considerable need for trained career workers is indicated by this finding.

Less than one-third (29.5 per cent) of the firms had employed either agriculture or distributive education co-operative students (Table V), but 73.1 per cent were willing to provide on-the-job training for students (Table VI). The 44 firms (73.1 per cent of the 61 firms), who were willing to provide on-the-job training for students, employed 1,115 people (65.3 per cent of the employees included in this survey). An important factor to consider in connection with on-the-job training is that 26 (42.6 per cent) of the 61 firms are seasonal (Table VII), with most of these firms having their busiest season in the spring, making it impractical for them to provide on-the-job training during some parts of each year. Although this condition exists, the findings indicate that opportunities for providing training through part-time co-operative jobs are abundant in Wytheville.

Fifty-one (83.6 per cent) of the firms reported that size of the employee was not a factor influencing eligibility for employment in their firms (Table VIII).

Nearly three-fifths (59.8 per cent) of the employees needed training in leadership, and a majority (57.1 per cent) needed training in agricultural mechanics. A knowledge of animal science, plant science, and farm management was considered important for 12.7 per cent, 21.6 per cent, and 8.8 per cent respectively of the employees (Table IX).

A majority (72.0 per cent) of the employees needed training in human relations and in retail mathematics (60.5 per cent). It was indicated that orientation on the job was considered important for 38.8 per cent, store speech for 36.2 per cent, merchandise information for 36.1 per cent, and salesmanship for 31.2 per cent of the employees. A large number needed training in each of the other areas of study in distributive education (Table XI).

Because 89.2 per cent of the employees included in this survey (Table XII) needed training in both agriculture and distributive education, there exists a great need at the George Wythe High School for courses which will provide training in both of these fields of vocational education for high school students who expect to seek employment in or near Wytheville, Virginia, in the future. It is logical to assume that firms in the Wytheville, Virginia, area will employ persons living in the locality as needed if such persons have received the necessary training. These findings contribute to the fulfillment of the first purpose of the survey -- to determine the need for trained career persons.

A majority (34 firms or 55.7 per cent) of the employers required a minimum age of 18. These 34 firms employed 1,231 (66.8 per cent) of the 1,708 employees included in this survey (Table XV). Eleven of the employers indicated they would require the minimum legal age, which is,with certain exceptions, 16 years of age.

The employers considered a farm background unimportant for 74.5 per cent of their employees (Table XVI). This may be due, at least in part, to the fact that the firms were not producing or processing farm products.

A high school education was required for approximately half (49.6 per cent) of the employees and preferred for 58.0 per cent (Table XVII). Many of the jobs involved manual labor. The employees for these jobs (40.8 per cent of the employees) were not required to have any of the categories of formal schooling investigated. It is significatn that the employers preferred that 75.8 per cent of their employees have a high school education or more.

Since the four-year curriculum in vocational agriculture includes five fields and since a pilot program would pre-suppose the selection of portions of the curriculum most needed in agriculturally related-distributive businesses, it seemed advisable to make a more detailed inventory of needs in agriculture than was necessary for distributive education. The number of employees needing training in each subject matter area investigated in the fields of agriculture and distributive education appears in Tables XIII and XIV (pages 18 - 28). These data fulfill the fourth objective ot this study -- to determine the kind of training needed for the various types of jobs.

CONCLUSIONS

Based on the findings of this study, the following conclusions were made:

1. A great need exists for trained career persons in agriculturally related-distributive businesses in the area served by George Wythe High School, Wytheville, Virginia.

2. The opportunities for providing on-the-job training in agriculture and distribution in Wytheville, Virginia, are abundant.

3. The survey revealed no special characteristics of part-time jobs in agriculturally related-distributive businesses. Therefore, it is concluded that part-time workers in such businesses need the same training as full-time employees.

4. A wide variation exists in the training needs of employees in agriculturally related-distributive businesses relative to subject matter areas and units. Because a large majority of such employees need training in both agriculture and distributive education, there is a great need for high school courses designed to provide such training. The need for training in each specific area and unit included in Tables XII, XIII, and XIV (pages 15 - 28) should determine the priority of units to be included in a course to train career employees for agriculturally related-distributive businesses. Such a course should be designed and offered at the George Wythe High School, Wytheville, Virginia.

RECOMMENDATIONS

Because training in both vocational agriculture and distributive education is needed by persons who are prospective employees of agriculturally related-distributive businesses in Wytheville, Virginia, it is recommended that all students enrolled in the George Wythe High School be informed of the findings of this survey. A list of the names of students (except seniors) who are interested in pursuing training in vocational agriculture and distributive education which will prepare them for employment in an agriculturally related-distributive business should be prepared. This should be done before the students pre-register for courses for the 1963-64 school year.

If the number of high school students who express an interest in and desire to enroll for the kind of training described in the preceding paragraph is adequate for a class, it is recommended that accourse be planned in detail and offered as a credit course beginning with the fall semester of 1964. The findings in Tables XII, XIII, and XIV (pages 15 - 28) of this report should be used as a guide to determine the emphasis which should be given each subject matter unit. The course recommended should be offered only after it is approved by the Division Superintendent of Schools, the Supervisor of Instruction, and the Principal of George Wythe High School.

APPENDIX - A

List of Agriculturally Related-Distributive Businesses Included in the Study

	Name of Firm	Name of Employer
1.	Agricultural Stabilization and Conservation (ASC)	Mr. Mayland Rhudy
2.	Air Reduction Sales Company	Mr. William Woodford
3.	American Screw Company	Mr. John Newhard
4.	Bailey Lumber Company	Mr. A. Garnett Farris
5.	Blair Brothers Real Estate	Mr. Eldrige Blair
6.	Clover Creamery	Mr. Charles Irvin
7.	Coulter's Florist	Mrs. Margaret Morris
8.	Economy Building Company	Mr. O. P. Phillips
9.	Farmer's Supply	Mr. Frank Walters Mr. Allen Walters
10.	Grubb Machine and Welding	Mr. Douglas Grubb
11.	Hobert N. Grubb, Inc.	Mr. Hobert N. Grubb
12.	Ham Farm	Mr. C. R. Stroud
13.	Hillside Florist	Mr. Hasklett Waller
14.	Horney Brothers Land Auction Company	Mr. Jake Horney
15.	Inter-Mountain Telephone Company	Mr. M. H. Bocock
16.	R. P. Johnson Sons	Mr. Robert Eley Johnson
17.	Jones Farm Supply	Mr. T. E. Jones
18.	Kincer Miller Hardware	Mr. Sidney Kincer
19.	Kroger's	Mr. Peyton Umberger
20.	Massey Ferguson Farm Machinery	Mr. John Roedel
21.	Mick or Mack	Mr. Frank W. Neese
22.	Modern Farm Equipment	Mr. Stanley King
23.	Monikin Company	Mr. Elyia DeVault
24.	Narrow Fabric Company	Mr. John Firing
25.	New Jersey Zinc Company	Mr. John Crowgey
26.	Osbourne's Welding Shop	Mr. Willard Osbourne
27.	Pendleton Construction Corporation	Mr. Shortt
28.	Pet Dairy Products	Mr. Adrian Bowen
29.	R. E. Phillipi, Inc.	Mr. R. E. Phillippi
30.	Piggly - Wiggly	Mr. L. A. Rutherford
31.	Radio Station WYVE	Mr. Art Gates
32.	Red Creek Milling Company	Mr. Ernest Suthers
33.	Sears, Roebuck and Company	Mr. W. H. Bowman
34.	Service Gas Company	Mr. Joe Sexton
35.	Smith Oil Company	Mr. Willard Smith, Jr.
36.	Soil Conservation Service	Mr. Doug Holcomb
37.	Southern States - Wytheville Co-Op	Mr. Jack Grayson
38.	Southwest Plumbing and Refrigeration	Mr. Fred Steffey
39.	Southwest Virginia Enterprise	Mr. James A. Williams
40.	Tri-County Farmers Supply	Mr. Charles Neff

	Name of Firm	Name of Employer
41.	U. S. National Fish Hatchery	Mr. S. A. Scott
42.	U. S. National Forest Service	Mr. Ed. Wolcott
43.	Vaught Welding and Plumbing	Mr. Tommy Vaught
44.	Virginia Division of Forestry	Mr. A. D. Wilson
45.	Virginia Parts	Mr. James Wilson
46.	Virginia State Regulatory Laboratory	Dr. A. L. Linn
47.	Western Auto	Mr. Paul McDowell
48.	Wytheville Block Company	Mr. Mason Lacy
49.	Wytheville Floral	Mr. J. R. Lindamood
50.	Wytheville Gold Club	Mr. Marion Saunders
51.	Wytheville Livestock Market	Mr. Elbert Bowman, Jr.
52.	Wytheville Machine Works	Mr. Walker N. Sharitz
53	Wytheville Packing Company	Mr. Barclay Allison, Jr.
54.	Wytheville, Town Of:	Mr. Carter Beamer
55.	Wytheville Vance Hardware	Mr. John Lindamood
56.	Wythe County Motors	Mr. Lee Turpin
57.	Wythe County News	Mr. Lewis Jones
58.	Wythe County Farm Bureau Co-Op	Mr. H. L. Fisher
59.	Wythe Lumber Company	Mr. Brent Moore
60.	Wythe Milling Company	Mr. Garnett Ager
61.	Wythe Sheet Metal Company	Mr. John Allen

APPENDIX - B

Outline of the Study

Title

A Survey to Determine the Opportunities and Training Needs for Career Persons in Agriculturally Related-Distributive Businesses in the Area Served by George Wythe High School, Wytheville, Virginia.

Situation

Vocational education teachers have the responsibility for providing vocational training for those who need, want, and can profit by such training. The kind of vocational training provided for individuals should be determined by the type of competencies needed for successful performance in their chosen fields of endeavor. The changing pattern of employment opportunities in many rural and semi-rural communities indicates a need for determining the competencies individuals will need for successful careers in many of the agriculturally related-distributive businesses. It is the feeling of some business leaders and educators that a study should be made and pilot programs established to provide specific training for individuals who expect to pursue careers in these fields.

The possibility of making a study and establishing a cooperative training program in vocational agriculture and distributive education at Wytheville, Virginia was discussed by the head of the Vocational Education Department and the head of Agricultural Education at Virginia Polytechnic Institute with the Superintendent and the Director of Instruction of Wythe County Schools.

It was generally agreed that employment opportunities and the vocational programs now offered in Wytheville should provide a satisfactory situation for making such a study. It was felt that the vocational agriculture and distributive education teachers in the Wytheville High School had the experience and qualifications needed to participate in the study and provide the instruction that may be needed in a pilot program.

The head of the Vocational Education Department at Virginia Polytechnic Institute discussed the proposal with the State Director of Vocational Education and the State Supervisors of Agricul tural Education and Distributive Education and received their enthusiastic support of the study. Mr. A. S. Brockman, Superintendent of Wythe County Schools was then requested to call a meeting of those concerned to consider ways and means of making the study. This meeting was held in the Wythe County School Board office on June 4, 1963, with the following persons attending:

Dr. Rufus W. Beamer, Head, Department of Vocational Education, VPI
Dr. Bruce C. Bass, Associate Professor of Agricultural Education, VPI
Dr. Evans G. Thompson, Head, Agricultural Education, VPI
Mr. J. A. Hardy, Area Supervisor, Agricultural Education, Pulaski
Mr. A. Strode Brockman, Division Superintendent, Wythe County Schools
Mr. Charles E. Warden, Director of Instruction, Wythe County Schools
Mr. Ralph C. Whitt, Principal, George Wythe High School
Mr. Edwin F. Wilson, Teacher, Vocational Agriculture, George Wythe High School
Mr. John F. Bobbitt, Teacher, Vocational Agriculture, George Wythe High School
Mrs. Lucy C. Crawford, Head, Distributive Education, VPI
Mr. Morris Witten, Teacher, Distributive Education, George Wythe High School

All of the individuals attending this meeting were in agreement that such a study should be made.

Purposes

The purposes of this study are:

1. To determine the need for trained career persons in agriculturally related-distributive businesses in the area served by George Wythe High School, Wytheville, Virginia.

2. To determine the need and the opportunities for providing training through a cooperative part-time job in such an occupation . . . . . .

3. To determine any special characteristics of part-time jobs in agriculturally related-distributive businesses.

4. To determine the kind of training needed for various types of jobs in agriculturally related-distributive businesses.

Procedure

Step 1. A survey will be made of all agriculturally related-distributive businesses in the area served by George Wythe High School by the Agricultural Education and Distributive Education Departments of Virginia Polytechnic Institute. The instrument to be used will be developed by Dr. Thompson, Mrs. Crawford, and Dr. Bass, and will be reviewed by the entire committee. It will then be tested through interviews with several selected businesses before being put in its final form.

Step 2. A comprehensive list of agriculturally related-distributive businesses will be developed by Mr. Wilson and Mr. Witten, under the direction of Mr. Warden. This list will be presented to the entire committee for additions or deletions.

Step 3. The procedure for conducting interviews will be outlined and reviewed with each interviewer. Each owner or manager of the businesses listed will be interviewed. The attached form will be used for gathering the information in the interviews. The interviews will be conducted by members of the staff of the Vocational Education Department at Virginia Polytechnic Institute with the assistance of Mr. Wilson and Mr. Witten.

Step 4. The results of the survey will be tabulated and the data analyzed and and interpreted not later than December 1, 1963. (Under the direction of Dr. B. C. Bass).

Step 5. The analysis and interpretation of the results of the survey will be reviewed with all members of the Committee in December, 1963, so that counseling of students may begin by January 1, 1964.

Step 6. A course of study in agriculture and distribution will be designed to meet the training needs identified in the study.. The Agriculture and Distributive Education teacher educators will work closely with Mr. Wilson and Mr. Witten in developing the course of study.

Step 7. Students enrolled at George Wythe High School will be informed of the opportunities for training for a career in an agriculturally related-distributive occupation. The principal, the members of the guidance department, Mr. Wilson and Mr. Witten will serve as consultants to the Vocational Education staff at Virginia Polytechnic Institute in developing descriptive literature for explaining the proposed course of study. It will be the responsibility of the afore-mentioned members of George Wythe High School to recruit and select students for this pilot study, the selection to be based on the findings of the survey.

Step 8. Students will be enrolled for the pilot program. Instruction in the pilot program will begin in September 1964.

Step 9. The results of the pilot program will be evaluated by:

(a) Carefully studying the progress of students enrolled in the program for a period of five years following their graduation from high school.

(b) Interviewing the employers who cooperated with the training program.

(c) Interviewing employers of students who completed the program.

(d) Evaluate progress of those who pursue advanced study.

(e) Others.

A SURVEY OF EMPLOYMENT OPPORTUNITIES AND TRAINING NEEDS IN AGRICULTURALLY RELATED-DISTRIBUTIVE BUSINESSES, WYTHEVILLE, VA.

I. General Information

A. Name of firm: _____

B. Address: _____ Telephone No. _____

C. Name of person interviewed: _____

D. Position _____

E. Main product or service of the firm: _____

F. Total number of employees:

Employees	Full	Part-Time
Supervisors		
Salespeople		
Stock		
Other		

II. Specific Occupational Information

Note: Please write in the jobs applicable to the firm at the head of the columns at the right below. Use a separate column for each job and be specific in listing the job. (Example: Feed salesman), then provide the information about each job indicated below. Please answer the questions by check marks or numbers where appropriate for each occupation.

JOBS

A. Number of employees in each job						
B. How many new employees are needed? . .						
C. Number of employees expected in this occupation one year ago						
D. Number of employees expected in this occupation in the future						
E. What difficulties are encountered in filling these positions?						
1. No difficulty						
2. Some, but not much difficulty						
3. Great difficulty						
4. Extremely great difficulty						

JOBS

F. What formal education is acutally required for initial employment in this occupation?
   1. High school graduate . . . . . .
   2. Two-year technical institute graduate. .
   3. Some college . . . . . .
   4. College graduate . . . . . .
   5. None of the above . . . . . .
   6. Other (specify) _____

G. What formal education is preferred for initial employment in this occupation?
   1. High school graduate . . . . . .
   2. Two-year technical institute graduate .
   3. Some college . . . . . .
   4. College graduate . . . . . .
   5. None of the above . . . . . .
   6. Other (specify) _____

H. For this occupation, a farm background is:
   1. Essential . . . . . .
   2. Desirable . . . . . .
   3. Unimportant . . . . . .

III. Training Needs

The following units are typical of those included in the high school vocational agriculture and distributive education courses. Others could be provided. Please put a number under each occupation listed to indicate the relative importance of the training needs. 3 - Essential; 2 - Desirable; 1 - Unimportant; 0 - Does not apply. (list additional information on back).

JOBS

A. Agriculture
   Fields of Agriculture:
   1. Animal Science. (List training needs in terms of teaching units such as Feeding Animals, Maintaining Animal Health, Managing the Herds, etc.)

_____
_____
_____
_____
_____

JOBS

2. Plant Science. (List training needs in terms of teaching units such as Diseases, Chemical Weed Control, Insects, Soils, How Plants Grow and Reproduce, etc).

3. Farm Mechanics. (List training needs in terms of teaching units such as Metals, Fuels and Lubricants, Sections of Work in Farm Shop, etc.).

4. Farm Management. (List training needs in terms of teaching units such as Marketing Farm Products, etc.)

5. Leadership Training. (List specific types of training).

6. Others. (Please list).

B. Distributive Education
Areas of Study:

1. Salesmanship
2. Stockkeeping
3. Merchandise Information
4. Human Relations
5. Store Operations
6. Advertising
7. Display
8. Retail Mathematics
9. Store Speech
10. Others (please list)

_____

_____

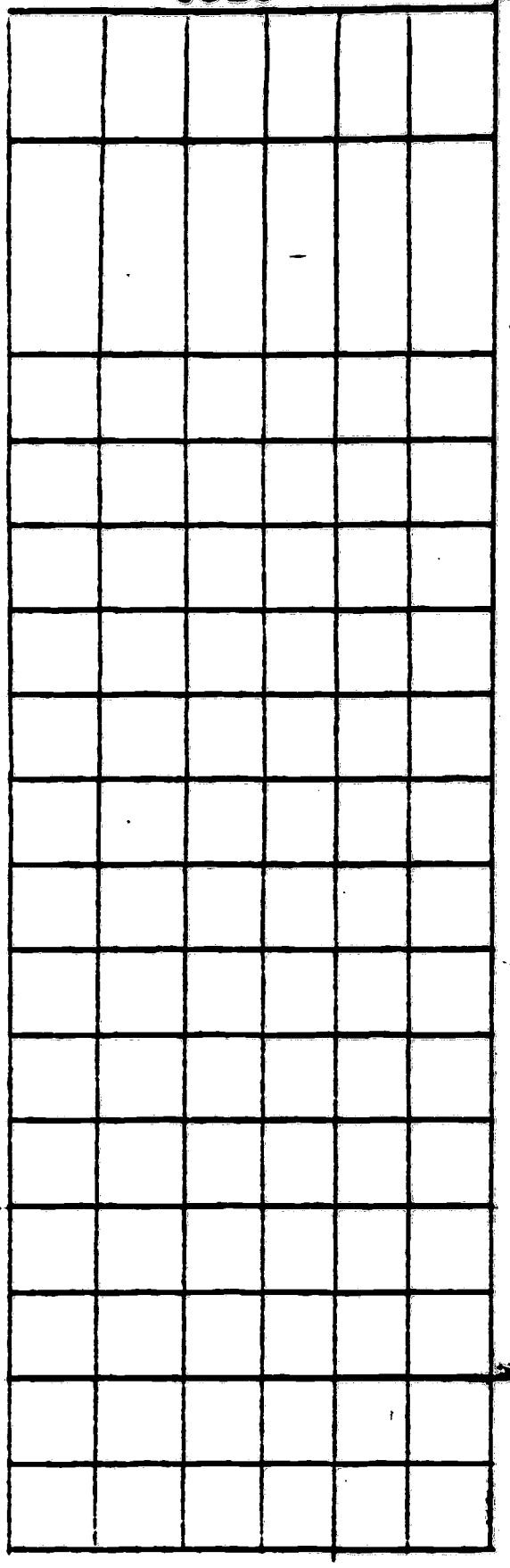
_____

_____

_____

_____

JOBS



IV. Opportunities for On-The-Job Training

A. How many high school students do you employ part-time?

Name of each high school employee	School	Hours customarily employed

B. Have you ever employed a co-op. student? D. E. _____

Agr. _____

C. If a training program is established at George Wythe High School, would you be willing to provide on-the-job training for students?

Yes _____; No _____.
(Interview to explain standards for a training center)

D. Is your business seasonal? _____. Is so, explain.

_____

_____

_____

E. What is the minimum age requirement for your employees? _____

F. Is size of employee a factor? _____. If so, explain. _____

_____

_____

_____

G. Other factors: _____

_____

_____

APPENDIX C

January 1964

Preparation for Career Opportunities in Agriculturally Related Distributive Businesses
George Wythe High School, Wytheville, Virginia

Course Description and General Information

Title: Agricultural Distribution; Agri-business -

Length: Two year course beginning in September 1964.

Credits: One unit of credit each year.

Students: First year course open to Sophomores and Juniors. Second year of course open to Juniors and Seniors who have completed the first year of the two year course. (Second year of course will not be offered before September 1965).

Purpose: The course is designed to meet the vocational needs of those students who are interested in preparing for career opportunities in agriculturally related distributive businesses. It is for those individuals whose needs are not being met by the regular high school vocational agriculture and/or distributive education courses.

Content: The content of the course is designed to help the student gain the knowledge, skills, and attitudes needed for successful entrance into occupations in agriculturally related distributive businesses. (See attached outline of course content)

Enrollment: Limited to not more than 15 students per class.

Selection of Students: Eligibility will be determined by a committee consisting of the Guidance Director, Vocational Agricultural teacher, and Distributive Education coordinator.

Supervised Practice: Appropriate directed work experience or supervised practice activities will be arranged for each student enrolled in the course. Some consideration should be given to scheduling the students so that the last period of the day is a study period for them. In this way, field trips and other activities could be planned for this period at appropriate times during the year.

January 1964

AGRICULTURAL DISTRIBUTION
(Program at George Wythe High School, Wytheville, Virginia)

Suggested Course Content for a Two Year Program

		Estimated Hours	
I.	Suggested Course Content in Agriculture		
	Classroom:		
	1. Drawing and Plan Reading	30	
	2. Metals (Part I)	15	
	3. Principles of Welding	5	
	4. Electrical Units	20	
	5. Fertilizers and Nutrients	10	
	6. Controlling Weeds	10	
	Total	90	
	Laboratory:		
	1. Organization, Safety, Project Evaluation and Teacher Demonstrations	10	
	2. Woodwork	20	
	3. Welding and Cutting	30	
	4. Cold and Hot Metal	15	
	5. Electricity	15	
	Total	90	
	Total Hours in Agriculture		180
II.	Suggested Course Content in Distribution		
	Area: Personal Development		
	Unit: Orientation	20	
	Human Relations in Business	15	
	Leadership Development	5	
	Area: Selling		
	Unit: Organization for Selling	5	
	Selling Today	15	
	Mathematics of Distribution	15	
	Area: Merchandise Information		
	Unit: Merchandise Information I	15	
	Standards, Grades and Labels		
	Total Hours	90	
	Area: Sales Promotion		
	Unit: Advertising as an Aid to Selling	15	
	Area: Management		
	Unit: Stockkeeping (10 hours)	10	
	Unit: Store Operation (20 hours)	20	
	Area: Marketing		
	Unit: Distribution in a Free Economy	20	
	Unit: Careers and Channels of Distribution	10	
	Speech (15 hours plus integration with other units)	15	
	Total Hours	90	
	Total Hours in Distribution		180
	Total Hours in Agriculture and Distribution		360

VT 003 567
Bennett, William Clair, Jr.
Competencies in Soil Management and Use of Fertilizers Needed by Farmers.

Iowa State Univ. of Science and Technology, Ames. Dept. of Education
Iowa Agriculture and Home Economics Experiment Station, Ames
Iowa State Dept. of Public Instruction, Des Moines. Vocational Agriculture Section
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug65 7p.

*VOCATIONAL AGRICULTURE; *LAND USE; *FARMERS; ATTITUDES; SURVEYS; *EDUCATIONAL NEEDS; *AGRICULTURAL SKILLS; *FERTILIZERS; SOIL SCIENCE
IOWA

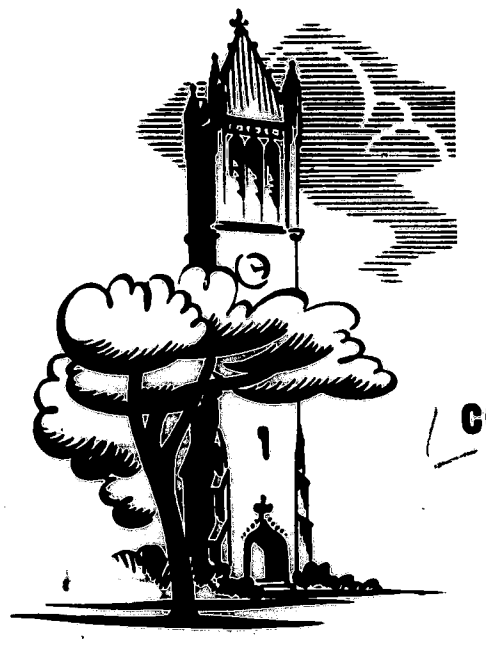
A panel of 15 leaders from 6 agricultural fields served as consultants in developing a list of 46 competencies in soil management and the use of fertilizers needed by present and prospective farm operators. Two hundred outstanding farmers throughout Iowa ranked each of the 46 competencies on a 10-point scale for the degree it was needed for success and the degree to which they possessed the competency. The highest ranked competency for both degree needed and degree possessed was the responsibility for maintaining soil productivity for future generations. Other top needed competencies in rank order were controlling weeds and soil insects, developing a farm plan for maximum use of soil resources, using economic principles in soil management, and satisfying balanced nutritional needs of crops. Although 53 percent of the farmers had been enrolled in 1 or more years of vocational agriculture, the 200 indicated a need for more competence than they possessed in 44 of the 46 competencies evaluated. Educational programs for training farm operators should include some training in all of the competencies identified with major emphasis on those ranked most needed, and existing programs of vocational agricultrue at all levels should be planned to provide for community and instructional personnel needs. This is an abstract of a master's thesis submitted to the Iowa State University of Science and Technology. (WB)

VT 003 567

ED027441

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COMPETENCIES IN SOIL MANAGEMENT AND USE OF FERTILIZERS NEEDED BY FARMERS

William Clair Bennett, Jr.

Department of Education

and

Iowa Agriculture and Home Economics Experiment Station
Iowa State University of Science and Technology
Ames, Iowa

in cooperation with

Vocational Agriculture Section
Division of Vocational Education
State Department of Public Instruction
Des Moines, Iowa

VT003567

This is an abstract of a thesis submitted to Iowa State University of Science and Technology by William Clair Bennett, Jr. in partial fulfillment of the requirements for the degree of Master of Science in August of 1965.

The study is one of a series conducted by the Department of Education of Iowa State University of Science and Technology with the assistance of graduate students in agricultural education in cooperation with the Iowa Agriculture and Home Economics Experiment Station and the Vocational Agriculture Section, Division of Vocational Education, State Department of Public Instruction.

This abstract was prepared by William Clair Bennett, Jr. with the assistance of Alan Kahler, research assistant for the Iowa Agriculture and Home Economics Experiment Station Project 1253, under the direction of Dr. Duane L. Blake.

COMPETENCIES IN SOIL MANAGEMENT AND USE OF FERTILIZERS NEEDED BY FARMERS

by

William Clair Bennett, Jr.

Purpose of the Study

This study was designed to determine the competencies that should be included in the training programs of present and prospective farm operators in the areas of soil management and the use of fertilizers.

Method of Procedure

A panel of 15 carefully selected agricultural leaders from six agricultural fields served as a panel of consultants in developing a list of 46 competencies needed by farmers in the areas of soil management and the use of fertilizers.

The final list of competencies consisted of 13 abilities and 9 understandings in the use of fertilizer, 14 abilities and 10 understandings in soil management. This list was included in a questionnaire and mailed to 314 farmers who had been named as outstanding farmers within their communities by the Iowa Junior Chamber of Commerce. The farmers evaluated the degree each competency was needed to succeed and the degree of each competency that they possessed. Data from the first 200 usable questionnaires that were received were used in the study. The outstanding farmers who responded were well distributed throughout Iowa.

Findings

Each of the 46 competencies was evaluated by the respondents by selecting a value rating on the basis of a ten-point scale. The rating was first made for the degree he believed the competency was needed, followed by the degree that he felt he possessed in the competency. Mean scores for needed competencies ranged from 7.05 to 4.09, while mean scores for possessed competencies ranged from 6.37 to 3.56.

The highest ranked competency for both the degree needed and degree possessed was the responsibility for maintenance of soil productiveness for future generations. The mean needed score for this competency was 7.05. The ranked mean scores for each of the other top ten competencies were as follows: (2) control of weeds and soil insects 7.00, (3) develop a farm plan for maximum use of soil resources 6.93, (4) economic principles in soil management 6.88, (5) balanced nutritional needs of crops 6.78, (6) safety in transfer of liquid and anhydrous 6.78, (7) fertilizer nutrients, grades and labeling 6.78, (8) plan an economical fertilization program 6.77, (9) proper use of fertilizer in good soil management 6.75, and (10) economic principles of fertilization 6.72. Other competencies are ranked in Table 1.

Table 1. Relationship of ranked mean soil management and fertilizer use competency scores needed and possessed by outstanding farmers

Competency	Needed[a]	Rank	Possessed[b]	Rank	Difference
Responsibility for maintenance of soil productiveness for future generations	7.05	1	6.37	1	.68
Control weeds and soil insects	7.00	2	6.19	3	.81
Develop a farm plan for maximum use of soil resources	6.93	3	5.72	14	1.21
Economic principles in soil management	6.88	4	5.76	11	1.12
Balanced nutritional needs of crops	6.78	5	5.33	27	1.45
Safety in transfer of liquid and anhydrous from bulk to applicator	6.78	6	4.72	38	2.06
Fertilizer nutrients, grades and labeling	6.78	7	5.61	17	1.17
Plan an economical fertilization program	6.77	8	5.62	16	1.15
Proper use of fertilizer in good soil management	6.75	9	5.97	5	.78
Economic principles of fertilization	6.72	10	5.51	20	1.21
Effect of leaching and placement on nutrient availability	6.68	11	5.03	35	1.65
Effect of cropping systems on erosion control, soil structure and soil loss	6.56	12	5.75	12	.81
Soil fertility as it is related to crop production	6.55	13	5.57	18	.98
Conservation practices and their value	6.50	14	6.03	4	.47
Match plant population to fertilizer	6.48	15	5.85	7	.63
Function of N, P, K, lime and manure	6.47	16	5.21	28	1.26
Establish a profitable crop rotation	6.41	17	6.29	2	.12
Soil development, characteristics and capabilities	6.40	18	4.82	36	1.58
Physical characteristics of fertilizer	6.40	19	4.47	40	1.93
How fertilizer reacts in the soil	6.38	20	4.48	39	1.90
Interpret soil test results	6.36	21	5.35	24	1.01
Use tillage practices correctly	6.34	22	5.86	6	.48
How sub-soil moisture and water use efficiency are affected by fertilization	6.32	23	5.03	34	1.29

[a]Degree competency needed: 0-1--None, 2-3--Little, 4-5--Some, 6-7--Much, 8-9--Very Much

[b]Degree competency possessed: 0-1--None, 2-3--Little, 4-5--Some, 6-7--Much, 8-9--Very Much

Table 1 continued.

Competency	Needed	Rank	Possessed	Rank	Difference
Relationship of tilth and organic matter	6.23	24	5.19	29	1.04
Help and funds available through ASC, SCS, Extension and Vocational Agriculture	6.21	25	5.79	10	.42
Calculate the best seasonal fertilizer buys on nutrient unit basis	6.19	26	5.17	30	1.02
Current sub-surface moisture conditions and crop effect on this moisture	6.19	27	5.36	23	.73
Maintain records of problem areas, soil type, depth of top soil and tile lines	6.15	28	5.06	33	1.09
Micro-elements, soil conditioners and organic fertilizers	6.11	29	3.59	45	2.52
Manage each field as a separate unit according to its soil capabilities	6.10	30	5.82	9	.28
Maintain individual field records of fertilization, yields and problem areas	6.10	31	5.34	26	.76
Properly time fertilizer applications	5.92	32	5.54	19	.38
Calibrate fertilizer spreader	5.89	33	5.72	13	.17
Maintain application equipment	5.85	34	5.13	31	.72
Establish and stablize grass waterways	5.85	35	5.34	25	.51
Determine slope and lay out contour lines	5.80	36	4.40	42	1.40
Establish terraces	5.68	37	3.56	46	2.12
Select methods of fertilization	5.67	38	5.66	15	.01
Maintain present tiling system	5.66	39	5.06	32	.60
Determine need for tiling	5.62	40	5.39	21	.23
Set up field test strips for seasonal growth and yield comparisons	5.60	41	4.76	37	.84
Operate machinery over terraces	5.59	42	3.92	44	1.67
Renovate permanent pasture	5.33	43	4.45	41	.88
Take an accurate soil sample	5.27	44	5.83	8	-.56
Calculate best limestone buys	5.29	45	4.29	43	1.00
Use temporary fence in management of crop land	4.92	46	5.37	22	-.45

The highest ranked possessed competencies and their mean scores were: (1) responsibility for maintenance of soil productiveness for future generations 6.37, (2) establish a profitable crop rotation 6.29, (3) control weeds and soil insects 6.19, (4) conservation practices and their values 6.03, (5) proper use or fertilizer in good soil management 5.97, (6) use tillage practices correctly 5.86, (7) match plant population to fertilizer 5.85, (8) take an accurate soil sample 5.83, (9) manage each field as a separate unit according to its soil capabilities 5.82, and (10) help and funds available through Agriculture Stabilization and Conservation Commission, Soil Conservation Service, Extension Service and Vocational Agriculture 5.79. The top ten competencies were within a range of .94, from a mean score of 6.73 to 5.79.

The lowest ranked mean needed competencies and their mean needed scores were: (37) establish terraces 5.68, (38) select methods of fertilization 5.67, (39) maintain present tiling system 5.66, (40) determine need for tiling 5.62, (41) set up field test strips for seasonal growth and yield comparisons 5.60, (42) operate machinery over terraces 5.59, (43) renovate permanent pasture 5.33, (44) take an accurate soil sample 5.27, (45) calculate best limestone buys 5.29, and (46) use temporary fence in management of cropland 4.92.

The competencies with the lowest mean possessed scores were: (37) set up field test strips for seasonal growth and yield comparisons 4.76, (38) safety in transfer of liquid and anhydrous fertilizer from bulk storage to applicator 4.72, (39) how fertilizer reacts in the soil 4.48, (40) physical characteristics of fertilizer 4.47, (41) renovate permanent pasture 4.45, (42) determine slope and layout contour lines 4.40, (43) calculate best limestone buys 4.29, (44) operate machinery over terraces 3.92, (45) micro-elements, soil conditioners and organic fertilizers 3.59, and (46) establish terraces 3.56.

A product moment correlation matrix was tabulated for the 46 needed competencies to determine the extent to which changes in one competency were accompanied by changes in another competency. Those found to be most highly correlated were: determine need for tiling and maintain present tiling system; control weeds and soil insects and proper use of fertilizer in good soil management, establish terraces and develop a farm plan for maximum use of soil resources; use tillage practices correctly and control weeds and soil insects; and conservation practices and their value and effect of cropping systems on erosion control, soil structure and soil loss.

Another product moment correlation matrix was set up to determine the correlations that existed among the 46 competencies possessed. Highest correlations for possessed competencies were found between the understanding of physical characteristics of fertilizer and how fertilizer reacts in the soil; determine the need for tiling and maintain present tiling system; conservation practices and their value and the effect of cropping systems on erosion control, soil structure, and soil loss; establish terraces and operate machinery over terraces.

A comparison of the ten most highly ranked needed competencies and control variables resulted in three being significantly correlated at the one percent level. They were: educational level of the operator and the economic principles of fertilization; gross income, $10,000 increments and balanced nutritional needs of crops; and educational level of operator and plan an economical fertilization program.

Significant correlations between the ten high ranked needed competencies and the control variables at the five percent level were: educational level of operator and develop a farm plan for maximum use of soil resources; acres operated and control of weeds and soil insects; acres operated and balanced nutritional needs of crops; gross income, $10,000 increments and safety in handling of liquid and anhydrous fertilizer; acres operated and economic principles of fertilization; educational level of operator and control of weeds and soil insects; gross income $10,000 increments and proper use of fertilizer in good soil management; gross income, $10,000 increments and economic principles of fertilization.

Additional information from the questionnaires received from the outstanding farmers indicated the group had a mean gross income of $42,150 and a mean farm size of 394 acres. The median gross income of $33,178 and the median farm size of 357 acres were considerably smaller than the mean figures due to several large farm operations that varied greatly from the normal. The mean figures for owning and renting land were 164 acres owned and 129 acres rented. The mean corn acreage for the group was 154 acres. An increase in farm size was highly correlated with an increase in corn acres, acres rented, and gross income.

Of the 200 outstanding farmers, 53 percent had been enrolled in one or more years of vocational agriculture. A high percentage of the farmers who had taken vocational agriculture were found in the higher corn acreages and income ranges. Twenty-nine percent of the farmers reported more than 12 years of education. Those reporting an educational level of 13 to 14 years were located within higher corn acreage groups and within higher gross income ranges than those having additional years of education.

Of the outstanding farmers, 168, or 84 percent, rented additional land for their farming program. The rental agreements were reported as being 23 percent cash rent, 55 percent grain share and 22 percent livestock share. In a comparison of the number of years farmed to gross income it was observed that 83 percent of the farm operators had been farming from 7 to 18 years. As gross income increased to the $70,000 range, the modal group of farmers had been farming from 13 to 18 years. Above the $70,000 income group, the operators who had farmed 4 to 12 years became the modal group.

Implications

The need for additional training for present farm operators is evident when the outstanding farmer group that was studied indicated a need for more competence than they possessed in 44 to the 46 competencies that were identified and evaluated.

Educational programs for training present and prospective farm operators should be planned to include some training in all of the competencies that were identified in this study, with major emphasis being placed upon those competencies that were most highly evaluated. Existing programs of vocational agriculture for high school students, young farmer and adult farmer programs, cooperative extension programs, area vocational training schools and instructional programs in the College of Agriculture should be planned to provide for the needs of the communities and the personnel who will provide instructional training.

VT 003 569
Robinson, Norman Lyle
Competencies in Farm Machinery Maintenance Needed by Farmers.

Iowa State Univ. of Science and Technology, Ames. Dept. of Education
Iowa Agriculture and Home Economics Experiment Station, Ames
Iowa State Dept. of Public Instruction, Des Moines. Vocational Agriculture Section
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug64 10p.

AGRICULTURAL EDUCATION; *AGRICULTURAL MACHINERY; SURVEYS; *EDUCATIONAL NEEDS; *AGRICULTURAL SKILLS; *FARMERS; AGRICULTURAL ENGINEERING; *HIGH SCHOOL GRADUATES; MAINTENANCE; REPAIR; VOCATIONAL AGRICULTURE; ATTITUDES; IOWA

Data to determine competencies needed by farmers in farm machinery maintenance, repair, and adjustment were furnished by questionnaires ranking a competency list for 12 farm machines, developed by key farmers and agricultural engineers. The first 200 usable returns from 300 high school graduates who had either studied vocational agriculture or were sons of farmers and from 300 farmers with reputations as outstanding machinery users were used. Each competency was evaluated as to the degree it was needed and to the degree it was possessed by the respondent. Differences between samples included size of farming operation, farm ownership, educational levels, farm experience, and income. There were high correlations between the two groups on both competencies needed and possessed. Both groups indicated the greatest need in competencies associated with tractors. A need for more competence than they possessed was indicated by the outstanding farmers for 16 or the 47 and by the 1950-54 graduates for 14 of the 47 competencies. Ratings signified some need for training in all 47, however. The 10 most important competencies were identified and submitted to t-test. Tractor overhaul was the most needed competency. Five combinations of competencies for outstanding farmers, and three combinations for graduates, were found to be significant. Agricultural education programs should provide instruction in all the competencies and may need to design separate instructional programs for the two groups, for average and below-average farmers, and those who did not have vocational agriculure in high school. Curriculum changes in teacher education may be necessary to provide instructors competent in farm machinery and repair, and improved agricultural mechanics shop facilities will be needed. This is an abstract of a master's thesis submitted to Iowa State University of Science and Technology. (JM)

VT 003 569

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COMPETENCIES IN FARM MACHINERY MAINTENANCE NEEDED BY FARMERS

Norman Lyle Robinson

Department of Education

and

Iowa Agriculture and Home Economics Experiment Station
Iowa State University of Science and Technology
Ames, Iowa

in cooperation with

Vocational Agriculture Section
Division of Vocational Education
State Department of Public Instruction
Des Moines, Iowa

VT003569

This is an abstract of a thesis submitted to Iowa State University of Science and Technology by Norman Lyle Robinson in partial fulfillment of the requirements for the degree of Master of Science in August of 1964.

The study is one of a series conducted by the Department of Education of Iowa State University of Science and Technology with the assistance of graduate students in agricultural education in cooperation with the Iowa Agriculture and Home Economics Experiment Station and the Vocational Agriculture Section, Division of Vocational Education, State Department of Public Instruction.

This abstract was prepared by Norman L. Robinson with the assistance of Alan A. Kahler and Roy D. Hickman, research assistants for the Iowa Agriculture and Home Economics Experiment Station Project 1253, under the direction of Dr. Duane L. Blake.

COMPETENCIES IN FARM MACHINERY MAINTENANCE NEEDED BY FARMERS

by

Norman Lyle Robinson

Purpose of the Study

The purpose of this study was to determine some of the competencies in farm machinery maintenance, repair and adjustment needed by present and prospective farmers.

Method of Procedure

Key farmers, those classified as outstanding in the use of farm machinery, prepared the original list of competencies for 12 farm machines. Professional agricultural engineering personnel assisted with the final wording of the competencies. These competencies so identified are presented in Table 1.

Two separate groups were used as samples for this study. One group consisted of 300 farmers who had been graduated from high school from 1950-1954. These farmers had either studied vocational agriculture in high school or their fathers were farming on the date of their high school graduation. The other group of 300 farmers consisted of recommended outstanding machinery using farmers well scattered throughout Iowa.

Of the original 12 farm machines selected, competencies pertaining to tractors, plows, corn planters and mowers were put into questionnaire form along with selected control items and then mailed to the selected farmers. The farmers evaluated the degree each competency was needed in order to properly maintain, repair and adjust these farm machines. They also evaluated the degree each competency was possessed. The first 200 usable questionnaires received from each sample group were used as data for the study.

Findings

When both groups of farmers were considered together, it was found that those who had not studied vocational agriculture were farming on a larger scale than those who had studied vocational agriculture. Forty-three percent of those who had studied vocational agriculture one year or more operated 300 acres or less as compared to 28 percent of those in the nonvocational agriculture group. Only 17 percent of the vocational agriculture group operated farms with over 500 acres compared to 27 percent of the nonvocational agriculture group. Since only 39 percent of the outstanding farmers had studied vocational agriculture compared to 90 percent of the 1950-1954 graduates, the investigator did not attribute the smaller operations to vocational agriculture.

Table 1. Competencies identified

Farm machinery areas and competencies

TRACTORS

Replace radiator thermostat
Adjust fan belt
Repair and adjust wheel bearings
Replace and adjust breaker points
Replace and adjust spark plugs
Adjust and overhaul carburetor
Adjust hydraulic system
Perform complete overhaul
Adjust clutch
Adjust and replace brake equipment
Adjust valves
Replace and adjust generator brushes
Clean air cleaner
Replace oil filter
Provide battery maintenance
Add fluid to tires

PLOWS

Adjust colters
Adjust horizontal hitch
Replace shares
Weld new points and edges on shares
Hammer out worn shares
Hardsurface shares
Sharpen shares
Check for sprung condition
Adjust tail wheel
Adjust special covering devices
Adjust vertical hitch

GRAIN AND FERTILIZER DRILLS

Weld broken parts
Calibrate grain drill and fertilizer attachments

MOWERS

Adjust lead
Sharpen sickle
Replace ledger plates
Tighten belts
Lubricate
Replace sections
Replace and adjust wearing plates
Replace and adjust hold down clips
Adjust register
Adjust pitman tension

CULTIVATORS

Adjust shovel angle
Adjust shovel trip
Adjust gauge wheels
Level the frame
Adjust tilt of front rigs
Replace all parts

HAY RAKES

Adjust tooth pitch
Replace teeth
Care for pitch control
Replace and adjust chains

MANURE SPREADERS

Steam clean
Paint
Replace dogs and clutches

HAY CONDITIONERS

Adjust roll tension
Check bearings for wear and lubrication
Adjust rollers even all way across

Table 1. (Continued)

Farm machinery areas and competencies

CORN PLANTERS

Adjust planting method - drill, hill drop or check
Replace shoe bottoms
Replace kernel knockout dog
Adjust planting rate
Adjust planting depth
Check valves in shoe
Correct run of the shoes
Select and replace planter plates
Replace worn parts
Correct all clutch problems

CORN PICKERS

Adjust for different picking conditions
Adjust snapping roller bearings - upper and lower
Replace and adjust gathering chains
Check bearings for wear
See that all zerk fittings take grease
Adjust all slip clutches
Adjust snapping roll speed

COMBINES

Adjust cylinder speed
Adjust cylinder clearance
Adjust ground travel speed
Adjust sieves
Adjust fan speed
Adjust grain cleaning
Adjust air flow
Replace bearings and shafts
Replace and adjust knife assemblies and replace sickle sections

BALERS

Repair and adjust knotter
Adjust plunger knives
Adjust plunger for smooth operation
Adjust bale size
Replace bale chamber knives
Set timing on the baler

There were twice as many renters in the group of 1950-1954 graduates as there were in the group of outstanding farmers. Seventy-five percent of the graduates were classed as renters compared to 37.5 percent of the outstanding farmers. More owners, both among the outstanding farmers and the 1950-1954 graduates, were observed in the 301-400 acres farmed range than were found in any other range. That category accounted for 51 of the 400 farmers. Fifty-three percent of the respondents were shown to be farming between 200 and 400 acres.

This study did not reveal any outstanding farmers who indicated less than 7-9 years of schooling. There were nearly twice as many, 30, outstanding farmers with 16 or more years of schooling as opposed to 16 of the 1950-1954 graduates. When all school level classifications were considered, it was noted that the largest percent, 35.5, of the 1950-1954 graduates operated from 201-300 acres. Of those with 16 or more years of education, the largest number of respondents were operating 401-500 acre farms.

No relationship was found between additional years of farming experience and total number of acres operated by either the 1950-1954 graduates or the outstanding farmers. Twenty-one of the graduates had farmed for five years or less and 54 had farmed for 11 years or more. Only 40 of the outstanding farmers had farmed 10 years or less, compared to 146 of the graduates. Over 50 percent of the outstanding farmers had farming experience of 11-25 years.

Comparison of level of education with annual gross income revealed that 61 percent of the graduates indicating 10-12 years of schooling were in the $1-20,000 income range, whereas 50 percent of those with 13-15 years of school and 37.5 percent of those with 16 and over years were in that range. There were 26 percent of the outstanding farmers in the first increment range of $1-20,000. Twenty-four outstanding farmers indicated over $100,000 annual gross income compared to one of the 1950-1954 graduates.

When the size of farming unit was compared to annual gross income, 83 percent of the 1950-1954 graduates operating 200 acres or less reported less than $20,001 gross income, whereas 63 percent of those operating 201-400 acres, 47 percent of those operating 401-700 acres and 36 percent of those operating over 700 acres reported in that income range. Eighty-two percent of the outstanding farmers operating 300 acres or less reported in the $1-40,000 range compared to 50.5 percent of those operating 301-600 acres and 31 percent operating over 600 acres.

Mean scores for degree competency needed and possessed are presented in Table 2. Both groups indicated they needed the most competency in tractor overhaul, adjusting tractor hydraulic systems and adjusting and overhauling tractor carburetors, in that order. The mean needed scores for the same competencies ranged from 6.85 to 7.87 for the outstanding farmers and 6.76 to 7.78 for the graduates on a one-to-nine point rating scale.

Rated lowest by the outstanding farmers on the basis of competence needed were lubricating the mower (3.11); cleaning the tractor air cleaner (3.13); and replacing the tractor oil filter (3.14). Competencies rated lowest by the graduates were cleaning the tractor air cleaner (3.05); replacing the tractor oil filter (3.08); and replacing plow shares (3.16).

Table 2. Relationship of mean farm machinery competency scores needed and possessed by outstanding farmers and 1950-1954 graduates

Competency	Outstanding farmers				1950-1954 graduates			
	Mean needed scores[a]	Rank	Mean possessed scores[b]	Rank	Mean needed scores	Rank	Mean possessed scores	Rank
Perform complete tractor overhaul	7.87	1	3.56	45	7.78	1	4.35	42
Adjust tractor hydraulic system	6.86	2	4.06	42	6.97	2	4.30	43
Adjust and overhaul tractor carburetor	6.85	3	4.32	40	6.76	3	4.63	39
Hardsurface plow shares	6.63	4	2.99	46	6.53	5	3.09	46
Hammer out worn plow shares	6.62	5	2.68	47	6.47	7	2.68	47
Adjust tractor valves	6.52	6	4.31	41	6.52	6	4.65	38
Correct all corn planter clutch problems	6.46	7	5.05	34	6.19	8	5.33	35
Weld new points and edges on plow shares	6.40	8	3.64	44	6.68	4	3.65	45
Replace and adjust tractor generator brushes	6.06	9	4.32	39	5.80	10	4.54	40
Check plow for sprung condition	6.06	10	4.73	37	5.86	9	4.77	37
Replace and adjust tractor breaker points	5.90	11	4.98	36	5.72	11	5.63	27
Adjust tractor clutch	5.73	12	5.03	35	5.61	14	5.38	34
Sharpen plow shares	5.72	13	3.66	43	5.65	13	3.76	44
Adjust and replace tractor brake equipment	5.56	14	5.18	33	5.65	12	5.46	33
Adjust plow vertical hitch	5.45	15	5.39	31	5.15	17	5.56	30
Adjust plow tail wheel	5.44	16	5.42	30	5.19	16	5.52	32
Adjust corn planting method	5.31	17	5.95	19	5.22	15	5.85	22
Adjust plow horizontal hitch	5.27	18	5.71	24	5.12	18	5.89	20
Correct run of planter shoes	5.23	19	5.72	23	5.07	19	5.63	26
Adjust mower lead	5.23	20	5.52	27	4.96	21	5.75	25
Adjust plow special covering devices	5.18	21	5.29	32	4.95	22	5.12	36
Adjust mower register	5.10	22	5.49	28	4.91	24	5.57	29
Repair and adjust tractor wheel bearings	5.06	23	5.78	22	4.89	25	5.98	17
Replace corn planter worn parts	5.05	24	6.08	9	4.96	20	6.28	10

[a] 1, no competency needed; 2-3, little competency needed; 4-5, some competency needed; 6-7, much competency needed; 8-9, very much competency needed

[b] 1, no competency possessed; 2-3, little competency possessed; 4-5, some competency possessed; 6-7, much competency possessed; 8-9, very much competency possessed

Table 2. (Continued)

Competency	Outstanding farmers				1950-1954 graduates			
	Mean needed scores	Rank	Mean possessed scores	Rank	Mean needed scores	Rank	Mean possessed scores	Rank
Check valves in planter shoe	5.00	25	5.87	21	4.88	26	5.77	24
Adjust mower pitman tension	4.99	26	5.45	29	4.93	23	5.60	28
Adjust corn planting rate	4.99	27	6.46	2	4.69	28	6.37	7
Adjust plow colters	4.85	28	6.00	12	4.69	27	5.94	19
Select and replace corn planter plates	4.62	29	6.23	7	4.34	33	6.50	4
Replace mower ledger plates	4.53	30	5.93	20	4.35	32	6.11	16
Sharpen mower sickle	4.52	31	5.67	25	4.56	29	5.82	23
Adjust corn planting depth	4.48	32	6.31	4	4.29	34	6.31	9
Replace and adjust mower wearing plates	4.47	33	6.02	10	4.43	31	6.18	13
Replace corn planter kernel knockout dogs	4.46	34	5.96	17	4.55	30	5.88	21
Add fluid to tractor tires	4.34	35	4.55	38	3.83	39	4.39	41
Replace and adjust mower hold down clips	4.33	36	5.95	18	4.19	35	6.13	14
Replace tractor radiator thermostat	4.28	37	5.56	26	4.02	38	5.55	31
Replace and adjust tractor spark plugs	4.19	38	5.97	14	4.09	37	6.22	12
Replace corn planter shoe bottoms	3.99	39	5.96	16	4.09	36	5.97	18
Tighten mower belts	3.71	40	6.01	11	3.51	42	6.31	8
Replace mower sections	3.71	41	6.24	6	3.69	40	6.49	6
Adjust tractor fan belt	3.70	42	5.97	15	3.52	41	6.23	11
Provide tractor battery maintenance	3.38	43	6.34	3	3.33	43	6.59	3
Replace plow shares	3.30	44	5.98	13	3.16	45	6.11	15
Replace tractor oil filter	3.14	45	6.46	1	3.08	46	6.81	1
Clean tractor oil cleaner	3.13	46	6.27	5	3.05	47	6.80	2
Lubricate the mower	3.11	47	6.18	8	3.29	44	6.50	5

There was a high correlation observed between the ratings given by the outstanding farmers and the 1950-1954 graduates on all of the competencies studied. The graduates tended to indicate a lower degree of competence needed in order to effectively perform the maintenance jobs.

The outstanding farmers indicated they possessed the most competence in replacing tractor oil filters (6.46); adjusting corn planting rates (6.46); and providing tractor battery maintenance (6.34). The 1950-1954 graduates reported the most competence possessed in replacing the tractor oil filter (6.81); cleaning the tractor air cleaner (6.81); and providing battery maintenance (6.59).

The outstanding farmers indicated they possessed the least competence for hammering out worn plow shares (2.68); hardsurfacing plow shares (2.99); and completely overhauling a tractor (3.56). There was a high correlation observed between the competency possessed ratings given by the outstanding farmers and the 1950-1954 graduates, but the correlations were not as high as was revealed between the ratings given for competence needed. The graduates indicated they needed less competence and possessed more competence.

A need for more competence than they possessed was indicated by the outstanding farmers for 16 of the 47 competencies, and for 14 of the 47 by the 1950-1954 graduates. It was noted, however, that training is necessary in all the competencies since 3.05 was the lowest mean score needed, and any rating over one indicated some need.

In the areas where the outstanding farmers felt a need for more competence than they possessed, two cases showing the greatest differences were: performing a complete tractor overhaul, 7.87 needed, 3.56 possessed; and hammering out worn plow shares, 6.62 needed, 2.68 possessed. The greatest difference for the 1950-1954 graduates occurred for hammering out worn plow shares, 6.47 needed, 2.68 possessed; and hardsurfacing plow shares, 6.53 needed, 3.09 possessed.

Where the outstanding farmers felt they possessed more competence than they needed, areas showing the greatest differences were: replacing the tractor oil filter, 6.46 possessed, 3.14 needed; and cleaning the tractor air cleaner, 6.27 possessed, 3.13 needed. The greatest differences for the 1950-1954 graduates occurred for: replacing the tractor oil filter, 6.81 possessed, 3.08 needed; and providing tractor battery maintenance, 6.59 possessed, 3.33 needed.

The Spearman rank order coefficient of correlation was used to analyze the relationship of the mean competency needed scores of the two groups of farmers. A correlation of .993 was obtained, indicating a strong tendency for the outstanding farmers and the 1950-1954 graduates to rate the machinery competencies needed very similarly.

Pearson product moment coefficients of correlation were used to determine the extent to which changes in ratings of one machine competency being studied were accompanied by equal changes in another competency. When the degree competency was needed scores were analyzed, the highest correlations for the two groups of farmers were between replacing and adjusting mower wearing plates and replacing and adjusting mower hold down clips, outstanding farmers .884,

graduates .902; cleaning the tractor air cleaner and replacing the oil filter, outstanding farmers .877, graduates, .913; and between replacing the tractor oil filter and providing battery maintenance, .847 for the outstanding farmers and .858 for the graduates.

The scores for degree competency was possessed were also analyzed by correlation methods. The highest correlations for the two groups of farmers were between cleaning the tractor air cleaner and replacing the oil filter, outstanding farmers .940, graduates .925; and between replacing the tractor oil filter and providing battery maintenance, outstanding farmers .940, graduates .870.

The ten most important machinery competencies, as rated on the basis of competence needed by the outstanding farmers, were identified, and the highest mean value was tested for significant differences against each of the other nine means by use of the t-test. Performing a complete tractor overhaul was the most needed competency. The computed t-values revealed five combinations to be significant at the one percent level for the outstanding farmers and three combinations for the graduates. There were eight combinations significant at the five percent level for both groups. No significant difference was revealed for either group of farmers between the mean scores found for the highest rated competency and adjusting the tractor hydraulic system.

Implications

Future programs in agricultural education should provide some instruction in all competencies identified in the study, with more intensive training being provided for those competencies receiving higher degree needed scores.

The need for training in farm machinery competencies by the two groups of farmers studied may imply an even greater need by the average and below average farmers and by those farmers who did not have vocational agriculture in high school.

Since the outstanding farmers and the 1950-1954 graduates differed somewhat in regard to the extent that specific competencies were needed and possessed, it may be desirable to design separate instructional programs for the two groups.

Curriculum changes in teacher education programs may be necessary to provide an adequate supply of instructors who are competent in farm machinery maintenance and repair. In addition, greatly improved agricultural mechanics shop facilities will be needed if the educational needs of farmers are to be met.

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To determine the important agricultural competencies needed by male employees of retail fertilizer distributors and the degree of competence needed and possessed by managers and employees, 120 licensed fertilizer dealers rated a list of 29 competencies developed by a panel of 12 Iowa fertilizer distributors. The competencies included 14 understandings and 15 abilities, 13 pertaining to farming and 16 to dealer management and service. Managers and sales employees indicated higher competence needed than possessed for all competencies, while service employees reported only one competency, the ability to determine the individual customer's financial situation and management level, with no difference between need and possession. The greatest differences between the degree the competence was needed and possessed were in farm credit, soil-plant relationships, cropping plans for specific soil types, seed quality, and plant population in relation to fertilizer response, pest control, production economics, micro-nutrients, nutrient deficiency, and sales promotion. Implications concerned reevaluating educational programs to provide practical experiences with formal instruction in agriculture, updating present programs to include the needs shown in the study, and providing employee inservice training. Correlations between competency need and personal characteristic control variables such as experience, vocational training, education, and age and tabular data are included. (JM)

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COMPETENCIES IN AGRICULTURE NEEDED BY MALES EMPLOYED IN RETAIL FERTILIZER DISTRIBUTION

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and

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in cooperation with

Vocational Agriculture Section
Division of Vocational Education
State Department of Public Instruction
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This is an abstract of a thesis submitted to Iowa State University of Science and Technology by Frederick Alvin Van Loh in partial fulfillment of the requirements for the degree of Master of Science in August of 1964.

The study is one of a series conducted by the Department of Education of Iowa State University of Science and Technology with the assistance of graduate students in agricultural education in cooperation with the Iowa Agriculture and Home Economics Experiment Station and the Vocational Agriculture Section, Division of Vocational Education, State Department of Public Instruction.

This abstract was prepared by Frederick A. Van Loh with the assistance of Alan A. Kahler and Roy D. Hickman, research assistants for the Iowa Agriculture and Home Economics Experiment Station Project 1253, under the direction of Professor C. E. Bundy.

COMPETENCIES IN AGRICULTURE NEEDED BY MALES EMPLOYED IN RETAIL FERTILIZER DISTRIBUTION

by

Frederick Alvin Van Loh

Purpose of the Study

The main purposes of this study were to determine (1) the important agricultural competencies needed by males employed in retail fertilizer distribution and (2) to determine the degree of competence needed and possessed by managers and employees in each agricultural competency. Other purposes were to seek the factors which influence the degree competence is needed and possessed and to determine the nonagricultural competencies needed.

The ultimate purpose of this study was that of securing information which will assist counsellors and administrators of agricultural education in planning future programs.

Method of Procedure

Twelve selected retail fertilizer distributors in Iowa served as a panel of specialists in developing a list of agricultural and nonagricultural competencies needed by males employed in retail fertilizer businesses. The list of agricultural competencies as prepared by the panel of specialists was put into questionnaire form and mailed to 120 Iowa licensed fertilizer dealers. A list of the 1962-1963 Class II Fertilizer Licenses was obtained from the Secretary of the Iowa Department of Agriculture. Manufacturers and firms not offering any type of application or spreading service were not included in this investigation. Each employer was asked to select one employee to participate in the study.

Findings

Of the 29 agricultural competencies listed by the panel of specialists, 14 were understandings and 15 were abilities. Thirteen of the competencies pertained to various phases of farming and 16 to dealership management and service. Managers and sales employees indicated a higher degree of competence needed than possessed in all of the competencies listed. This was true of service employees with one exception. Service employees indicated they possessed as much competence as needed in the ability to determine individual customer's financial situation and management level. Performance of this ability is more in line with the duties of managers and sales employees.

Observations of the mean scores of managers for the degree competence was needed revealed that 26 of the 29 competencies listed had mean scores of 3.0 or higher. These scores are shown in Table 1. Fifteen of the 29 had mean scores of 3.4 or higher.

Sales employees had mean score ratings of 3.0 or higher for competence needed in 17 of the 29 competencies as is shown in Table 1. Service employees had mean score ratings of 3.0 or higher in 14 of the competencies listed. Managers, sales employees and service employees had mean score ratings of 2.5 or higher for competence needed in every competency listed.

Ranges in mean scores for competence needed as evaluated by managers, sales employees, and service employees were as follows: scores by managers for understandings ranged from 2.7 to 3.5 and for the abilities from 2.9 to 3.6; scores by sales employees from 2.5 to 3.5 for the understandings and 2.8 to 3.5 for the abilities; service employee scores for understandings ranged from 2.5 to 3.3 and for abilities from 2.6 to 3.2.

Differences of .5 or more between degree competence was needed and possessed was observed for managers and all employees in their evaluations for the understandings of farm credit procedures, physical and chemical properties of soil in relation to plant growth and yield potential, cropping plans for specific soil types, seed quality and plant population in relation to fertilizer response, weed and insect problems and their control, economics of crop production for local farming area, and micronutrients and their effect on crops. The same observation was made for the abilities to recognize plant food deficiency in growing crops, estimate potential demand of various plant food nutrients in service area and develop a fertilizer promotion and marketing program. Sales employees had differences of 1.0 or more for two of the above understandings and two of the above mentioned abilities. Managers and sales employees indicated more competence needed in the decision making areas of the business as compared to service employees who indicated a higher rating needed for understandings and abilities involving operation of equipment and plant operation.

A difference of .4 or less in mean scores for degree competence was needed and possessed was found in evaluations of managers, sales employees and service employees in the understandings of fertilizer plant operation, timeliness of operations in relation to crop yields, and in the abilities to take an accurate soil sample, interpret a soil test report, identify various fertilizer materials and evaluate fertilizer formulas, make recommendations to customers regarding proper use of fertilizers and assist customer in keeping a fertilizer history of his farm, operate and maintain fertilizer handling equipment, and apply fertilizer to the soil properly and accurately and accurately estimate acreage.

Ranges in mean scores for competence possessed as evaluated by managers, sales and service employees were as follows: scores by managers for understandings ranged from 1.9 to 3.3 and abilities from 2.5 to 3.2; scores by sales employees from 1.5 to 2.6 for understandings and 2.2 to 3.1 for the abilities; service employee scores for understandings ranged from 1.4 to 3.1 and for abilities 1.7 to 3.1.

The 10 most needed competencies by the combined group of managers, sales and service employees were used as variables and tests of correlation made. Variables selected included the competency needed and possessed in each of the following: (1) amounts of fertilizer required for various levels of crop production, (2) seed quality and plant population relative to fertilizer response, (3) weed and insect problems and their control, (4) interpreting a soil test report, (5) identifying fertilizer materials and evaluating formulas, (6) making proper recommendations regarding fertilizer use and help individual customer keep

Table 1. Manager, sales and service employee evaluations of degree agricultural competencies were needed and possessed

Competencies	Mean scores									
	Managers		Sales				Service			
			Employer		Employee		Employer		Employee	
	N[a]	P[b]	N	P	N	P	N	P	N	P
Understanding of:	N=94		N=44		N=44		N=43		N=43	
Fertilizer plant operation	3.5	3.3	2.4	2.2	2.8	2.6	3.2	3.2	3.3	3.1
Farm credit procedures	3.5	3.0	2.8	2.0	2.8	2.3	2.2	2.0	2.7	2.2
Governmental agricultural programs and their effect on fertilizer use	3.0	2.6	2.6	1.8	2.5	2.0	2.1	2.0	2.7	2.0
Characteristics of different fertilizer materials before and after they are blended	3.4	3.1	2.8	2.5	2.9	2.5	2.8	2.8	3.2	2.8
Physical and chemical properties of soil in relation to plant growth and yield potential	3.1	2.5	2.8	2.0	2.9	2.0	2.6	2.1	3.0	2.1
Cropping plans for specific soil types	3.0	2.4	2.7	2.3	2.8	2.3	2.4	2.1	2.7	2.1
Timeliness of operations in relation to crop yields	3.2	2.8	2.8	2.4	2.7	2.5	2.6	2.3	2.9	2.7
Effects of weather on plant food utilization	3.2	2.9	2.8	2.5	2.9	2.4	2.4	2.3	2.9	2.3
Fertility needs for various levels of crop production	3.4	3.0	3.3	2.4	3.4	2.6	2.8	2.5	3.3	2.8
Seed quality and plant population in relation to fertilizer response	3.4	2.9	3.2	2.8	3.4	2.6	2.6	2.3	3.1	2.6
Soil pH and how to maintain it at its most productive level	3.3	2.8	3.2	2.4	3.3	2.5	2.6	2.2	2.6	2.3
Weed and insect problems and their control	3.4	2.8	3.3	2.5	3.5	2.5	2.7	2.1	3.0	2.3
Economics of crop production for local farming area	3.2	2.7	2.8	2.3	2.9	2.3	2.5	2.1	2.6	2.1
Micronutrients and their effect on crops	2.7	1.9	2.5	1.6	2.5	1.5	1.9	1.2	2.5	1.4

[a]4--very much competence needed, 3--much competence needed, 2--some competence needed, 1--little competence needed, 0--no competence needed.

[b]4--possessed very much competence, 3--possessed much competence, 2--possessed some competence, 1--possessed little competence, 0--possessed no competency.

Table 1 continued.

Competencies	Mean scores									
	Managers		Sales				Service			
			Employer		Employee		Employer		Employee	
	N	P	N	P	N	P	N	P	N	P
Ability to:	N=94		N=44		N=44		N=43		N=43	
Take an accurate soil sample	3.2	3.1	3.6	3.5	3.3	3.0	3.1	3.0	2.9	2.7
Interpret a soil test report	3.6	3.2	3.3	2.9	3.4	3.1	3.1	2.6	3.0	2.6
Identify various fertilizer materials and evaluate fertilizer formulas	3.5	3.2	3.0	2.6	3.3	2.8	3.0	2.6	3.2	2.8
Make recommendations to customers regarding proper use of fertilizers and assist customer in keeping a fertilizer history on his farm	3.5	3.2	3.3	2.7	3.4	3.0	2.8	2.3	3.0	2.5
Recognize plant food deficiency in growing crops	3.4	2.7	3.2	2.4	3.5	2.4	2.7	2.0	3.0	2.4
Help tenant sell his landlord on a sound fertilizer program	3.1	2.7	3.0	2.4	3.0	2.4	2.6	2.1	2.9	2.4
Operate and maintain fertilizer handling equipment	3.0	2.9	2.4	2.3	2.9	2.6	3.4	3.3	3.3	3.1
Determine proper tillage conditions for application of fertilizers	3.1	2.7	2.8	2.2	3.0	2.4	2.9	2.7	2.8	2.6
Apply fertilizer to the soil properly and accurately, and accurately estimate acreage	2.9	2.6	2.5	2.3	3.2	2.7	3.0	2.9	3.0	2.9
Make recommendations regarding amounts of fertilizer in absence of a soil test report	3.5	3.1	3.1	2.2	3.3	2.8	2.9	2.4	3.0	2.3
Estimate potential demand of various plant food nutrients in service area	3.3	2.8	2.6	2.1	3.0	2.5	2.2	1.9	2.6	2.1
Advise customer in choice of purchase of fertilizer applicating equipment	2.9	2.5	2.8	2.2	2.8	2.3	2.4	2.3	2.8	2.3
Determine individual customer's financial situation and determine his management level	3.5	2.9	2.9	2.0	3.3	2.5	2.4	1.9	2.5	2.5
Develop a fertilizer promotion and marketing program	3.5	2.8	2.3	1.6	3.2	2.2	2.3	1.7	2.6	1.7
Recognize good new fertilizer practices and recommend their use	3.5	3.1	3.3	2.8	3.4	2.8	2.8	2.3	3.1	2.7

a fertilization history on his farm, (7) recognize good, new fertilizer practices and recommending their use, (8) recognizing plant food deficiency in growing crops, (9) making recommendation in absence of a soil test report, and (10) determining an individual's financial situation and management level.

Control variables used were years of experience in retailing fertilizer, years of farm background, years of vocational agriculture training, years of educational attainment, and age. When the correlation matrix was run for managers there were no apparent correlations between the degree of competency needed or possessed when the control variables of vocational agriculture and educational attainment were used. With one exception, farm background was negatively correlated with degree competence was needed for all competency variables while being positively correlated with degree competence was possessed. Correlations were small. The trend was positive for possessed and negative for needed.

Two significant negative correlations were observed when age was compared with competence needed. Competencies involved had reference to the abilities to make proper recommendations regarding fertilizer use and assist the customer in keeping a fertilization history of his farm, and identifying fertilizer materials and evaluate formulas. Years of experience in retailing fertilizer resulted in a significant negative correlation for the competence possessed in understanding amounts of fertilizer required for various levels of crop production and for the ability to determine an individual's financial situation and management level.

The same correlation matrix as used for managers was used for all employees participating in the study. Vocational agriculture was more highly correlated to competencies needed and possessed than the other control variables used. High correlations were found between vocational agriculture and competence needed and possessed in the understandings of fertilizer required for various levels of crop production, seed quality and plant population in relation to fertilizer response, and possessed competence in the understanding of weed and insect control. High correlations were also found for competence possessed in the abilities to identify fertilizer materials and evaluate formulas, to recognize good, new fertilizer practices and recommend their use, the competence needed and possessed to recognize plant food deficiency in growing crops, and to make recommendation in absence of a soil test report.

Educational attainment was considerably greater for managers as compared to employees. All of the managers who completed four years of vocational agriculture completed one or more years of college; however, less than one-half of the employees had obtained the same level of educational training. On a percentage basis, twice as many employees completed four years of vocational agriculture as compared to managers. Fifty percent of the managers completed one or more years of college as compared to 23 percent of the employees.

Fifty-seven percent of the managers and 70 percent of all employees were under 42 years of age. Seventeen percent of the managers were 42 to 47, 10.7 percent were 48 to 53, 10.7 percent were 54 to 59, and 3.2 percent were over 59 years of age. Of the 30 percent of the employees over 41, 10.3 percent were 42 to 47, 8 percent were 48 to 53, and 12.6 percent were over 59 years of age.

Presented in Table 2 are the nonagricultural competencies needed by employees in retail fertilizer distribution.

Table 2. Nonagricultural competencies needed by males employed in retail fertilizer distribution

Competencies	Occupational Area		
	Managers	Sales	Service
Understanding of:			
Business principles	X	X	-
Finance and credit procedures	X	X	-
Financial statement	X	-	-
Legal aspects of retailing	X	-	-
Tax regulations including withholding tax and social security	X	-	-
Government reports	X	-	-
Business mathematics	X	X	-
Company-customer relationships	X	X	X
Company buying and profit motives	X	X	-
Advertising methods and procedures	X	X	-
Management control	X	-	-
Insurance including types and regulations	X	-	-
Products handled by company and competitors	X	X	X
Ability to:			
Establish and formulate company policies	X	X	X
Coordinate activities and phases of the business so that major policies are achieved	X	-	-
Delegate authority and motivate	X	-	-
Make timely decisions	X	X	-
Use time efficiently	X	X	X
Select and train employees	X	-	-
Organize a public relations program	X	-	-
Keep up-to-date and adjust to change	X	X	X
Analyze records and reach conclusions	X	-	-
Display company product attractively	-	X	-
Communicate with customers	X	X	X
Sell quality rather than price	X	X	-
Maintain good employer-employee relationships	X	-	-
Compute fertilizer blending formulas	X	X	X
Follow instructions	-	X	X
Be aggressive and accept responsibility	X	X	-
Be persuasive and yet not oversell	-	X	-
Assist in selecting the most advantageous product for the customer	X	X	-
Create favorable image of employer and business represented	-	X	X
Analyze a market	X	X	-
Originate sound ideas	X	-	-
Evaluate customer's reliability	X	X	-
Strive for constant self-improvement	X	X	X

Implications

Educational programs need to be re-evaluated to determine what changes or additions can be made to provide practical experience along with formal instruction in agriculture in order to meet the needs that exist today as a result of the rapid technological changes taking place. A cooperative effort should be made to develop programs which include in-service training as well as meet the needs of future employees.

Administrators of educational programs and individuals involved in developing curricula should cooperatively plan programs commensurate with the needs of present and future employees engaged in retail fertilizer distribution.

The present high school vocational agriculture programs can and should provide many of the basic skills as outlined in this study. These programs can be updated and since they are already in operation are in a good position to contribute much to the challenge of adequately training present and prospective employees of retail fertilizer businesses.

The need for in-service training is evident when several thousand employees of the retail fertilizer industry do not possess the needed competency in the competencies included in this survey. It is possible that these competencies may be developed in area vocational-technical schools or in area or regional workshops organized by the retail fertilizer industry, the Iowa State University or by cooperating vocational agriculture departments.

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Tenney, A.W.
Occupational Opportunities for Rural Youth.

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Some factors which influence employment of rural youth are the years of education received, lower agricultural wages compared to urban employment rates, inadequate guidance and counseling services, low income of many rural families, and cultural handicaps when competing for urban jobs. Although many employment problems confront rural residents, much progress has been realized in providing occupation opportunities for youth and adults. Rural youth and their parents need to be aware of occupational opportunities on their farms, in their communities, and in the urban areas. Each year thousands of new jobs become available in agricultural research, industry, business, education, communications, conservation, services, and farming and ranching. Improved guidance services, vocational and technical education programs, recreational opportunities and income are needed to provide rural America with a standard of living equal to that of urban areas. The home, the church, and the school can help preserve and improve employment opportunities for our rural youth and the American way of life. (WB)

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HEALTH, EDUCATION, AND WELFARE
Office of Education
Division of Vocational and Technical Education
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OCCUPATIONAL OPPORTUNITIES

FOR

RURAL YOUTH

Article Prepared for Employment Service Review, U.S. Department of Labor, by A. W. Tenney, Director, Organizational Relations, December 15, 1966

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Occupational Opportunities for Rural Youth

A discussion of occupational opportunities for rural youth must include timely information about some of the important factors which influence employment for these young people. One important factor is the nature of the rural community today.

Occupational Problems of Rural Youth

Statistics from the U.S. Bureau of the Census for 1960 show that about 50 million people live in rural areas. Less than a third of these people live on farms and get part of their income from agriculture. Many live in towns and small communities with less than 2,500 inhabitants. Nearly 44 million people live in the open country in small unincorporated places. A fourth of these 44 million people live close to or in the fringes of cities of 50 thousand population. Some draw their livelihood from farming, but most of them look to the suburbs and nearby cities for employment. According to the 1960 census there were 15 million school age children living on farms or in non-farm rural areas. About a third of the total U.S. child population in 1960 - 18 million children and youth - were rural residents.

The more rural a county, the greater is the chance it has lost population during the past decade. The completely rural counties lost about 8% of their population during that period. In all, almost one half of all U.S. counties lost population over the decade. Population losses have led to higher costs for local governments in rural counties and greater difficulties in providing adequate education. As the population declines, there is also less opportunity for employment for both young men and young women.

One of the most influential factors in connection with employment is the amount of education received by young people. The 1960 census showed that

the average years of school completed by the population 25 years and older in the U.S. was 11.1 in urban areas compared with 9.5 and 8.8 respectively in rural non-farm and rural farm areas. Urban areas had proportionately more adults with college education than rural areas--19% compared with 9% at ages 20-24--and about twice as large a proportion of urban than rural residents were enrolled in college in 1960. Rural youth are now attaining the enrollment rates of urban youth through high school. They are not enrolling in college, however, at anywhere near the same rate. A study by the Census Bureau in 1960 schowed that even though there has been some educational improvement from one generation to the next, the educational levels of fathers and sons tended to be somewhat alike. For example, if a boy's father had attended college his chances of attending college were more than three times as good as those of a boy whose father had not graduated from high school. The educational level of the parents in rural communities, therefore, doubtless has much influence on the occupational preparation of their children. There continues to be a considerable number of functionally illiterate in the rural population.

Employment in agriculture provides wage work for over a million youth under 18 years of age each year. There is still a need for hand labor on farms, and some of this labor can be done by the youth. Almost a third of the total 3.8 million hired farm workers in 1961 were children and youth from 10 to 17 year of age. A percentage of these youth work for only short periods of time during the harves seasons. Most of them are locally employed and many work only on the farms where they live. The employment of children and youth on farms may well be a factor that influences interest in school and school attendance. Traditionally, rural children have left school and gone to work earlier than urban children. Despite improvements in educational attainments among rural youth, a study made by the U.S. Department of Labor in 1963 shows that the proportion of farm boys who had dropped out of elementray school was about twice that of non-farm boys.

Measures of intelligence show that rural children have lower IQs than urban children. It is recognized that such measurements represent partially a measure of the environment and culture of children.

There is a higher proportion of unmet medical and dental needs among rural people than among urban people. Rural children and youth receive one third less medical attention than urban children. Medical facilities are frequently not available to many rural residents. The facilities that are available are often inferior to the modern medical facilities in large urban areas. Inadequate health has an adverse affect on the occupations that cen be pursued and on the education that can be absorbed.

The income of persons who live in rural areas is on the average lower than that of persons who live in urban areas. In 1959 approximately 17.4 million rural people had an annual income of less thatn $3,000. The relatively low income of rural people is significant, becuase inadequate education often goes hand in hand with inadequate income.

Changes in agriculture and rural living are creating problems of educational and vocational choices and adjustments that strike rural youth harder than their elders and many other youth. Youth who live in rural communities generally look to the urban areas for employment. Since their future appears to lie in urban settings, their training should prepare them for such a future. However, young people living in rural communities have for many years been handicapped by inadequate guidance and counseling services. They also do not have adequate information concerning employment opportunities. There is, likewise, a shortage of placement services for many rural youth. Many rural people have little contact with the U.S. Employment Offices, which are located mainly in larger urban areas. The movement of rural people to urban settings frequently creates serious problems of adjustment to a new environment

and to a new occupation. Inadequate guidance, counseling, and placement assistance are handicaps to many individuals who desire to obtain employment outside the local community; they are also handicaps to persons who would like to remain in the community but do not realize the opportunities that exist in agriculture.

Student in rural communities are therefore influenced by the inferior scope, quality, and quantity of education in these communities as compared with educational programs in urban areas. Other factos which influence education also tend to be less favorable in rural areas. Therefore, many rural youth can't take full advantage of the occupational opportunities which do exist in their communities. Because of the constantly increasing movement of rural people to urban areas, many other rural youth with cultural handicaps will be competing with urban people who do not have these handicaps.

Occupational Advantages -- The Fight Against the Problems -- What Remains To Be Done

Although it is true that many problems are faced by residents of rural communities, much has been done in years gone by and much effort is being spent at the present time to solve these problems. The negative factors which influence the employment of rural youth are important, but it must be recognized that there are also many challenging opportunities ahead for young people who live in rural communities. In spite of the difficulties faced, much sound progress has been made and plans are underway to assist many rural communities to improve occupational opportunities for youth and adults.

The Secretary of Agriculture, Orville L. Freeman, in Farmington, West Virginia, said,

"I would like to share this dream and goal with you, and to do this, I ask that you dream with me for a few moments.

"Imagine, if you will, a time in the future when hundreds and hundreds of existing rural communities--and hundreds of <u>new</u> rural communities--offer everything the big cities offer except congestion and confusion, crime and chaos, polluted air and dirty water, overcrowded schools and jobless ghettos, racial unrest and riots in the streets.

"Imagine new and revitalized communities, each with its own local source of employment, each with its own factories--each with its own college or university, each with its own medical center, each with its own cultural entertainment and recreational advantages.

"Imagine a rural America without poverty, without rural slums and shacks, a rural America where every family farmer enjoys parity of income and parity of living.

"This is my dream."

It is significant that high government officials are making plans to help to improve rural communities and make available employment opportunities which may make it possible for many young people to find places of employment and service in their own communities.

President Lyndon B. Johnson speaking in Dallastown, Pennsylvania, said,

"We need these thriving, healthy, rural areas, and we need thriving, healthy cities. But does it really make sense, on this great continent which God has blessed, to have more than 70% of our people crammed onto 1% of our land?

"History records a long, hard struggle to establish man's right to go where he pleases and to live where he chooses. It took many centuries -- and many bloody revolutions -- to break the chains that bound him to a particular plot of land, or confined him within the walls of a particular community.

"Not just sentiment demands that we do more to help our farms and rural communities.

"I think the welfare of this nation demands it. And strange as it may seem, I think the future of the cities of America demands it, too."

Even though much has already been done to assist those who live in rural communities, there is much to be done now and in the years ahead. Consoli-

dation of school districts has been taking place rapidly for a number of years. Additional consolidation is needed to make possible elementary and secondary school systems to serve rural America which are second to none in quality. Where such facilities exist rural young people may prepare themselves fully to take their place in our society and to obtain satisfactory employment. Persons who live on the farm or in rural communities and wish to obtain urban employment must have additional counseling and assistance. Their need to understand the nature of employment, the pay to be expected, and the new environment in which they will live must be met. The creation of larger school systems can make possible additional guidance and counseling services for students. It is possible also to provide assistance in connection with placement in an occupation through the school systems. It is significant that the U.S. Employment Offices are being expanded and that additional counseling and placement services will also be available in schools to fill these unmet needs of youth in rural communities. We must continue to take further steps in these directions.

One of the important tasks is that of developing an awareness on the part of youth and their parents of occupational opportunities on their farm, in their community and in urban areas. Without appropriate information and an understanding of the increasingly complex world or work it is extremely difficult for parents to counsel their children concerning the type of employment for which they should prepare. Since many of the young people living in rural areas live on farms or the parents are employed in occupations which are dependent on farming, consideration should be given

to agricultural occupations. Until recently farming and agriculture have been criticized frequently in the press because of overproduction. Many people living on farms have been aware of this and have urged their children to leave the farms as soon as possible. In many cases there are excellent opportunities for full time employment and the attainment of a high standard of living by remaining on the farm. The food situation has changed completely within the past two years and it is recognized that we are going to need efficient farmers and farm workers always. Due to the rapid increase in our population and the increasing demands from foreign countries for food an effort is now being made to increase farm production. To meet projected needs world food production must be increased 154% by the year 2000. These challenges make available excellent opportunities for many persons to remain on the farm.

Dr. Earl Britz, Dean of Agriculture, Purdue University, said

"Nothing is more erroneous than to think of agriculture as a declining industry. American agriculture is an expanding industry in every important respect except one--the number of people required to run our farms."

Dr. J. K. Stern, President of the American Institute of Cooperation, said

"Career opportunities in agriculture are limitless. Don't let anyone sell you short on the future of agriculture in this country."

As farm youth consider occupational selection, they should look first at the opportunities offered in farming. They should then consider occupations available in the community and in other areas. There are many occupational opportunities that are closely related to farming. These include

processing and distribution of farm products and the providing of services needed by farmers and others who live in rural communities. Merritt Hill, President of J.I. Case Farm Machinery Company, served as chairman of a committee for the National Sales Executives and produced a publication for distribution to farm youth entitled, "There is a Future in Your Farm Background." In the introduction Mr. Hill said,

"You have something valuable. Do you know that this something gives you a big headstart for a fine future? Right now you are way out ahead of those who lack what you have. You have put part of your lifetime into building this valuable something. What is it? It is your priceless farm background -- your specialized experience, skills, education, and training."

There is a shortage and has been for many years of trained personnel in the broad field of agriculture. Each year thousands of jobs go begging because there are not enough highly trained persons available for these positions. The land grant agricultural colleges have for a number of years emphasized the fact that there are 15 thousand new jobs available annually in the agricultural professions including agricultural research, agricultural industry, agricultural business, agricultural education, agricultural communications, agricultural conservation, agricultural services, and farming and ranching. Before a farm youth makes up his mind concerning the occupation for which he will prepare, he should give consideration to the opportunities in occupations that require a background and competencies in the field of agriculture. As employment on the farm has declined, there has been an increase in employment in the broad field of agriculture. These

occupations vary widely in nature and include work such as caring for the turf on golf courses, the production of shrubs and the landscaping of homes and grounds, the production of flowers and plants for florist shops, working in feed and seed stores, farm distribution centers, processing plants, the selling of merchandise to farmers and many other occupations where a farm background and a knowledge of agriculture is helpful. Mr. Samuel V. Merrick, Special Assistant to the Secretary of Labor, U.S. Departmant of Labor said, "The field of agribusiness, economic activities peripheral to agriculture is expected to provide increasing employment opportunities but here too, technical and professional knowledge as well as basic information are required."

A number of old occupations are becoming more important and new occupations are emerging in rural areas. Some are related to the recreation centers that are being developed for urban residents. These are varied in nature and include farm homes which will accommodate visitors and recreational services such as camping, horseback riding, swimming, fishing, and hunting. These and other services are providing additional income and new employment possibilities for rural residents. This is an area which may be expected to increase in the years ahead.

Another occupational opportunity is well worth considering. It is that of farming part-time and working on a part-time basis in another occupation or in doing custom work for other farmers. Improved transportation makes possible new opportunities for employment in urban areas on a full or part time basis for people who live in rural communities.

These are opportunities and needs for the creation of additional jobs in rural communities. More factories are needed to provide employment so that

people who live in those communities may have an opportunity to obtain work and make possible a satisfactory standard of living for themselves and their families.

As a rule jobs in urban areas pay more than those in rural areas. There is an urgent need for people in rural areas to receive wages which are more on a par with those of urban residents.

One of the significant developments which can help solve some of the occupational problems faced by youth in rural communities is that of improved programs of education. The Congress has provided funds to assist the States and local communities in the improvement of public education, including the establishment of additional programs of vocational and technical education so that the occupational training needs of both youth and adults may be more fully met.

The large consolidated high schools are now making available programs of vocational education. Unfortunately, there are still thousands of high schools where no vocational training is offered. Many of these schools are too small to offer such training. In an attempt to meet the needs of youth and adults throughout the nation who are not adequately served by vocational training in high school, a system of area vocational and technical schools is being created.

An area school embraces more than a single community or school district As defined by the Vocational Education Act of 1963, an area school may be:

1. A specialized high school used exclusively or principally to provide full-time vocational education in preparation for full-time work in industry.

2. A department of a high school used exclusively or principally to provide training in at least five different occupational fields to students

available for full-time study in preparation for entering the labor market.

3. A technical or vocational school providing vocational education predominatly to persons who have completed or left high school and who are able to prepare themselves on a full-time basis for work.

4. A department or division of a junior college, community college, or university providing vocational education in at least five different occupational fields, under the supervision of the State board of vocational education, and leading to immediate employment but not towards a baccalaureate degree."

At the present rate of construction, by 1970 there would be provided a nationwide system of 1,333 area vocational schools which would lead substantially to vocational education opportunities readily accessible to persons of all ages in all communities in the country. These schools can help to bring new opportunities in occupational preparation for youth who live in rural communities and need to prepare for employment locally or for employment in urban areas. More adequate counseling and guidance services will become available through the area vocational schools. In addition to instruction being made available on the secondary level, the area vocational schools will offer training on the post high school level for high school graduates as well as for adults. Training will be available for those who are preparing for employment and for those who are already employed. The area schools will, likewise, provide needed assistance in the placement of graduates.

In addition to providing improved guidance services and additional programs of vocational and technical education, we must also provide better health facilities, improved recreational opportunities, and comparative incomes so that people who remain in rural America will have a standard of living equal to those who move to urban areas, because the standard of

living strongly influences the educational opportunities. Rural youth should have an equal opportunity to attend college. They should share equally with youth in urban areas in obtaining scholarships and other types of assistance to enable them to continue their education.

It is true that there are many problems in rural areas that help to motivate rural youth to leave their home communities. It is recognized, however, that there remain many opportunities for youth in these communities. The home, the church, and the public schools have been three of the corner stones on which the advancement of our society has been based. These can help to preserve and improve our way of life. Our nation will become stronger as we strive to provide equal opportunity for our youth regardless of where they live. This challenge we must meet for youth who live in rural America.

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Arnold, Walter M.
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The role of the federal government in educating highly skilled technicians is to promote and assist in establishing high quality programs in all of the states, wherever there is a labor force need for trained personnel or where there are persons who can profit from such specialized occupational education. The need for educating highly skilled technicians was first recognized and implemented by federal legislation with the passage of Title VIII of the National Defense Education Act (NDEA) of 1958. Under this Act, the U.S. Office of Education was directed to administer grants of funds to the states to be matched by the states dollar for dollar, to train highly skilled technicians "necessary for national defense." The Vocational Education Act of 1963 made permanent the provisions of Title VIII of the NDEA for training highly skilled technicians. Funds under the Act of 1963 may be used for construction of facilities, as well as for teacher salaries, libraries, laboratories, and equipment, and needed materials and services for educating technicians. The Higher Education Facilities Act of 1963 provides that 22 percent of the $1.2 billion authorization be used for constructing facilities for public community colleges and public technical institutes which meet the requirements of the Act. Federal legislation has emphasized education as an important investment in people, and the education of skilled technicians is an essential part of such a program. (HC)

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The Federal Government's Role in the Training of Technicians

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Office of Education / U.S. Department of Health, Education, and Welfare

The Federal Government's Role in the Training of Technicians*

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The role of the federal Government in educating highly skilled technicians is to promote and assist in the establishment of high quality programs in all of the states, wherever there is a labor force need for trained personnel or where there are persons who can profit from such specialized occupational education.

Technicians are persons who have the scientific knowledge and necessary competencies in some recognized branch of science to support the work of professional scientists or engineers. They are usually educated in rigorous 2-year post secondary education programs designed to provide them with the knowledge, skills, and attitudes required to perform as highly skilled technicians.

There are many kinds of technicians, just as there are many kinds of professional scientists. Many are employed in the physical sciences and related engineering fields, Examples are chemical, metallurgical, mechanical design or production, civil, electrical and electronics, and architectural technicians. Many others are skilled in the applied life sciences, particularly in the medical field and in the broad spectrums of agricultural research, processing, and utilization.

* *Paper presented by the author at the Spring Meeting of the Industrial Research Institute, Boca Raton, Florida, May 1965*

GOVERNMENT ROLE IN TECHNICIAN TRAINING

Life science technicians are in medical and dental laboratories, dental hygienics, radiology, agronomy, horticulture, food processing, oceanography, animal science, soil science, agricultural production, and forestry or specialized plant science. Some combine life science and physical science disciplines, such as sanitation, pharmaceutical, or special clinical or hospital equipment technicians.

The objective of preparatory programs for educating technicians is to provide a broadly based competency of sufficient depth so that the graduate technician may be employed in one of a cluster of related work opportunities in his field. Upon employment, a brief period of orientation to his particular duties in the employers' organization, together with continued on-the-job study, permit him to advance to high levels of productivity and increased responsibility.

Educational programs to prepare technicians for their work as assistants to scientists must provide them with an understanding of the basic principles of their fields of science, and of the related science and mathematics which support their main field. They must also absorb a comprehensive knowledge of the procedures, materials, devices, techniques, equipment, and processes used in that scientific field and learn to use them easily. They must develop the ability to communicate with the professional scientists or engineers with an for whom they work.

The technician must learn to employ the mode of thinking and intellectual discipline embodied in the scientific method, the ability to seek and find pertinent information, and the capability to work with both the scientist and the skilled workman or other aides to accomplish a variety of work assignments.

Programs for educating technicians are characterized by intensive classroom and laboratory learning. About 50% of the curriculum is the study of science in classroom and laboratory work. A planned sequence of courses emphasizes scientific principles and provides practice with equipment, and skills as they are currently used.

Mathematics, as required, is taught early in the technical program to obtain maximum utilization of its support of the study of the applied science. Communication skills and reporting are taught and practiced; an elementary study of economics, organizations, and human relations provides a frame of reference to the student technician as a member of society and as an employee of a working organization.

Several types of schools offer technical and related vocational education. Of these, the greatest growth has been in junior colleges, community colleges, technical institutes, and area vocational and technical schools. Technical and comprehensive high schools also offer such programs; their orientation toward the needs of technical and related vocational education is of great importance since they prepare students to enter technical education programs either in high school or upon graduation from high school.

The need for educating highly skilled technicians was first recognized and implemented by federal legislation with the passage of Title VIII of the National Defense Education Act of 1958. Under this Act the Office of Education was directed by Congress to administer grants of funds to the states to be matched by the states dollar for dollar, to train highly skilled technicians "necessary for national defense."

A heading was inserted into the Act which read: "Area Vocational Education Programs." The language below that heading amended the Vocational Education Act of 1946 (which we know as the George-Barden Act) to add a new title (Title III). It reads as follows: to authorize ". . . grants to States to assist them in training individuals for employment as highly skilled technicians in occupations requiring scientific knowledge in fields necessary for the national defense."

The Act provided Federal funds beginning with $3.75 million in 1959 and growing to $15 million in 1963 and 1964 for the purchase of laboratory equipment, for teacher salaries, and for providing materials and other services for programs for technical education.

There were several reasons for the enactment by Congress of Title VIII of the NDEA.

First, the highly skilled technician was becoming an increasingly essential part of the scientific and management team in modern scientific research, development, production, and services. The team is composed of professional scientists, engineers, specially trained technicians, supervisors, and skilled production or laboratory workers.

A second reason is that technicians are in short supply. The ratio of technicians to scientists or engineers at present is usually less than 1:1, but there is need for two or more technicians to support each engineer or professional scientist. For many years the number of new technicians formally prepared to work with physical scientists and engineers

had been limited to about 16,000 graduates. Studies of the physical sciences and related engineering fields indicate a need for at least 100,000 new technicians each year. A considerable effort to educate more technicians was needed to meet the nation's accelerated research, development, and productive efforts.

A third factor contributed to the passage of Title VIII. The explosion of scientific knowledge was creating changes in scientific education so that the professional scientist or engineer received little laboratory experience. He functioned more as a theoretical scientist than he had in the past. Thus, a vacuum was developing in the area of applied laboratory knowledge which had to be filled by highly skilled technicians.

Since the passage of NDEA, enrollment of full-time students in technical education programs, most of them post high school, grew from fewer than 20,000 in 1958 to more than 90,000 in 1964. In 1958, some 260 schools provided education of this type for highly skilled technicians under Title VIII, and the number had grown to nearly 800 by 1964. Many of the new schools have been built primarily to train technicians and other skilled personnel.

Federal funds expended for technical education programs from the beginning of the program in 1959 through fiscal year 1964 total $54.5 million. Added to this figure are the states' matching contributions of $30 million and local expenditures of $46.5 million, making a grand total of $131 million.

In fiscal year 1964, a total of 221,241 students were enrolled in 881 institutions offering technical training. This is an increase of 236% since the inception of the program. The largest number of enrollments are found in extension courses especially designed to upgrade the skills of employed adult technical workers. More than 128,000 persons took advantage of such courses in fiscal year 1964.

Some 72,000 student technicians were enrolled in 2-year postsecondary programs and more than 20,000 in secondary programs during fiscal year 1964.

The 16,000 technicians who have been graduated each year for the past decade, are the product of about 60–70 private, nonprofit or proprietary technical nistitutes and public state or locally supported technical institutes. A few are divisions of 4-year colleges or universities.

Some of these institutions are expanding their programs, particularly the public technical institutes in New York State which have been in operation for 20–40 years.

The excellent programs in these established and successful institutions provide a reservoir of experience and success proving the practicability of this type of education. These programs provide good technicians, and patterns for establishing and advertising good technical education courses.

The educators in these institutions have been a major element in establishing high quality standards for such programs. They have become an active division of the American Society for Engineering Education which, in 1962, published the results of a comprehensive nationwide study of technical institute education entitled "Characteristics of Excellence in Engineering Technology Education." It is a major contribution to the literature in the field.

The Engineers' Council for Professional Development, which accredits professional engineering education, also accredits technical education programs within engineering-related technologies. In 1964 there were 127 accredited curriculums in this field in 33 institutions throughout the United States.

In recognition of the growing importance of this type of education, Congress, in the Vocational Education Act of 1963, made permanent the provisions of Title VIII of the National Defense Education Act for training highly skilled technicians. The new Vocational Act also provides substantially increased funds to meet the vocational and technical education needs of greater numbers of people of all ages in all communities.

Funds under the Act of 1963 may be used for construction of facilities, as well as for teacher salaries, libraries, laboratories and equipment, and needed materials and services for educating technicians. The 1963 Act requires a dollar-for-dollar matching of Federal funds with State and/or local funds. Technicians of all kinds may be educated, both those in the physical sciences and related engineering fields, and those in the life sciences, especially those needed for the medical and health fields and for agricultural occupations.

Funds for research in vocational and technical education were, for the first time, authorized by the Congress in the Vocational Education

Act of 1963. Ten per cent of all funds appropriated under the Act are designated to be used for research, demonstration, and experimental projects in the field. The funds are substantial: $11.85 million in fiscal year 1965, $17.75 million in 1966, and $22.5 million for every year thereafter. These funds are used for grants by the U. S. Commission to colleges and universities, and other public or nonprofit agencies and institutions, to State boards, and with the approval of the appropriate State board, to local educational agencies, to pay part of the cost of research and training programs and of experimental, developmental, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational education needs of youths, particularly those with academic, socioeconomic, or other handicaps. Thus, the value to be gained from organized research, so amply demonstrated in industrial research, now is directed by Congress to be used to improve vocational–technical education.

Among the key ways in which the new research and planning program in vocational education can be of great assistance to technical training are these:

1. It can help to define some of the emerging technologies, identify probable future ones, and make meaningful estimates of the number of technicians needed in such fields.

2. It can help develop better and more efficient ways to prepare technicians through advances in methods of teacher training, ways to provide more pertinent laboratory experience, better use of visual and audio teaching aids, and the development and perfection of the applied use of programmed learning techniques.

3. It can help to develop more useful curriculum and other instructional materials.

4. It can help plan and design facilities for the teaching of technicians.

In addition, the research programs now being federally supported in the occupational field should be of special benefit in setting up pilot demonstration projects in training for the new technologies. We certainly hope that the occupational research program will achieve a breakthrough in the badly needed new methods and programs for the education of teachers of technicians.

Funds may also be used under Section 4 (c) of the Vocational Edu-

cation Act of 1963 (the research section) to provide for teacher institutes as a means of preparing or upgrading teachers in these special fields.

An excellent example of what can be done with such institutes is provided by an experience 2 years ago when a critical national shortage of teachers of electronic data processing was identified by the Office of Education. As a result, cooperation was obtained from five state boards and five institutions to set up special teacher institutes during the summer of 1963.

From these institutes came about 100 teachers of computer programming and business application analysis, easing a demand so heavy that state and local educators throughout the country had decided to abandon any idea of waiting for the usual teacher education programs to produce these specialized instructors.

In addition to the Acts discussed above, Congress enacted the Higher Education Facilities Act of 1963, authorizing $1.2 billion for construction of facilities for public and nonprofit private colleges. Of these funds, 22% are earmarked for construction of facilities for public community colleges and public technical institutes which meet the requirements specified by the Act. These latter institutions are eligible for federal funds in the amount of 40% of their improvements for the stated purposes, while other institutions qualifying under Title I of the Act are entitled to federal shares of up to one-third. This clearly indicates the importance attached by Congress to improved facilities for institutions which offer programs to train highly skilled technicians.

In the administration of these acts the U. S. Office of Education directs its advisory, consultative, and financial assistance through the states, strengthening the long-established and effective federal–state–local relationship which recognizes that decisions and actions which shape the destiny of educational programs in the states must be with the states themselves. Although training programs for technicians are implemented by the states, leadership and assistance is provided by the Division of Vocational and Technical Education. This assistance takes the form of conferences, consultative advice, legal interpretations, suggestions as to the use of funds, curriculum guides and similar materials, and other ways.

Federal legislation has emphasized education as an important in-

vestment in people, and as a major element in the structure of our society. The education of skilled technicians is an essential part of such a program because the technician, with the scientist or engineer, is at the forefront of the technological developments which have made, and will probably continue to make, the greatest changes in our social and economic structure.

It follows that as more technicians are needed, and are employed, the number of good technician education programs must increase. I have mentioned that both federal and local tax funds already support institutions which educate skilled technicians. However, the task has just begun. Vocational educators cannot carry this new and tremendous burden alone. The guidance and assistance of the future employers of these trainees are needed if we are to succeed. Walter F. Carey, President of the Chamber of Commerce of the United States, said:

> "The businessman is the key element in this whole education picture. Far better than any educator, or government administrator, he is in a position to know what his company's skilled manpower requirements will be for the next five years, the next ten years. And the smartest thing he can do is to let the educators in his community in on the secret so they can adjust their program accordingly ... Some communities that now are operating effective vocational–technical schools have as many as 43 advisory committees involving up to 500 businessmen. Here trained management men put their knowledge and experience to work on the real core of the problem: How best to prepare men and women for productive jobs that exist today and for new opportunities that will open before them as our technological revolution progresses."

I call upon members of the Industrial Research Institute, as individuals or through their companies, to support technician programs and to help us provide the kind of employee that is needed. Really high quality is a mandatory requirement for successful technician education programs. A competent, trained teaching staff, laboratories well-equipped with apparatus representative of that used in the most up-to-date industrial establishments, a good library, adequate classrooms, and an administrative direction sincerely dedicated to quality occupational education are essential. It takes a minimum of 5 years and many thousands of dollars to establish a new program, assemble the staff, equip facilities, and graduate the first class or two. When these

graduates are successfully employed and confidently advertising their success to their peers and parents, the program is well started.

A poor program is by far the most expensive of all because it costs almost as many dollars, wastes the time and the effort of students and school staff; and, worst of all, disappoints potential employers, and disillusions students and their parents. We can't afford programs of less than high quality!

The most important service you can render is to become involved as advisors, consultants, and supporters of technician educating institutions and programs in the state and local organizations which administer them. The writers of the Vocational Education Act of 1963 clearly saw the necessity for knowledgeable employers to advise, counsel, and support vocational educators if we are to provide high quality trainees for their future employees; the Congress made such advisory services a mandatory part of the administration of the legislation at all levels.

I hope that some of you are already serving on such advisory groups, and that others will be moved to do so if called upon. In some situations it would certainly not be amiss to let it be known that you are available for such duty, since there is a clear advantage to many of you to know from the inside exactly what goes on in this field.

Those of you who have no connection—and expect none—with advisory councils for vocational–technical education, nevertheless will need to know where to go for information on such programs and whom to contact when you have business with vocational educators.

Broadly speaking, there are three levels of contact. I represent one as Assistant United States Commissioner for Vocational and Technical Education and Director of the Division of Vocational and Technical Education. The Division is divided into a headquarters staff in Washington and a field staff in nine regional offices throughout the country. These staffs are always available to the general public for advice and assistance in connection with problems having to do with occupational training. You are invited to write directly to me or phone my office at any time, or to contact the nearest regional office of the Department of Health, Education, and Welfare for the same service from the regional representatives of my office.

At the state level, the state directors of vocational education are the chief administrators. Through their Boards for Vocational Education,

these men exercise the main control over funds for vocational and technical education in their states. Usually, their staffs at the state capitols include a director of technical education and one or more specialists in this field whose major duty is to work directly with the local educational institutions on such programs. They are, however, also available to provide information and assistance to the general public.

At the local level, your best contact would be with the chief administrators of the local schools, colleges or other institutions which offer—or in some cases, I'm afraid—which *should* offer technical education programs. These people work with their state officials, of course, to receive and use federal and state funds, and to get advice and assistance on program problems which arise from time to time. Through these state officials, they also have available the regional and headquarters personnel of the Division of Vocational and Technical Education in the U. S. Office of Education.

The directors of research in the nation are in a peculiarly important position to provide knowledgeable and effective counsel. Their professional and corporate efforts have changed almost every facet of American life in the past few decades, and will continue to do so on an accelerating scale. Their estimates and predictions of the skills, knowledge, and capabilities that will be needed and in what quantity in years to come, should be deeply perceptive because they are nearest to the genesis of change. We need this counsel and guidance.

The character, effectiveness, and economic value of capable technicians is still not universally appreciated in American industry. This is probably because there are few institutions educating highly competent technicians, and because the rewarding employment opportunities in the areas near the school keep the best technicians from going elsewhere. Thus, some employers have never had a chance to hire a really good technician, much less appreciate him.

Research directors are in a unique position to recognize and utilize the skills of technicians because of the very nature of research processes, which are not subject to the clearly structured organization patterns of production work. It is in a research environment that the highly skilled technician, with his competence in assembling research apparatus, performing experiments with assistance of skilled workers or aides, gathering and reporting significant data, and entering into inter-

pretation, can be of greatest service. He becomes a leader in the pilot tests and production processes in research, and fills an essential place in the production service or distribution of the product.

I suggest that you encourage and welcome local teachers of technical subjects and department heads to join in your scientific and technical society activities. Active participation helps keep teachers up to date technically, broadens their perception of the practical realities and needs of employers and is reflected in the attitudes and activities of their students. Whenever possible, local student chapters of scientific or technical societies should be encouraged as a means of providing maximum technical and educational experience for teachers and students.

The image of the technicians' attractive occupational opportunities should be promoted and publicized vigorously, particularly to parents —many of whom may be employed by local industrial firms. The best conceived high school counselors' guidance for youths who could become excellent technicians is made fruitless because the parents, girl friends, or buddies do not understand the dignity, challenges, and rewards available to the competent technician. For many able youths a high quality technician preparatory program is the most attractive avenue to early employment, and one which often leads to further education and professional attainment.

The problem of expert guidance and counseling for young people entering occupational training is one of the most difficult in the education field. All of us are deeply concerned that better methods be developed to help steer these people in the right direction. It seems certain that many potentially fine technicians, for example, never enter the field because they do not know it exists.

Recently, I met with the Committee on Specialized Personnel—a Federal inter-agency group—and the entire session of its 106th meeting was devoted to the problems of guidance and counseling. The Committee is attempting to find solutions to the overall problem of the shortage of highly skilled people—the same problem which is facing nearly every one of you.

Another Federal agency which has been devoting a great deal of time and effort in the same area is the Panel on Scientific and Technical Manpower of the President's Science Advisory Committee. I hope

to see this panel publish very shortly, under White House auspices, a paper on "Engineering Technician Training." Among other things, this paper will probably recommend an increase in the number of graduates of technical programs from the present 16,000 to at least 50,000 annually by 1970.

The development of institutions to educate technicians also provides adequate laboratories, libraries, and staff competencies which are useful to employers in another very important way. Today's graduate technician will find that he needs to constantly update his skills if he is to keep his job. Many people now on the job need more basic mathematics, physical science or specialized laboratory training. Knowledge in these fields can best be obtained in an organized school program. They are not likely to be learned adequately in an in-plant training program.

The establishment of high quality vocational programs for technicians pays an extra dividend by providing facilities for such upgrading programs on a part-time basis. It is already true that schools which offer these programs enroll a larger number of already-employed adults in such special courses than they do full-time young people in preparatory technician curriculums.

While this discussion is primarily one dealing with technicians, it is important to point out that there is a whole spectrum of specialized occupational education objectives designed to support and assist professional management, of which technical education is only one. In addition to technicians who support professional scientists and engineers, their equivalent in the financial and administrative management sector of business is also required—as are the marketing, transportation, and servicing of the products of industry. Educating these specialized management-supporting personnel is also a part of the task of our local educational institutions, whose programs must meet and serve the needs of all employers.

We are all in this endeavor together. As leaders in industry and in vocational and technical education, we are being called upon to provide realistic, high quality occupational education to meet present and future manpower needs at the lowest net long-term cost. More than ever before, modern America requires technicians, and their counterparts in management, marketing and servicing, with better basic training at the

start of their careers. The pattern of the past, which was based on a high school education only, is not good enough, largely because of the impact of research on all facets of modern living. Educators alone cannot perform the task, but together we can meet the challenge in a truly American tradition of cooperative accomplishment.

We in education know that you in industry believe as we do—and as President Kennedy so poignantly stated it a few short years ago:

> "We believe in human dignity as the source of national purpose, in human liberty as the source of national action, the human heart as the source of national compassion, and in the human mind as the source of our invention and our ideas."

Walter Arnold had extensive experience as teacher and supervisor of instruction before joining the U.S. Office of Education. In his current post, he has responsibility for administration of the several vocational education acts now in effect. He has a doctorate in education administration from Oklahoma State University and he is a member of numerous professional societies devoted to the advancement of education.

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Horner, James T., And Others
Technical Progress Report, September 1-November 30, 1967. (Title Supplied).

Nebraska Occupational Needs Research Coordinating Unit, Lincoln
MF AVAILABLE IN VT-ERIC SET. OEC-5-85-127
Pub Date - 28Dec67 4p.

*PROGRAM DESCRIPTIONS; *RESEARCH COORDINATING UNITS; *EDUCATIONAL RESEARCH; *STATE PROGRAMS; *VOCATIONAL EDUCATION
NEBRASKA

During the quarter, research-training was encouraged through weekly training sessions for the Research Coordinating Unit (RCU) staff, and short-term research studies were made by research assistants to develop a plan for the depth study in the area of their special competency. Final agreements were completed with the Lincoln school system for an occupational opportunities study for Lancaster County, and considerable progress was made in developing an occupational opportunities model for determining statewide occupational opportunities. A major portion of the RCU staff time was devoted to data collection. Research assistants in the areas of health occupations, home economics, and office occupations were added to the staff during the quarter. Abstracts of relevant literature and information about college entrance requirements were published in the Newsletter, and three presentations on the ERIC system of dissemination were made to interested groups. Projected activities include: (1) The occupational opportunities model development will continue and data collection will have priority, (2) Staff research assistants will be completing their short term studies and beginning depth studies to determine specific competency needs where employment opportunities exist, and (3) The RCU Newsletter will be devoted to abstracted research in specific occupational areas. (MM)

VT 003 594

ED027441

RESEARCH COORDINATING UNIT FOR
OCCUPATIONAL OPPORTUNITIES
ROOM 302 A.H. EAST CAMPUS UNI. OF NEBR.
LINCOLN, NEBRASKA 68503
PHONE 477-2807

December 28, 1967

Dr. Larry Braaten, DCVR
Bureau of Research, Office of Educ.
400 Maryland Avenue
Washington, D. C. 20202

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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RE: OEG-3-7-063032-1620
OE-05-85-127

Dear Dr. Braaten:

The following is a technical progress report for the Nebraska Research Coordinating Unit for the period beginning September 1, 1967, through November 30, 1967. This period constitutes the tenth quarter of continuous operation for the Nebraska Research Coordinating Unit.

MAJOR ACTIVITIES DURING REPORTING PERIOD

Research-Training and Encouragement

At the beginning of the tenth quarter period a theme of "Developing Staff Research Skills and Competencies" was selected for the weekly RCU meetings. An effort was made to involve the RCU staff, teacher educators in Agriculture Education, Home Economics Education, Office and Distributive Education, and Administrative Staff from the Division of Vocational Education State Department of Education in Vocational Research activities.

1. After each weekly luncheon meeting a special training session is held for RCU staff by Dr. Roy Dillon, RCU Co-Director.

2. RCU Research assistants are now involved in short term research studies with preliminary plans to develop a depth study in the vocational area of their special competency.

3. Final agreements were completed with the Lincoln school system for occupational opportunities study for Lancaster County. With RCU encouragement the Lincoln schools decided to conduct a 25 percent survey of all firms that employ people in Lancaster County. RCU did the sampling and provided the questionnaire. Lincoln schools in return will do key punching for the RCU state-wide sample and will follow up on all firms in Lancaster County.

Research - Occupational Opportunities Model Development

The tenth quarter brought about considerable progress in Model Development for determining statewide occupational opportunities:

1. A total population of 62,751 firms that employ people in Nebraska was generated from four sources of input information.

VT003594

a. I.R.S. 941 Business Firms
b. I.R.S. 942 Farms & Ranches
c. I.R.S. 943 Domestic Employment
d. E.S. 202 Out-of-State Firms

2. From this listing a three percent random sample of firms was selected.

3. It is believed this is the most complete list of employers available in Nebraska at the present time.

4. Three percent of the firms in the population or a total of 1,883 firms were sent questionnaires designed to:

a. Inventory the present employment by occupational group and

b. Estimate the employment change for the next one year and the next three years.

5. A major portion of the RCU staff time and effort during the tenth quarter was devoted to data collection. It is hoped that the data collection phase will be completed during the next quarter of operation and move into the summary and analysis phase.

Research-Consultation

The following agencies have requested and received research consultation service during the tenth quarter of operation.

Lincoln Public Schools
Educational Service Unit #6
Educational Service Units 4, 6, and 17
South-East Area Joint Planning Commission
State Division of Vocational Education
Great Plains School Reorganization
Nebraska Vocational Technical School - Milford
Center Nebraska Voc-Tech - Hastings
Employment Division State Dept of Labor
Several Individuals Interested in Master or Doctoral Studies

Dissemination

1. Special emphasis during the tenth quarter was on the problem of class scheduling in secondary schools to include Vocational Programs. Considerable effort was spent abstracting literature which related to the vocational courses taken in high school as they might contribute toward success in college. The October and November issues of the Nebraska RCU Newsletter was devoted to these topics.

2. The November issue of the Newsletter itemized the requirements for college entrance for the major colleges at the University of Nebraska and showed through the use of charts, how these requirements along with college preparation could be met through scheduling and include a vocational course for one hour a day throughout the four years of high school.

3. Mr. C. A. Cromer, attended the nationwide conference held at Ohio State during October on the ERIC System of Educational Dissemination. Since attending this session three presentations have been given to interested groups. Vocational Technical Microfiche have been ordered and microfiche projection equipment has been evaluated preparatory to requisitioning.

Projected Activities

1. Major emphasis during the next quarter will be given to the Occupational Opportunities Model development. Data collection will have immediate priority.

2. Firm classification, and key punching will have priority after the data are returned. Following the completion of data gathering the analysis phase will begin.

3. Staff Research assistants will be completing their short term studies and beginning depth studies to determine specific competency needs in vocational areas where employment opportunities exist.

4. Future issues of the RCU Newsletter will be devoted to abstracted research in specific occupational areas along with items of current interest.

5. Other activities to receive attention in the future will be:

a. Investigating possible sources of funding for RCU

b. Preparation of the renewal proposal for continued operation of the RCU

c. Final summary and dissemination of the analysis of the state-wide occupational opportunities model.

d. Scheduling of RCU evaluation.

RCU Personnel During Reporting Period:

RCU Staff (Appointive)

Dr. James T. Horner, Co-Director
Dr. Roy D. Dillon, Co-Director
C. A. Cromer, Operations Manager
Leon Engelbart, Res. Asst. Ind. Ed.
*Mary Gibb, Res. Asst. Health Occup.
*Judy Bucklin, Res. Asst. Home Ec.
*Marlene Blanchard, Red. Asst. Off. Occup.
RCU Secretary
*Added during 10th Quarter

RCU Staff (Resource)

Dr. Alan Kahler, Agri. Edu.
James Bikkie, Office & Dist. Edu.
Hazel Crain, Home Economics
Henry Ebmeier, Vocational Needs Analyst
Division of Voc. Edu.
Don Desher, Asst. to State Tax Commissioner
Mark Seamark, Employment Security Division
State Dept. of Labor
Roy Hultquist, Programmer U of N Computing Center

This staffing pattern is proving quite satisfactory in representing as many of the vocational areas as possible.

JAMES T. HORNER
Professor and Chairman

C. A. CROMER
Operations Manager
Research Coordinating Unit

ROY D. DILLON
Associate Professor

VT 003 599
Gallington, Ralph O.
Experimental and Demonstration Project Vocational Education, An Interim Report.

Illinois State Board of Vocational and Educational Rehabilitation, Springfield
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jan66 36p.

*COOPERATIVE EDUCATION; *OCCUPATIONAL INFORMATION; *OCCUPATIONAL GUIDANCE; *HIGH SCHOOL STUDENTS; DROPOUT IDENTIFICATION; DROPOUT RESEARCH; EXPERIMENTAL PROGRAMS; REMEDIAL PROGRAMS; POTENTIAL DROPOUTS; CONTROL GROUPS; EXPERIMENTAL GROUPS; VOCATIONAL EDUCATION; *DROPOUT PREVENTION
ALEXANDER COUNTY; ILLINOIS

In the 3-year project, remedial programs were proposed to retard dropout rates in two high schools in Alexander County, Illinois. The problem was to determine whether a special vocational counseling and occupational information class for freshmen and sophomores at one high school and a cooperative vocational education class for junior and seniors at both high schools would affect dropout rates. Parallel experimental and control groups, each consisting of 27 or 29 students, predominantly potential dropouts, were selected upon the basis of dropout identification instrument scores. Pearson product-moment correlation and sign test statistics were used to test respective objective and subjective scores of both paired groups. No significant difference was found between experimental and control group scores in either experiment. This interim report presenting results on 1 year's study indicates a slightly better performance by both experimental groups. The final report will provide data on the longitudinal performance of the groups in both experiments. Related project reports are available as VT 003 600, VT 004 743, and ED 010 018. (JM)

VT 003 599

ED027441

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EXPERIMENTAL AND DEMONSTRATION PROJECT

VOCATIONAL EDUCATION

AN INTERIM REPORT

March 1966

SCHOOLS PARTICIPATING
Tamms High School and
Thebes High School of
Unit School District No. 5
Alexander County, Illinois

VT003599

State of Illinois
BOARD OF VOCATIONAL EDUCATION
AND REHABILITATION
Voc. and Tech. Division
Springfield

EXPERIMENTAL AND DEMONSTRATION PROJECT
VOCATIONAL EDUCATION

An Interim Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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January 1966

SCHOOLS PARTICIPATING
Tamms High School and
Thebes High School of
Unit School District No. 5
Alexander County, Illinois

State of Illinois
BOARD OF VOCATIONAL EDUCATION
AND REHABILITATION
Voc. and Tech. Division
Springfield

PREFACE

The following pages present a progress report on a three-year experimental and demonstration project in vocational education. The study was planned for the Unit School District No. 5 in Alexander County, Illinois

Two remedial programs were proposed to retard the school drop-out rate. One program was designed for the freshmen and sophomores (14 and 15-year olds) and another program was designed for the juniors and seniors (16 and 17-year olds).

This interim report is one to set forth the progress which has been made in setting up the design and the progress which the programs themselves have made. Actually the efficiency of retention measures applied to potential dropouts cannot be verified by a short-time study such as this report covers. The success of the 1964-65 program can only be reported after retention can be measured by the 1965-66 enrolments. Hence, this report deals largely with those who were enroled in 1964-65. The 1965-66 enrolees will be checked on re-enrolments in 1966-67, and so on.

The final report should be possible during the scholastic year 1967-68. At that time a more reliable presentation can be made. Further, the final report can show trends or change in retention due to the experimental factors.

Ralph O. Gallington
Director of the Research Project

Norman W. Sievert
Research Assistant

RESEARCH TEAM

Ralph O. Gallington, Director
Professor of Industrial Education and
Professor of Guidance and Psychology

Donna Pautler, Research Assistant
Southern Illinois University
Occupational Information and Vocational Counseling

Norman W. Sievert, Research Assistant
Southern Illinois University

L. C. Windhorst, Coordinator
Cooperative Vocational Education Unit District No. 5
Alexander County, Illinois

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INTRODUCTION

The Background

Recent research studies in Alexander County, School District No. 5, reveal that of every ten students now enrolled in the elementary grades, four will not graduate from high school. Of the six boys and girls who finish high school, four will not go to college. Of the two who will eventually enter college only one will receive some type of a college degree. Thus, it was deducted that nine out of ten youngsters in the elementary schools had a need for occupational information, vocational counseling, vocational preparation, and an assist in placement. At the outset it was decided that these students needed to be identified and remedial practices needed to be developed to retain them as long as they could profit from instruction the schools were able to provide. Further, it was deducted that most of the potential dropouts leave school at or near their 16th birthdays.

The Problem

The problem was to determine if selected remedial practices in vocational education would retain longer the potential dropouts in the high schools of School District No. 5, Alexander County, Illinois.

This research considered the effects of two remedial practices at two different levels. Both potential dropouts and graduates in the four-year high school levels were involved. A special vocational counseling and occupational information class was provided for selected freshmen and sophomores in the Tamms, Illinois high school. A cooperative vocational education class was provided for selected juniors and seniors in the Tamms and Thebes, high schools. By using experimental (the classes) and control groups to match the classes, the programs were initiated and followed.

Two types of vocational education were provided: (1) the occupational information and guidance class for freshmen and sophomores, and (2) the cooperative work-experience study class. The latter would be designated as an "interrelated" vocational education cooperative class in Illinois.

The Importance of This Study

One of the major objectives of a public school program is to meet, insofar as possible, the educational needs as well as to assist in the solution of immediate life problems of every student. These needs should be known by the school administration, by parents of students, and by others in the community where students live. It follows that these needs must be understood, planned for and met before the student leaves the public educational program if the overall objectives of the school are to be met.

Prior to this research, very little vocational education had been provided in the high school curriculums of District No. 5, Alexander County, Illinois. Students who have graduated from high schools in this area have encountered difficulty finding employment because they were ill-prepared for the labor market.[1] Youth unemployment has become acute expecially in the past few years because of the dropout problem and the shrinking number of available unskilled jobs. The solution to this problem could be of assistance to the local administrators, community, and especially the youths who plan to enter the world-of-work immediately after high school. From the national socio-economic point of view, retaining potential high school dropouts and preparing these youth to enter vocations would appear to be a very worthwhile achievement. This study should provide information regarding the effectiveness of two remedial practices.

---

[1] R. O. Gallington, High School Dropouts, Fate-Future-Identification, Southern Illinois University, Carbondale, Illinois, January 1966, A Research Report.

Limiting Factors

1. The size of School District No. 5.
2. Available students for the control and experimental groups.
3. Available employment locations for cooperative work experience.
4. Incomplete and inconsistent records among student files.
5. Community acceptance of the cooperative work-study program.

Steps of Procedure

Records of students in grades 8-11 in District No. 5 were studied and evaluated. Two instruments for the identification of potential dropouts were applied to these students and the results recorded. (See Appendixes) These two instruments were developed, validated, and proven reliable in previous research conducted in Alexander County.[1] The purpose for identifying all students in grades 8-11 in District No. 5 by the two instruments was to afford a wise selection of students for the experimental and control groups, identification of potential dropouts and graduates, and for the proper statistical treatment of data.

The four groups were selected by the following criteria;

1. Those of 14 to 16 years of age who will have been and those who will not have been assigned to the class in vocational counseling and instruction in occupations. Also among these two groups there will have been:

2. Those 14 to 16 years old who are potential dropouts as well as potential graduates.

3. Those 16 years of age and older who will have been and those who will not have been assigned to the experience program. Also among these two groups there will have been:

4. Those 16 years of age or older who were potential dropouts as well as potential graduates.

---

[1] R. O. Gallington, Basic Criteria for Identifying Potential High School Dropouts, Southern Illinois University, Carbondale, Illinois, June 1965, A Research Report.

Attitudes and interests of the under-16 year old (9th and 10th grade) children were to be studied and special vocational counseling and individual guidance were to be afforded an experimental group. Dropouts at the 16-year-old level were to be noted among this group as well as the interests in and enthusiasm among remaining students for the cooperative vocational education program offered at the junior and senior levels. Students of the control group for this age level were to be studied in a like manner.

It was thought that a cooperative work-study program for 16-year old and older children in District No. 5, would make possible a comparison of those who "will have had" and those who "will not have had" special treatment. Dropouts among the experimental and control groups were to be studied.

Pertinent Literature

The literature pertinent to this study consisted of three types: (1) Literature that dealt with the procedures for identifying potential dropouts, (2) Literature that explained the characteristics and symptoms common among dropouts, and (3) Literature that dealt with the various vocational educational programs implementing various school programs in America. Since this is an interim report, a review is not being presented here.

PRESENTATION OF AVAILABLE DATA

Vocational Counseling and Occupational Information Group Study

This study involved an experimental and demonstration program for under-16-year-old children in District No. 5 and was initiated as a special vocational counseling and occupational information program. This group of children was recruited from the freshman and sophomore classes in Tamms High School only. In order to study these children properly, a parallel group was identified. This was made possible through the prior development of instruments[1] which seemed to be appropriate in identifying students. The main purpose for parallel groups was to find out whether a special remedial program would retard the rate of dropouts among students of the Tamms Illinois high school selected from the freshmen and sophomore classes.

At first, an attempt was made to include only potential high school dropouts, but peer pressures seemed to demand that a homogenous group be established. Also, it seemed that the inclusion of both potential dropouts and graduates in this program would have made for a more normal classroom situation. However, there was a predominence of potential dropouts in the parallel groups, and this served the purposes more favorably.

The following data presents a tabulation of the parallel groups of the vocational counseling and occupational information class. The experimental and control group pairs were selected and paired, insofar as possible, by both the objective and subjective scores recorded by the identification instruments mentioned above. The Pearson Product-Moment coefficient of correlation formula was then applied to the scores. For additional statistical checking of the grouped pairs, the sign test was applied to the same set of paired scores.

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[1] See Appendixes A and B.

Note: Pairs Tested by the Following Objective Instrument Scores

(See Appendix A)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp. -Cont.					
1	T103-131	7	10	70	49	100
2	T105-128	17	14	238	289	196
3	T115-124	11	10	110	121	100
4	T111-134	9	8	72	81	64
5	T112-106	11	12	132	121	144
6	T118-101	12	10	120	144	100
7	T122-121	5	4	20	25	16
8	T124-127	9	7	63	81	49
9	T125-105	7	9	63	49	81
10	T121-114	15	16	240	225	256
11	T123-123	7	5	35	49	25
12	T128-118	12	12	144	144	144
13	T129-112	16	15	240	256	225
14	T132-111	9	9	81	81	81
15	T137-129	5	4	20	25	61
16	T139-102	13	11	143	169	121
17	T205-226	1	2	2	1	4
18	T207-232	4	4	16	16	16
19	T215-202	7	7	49	49	49
20	T220-211	8	7	56	64	49
21	T221-206	15	15	225	225	225
22	T226-310	15	12	180	225	144
23	T230-216	10	9	90	100	81
24	T238-220	7	7	49	49	49
25	T203-210	-5	-5	25	25	25
26	T239-218	-1	-2	2	1	4
27	T245-203	-2	-4	8	4	4
28	T134-125	-3	-4	12	9	16
29	T229-214	-2	-3	6	4	9
	TOTAL	219	201	2511	2681	2405

[1]Exp. = Experimental group

[2]Cont. = Control group

Note: Above data is arranged for use in the Pearson Product-Moment formula.

Statistical Computation From Preceding Data:

$$\text{Formula: } r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The values for substitution are:

$N\Sigma XY = (29)(2511) = 72819$

$(\Sigma X)(\Sigma Y) = (219)(201) = 44019$

$N\Sigma X^2 = (29)(2681) = 77749$

$(\Sigma X)^2 = (219)^2 = 47961$

$N\Sigma Y^2 = (29)(2405) = 69745$

$(\Sigma Y)^2 = (201)^2 = 40401$

Substituting in the formula:

$$r_{xy} = \frac{72819 - 44019}{\sqrt{(77749 - 47961)(69745 - 40401)}}$$

$$r_{xy} = \frac{28{,}800}{\sqrt{(29788)(29344)}}$$

$$r_{xy} = \frac{28{,}800}{29565.2} = .974$$

The correlation of .974 was considered as a very satisfactory measure of the pairs selected for study purposes on the basis of objective scores. The r_{xy} caused the researchers to accept the thesis that there was no significant difference between the experimental and control groups when it comes to scores on the objective instrument. (See Appendix A)

Note: Pairs Tested by the Following Subjective Instrument Scores

(See Appendix B)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp.-Cont.					
1	T103-131	15	17	255	225	289
2	T105-128	21	21	441	441	441
3	T115-124	28	28	784	784	784
4	T111-134	29	28	812	841	784
5	T113-106	30	29	870	900	841
6	T118-101	20	22	440	400	484
7	T122-121	6	6	36	36	36
8	T124-127	25	25	625	625	625
9	T125-105	31	27	837	961	729
10	T121-114	24	25	600	576	625
11	T123-123	15	14	210	225	196
12	T128-118	26	28	728	676	784
13	T129-112	24	24	576	576	587
14	T132-111	24	25	624	576	676
15	T137-129	22	22	484	484	484
16	T139-102	22	22	484	484	484
17	T205-226	12	12	144	144	144
18	T207-232	14	15	210	196	225
19	T215-202	16	16	256	256	256
20	T220-211	19	22	418	361	484
21	T221-206	21	22	462	441	484
22	T226-310	21	22	462	441	484
23	T230-216	25	22	550	625	484
24	T238-220	18	18	324	324	324
25	T203-210	14	15	210	196	225
26	T239-218	12	16	192	144	256
27	T245-203	15	15	225	225	225
28	T134-125	5	4	20	25	16
29	T229-214	16	16	256	256	256
	TOTAL	570	579	12535	12444	12701

[1]Exp. = Experimental group

[2]Cont. = Control group

Note: Above data arranged for use in the Pearson Product-Moment formula.

Statistical Computations From Preceding Page:

Formula: $$r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The values for substitution are:

$N\Sigma XY$	$= (29)(12535)$	$= 363,515$
$(\Sigma X)(\Sigma Y)$	$= (570)(579)$	$= 330,030$
$N\Sigma X^2$	$= (29)(12444)$	$= 360,876$
$(\Sigma X)^2$	$= (570)^2$	$= 324,900$
$N\Sigma Y^2$	$= (29)(12701)$	$= 368,329$
$(\Sigma Y)^2$	$= (579)^2$	$= 335,241$

Substituting in the formula:

$$r_{xy} = \frac{363,515 - 330,030}{\sqrt{[(360,876 - 324,900)(368,329-335,241)]}}$$

$$r_{xy} = \frac{33485}{\sqrt{(35976)(33088)}}$$

$$r_{xy} = \frac{33485}{34501.8} = .978$$

Again the test of the pairs on the basis of the subjective scores was extremely satisfactory. Therefore, two sets of scores seemed to agree that there was no significant difference between the experimental and control groups. (See Appendix B)

Sign Tests

A. H_o = Null hypothesis: There is no significant difference in the total scores of the "X" group when compared with the total scores of the "Y" group.

B. H_i = Alternative hypothesis: There is a significant difference in total scores of the "X" and "Y" groups.

C. Level of significance: $\alpha = .05$

D. 29 total matched pairs

E. The table on page 11 summarizes the score differences of the matched pairs.

Under the null hypothesis, one would expect about as many pluses as minuses. When ties in scores occur, as with pair No. thirteen, the ties are dropped from the study.

The following data determines whether or not a significant difference exists:

1. Number of pairs with differences (N)
2. Number of fewer differences (X)

In this case, N equals 22 and X equals nine. Statistical tables shows probabilities of .26 for a one-tailed test, and .52 for a two-tailed test for N equals 22 and X equals nine. Since the value .52 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis and reject the hypothesis:

Accepted: There is no significant difference in the total scores of "x" group when compared with the total scores of the "y" group.

Pairs Tested By Objective Instrument Scores:

(Sign Test)

No.	Pair	X	Y	Sign
1	T103-131	7	10	-
2	T105-128	17	14	+
3	T115-124	11	10	+
4	T111-134	9	8	+
5	T112-106	11	12	-
6	T118-101	12	10	+
7	T122-121	5	4	+
8	T124-127	9	7	+
9	T125-105	7	9	-
10	T121-114	15	16	-
11	T123-123	7	5	+
12	T128-118	12	12	0
13	T129-112	16	15	+
14	T132-111	9	9	0
15	T137-129	5	4	+
16	T139-102	13	11	+
17	T205-226	1	2	-
18	T207-232	4	4	0
19	T215-202	7	7	0
20	T220-211	8	7	+
21	T221-206	15	15	0
22	T226-310	15	12	+
23	T230-216	10	9	+
24	T220-238	7	7	0
25	T203-210	-5	-5	0
26	T239-218	-1	-2	-
27	T245-203	-2	-4	-
28	T134-125	-3	-4	-
29	T229-214	-2	-3	-

Lowest No. differing = X = Number of pluses = 13
Number of minuses = 9
Number of ties = 7
22 = N (having differences)

The significant numbers here are 22 (N= 13+9 the number of pais with differences) and 7 (X= the lowest No. differing).

Pairs Tested By Subjective Instrument Scores;

(Sign Test)

No.	Pair	X	Y	Sign
1	T103-131	15	17	-
2	T105-128	21	21	0
3	T115-124	28	28	0
4	T111-134	29	28	+
5	T113-106	30	29	+
6	T118-101	20	22	-
7	T122-121	6	6	0
8	T124-127	25	25	0
9	T125-105	31	27	+
10	T121-114	24	25	-
11	T123-123	15	14	+
12	T128-118	26	28	-
13	T129-112	24	24	0
14	T132-111	24	26	-
15	T137-129	22	22	0
16	T139-105	22	22	0
17	T205-226	12	12	0
18	T207-232	14	15	-
19	T215-202	16	16	0
20	T220-211	19	22	-
21	T221-206	21	22	-
22	T226-310	21	22	-
23	T230-216	25	22	+
24	220-T238	18	18	0
25	T203-210	14	15	0
26	T239-218	12	16	-
27	T245-203	15	15	0
28	T134-125	5	4	+
29	T229-214	16	16	0

Lowest No. differing = X = Number of pluses = 6, Number of minuses = 11 } 17 = N (having differences)
Number of ties = 12

The significant numbers here are 17 (N = 6+11 the number of pairs with differences) and 6 (X= the lowest No. differing).

In the above test, N equals 17 and X equals 6. Statistical tables shows probabilities of .16 for a one-tailed test, and .32 for a two-tailed test for N equals 17 and X equals six. Since the value .32 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis and reject the hypothesis.

Accepted: There is no significant difference in the total scores of "X" group when compared with the total scores of the "Y" group.

For further information see previous explanation of the sign test.

TABLE 1

STUDENTS IN THE SPECIAL
VOCATIONAL COUNSELING AND OCCUPATIONAL INFORMATION (EXPERIMENTAL) CLASS
COMPARED WITH THE CONTROL GROUP

	Number		Per Cent	
	Exp.	Cont.	Exp.	Cont.
Continued in Class	7	0	24.1	.00
Continued in School	13	23	44.8	79.3
Transferred	6	1	20.7	3.5
Dropped	3	5	10.4	17.2
Total	29	29	100.0	100.0

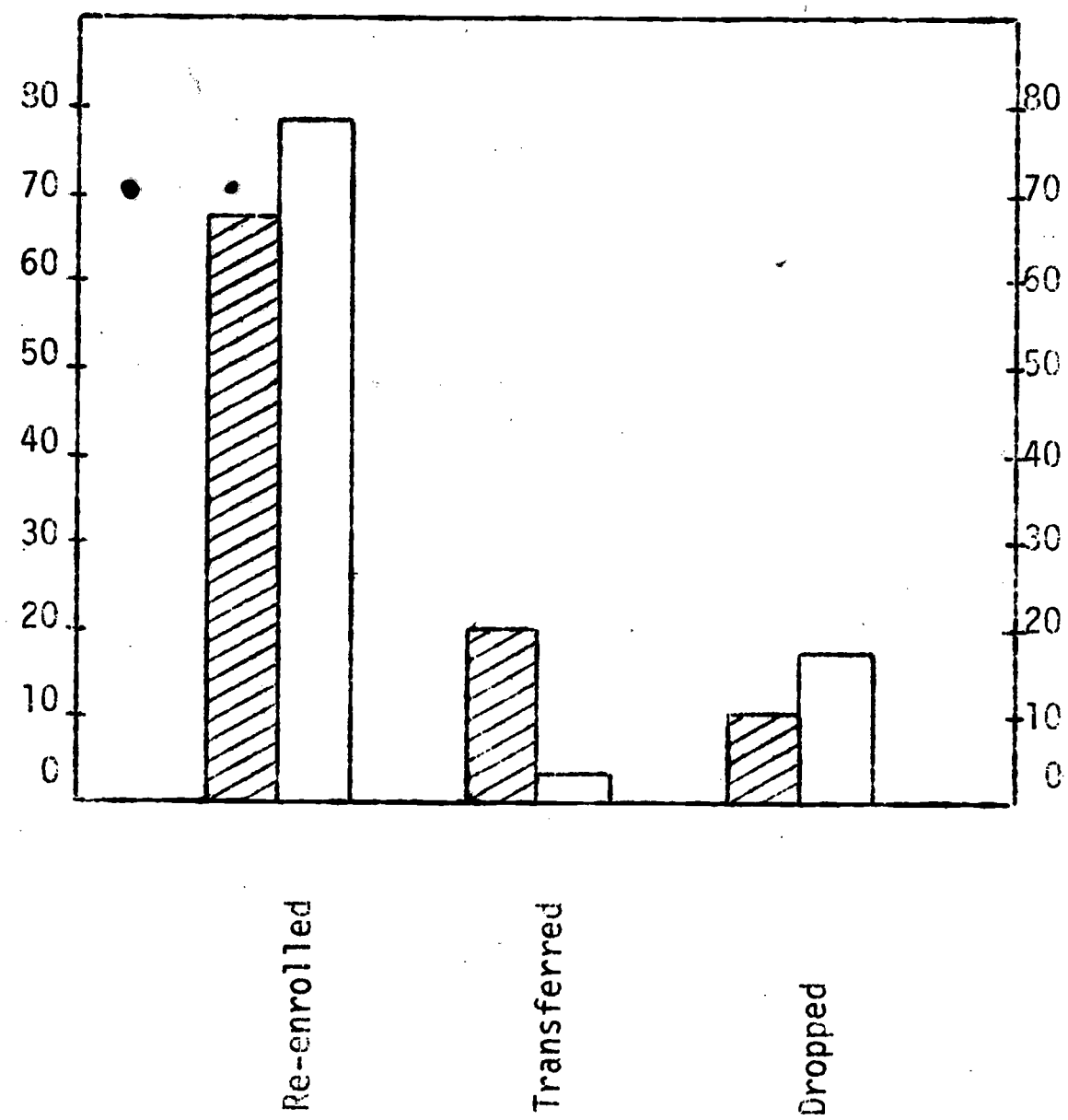
Although over one year had elapsed since the two groups were established, the above data were in consideration of sound re-enrolments during the 1965-66 scholastic year. The overall performance of the experimental group, although not superior, was noticeably better than the control group. Twenty-six of the experimentals continued, whereas

24 of the control group did. One significant difference showed that six to one of those transferring to another school were from the experimental group.

As indicated above, one year of study cannot show trends or significant contributions of the experimental factors. In the annual reports which follow, more positive and conclusive generalizations may be possible. And one could expect in future reports to show what values were received by those who dropped out, of both the experimental and control groups, when employment records are compared. Figure 1 shows graphically the comparison of the two groups of the 1964-65 study.

FIGURE 1

RE-ENROLLMENT AFTER THE FIRST YEAR OF THE
SPECIAL VOCATIONAL COUNSELING AND OCCUPATIONAL INFORMATION CLASS
(Percentages)



The Cooperative Vocational Education Group Study

This study was made of children all above their sixteenth birthdays and all able to enter a cooperative program. Again the design was experimental and demonstrational. Those chosen for this study were expected to graduate from high school within two years of entry into the cooperative program. Parallel groups were identified as above in the vocational counseling and occupational information group study. The purpose likewise, was to study the effect of an educational program (Cooperative Vocational Education) on this age group (largely 16 to 18 year olds) as to retention.

A homogenious group was sought as before, but as before also, the parallel groups were made up of a predominence of potential dropouts. The great need for such programs in District No. 5, Alexander County, and the very high dropout rate controlled the selection process to include more potential dropouts than potential graduates.

The Cooperative Vocational Education study group was provided with occupational experience as well as a related subject class while pursuing a high school diploma. During one half of the day, students attended a regular high-school program including a related vocational subjects class. During the afternoon these students were transported to work in the community. Since the program was considered an interrelated vocational program, the cooperative vocational work experience varied among a number of gainful occupations.

The following data presents a study of the matched pairs. Again the correlation and sign tests were made to show the similarities of the experimental and control groups for this level. The experimental group was in the cooperative vocational work experience and related class; the control group were unidentified regular high school students.

Note: Pairs Tested By Objective Instrument Scores

(See Appendix A)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp.-Cont.					
1	322-T338	4	4	16	16	16
2	420-T422	10	10	100	100	100
3	413-T401	7	5	35	49	25
4	404-T415	12	11	132	144	121
5	425-T411	7	9	63	49	81
6	325-T304	5	5	25	25	25
7	426-T417	4	3	12	16	9
8	310-T303	12	11	132	144	121
9	407-T416	12	12	144	144	144
10	405-T413	2	4	8	4	16
11	401- 411	18	18	324	324	324
12	318-T345	10	8	80	100	64
13	T311-307	8	8	64	64	64
14	T334-316	17	18	306	289	324
15	T302-305	5	6	30	25	36
16	T337-309	7	6	42	49	36
17	T318-327	9	8	72	81	64
18	T312-301	8	10	80	64	100
19	T402-410	5	5	25	25	25
20	T324-319	10	9	90	100	81
21	T316-302	11	11	121	121	121
22	T427-402	7	6	42	49	36
23	T301-T342	8	8	64	64	64
24	T328-T319	11	11	121	121	121
25	T235-T226	15	15	225	225	225
26	419- 406	11	12	132	121	144
27	314-T308	10	8	80	100	64
28						
	No. =27	245	241	2565	2613	2551

[1] Exp. = Experimental Group

[2] Cont.= Control Group

Note: Above data arranged for use in the Pearson Product-Moment formula.

Statistical Computation From Above Data:

$$\text{Formula} = r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2) - (\Sigma Y)^2]}}$$

The value for substitution are:

$$N\Sigma XY = (27)(2565) = 69255$$
$$(\Sigma X)(\Sigma Y) = (245)(241) = 59045$$
$$N\Sigma X^2 = (27)(2613) = 70551$$
$$(\Sigma X)^2 = (245)^2 = 60025$$
$$N\Sigma Y^2 = (27)(2551) = 68877$$
$$(\Sigma Y)^2 = (241)^2 = 58081$$

Substituting in the formula:

$$r_{xy} = \frac{69255 - 59045}{\sqrt{(70551 - 60025)(68877 - 58081)}}$$

$$r_{xy} = \frac{10210}{\sqrt{(10526)(10796)}}$$

$$r_{xy} = \frac{10210}{24380.4} = .958$$

The correlation coefficient of r = .958 is extremely high and shows a very slight difference between the matched pairs according to the objective instrument scores. (See Appendix A)

Note: Pairs Tested By Subjective Instrument Scores
(See Appendix B)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp.-Cont.					
1	322-T338	14	14	196	196	196
2	420-T422	16	16	256	256	256
3	413-T401	7	7	49	49	49
4	404-T415	22	22	484	484	484
5	425-T411	17	19	323	289	361
6	325-T304	17	17	289	289	289
7	426-T417	14	14	196	196	196
8	310-T303	22	23	506	484	529
9	407-T416	26	26	676	676	676
10	405-T413	14	14	196	196	196
11	401- 411	27	27	729	729	729
12	318-T345	19	17	323	361	289
13	T311-307	22	21	462	484	441
14	T334-316	28	29	812	784	841
15	T302-305	11	12	132	121	144
16	T337-309	21	20	420	441	400
17	T318-327	19	19	361	361	361
18	T312-301	20	20	400	400	400
19	T402-410	11	11	121	121	121
20	T324-319	18	18	324	324	324
21	T316-302	23	23	529	529	529
22	T427-402	22	19	418	484	361
23	T301-T342	28	25	700	784	625
24	T328-T319	28	30	840	784	900
25	T235-T226	18	21	378	324	441
26	419- 406	19	20	380	361	400
27	314-T308	32	30	960	1024	900
	Total	535	534	11460	11531	11438

[1]Exp. = Experimental Group

[2]Cont. = Control Group

Note: Above data arranged for use in the Pearson Product-Moment formula.

Statistical Computations From Above Data:

$$\text{Formula} = r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The value for substitutions are:

$N\Sigma XY = (27)(11460) = 309420$

$(\Sigma X)(\Sigma Y) = (535)(534) = 285690$

$N\Sigma X^2 = (27)(11531) = 311337$

$(\Sigma X)^2 = (535)^2 = 286225$

$N\Sigma Y^2 = (27)(11438) = 308826$

$(\Sigma Y)^2 = (534)^2 = 285156$

Substituting in the formula:

$$r_{xy} = \frac{309420 - 285690}{\sqrt{(311337 - 286225)(308826 - 285156)}}$$

$$r_{xy} = \frac{23730}{\sqrt{(25112)(23670)}}$$

$$r_{xy} = \frac{23730}{24380.4} = .973$$

Again the high correlation indicates very little difference between matched pairs according to the subjective instrument scores. (See Appendix B)

Note: Pairs Tested By Objective Instrument Scores

(Sign Test)

No.	Pairs	X	Y	Sign
1	322-T338	4	4	0
2	420-T422	10	10	0
3	413-T401	7	5	+
4	404-T415	12	11	+
5	425-T411	7	9	-
6	325-T304	5	5	0
7	426-T417	4	3	+
8	310-T303	12	11	+
9	407-T416	12	12	0
10	405-T413	2	4	-
11	401- 411	18	18	0
12	318-T345	10	8	+
13	311- 307	8	8	0
14	T334-316	17	18	-
15	T302-305	5	6	-
16	T337-309	7	6	+
17	T318-327	9	8	+
18	T312-301	8	10	-
19	T402-410	5	5	0
20	T324-319	10	9	+
21	T316-302	11	11	0
22	T427-402	7	6	+
23	T301-342	8	8	0
24	T328-319	11	11	0
25	T235-226	15	15	0
26	419-406	11	12	-
27	314-T308	10	8	+

Lowest No. differing = X = Number of pluses = 10
Number of minuses = 6 } 16 = N (having differences)
Number of ties = 11

The significant numbers here are 16 (N = 10 + 6 the number of pairs with differences) and 6 (X = the lowest No. differing).

In this case, N equals 16 and X equals six. Statistical tables shows probabilities of .22 for a one-tailed test, and .44 for a two-tailed test for N equals 16 and X equals six. Since the value .44 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis.

Accepted: There is no significant difference in the total scores of "X" group when compared with the total scores of the "Y" group.

Pairs Tested By Subjective Instrument Scores

(Sign Test)

No.	Pairs	X	Y	Sign
1	322-T338	14	14	0
2	420-T422	16	16	0
3	413-T401	7	7	0
4	404-T415	22	22	0
5	425-T411	17	19	-
6	325-T304	17	17	0
7	426-T417	14	14	0
8	310-T303	22	23	-
9	407-T416	26	26	0
10	405-T413	14	14	0
11	401- 411	27	27	0
12	318-T345	19	17	+
13	T311-307	22	21	+
14	T334-316	28	29	-
15	T302-305	11	12	-
16	T337-309	21	20	+
17	T318-327	19	19	0
18	T312-301	20	20	0
19	T402-410	11	11	0
20	T324-319	18	18	0
21	T316-302	23	23	0
22	T427-402	22	19	+
23	T301-342	28	25	+
24	T328-319	28	30	-
25	T235-T226	18	21	-
26	419-406	19	20	-
27	314-T308	32	30	+

Lowest No. differing = X = Number of pluses = 6, Number of minuses = 7 } 13 = N (having differences); Number of ties = 14

The significant numbers here are 13 (N = 6+7 the number of pairs with differences) and 6 (X = the lowest No. differing).

In this case, N equals 13 and X equals six. Statistical tables show probabilities of .50 for a one-tailed test, and 1.-- for a two-tailed test for N equals 13 and X equals six. Since the value 1.00 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis again: that there is no significant difference in the total scores.

TABLE 2

STUDENTS IN THE COOPERATIVE VOCATIONAL EDUCATION (EXPERIMENTAL) CLASS COMPARED WITH THE CONTROL GROUP

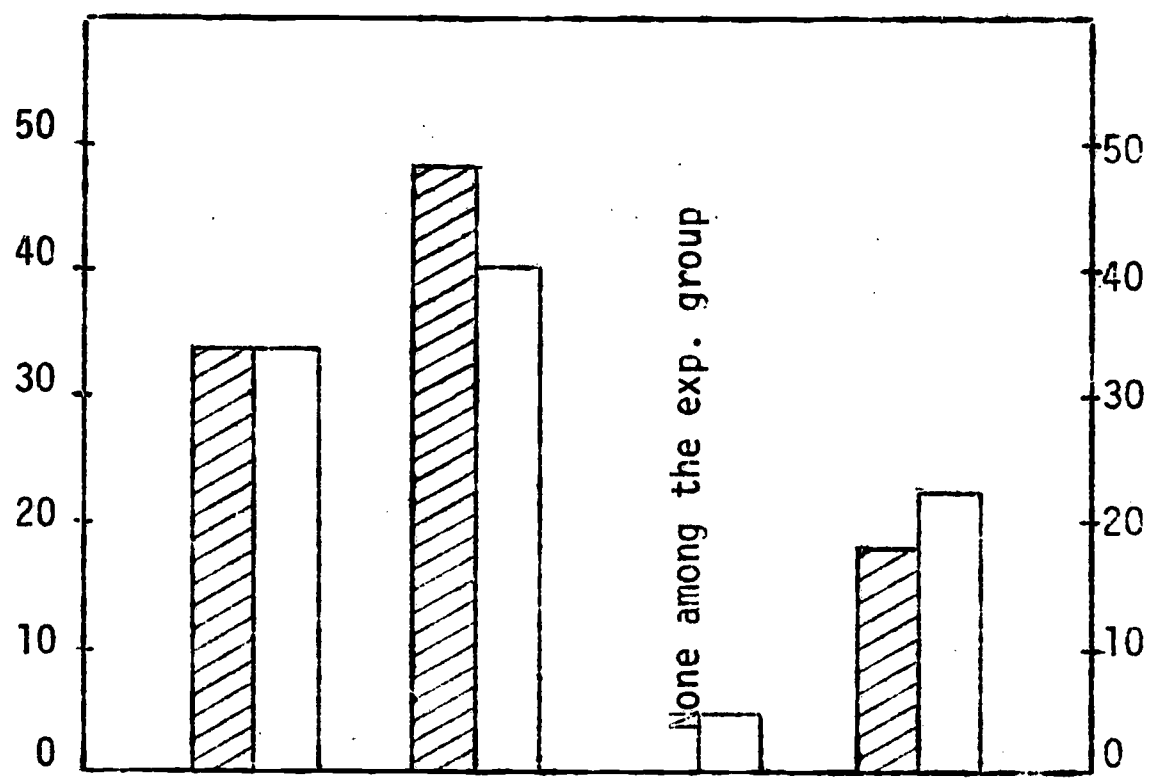
	Number		Per Cent	
	Exp.	Cont.	Exp.	Cont.
Continued in School	(13)	11	(48.1)	40.8
Continued in C.V.E.	13	0	48.1	00.0
Trans. To Another Curr.	0	0	00.0	00.0
Trans. To Another School	0	1	00.0	3.7
Dropped	5	6	18.6	22.2
Graduated	9	9	33.3	33.3
Total	27	27	100.0	100.0

The Cooperative Vocational Educational group and its corresponding control group are compared above. Again there seems to be little significant difference, although the total performance of the experimental groups is better than the control group. Those who had been in the Cooperative Vocational Education Class and did remain in school also chose to continue in the Cooperative Vocational Education Program. The program did not need "re-selling" and the general attitudes towards the program were good.

One particularily good report indicated that a limited enrolment for the second-year program was necessary due to the fact that many more applied than could be accommodated. Figure 2 illustrates graphically the comparison of the experimental and control groups for 1964-65.

FIGURE 2

RE-ENROLLMENT AFTER THE FIRST YEAR
OF THE COOPERATIVE VOCATIONAL EDUCATION PROGRAM
(Percentages)



GENERALIZATIONS

Most studies involving experimental factors applied to small groups of cases are of greater significance when applied over a longer period of time than this study covered. The first deduction which could be made from the data collected is that there was a slightly better performance among both experimental groups. Although the better performance is slight, the experimental groups were not significantly different from the control groups and the experimental factors are the only justification for this difference in performance.

As the longitudinal study progresses it is predicted that a better performance will prevail among experimental groups of the future. This statement is based on the increased interest among students of the Tamms and Thebes, Illinois high schools. At first the students had to be "sold" on the idea that special vocational counseling and occupational information instruction would assist them in planning their vocations in the future.

One factor which cannot be developed in this report deals with the effect that the two programs have had on the actual dropouts. How has the dropout from the control group fared? Did a slight, or short, exposure to such experimental programs benefit? What were the causes of dropouts among the experimental and control groups? What have been the attitude, interests and motivations of the dropouts from the experimental and control groups? What plans have been made for the future? What suggestions will the dropouts from both groups have for the schools and their offerings? These questions will be answered by private interviews in the next two years. Many benefits to, and actual performances of, the subjects can be used later to further assess the values of special vocational counseling, occupational information, cooperative vocational education, and related vocational subject matters.

APPENDIXES

APPENDIX A

Name_____
Sex M F

Status: Fr. Soph. Jr. Sr. Drop
Class last attended_____

OBJECTIVE INSTRUMENT

Weight	3	1	0	-1	-3	Total
1. Grade Retardation	-2	-1	0	+1		
2. Days Absent (seventh and eighth grade)	26 or more	16-25	6-15	0-5		
3. Correctness of Expression (3) or Reading Placement (eighth grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
4. Gen. Voc. (8) or Achievement Placement (8th grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
5. Extracurricular Activities (8th grade)	0	1			2	
6. Quantitative Thinking (4) or Arithmetic Placement (8th grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
7. No. of older siblings	7 or more	2-6	1 or less			
8. No. of younger siblings	7 or more	2-6	1 or less			
9. Economic status	Poor	Fair	Average	Good		
10. Father's occupation		Unskilled	Semi-skilled Skilled Clerical Service	Agriculture	Sales Managerial Technical Professional	
11. No. of Feeder Schools	3 or more	2				
12. Living with whom	Neither Parent	One Parent				

Total_____

APPENDIX B

Name_____ SUBJECTIVE INSTRUMENT School _____

	Outstanding, Very favorable or Excellent	Favorable, Good, Above average	Average, Fairly acceptable, Not especially Good	Unfavorable but not poorest, Inferior	Very Unsatisfactory, Very poor to poorest
	0	1	2	3	4
A. The Home - Living Conditions					
B. Attitudes towards education - school					
C. Attitude towards school authority, rules and adherence to disciplinary standards					
D. Attitude towards work, earning a living, training for a job, etc.					
E. Ability to communicate with others					
F. Poise					
G. Attitude towards peers					
H. Apparent capacities					
I. Apparent vocational choice					
J. Knowledge of occupations					

VT 003 600
Gallington, Ralph O.
Experimental and Demonstration Project Vocational Education. Second Interim Report.

Illinois State Board of Vocational Education, Springfield. Div. of Vocational and Technical Education
Southern Illinois Univ., Carbondale. School of Technology
MF AVAILABLE IN VT-ERIC SET.
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EXPERIMENTAL PROGRAMS; *HIGH SCHOOL STUDENTS; POTENTIAL DROPOUTS; *COOPERATIVE EDUCATION; *OCCUPATIONAL INFORMATION; *OCCUPATIONAL GUIDANCE; STUDENT ATTITUDES; PROGRAM ATTITUDES; PARTICIPANT SATISFACTION; PROGRAM EVALUATION; REMEDIAL PROGRAMS; EXPERIMENTAL GROUPS; CONTROL GROUPS; VOCATIONAL EDUCATION; *DROPOUT PREVENTION
ILLINOIS

This report, the second in a series concening a 3-year experimental and demonstration project in vocational education, evaluates the progress made during the second year of the project. The first report (VT 003 599) included methods of group selection and an indication of what the following reports could contain. The project consists of two remedial programs in two high schools. The first provides vocational counseling, occupational information, and guidance for freshmen and sophomores and the second is a cooperative vocational education program designed for juniors and seniors. All of the six class groups were tested and classified as either potential dropouts or potential graduates. Some of the findings to date indicate: (1) The 1965-66 experimental class in special vocational counseling and occupational information did improve retention as compared with the control class, (2) The 1965-66 experimental class in cooperative vocational education contributed to the retention of potential dropouts when compared with the control class, (3) Subjective instructor's ratings of students indicate little change in personality, generally improved attitudes, some academic improvement among occupational information class students and none among cooperative vocational education students, (4) Most participating students felt that the courses were valuable, that they met individual needs, and that success was challenging and attainable as a result of the instructor's efforts. (MM)

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EXPERIMENTAL AND DEMONSTRATION PROJECT

VOCATIONAL EDUCATION

A SECOND INTERIM REPORT

March 1967

SCHOOLS PARTICIPATING
Tamms High School and
Thebes High School of
Unit School District No. 5
Alexander County, Illinois

State of Illinois
BOARD OF VOCATIONAL EDUCATION
AND REHABILITATION
Voc. and Tech. Division
Springfield

In Cooperation With
Southern Illinois University
School of Technology

VT003600

EXPERIMENTAL AND DEMONSTRATION PROJECT
VOCATIONAL EDUCATION

A Second Interim Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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AND REHABILITATION
Voc. and Tech. Division
Springfield

PREFACE

This report is the second in the series of three reports to be given on a three-year Experimental and Demonstration Project in Vocational Education. The first report was completed in March 1966. It carried the designation as "An Interim Report". The entire series of reports deals with the study which was planned for and is being conducted in Unit School District No. 5, Alexander County, Illinois

The "Experimental and Demonstration Project" is actually two remedial programs being conducted in the Tamms and Thebes High Schools for (1) freshmen and sophomores and (2) juniors and seniors. The freshmen and sophomore program is one which provides for vocational counseling, occupational information, and guidance. The other program designed for junior and seniors is a program of cooperative vocational education (An Interrelated Program) whereby students in the junior and senior years spend half-time in the school and half-time on the job in vocational training.

This report is to set forth further progress which has been made during the second year of the project. Since the original purposes dealt with programs which might be considered retentative in nature, this report begins to show actual progress which has been made. The first or "Interim" report was made mainly to show how groups were selected and what the possible projected reports could contain. The series of three reports will show records of class groups extending from the freshmen year through graduation including follow-up. Actually, this will include the study of six different classes with a follow-up of three after graduation or dropout.

In the final report, it should be possible to show the trends which have become apparent through the Experimental and Demonstration Projects. A final report should be completed after the beginning of

the 1967-68 scholastic year. This will be necessary in order to find out how many students return for that academic year. Hence, the success of the demonstration project will cover the successive classes, 1965, 1966, 1967, 1968, 1969, and 1970. In the final report trends for change in retention due to experimental factors can be presented.

This report begins to show these trends and sets the pattern for the final report.

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INTRODUCTION

Background

The previous "An Interim Report" set forth the basic background for the entire three-year study. It presented the basic problem which was to study the effects of two remedial practices at two different levels. One of these remedial practices was conducted in both the high schools at Tamms and Thebes (Cooperative Vocational Education). One practice, the vocational counseling and guidance and occupational information class was programmed in the Tamms High School only. The first report set forth the importance of the study, limiting factors and basic steps of procedure. It pointed out that four groups of students each year were to be selected by the following criteria: (1) those 14 to 16 years of age who "will have been" and those who "will not have been" assigned to the class in vocational counseling and instruction in occupations and containing both, (2) those fourteen to sixteen year olds who are potential dropouts as well as potential graduates, (3) those sixteen years of age and older who "will have been" and those who "will not have been" assigned to the experience program and also among these groups there will have been, (4) those sixteen years of age or older who were potential dropouts as well as potential graduates. The first report also mentioned especially the potential graduates. The first report also mentioned that interest and attitudes of the various groups were to be studied.

Although the first report presented insufficient data to show trends established at that time, the procedure for selecting groups by statistical methods was presented. In order to compare those students who "will have not had" and those who "will have had" the pairs were tested by several methods. Correlations of the Pearson Product Moment

were used as well as the sign test method of establishing pairs. In each instance the controlled and experimental groups were shown to be very highly comparable to each other according to subjective and objective instrument scores. By both tests and for both groups selected for this study the null hypotheses was accepted that "there was no significant difference in the total subjective and objective instrument scores of the "X" group when compared with the total subjective and objective instrument scores of the "Y" group." (See An Interim Report, March 1966)[1]

The groups selected for the 1965-66 scholastic year were also selected on the same basis and again the scores for the tests showed that there was no significant difference between the experimental groups selected and the comparable control groups.

The Purpose of This Report

Since the first report, "An Interim Report" was that of setting forth the overall problem, the main purpose here would be to establish a pattern for the final report. The basic task was to make comparisons between those students "who will not have had" and those who "will have had" the vocational counseling, occupational information, and vocational guidance and second, the actual vocational training on the job cooperatively worked out with the school and the employment agencies. This report then should begin to show some trends which have been established as a result of the remedial programs. The Cooperative Vocational Education classes will have had some graduates, and the other classes will have retained some and sustained some losses by way of dropouts.

---

[1] R. O. Gallington, "Experimental and Demonstration Project - Vocational Education" An Interim Report, Southern Illinois University, Carbondale, Illinois, March 1966, A Research Report, (State Board of Vocational Education and Rehabilitation, Vocational and Technical Division, Springfield, Illinois).

Rationale

If the vocational education class for juniors and seniors and the occupational information and guidance class for freshmen and sophomores have any retentative value, it should be possible to make this known through the media of statistical studies where actual students have been involved, and where actual programs have been demonstrated. The thought was that since little or no vocational education had been provided in the schools of District No. 5, Alexander County prior to this program, that the cooperative program and the occupational information and vocational guidance class might have some effect of the retention of students. The importance of this report is based on the fact that some trends have begun to develop and some retentative measures have begun to appear, especially among those who have had the cooperative work experience study program. The importance of this report therefore, lies in the extent to which it sets forth the changes which are being wrought among the students as a direct effect of these programs.

Limiting Factors

In the first interim report some limiting factors were listed. These factors seem to be at work in the program at this time as well as they were in the year preceding. Other limiting factors seem to have developed as the programs have progressed. These additional limitations are listed as follows:

1. More needy students applied for the "experimental" program than could be accommodated.
2. The scheduling problem in the high school was especially difficult during the 1965-66 scholastic year. Inasmuch as students in the occupational information and guidance class were scheduled at the last period of the day during which very few were available for the study (especially

those who needed the program most), attendance was poor.

3. The third limiting factor deals primarily with the difficulty of scheduling students in the sophomore year who had participated in the freshmen year. This limited the occupational information and vocational counseling class enrolment. This limitation seems to be the result of the inability to schedule students properly so that needs could be met. Perhaps the small school enrollment has a considerable amount to do with this. However, it might appear that not enough consideration or importance was attributed to this program by the local administration and the faculty as a whole. Those people who were selected for the second year of the occupational information and guidance class were very limited in numbers. The number was so small as to discount the reliability of data associated thereto.

Since the 1966 report, it appears that one of the limiting factors has become less of an important limiting factor. It was listed as item no. 5 "Community Acceptance of the Cooperative Work Study Program". During the past scholastic year, it would appear that community acceptance has improved greatly and that this problem has not been a limiting factor during the second year of operation.

Steps In The Second Year Study

Again records of students in grades 9 through 12 in District No. 5 were studied and evaluated. Not only were the records of students in the experimental and control groups studied but the entire student population was under surveillance as well. Again, the two instruments for identifying potential dropouts and graduates were applied to new students entering the program. The same cutoff points were used and the

selection of students was conducted in the same way it had been done previously.[1&2]

New steps taken in this report were to set forth a comparison of the enrollment by years of the entire Egyptian Unit District No. 5 and to show the trends in respective class enrollments where graduation, dropouts, and transfers are involved. Of course, particular attention was given to students enrolled during the 1965-66 scholastic year, and the re-enrollment of this group in the 1966-67 scholastic year. Since the first year of the cooperative vocational education program, comparisons in this report will show the changes which have occurred between the report given in 1966 and the report which is available for the 1967 report. Another significant contribution of this report includes a presentation study of the graduates and the dropouts from the 1965-66 senior class. Follow-up data is also provided on the special vocational counseling and occupational information class.

---

[1]R. O. Gallington, Basic Criteria for Identifying Potential High School Dropouts, Southern Illinois University, Carbondale, Illinois, June 1965, A Research Report, (Research and Projects, Southern Illinois University).

[2]R. O. Gallington, High School Dropouts, Fate-Future-Identification, Southern Illinois University, Carbondale, Illinois, January 1966, A Research Report, (USOE 5-85-005).

PRESENTATION OF DATA

The data which follows in this section of the report is divided into five parts. The first part deals with the data collected on students in the entire Egyptian Unit District No. 5, in order that some comparison might be made between the entire student body in this district and the special groups studied individually as control and experimental in nature. The second part of the presentation deals with students in the special vocational counseling and occupational information class and the corresponding control group which was selected to use in studying this class. The third part of this section deals with cooperative education as compared with the control group which was used to make a study along with the experimental class. The fourth part of this section deals with the occupational information class again. In this part the teachers' opinions of the students with respect to personality and attitude change are presented. Also in this part, the cooperative vocational education class is discussed with respect to the same type of teacher opinions which were gleaned at the end of the second year of the study. The final part deals with the student's report on his feelings toward the program afforded him as a member of one of the experimental groups.

Data On District No. 5

Table No. 1 is a rather comprehensive report on the students enrolled in the entire Egyptian Unit District No. 5. In this table the total district is presented with potential graduates and potential dropouts considered separately. These are actual figures taken from the Unit District No. 5 records as they are found in the superintendent's

TABLE 1

COMPARISON OF ENROLLMENTS BY YEARS
FOR THE ENTIRE EGYPTIAN UNIT DISTRICT, NO. 5

School Year	1969 Sophs.		1968 Jrs.		1967 Srs.		1966 Grads.		1965 Grads.	
Where Total District Numbers = 100%	NO.	%	No.	%	No.	%	No.	%	No.	%
Transferred	10	11.6	11	11.7	10	9.3	12	10.4	13	13.7
Dropped	8	9.3	21	22.3	34	31.8	40	34.8	31	32.6
Graduated or Continuing	68	79.1	62	66.0	63	58.9	63	54.8	51	53.7
Total	86	100.0	94	100.0	107	100.0	115	100.0	95	100.0
Where P/G's = 100% and P/D's = 100%										
Potential Graduates										
Transferred	4	9.8	5	11.6	6	9.1	5	9.6	10	20.8
Dropped	0		3	7.0	7	10.6	2	3.9	2	4.2
Graduated or Continuing	37	90.2	35	81.4	53	80.3	45	86.5	36	75.0
Total	41	100.0	43	100.0	66	100.0	52	100.0	48	100.0
Potential Dropouts										
Transferred	6	13.3	6	11.8	4	9.8	7	11.1	3	6.4
Dropped	8	17.8	18	35.3	27	65.8	38	60.3	29	61.7
Graduated or Continuing	31	68.9	27	52.9	10	24.4	18	28.6	15	31.9
Total	45	100.0	51	100.0	41	100.0	63	100.0	47	100.0
Where P/G's + P/D's = 100%										
Potential Graduates										
Transferred	4	4.7	5	5.3	6	5.6	5	4.4	10	10.5
Dropped			3	3.2	7	6.6	2	1.7	2	2.1
Graduated or Continuing	37	43.0	35	37.2	53	49.5	45	39.1	36	37.9
Total	41	47.7	43	45.7	66	61.7	52	45.2	48	50.5
Potential Dropouts										
Transferred	6	7.0	6	6.4	4	3.7	7	6.1	3	3.2
Dropped	8	9.3	18	19.2	27	25.2	38	33.0	29	30.5
Graduated or Continuing	31	36.0	27	28.7	10	9.4	18	15.7	15	15.8
Total	45	52.3	51	54.3	41	38.3	63	54.8	47	49.5
Total-Total	86	100.0	94	100.0	107	100.0	115	100.0	95	100.0

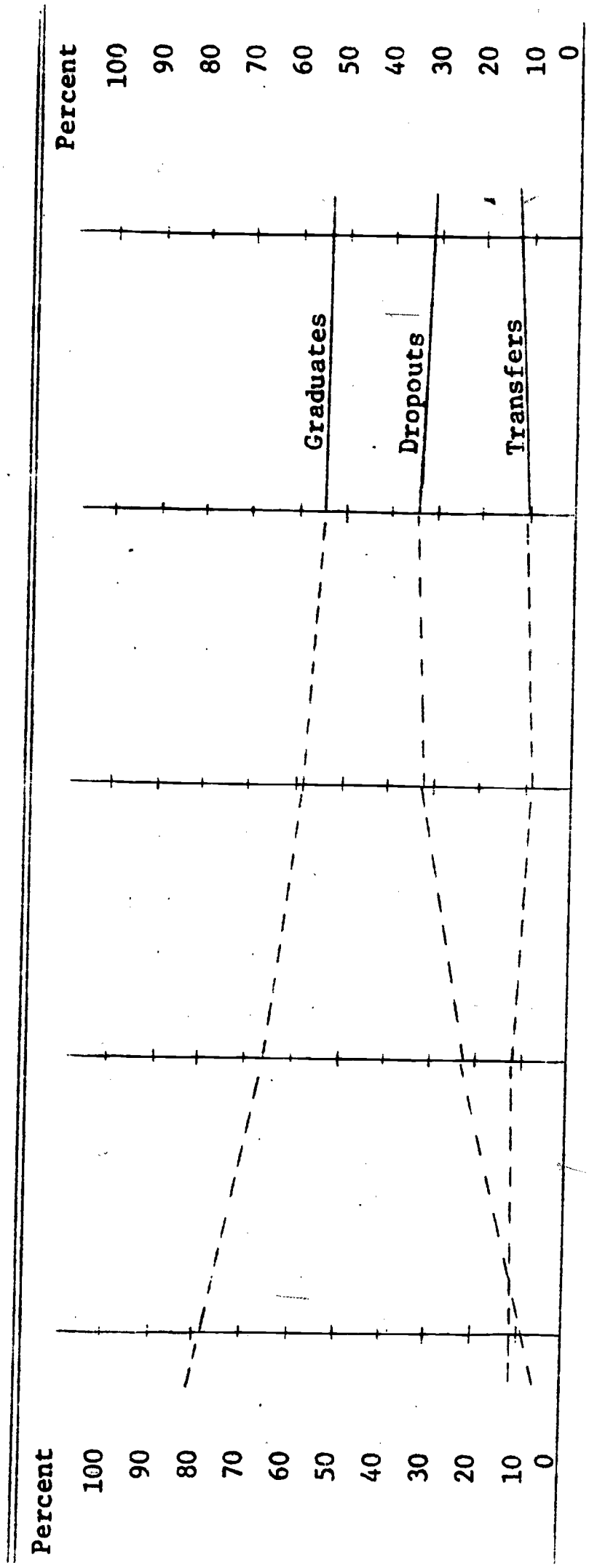
office. For the entire district, it can be noted that the 1966 class had the largest number of students reported as having "dropped". This is 34.8 per cent of the entire class. This dropout rate is even greater than the preceding year 1965. For the classes 1965 and 1966, the students listed as dropouts are actual dropouts. These classes have completed their formal education unless some are continuing. The classes 1967, 1968, and 1969 show the dropouts per year to date, as the reports were completed in the fall of 1966. Table 1 presents a breakdown of the potential graduates and potential dropouts each equaling 100 per cent in separate horizontal columns.

As it might be expected, the actual dropouts from the ranks of the potential dropouts was very high whereas the dropouts among the potential graduates was very low. The "potential", of course, was determined by the instruments which had been developed earlier and shown in the first interim report. The last two sets of horizontal columns in Table 1 show the potential graduates added to the potential dropouts for comparitive purposes. The last set of two horizontal columns give the same data as the two horizontal columns above, but the percentages show different numbers which are used later in figures and diagrams that interpret the data further.

Figure 1 shows the relative condition which exists in Alexander County, Egyptian Unit District No. 5, in that the actual graduates of 1966 and 1965 are shown. Next, the classes which are headed toward graduation are shown from the sophomores (class of 1969) and the probability of the decrease in the numbers of those who remain in school. Some, of course, may dropout while others may transfer.

FIGURE 1

COMPARISON OF RESPECTIVE CLASS ENROLLMENTS
FOR EGYPTIAN UNIT, NO. 5



Note: Data for classes of 1965 and 1966 are complete.

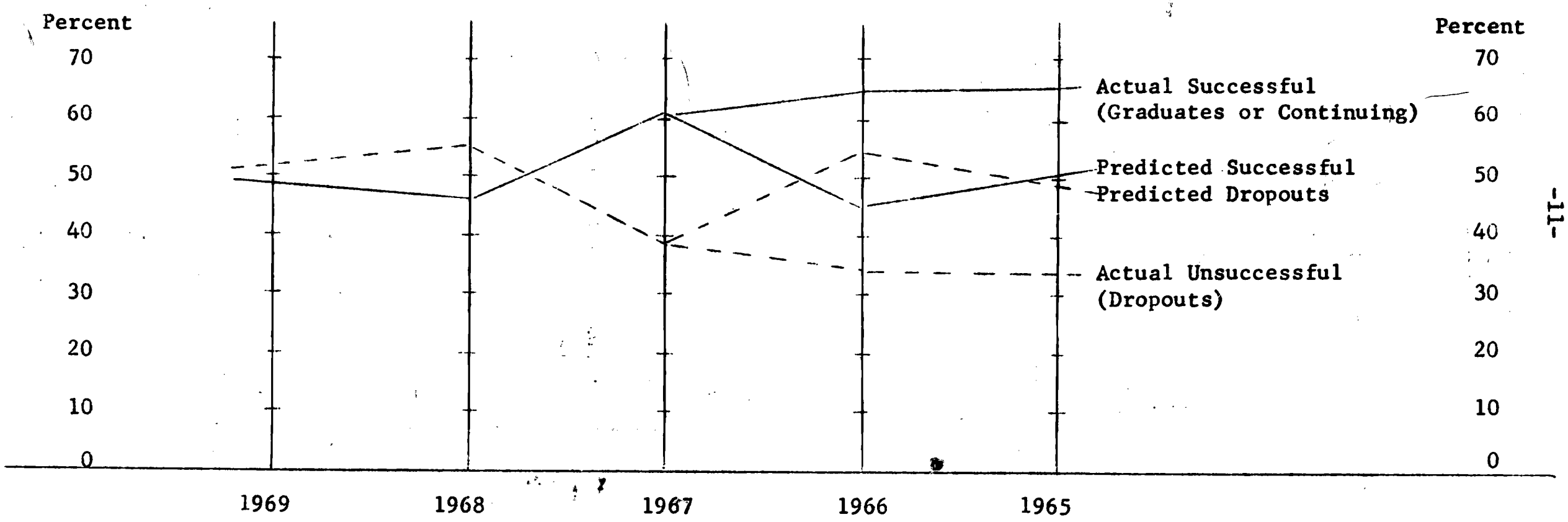
At this point, it is proper to mention that earlier reports from Alexander County may have listed transfers as "dropouts" in many instances. In this regard, within recent years the difference between transfers and dropouts is being observed and the records are being made more realistic and accurate.

Figure 2 shows a comparison by years of respective class enrollments of potential graduates and potential dropouts for the entire Egyptian Unit School District No. 5. These comparisons are based on the use of objective and subjective instrument scores which often identify some graduates as trialpotential dropouts and in some instances would identify potential dropouts as trial graduates. In earlier studies it was found that in identifying 90 per cent of the potential dropouts, often times about 10 per cent or less of the potential graduates were misidentified. This is the reason why Figure 2 shows the potential graduate group as somewhat lower than it actually turned out to be for the graduating class 1965-66. Further, this fact may be due to the experimental programs in operation.

An examination of Figure 3 will show that the actual graduates or continuing people are substantially larger than the potential dropouts. These again are all based on the predictions of the instruments which are used to identify potential graduates and potential dropouts, however, in the cases of the class of 1965-66 the actual count is shown. Figure 3 and Table 1 both point out that there is a slight error on the part of the instruments in identifying properly. But it is more likely that the experimental programs may be proven significantly important in retention.

FIGURE 2

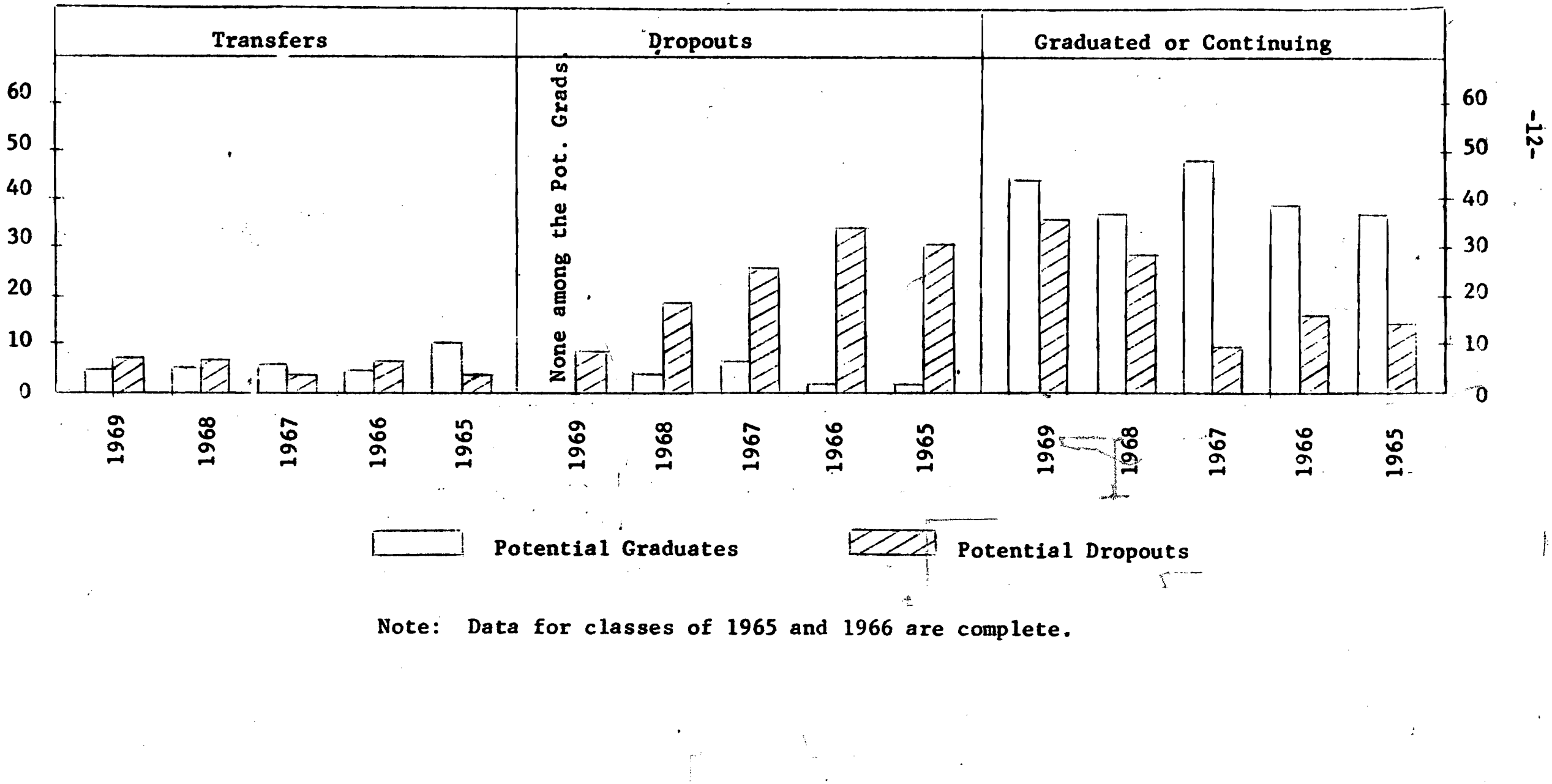
COMPARISON BY YEARS OF RESPECTIVE CLASS ENROLLMENTS OF POTENTIAL GRADUATES AND POTENTIAL DROPOUTS FOR EGYPTIAN UNIT, NO. 5



Note: Solid Lines represent predicted graduates.
A broken line represents predicted dropouts.
Data for classes of 1965 and 1966 are complete and show the actual success of the total group was greater than predicted. It may be assumed that this was due in part to the introduction of the experimental programs.
Students identified by objective instruments.

FIGURE 3

COMPARISON IN RESPECTIVE CLASS ENROLLMENTS WHERE P/G's + P/D's = 100% FOR EGYPTIAN UNIT, NO. 5 (Percentages)



Note: Data for classes of 1965 and 1966 are complete.

Students In Special Vocational Counseling And Occupational Information Classes

The experimental group and the control group representing the students in the special vocational counseling and occupational information class I (experimental) is represented by Table No. 2. It may be noted that in this group a considerable number did not continue in the occupational information class, or in the cooperative education class, which was a follow-up of the counseling and occupational information class. Significantly however, the number of persons who transferred to another curriculum and continued in school was much greater in the experimental group than in the controlled group. Percentage wise, this ratio was 90.0 to 57.6. Of course, the loss in the control group came as a result of the number of persons who withdrew from school. The control group lost 10 by the dropout path whereas the experimental group lost only 1. This ratio is 30.3 per cent to 3.0 per cent. The reason why no data is furnished in columns beneath the control group for continuing or transferring to another curriculum is that this group was not measured nor could it be measured on the basis of the experimental group. Without question, it may be said that the 1965-66 experimental class in this area of instruction was retained in school. Whether the experimental factor caused this retention, this seems to be a logical conclusion.

Table No. 3 gives some further interesting data on the occupational information class I (experimental) 1965-66 by groups. In this instance the groups are identified as potential graduates and potential dropouts. This table shows that the record generally for the potential graduates is better than for the potential dropouts. However, one may observe that the

TABLE 2

STUDENTS IN THE SPECIAL VOCATIONAL
COUNSELING AND OCCUPATIONAL INFORMATION
(EXPERIMENTAL) CLASS-I COMPARED WITH THE CONTROL GROUP
(1965-66)

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Continued (Occ. Info. or C.V.E.) 1966-67	8		24.2					
Transferred to Another Curriculum	22		66.7					
Total Continuing		30		90.9		19		57.6
Transferred to Another School	2		6.1		4		12.1	
Total Transfers		2		6.1		4		12.1
Total Successful		32		97.0		23		69.7
Dropped	1		3.0		10		30.3	
Total Unsuccessful		1		3.0		10		30.3
Total		33		100.0		33		100.0

TABLE 3

OCCUPATIONAL INFORMATION CLASS-I BY GROUPS
(1965-66)

	Where P/G's = 100% and P/D's = 100%							
	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Potential Graduates								
Continued in Program	3		30.0					
Trans. to Another Curr.	7		70.0					
Total Continuing		10		100.0		6		66.7
Trans. to Another School	0				2		22.2	
Total Transfers		0				2		22.2
Total Successful		10		100.0		8		88.9
Dropped	0				1		11.1	
Total Unsuccessful		0				1		11.1
Total Pot. Grads.		10		100.0		9		100.0
Potential Dropouts								
Continued in Program	5		21.7					
Trans. to Another Curr.	15		65.2					
Total Continuing		20		86.9		13		54.2
Trans. to Another School	2		8.7		2		8.3	
Total Transfers		2		8.7		2		8.3
Total Successful		22		95.6		15		62.5
Dropped	1		4.4		9		37.5	
Total Unsuccessful		1		4.4		9		37.5
Total Pot. Dropouts		23		100.0		24		100.0

total number continuing in school among the potential dropouts is considerably larger in the experimental group than in the control group. In Table 3 we may be able to judge that the occupational information class has benefited both the potential graduates and potential dropouts when it comes to retention.

A class in a special vocational counseling and occupational information class II was not organized in the year 1964-65. However, a continuation class was provided for those who had been in the program during the 1964-65 scholastic year and who were available to enroll in the special vocational counseling and occupational information Class II. These are the students who became sophomores in 1965-66. Actually, very few continued because most of the students were unable to schedule the special vocational counseling and occupational information class for the second year, although they were only sophomores and had taken the first class as freshmen. The total number in this class was nine (9). Only two continued in the cooperative vocational education class. Five (5) transferred to other curriculums. One (1) transferred to another school and one (1) dropped. The record for the control group was identical. The exception of the continuing in the CVE program and, of course, the first two items in the horizontal column do not apply to the control group in any way. Comments should be made here regarding the number of students who continued in the class II. Scheduling difficulties made it almost impossible for those who were eligible to actually continue. Regardless, from the data presented in Table 4, it can be seen that with the exception of two people the experimental class made little contribution to the continuing of the nine (9) people who were registered. However, it is clear that class II had more total successfuls. In the

TABLE 4

STUDENTS IN THE SPECIAL VOCATIONAL
COUNSELING AND OCCUPATIONAL INFORMATION
(EXPERIMENTAL) CLASS-II COMPARED WITH THE CONTROL GROUP
(1965-66)

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Continued in Program (C.V.E.) 1966-67	2		22.2					
Transferred to Another Curriculum	5		55.6					
Total Continuing		7		77.8		7		77.8
Transferred to Another School	1		11.1		1		11.1	
Total Transfers and Continuing		1		11.1		1		11.1
Total Successful		8		88.9		8		88.9
Dropped	1		11.1		1		11.1	
Total Unsuccessful		1		11.1		1		11.1
Total in Groups		9		100.0		9		100.0

TABLE 5

FOLLOW-UP DATA ON THE STUDENTS
IN THE 1964-65 OCCUPATIONAL INFORMATION CLASS-I BY GROUPS
WHERE P/G's = 100% AND P/D's = 100%

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Based on 1965-66 Data Collected								
Potential Graduates								
Continued in Program	1		10.0					
Trans. to Another Curr.	9		90.0					
Total Continuing		10		100.0		8		80.0
Trans. to Another School	0				1		10.0	
Total Transfers		0				1		10.0
Total Successful		10		100.0		9		90.0
Dropped	0				1		10.0	
Total Unsuccessful		0				1		10.0
Total Potential Graduates		10		100.0		10		100.0
Potential Dropouts								
Continued in Program	6		31.6					
Trans. to Another Curr.	4		21.0					
Total Continuing		10		52.6		15		78.9
Trans. to Another School	6		31.6		0			
Total Transfers		6		31.6		0		
Total Successful		16		84.2		15		78.9
Dropped	3		15.8		4		21.1	
Total Unsuccessful		3		15.8		4		21.1
Total Potential Dropouts		19		100.0		19		100.0
Based on 1966-67 Data Collected								
Continued in Program	1		10.0					
Trans. to Another Curr.	7		70.0					
Total Continuing		8		80.0		7		70.0
Trans. to Another School	1		10.0		1		10.0	
Total Transfers		1		10.0		1		10.0
Total Successful		9		90.0		8		80.0
Dropped	1		10.0		2		20.0	
Total Unsuccessful		1		10.0		2		20.0
Total Potential Graduates		10		100.0		10		100.0

TABLE 5
(Cont.)

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Potential Dropouts								
Continued in Program	5		26.3					
Trans. to Another Curr.	3		15.8					
Total Continuing		8		42.1		14		73.7
Trans. to Another School	6		31.6		0			
Total Transfers		6		31.6		0		
Total Successful		14		73.7		14		73.7
Dropped	5		26.3		5		26.3	
Total Unsuccessful		5		26.3		5		26.3
Total Potential Dropouts		19		100.0		19		100.0

control, the same number of people left school and the same number of people continued as was shown in the experimental groups.

Table No. 5 is a follow-up study on students in the 1964-65 occupational information class by groups. In this particular table the follow-up data collected in scholastic year 65-66 may be compared with the data collected on the same individuals in 1966-67. At a glance, one can see that the potential dropouts in the program do have a tendancy to continue in the program of occupational information or the cooperative vocational education program. Among the potential graduates, the transfers to another curriculum were heavier than a continuation in the program. However, a significantly few of the potential dropouts did in fact transfer to other programs. At the end of the second year follow-up period it may be noted that one

potential graduate did drop out among the experimental group. Among the control group, however, three (3) dropped out. This would indicate that the experimental factor did have some affect on the retention of the potential graduates. Among the potential dropouts, the actual dropout was approximately the same among both the experimental groups and the control groups. A study of Table 5 would indicate that the total occupational information class would have done very little more for the experimental group. However, among the experimental group there was a slightly better success record among the potential graduates than among the potential dropouts.

The Cooperative Vocational Education Classes

Table 6 and 7 show a comparison between the experimental groups and the control groups at the cooperative vocational education level. The tables show data on the 1965-66 class which was collected in the fall of 1966. Table 6 shows the total number continuing as larger among the experimental group. Another factor which is significant here is that from the control group eight (8) dropped and three (3) dropped from the experimental group. In other words, the total successful among the experimental group were 29 (90 per cent) and the total successful in the control group were 24 (76.075 per cent).

In considering Table 7 the number who dropped out is quite significantly among the control group of the potential dropouts. There was one student who dropped from the potential graduate ranks and two (2) from the potential dropout rank in the experimental group. Also among the potential dropouts the success among the experimental group

TABLE 6

STUDENTS IN THE COOPERATIVE VOCATIONAL EDUCATION (EXPERIMENTAL) CLASS COMPARED WITH THE CONTROL GROUP (1965-66)

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Continued in Program (C.V.E.) 1966-67	10		31.2					
Transferred to Another Curriculum	0							
Total Continuing		10		31.2		7		21.9
Transferred to Another School	1		3.1		1		3.1	
Graduated	18		56.3		16		50.0	
Total Transfers and Graduates		19		59.4		17		53.1
Total Successful		29		90.6		24		75.0
Dropped	3		9.4		8		25.0	
Total Unsuccessful		3		9.4		8		25.0
Total in Groups		32		100.0		32		100.0

TABLE 7

COOPERATIVE VOCATIONAL EDUCATION CLASS BY GROUPS
(1965-66)

	Where P/D's = 100% and P/D's = 100%							
	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Potential Graduates								
Continued in Program (C.V.E.)	7		35.0					
Trans. to Another Curr.	0							
Total Continuing		7		35.0		6		30.0
Transferred to Another School	1		5.0		1		5.0	
Graduated	11		55.0		12		60.0	
Total Transfers and Graduates		12		60.0		13		65.0
Total Successful		19		95.0		19		95.0
Dropped	1		5.0		1		5.0	
Total Unsuccessful		1		5.0		1		5.0
Total Pot. Grads.		20		100.0		20		100.0
Potential Dropouts								
Continued in Program (C.V.E.)	3		25.0					
Trans. to Another Curr.	0							
Total Continuing		3		25.0		1		8.3
Transferred to Another School	0				0			
Graduated	7		58.3		4		33.3	
Total Transfers and Graduates		7		58.3		4		33.3
Total Successful		10		83.3		5		42.6
Dropped	2		16.7		7		58.4	
Total Unsuccessful		2		16.7		7		58.4
Total Pot. Dropouts		12		100.0		12		100.0

was 2 to 1 greater than the success achieved by the control group. Table 7, therefore, points out that the cooperative vocational education class has contributed considerably more to the retention of potential dropouts than to the retention of potential graduates.

Tables 8 and 9 present the follow-up data on students in the 1964-65 cooperative education class. It will be noted that there were (27) twenty-seven students in all in both the experimental and control groups. This class was followed-up in the fall of 1965 and the fall of 1966. In the experimental group it was found that (13) thirteen continued in the program. But, of course, there were no continuation in the following year because all had either graduated, dropped, or transferred to another curriculum or school. It may be noted that twenty-two (22) of the twenty-seven (27) did graduate and four (4) dropped and one (1) was transferred to another school. In other words, twenty-three (23) people had been successful in the experimental group. In the control group there were ten (10) who graduated out of the twenty-seven (27) and two (2) were continuing in school. In other words, no more than twelve (12) of the twenty-seven (27) were successful in the control group, and fifteen (15) had dropped by the wayside. Table 9 points out the fact that among the potential dropouts the actual dropout figure was again very high. Although it was significantly high among the control group it was much less significant among the experimental group. Both the experimental and control groups were rather heavily loaded with potential dropouts. This would account for the above fact, lardely. But it must be noted that among the potential graduates that there was one (1) student that dropped out. Since there were only six (6) cases involved among the

TABLE 8

FOLLOW UP DATA ON THE STUDENTS
IN THE 1964-65 COOPERATIVE VOCATIONAL EDUCATION CLASS

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Based on 1964-65 Data Collected Fall 1965								
Continued in Program	13		48.1					
Trans. to Another Curr.	0							
Total Continuing		13		48.1		11		40.8
Trans. to Another School	0				1		3.7	
Graduated	9		33.3		9		33.3	
Total Trans. and Graduates		9		33.3		10		37.0
Total Successful		22		81.4		21		77.8
Dropped	5		18.6		6		22.2	
Total Unsuccessful		5		18.6		6		22.2
Total In Group		27		100.0		27		100.0
Based on 1965-66 Follow-Up Data (Fall 1966)								
Continued in Program	0							
Trans. to Another Curr.	0							
Total Continuing		0				2		7.4
Trans. to Another School	1		3.7		0			
Graduated	22		81.5		10		37.0	
Total Trans. and Graduates		23		85.2		10		37.0
Total Successful		23		85.2		12		44.4
Dropped	4		14.8		15		55.6	
Total Unsuccessful		4		14.8		15		55.6
Total in Group		27		100.0		27		100.0

TABLE 9

FOLLOW-UP DATA ON THE STUDENTS IN THE 1964-65
COOPERATIVE VOCATIONAL EDUCATION CLASS BY GROUPS
WHERE P/G's = 100% AND P/D's = 100%

	Experimental Group				Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Based on 1964-65 Data (Fall 1965)								
Potential Graduates								
Continued in Program	2		33.3					
Trans. to Another Curr.	0							
Total Continuing		2		33.3		5		55.6
Trans. to Another School	0				0			
Graduates	3		50.0		4		44.4	
Total Transfers and Grad.		3		50.0		4		44.4
Total Successful		5		83.3		9		100.0
Dropped	1		16.7		0			
Total Unsuccessful		1		16.7		0		
Total Potential Graduates		6		100.0		9		100.0
Potential Dropouts								
Continued in Program	11		52.4					
Trans. to Another Curr.	0							
Total Continuing		11		52.4		6		33.3
Trans. to Another School	0				1		5.6	
Graduated	6		28.6		5		27.8	
Total Transfers and Grad.		6		28.6		6		33.4
Total Successful		17		81.0		12		66.7
Dropped	4		19.0		6		33.3	
Total Unsuccessful		4		19.0		6		33.3
Total Potential Dropouts		21		100.0		18		100.0
Based on 1966-67 Data Collected								
Potential Graduates								
Continued in Program	0							
Trans. to Another Curr.	0							
Total Continuing		0				0		
Trans. to Another School	0				0			
Graduated	6		100.0		9		100.0	
Total Transfers and Grad.		6		100.0		9		100.0
Total Successful		6		100.0		9		100.0
Dropped	0				0			
Total Unsuccessful		0				0		
Total Potential Graduates		6		100.0		9		100.0

TABLE 9
(Cont.)

	Experimental Group			Control Group			
	No.	No.	Pct.	Pct.	No.	No.	Pct.	Pct.
Potential Dropouts								
Continued in Program	0							
Trans. to Another Curr.	0							
Total Continuing		0				2		11.1
Trans. to Another School	1		4.8		0			
Graduated	16		76.2		1		5.6	
Total Transfers and Grad.		17		81.0		1		5.6
Total Successful		17		81.0		3		16.7
Dropped	4		19.0		16		83.3	
Total Unsuccessful		4		19.0		16		83.3
Total Potential Dropouts		21		100.0		18		100.0

experimental group in the potential graduate ranks, this was a relative high percentage. Regardless, Table 9 points out the fact that the cooperative vocational education class did in fact retain students to a much higher degree than the retention among the control group.

Instructors' Evaluation On Personal Development

In the final step, (See Appendix A and B) the teachers of the occupational information class and the cooperative vocational education class made annotated records of students with regard to many factors which might show improvement in general appearance, attitudes, experiences, and personality traits. This part of the report may not be considered very significant inasmuch as the instructors rated (subjectively) the students before the class started and then at the end of the class during the scholastic year 1965-66. In both instances, however, it may be

noted in these tables also, that the students seemed to take more interest in the school life itself and experiences that they were getting while in school. One significant thing to note in this report is that optimism among the younger children in the occupational information and vocational counseling class seem to rate higher than among the older children in the cooperative vocational education program. Very little improvement seemed to occur here (although some did) in each of the two classes. The deprived area from which the students came would have a considerable amount to do with this particular item in the check list. Personality traits seem to change very little among the students. Attitudes generally improved among both groups as the courses progressed. Academic achievement among the cooperative vocational education students improved very little if any, perhaps none; but among the occupational information class there seemed to be some improvement. This could be explained by the fact that the cooperative vocational education students were spending at least one-half of their time off of the school grounds and on the job in vocational education training, whereas, the other students were living and going to school inside the school building all day. Their participation in the program came only as a result of a one-or two-hour period in which they were taught related occupational information and given vocational counseling. This took very little time away from their ordinary or normal school program.

Students' Response

Students were asked to respond to a check list to indicate whether the courses in occupational information and general related information was difficult. Also, they were asked to express feelings

about the course itself. In the occupational information classes and also in the cooperative vocational education classes, students ranking of their feelings toward the courses was significant. Most respondents felt that the courses were very valuable; that they met individual needs; and that success was challenging and attainable as a result of the instructors' efforts.

GENERALIZATIONS

1. Much progress has been shown in this report over the first Interim Report. Values in the experimental and demonstration programs are beginning to become apparent.

2. The final report will show more progressive influences of the experimental and demonstration programs in the retention of students, both potential graduates and potential dropouts.

APPENDIXES

Appendix A

Table 10

OCCUPATIONAL INFORMATION CLASS I
ANNOTATED RECORD OF STUDENTS
(1965-66)

	First Rating		Final Rating	
	Number	Percent	Number	Percent
GENERAL APPEARANCE				
Cleanliness				
Excellent	10	30	12	36
Good	14	43	16	49
Fair	8	24	5	15
Poor	1	3	0	
Total	33	100	33	100
Clothing & Care				
Excellent	8	24	11	33
Good	14	43	16	48
Fair	8	24	5	15
Poor	3	9	1	4
Total	33	100	33	100
Grooming				
Excellent	4	12	6	18
Good	17	52	22	67
Fair	10	30	4	12
Poor	2	6	1	3
Total	33	100	33	100
Health				
Excellent	26	79	29	88
Good	1	3	3	9
Fair	6	18	1	3
Poor	0		0	
Total	33	100	33	100
EXPERIENCES				
Extra Curr. Participation				
Excellent	5	15	5	15
Good	6	18	6	18
Fair	16	49	15	46
Poor	6	18	7	21
Total	33	100	33	100
Work Experience				
Excellent	2	6	3	9
Good	11	33	16	49
Fair	12	37	11	33
Poor	8	24	3	9
Total	33	100	33	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
Travel				
Excellent	0		0	
Good	5	16	5	16
Fair	13	40	14	44
Poor	14	44	13	40
Total	32	100	32	100
Own Resources				
Excellent	1	3	3	10
Good	9	38	14	43
Fair	16	50	9	28
Poor	6	19	6	19
Total	32	100	32	100
Vocational Choices				
Excellent	1	3	2	6
Good	8	25	13	40
Fair	14	44	12	38
Poor	9	28	5	16
Total	32	100	32	100
FAMILY ENVIRONMENT (Comment)				
Death of a Member	Father, Mother			
Separation of Parents	Three families affected.			
Loss of Residence	One family.			
Addition to Family Residence	Two families had a baby each.			
Dereliction	None			
PERSONALITY TRAITS				
Introvert vs. Extrovert				
Excellent	1	3	1	3
Good	12	38	10	31
Fair	15	47	17	54
Poor	4	12	4	12
Total	32	100	32	100
Optimistic				
Excellent	0		0	
Good	6	19	10	31
Fair	24	75	20	63
Poor	2	6	2	6
Total	32	100	32	100
Enthusiastic				
Excellent	0		2	6
Good	14	44	15	47
Fair	16	50	10	31
Poor	2	6	5	16
Total	32	100	32	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
Self Confidence				
Excellent	1	3	1	3
Good	11	34	18	57
Fair	18	57	12	37
Poor	2	6	1	3
Total	32	100	32	100
Broadening Horizons				
Excellent	0		2	6
Good	8	25	20	63
Fair	17	54	6	19
Poor	7	21	4	12
Total	32	100	32	100
ATTITUDES				
Self Respect				
Excellent	1	3	1	3
Good	21	66	23	72
Fair	10	31	8	25
Poor	0		0	
Total	32	100	32	100
Toward Peers				
Excellent	1	3	1	3
Good	23	73	22	69
Fair	7	21	9	28
Poor	1	3	0	
Total	32	100	32	100
Toward School				
Excellent	0		3	10
Good	13	40	15	46
Fair	13	40	9	28
Poor	6	20	5	16
Total	32	100	32	100
Authority				
Excellent	2	6	6	18
Good	19	60	16	50
Fair	7	22	5	16
Poor	4	12	5	16
Total	32	100	32	100
Work				
Excellent	4	13	8	25
Good	13	40	16	50
Fair	13	40	5	16
Poor	2	7	3	9
Total	32	100	32	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
ACADEMIC ACHIEVEMENT				
School Grade Point Average				
Excellent	1	3	1	3
Good	4	13	5	16
Fair	18	56	19	60
Poor	9	28	7	21
Total	32	100	32	100
Class Grade				
Excellent	1	3	3	9
Good	10	31	8	25
Fair	18	56	18	56
Poor	3	10	3	10
Total	32	100	32	100
Extra Class Participation				
Excellent	4	13	8	26
Good	4	13	9	28
Fair	15	46	9	28
Poor	9	28	6	18
Total	32	100	32	100

Appendix B

Table 11

COOPERATIVE VOCATIONAL EDUCATION CLASS
ANNOTATED RECORD OF STUDENTS
(1965-66)

	First Rating		Final Rating	
	Number	Percent	Number	Percent
GENERAL APPEARANCE				
Cleanliness				
Excellent	3	10	5	16
Good	17	53	19	59
Fair	10	31	8	25
Poor	2	6	0	
Total	32	100	32	100
Clothing and Care				
Excellent	6	19	5	16
Good	8	25	13	40
Fair	13	40	13	40
Poor	5	16	1	4
Total	32	100	32	100
Grooming				
Excellent	6	19	7	22
Good	14	44	16	50
Fair	11	33	9	28
Poor	1	4	0	
Total	32	100	32	100
Health				
Excellent	4	12	4	12
Good	28	88	27	84
Fair	0		0	
Poor	0		1	4
Total	32	100	32	100
EXPERIENCES				
Extra Curr. Participation				
Excellent	1	3	3	10
Good	9	28	10	31
Fair	10	31	12	38
Poor	12	38	7	21
Total	32	100	32	100
Work Experience				
Excellent	1	3	3	10
Good	4	12	16	50
Fair	15	47	7	21
Poor	12	38	6	19
Total	32	100	32	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
Travel				
Excellent	5	15	13	40
Good	6	18	5	15
Fair	21	64	12	36
Poor	1	3	3	9
Total	33	100	33	100
Own Resources				
Excellent	2	6	5	15
Good	15	46	20	61
Fair	12	36	6	18
Poor	4	12	2	6
Total	33	100	33	100
Vocational Choices				
Excellent	4	12	4	12
Good	8	24	21	64
Fair	13	40	7	21
Poor	8	24	1	3
Total	33	100	33	100
FAMILY ENVIRONMENT (Comment)				
Death of a Member	None			
Separation of Parents	None			
Loss of Residence	None			
Addition to Family Residence	None			
Dereliction	None			
PERSONALITY TRAITS				
Introvert vs. Extrovert				
Excellent	5	15	6	18
Good	12	36	23	70
Fair	15	46	3	9
Poor	1	3	1	3
Total	33	100	33	100
Optimistic				
Excellent	1	3	1	3
Good	5	15	0	
Fair	10	30	21	64
Poor	17	52	11	33
Total	33	100	33	100
Enthusiastic				
Excellent	6	18	8	24
Good	5	15	14	43
Fair	14	43	6	18
Poor	8	24	5	15
Total	33	100	33	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
Self Confidence				
Excellent	5	15	5	15
Good	12	36	20	61
Fair	15	46	8	24
Poor	1	3	0	0
Total	33	100	33	100
Broadening Horizons				
Excellent	2	6	4	12
Good	9	27	20	61
Fair	15	46	6	18
Poor	7	21	3	9
Total	33	100	33	100
ATTITUDES				
Self Respect				
Excellent	5	15	12	36
Good	22	67	20	61
Fair	6	18	1	3
Poor	0		0	
Total	33	100	33	100
Toward Peers				
Excellent	12	36	13	40
Good	18	55	18	54
Fair	3	9	2	6
Poor	0		0	
Total	33	100	33	100
Toward School				
Excellent	7	21	6	18
Good	10	30	22	67
Fair	13	40	3	9
Poor	3	9	2	6
Total	33	100	33	100
Authority				
Excellent	6	18	6	18
Good	12	37	17	51
Fair	14	42	7	22
Poor	1	3	3	9
Total	33	100	33	100
Work				
Excellent	2	6	8	24
Good	14	42	18	55
Fair	13	40	3	9
Poor	4	12	4	12
Total	33	100	33	100

	First Rating		Final Rating	
	Number	Percent	Number	Percent
ACADEMIC ACHIEVEMENT				
School Grade Point Average				
Excellent	4	12	4	12
Good	10	30	9	27
Fair	15	46	16	49
Poor	4	12	4	12
Total	33	100	35	100
Class Grade				
Excellent	6	18	6	18
Good	17	52	17	52
Fair	9	27	9	27
Poor	1	3	1	3
Total	33	100	33	100
Extra Class Participation				
Excellent	3	9	3	9
Good	6	18	8	24
Fair	15	46	12	37
Poor	9	27	10	30
Total	33	100	33	100

VT 003 614
Courtney, E. Wayne
Some Statistical Correlates in Industrial Graphics (An Abstract), A Study of Knowledge and Experience Interrelationships.

Stout State College, Menomonie, Wis.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jul63 7p.

*RESEARCH DESIGN; *STATISTICAL ANALYSIS; *JOB SKILLS; GEOGRAPHIC REGIONS; HIGH SCHOOL TEACHERS; COLLEGE TEACHERS; DRAFTSMEN; *DRAFTING

To develop a method of studying knowledge and experience relationships within related occupational areas, a study was conducted to determine the extensiveness of common and differentiated activity components among three selected industrial graphics occupations. Random samples of 40 college drafting teachers, 40 secondary drafting teachers, and 40 building construction draftsmen who worked in Wisconsin and Minnesota assigned scores to a scale for each component analyzed. Statistics involved were (1) the Hoyt and Stundard analysis of variance for analyzing the instrument's internal consistency reliability, (2) the F statistic to test the 80 component means against five null hypotheses, and (3) the Newman-Keuls techniques for further analyzing the component means for individual comparisons. The study design was a 3 x 2 factorial. The overall mean for each of the 80 components, the means for each state, and the means for each of the three occupations were utilized in the analysis. The major conclusion was that the mean level of knowledge and experience scores of the three occupational groups was equal. There was a total of 79 common components between the college and the secondary school drafting teacher and 80 between the latter and the building construction draftsmen. There was no evidence of an effect due to the two geographical areas. It seems reasonable to assume that the results may be used as curriculum guides within both geographical areas. Because many components were judged important for all occupations studied, the transfer value and broad application of learning experiences should be recognized and emphasized by the college teacher of industrial graphics. (EM)

VT 003 614

ED027441

(1)
7p*

Some Statistical Correlates In *Industrial Graphics*

(An Abstract)

A Study of Knowledge and Experience Interrelationships

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Stout State College
Menomonie, Wisconsin
July, 1963

E. Wayne Courtney, Ph.D.
Assistant Professor,
Psychology and Education

VT003614

SOME STATISTICAL CORRELATES IN INDUSTRIAL GRAPHICS

A Study of Knowledge and Experience Interrelationships

E. Wayne Courtney, Ph. D.

Assistant Professor, Psychology and Education
Stout State College
Menomonie, Wisconsin

Introduction

This study was undertaken in order to develop a method for studying knowledge and experience relationships within related occupational areas. Previous studies have implied that comparisons of related areas were possible using statistical analysis, but attempts at the use of variation and interaction approaches to problem solution have been limited, particularly in the vocational areas.

The present study was designed to determine the extensiveness of common and differentiated activity components among three selected industrial graphics occupations, namely, college drafting teacher, secondary school drafting teacher, and building construction draftsman. The study analyzed eighty activity components* and included the two state geographical area of Wisconsin and Minnesota.

The instrument used in the study was administered through mailed correspondence to random samples of 120 individuals who represented the occupations studied. As specified in the design, forty individuals from each occupational group were utilized for the study. These respondents judgementally assigned scores to a Lickert type scale for each component analyzed.

The Design

The instrument was analyzed for internal consistency reliability using the Hoyt and Stundard analysis of variance technique.

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*Activity components are here defined as those constituent elements comprising the abilities, skills, and/or knowledges which a worker uses in performing normal functions relative to his particular occupation.

The F statistic was used in testing the eighty component means for each of the following null hypotheses. (All tests of significance were made at the .01 level.)

Major hypotheses

H-1 There is no occupational group effect, or H: $G_k = 0$.

H-2 There is no geographical area effect, or H: $A_i = 0$.

H-3 There is no interaction between groups and areas, or H: $(AG)_{ik} = 0$.

Subsidiary hypotheses

H-4 There is no variance component attributable to communities within areas, or H: $\sigma^2_c = 0$.

H-5 There is no variance component attributable to the interaction of groups and communities, or H: $\sigma^2_{CG} = 0$.

Expected mean squares were derived for each of the sources of variation, as follows:

Source of Variation	Degrees of Freedom	Expected Mean Squares		
Geographical Areas	1	σ^2_e	$6\sigma^2_c$	$60\phi_A$
Communities in areas	18	σ^2_e	$6\sigma^2_c$	
Occupational Groups	2	σ^2_e	$2\sigma^2_{CG}$	$40\phi_A$
Groups X areas	2	σ^2_e	$2\sigma^2_{CG}$	$20\phi_A$
Groups X communities in areas	36	σ^2_e	$2\sigma^2_{CG}$	
Error	60	σ^2_e		

The design of the study, basically, was a 3 X 2 factorial. This design enabled the investigator to study the main effect of three occupational groups averaged over two geographical areas, and the main effect of two geographical areas averaged over three occupational groups. In addition, the design permitted an investigation of the interaction of occupational groups and geographical areas to determine if the geographical area effect persisted throughout the three occupational groups.

The overall mean for each of the eighty components, the means for each of the two geographical areas, and the means for each of the three occupational groups were utilized in the analysis.

The hypothesis of major interest was that the mean level of knowledge and experience scores of the three occupational groups were equal. Where the F-test indicated that individual differences did exist, the activity component means were further analyzed using the Newman-Keuls technique for individual comparisons.

The Results

The obtained reliability component ($r = .98$) indicated that the ratio of error variance to total subject variance was minimal.

The results of the hypotheses are included below:

Hypothesis 5. A total of eighty tests was made. In nine instances the hypothesis was rejected, hence, it may be concluded that for these components there was interaction of occupational groups and communities in areas. For seventy-one components, the difference between the mean component scores for the three occupational groups persisted throughout the communities included in the study.

Hypothesis 4. In only one instance was F in the critical region, hence, for seventy-nine of the eighty tests, the hypothesis was not rejected. For the rejected component it may be concluded that the variation in component scores from community to community in each of the two areas is greater than the variation of component scores within each area.

Hypothesis 3. In not a single instance was F in the critical region. Therefore, thehypothesis was not rejected. This finding indicates that the differences between the mean component scores of the two areas persisted throughout the three occupational groups.

Hypothesis 2. In all of the eighty tests, F was not in the critical region; hence, the hypothesis was not rejected. This finding indicates that differences between mean component scores were not present for the two geographical areas studied.

Hypothesis 1. The main hypothesis was that the means of component scores of the three occupational groups were equal, or that the components are common to the three groups. Hence, a common component was defined statistically as one from which the null hypothesis was not rejected and a differentiated component was defined as one for which the null hypothesis was rejected.

In forty-eight of the eighty tests, F was not in the critical region and the null hypothesis was not rejected. Hence, it was concluded that in forty-eight instances means for components were common to all three occupational groups studied. In thirty-two instances the null hypothesis was rejected and it was concluded that differences existed between mean component scores for the three occupational groups.

When individual comparisons were made of means in the analysis of variance, it was found that there was a total of seventy-nine common components between college drafting teacher and secondary school drafting teacher, and eighty common components between secondary school drafting teacher and building construction draftsman.

The Conclusions

Based on the results of the study, the following conclusions were drawn:

1. The procedure of selecting a random sample of communities within each geographical area, then selecting a random sample of persons in each occupational group of interest within each community, introduced no problems in the analysis.

2. There was no evidence of an effect due to the two geographical areas selected for investigation, nor to the interaction of geographical areas within occupational groups.

3. When the hypothesis that three means were equal was tested, thirty-two hypotheses were rejected and forty-eight hypotheses were not rejected. Non-rejection of the hypothesis of equal means was taken as an indication of commonality among components.

4. A pattern of differentiation was apparent for nineteen componentswhere differences were found between means for college drafting teacher and building construction draftsman.

The Implications

From the analysis of the results, certain implications are given which are believed to be of practical consequence to curriculum development and guidance.

1. The mean occupational group component scores, as revealed by an examination of the data, varied from a high of 4.750 to a low of 2.050. Therefore, curriculum planners may consider these variations in selecting learning experiences to be included in their respective curricula.

2. Differences between mean component scores were not apparent for the two geographical areas studied. It seems reasonable to assume that the results may be used as curriculum guides within both areas included in the study.

3. It seems reasonable to assume that the activity components scored high for secondary school drafting teacher and building construction draftsman are included in courses of study in college and/or university industrial graphics training programs.

4. Many activity components were judged important for all occupations studied. Where the components are in common with all three occupational groups, the transfer value and broad application of learning experiences should be recognized and emphasized by the college teacher of industrial graphics.

5. Persons who are experienced in the occupations of secondary school drafting teacher and building construction draftsman have developed abilities which are useful in the college drafting teacher occupation.

6. Students wishing to move into any related industrial graphics areas should develop abilities in those activities of commonality studied plus others which may be important for a specific occupation.

VT 003 632
RCU Research and Study Projects.

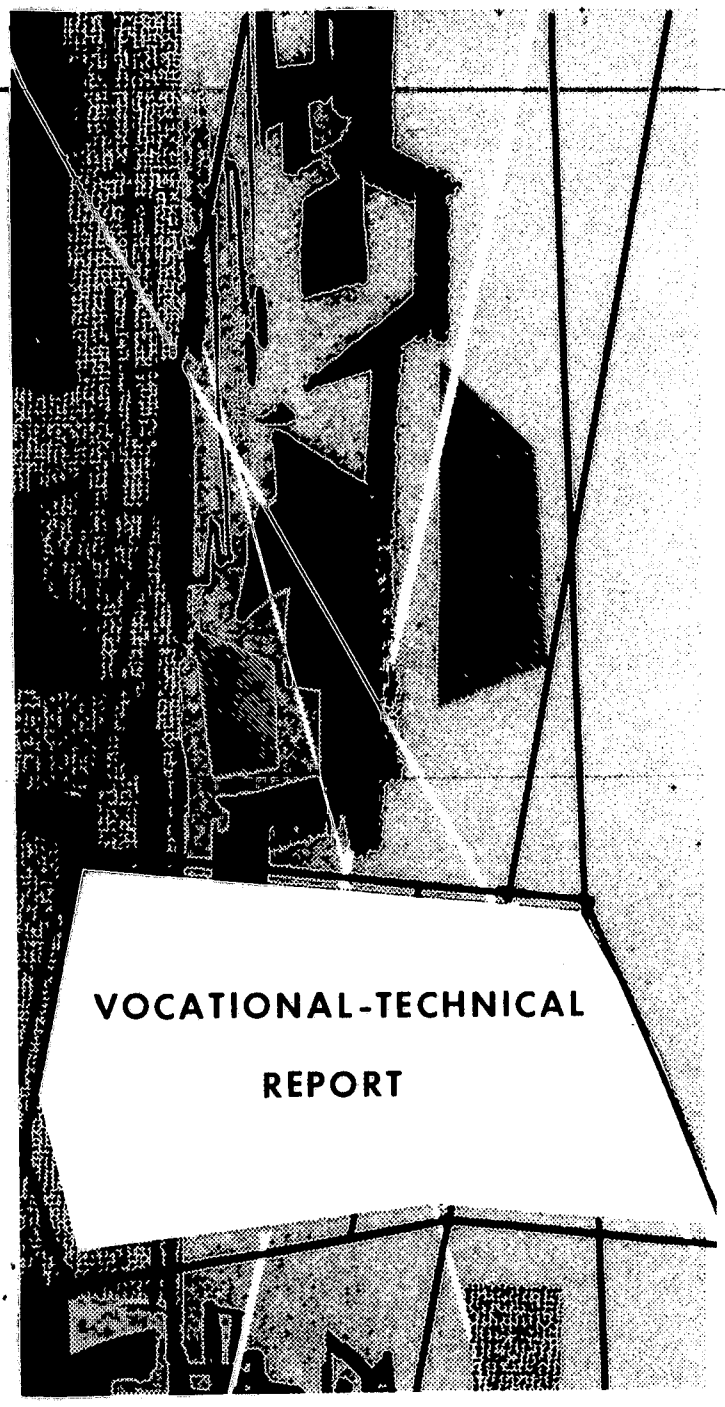
Wisconsin Univ., Madison. Center for Studies in Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug67 14p.

*RESEARCH COORDINATING UNITS; *RESEARCH PROJECTS; *BIBLIOGRAPHIES; *VOCATIONAL EDUCATION; *EDUCATIONAL RESEARCH

This bibliography indicates the range and scope of activities being conducted by various research coordinating units (RCU) to facilitate exchange of information between RCU's on projects of mutual interest. Listed are 159 research projects and less formal activities from 12 RCU's categorized under the topics administration, adult, agricultural, basic education, cluster concept, community surveys, cooperative education, cost analysis, curriculum, disadvantaged, distributive, dropouts, employment surveys, evaluation, facilities, followup, guidance, handicapped, health occupations, home economics, information programs, Indians (Americans), mobility, motivation, Negro, office occupations, orientation, on-the-job training, pre-technical, private schools, recreation, retraining, scholarships, state plans and programs, students plans and character, teacher education, team teaching, technical, television, trade and industry, underachieving, university, and non-experience. The names of the 12 Unit directors and a topical index are included. (EM)

VT 003 632

ED027441



August 1967

RCU RESEARCH AND STUDY PROJECTS

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CENTER FOR STUDIES IN VOCATIONAL AND TECHNICAL EDUCATION

The University of Wisconsin
Industrial Relations Research Institute

VT003632

TO: DIRECTORS OF STATE RESEARCH COORDINATING UNITS

FROM: Center for Studies in Vocational and Technical Education,
University of Wisconsin

DATE: August, 1967

Here is the first list of RCU research projects as compiled from reports sent to us by the states indicated on the list. The list was compiled from copies of state reports sent to us by the RCU directors.

The purpose of the list is to enable all RCU's to review the range and scope of activities in other states, and thus to facilitate exchange of information between RCU's on projects of mutual interest.

Projects having quotation marks are organized research projects. Others in the list are studies or projects of less formal nature. We would like to be able to identify completed projects for which reports are available, but our information does not permit us to report this information consistently or accurately.

The Center hopes that this information has value to the RCU's and that later reports will include projects from more states.

Your state will be included in the next report if a copy of your state report is sent to the Center.

Sincerely yours,

J. Kenneth Little

J. Kenneth Little
Co-Director (Education)

JKL/so
Encl.

TOPICAL INDEX

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August, 1967

RCU RESEARCH AND STUDY PROJECTS
(List No. 1)

GEORGIA: Mr. Gene Bottoms, Director

1. Identifying problems related to the Negroes full participation in vocational education programs at both the high school and post-high school levels.

2. Identifying problems associated with the development of 14 new area vocational schools.

3. A Project to Evaluate Admissions Criteria in Predicting Performance in Vocational-Technical School Programs.

4. "A Pilot Study of Pre-Technical Programs."

5. Implementing a Self-Evaluation System and Accreditation Plan for Georgia's Area Vocational-Technical Schools."

6. "An Evaluation of Pilot Programs in Cooperative Occupational Home Economics in Eight Georgia Schools."

7. "Evaluation of Vocational Home Economics Programs in Terms of the Effectiveness of Full-time Homemakers and Homemakers Who are Also Fully Employed."

8. "Development of a Public Information Program in the Area of Recruiting Distributive Education Teacher Candidates."

9. "A Follow-up of 1965 Graduates of Georgia's Area Vocational-Technical Schools."

10. "The Area School Bachelors of Science Program in Vocational Teacher Education."

11. "A Plan for Disseminating Vocational Education Research Material."

12. "Development of a Master Plan for Vocational Education in Georgia for the next 5 to 10 Years."

IOWA: Mr. Kenneth Wold, Director

1. "A Stidy of Students Enrolled in Post-High School Public Vocational Education."

2. "Factors Related to Employment of Iowa State University Graduates in Agricultural Education."

3. "Influence of High School Vocational Agriculture on the Matriculation, Attrition, Graduation and Employment of Agricultural Engineers Who Attended Iowa State University."

4. "Use of the EFI Multi-Channel Wireless Shorthand System in Preparing Vocational Office Education Teachers." (State College of Iowa, Cedar Falls, Iowa)

5. "A Study of Teachers and Students in the Iowa Area-Technical Electronics Programs, with Implications for a Teacher Education Curriculum in Iowa."

6. "Factors Related to the Granting of College-University Credit for Trade and Industrial Experience."

7. "Pilot Study of Employment-Oriented Courses in Home Economics for Slow Learners."

8. "A Survey of Employee Selection and Training in Iowa Manufacturing Firms with 100 Employees or More."

9. "A Study of Fifteen Public Post-High School Vocational and Technical Schools in Iowa in 1964-65."

10. "A Pilot Study of the Feasibility of Incorporating 'Touch Shorthand' (Stenograph) into the Professional Program for Preparing Secretarial Teachers." (State College of Iowa)

11. "A Survey of Guidance Services in Iowa."

12. "Prediction of Success of Graduates of Iowa State University in Teaching Vocational Home Economics (Extension of Project No. 7)."

13. "Pilot Study of Employment-Oriented Courses in Home Economics (Extension of Project No. 10) for Academically Retarded."

14. "Personal Values of Family Members and Their Relationship to Satisfying Home Life and Successful Employment (Extension of Project No. 8)."

15. "Bases for Planning Curricula in Homemaking for Junior and Senior High School Pupils in Iowa (Extension of Project No. 9)."

16. "Identification of Selected Clusters of Occupations Requiring Similar Home Economics Compentencies."

17. "Part-time Cooperative Industrial Education as Viewed by Cooperating Employers."

18. "Electronic Technician Personnel and Training Needs of Iowa Industries."

19. "A Study of Practical Nurses Currently Licensed to Practice in Iowa But Not Presently Employed."

20. "A Determination of Training Needs for Metalworking Manufacturing Concerns in Iowa."

21. "Vocational-Industrial Education Laboratory Evaluation Guide."

22. "Personnel and Training Needs of Iowa's Printing Industry."

23. "Mechanical-Technician Job Survey and Training Needs in the Iowa Aviation Industry."

24. "Bases for Planning Curricula in Homemaking for Junior and Senior High School Pupils in Iowa (Extension of Project No. 9--Phase 3)."

25. "Pilot Patterns for Managerial Instruction in Area Vocational School Curricula Based on Problems of Young Homemakers, Employed Full-Time in Clerical and Sales Occupations."

26. "Identification of Selected Clusters of Occupations Requiring Similar Home Economics Competencies (Extension of Project No. 19)."

27. "Architectural Drafting Needs as Indicated by Selected Iowa Industries and Engineering Firms."

28. "Skilled Worker Needs of Employees of Four or More Persons Within Community College Districts."

MICHIGAN: Mr. Charles Langden, Director

1. "A Study of the Diffusion Process of Vocational Education Innovations."

2. "A Comparative Evaluation and Analysis of Work-Experience and Work-Study Programs in Livonia Public Schools in Relation to Their Impact on Youth (Phase I)."

3. "A Project Designed to Demonstrate the Feasibility of Pre-Technical Programs in High School."

4. "Establishing a Task Force to Analyze and Make Recommendations for Needed Improvements and Changes in Teacher Education Programs."

5. "How High School Cooperative Trainees Fare in the Labor Market: Phase B."

6. "High School Principals' Perceptions of the Roles and Responsibilities of Leaders in the Development of Occupationally Oriented Programs in High Schools."

7. "A Survey of Agricultural Occupations in Michigan."

8. "Technical Education in Michigan Community Colleges."

9. "Attitudes and Beliefs about Homemaking and/or Home Economics Education in Michigan Secondary Schools."

10. "Experimental Program for the Identification, Selection, and Development of Persons for Leadership Roles in the Administration and Supervision of Vocational and Technical Education."

11. "Evaluating Vocational Education in the Public Schools."

12. "Opportunities and Requirements for Initial Employment of School Leavers with Emphasis on Office Retail Jobs."

13. "The Need for In-School Business Data Processing Programs."

14. "An Experimental Program Designed to Promote a Greater Interest in Fulfilling Latent Potentials in Under-Achieving High School Boys Through Goal Identification."

15. "Mathematical Expectations of Technicians in Michigan Industries."

16. "Education and Training for the World of Work: A Vocational Education Program for the State of Michigan."

17. "A Question of Values: How High School Teachers View Cooperative Education."

18. "The Michigan Study on the Effect of Technical Advance on the Preparation and Upgrading of Industrial Education Teachers."

19. "The Value of Programmed Instruction on the Career Objectives of High School Students in Distributive Education."

MISSISSIPPI: Mr. James Wall, Director

1. "Employment Opportunities and Competencies in Non-Farm Agricultural Occupations."

2. "A State Cooperative Program for the Development of Vocational and Technical Education."

3. Minimum Educational Requirements for Successful Participation in Trades and Industrial Programs of Vocational Education.

4. Identification of Cluster of Skills Common to the Various Areas of Vocational and Technical Education.

5. Employment Opportunities and Needed Competencies for Gainfully Employed Persons Involving Knowledge and Skills in Home Economic Subjects.

6. Factors Influencing Choice and Preparation of Vocational and Technical Students: Terminal Post-High School Courses.

7. A Comparative of Electronic Content in Public Post-High School Technical Institutes and Electronic Technology Requirements of Industry.

8. "The Association Between Selected Socio-Economic Factors and Interest in Agricultural Occupations."

9. "Vocational Education Implication of School Dropouts in Mississippi."

10. Image or Prestige-Level Studies of Vocational-Technical Education.

11. A Cooperative Program for Research-Development-Diffusion-Adoption of Technical Education Innovations.

NEBRASKA: Mr. James Horner, Director

1. A Formula to Predict Opportunities in Production Agriculture Throughout the State of Nebraska.

2. Procedures to be Used by Local Communities in Determining Vocational Needs.

3. "Factors Relating to Occupational and Educational Decision-Making by Rural Youth."

NEW JERSEY: Mr. Ralph LoCascio, Director

1. Curriculum Study and Production of Self-Instruction Materials for Use in Basic Police Training.

2. "Investigation of the Effectiveness of a Design for Creating Curriculum Change in Home Economics."

3. "An Evaluation of the Relative Effectiveness of Information Feedback about Supervisor and Student Reactions with Beginning and Experienced Vocational Teachers."

4. "A Block Time Laboratory Approach to Office Education."

NEW MEXICO: Mr. Gene Schrader, Director

1. "A Proposed Model and Criteria for Establishing Area Vocational Schools in New Mexico."

2. "Employment Opportunities in Applied Horticultural and Agricultural Machinery."

3. Information about Privately-Owned Vocational Schools in New Mexico-Physical Plant, Management, Instructional Staff, Class Capacity, and Plans for Expansion.

4. "Development and Testing of an Experimental Mobile Instructional for Applied Courses in Engineering Technology."

5. A Manpower Survey of Business Establishments In Towns Having Over 2,000 Population (by telephone book).

6. "Library of Tape Recorded Occupational Information."

7. Guidelines for the Transition of Three-Year Nursing Programs to Two-Year Associate Degree Programs.

8. "Pre-Vocational Orientation for Junior High School Students."

9. A Comprehensive Follow-up of High School Graduates of Home Economics.

10. A Follow-up Study of the Graduates of an Occupational Training Program in Waitress and Food Handling. (Rio Grande High School Albuquerque, New Mexico) Research in Progress.

NEW YORK: Mr. Louis Cohen, Director

1. "A Feasibility Study to Investigate the Structure and Operation of a Model Occupational Dissemination Unit."

2. "A Study to Determine the Occupational Use of Machine Shorthand."

3. "Womens' Work Values in New York State."

4. "The Evaluation of the Effectiveness of a Pilot Program for Underachievers."

5. "A Follow-up Study of High School Students Who Completed a New York State Syllabus--Outlined Bookkeeping Course."

6. "Evaluation of the Manpower Education Institute Program for On-the-Job Training."

7. "Development of Curriculums for Occupational Education."

8. "The Process and Product of Trade and Industrial High School Level Vocational Education in the United States." (New York data)

9. "Evaluation of Secondary School Programs for Wage Earning in Occupations Related to Homemaking."

10. "An Interstate Investigation of Employment Opportunities and Educational Requirements for Jobs in Outdoor Recreation and Conservation Enterprises." (New England States and New York)

OKLAHOMA: Mr. William Stevenson, Director

1. "A Three Year Follow-up Study of Vocational-Technical Education Students."

2. "An Exploratory Analysis of Roles and Role Conflicts of Vocational Teachers in Oklahoma."

3. "The Rehabilitation of School Dropouts in Oklahoma City: An Experimental Appraisal."

4. "An Analysis and Evaluation of Federal Guidelines and State Plans for Vocational Education."

5. "Identification of Concepts Important for Youth Orientation to the Work World."

6. "A Study of the Role of Vocational-Technical Education in the University."

7. "An Experiment in Varying the Timing of Reinforcements by Knowledge of Correct Response in Teaching of Selected Related Learnings in Transcription Classes."

8. "A Pilot Study for Gainful Employment in Home Economics."

9. "A Study of Employment Opportunities and Training Needs in Off-Farm Agriculture Occupations."

10. "Variables Associated with Innovative Vocational Agriculture Teachers."

11. "An Examination of the Attitudes of Vocational Agriculture Instructors and County Agents in a Co-operative Planning and Conducting of Instructional Programs."

12. "The Effects of On-the-Job Counseling on Employers Rating and Job Satisfaction of Persons Trained in Selected Oklahoma M.D.T.A. Classes During 1967-68."

13. "An Investigation of Scholastic Aptitude, Social Class Background, and Vocational Interests of Post-High School Technical Education Programs."

14. "An Analysis of the Personal, Social, and Economic Characteristics of Vocational-Technical School Trainees."

15. "An Analysis of Selected Factors which Affect the Recruitment of Recently Graduated Technicians of Oklahoma's Post-High School Institutions."

16. "Cost Analysis of Two-Year Post-High School Technician Education Program."

17. A Research and Development Project in an Emerging Occupational Field--Electro-mechanical Technology."

18. "An Investigation of Reading Skills, General Mental Ability and Personality Variables Used in the Selection of Practical Nursing Students."

19. "The Effect of Student Motivation and Institutional Selection Process on Area Technical School Student Achievement."

20. "An Evaluation of Institutional Vocational Training Received by American Indians Through the Muskogee Area Office of the Bureau of Indian Affairs."

21. "A Total Community Approach to Solving the Educational and Cultural Problems of Indian Children in Selected Oklahoma Schools."

UTAH: Mr. John Stephens, Director

1. "Evaluation of the Manpower Schools in Salt Lake City and Ogden, Utah."

2. "A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Education Scholarships in Hode County, Utah."

3. "A Study of Utah's Requirements in Eight Paramedical Occupations."

4. "A Study of Mechanical Jobs Performed by the Farmers of Utah."

5. "Evaluation of the Effectiveness of 'Pride of Performance' ETV Program."

WISCONSIN: Mr. Clarence Greiber, Coordinator

1. "Development of an Administrative Handbook for Wisconsin Area Vocational, Technical and Adult Education Districts."

2. "Comparison of Graduates and Curricula of Associate Degree Programs with Students and Curricula of the First Two Years of Baccalaureate Degree Programs." **(Proposal)**

3. Guidelines for Comprehensive Safety Education and Accident Prevention Program for Wisconsin Schools of Vocational, Technical and Adult Education.

4. "Correlation Study Between Typing Speed and IBM Key-punch." (Seminar paper for M.S.)

5. "An Academic-Vocational Adjustment Program for Ninth Graders Through Use of a Coordinated Team Approach."

6. "The Use of a Mobile Unit to Teach Introductory Laboratory Experiences in Data Processing."

7. "Utilization of Video Tape and Closed Circuit for Teaching Office Occupations."

8. "An Investigation of the Degree of Participation in Wisconsin Vocational and Technical Education Programs by Menomonie County Indians in Three Recent Years."

9. "Career Development in Grades 10-12 by Relating Academic Subjects to Vocational Education through Special Classroom Techniques and Out-of-School Experiences."

10. "Effectiveness of Advisory Committees in Trades and Industry Classes in Wisconsin Evening Schools of Vocational and Adult Education."

11. "Study of Occupational Education Needs in the Fox Valley Paper and Pulp Industries."

12. "Follow-up Study on Business Education Graduates--1962-66."

13. "A Revision and Comparison of Traditional Bookkeeping Concepts with Bookkeeping Concepts Utilized in Job Situations."

14. "Survey of One Year Training Demands for Medical Secretary."

15. "Preliminary Inquiry into Junior College Level Education for Middle Level Marketing Occupations."

16. "Three-Year Follow-up of Associate Degree Graduates."

17. "Factors Affecting Decision How Students Decided to Enroll in Part-time and Full-time Vocational and Technical Programs in Wisconsin."

18. "Evaluation of MDTA Retraining Experiences of Workers in Wisconsin."

19. "A Study of Technology, Structure, and Goals of Eight Industrial Firms."

20. "Longitudinal Study of 250 Students in a Suburban High School in Wisconsin to Compare Vocational Plans and Aspirations."

21. "Guidelines for Realistic Facility Planning for Schools of Vocational, Technical and Adult Education."

22. "A Study of the Relationship of Part-time Education to Occupational Mobility."

23. "Labor Market Information and Employment Plans of Students in the North Central Technical Institute." (Wausau, Wisconsin)

24. "Professional Profile of Business Teachers in Vocational, Technical and Adult Schools in Wisconsin."

25. Characteristics of Post-Secondary Distributive Education Students.

26. "History and Development of Associate Degree Programs in Engineering Technology and Business Administration."

27. "Determination of Need for an Agri-Business Program."

28. "Secretarial Science Vocabulary Project."

29. "Development and Refinement of Instructional Materials Useful in Machine Bookkeeping."

WYOMING: Mr. Bruce Perryman, Director

1. "Occupational Needs of the Scio-Economic Disadvantaged and Other Handicapped Youth of Laramie County School District No. 1."

2. "A Study to Determine if Wyoming's Secondary Schools are Geared to Wyoming's Industry."

3. "A Study to Determine the Reasons for Practical Nursing Students Discontinuing Their Training at the Laramie MDTA Vocational School of Practical Nursing."

4. "Evidence of Need for Terminal Vocational Programs in Wyoming."

5. "A Study of New Ideas and Techniques for Promoting Adult Education in Wyoming."

6. A County-wide Survey of Business and Industry to Determine Needs for a Post-High School Program. (Fremont County)

7. Analysis of the Cost of Vocational Education in Wyoming in 1964-65, and 1965-66.

VT 003 636
Teaching Farm Business Analysis in Programs of Vocational Agriculture for Young Farmers in Kansas Communities; A Revised Report of the 1962 Summer Program Planning Course at Kansas State University.

Kansas State Board for Vocational Education, Topeka
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct65 94p.

*CURRICULUM GUIDES; *AGRICULTURAL EDUCATION; YOUNG FARMER EDUCATION; ADULT FARMER EDUCATION; *FARM MANAGEMENT; FARM ACCOUNTS; ADVISORY COMMITTEES; RECORDKEEPING; PROGRAM ADMINISTRATION
KANSAS

Teaching farm business analysis to young and adult farmer classes is a 3-year program through which the vocational agriculture teacher works closely with selected groups of farmers and their wives to analyze production factors and management practices for maximum farm profit. The instructional program concentrates on keeping adequate farm business records and interpreting and analyzing them. The basic problem of farming is one of adjustment to changing economic conditions. Prices, size of business, crop and livestock production rates, labor efficiency, and the combination of farm enterprises determine the success of most farm operations. Since the farmer has little or no control over prices, he must adjust the four controllable factors to anticipated price charges through a more effective farm business analysis program. Farm business analysis classes organized and conducted according to state procedures are entitled to financial reimbursement. Instructional units cover farm inventory, accounting, farm records, depreciation, taxes, and record analysis. Material is included to assist in utilizing advisory commitees and establishing multi-teacher departments. (WB)

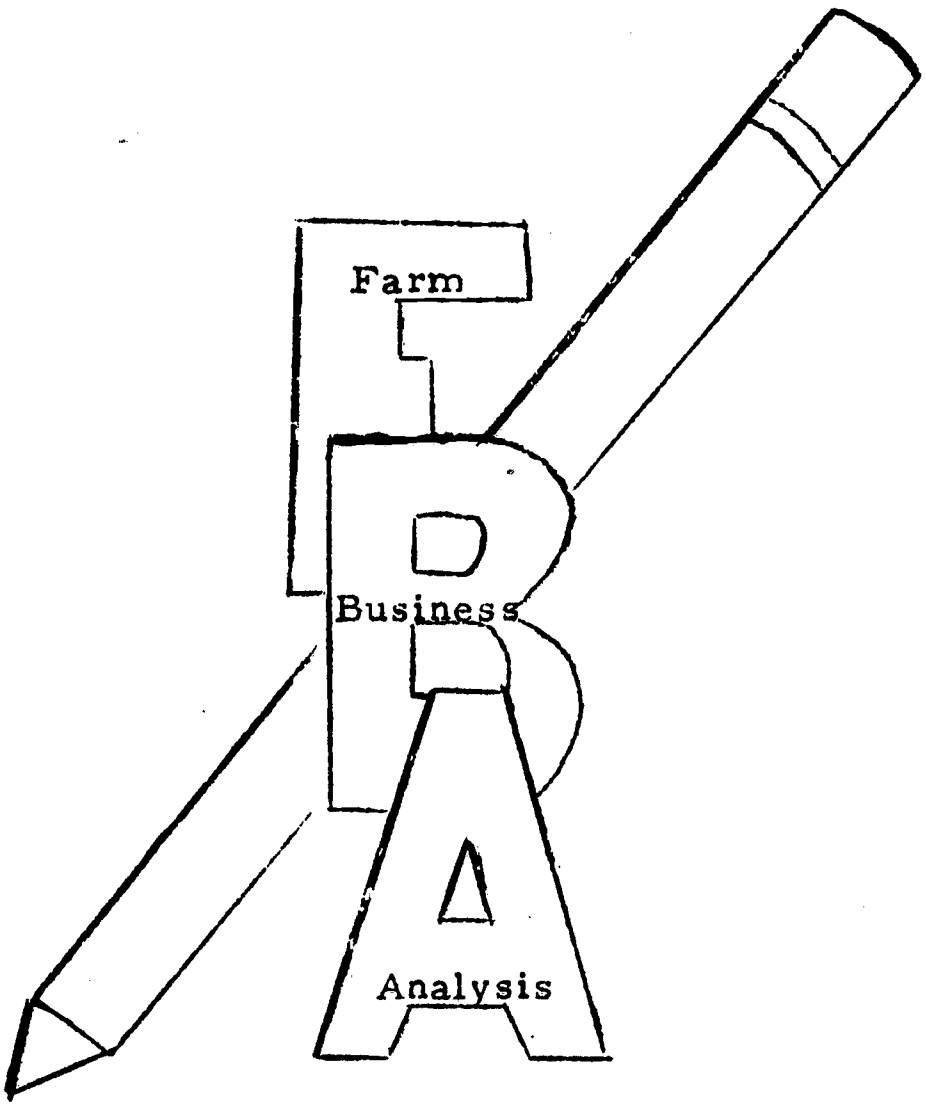
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TEACHING FARM BUSINESS ANALYSIS IN PROGRAMS OF VOCATIONAL AGRICULTURE FOR YOUNG FARMERS IN KANSAS COMMUNITIES

A revised Report of the 1962
Summer Program Planning Course at
Kansas State University.



Issued By:
The State Board for Vocational Education
Topeka, Kansas
October, 1965

VT003636

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

Earl Wineinger
State Board for Vocational Education

This material is a revised report of an attempt to present some ideas, suggestions, and guide lines in establishing and operating a Farm Business Analysis program as part of the Vocational Agriculture program in Kansas. We are indebted to Mr. M. O. Castle for setting up this program; and to Mr. Castle and Prof. L. F. Hall for their assistance, advice, and many years of service rendered to Vocational Agriculture.

It is our conception that the basic problem of farming is adjustment to changing conditions, most of them economic. What, then, are the items of highest priority that a farmer needs to know if he is to be successful? How can he provide himself with accurate information? What are the major factors affecting profit in farming, and what can a farm operator do about them?

There are five major factors that determine whether or not a farm operator will show a profit. They do not act independently of each other; one influences the others. They are prices, size of business, production rates of crops and livestock, labor efficiency, and combination of enterprises. The last four of these are under the control, more or less, of the farm operator. The first, prices, is something an individual farmer can do little to control. He must adjust the aspects of his business he can control to anticipated price changes.

There is one other variable that is important above all others and that is management. Good management is impossible without a fairly complete and accurate set of records. The pencil has become the successful farmer's most important piece of equipment. The degree to which a farmer makes decisions, based on accurate information, determines his success.

Since each farm and each farmer is different, each decision or set of decisions must be arrived at individually. This is the function of Vocational Agriculture and Farm Business Analysis.

The summary of receipts and expenses as determined for income tax purposes, may give a good indication of the over-all performance of the farm business. This is particularly true if the accrual method of tax reporting is followed. With a little extra time and know-how, records can be kept that will do more than aid in making an income tax report. If properly kept and analyzed, they can give many of the answers needed for better decisions, such as:

1. Where was the income produced?
2. What were the weak or strong points in the farm business?
3. What were the returns for labor and management?
4. What are the trends in net worth, production efficiency, volume of business, per unit costs, and other important items.

TEACHING FARM BUSINESS ANALYSIS

A revised report of a summer session class which developed a plan for teaching Young Farmer classes in vocational agriculture in the area of Farm Business Analysis. The original report was prepared at Kansas State University, Manhattan, Kansas, June 11-12 1962. The revision was prepared at the State Vocational Agriculture Office, Topeka, Kansas, October, 1965.

Original report edited by:

C. C. Eustace — Head Supervisor for Vocational Agriculture, State Board for Vocational Education, Topeka, Kansas

and

R. J. Agan — Head Teacher Educator in Agricultural Education, Kansas State University Manhattan, Kansas

Revised report edited by:

C. C. Eustace — Head Supervisor for Vocational Agriculture, State Board for Vocational Education, Topeka, Kansas

and

Earl Wineinger — Assistant Supervisor for Vocational Agriculture, State Board for Vocational Education, Topeka, Kansas

SECTION I
Historical Organization of the FBA Program in Kansas

A summer program planning course for teachers of vocational agriculture in Kansas was organized for the purpose of designing an annual and long-time plan for teaching farm business analysis to young farmer and/or adult classes in vocational agriculture. The course was held on the Kansas State University campus from June 11-22, 1962, and was sponsored by the State Board for Vocational Education, Vocational Agriculture Division, and the Department of Education of the University.

Professor Stan Nelson of the Department of Agricultural Education, University of Minnesota, was resource person and disucssion leader of the first week of the course. He explained the Minnesota program of farm management for adults enrolled in vocational agriculture and, from his vast experience in this area, made many suggestions for the proposed Kansas program. He assisted in identifying the components of the program, in stimulating the teachers to shift some emphasis in vocational agriculture to the business analysis aspect of the program, in following sound principles in preparing an annual and long-time plan, and in developing plans for enlisting the assistance and support of more people in the community to the end that they might better understand the total program of vocational agriculture and play a more important part in its functioning. It was felt that community support was definitely a part of any successful program in farm business analysis for young farmers.

The second week, the 15 teachers who were enrolled were divided into five committees. The State staff, representing vocational agriculture from the Kansas State Board for Vocational Education and Kansas State University, were consultants to the committees. Ten problems were isolated for study by the five committees, each committee devoting considerable study to two problems. Tentative reports on the solution to the selected problems were presented by the committees to the entire class for discussion, then a final written report was prepared.

Co-Directors:

C. C. Eustace	Head State Supervisor, Vocational Agriculture Kansas State Board for Vocational Education, Topeka
R. J. Agan	Head Teacher Educator in Agricultural Education, Kansas State University, Manhattan

Resource Person:

Stan Nelson	Professor in Agricultural Education, University of Minnesota, St. Paul In charge of instruction the first week.

Consultants:

Howard R. Bradley	Professor, Agricultural Education, Kansas State University, Manhattan
Marvin O. Castle	Assistant Supervisor, Vocational Agriculture, Kansas State Board for Vocational Education, Topeka
Lawrence F. Hall	Professor, Agricultural Education Kansas State University, Manhattan

John W. Lacey, Assistant Supervisor, Vocational Education
Kansas State Board for Vocational Education, Topeka
Harold Shoaf, Assistant Supervisor, Vocational Agriculture
Kansas State Board for Vocational Education, Topeka

Resource Guests:

Dean Duane Acker, Director of Resident Instruction, School of Agriculture
Kansas State University, Manhattan
Assistant Dean Frank R. Carpenter, School of Agriculture, Kansas State
Kansas State University, Manhattan
Howard Bellows, Professor, Kansas State Teachers College, Emporia
R. Marvin Schadt, Professor, Kansas State Teachers College, Emporia

Class Members (1963 - 64 locations)

Dale E. Brooks, Instructor of Vocational Agriculture, Clay Center
Philip B. Finley, Instructor of Vocational Agriculture, Norton
Joseph R. Flory, Instructor of Vocational Agriculture, Holton
Nelson R. Galle, Instructor of Vocational Agriculture, Goessel
James T. Grider, Instructor of Vocational Agriculture, Tribune
Don G. Guinn, Instructor of Vocational Agriculture, Oberlin
Gary Lee Jones, Instructor of Vocational Agriculture, Peabody
Duane McCune, Instructor of Vocational Agriculture, Chapman
Damon E. Slyter, Instructor of Vocational Agriculture, Paola
Ronald J. Sweat, Instructor of Vocational Agriculture, Marion
Harold Van Cleave, Instructor of Vocational Agriculture, Arkansas City
Howard Wallace, Instructor of Vocational Agriculture, Oakley
David L. Williams, Instructor of Vocational Agriculture, Ensign
Earl Wineinger, Instructor of Vocational Agriculture, Columbus
Earl B. Wright, Instructor of Vocational Agriculture, Jewell

SECTION II
Identification

The process of teaching Farm Business Analysis to young and/or adult classes in vocational agriculture is interpreted as a three-year program where teachers of vocational agriculture work closely with a small selected group of farmers and their wives in order to analyze the management practices and production factor of the farm business and management adjustments for the maximum profit possible from the farm. The process centers about the keeping of adequate farm business records, their interpretion and analysis. The Kansas Farm and Household Account Book was chosen as the official record book for this program.

SECTION III
Objectives of Farm Business Analysis Programs

1. To stress the importance of complete and accurate farm records as a basic management tool.

2. To assist cooperating farmers in farm accounting techniques.

3. To emphasize management as a resource in the farm business.

4. To assist farmers in the study of their business through analysis reports.

5. To assist farmers in making decisions through the use of accurate records.

6. To assist farmers in reorganizing their farm business for more profit, based on analysis of records.

7. To provide case study material for studying farm management in the analysis class.

8. To provide useful data for others interested in agricultural facts.

SECTION IV
State Reimbursement and Reporting Forms

Farm Business Analysis classes meeting the requirements listed below will be reimbursed $300 per class--$150 at the end of June, and $150 upon completion of the farm record books and report forms at the end of the calendar year.

1. The minimum enrollment to start a class will be five farmers, their names and addresses to be attached. If during the first, second, and third year of the course, the enrollment drops below five reimbursement will be allowed on a prorated basis but not below three members.

2. A minimum of seven group-class meetings and six farm visits per student to be conducted each year.

3. A report for the first half of the year will be deemed satisfactory if accounts and report forms are up to date and a fair proportion of the meetings and farm visits conducted.

4. The end-of-year report will be satisfactory if minimum requirements have been met and final reports of the accounts submitted to this office.

5. The first-half report is due no later than June 1, and the end-of-year report no later than February 15.

The following three pages are the three forms which must be completed before reimbursement is paid. Form VE-2cFBA should be sent to the State Office in early fall (four copies). This form is needed to allow the State Office to set aside funds for your program. Form 129-B and Ag. Ed. Form # 5 should be sent to the State Office no later than June 1 for the first-half report and no later than February 15 for the end-of-year report.

Form VE-2cFBA

KANSAS STATE BOARD FOR VOCATIONAL EDUCATION
Topeka
Application to Start a Farm Business Analysis Program

Date _____

The _____ High School, located at _____, Kansas, hereby wishes to file an application to carry on a vocational agriculture course for young farmers. The course will begin _____ 19____.

Minimum Requirements

The minimum enrollment to start a class will be five farmers, their names and addresses to be attached. If, during the first, second, and third year of the course the enrollment drops below five, reimbursement will be allowed on a pro-rated basis, but not below three members.

A minimum of seven group-class meetings and six farm visits per student to be conducted each year.

A report for the first half of the year will be deemed satisfactory if accounts and report forms are up to date and a fair proportion of the meetings and farm visits conducted.

The end of year report will be satisfactory if minimum requirements have been met and final reports of the accounts submitted to this office.

The first-half report is due not later than June 1, and the end of year report not later than February 15.

/s/ _____
Teacher

/s/ _____
State Supervisor, Agric. Educ.

/s/ _____
Local Administrator

Complete four copies for each class and return immediately to C. C. Eustace, State Supervisor, Agricultural Education, State Board for Vocational Education, Room 1116, State Office Building, Topeka, Kansas 66612.

STATE BOARD FOR VOCATIONAL EDUCATION

TOPEKA, KANSAS

FORM 129-B
(REV. 3-59)

CODE No._____

CLAIM FOR REIMBURSEMENT FOR SALARY
INSTRUCTOR OF ADULT CLASS

1. Name of school_____ Address_____
2. Name of school treasurer_____ Address_____
3. Name of course_____
4. Name of instructor_____ Supervisor of adult program_____

5. Number of persons in attendance when class closed_____ Average number of persons in attendance_____
6. Were all persons in the class over sixteen years of age?____ Was instruction of less than college grade?____
7. Briefly describe the nature of the instruction given_____

_____

_____

8. What was the reason for members of the class taking instruction?_____

_____

9. Date when class began_____ Date when class finished_____
10. Hours when class met: from_____ to_____ Number of meetings per week_____
11. Total number of meetings of class_____ Total clock hours of instruction_____
12. Instructor's hourly wage.... $_____ Total amount paid this instructor.... $_____
13. Estimate as accurately as possible the expenditures for maintenance of the class; amount of general upkeep and supplies consumed.... $_____
14. For special equipment purchased or rented.... $_____
15. Total amount of nonreturnable enrollment fees collected from class.... $_____
16. Net amount of reimbursement.... $_____

STATE OF KANSAS, COUNTY OF_____, SS.

I do solemnly swear that this claim for reimbursement is just, correct, and that the amount claimed therein was paid to this teacher according to the provisions of the Federal and State Vocational Education Acts, and that said amount is actually due according to law.

[Sign here]_____
Executive Officer

SUBSCRIBED AND SWORN TO before me, this_____ day of_____ A. D. 19____

_____
Notary Public

My commission expires_____ 19____

(DO NOT FILL IN THIS SPACE)

Date_____ Approved_____
State Supervisor

Amount of reimbursement from Federal funds..... $_____

Amount of reimbursement from State funds..... $_____

Date_____ Approved_____
State Director

PERSONS ENROLLED

Note: indicate all apprentices by (X) in right-hand column

	Name	Highest grade completed*	Age	Times present	Man hours instruction	Employed by	Job held	App
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								

* For technical national defense only.

Number of persons enrolled — male_____ female_____

Total man hours instruction — male_____ female_____

Number of apprentices enrolled — male_____ female_____

Number of apprentices registered (Trade and Industrial Classes Only.) — male_____ female_____

Submit not later than June 1
or for second half not
later than Jan. 15

Ag. Ed. Form #5

KANSAS STATE BOARD FOR VOCATIONAL EDUCATION
Topeka
FARM BUSINESS ANALYSIS REPORT

Date _____ School _____

Meeting Dates	Topics
	First Half Year Report
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
	Second Half Year Report
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____

Minimum Requirements Per Year:

Five Members (prorated if below minimum)
Seven Meetings
Six Farm Calls Per Year Per Student

	Name of Farmer	No. classes attended	No. visits to farm by teacher	Farming Status O-R-P*	Condition of Accounts**
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

Agriculture Teacher

Superintendent or Principal

* O-owner R-renter P-partnership

** Excellent, Good, Fair, Poor

NOTE: Complete in duplicate. Keep one copy for your files.

SECTION V
Starting a Farm Business Analysis Program

The information outlined below is a suggested procedure to follow in establishing a Farm Business Analysis program for a local vocational agriculture department.

I. Seeking approval and developing a favorable attitude of the Farm Business Analysis program with administration in early fall.
   a. Obtain an appointment with both the superintendent and principal.
   b. Explain the objectives of the course. (See Section II)
   c. Explain reimbursement for the FBA program.
   d. Discuss teacher load and explain your thinking as to how FBA could fit into your present program. (Reorganization of vocational agriculture with more emphasis on out-of-school programs.)
   e. Briefly discuss course content, schedule planned, and value of total educational program in community. (See Section VI-XIII)
   f. Discuss use of facilities, cost of school materials used, and proposed fees. At the present time, any and all fees are set, collected, and held by the local school system. It is felt at least some fee stimulates interest in a program and tends to weed out cooperators less interested.
   g. Discuss possibility of an Advisory Council. (See Section XV)
   h. Discuss prospective enrollees.

Many of the factors listed above can be found in the outlined brochure, "Boost Your Farm Income."

II. In the fall, have local newspaper editor publish a news story regarding the FBA program.
   a. The purpose of such a news story should not be to obtain class members. It should, however, be used as a form of information and invitation so that no one would feel left out if not contacted directly at a later date. If a response does occur as a result of the news story, the ag teacher would probably be obligated to encourage these individuals to enroll in the program.
   b. Below is a possible news story release for a local newspaper.

(School name) High School will introduce a program for assistance and skills in keeping farm records and accounts and in assisting farmers in the study of their farm business through analysis reports. The program will be part of the broadened curriculum of the vocational agriculture department. The new program will be instructed and coordinated by Mr. (vo-ag instructor's name) , vo-ag instructor.

The program was developed to serve mainly young farmers becoming established in the business of farming. There will be a small charge to those enrolling in the program to cover materials to be used and school utilities. The primary activities of the Farm Business Analysis program will be a series of meetings throughout the year, keeping of farm accounts, a series of farm visits to assist cooperators in farm accounting and an analysis of the accounts after the year is completed. The analysis will be under the direction of the local vocational agriculture instructor and the Agricultural Education Department of the Kansas Board for Vocational Education.

Mr. (principal's name), principal of (school's name) High School, states that "Mr. (vo-ag instructor's name) has a wide experience in this area of work and is well equipped to instruct and coordinate this program. He has participated in many meetings and workshops with teachers and State supervisors in the field."

III. Contact prospective farmers on their home farms in the fall.
   a. Conduct community survey to find best prospective cooperators.
   b. Make on-farm contacts which include the farmer's wife to determine the interest of both in farm records and business.
   c. Discuss briefly objectives and planned procedure of the class.
   d. Make arrangements for future communications, such as meeting dates, etc. (Possibly, you might have a post card form or just contact cooperators by telephone.)

Many of the factors needed for these contacts can be found in the brochure, "Boost Your Farm Income."

IV. Develop public relations activities throughout the year, starting in the fall.
   a. Discuss program with other agricultural agencies.
   b. Contact by personal visit commercial banks and explain program.
   c. Discuss business course with civic organizations.

V. In the fall, obtain a supply of Kansas Farm and Household Account Books and Kansas Depreciation and Investment Books. These may be bought from your local county agriculutural agent, however, he may have to order them.

VI. Send form VE-2cFBA (Application to start a Farm Business Analysis Program) to the State Office in the fall.

VII. Hold the first class in late November or December. (See section on instruction)

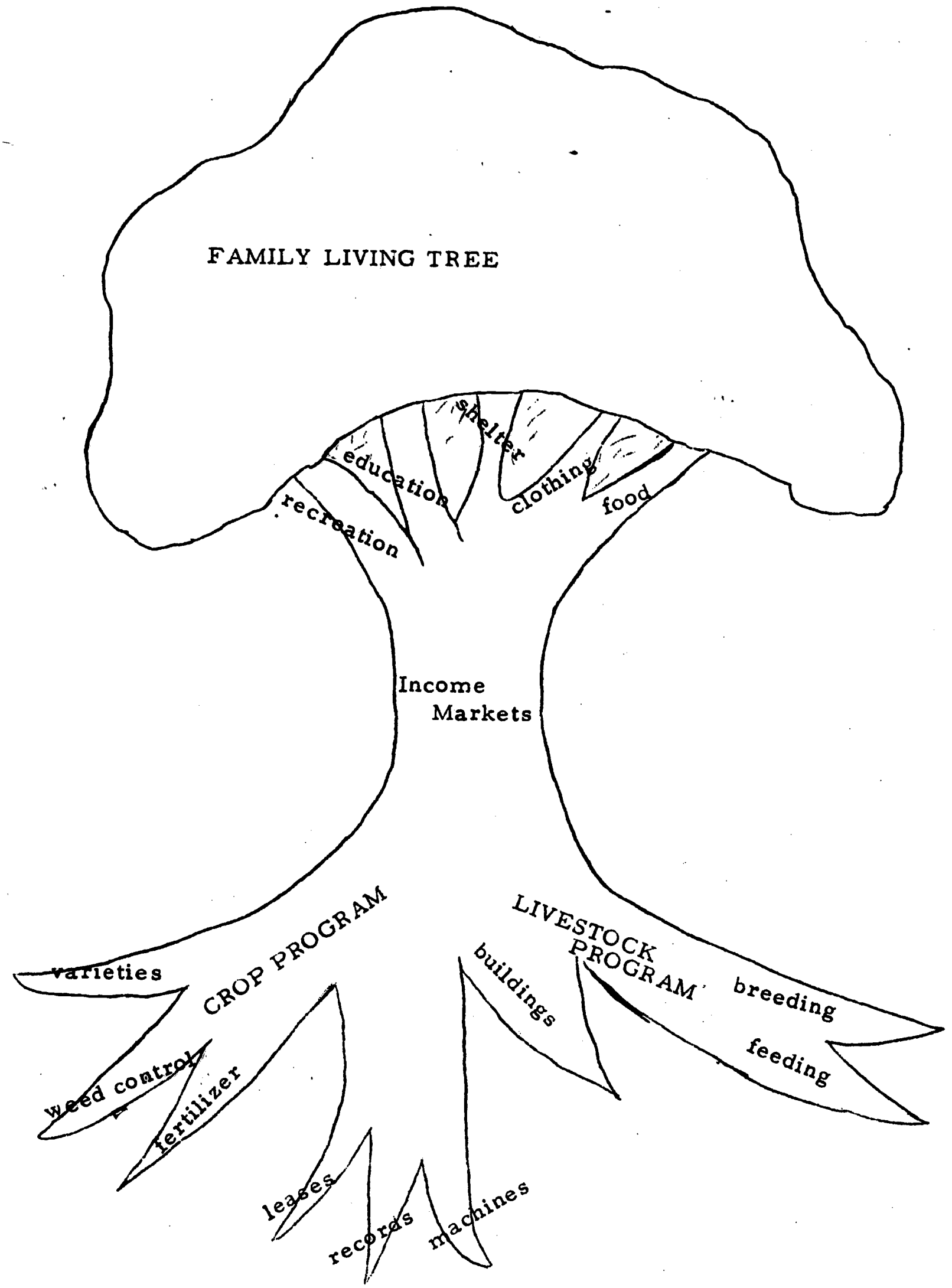
SECTION VI

INSTRUCTION: Organizational Meeting (late November or December)

Teaching Topic--What does a family want and what can a family do to make it more likely?

Objective-- To stimulate families to think about goals for the farm and family.

Activities--I. Develop and discuss the Family Living Tree.



II. Discuss the five major factors that will determine if a farm operator will show a profit.

a. Prices (farmer has little control)
b. Production rates of crop and livestock
c. Labor efficiency
d. Size of business
e. Combination of enterprises

The discussion might follow along this line of thinking: It is our conception that the basic problem of farming is adjustment to changing condition, most of them economic. What, then, are the items of highest priority that a farmer needs to know if he is to be successful? How can he provide himself with accurate information? What are the major factors affecting profit in farming and what can a farm operator do about them?

There are five major factors that determine whether or not a farm operator will show a profit. They do not act independently of each other. One influences the other. They are prices, size of business, production rates of crops and livestock, labor efficiency, and combination of enterprises. The first, prices, is something an individual farmer can do little to control. He must adjust the aspects of his business he can control to anticipated price changes.

There is one other variable that is important above all other, and that is management. Good management is impossible without a fairly complete and accurate set of records. The pencil has become the successful farmer's most important piece of equipment. The degree to which a farmer makes decisions based on accurate information determines his success.

Since each farm and each farmer is different, each decision, or set of decisions must be arrived at individually. This is the function of vocational agriculture and Farm Business Analysis.

III. Discuss some answers which a Farm Business Analysis might give.

The summary of receipts and expenses, as determined for income tax purposes may give a good indication of the over-all performance of the farm business. This is particularly true if the accrual method of tax reporting is followed. With a little extra time and knowhow, records can be kept that will do more than aid in making an income tax report. If properly kept and analyzed, they can give many of the answers needed for better decisions such as :

1. Where was the income produced?
2. What were the weak or strong points in the farm business?
3. What were the returns for labor and management?
4. What are the trends in net worth, production efficiency, volume of business, per unit costs, and other important items?

IV. Discuss the pedigree of a good manager.

Background

"Your Raising"
Good Intelligence
Brain Power

Education

Experience
Schooling
Open Mind

Curiousity

Makes Changes
New Ideas
Inovators
Observant

Aggressive

Alert
Progressive
Increase Size of Business

Values

Loves People
Unselfish
Worthwhile Purpose
Moral Backbone

Diplomacy

Tactful

Resources

Land
Labor
Capital

Records

Systematic
Accurate
Useful

Judgment

Analyze
Accepted Leadership
Friendly but Firm
Recognizes Priorities
Well Rounded

Facts

Reads
Attends Meetings
Asks Questions

Counsel

With Family
With Fieldman
With Experts

Goals

Well Defined
Attainable
Realistic

Decisions

Definite
Timely
Systematic
Not Impulsive

Action

Work
Carries Out Decisions
Makes Mistakes
Assumes Responsibility
Takes Risks
Initiative

Manager

Level of Gross Production
Net Worth
Growth
Happy Family

V. Discuss the major activities of Farm Business throughout the year:
1. Keeping of farm and personal accounts for next year for aiding in figuring taxes and for analysis.
2. A series of meetings, seven to ten, to help cooperators with accounting methods and problems.
3. On-farm visits, six to ten, by the coordinator to assist with accounting.
4. Completion of account books to be sent to State for analysis.(This is NOT a check.)
5. Evaluation of account books and analysis.
6. Social and awards night.

VI. Discuss your policy as to fees and collect if this fits your schedule.

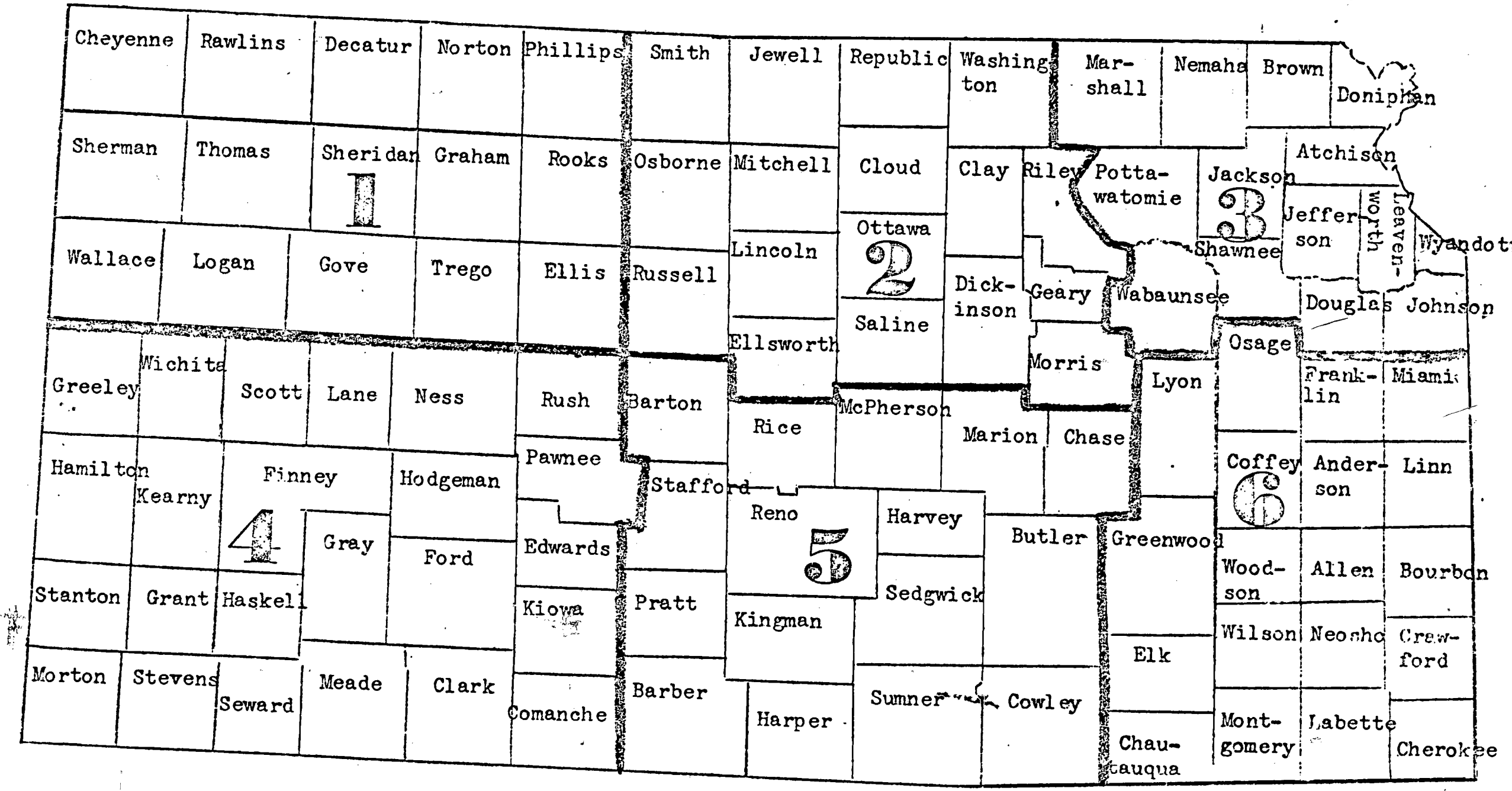
VII. Distribute account book and discuss very briefly.
1. Identify properly.
2. Call attention to:
   a. Inventory section
      Farm expense section
      Farm receipts section
      Personal section
3. Make the following corrections to Kansas Farm and Household Account Book:
   a. Page 71 under "Standards for man work days of Livestock systems", omit all figures under "small" and "medium" and use only figures under the " larger" column. The reason for this change is to encourage the adoption of more efficient factors.
   b. Page 74 under the "Education and Recreation" column, "Farm Organization dues" should be eliminated. The reason is because of taxes. This is considered a tax deductible item.
   c. Page 74 in the box on the bottom of this page is a list of tax deductible items. To this list should be added: medical care, and in some cases educational expenses are deductible expenses.
   d. Page 103, under "Total Farm Products Used at Home" to the line "Personal Share of Auto Expense" add the words " And Personal Share of Auto Depreciation."
   e. In all expenses, it would be a good idea to designate them CK if they are paid by check. This would help to keep the check accounts up to date.

VIII. Mention that the next session will cover inventories (stress importance). Ask members to come prepared to work out their inventories including depreciation schedules. Members should not be left with the idea that they need to know all aspects of inventories and depreciation(that is the objective of the next meeting), but they should know what they have as of January 1 and facts about them.

IX. The following pages include:
   a. A sample certificate to be used for cooperators of the program.
   b. A map showing the different areas which the State is divided to make future analysis.
   c. Some work sheets which the cooperator might find interesting before the next meeting.

X. Set a tentative meeting date for January. Inform members that you will continue to contact them as to the exact date at a later time.

FARM BUSINESS ANALYSIS AREAS



THE MAN in "MANAGEMENT"

When we look at the reasons for the wide differences in net income of different farmers, we find many. Volume or size of business--crop yields--livestock efficiency--machinery costs--prices paid and received--types of crops and livestock labor efficiency---Yes, we could discuss dozens of reasons AND WILL! But basic to ALL of these is the MAN and his FAMILY. It is their goals, decisions, plans, and actions that are behind many of these other reasons. In short, it is your management that is still the most important factor.

Before we begin analyzing farm businesses, we should take a studied look at management from the standpoint of personal qualities, habits, and methods. To sharpen our understanding, let's do the following before the second meeting (wife and husband together):

1. Think of the most successful farmer you are well acquainted with and score him on each of the 20 points on the attached MANAGEMENT SCORE CARD. Give 5 points for each item on which he is excellent and lesser points for items on which he is less perfect.

2. Think of the least successful farmer you are well acquainted with and score him in the same manner.

3. Score yourself (for your own information).

4. Check in the last two columns your strong and weak points. (We will discuss tools for improvement in the second meeting.)

5. List any other important differences between the most successful and least successful on the back side of this page.

"A MANAGEMENT SCORECARD"

	"Best" You Know	"Worst" You Know	Your Own	Your Strong Points	Your Weak Points
Gets the Facts					
1. Mentally curious and alert to new developments.					
2. Knows where and how to get needed information.					
3. Keeps good records to know what a crop, machine, or livestock costs him or returns.					
4. Determines the information he needs and goes after it.					
Can Organize and Analyze the Facts					
1. Can use his pencil.					
2. Gets a "dollars and cents" answer to a "dollars and cents" problem.					
3. Likes to solve problems.					
4. Does not make snap decisions.					
5. Can get to the head of his problems.					
Makes Decisions					
1. Has courage to make needed decisions and changes - not put them off.					
2. Can plan ahead - not just for today or this year.					
3. He makes definite plans.					
4. Can find time to plan improvements.					
Effectively Carries Out His Decisions					
1. Has confidence in his plans and decisions and courage to carry them out.					
2. Has systems he follows - doesn't "play everything by ear."					
3. Is timely in his work. Is ahead rather than behind his work.					
4. Has a sense of priority in his work.					
5. Has capacity for work.					
Accepts Responsibility					
1. Does not always have "bad luck" - not always hunting something to blame.					
Total Points					

Family Worksheet 1

TAKE A LOOK AT YOUR FINANCIAL POSITION



INVESTMENT MANAGED
INVESTMENT OWNED
BUSINESS NET WORTH
FAMILY NET WORTH

DATE_____

	VALUE OF RESOURCES	
	Rented	Owned
FIXED CAPTIAL MANAGED		
1. Estimated market value of land		
2. Estimated value of all farm buildings		
3. TOTAL FIXED CAPITAL MANAGED (lines 1 and lines 2)		
WORKING CAPITAL MANAGED (machinery and equipment)		
4. Estimated value of TRACTORS and TILLAGE equipment		
5. Estimated value of COMBINES		
6. Estimated value of OTHER HARVEST machines (forage, harvester, picker, baler, stacker, mower, dryer, blower, etc.)		
7. Estimated value of farm trucks, farm share of auto, wagons, etc.		
8. Estimated value of livestock and feed handling storage and preparation equipment (feeders, hammermills, augers,)		
9. TOTAL MACHINERY AND EQUIPMENT (total line s 4 through 8)		
(livestock).		
10. Estimated value of breeding catttle (beef and dairy)		
11. Estimated value of other cattle		
12. Estimated value of hogs, sheep, poultry, and horses		
13. TOTAL LIVESTOCK (total lines 10 through 12)		
(grain feed, seeds, fertilizer, and others)		
14. Estimated value of grain on hand (including "in field")		
15. Estimated value of roughage, supplemental feeds, etc.		
16. Estimated value of fertilizer, seed, herbicides, insecticides, etc.)		
17. Estimated value of gasoline, oil and miscellaneous supplies		
18. TOTAL GRAIN, FEED, SEEDS, AND SUPPLIES (total lines 14 through 17)		
19. TOTAL FARM RECEIVABLES (coop stock, bank balance) (money owed you for farm produce sold)		
20. TOTAL WORKING CAPITAL MANAGED (total lines 9, 13, 18, 19)		

TOTAL BUSINESS INVESTMENT MANAGED	
21. TOTAL FIXED CAPITAL MANAGED (line 3 rented plus owned)	
22. TOTAL WORKING CAPITAL MANAGED(line 20)	
23 TOTAL INVESTMENT MANAGED(total lines 21 and 22)	
24. TOTAL INVESTMENT MANAGED PER MAN(divide line 23 by average number of men used in business-total man months of hired and family labor divided by 12)	
NET WORTH IN BUSINESS	
25. TOTAL INVESTMENT MANAGED(line 23)	
26. MINUS RENTED CAPITAL (rented portion line 3)	
27. TOTAL BUSINESS INVESTMENT OWNED (25 minus 26)	
28. Real estate mortgages(principle yet owed)	
29. Chattel mortgages	
30. Feed, gasoline, other supplies owed for	
31. Other business payables (interest, rent, taxes due, etc.)	
32. TOTAL BUSINESS DEBTS (total lines 28 through 31)	
33. TOTAL BUSINESS NET WORTH (line 27 minus line 32)	
FAMILY'S NET WORTH	
34. FAMILY'S BUSINESS NET WORTH (same as line 33 unless, you have a partner--subtract his(or her) share)	
35. Value of residence if owned	
36. Value of outside investments and savings	
37. Value of household goods (furniture, personal, etc.)	
38. Non-farm receivables not included in line 19	
39. Total lines 34 through 38	
40. Mortgages on nonfarm or personal assets	
41. Installment debt	
42 Any other nonfarm debts	
43. TOTAL NONFARM FAMILY INDEBTEDNESS (total lines 40,41, and 42.)	
44. TOTAL FAMILY NET WORTH (line 39 minus line 43)	

EVALUATION OF FINANCIAL FACTS

1. How much financial progress have you made? (Compare line 34 and line 44 with when you started or 5, 10, or 20 years ago.)

2. Divide line 23 (INVESTMENT MANAGED) by 25. Would this figure be a satisfactory income? If not, you may need to consider renting or borrowing additional resources --or making use of "higher turnover" enterprises such as dairy or swine, or other "higher capital turnover" livestock.

SECTION VII

Teaching Topic--Developing inventories for January 1, 1966

Objective--To develop accurate inventories and stress their importance.

Activities--1. Stress the point that accurate inventories are essential if we are to obtain a meaningful analysis. The purpose of an inventory is NOT to aid in income tax returns.

2. Discuss, then have each cooperator fill out the areas of the inventory:
   a. Livestock
   b. Feed, seeds, and supplies
   c. Receivables
   d. Payables

3. Discuss, then have each cooperator fill out the depreciation record for his farm. This discussion might follow the general line of the four problems on the succeeding four pages.

4. After inventories are completed, you might find it best to keep them in your files as confidential information.

5. Discuss briefly the farm receipt and expense pages and household expense pages, and keeping records on these sections up to date.

6. Set a tentative date fot the next meeting, probably to be held in two or three weeks (late January) The next meeting will cover the expenses and receipts section, monthly livestock inventories, and feed records.

Depreciation Schedule Problem No. 1

New Tractor Purchased (without trade)

Problem: Purchased new John Deere tractor, May 1, 1964, for $3200 plus $80 sales tax or total of $3280. Estimated salvage value $320. Estimated years of life 8. Straight line method of depreciation.

Enter Machinery and Equipment upper part of page
Enter Purchased Breeding Livestock lower part of page

Machinery and Equipment: New 1964 John Deere tractor

Date Acquired: May 1, 1964
Tractor was owned 8 months in 1964 or 8/12 of a year.

Purchases This Year: $3280

Cost or Other Basis: $3280
The "basis" of property purchased for money is ordinarily its cost. (See 1964 Farmer's Tax Guide, Page 45, Col. 2, "Purchased Property")

Investment Credit: $229.60
Since the property is new (See 1964 F. T. G., Page 3, "New Property") and its expected useful life is as much as 8 years, the full amount of the "Cost or Other Basis" qualifies for the 7% investment credit. (See 1964 F. T. G., Page 3, "Property Must Have an Expected Useful Life of at Least 4 Years.") 7% of $3280 = $229.60

It is important to take the 7% Investment Credit during the first year the property is placed in service. After that, it will not qualify for this tax saving. In this example, the farmer would pay $229.60 more tax than necessary if he failed to take advantage of the 7% investment credit. (See F. T. G., Page 3, "Investment Credit, paragraph 1.)

20% Additional First-Year Allowable Depreciation: $656
20% of $3280 = $656
Even though the property was not owned for the full year, the full 20% may be taken. (See 1964 F. T. G., Page 35, Col. 2)

Salvage Value: $320
Full 10% would have been $328

Depreciable Balance: $2304
Cost or Other Basis minus (20% Add. 1st-yr. + Salvage) = Depreciable Balance $3280 Minus ($656 + $320) = $2304

Years of Life: 8 years

Method of Depreciation: Straight Line

Remaining Value for Depreciation Beginning of Year: XX

The tractor was purchased during the year; therefore, no entry in Col. 7.

This Year's Depreciation: 20% 656
8/12 192

"Where depreciable property is acquired during the year, regular depreciation is allowable for only that part of the year you own the asset." (See 1964 F.T.G., Page 33, Col. 1, "Depreciation" paragraph 2)
The tractor was owned 8 months and is therefore eligible for 8/12 of the annual depreciation.

Depreciable Balance divided by years of life = Annual Depreciation
$2304 divided by 8 = $288
8/12 of $288 = $192

This year's Depreciation also includes the $656 for 20% First-Year Depreciation.
Enter it just above the $192 regular depreciation.

Remaining Value for Depreciation, End of Year:

	$320
	$2112

Salvage value, $320, is placed above the line.
Remaining value for Depreciation End of Year (In addition to salvage value), $2112, is placed below the line.

Depreciable Balance, Col. 6	$2304
This year's regular depreciation	192 (8/12 of depreciation for 1964)
Remaining Value for Depreciation	$2112

On Depreciation Schedule Supplementary Sheets, Remaining Value for Depreciation (in addition to salvage value) will work out as follows:

Remaining Value for Depreciation	$2112	January 1, 1965	$ 320 / $2112
1965 Depreciation	288		
Remaining Value for Depreciation	$1824	January 1, 1966	$ 320 / $1824
1966 Depreciation	288		
Remaining Value for Depreciation	$1536	January 1, 1967	$ 320 / $1536
1967 Depreciation	288		
Remaining Value for Depreciation	$1248	January 1, 1968	$ 320 / $1248
1968 Depreciation	288		
Remaining Value for Depreciation	$ 960	January 1, 1969	$ 320 / $ 960
1969 Depreciation	288		
Remaining Value for Depreciation	$ 672	January 1, 1970	$ 320 / $ 672
1970 Depreciation	288		
Remaining Value for Depreciation	$ 384	January 1, 1971	$ 320 / $ 384
1971 Depreciation	288		
Remaining Value for Depreciation	$ 96	January 1, 1972	$ 320 / $ 96
1972 Depreciation	96		

Hereafter the tractor is carried at salvage value alone -- $320

Depreciation Schedule Problem No. 2

Old Tractor Traded for New Tractor

Problem: January 14, 1964 bought new International tractor valued at $5600. Traded in old tractor having a remaining value (including salvage) of $1400. Paid $4000 difference or "boot". Estimated years of life is 8. Estimated salvage value is $540. Use straight line method.

The old tractor had Remaining Value for Depreciation Beginning of Year, of $1400. (Other data for the old tractor was not included in the problem. It is assumed that a depreciation schedule exists and the last entry will be "Traded".)

Machinery and Equipment: 1964 International Tractor

Date Acquired: January 14, 1964

It is assumed the tractor will be put in service immediately. Count full month if acquired 1st to 15th day of month. Do not count month if acquired 16th day to end of month.

Purchases This Year: $4000 Boot

Only "new money" is included in this column.

Cost or Other Basis: $5400

For new property, the "basis" is the remaining cost of old equipment traded in, $1400, plus cash expended, $4000. The $5600 list price for tractor is not considered. (See 1964 Farmers' Tax Guide, Page 3, "New Property," also Page 46, "Like Kind Exchanges of Business Property" Example 1, paragraph 2.)

Investment Credit $378

Since the property is new (See 1964 F. T. G., Page 3, "New Property") and the expected useful life of the new property is 8 or more years, the full amount of the "Cost or Other Basis" qualifies for the 7% investment credit. (See F. T. G., Page 3, "Property Must Have an Expected Useful Life of at Least 4 Years.")

20% Additional First-Year Allowable Depreciation: $800

The new tractor qualifies since it has "a useful life of 6 years or more when purchased." (See F. T. G., Page 35, "Additional First-Year Depreciation, "Paragraph 1.)

However, only the $4000 "new money" qualifies. (See 1964 F. T. G., Page 36, "The Property Must Have Been Purchased.")

Salvage Value: $540

Depreciable Balance:

Cost or Other Basis	minus	($4060 (add. 1st-yr. Depr.	+ Salvage) = Depreciable Balance
$5400	minus	($800	+ $540) = $4060

Years of Life: 8

Method of Depreciation: Straight Line

Remaining Value for Depreciation Beginning Year: XX

The new tractor was purchased this year. Therefore there will be no entry under this heading.

This Year's Depreciation: 20% $800
annual $507.50

The tractor is considered to have been owned a full year.

Depreciable Balance	divided by yrs. of life =	Annual Depreciation
$4060	divided by 8 =	$507.50

Remaining Value for Depreciation, End of Year:

Salvage Value, $540, is placed above the line.

Remaining Value for Depreciation, End of Year (in addition to salvage value) $3552.50, is placed below the line.

	$540
	$3552.50
Depreciable Balance,	$4060.00
This year's regular depreciation	507.50
Remaining Value for Depreciation	$3552.50

Depreciation Schedule Problem No. 3

Old Tractor Traded in on Used Tractor

Problem: March 18, 1964, Traded used tractor to Herbert Henderson for used tractor, $420 boot. Old tractor had a Remaining Value for Depreciation Beginning of Year (including salvage) of $1500. Estimated salvage value $192, Years of Life 4, Straight Line.

Machinery and Equipment Purchased: Herbert Henderson - Used Tractor

Date Acquired: March 18, 1964

Since the tractor was purchased after the 15th of the month, the current month's depreciation will not be counted on this year's regular depreciation.

Purchases This Year: $420 Boot

Cost or Other Basis: $1920

Old Property's Remaining Value for Depr. Beg. of Yr. + Boot = Basis of acquired property, Col. 2

$1500 + $420 = $1920

(See 1964 F. T. G., Page 46, "Like Kind Exchanges of Business Property." Note particularly the formula for computing basis of property acquired.)

Investment Credit: $9.80

Since the tractor acquired is used property, only the cash difference given in trade ($420) can be used in calculating the investment credit. (See 1964 F. T. G., Page 3, paragraph "Used Property.")

Since the property has an expected useful life of 4 years, only 1/3 of the investment credit can be counted.
(See 1964 F. T. G., Page 3, "The Property Must Have an Expected Useful Life of at Least 4 Years.")

1/3 of $420 = $140

7% of $140 = $9.80

20% Additional First-Year Allowable Depreciation: $XX

Since the tractor does not have a useful life of 6 or more years, it does not qualify. (See 1964 F. T. G., Page 35, "Additional First-Year Depreciation.")

Salvage Value: $192

Depreciable Balance: $1728

Cost or Other Basis	minus (Add. 1st-yr. Depr.	+ Salvage)	= Depr. Bal.
$1920	minus ($XX	+ $192)	= $1728

Years of Life: 4 years

Method of Depreciation: Straight Line

Remaining Value for Depreciation Beginning of Year : $XX

The tractor was bought this year, 1964, so no entry.

This Year's Depreciation : $324

Depreciable Balance divided by Years of Life = Annual Depreciation

$1728 divided by 4 = $432

However, regular depreciation is allowable for only that part of the year you own the property. (1964 F. T. G., Page 33, "Depreciation" Paragraph 2.) (See under "Date Acquired" above.)

9/12 of $432 (annual depreciation) = $324

Remaining Value for Depreciation End of Year: $192

For items purchased this year: $1404

Depreciable Balance minus This Yrs. Depr. = Remaining Value for Depr. End of Yr.

$1728 minus $324 = $1404

Use Depreciation Schedule Supplementary sheets for holding period.

Remaining Value for Depreciation:

1964 End of Year, Col. 9 and 1965 Beg. of Year	$192	salvage
1965 Depreciation $432	$1404	
1965 End of Year, Col. 9 and 1966 Beg. of Year	$192	
1966 Depreciation $432	$972	
1966 End of Year, Col. 9 and 1967 Beg. of Year	$192	
1967 Depreciation $432	$540	
1967 End of Year, Col. 9 and 1968 Beg. of Year	$192	
1968 Depreciation $108	$108	

Hereafter tractor is carried at salvage value alone -- $192

Depreciation Schedule Problem No. 4

Old Tractor Rebuilt

Problem: Old tractor on hand with a remaining value for depreciation at the beginning of the year of $400 was rebuilt as of January 10, 1964, at a cost of $300. Estimated salvage value is $70, Years of Life 4, Straight Line method of depreciation.

Machinery and Equipment: Rebuilt old tractor

Date Acquired: January 10, 1964

Purchases This Year: $300
Cost of rebuilding tractor. (new money)

Cost or Other Basis: $700
The "adjusted basis" of the rebuilt tractor equals the Remaining Value for Depreciation Beginning of Year ($400) plus the cost of the rebuilding ($300). (See F. T. G., Page 45, Col. 1, "Basis and Adjusted Basis.")

Investment Credit

Question: Would the "new money" spent in rebuilding the tractor qualify for investment credit?

If the answer is "yes" the amount would be $7. Because the estimated useful life is 4 years, only 1/3 of the investment can be counted. 1/3 of $300 = $100. 7% of $100 = $7. (See 1964 F. T. G., Page 3, paragraph "Property Must Have an Expected Useful Life of at Least 4 Years.")

20% Additional First Year Allowable Depreciation: $XX
Property must have a life of 6 years to qualify. (F. T. G., Page 35, Col. 2. Additional First Year Depreciation.)
Would it qualify otherwise?

Salvage Value $70

Depreciable Balance: $630

Cost or Other Basis	minus	(Add. 1st-year. Depr.	+ Salvage)	= Depreciable Balance
$700	minus	($XX	+ $70)	= $630

Years of Life: 4

Method of Depreciation: Straight Line

Remaining Value for Depreciation Begin. of Year: XX

Old tractor (before rebuilt depr. schedule) $400
This could be termed residue, Remaining Value or Remaining Cost.
Rebuilt Tractor. Col. 7. (Expense after Jan. 1) $XX
Remembering that old tractor had residue or Depreciated Value is key point.

This Year's Depreciation: $157.50

Depreciable Balance divided by Years of Life = Annual Depreciation
$630 divided by 4 = $157.50
The "Adjusted Basis" for the tractor was in effect for the full year. Therefore, "This Year's Depreciation" is the same as Annual Depreciation.

Remaining Value for Depreciation End of Year:		$70
Salvage value, $70, is placed above the line.		$472.50
Remaining value for Depreciation End of Year (in addition to salvage value) $472.50, is placed below the line.		
Depreciable Balance		$630.00
This year's regular depreciation		157.50
Remaining Value for Depreciation		$472.50

On Depreciation Schedule Supplementary Sheets, Remaining Value for Depreciation (in addition to salvage) will work out as follows:

Remaining Value for Depreciation	$472.50	January 1, 1965
1965 Depreciation	157.50	
Remaining Value for Depreciation	315.00	January 1, 1966
1966 Depreciation	157.50	
Remaining Value for Depreciation	157.50	January 1, 1967
1967 Depreciation	157.50	

Hereafter the tractor is carried at salvage value alone -- $70

SECTION VIII

INSTRUCTION: Basic Accounting Procedures (Late January)

Teaching Topic--Keeping farm receipts and expenses, household expenses, monthly livestock inventories, and feed records.

Objective--To stress and practice making entries accurately

Activities--1. Study of making entries in farm expenses and receipts, and household expenses

a. Read over the inside page together and dis
b. Demonstrate the correct procedure for fixing and using the index tabs.
c. Cover the special things to watch for in making receipt and expense entries and show the correct procedure.
d. Have some practice problems duplicated and help the class make a few entries. (Put in pencil so they can be erased.)

2. Study of making entries on Livestock Number Report

The discussion might follow this general line of thinking:

a. Uses of livestock numbers report
   1. To check the accuracy of sales
   2. To check the accuracy of purchases
   3. To determine livestock efficiencies
   4. To determine production per unit
   5. To determine labor efficiency
b. Livestock transactions involved
   1. Livestock supplies
      a. Beginning inventories
      b. Purchases
      c. Births
      d. Transfers
   2. Livestock disposals
      a. Sales
      b. Transfers
      c. Deaths
      d. Butchered for home use
      e. Ending inventories
c. Bring out the possibility of overlooking certain entries unless these records are kept and unless periodic checks are made.
d. Since livestock profits and efficiencies must be compared with others on a unit basis, it is very important that these numbers are accurately recorded.
e. What can be crosschecked?
   1. Beginning inventory_____ +purchases_____ + births_____ +transfers in _____equals supply_____
   2. Sales_____ + transfers out_____ +ending inventory _____ equals disposal_____.
   3. Supply_____equals disposal_____.
f. Use of the Livestock Report Sheet (State Vo-Ag Department)
   1. For monthly check 2. For any periodic check 3. For end-of-year check

(To be entered in the Kansas Farm and Household Account Book for practice)

RECEIPTS

Month	Day	Amount Received	To Whom Sold	Item Sold	Units	Weight	Price
Jan.	7	265.20	Washburn Packing Company	Hogs	8	2040	13.00
	10	25.00	Sam Jones	Labor	20hrs.		1.25
	20	360.00	Hometown Co-op	Wheat	200 bu.		1.80
	25	5.00	Johnsons Locker	Steer hide			
Feb.	6	78.45	State Gas Refund				
	10	60.00	Bell Farms	Straw	6T		10.00
	25	61.44	Consumers Co-op	Pro-rate			
Mar.	8	150.00	Farm Bureau Insurance	Insurance on Steer			
	20	96.00	School District 101	Teaching			
May	8	50.00	Bill Sampson	Posts	50		1.00

EXPENSES

Month	Day	Paid	Paid To	Item	Units	Weight	Price
Jan.	3	20.00	R.E.A.	Electricity			
	6	60.00	Hometown mill	Milo-steers	4000#		1.50cwt
	26	16.40	Hometown mill	Protein-steers	400#		4.00cwt
	20	3.72	Goodyear Company	Tire tube			
	22	16.20	Hometown mill	Hog supplement	400#		4.00cwt
Feb.	2	55.70	County Treasurer	Truck-43.70 Car-12.00			
	10	8.40	Internal Revnue Department	Social Security Labor			
	10	51.20	Internal Revenue Department	Social Security			

PROBLEM

"LIVESTOCK REPORT" SHEET

Make the correct entries on the Livestock Report sheet with the following data known:

a. Inventoried 32 dairy milk cows as of January 1
b. Two cows were sold during January
c. One cow was sold in April
d. One cow died in April
e. One heifer freshened in June
f. One heifer freshened in July
g. One cow was sold in July
h. Two cows were sold in August
i. Three cows were sold in October
j. Five heifers freshened in November
k. One heifer freshened in December

Study of making entries on Feed Supply and Disposal sheets. The general discussion might follow this line of thought:

a. Feed is the largest single item of cost for all enterprises
   1. Approximately 45% for dairy and poultry
   2. Approximately 50% for farm flock of sheep
   3. Approximately 75 to 85% for hogs, feeder cattle, and feeder lambs
b. Feeding livestock is an alternative to selling feed on the market
   1. Feed through livestock should pay for all costs, including labor, and give better than market prices for crops fed
c. Uses of feed records in an analysis:
   1. To determine profitability of feed (return over feed)
      a. Amount of feed used
      b. Costs of feed used
      c. To compare with other farms
d. This is NOT intended to be a detailed interpretation of the analysis--only to give general ideas of what can be learned.
e. What feed records are necessary?
   1. Farm grown grains
   2. Dry roughages
   3. Silages
   4. Pasture days
   5. Purchased feeds
   6. Milk fed to livestock
f. How should these records be kept?
   1. The easiest, accurate way
      a. On basis of an occasional daily weighing of feed
      b. On basis of feed batches
      c. On basis of bins or cribs
      d. On basis of silo capacity
   2. Frequency of feed record entries
      a. Monthly, if this is convenient and accurate
      b. By any other period of time that is convenient and accurate
   3. Purchases feed
      a. If kept separately by enterprise in feed bought section--this may be an annual total

SECTION IX

INSTRUCTION: Accounting Organizational Meeting (February meeting)

Teaching Topic--Filing system and business center

Objective-- To encourage and assist farm couples to set up filing systems and business centers.

Activities--1. First, the coordinator should check and see if there are problems in accounting and review any areas which might need recalling.

2. A full and complete discussion can be obtained from the booklet "Your Home Business Center."

3. Discuss the filing system set up on the following pages
   a. If possible, have folders available for use
   b. Have a supply of bulletins or other material to show cooperator the vast amount of material available

FARM FILING SYSTEM

1. Farm
   - 1-1 Correspondence
   - 1-2 Contracts and leases
   - 1-3 Canceled checks
   - 1-4 Check book stubs
   - 1-5 Deposit slips
   - 1-6 Insurance
     - 1-6-1 Automobile
     - 1-6-2 Life
     - 1-6-3 Property
   - 1-7 Taxes
     - 1-7-1 Federal income
     - 1-7-2 State income
     - 1-7-3 Property
   - 1-8 Livestock registration
   - 1-9 Farm plan
   - 1-10 Farm account books
   - 1-11 Health records

2. Expense Receipts
   - 2-1 Auto expenses
   - 2-2 Combine expenses
   - 2-3 Feed bought
   - 2-4 Livestock bought
   - 2-5 New buildings & equipment
   - 2-6 New machinery & equipment
   - 2-7 Notes, payments, etc.
   - 2-8 Repairs, machinery, & equipment
   - 2-9 Seed, twine, and supplies
   - 2-10 Taxes, interest, etc.
   - 2-11 Tractor expenses
   - 2-12 Truck expenses
   - 2-13 Machine hire
   - 2-14 Veterinary & livestock expenses
   - 2-15 Others

3. Income receipts
   - 3-1 Crop sales
   - 3-2 Dairy products
   - 3-3 Eggs
   - 3-4 Livestock
   - 3-5 Other

4. Household expenses
   - 4-1 Clothes
   - 4-2 Contributions
   - 4-3 Food
   - 4-4 Household furnishings
   - 4-5 Household operations
   - 4-6 Medical expenses
   - 4-7 Other

5. Organizations
   - 5-1 Co-op
   - 5-2 Soil Conservation Service
   - 5-3 A. S. C.
   - 5-4 Others

6. Crops
   - 6-1 Grass and legumes
   - 6-2 Row crops
   - 6-3 Small grains
   - 6-4 Weeds
   - 6-5 Disease and insect pests

7. Livestock
   - 7-1 Feeds and feeding
   - 7-2 Beef
   - 7-3 Dairy
   - 7-4 Poultry
   - 7-5 Sheep
   - 7-6 Swine

8. Management
   - 8-1 Accounts and records
   - 8-2 Contracts and leases
   - 8-3 Farm credit
   - 8-4 Farm law
   - 8-5 Farm planning
   - 8-6 Marketing
   - 8-7 Real estate
   - 8-8 Taxation

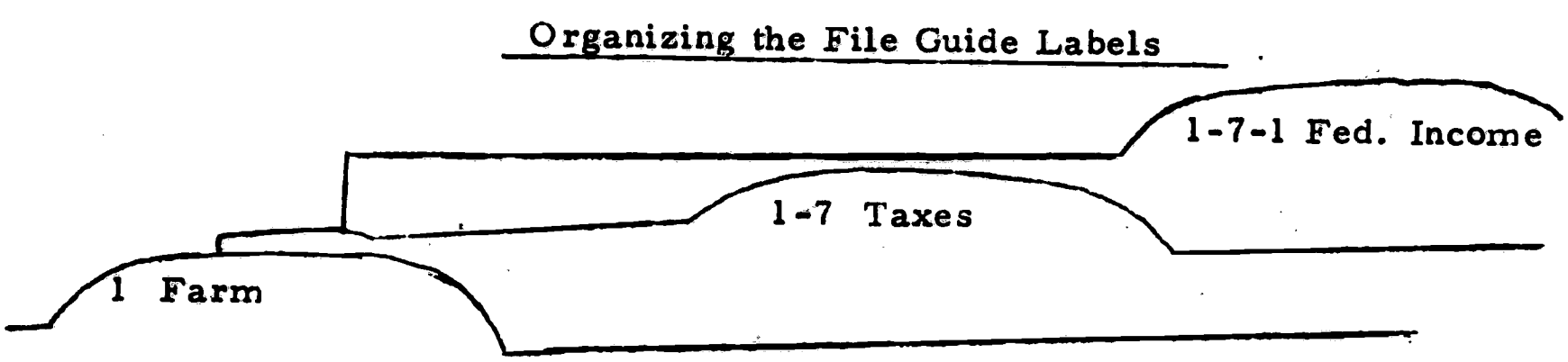
9. Farm Home
   - 9-1 Blueprints and plans
   - 9-2 Electricity
   - 9-3 Heat
   - 9-4 Water
   - 9-5 Sewage disposal

10. Orchards and gardens
   - 10-1 Fruit trees
   - 10-2 Vegetables
   - 10-3 Landscaping and windbreaks
   - 10-4 Food preparation and storage

11. Shop
   - 11-1 Farm buildings
   - 11-2 Machinery repair
   - 11-3 Shop jobs
   - 11-4 Labor saving devices

12. Soils
   - 12-1 Conservation
   - 12-2 Fertilization

Organizing the File Guide Labels



Straight Cut Folders

1. Farm	1-7-1 Federal Income

The section from Crops to Soils is for filing reference materials.

This system may be changed and expanded to suit your needs.

Reproduction of this form should be on heavy paper.

This is an index of your file and kept in front.

SECTION X
INSTRUCTION: Land Use and Crop Records (March or April)

Teaching Topic--Land Use and Crop Record Forms

Objectives--To develop accurate methods of recording Land and Crop Records

Activities--1. First, the coordinator should check and see if there are problems in accounting and review any areas which might need recalling

2. Study making entries on Land Use and Crop Record sheets. The general discussion might follow this line of thought:
   a. What are the uses of crop yield records?
      1. To determine production per acre
      2. To evaluate cropping efficiencies
      3. To determine available feed
   b. How does the accuracy of crop yields affect the analysis of the farm business?
      1. Effects of inaccurate estimates
         a. Results in erroneous cost per unit
         b. Results in erroneous amount available for livestock feed and distorts efficiencies of livestock
         c. Results in erroneous inventories
   c. Without yield records, it would not be possible to determine the effectiveness of fertilization, tillage, and weed control
   d. These records are also used to determine the amount of feed available for livestock
   e. Illustrate how inaccurate yield estimates will result in inaccurate end-of-year inventories and in turn reflect on farm earnings
   f. Determining total production
      1. Hay production
         a. Number of bales times average weight per bale
         b. Number of loads times tons per load
         c. Cubic feet in storage divided by cubic feet per ton
      2. Silages
         a. Volume in storage, times weight per cubic foot divided by 2,000 equals tons
         b. Refer to tables in back of Kansas Farm and Household Accounting Book
      3. Ear Corn
         a. Use tables in back of Kansas Farm and Household Accounting Book
   g. Follow the outline illustrating methods of determining production for each of the crops
   h. Use examples to show how total production of hay can be determined by each of the methods shown in the hay production section

Land Use and Crop Record

FBA 4

Crop:_____ Acres:_____ Year:_____

Seed Variety	Rate/a	Total Quantity	Unit Price	Value
Seed Treatment				
Fertilizer				
Weed Control				

Crop Operations

Date	Size and Description of Implement	Hours	Cost*

Production:

Total Yield_____ Yield/a_____ Landlord Share_____

Record of soil test and moisture conditions:

*To be determined by analyst

SECTION XI

INSTRUCTION: Minimizing Taxes (November or December)

Teaching Topic--How a farmer can manage his income or expenses to minimize taxes.

Objective--To acquaint farmers with the possibilities of minimizing taxes.

Activities--1. First, the coordinator should check and see if there are any problems in accounting. Most of these should have been worked out during on-farm visits during previous months.

2. Discuss the possibility of farmers minimizing taxes. The general discussion might follow this line of thought:

John and Mary Jones have two children--Average Income Two year Taxes

	1960	1961	Income	Taxes
Net Income	0	$5,334	$2,667	$480

Jim and Jane Smith have two children--Average Income Two year Taxes

	1960	1961	Income	Taxes
Net Income	$2,667	$2,557	$2,667	0

A. Increasing the income to cover allowable personal deductions and exemptions.
   1. Cash basis
      a. Make additional sales before the end of the year. (Selling livestock feeders, selling grain, culling dairy cows, disposing of other undesirable animals, collecting money due for labor of custom work done, or do additional off-farm work before end of the year.)
   2. Accrual basis
      a. Buy feeder stock and other inventory property which will increase in value by the end of the year.
      b. Incur as few deductible expenditures as possible during the balance of the year.
      c. Do off-farm work to increase income.

B. Increase deductions to save on taxes
   1. Plan farm operating expenses. (Paint buildings, minor repair or improvement, many small shop tools, costs of soil and water conservation practices.
   2. Full use of depreciation deductions
      a. Straight line method
      b. Declining balance
      c. Sum-of-the-digits
   3. Net operating loss deductions

C. Tax management of sales or trades of property
   1. Sale or trade of machinery and equipment
   2. Sale or trade of real estate
      a. Farm business improvements subject to depreciation. (Farm buildings, silos, fences, and tile drains.)
      b. Farm business improvements not depreciable. (Clearing land, constructing open ditches, soil and water conservation improvements.)

c. Improvement to the farmer's personal dwelling.

D. Tax planning in buying a farm.
   1. The cost of the growing crops is deducted in the current year as a farm operating expense. (The cost basis of the farm is reduced by the amount allocated to the crop.)
   2. The portion allocated to the dwelling is NOT depreciable if used as the buyer's personal residence.
   3. A tenant house is depreciable for the purposes.
   4. The cost allocated to depreciable improvements will be recovered through depreciation.
   5. Recovery of cost is faster on short lived improvements than on long lived ones.

E. Allocating the cost of depreciable improvements and structures when buying a farm.
   1. Figure the present cost of replacing the item.
   2. Establish the years of normal useful life.
   3. Determine the age of the present item.
   4. Determine remaining years of life of item.
   5. Compare the present value of present item.

F. Managing income for increased social security benefits.
   1. Maximize net farm income to as near $4,200 as possible.
   2. Increasing taxable income.
      a. Shift from the rapid depreciation method to the slower straight line method.
      b. Elect to treat soil and water conservation costs as capital investments.
      c. Dispose of some depreciable capital items to reduce the total depreciation deductions.
      d. Reduce operating costs to a minimum.

TAX REPORTING REMINDERS

1. If using the cash method, deduct cost of purchased livestock lost, strayed, or stolen or which died during the year.

2. If using the accrual method, all purchases of livestock should be recorded. Make a "livestock number check" to see that the total number purchased, born, and on the beginning inventory equal the total number sold, died, butchered, and on the ending inventory.

3. Deduct cost of auto and truck licenses, insurance, etc.

4. Deduct as much expense of auto, utilities, telephone, etc., as is actually used in the farm business (half is not enough in many cases).

5. Take all depreciation allowable on depreciable improvements, machinery, equipment and on purchased draft, breeding and dairy livestock. Accrual basis taxpayers may remove such purchases as well as raised animals from inventory at maturity and put them on a depreciation schedule.

6. Keep records to insure deduction of easily overlooked items such as farm magazines, organization memberships, bank service fees, overnight business trips, portion of dwelling used for farm use and losses on household goods used for hired help.

7. Keep records of sources of bank deposits such as gifts, borrowings, sale of bonds, etc., so that there will be no chance that they will be considered farm income.

8. Keep records of all medical, dental, and hospital bills, including payments for accident and health insurance.

9. Keep exact records of dates of purchase, cost and date of sale on all items sold.

10. Do not include in income any indemnity for diseased animals if the payment has been or will be used to purchase "like or similar" animals within one year.

11. Records cannot be too good. Keep all paid bills, invoices, canceled checks, etc., for at least five years including checks used to pay income taxes. Pay bills by check whenever possible. Write down all other payments at once in an account book. Get the bank statement each month and check it against the farm account book.

12. Establish a charge account at hardware stores, elevator, or other places where considerable business is done during the year. Pay this account by check upon receipt of monthly statements. This prevents the omission of many small expense items which might otherwise be paid by cash and tickets lost. Every dollar of cost not deducted will result in at least 20 cents of unnecessary income tax being paid.

TAX MANAGEMENT TIPS

1. Pay wages to children for work actually performed on the farm. If the child is under 19 or regularly enrolled in school or on-farm training program, he can earn over $600 and the father still gets an exemption for the child if the father pays over half of the child's support. This is a way to put family income into lower tax brackets.

2. Give income producing property to children; e.g., land, cattle, machinery, and let them report income from their work and capital. Family partnerships are sometimes used to do this. It is another way to spread family income over the lower brackets. Remember, gifts and partnerships must be legally sound to achieve tax savings.

3. If age 63, postpone income to take advantage of the $1200 personal exemption. Postpone income to age 65. But persons qualifying for social security will probably want to maximize income in those years.

4. If nearing 65, plan income from rents, dividends, interest, and pensions to qualify for the retirement income credit. If 65 or over, claim retirement income credit on $1200 of rents, dividends, interest, and pensions (up to $240 in tax reduction.)

5. Do not hold breeding stock used for production of market livestock too long. Farrowing only one or two litters from sows will qualify a larger percentage of sales for capital gain treatment.

6. When preparing to replace machinery or equipment, decide whether it is better to trade or sell outright and buy new. There may be no gain or loss on the trade. Outright sale and new purchase may give greater depreciation deductions.

7. If selling or cutting timber, plan to obtain special capital gains treatment.

8. Manage sales of farm machinery, equipment, land, and capital gain livestock. These can result in capital gains or ordinary losses. Keep gain sales in another year to get lowest tax on gains and use losses to offset other farm income. Items must be held for more than six months to qualify for capital gains.

9. Plan personal deductions. Many payments that are normally spread over two years can be paid in one year and itemized as deductions. In the next year, the standard 10% deduction (or $1,000) may be taken.

10. Plan to have enough income to use up the personal deductions that are allowed.

11. Avoid wide fluctuations in income from one year to the next.

12. Accelerated depreciation can be used in many cases as an income evener and as an aid in shifting income into the capital gains category.

13. Installment sales can be used to spread income over a period of years and thus avoid a high income in one year.

14. The amount of income subject to capital gain treatment can frequently be increased on the accrual basis by setting up a depreciation schedule for draft, breeding, and dairy animals. By doing this, the remaining cost is less at the time of sale.

15. Understand the effect of rapid depreciation and amortization of grain bins. Decide whether to recover costs quickly or spread them out against farm production over a longer period.

16. Check loss years in the past. Is there an unused net operating loss deduction? Remember that claims for refund may bring an audit.

17. Decide whether to sell or trade machinery, equipment, farm land, draft, breeding, or dairy cattle.

18. Don't forget about social security in tax planning.

19. Use the tax estimate forms to plan tax savings.

SECTION XII
INSTRUCTION: Closing Books (January)

Teaching Topic--Technique of closing the account book for analysis and inventory

Objective--To familarize families with the necessary preparations for closing the Kansas Farm Account Book for analysis and inventory

Activities--(You might follow this general discussion and steps)

1. Necessary prequisites to closing the account book for analysis
   a. End-of-year inventories
   b. Crop and feed check (from final check)
   c. Livestock report (from inventories)
2. Closing procedure
   a. Check livestock pages for completeness and accuracy. (pages 66-67
   b. 1. Number, value, and weights on inventories, sales, purchases, transfers, and butchered
      2. Livestock products used in the home, amount and value
   c. Check monthly feed record
      1. Use feed inventory and record from home
      2. Amount of whole milk and skim milk fed to livestock (from feed record)
   d. Check crop data, page 9
      1. Enter landlord's share of crops
      2. Enter disposal method of landlord's share
   e. Feed bought, pages 32-64 (expense summary)
      1. Check for quantities and cost
   f. Crops sold, page 14 and 30 (receipts pages)
      1 Check for quantities and value
   g. Crop expenses, pages 9 and 32-64
      1. Check for identification of fertilizers
   h. Custom work hired, page 7
      1. Identify machines, power, and men hired
   i. Gas, oil, and grease , pages 32-64 (expense pages)
      1. Check on distribution to tractor, machinery, truck, or auto
      2. Identify personal share (note depreciation)
   j. Repair and operation of truck, tractor and auto pages summary
      1. Check on distribution to tractor, truck, and auto
      2. Identify personal share
   k. Repair and upkeep of real estate, pages 32-64
      1. Identify farm and personal share
   l. Labor, pages 7 and 32-64
      1. Check for days worked and wages paid
      2. Enter days of family labor and hired help boarded.

m. Miscellaneous farm expense and receipts, pages Receipts and Expenses
   1. Identify household share
   2. Enter landlord's taxes
n. Household and personal expenses
   1. Check on categories and distribution
   2. Check for misplaced farm expenses
o. Depreciation schedule
   1. Check for completeness

3. Household Accounting
   a. Inventory of household goods (pages 100 & 104)
   b. Receivable and payable personal accounts (page 75)
   c. Family living expenditures
   d. Yearly summary of cash expenditures for family living (page 103)
   e. Total farm products used at home (page 103)
   f. Memorandum and memorandum on insurance (page 104)

Business is over for this calendar year. Will your record books stand up under an income tax audit? Within the next three years, you chances for a tax audit will be very good. The idea as far as Internal Revenue Service is concerned is to check each taxpayer once every third year.

Recipe for a Check-Proof Record

1. Check total bank deposits for 1962 and see that each deposit is listed in your account book and properly labeled.

2. Go through every expense check and be sure it is properly listed in your record book.

3. Check your record book to eliminate duplicate entries.

4. Retain all paid receipts for any cash business you have done.

5. Never draw money difference in sales or pay money difference in exchange of products for expense. Example: You owe $350 fertilizer bill and you take $500 worth of wheat to the elevator. Take your $500 receipt on your wheat and write a check for the full fertilizer bill you owe. Do not take a receipt difference of $150. This is not a complete record of transactions.

6. All business sales in your hands or obtainable by you during the year is taxable income for 1962. Do not carry year end receipts over to 1963. Ex.: Cattle shipped to market December 30 and sold on December 31 market. You could have gone in with your cattle and picked up the check on December 31, thus it was available to you.

7. Record the ending inventory of crops and livestock in your record book.

8. Record the ending inventory of your finances, both money in the bank and money owed to others, in your account book. This is necessary for a net worth statement.

9. Complete the crop page in your account book. No year's record is complete without this recorded for future reference.

10. The following 14 pages show some possible forms which might be used for the final analysis report. These forms are the only records which should be sent to the analysis center. The actual account book and enterprise records need not be sent.

Use the following form for accuracy check:

KANSAS FARM ACCOUNT BOOK
Accuracy Check

Name _____

Cash Balance

1. Cash on hand _____
2. Cash receipts _____
3. Total money available to spend (one plus two) _____
4. Farm expenses _____
5. Family living expenses _____
6. Investments, life insurance _____
7. Total expenses (4, 5, and 6) _____
8. Balance on hand (3 minus 7) _____
9. Actual amount on hand _____
10. Unaccounted expenses (8 minus 9) _____
11. Unaccounted receipts (9 minus 10) _____

FARM BUSINESS ANALYSIS

GENERAL INFORMATION

Name _____ Address _____ Age _____

Wife's name _____ Telephone _____

Children's names and ages _____

_____

Location of farm _____

_____

Acres owned _____ Crop acres owned _____

Acres rented _____ Crop acres rented _____

Rent agreement _____

_____

_____

Partnership arrangement _____

_____

_____

_____

Work done off farm _____

_____

_____

Number of months worked on this farm..... _____

Days of day labor hired..... _____

Months of hired labor on monthly basis..... _____

Amount of unpaid family labor..... _____

Hired labor boarded..... _____

Year started farming..... _____

Year started Farm Business Analysis Class..... _____

Name _____ Year _____

FARM BUSINESS ANALYSIS REPORT
LIVESTOCK NUMBER AND PRODUCTION

	Average No.	Production
Dairy Cows		Lbs. Milk Sold
Dairy Heifers		
Calves		
Beef Cows		No. Calves Weaned
Beef Heifers		Average Weight of Calf
Beef Calves		
Beef Bulls		
Beef Feeders		Total Lbs. Gain
		Feeding Period
Sows and Gilts		Litters Farrowed
Spring Pigs		Pigs Weaned
Fall Pigs		Feeder Pigs Sold
Market Hogs		No. Market Hogs Sold
		Lbs. Market Hogs Sold
		No. Sows & Gilts Sold
		Lbs. Sows & Gilts Sold
Ewes		No. Ewes Lambing
Lambs		No. Lambs Sold
Rams		Lbs. Lambs Sold
		Lbs. Wool Sold
Poultry		No. Dozen Eggs Sold

Name _____

FARM BUSINESS ANALYSIS REPORT
CROP PRODUCTION AND USE

CROP	PRODUCE			SOLD			FED ON FARM		
	Acres	Yield	Total Prod.	Qty.	Price	Total	Qty.	Price	Total

PASTURE	ACRES	ACRE/HEAD	DAYS PASTURED

LABOR USED	MONTHS
Operator	
Hired	
Family	

MAN WORK DAYS _____

LIVESTOCK ANALYSIS FACTORS

Name _____ Year _____

System used _____ (Sow-two litter or feeder pig)
(Cow herd, full feeding, deferred)
(Dairy or poultry)
(Farm flock or lamb feeding)

	My Farm	State Summary
1. Net increase (Total receipt # - total expense #)		
2. Return /$100 feed fed (Net increase + feed costs x 100)		
3. Pounds feed fed /# gain (Net pounds + pounds feed)		
4. Feed costs /# production (Feed costs + new pounds produced)		
5. Total cost /# production (Total costs + new pounds produced)		
6. Return per dollar total expenses (Total receipts + total expenses)		
7. Average investment in enterprise (Enterprise distribution sheet)		
8. Percent return on investment (Net income + investment x 100)		
9. Expenses per $100 gross income (Expenses + gross income x 100)		
10. Average price of product sold (Value of product sold pounds sold)		
11. Average pounds produced per productive unit		
12. Average number born per dam or litter		
13. Average number weaned per dam or litter		
14. Average number sold per dam or litter		
15. Average days on feed		
16. Average number on hand during year		
_____		
_____		
_____		
17. Average daily gain or production per animal (Net pounds days on feed or in production)		

ITEMS	19___	19___	19___	19___	19___
Food Purchased					
Household Operation					
Utilities (Personal Share)					
Housing Furnishing					
Clothing					
Personal					
Educational, Recreation					
Medical Care					
Gifts Outside Family					
Community Contribution					
Other					
Auto (Personal Share)					
Total					
Products Used at Home					
Total					

ANALYSIS SUMMARY

	My Farm	Average
1. Total Acres Operated		
2. Acres in Crop Land		
3. Livestock Units		
4. Acres per Livestock Unit		
5. Total Farm Capital		
6. Total Assets		
7. Total Liabilities		
8. Net Worth		
9. Debt Ratio		
10. Gross Income		
11. Total Expenses		
12. Net Farm Income (Accrual Basis)		
13. Labor Earnings (Cash Statement)		
14. Return to Capital and Family Labor		
15. Expenses per $100 Gross Income		
16. Per cent Return per Dollar Invested		
17. End of Year Value of Mach. and Equip.		
18. Annual Depreciation		
19. Livestock Increases		
20. Crop Increases		
21. Returns for $100 Feed Fed		
22. Household and Personal Expenses		

SECTION XIII
INSTRUCTION: Analysis Distribution

Teaching Topic--Analysis Information

Objective--To introduce the results of the analysis and have members compare their figures with the State's results

Activities--1. Hand out the analysis books
2. Discuss the different charts of the books
3. Discuss the different enterprise efficiency ratings
4. It might prove fruitful to invite and recognize the members of the Farm Business Analysis group to the Annual Parent-Son meeting or any special meeting.

SECTION XIV
Coordination

A. September or October--Selecting class members, 1 to 2 hours
1. Select seven prospective enrollees and rank to vo-ag instructors preference.
a. Review list with administrator
b. Review list with other parties possibly interested
1. Banker
2. Co-op manager
3. County agent
4. Creditors
5. Civic club officials
2. Visit prospective enrollees and wives in order of preference
a. Explain general objective of the course
b. Explain course outline
c. Request statement of interest in near future
d. Stress that records will be kept confidential
3. Discontinue visits when class quota has been filled--probably 5 to 7
4. Make note of accomplishments of on-farm instruction

B. November or December--Become acquainted with physical aspects of farm--4 to 6 hours (day)
1. Becoming personally acquainted with the family.
a. Meet wife
b. Meet children
c. Learn family background
2. Knowing the farm history
a. Virgin condition
b. Past management
1. Crops grown, fertilizer used, rotations, etc.
2. Grazing history
c. Ownership

3. Knowing the farm layout
   a. Size of pastures and fields
   b. Shape of map of pastures and fields
4. Knowing the capacity and condition of buildings and storage facilities
   a. Check the capacity of granaries
   b. Check the capacity of silos
   c. Check condition and size of other buildings
5. Knowing the farm topography
   a. Map general elevation of land
      1. Show creeks, valleys, gullies, hills, etc.
6. Make notes of accomplishments of farm visits

C. January--Check inventories and figure net worth--2 to 3 hours (evening)
1. Checking inventories
   a. Point out that values should be consistent, but conservative
   b. But as soon as inventory values for each enterprise have been entered and added into the book, the total should be entered in the appropriate column
   c. Stress that an inventory as of January 1, once correctly completed, will never change
   d. Emphasize the need for numbers, weights, and values in inventories
2. Check expenses and receipts
   a. Check totals for accuracy (farm and household)
   b. Check summary of month's page
   c. Check cash balance
3. Make notes of accomplishments of on-farm instruction
   a. Notes of accomplishments
   b. Notes of approximate worth and other values

D. March--Check accounts and records--2 to 3 hours (evening)
1. Check receipts and expenses
   a. Check farm accounts
   b. Check household accounts
   c. Check monthly summary of E & R
2. Check feed records
3. Check livestock records
4. Note accomplishments of visits

E. Summer--Mid-year feed check
1. Inventory farm grown feeds as of June 1. (Another date may be used if desired)
2. Have feed records completed to same date
3. Enter totals on Crop and Feed Check sheet
4. Determine the amount "available for feed" in appropriate space
5. Add up the various feeds to livestock in the account book as of the same inventory date.
6. Transfer feed totals to Crop and Feed Check sheet
7. Add the amount fed to livestock for each feed and compare this with the amount "available for feed."
8. Study the differences between figures and determine where errors were most likely
9. Make appropriate adjustments in proper column on Crops and Feed Check sheet to make "total fed" balance with "available for feed"
10. Note progress and accomplishments of farm visits.

"Crop and Feed Check" Sheet

1. Suppose Farmer Young filled his silo last fall with corn silage. If the silo is 40 ft. (depth of silo) and 14 ft. in diameter, how many tons of silage were in the silo before any was fed? (Reference: Last page of Kansas Farm and Household Account Book.) 123.4 tons of silage before feeding

(This figure is NOT entered on the Crop and Feed Check sheet)

116.6
129.8
246.4 divided by 2 equals 123.4 tons

2. If Mr. Young fed 30 head of beef breeding cows 40 pounds of silage daily for November and December, how many tons of silage should he inventory January 1 of this year?

86.8
86.8 equals January 1 ton of silage inventoried

(This figure is entered on the Crop and Feed Check heet.)

Nov. equals	30	61	2440	73.2 divided by 2 equals 36.6	123.4
Dec. equals	31	x40	x30		-36.6
	61	2440	73,200		86.8

3. Approximately how many feet deep should the silage be on January 1?

29 equals feet of silage as of January 1
(This figure is NOT entered on the Crop and Feed Check Sheet.)

4. Make the following entries on the Crop and Feed Check sheet:
   a. Beginning inventory of tons of silage
   b. Value of silage at $5 per ton
   c. Reported tons fed to beef breeding herd if:
      1. fed 40 pounds daily
      2. f ed from January 1 to April 15
      3. 30 head fed
   d. Reported tons fed to feeder cattle if:
      1. fed 30 pounds daily
      2. fed from January 1 to April 15
      3. 15 head fed

1.	86.8	86.8	105	divided by 2 equals 63	105	Jan - 31
		5	40		30	Feb - 28
2.	$434	434.0	4200		3150	Mar - 31
			30		15	Apr - 15
3.	63.0		126,000		15750	105
					31500	
4.	23.6				47,250	

47.25 divided by 2 equals 23.62

5. Make the correct entries on the Crop and Feed Check sheet showing that hogs were fed 500 bushels of corn(grain) from granary "A" and that the feeder cattler were fed 5,000 bushel of corn from granary "B

VOCATIONAL AGRICULTURE YOUNG FARMERS FARM BUSINESS ANALYSIS PROGRAM II

by

DAVID LEWIS WILLIAMS

A report submitted for fulfillment of

Education 824,

Curriculum Agriculture I

Instructor, Professor Hall

SCHOOL OF EDUCATION

KANSAS STATE UNIVERSITY
Manhattan, Kansas

July 12, 1965

VOCATIONAL AGRICULTURE YOUNG FARMERS
FARM BUSINESS ANALYSIS PROGRAM II

Because this is a continuing program, there is no natural break between Farm Business Analysis I and Farm Business Analysis II. Part of this year's program is designed for analysis interpretation. In addition, income tax calculation and depreciation figuring are included.

The two basic sources of information for these lesson plans included material published by the University of Minnesota and Kansas State University Extension Services.

These lesson plans are for use in group meetings. Individual family instruction will be in addition to the group study.

Teaching Area Included

1. The Business of Farming - Characteristics and Their Implications for Younger Kansas Farm Operators.
2. Farm Business Volume.
3. Controlling Farm Costs.
4. Reduce Per Unit Costs.
5. Computing Federal Income and Self-Employment Taxes.
6. Figuring Depreciation and Investment Credit.
7. Planning Farm Profits.

TEACHING UNIT I

OBJECTIVE: To examine the important characteristics of today's farm business and see what implications they hold for younger farm families.

TEACHING UNIT: The Business of Farming - Characteristics and Their Implications for Younger Kansas Farm Operators.

A. What are the six characteristics of today's farm business?

1. Frequent decisions in farming tend to preserve the farm, but cause farmers to wear many "hats."

   a. Factors that help preserve the family farm:
      (1) Agricultural production dependent on the uncertainties of weather.
      (2) Work is biological in nature.
      (3) Production is seasonal.
      (4) Each worker must exercise constant judgment.
      (5) All of these attributes make training and supervision of large numbers of hired workers quite difficult in farming.
      (6) Farming activities require many skills.

   b. Two important implications of the persistence of the family farm are:
      (1) Must take time from laboring to manage the business.
      (2) Must use systematic methods in making decisions.

2. Increasingly large volume of business is required for satisfactory income

   a. Why is larger volume of business required?
      (1) In 1945 - $2.01 of gross income required for $1.00 of net income U. S. average.
      (2) In 1960 - $3.26 gross income required to produce $1.00 of net income - U. S. average.
      (3) In Kansas in 1960 - $3.53 gross income required for $1.00 of net income.
      (4) Increased volume required because farm prices have not increasec as much as other prices.
         a. From 1945-1960 prices received by farmers increased 15%~ while prices farmers pay have increaed 57%.
         b. Cash costs per unit of output have increased because of the increased reliance on purchased inputs.

3. In some respects farming is the highest investment business.

   a. Why is a large investment required?
      (1) It takes $20.00 in assests to earn $1.00 of net income.
      (2) Therefore, an average Kansas farmer must use around $100,000 in resources to earn $5,000.00.
      (3) Slow turnover of capital requires larger investment.

4. High yield and price uncertainty favor careful planning.

   a. How can risk be reduced when planning the farm business?
      (1) Study of long-run price trends and yields.
      (2) Include crop and livestock combinations.
      (3) Keep good records for future analysis.

   HAND OUT TEACHING REFERENCE NO. 1 AND DISCUSS

   HAND OUT TEACHING REFERENCE NO. 2 AND DISCUSS

5. Rapidly changing technology challenges farm operators.

   a. What implications seem apparent for the successful farmer of tomorrow?
      (1) Keeping up on farm technology.
      (2) Reliance on outside specialist's services.
      (3) Specialization.

6. Income differences between farmers are wider than you think:

   a. Why are there such wide variations in incomes from farm to farm?
      (1) Yearly luck.
      (2) Poor price relationships in specific projects.
      (3) Differences in management (This is the big item.)
      (4) Differences in resources.

HAND OUT TEACHING REFERENCE NO. 3 AND DISCUSS.

REFERENCE: This Business of Farming - Six Characteristics and their Implications for Younger Kansas Farm Operators

Teaching Reference No. I

FARM BUSINESS RECORDS

... A CHORE for Uncle Sam???
... OR
A VALUABLE TOOL for You???

The difference is but a little time and a little know-how!! You have no choice as to whether you will keep a farm business record (it's required by law.) You DO have a choice as to whether you will keep records for "Uncle" or for yourself! You have a choice between a "chore" and a "valuable business tool". A GOOD farm business record has three important uses:

(1) As an INDICATOR OF BUSINESS SUCCESS
- Net worths - present, past, change
- Incomes - present, past, change
- Returns for labor and investment, etc.

(2) As a SERVICE TOOL
- Income and social security tax reports
- Employee wage and social security reports
- Credit relations
- Landlord-tenant and partnership settlements
- Estate planning
- Determination of land values

(3) As a DIAGNOSTIC TOOL
- Sources of farm income
- Sources of farm profits and losses
- Weak and strong parts of business
- Facts for important decisions

ALL OF THESE BENEFITS CAN BE OBTAINED WITH JUST A LITTLE MORE EFFORT AND KNOW-HOW. SEE BELOW:

RECORDS NEEDED

Tax Reports "Cash" Basis
1. Receipts
2. Expenses
3. Depreciation
   (a) Buildings
   (b) Machinery
   (c) Livestock??
4. Record of livestock purchased

Tax Reports "Accrual" Basis
1. Receipts
2. Expenses
3. Depreciation
   (a) Buildings
   (b) Machinery
4. Inventories
   (a) Livestock
   (b) Grain, hay, Silage, etc.

Tax Reports Plus Farm Business Analysis
1. Receipts (with weights, price, etc.)
2. Expenses (with weights, price, etc.)
3. Depreciation
   (a) Buildings
   (b) Machinery
4. Inventories
   (a) Grain, hay, etc
5. Livestock & Crop production
6. Payable and Receivables
7. Net worth statement
8. Family living records

Teaching Reference No. I (Continued)

OR, there's more than just a little truth to the statement that it "COSTS JUST A LITTLE MORE TO GO FIRST CLASS."

Now, here are a few tips to improve your record keeping:

- Use an adequate Farm Account Book
- Develop a habit or system of keeping your records
  - Enter cash transactions daily or weekly
  - Enter checks as written or at least once a month
- Run your business through your bank
  - Deposit farm receipts in your bank account
  - Identify all items on deposit slip especially, non-taxable receipts such as borrowed money, gifts, etc.
  - Pay farm bills by check
  - Check bank statement with account book each month
- In making entries in your account book, always show names, dates, quantities, weights, and prices.
- WRITE IT DOWN-YOUR ACCOUNT BOOK DOESN'T FORGET.

Teaching Reference No. 2

Let's Check The USEFULNESS of Your Farm and Family Records

Check "Yes" or "No" to the following questions to evaluate your record keeping system

I. DO YOUR BUSINESS RECORDS GIVE YOU A COMPLETE PICTURE OF YOUR PROGRESS? CAN YOU FIND AT A GLANCE YOUR,

	YES	NO
A. Trend in net farm income?		
B. Present net worth?		
C. Trends in net worth?		
D. Net return for YOUR LABOR AND MANAGEMENT		
E. Income needs for family living debt repayment, savings, and income taxes?		

II. DO YOUR BUSINESS RECORDS TELL YOU WHERE YOU PRODUCED THIS NET INCOME (OR FAILED TO DO SO)? CAN YOU CONVENIENTLY DETERMINE:

A. Sources of your gross income?		
B. Which projects were most profitable?		

III. DO YOUR BUSINESS RECORDS TELL YOU WHERE YOU WERE WEAK OR STRONG RELATIVE TO THE OTHER FARMERS? WILL THEY TELL YOU:

A. Whether you accomplished more or less work than others with similar labor?		
B. Whether your volume of business (gross income) was adequate? (both per farm and per man)		
C. Whether you manage a larger or smaller business than others on a per farm basis (investment managed, total acres, crop acres, etc.)?		
D. Whether your machinery efficiency was good or poor (machine costs per crop acre)?		
E. Whether your machinery investment is a possible problem (investment per crop acre)?		
F. Whether your crop yields are superior or below average?		
G. How your gross value of crops per crop acre compares with others and with your per acre costs?		
H. How you compare with others in livestock efficiency (% calf and lamb crops; milk per cow; egg sales per hen; pigs per litter; weaning wt. per calf; etc.)?		

Teaching Reference No 2. (Continued)

IV. DO YOUR RECORDS PROVIDE THE FACTS NEEDED FOR IMPORTANT BUSINESS DECISIONS? DO YOU KEEP AND SUMMARIZE RECORDS ADEQUATELY TO HELP YOU:

	Yes	No
A. Make adequate yield estimates to determine the productive value of land you rent and want to purchase.		
B. Determine which crops to increase and which to decrease.		
C. Estimate from machinery cost break down, what the "additional" cost would be for an additional acre of crop land.		
D. Determine whether it would pay you to increase certain livestock projects and elimate others.		
E. Determine whether you would be ahead to own or hire certain harvest jobs.		

IN SHORT, DO YOUR RECORDS PROVIDE THE NEEDED FACTS ON THE ONE BUSINESS YOU ARE CONCERNED ABOUT?

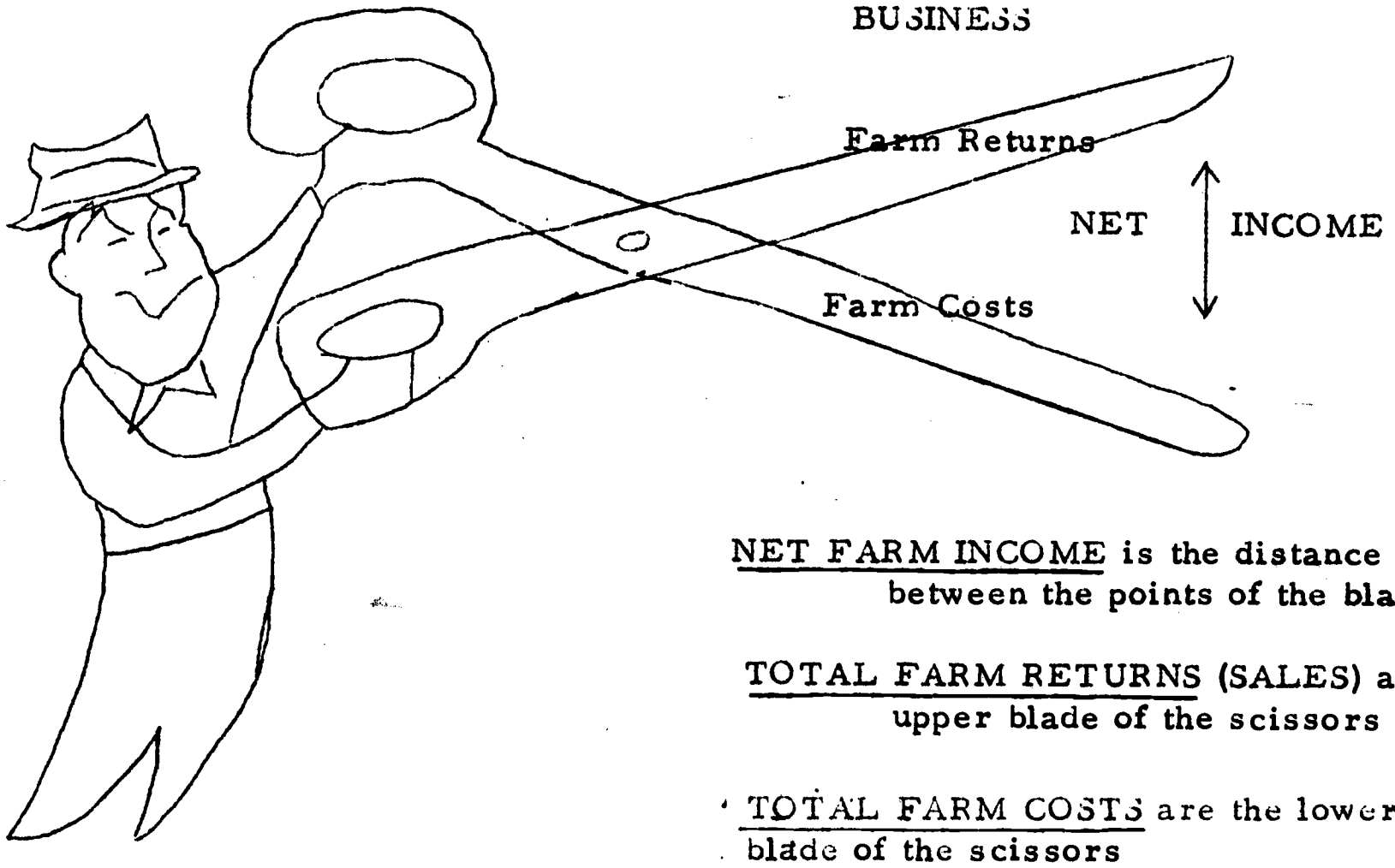
V. DO YOUR BUSINESS RECORDS ASSIST YOU IN GETTING NEEDED CREDIT? DO THEY HELP PROVIDE A BASIS FOR ADDITIONAL CREDIT BY SHOWING:

A. Your increase in net worth.
B. Your EXPERTNESS at the program you seek credit for.
C. How additional credit would permit you to get needed volume of business; lower costs; expand a profitable project; etc.
D. That an extension of a loan is justified because of an abnormal year (price, yield, etc.).

THERE ARE OF COURSE MANY OTHER USES FOR BUSINESS AND FAMILY RECORDS. SETTLEMENT OF PARTNERHIP ACCOUNTS; INCOME TAX MANAGEMENT, ESTATE PLANNING, AND OTHER USES ARE OFTEN IMPORTANT.

Teaching Reference No. 3

YOUR FARM BUSINESS - - - COMPARED TO A BIG PAIR OF SCISSORS



NET FARM INCOME is the distance between the points of the blades

TOTAL FARM RETURNS (SALES) are the upper blade of the scissors

TOTAL FARM COSTS are the lower blade of the scissors

a
n
d

YOUR JOB (AS MANAGER) is to keep the points of the blades as far apart as possible

a
n
d

YOU DO THIS by (1) Using bigger scissors (greater volume of business)
(2) Lowering the "cost" blade (reducing cost per bu., ton, cwt, etc.)
a. Fixed costs are important (land and permanent improvments)
b. Should I buy this machine
c. Reducing overhead
d. Buying cheaper (input supplies)
e. Reducing labor
(3) Raising "return" blade (increasing returns per acre, litter, steer, etc.)
a. Improving your marketing
b. Increasing yields
c. Choice of enterprise
d. Improving feed conversions

A FARMER MUST TAKE TIME TO MANAGE

TEACHING UNIT II

OBJECTIVE: To stimulate farm families to study their farm record's analysis report and discover ways to increase their farm business volume.

TEACHING TOPIC: Farm Business Volume

REFERENCE: Your Farm Business Volume is Important, Extension Service, KSU, MF-127, Jan. 1964

A. How is net farm income viewed as the product of two "dimensions" in farm business?
   1. First, as volume of output or production
   2. Second, as the earnings per unit of product produced

B. How can net farm income be figured?

Net Farm Income	=	Volume of Production	X	Earnings per Unit produced

C. How can net farm income be increased?
   1. Improving efficiency per unit
   2. Increasing volume of business

HAND OUT TEACHING REFERENCE NO. 4 AND DISCUSS

D. How important is volume of business?
   1. Higher earning farms have larger outputs and higher gross incomes
   2. Larger gross income farms have higher net income

E. Why is volume more important today?
   1. 1949-53 - Expenses claimed 62¢ out of every dollar of gross farm income in Kansas.
   2. 1957-61 - Expenses claimed 73¢ out of every dollar of gross farm income in Kansas.

   As a result, 42% more gross income was required in later period to earn $1.00 of net income.

F. Why is an increased share claimed by production expenses?
   1. First, price relationships have been less favorable in farming.
   2. Second, farmers use more purchased inputs (fertilizer, chemicals, feed additives, machinery, etc.)

G. How do we measure volume of business?
   1. Inputs
   2. Resources used
   3. Acres operated
   4. Investment managed
   5. Men employed

      The simplest and most useful "yardstick" is
   6. Gross Farm Income

H. How can we determine gross farm income?

Gross Farm Income	=	Total Sales	Changes in Inventories	Livestock Purchased

HAND OUT TEACHING REFERENCE NO. 5 AND DISCUSS

I. How can farm volume of business be increased?

Make more effective use of "limited" resources:
a. land
b. labor
c. capital
d. management

Since capital can be used to buy or hire additional land or labor, capital is normally the most limiting factor except for management.

J. How can volume of business be increased when capital is limited?
1. Borrowing capital (find a partner or "backer")

Disadvantages:
(a) Security is required
(b) Cannot borrow entire cost for which money is borrowed unless additional property is mortgaged.

2. Renting land

a. Disadvantages:
(1) Security of tenure
(2) Pride of ownership
(3) Freedom of action
b. Limitations on renting land:
(1) Competition for land
(2) Impossible to perform operations in a timely manner in some areas
(3) Large investments make landlord-tenant relations much more complicated

3. Do or hire custom work

4. Use fast "capital turnover" livestock programs. When one cannot rent or borrow enough resources from others, this may be a help.

HAND OUT TEACHING REFERENCE NO. 6 AND DISCUSS

K. How can volume of business be increased when land is limited?

1. Set up livestock system to market present farm production of feed crops.

2. Shift from grain to silage or hay in the cropping system for cattle or sheep programs and buy additional grain needed.

3. Add "expansible" livestock programs (grain consumers) to go on beyond feed produced on the farm.

L. How can volume of business be increased when labor is limited?

1. Select livestock systems to "mesh" with crop labor demands.

2. Select enterprises that can be economically mechanized when size is increased.

3. Select livestock systems that require less labor per unit of volume produced.

4. Expand to a "two man" unit.

HAND OUT TEACHING REFERENCE NO. 7 AND DISCUSS

Teaching Reference No. 4

. . . BUSINESS VOLUME IS IMPORTANT

NET FARM INCOME = PROFIT PER UNIT PRODUCED X NUMBER OF UNITS PRODUCED

Hence we CAN improve net income by:

(1) IMPROVING PROFIT PER UNIT
OR
(2) INCREASING THE NUMBER OF UNITS

* * * * * * * * * * * * * * * *

Thus, NUMBER OF UNITS IS IMPORTANT
And we call it <u>VOLUME OR SIZE OF BUSINESS</u>

* * * * * * * * * * * * * * * *

Now--HOW DO WE MEASURE VOLUME??

We can measure _____



ACRES operated
CROP ACRES farmed
MEN employed
UNITS OF WORK (P M W U or days work) estimated
INVESTMENT managed
GROSS INCOME produced
and
MANY OTHERS —

But--some of these work better than others. Because of the wide differences in farming conditions and types, <u>those that measure products or dollars produced probably work best.</u>

Teaching Reference No. 5

TAKE A LOOK AT YOUR VOLUME OF BUSINESS

The size of your business can best be measured by estimating your "volume" or gross farm income. Your probable net income can be estimated from this figure. Simply make an estimate of each of the following:

1. Estimate annual livestock sales _____
2. Estimate annual crop sales _____
3. Estimate other farm income (custom work, etc.) _____
4. TOTAL FARM RECEIPTS (total 1, 2, 3) _____
5. Estimate annual livestock purchases _____
6. ESTIMATED GROSS FARM INCOME (Subtract 5 from 4) _____

You now have a useful estimate of your volume of business.

Now, multiply gross farm income by 0.15 and 0.30

$_____ X .15 = _____ (lower net income estimate)

$_____ X .30 = _____ (higher net income estimate)

The "odds" are that your average annual net income will fall between these two figures (good year more--poor years less). If you desire a net income higher than this range, you will need either (1) more volume of business; or (2) well above average efficiency.

Teaching Reference No. 6

YOUR INCREASE IN VOLUME OF BUSINESS

If capital or finances presently limit your volume of business, you might want to consider high turnover enterprises. As can be seen in the following comparison, there is a very significant difference in the investment required per dollar of volume in different enterprises.

Situation A. - Specialized Hog Producer

Investment required for sow and two litters

Feed for first litter (sales of first litter are being made before much investment is required for second litter	$161.00
Average investment in buildings and equipment per litter	100.00
Investment in sow	40.00
Largest total investment during year	$301.00

Gross income produced

(7 pigs x 2 litters x 23# x $15.00)	$483.00

Investment capital required per $1 of gross income

($301 divided by $438)	62¢ / $1 gross

Situation B. - Beef and cow stocker calf

Investment required per cow and calf*

Pasture rent for cow	$ 25.00
Cow	150.00
Winter feed for cow	30.00
INVESTMENT PER COW	$205.00

Gross income per cow

(400# calf X 90% calf crop X 25¢)	$ 90.00

Investment capital required per $1 of gross income

($205 divided by $90)	$2.28 per $1 gross

* If the value of pasture land is owned also, the investment per $1 of gross income is then around $7!!!

NOW--Make your own estimates for alternative enterprises you are interested in.

Teaching Reference No. 7

EVALUATING RESOURCES FOR EXPANDING VOLUME OF BUSINESS THROUGH LIVESTOCK

(1) Capital or Finances

a. Can you obtain adequate credit? _____
b. Is "risk" an important consideration? _____
c. Which livestock enterprises fit you capital and risk situation?

_____ _____

_____ _____

_____ _____

(2) Labor Supply

a. Do you have surplus labor year round? _____
b. Do you have surplus labor available only in certain seasons? _____
c. Which livestock enterprises best fit you labor supply?

_____ _____

_____ _____

_____ _____

(3) Pasture Supply

a. Do you have large amount of native pasture available? _____

_____

b. Is it of relatively high or low quality? _____
c. Which livestock would best utilize your pasture supply?

_____ _____

_____ _____

_____ _____

Teaching Reference No. 7 (continued)

(4) Winter Roughage Supply

a. Do you have substantial quantities of winter roughage to utilize?

_____

b. Is it of high or low quality? _____

c. Can silage be substituted for grain crops? _____

d. Which livestock enterprises best fit your winter roughage supply?

_____ _____

_____ _____

_____ _____

(5) Buildings and Equipment

a. What important livestock buildings and equipment do you presently have available that should be utilized?

_____

_____

(Do not include buildings that are obsolete or too small for efficient sized enterprise.)

b. Can you make permanent improvements for livestick enterprises? _____(What is your tenure situation?)

c. Can you finance permanent improvements? _____

d. What livestock enterprises do these answers eliminate?

_____ _____

_____ _____

(6) Interests and Skills

a. Are you adapted to enterprises requiring careful management in feeding, disease and parasite control, etc.? _____

b. Are you skillful at buying and selling and following market trends?

_____

c. Do your interests strongly suggest certain enterprises and reject others?

_____

_____

TEACHING UNIT III

OBJECTIVE: To stimulate farm families to study their farm records analysis report and discover ways to control farm costs.

TEACHING TOPIC: Controlling Farm Costs

REFERENCE: Controlling Farm Costs, Extension Service, KSU, Mf 131, March, 1964.

A. How much has cost of producing a dollar's worth of product increased in Kansas?

From 1949 to 1958, cost increased $18 for each $100 of sales.

B. What is the definition of costs?

Cost is the value of resources required for the production of a particular product.

HAND OUT TEACHING REFERENCE NO. 8 AND DISCUSS

C. What are the classifications of costs?

1. Fixed costs:

   a. Costs that occur no matter how much is produced

   b. Costs that stem from those resources used over longer periods of time than that under consideration

   c. Some fixed costs and their cost based on percent of new cost are:
      1. Depreciation - 7 to 14%
      2. Interest on investment - 3%
      3. Property taxes - 1%
      4. Insurance and housing - 1%

2. Variable costs:

   a. Costs that are associated with volume of production

   b. Costs that stem from resources which provide their entire service during a single production process

   c. Some examples of variable costs are:
      1. Fertilizer
      2. Seed
      3. Fuel

HAND OUT TEACHING REFERENCE NO. 9 AND DISCUSS

3. Cash and noncash costs:

   a. Includes deferred and/or prepaid costs

   b. Do not have to be paid during time of production

4. Income stimulating costs:

   a. Add cost so long as the added returns are greater than the added cost

   b. Some examples of income stimulating costs are:
      1. Certified seed
      2. Pesticides
      3. Irrigation

   c. To demonstrate this point, let me ask you one question:

      1. If a salesman tried to sell you a chemical costing $2.00 per acre that would increase your wheat yield two bushels, would you buy it?_____
         Suppose it cost $5 per acre?_____

5. Opportunity costs:

   a. Not a cost in the usual sense

   b. It does not measure what has been spent, but rather the earnings a resource will produce when used in the most profitable alternative use

   c. Example of opportunity cost:

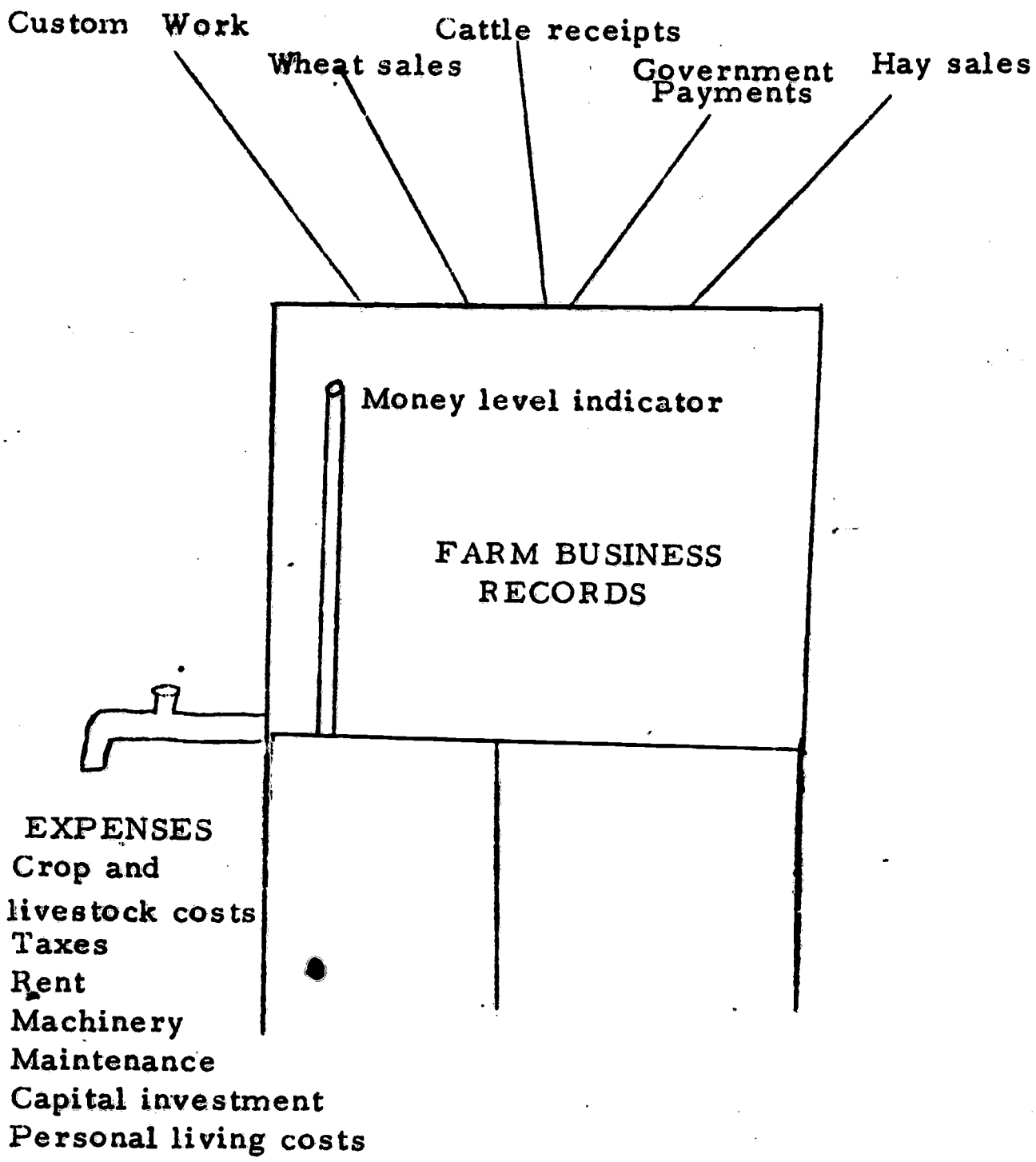
      If milo is planted on land in place of wheat, the income from milo must be subtracted from the potential income of wheat.

D. How can costs be reduced?

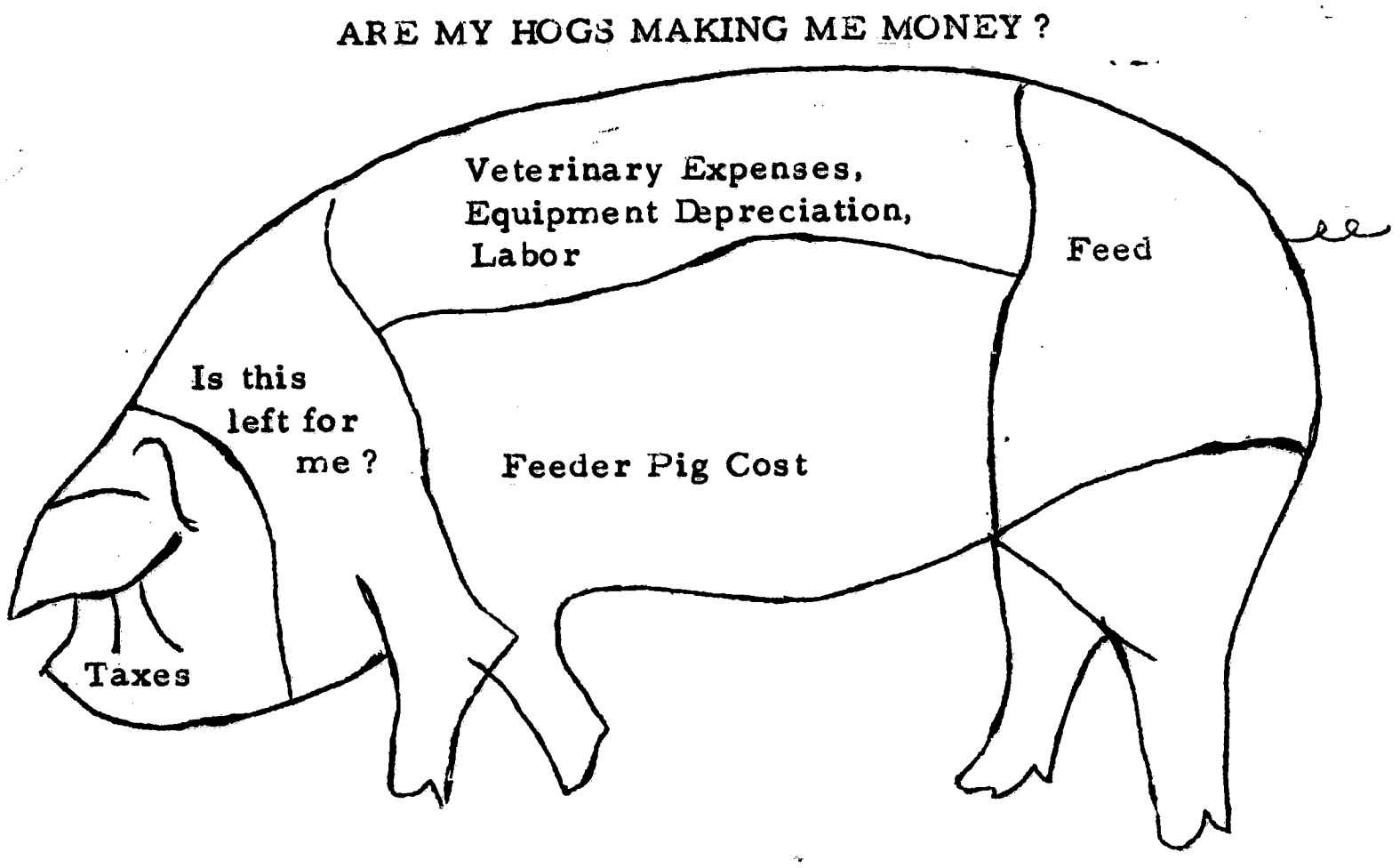
   1. Spreading fixed costs over more units of production.

   2. Using cheaper inputs:
      a. Buying used tractor in place of new one
      b. Substituting feed in livestock rations
      c. We must hold service and efficiency when substitutions are made.

   3. Product selection.
      Example - should we feed grain to steers on wheat pasture or sell grain and buy additional steers. In one case, our product is grain-fed steers and in the other grass-fed steers.


Custom Work
Wheat sales
Cattle receipts
Government Payments
Hay sales
Money level indicator
FARM BUSINESS RECORDS
EXPENSES
1. Crop and livestock costs
2. Taxes
3. Rent
4. Machinery Maintenance
5. Capital investment
6. Personal living costs

Teaching Reference No. 9



TEACHING UNIT IV

OBJECTIVE: To stimulate farm families to study their farm record analysis report and discover ways and means of reducing per unit costs.

TEACHING TOPIC: Reduce Per Unit Costs

REFERENCE: 1. Organize Your Farm Business to Reduce per Unit Costs, Extension Service, KSU, MF-129, August,1964
2. First Annual Report, Kansas Farm Business Analysis Program 1963, State Board for Vocational April,1964.

A. How much does the average net farm income vary?

1963 income differences among 36 family farms cooperators in the 1963 Kansas Farm Business Analysis Program:

Average Gross Farm Income	$23,094.47	$10,681.87	$11,220.94
Average Farm Expenses	11,915.39	7,813.42	12,110.39
Average Net Farm Income	$11,179.08	$ 2,868.45	$ -889.45

B. Why do net farm incomes vary?

1. Differences in how the business is managed
2. Differences in how the business is organized
3. Differences in how the business is operated

C. How can net income be determined?

Net Income = Volume or Number of Units X Net Income Per Unit

1. Costs per dollar of gross income of three groups in problem one above:
   a. $ .53
   b. $ .74
   c. $1.15

D. What does per unit cost mean?

Costs per bushel, per hundredweight, per head, or per ton

E. How can costs per unit be decreased?

1. Adjust enterprises to efficient size

2. Choose enterprise which offers comparative advantage

3. Organize business for "manageability" advantage

F. How does size of enterprise affect costs and efficiency?

Larger enterprises make possible:

1. Better use of labor
2. Better use of equipment
3. Better use of machinery
4. More expert management
5. More efficient buying
6. More effective marketing

G. What diseconomies are associated with larger enterprises?

1. Management problems:
   a. Some farmers can effectively manage 20 litters of hogs per year, but are unable to control diseases and other management problems when they attempt expansion to 100 litters.
   b. Timeliness of operation in crop production

2. High cost inputs

3. "Lumpiness" of inputs

Expand milking facilities from 25 to 50 cows. When facilities are completed, 50 cows must be milked for maximum efficiency.

H. What factors should be considered when choosing an enterprise that offers a comparative advantage?

1. Adapt cropping system to land quality

2. Adapt livestock program to the land quality

3. Choose compatible livestock and cropping programs

4. Purchase supplies that offer comparative advantage:

   a. Cost of hauling grain 50 miles is $.06 per bushel while cost of hauling hay is $4.00 per ton.
   b. If one has to make a choice on how to use his land to grow feed for fattening cattle, one would want to raise roughage and buy grain.

RULE OF THUMB: PLAN TO BUY GRAIN, BUT NOT ROUGHAGE

5. Location with respect to market and feed supplies

I. How can a farm business be organized for "manageability?"

1. Reduce the number of decisions:
   a. Make long-range plans
   b. Anticipate problems and plan around them
   c. Know your capacities as a manager
   d. Improve skills required in your business
   e. Choose enterprises which fit your interests
   f. Moderate specialization

TEACHING UNIT V

OBJECTIVE: To teach families to compute and file income and social security taxes.

TEACHING TOPIC: Computing Federal Income and Self-Employment Taxes.

REFERENCE: 1. Farm Management I, Minnesota Farm Business Analysis
2. Farmers Tax Guide - 1965

A. What is the prupose of Schedule F (Form 1040)?

To compute net farm profit for income tax purposes

B. Directions for completing Schedule F:

1. Complete information on top of form

2. Enter farm sales in PART I directly from account book

3. Enter sales of purchased livestock and other items pruchased for resale, if any, in PART II.

4. Enter farm expenses in PART III directly from account book

5. List items from the depreciation and investment book in PART V. Include:

   a. Machinery depreciated
   b. Buildings depreciated
   c. Breeding and dairy stock depreciated

6. Enter totals on depreciation schedule

7. Enter the following in PART IV:

   a. Enter total of PART I (Farm Sales)
   b. Enter total of PART II (Sales of Livestock and other items purchased for resale)
   c. Enter Gross Profit or Loss by adding the totals of a and b above
   d. Enter total of PART III (Farm Expenses)
   e. Enter total of PART V (Depreciation)
   f. Enter other farm deductions
   g. Enter total of all deductions
   h. Determine net farm profit by : subtracting item 3, total deduction, from item 7, gross profit.

8. Complete Schedule F-1, Form 1040, Self-Employment Tax, by reading and following instructions.

C. What is included in capital gains or losses?

1. Dairy, breeding, and draft livestock

2. Any depreciable property sold or salvaged

D. How are capital gains different from regular income?

1. Tax is paid on one-half of long term gain

2. Classes as other income, not farm income

3. Not subject to social security tax

E. How are Capital Gains or Losses determined?

1. Complete Schedule D (Form 1040)

   a. Complete information on top of form
   b. Enter sale of short-term capital gains or losses- assets held not not more than six months
   c. Enter sale of long-term capital gains or losses - assets held more than six months
   d. Subtract to determine net gain or loss
   e. Transfer net gain or loss to Page I of Form 1040

F. Directions for completing Form 1040:

1. Read the instructions and follow them

2. Transfer net farm profit from Schedule F

3. Transfer taxable capital gain form Schedule D

4. Transfer Self - Employment Tax from Schedule F-1

TEACHING UNIT VI

OBJECTIVE: To teach young farmers to figure investment credit and depreciation.

TEACHING UNIT: Figuring Depreciation and Investment Credit

REFERENCE: 1. Farmers Tax Guide - 1965

2. Doane's Agricultural Reports

A. What are the three most used methods of figuring depreciation?

1. Straight line method:

a. Cost or other basis minus salvage value and 20% additional depreciation, equals depreciable balance

b. Depreciable balance divided by years of life equals annual depreciation.

2. Declining balance method:

a. Salvage value is not deducted, however, it must be allowed for because depreciation allowance must stop when the unrecovered cost is reduced to salvage value. If additional 20% depreciation is taken, it must be deducted from cost to get depreciable balance.

b. May use any rate not to exceed twice that of straight line depreciation:

(1) Property must have useful life of three years or more which was acquired (purchased new, constructed, reconstructed, or erected) after Dec. 31, 1953 :
(a) Only that part of cost of property which is attributable to construction or reconstruction after Dec. 31, 1953, may be claimed.
(2) Used property may be depreciated a maximum of one and a half times that of straight line depreciation

c. Use same percentage depreciation rate each year on unrecovered cost.

3. Sum of the years digits method:

a. Same limitations as declining balance method

b. Subtract salvage value and 20% additional depreciation from cost to get depreciable balance

TEACHING UNIT VI

OBJECTIVE: To teach young farmers to figure investment credit and depreciation.

TEACHING UNIT: Figuring Depreciation and Investment Credit

REFERENCE: 1. Farmers Tax Guide - 1965

2. Doane's Agricultural Reports

A. What are the three most used methods of figuring depreciation?

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b. Depreciable balance divided by years of life equals annual depreciation.

2. Declining balance method:

a. Salvage value is not deducted, however, it must be allowed for because depreciation allowance must stop when the unrecovered cost is reduced to salvage value. If additional 20% depreciation is taken, it must be deducted from cost to get depreciable balance.

b. May use any rate not to exceed twice that of straight line depreciation:

(1) Property must have useful life of three years or more which was acquired (purchased new, constructed, reconstructed, or erected) after Dec. 31, 1953:
(a) Only that part of cost of property which is attributable to construction or reconstruction after Dec. 31, 1953, may be claimed.
(2) Used property may be depreciated a maximum of one and a half times that of straight line depreciation

c. Use same percentage depreciation rate each year on unrecovered cost.

3. Sum of the years digits method:

a. Same limitations as declining balance method

b. Subtract salvage value and 20% additional depreciation from cost to get depreciable balance

c. Total years of useful life. (ex.: 1,2,3,4,5,15)

d. First year's depreciation would be 5/15 of depreciable balance, second year would be 4/15, third year would be 3/15, etc.

HAND OUT REFERENCE NO. 10 AND DISCUSS

B. What are the rules governing use of investment credit?

1. Machinery and equipment with a useful life of at least four (4) years. (not livestock)

2. New property - cost plus basis of old property

3. Used property - only additional amount expended

4. **Four** to five years of life, 1/3 of 7%; six to seven years of life, 2/3 of 7%; 8 or more years of life, all of 7%.

5. Cannot be subtracted from Social Security

6. Cannot be used on permanent buildings

C. What are the rules governing the use of the additional 20% first year depreciation?

1. Optional

2. Must be purchased new or used (no livestock)

3. Includes only the money paid out

4. Investment credit, regular depreciation, and slavage are not deducted before figuring 20% of cost.

5. Allowed for full year, even if purchased in last month

6. Must be purchased during the year (no carryover from year to year).

HAND OUT REFERENCE NO. 11 AND DISCUSS

Teaching Reference No. 10

FIGURING DEPRECIATION THREE WAYS

PROBLEM: Purchased new farm truck for $2,700.00 on January 2, 1965. At the end of ten years of useful life, the estimated salvage value was $160.00. The 20% additional depreciation and investment credit were claimed. Figure the depreciation for the next ten years using the following chart. Also, determine: (1) 20% additional depreciation, and (2) investment credit.

	ANNUAL DEPRECIATION		
Year	Straight Line Method	Declining Balance Method	Sum of the Years Digits Method
1st year	$ 200.00	432.00	$ 363.64
2nd year	200.00	345.60	327.27
3rd year	200.00	276.48	290.90
4th year	200.00	221.18	254.54
5th year	200.00	176.95	218.18
6th year	200.00	141.56	181.82
7th year	200.00	113.25	145.45
8th year	200.00	90.60	109.09
9th year	200.00	72.47	72.74
10th year	200.00	57.98	36.27
Sub Totals	$2.000.00	$1,928.07	$2,000.00
20% Add. Depr.	540.00	540.00	540.00
Salvage Value	160.00	160.00	160.00
TOTALS	$2,7000.00	$2,628.07	$2,700.00
Unrecovered cost at end of 10 years	-0-	$71.93	-0-

TEACHING UNIT VII

OBJECTIVE: To encourage farm families to plan their farm business for maximum efficiency and profitable use of resources.

TEACHING TOPIC: Planning Farm Profits

REFERENCE: Planning Farm Profits, Extension Service, KSU, C 319, October, 1963.

A. Why is continual management required in a farm business?

1. Prices for items bought and sold continually change
2. New developments in production technology
3. Government programs and policies frequently change
4. Changes in weather, insects or diseases affect production
5. The desire or goals of the family changes as family develops

B. How can a management problem of lower than potential profits due to change in prices or production be solved?

1. Determine the cause
2. Determine the nature
3. Determine the extent
4. Determine the seriousness

C. Why are some farms more profitable than others?

1. Difference in production volume
2. Difference in production efficiency
3. Difference in production of products that yield the best return in the market

D. Based on the above answer, what three types of questions do management really have to answer?

1. What to produce
2. How to produce
3. How much to produce

E. What management adjustments may be considered when solving a problem dealing with farm profit?

1. Present combination of enterprises left unchanged, with improved production efficiency.

2. Improved combination of enterprises, with present production efficiency left unchanged.

3. Improved combination of enterprises, with improved production efficiency.

THE COLLECTION AND ANALYSIS OF FARM RECORDS IS ESSENTIAL TO THE APPRAISAL OF A BUSINESS ORGANIZATION.

F. How can records help in the identification of management problems?

1. By measuring income

2. By measuring business size

3. By measuring production efficiencies

G. What are some points to consider when identifying management choices?

1. Capital involved and financing

2. Market opportunities

3. Change in cropping system

4. Change in livestock system

5. Storage of feed and supplies

6. Housing and equipment

7. Collecting product

8. Grading

9 Packaging

10. Transporting

11. Risk bearing

12. Distributing and retailing

13. Labor involved

H. How can choices be tested?

1. Actual trial:

a. Expensive
b. Time consuming

2. Trial estimate (budget). Estimate changes that will occur in present profits by :

a. Changes in farm costs
b. Changes in production
c. Changes in production requirements
d. Return for any organization of resources

I. How is "budget" defined?

A budget is an estimate for a specified time period, of the changes in costs and returns which may result for a contemplated change in resource use.

J. What are the two types of farm budgets?

1. Complete budget:

a. Used when extreme changes are made
b. Used when net income figure is required

HAND OUT TEACHING REFERENCE NO. 12 AND DISCUSS

2. Partial budget:

a. Used for most management problems
b. Shows effect on net income

HAND OUT TEACHING REFERENCE NO. 13 AND DISCUSS

K. How can a manager decide how large an adjustment is possible with a given situation?

HAND OUT TEACHING REFERENCE NO. 14 AND DISCUSS

L. How can common problems in budgeting be eliminated?

1. Establish clearly what budget comparison is to show

2. Determine the needed information, which includes:

a. Resource requirements with costs
b. Production estimates with prices

3. Include only information pertinent to the problem

HAND OUT TEACHING REFERENCE NO. 15 AND DISCUSS

Teaching Reference No. 12

COMPARATIVE FINANCIAL SUMMARY
(Complete Budget)

ITEM	Existing Plan	Choice II	Choice III
Receipts:			
Crop Sales			
Livestock Sales			
Miscellaneous Income			
Total Receipts			
Expenses:			
Feed bought			
Hired labor			
Fuel and oil			
Equipment upkeep			
Trucking & machine hire			
Livestock expense			
Seed and other crop expense			
Building upkeep			
Utilities			
Interest, taxes and insurance			
Depreciation			
Miscellaneous			
Total Expenses			
Net Farm Income			

Teaching Reference No. 13

PARTIAL FARM BUDGET

The estimated effect on annual net farm income from (some proposed change)

Added costs _____

Reduced Receipts _____

A. Total added costs and reduced receipts _____

Added receipts _____

Reduced costs _____

B. Total added receipts and reduced costs _____

Estimated effect on net income (difference between A and B) _____

Teaching Reference No. 14

FARM MANAGEMENT PROBLEM

A typical farmer in northwest Kansas has land devoted to native pasture and a small cow herd. Let's suppose that he is considering replacing the cows with a wintering program. How many calves can he buy to replace the cows?

Productive Resources	Those Previously Available but Unused	Those Released by the Change	Resources Required per Calf	Extent of Possible Adjustment
Capital & Credit	$5,000.00	$5,000.00	$100.00	100
Labor	810 hours	900	12	150
Feed silage	50T	140T	2T	95

Capital and labor would permit him to handle more calves; feed is the most restrictive resource and would limit him to 95.

Teaching Reference No. 15

CASE EXAMPLE

1. This farmer handles 500 acres of crops and a 100 beef cow unit without hired help. He feels that he is fully employed and perhaps a little overworked at times. To help him with his work he would like to buy a silo unloader and power feeding wagon. Would it pay him to make this investment?

2. The production possibilities he visualizes were to winter 75 additional calves and increase their weight from 400 to 650 pounds. This would require new capital, for equipment, $4,000, and for calves, $7,500 making a total of $11,5000. The useful life of the equipment was estimated at ten years. The additional feed requirement of the calves could be provided by reducing the acres diverted to soil conserving uses.

With this information, the budgeting procedure for analyzing this alternative is as follows:

ADDED COSTS		
Prorated $4,000 investment		
Depreciation	$400	
Interest	120	
Repairs	45	
Taxes and insurance	45	
Annual Operating		
Interest on calves	$225	
Protein	400	
Veterinary	75	
Farming added acreage	110	
REDUCED RETURNS		
Calves	$7,500	
Government check	780	
Total added costs and reduced returns		$9,700
ADDED RETURNS		
75 feeder calves	$12,000	
REDUCED COSTS		
none		
Total added returns and reduced costs		$12,000
Estimated change in net income		$2,300

ADVISORY COMMITTEES

All vocational agriculture departments in Kansas are to be encouraged to organize and use an advisory committee for teacher direction and the promotion of agriculture in the community.

The use of an advisory council is one of the most effective devices for implementing the principle "that those affected by a program should have a part, directly or indirectly, in formulating the program."

The purposes of having an advisory council are:

1. To involve people in a process of interpreting their own needs and stimulate them to action in helping themselves.
2. To develop people into better rural leaders through a greater understanding and appreciation of a community program of vocational agriculture.
3. To aid people in the community in becoming better informed as to the objectives and accomplishments of vocational agriculture.
4. To aid the teacher of vocational agriculture by rendering valuable assistance in the development and promotion of the total program of vocational agriculture.

The following are reasons why school administrators have found an agricultural advisory council to be beneficial.

1. It aids in promoting vocational agriculture in the community.
2. It aids in determining community needs .
3. It aids the vocational agriculture department in performing community services.
4. It assists in solving problems too large for the instructor.
5. It aids in locating students for young farmer and adult classes.
6. It helps in setting up a course of study for the total vocational agriculture program.
7. It may help in keeping the school administration informed along agricultural lines.
8. It is helpful when arranging social and recreational activities to supplement the classwork in teaching.
9. It assists in planning and carrying out measures to improve the teaching of all phases of vocational agriculture.
10. It helps to provide a continuous agriculture program when teachers change.

The following problems seem foremost in the development of advisory councils in the State:

1. To inform the teacher about the use of an advisory council.
2. To acquaint the administration with a council that is working.
3. The knowledge of how to start and operate a council.

The committee believes that any Kansas teacher of vocational agriculture could successfully use an advisory council to the advantage of the program. The following suggestions are presented for guidance in developing an advisory council:

Selecting members:

1. Must be public spirited people.
2. Must have agricultural education programs at heart.
3. Must be willing to cooperate.

4. Must be representative of the people of the community
   a. Geographical representation
   b. Type of farming or business
   c. Age
   d. Status in farming
   e. Religious and political membership
   f. Membership in farm or civic organization
   g. Member of school board

Organizing the council:

1. Confer with administrator
2. Secure approval from school board
3. Obtain suggestions from teacher trainers or supervisors
4. Decide on size of council
   a. Will depend on community
   b. Suggested size of council--5 to 10
5. Superintendent, agriculture instructor, and one farmer should select council members for three year terms
6. Have agriculture instructor inform members of appointments with official letter from the school board
7. Call first meeting
   a. Explain and discuss council
   b. Elect president, vice-president, and secretary
   c. Outline duties of office
   d. Adopt a constitution
   e. Set meeting dates
   f. Discuss meeting agenda
   g. Secretary writes minutes for each meeting
   h. Channel all suggestions of advisory committee through school board and administration

Suggested first year program for a council to consider:

1. Our vocational agriculture department, high school, young farmers and adult classes
   a. How many people is it reaching?
   b. Who in the community should be served?
   c. How is it administered?
2. The agricultural situation in the community
   a. Where do we now stand?
   b. Where do we need improvement?
   c. What community projects should be started?
   d. What are the needs of the farm people?
3. The adult educational program for the community
   a. Adult classes
   b. Special projects
4. The young farmer educational program for the community
   a. Young farmer classes
   b. Special programs and activities
5. The high school program for farm boys
   a. Classes
   b. Special activities

6. Using all agricultural agencies in a community
   a. Avoid duplicating efforts
   b. Make the best possible use of all agencies
7. The Junior Fair
   a. Adult help needed
   b. Making it educational

Sub-committees for an advisory council

1. Supervised farming (2 members)
2. Young farmer & adult programs (2 members)
3. Classroom and shop (2 members)
4. Future Farmers of America (2 members)

SECTION XVII
Establishment of Multi-Teacher Departments

Each school should develop a plan to better educate the present and prospective men working in agriculture by teachers becoming more specialized and being able to to offer more individual instruction. One way this could be accomplished is by multi-teacher departments meeting the needs of a total vocational agriculture program.

Nine out of 180 departments in Kansas are multi-teacher departments. Only one percent of all young and adult farmers in Kansas are enrolled in out-of-school programs as of 1965.

The following brief schedule might be followed to consider or emphasize the need for a multi-teacher department.

1. Determine teacher load
   a. The State department will reimburse for an additional teacher if there are 50 or more day school boys enrolled.
   b. Generally speaking, there are 40-45 day school boys in a 1-2-1-1, (5 hours) which is a full-time load for one teacher.
2. Show the need
   a. Set up an advisory council and have them develop a plan if there is a need for an additional teacher. They should consider the present and prospective enrollments of day school and out-of-school programs.
   b. Have the State coordinator or State staff apprise the school administration of the need for a multi-teacher department.

VT 003 675

An Action Program for Industrial Progress in Idaho, Phase II of a Survey of Idaho's Present and Future Industrial Development.

Booz Allen and Hamilton, Inc.
Idaho State Dept. of Commerce and Development, Boise
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 9Jun67 16p.

*EMPLOYMENT POTENTIAL; *INDUSTRIALIZATION; *STATE ACTION; LABOR FORCE; INDUSTRY; *RESOURCES
IDAHO

Earlier work on the project concluded: (1) Idaho will need 83,000 additional non-agricultural jobs by 1980 to offset the loss of jobs in agriculture and to meet job demands of an increasing population, (?) Idaho has both advantages and disadvantages for industrial expansion, and (3) The people favor industrial expansion if it does not destroy the state's natural scenic beauty. An accelerated rate of manufacturing growth to meet labor demands requires an increased industrial development program. A plan for such a program to attract and accomodate manufacturing industries included the stages: (1) Evaluation of economic resources and characteristics, (2) selection of target industries, (3) identification and promotion of companies, (4) development and followup of prospects, and (5) location and expansion implementation. The results of stage one showed that labor rates were low, skilled labor was limited, major native raw materials were available, transportation costs were high, marketing possibilities were uncertain, taxes offered no advantage, living conditions were adequate, recreation and tourism offered job possibilities, and utilities were available. A four-step evaluation process identified 26 target industries which offered expansion and 50 which offered new opportunities. The procedures for implementing the three remaining stages are diagramed. (JM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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AN ACTION PROGRAM FOR INDUSTRIAL PROGRESS IN IDAHO

PHASE II OF A SURVEY OF IDAHO'S PRESENT AND FUTURE INDUSTRIAL DEVELOPMENT

STATE OF IDAHO
Department of Commerce and Development

Earlier work on the project developed the economic background upon which this summary is based. Significant conclusions from the earlier work include:

- Idaho will have to develop nearly 83,000 new jobs by 1980 to match projected growth in population.

- Agricultural employment will continue to decline in the State. Thus, manufacturing and other commercial activities will need to offset this employment loss as well as provide for additional employment needs.

- Idaho has many advantages for future development including labor rates, natural resources, land, water, utilities, living conditions, and outstanding scenic areas. Conversely, transportation routes and rates, technical labor and management skills, tax rates, and markets either are disadvantages or offer no particular advantage toward developing Idaho's industrial potential.

- The attitude of the people of the State toward industrial development is encouraging. Most people sincerely want Idaho to progress. Yet, they want progress to be planned in such a way as to preserve Idaho's natural beauty. This goal can be achieved.

To provide for the projected increase by 1980 of 66,800 in Idaho's working age population will actually require creation of 82,700 non-agricultural jobs by the end of that period. This number is needed to offset the anticipated loss of 15,900 agricultural jobs, and to improve the position of the State's citizens by providing higher incomes which are the result of manufacturing employment.

We have identified as an attainable goal the requirement for 18,200 new manufacturing jobs. The accomplishment of this goal would call for a 50% increase by 1980 over the 1965 level of manufacturing employment in Idaho. The balance of the need would be met by supporting services and employment growth in such industries as tourism, recreation and government.

The solution to this requirement for an accelerated rate of manufacturing growth in Idaho is an increased industrial development program. Such a program should encompass practical steps tailored to consider problems confronting the state and directed toward attainment of tangible measurable benefits.

INDUSTRIAL DEVELOPMENT ACTION IN IDAHO

WHY

RESULTS

HOW

PROBLEMS CONFRONTING IDAHO

- Outflow of Population in Work Force Age Group
- Employment and Income Fluctuations in Seasonal Industries Causing
- Substantial Numbers of New Jobs Required in the Future
- Shortage of Job Opportunities for Professional and University Trained People
- Declining Agricultural Employment
- Worker Displacement Due to Automation and Technology Advances
- Maximum Resource Utilization not Being Realized
- Unfavorable Freight Differentials; Corporate Tax Structures; and, Limited City Planning Hinder Idaho's Ability to Compete for Industry

INDUSTRIAL DEVELOPMENT PROGRAM

1. *EVALUATION OF ECONOMIC RESOURCES AND CHARACTERISTICS*
2. *SELECTION OF TARGET INDUSTRIES*
3. *IDENTIFICATION AND PROMOTION OF COMPANIES*
4. *DEVELOPMENT AND FOLLOW UP OF PROSPECTS*
5. *LOCATION AND EXPANSION IMPLEMENTATION*

BENEFITS TO BE GAINED

- Population Growth will be Stimulated as Job Opportunities Increase
- Seasonal Fluctuation in Employment and Per Capita Income will be Reduced as the Industrial Base Broadens
- Projected Requirements for New Jobs will be Satisfied
- More Diversified Employment Opportunities will be Provided for Professional People
- New Jobs in the Non-Agricultural Sectors will be Created
- Expanded Efforts to Place and Retrain Unemployed Workers will Take Place
- Increased Benefits will be Obtained from Natural Resources as Appropriate Industries are Attracted
- Corrective Action by State and Local Representatives will Improve the Industrial Climate

THE FIVE MAJOR STAGES WHICH CHARACTERIZE A WELL ORGANIZED INDUSTRIAL DEVELOPMENT PROGRAM

STAGE 1
EVALUATION OF ECONOMIC RESOURCES AND CHARACTERISTICS

Analyze the State Economy
Identify disadvantages; initiate corrective action
Determine what the State has to offer industry
Compare to surrounding regions and states
Project economic factors
Identify major problems
Establish Goals

STAGE 2
SELECTION OF TARGET INDUSTRIES

Establish criteria for evaluating industries
Evaluate potential industries
Select target industries

STAGE 3
IDENTIFICATION AND PROMOTION OF COMPANIES

Identify prospective companies from target industry lists
Prepare industry-oriented promotion materials
Refine and expand promotional activities
Screen and rank prospective companies
Develop special inducement programs
Establish yearly development goals
Contact prospective companies

STAGE 4
DEVELOPMENT AND FOLLOW-UP OF PROSPECTS

Determine information needs of prospects
Coordinate efforts of state representatives
Arrange next contact with prospects
Arrange subsequent contacts
Reclassify prospects

ERIC

STAGE 5
LOCATION AND EXPANSION IMPLEMENTATION

Conduct final meetings
FOR POSITIVE ANSWERS:
Provide assistance in location
Provide follow-up support
FOR NEGATIVE ANSWERS:
Determine reasons; initiate corrective actions
File and maintain records
Contact periodically

STAGE 1
EVALUATION OF ECONOMIC RESOURCES AND CHARACTERISTICS

COMPLETED

In reviewing what Idaho has to offer as a foundation for building a program to attract industry, the following factors were considered:

Utilities, water, land, and the general attitudes of State and local governments
Size, location, and accessibility of markets
Transportation costs and availability
Living conditions and services
Labor skills and rates
State and local taxes
Mineral resources
Timber resources

This evaluation of economic resources and characteristics lead to the profile of Idaho summarized as follows:

(1) Labor rates are presently among the lowest in the Pacific Mountain Region, a fact which should make Idaho attractive to businesses with a high element of labor in product cost.

(2) The amount of skilled labor is limited, although in most areas there are reasonably abundant numbers of people who could be trained for semi-skilled positions. Businesses requiring large numbers of machinists, electronic technicians, and similar skills would probably need to import employees.
(3) The major native raw materials are phosphate rock, silver, zinc, lead, timber, and certain rare minerals. Phosphate and timber offer promise for the immediate broadening of the industrial base into industries using these resources. The other minerals have either attained a stable position or are unknown quantities for the future.
(4) Higher transportation costs in certain commodities are a factor to be dealt with. As a corollary, however, there are opportunities to use transportation staff counsel to improve many inequities through rate adjustments.
(5) No generalizations are possible on the market accessibility of Idaho products. There are numerous examples of successful marketing into distant communities and each requires a separate investigation.
(6) In terms of taxes, Idaho appears to offer no advantage and in some cases, is at a competitive disadvantage relative to other states in the region.
(7) Living conditions and services in the urban areas are adequate.
(8) The sum total of Idaho's outdoor areas (forests, lakes, streams, and mountains) presents an attractive picture for recreation and an outstanding opportunity for further development of the tourist industry.
(9) The State is in a favorable position in terms of utility services and rates, water supply for industrial and agricultural uses, and land availability; and various government groups are said to be receptive to the need for stimulating employment in non-agricultural enterprises.

These economic and directly related characteristics provide the basis for determining which industries can and should locate in Idaho.

SUMMARY OF TARGET INDUSTRIES

MAJOR INDUSTRY GROUP	No. of Expansion Opportunities	No. of New (1) Opportunities	Total No. of Target Industries
Food and Kindred Products	7	5	12
Textile Mill Products	0	1	1
Apparel and Related Products	0	4	4
Lumber and Wood Products	7	0	7
Furniture and Fixtures	0	3	3
Paper and Allied Products	3	6	9
Printing and Publishing	0	1	1
Chemicals and Allied Products	2	2	4
Rubber and Plastics Products	1	1	2
Stone, Clay and Glass Products	0	7	7
Primary Metals Industries	2	9	11
Fabricated Metal Products	0	1	1
Machinery, Except Electrical	1	4	5
Electrical Machinery	1	2	3
Transportation Equipment	2	5	7
Instruments and Related Products	0	5	5
Miscellaneous Manufacturing	0	2	2
TOTALS	26	58	84

(1) Industries in which 1966 employment in Idaho is less than 25.

STAGE 2
SELECTION OF TARGET INDUSTRIES

The United States Department of Commerce has established 418 classifications of manufacturing industry. These are the classifications commonly referred to as the four-digit Standard Industrial Classification numbers. A major objective of this study is the identification of those specific industrial classifications whose needs best match what Idaho has to offer. Once identified, these industries become the primary targets solicitation and promotion.

Each of the industrial classifications were subjected to a preliminary screening based upon market demand, employment growth, labor input, and raw material requirements. This produced 175 industries warranting further study. The process used for screening the remaining list of possible manufacturing industries to arrive at a target list for Idaho involved application of twelve criteria and the use of a four-step refining process. This was used where it was possible and the criteria were weighted in relative imporrance.

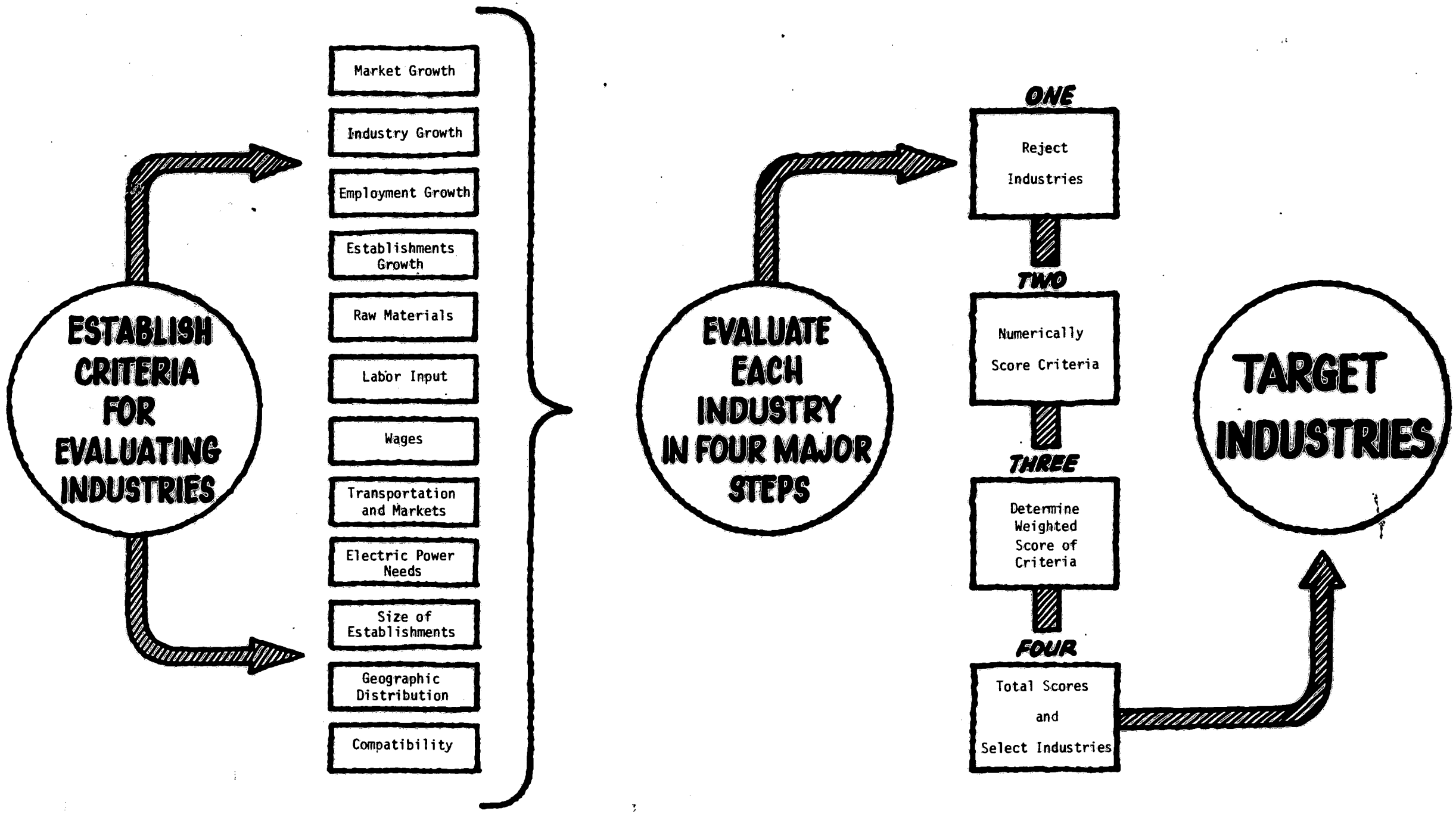
The twelve criteria with corresponding desired characteristics are shown on the next chart.

These criteria were subjected to a four step evaluation process as follows. Application of this four step process revealed a list of recommended target industries. A review of target industries is presented in the following sections.

EXPANSION OPPORTUNITIES

Meat Slaughtering Plants
Poultry Dressing Plants
Natural and Process Cheese
Dehydrated Food Products
Frozen Fruits and Vegetable
Prepared Animal Feeds
Beet Sugar
Sawmills and Planning Mills
Special Product Sawmills
Millwork Plants
Veneer and Plywood Plants
Prefabricated Wood Products
Wood Preserving
Wood Products
Paper Mills, Except Binding
Paperboard Mills
Corrugated Shipping Containers
Inorganic Chemicals
Fertilizers
Plastics Products
Primary Lead
Primary Zinc
Farm Machinery and Equipment
Electronic Components
Truck and Bus Bodies
Trailer Coaches

METHOD OF SELECTING INDUSTRIES



NEW OPPORTUNITIES*

Meat Processing Plants
Canned Specialities
Pickles, Sauces, Salad Dressing
Cereal Preparations
Blended & Prepared Flour
Tufted Carpets & Rugs
Separate Trousers
Men's & Boys Clothing
Waterproof Garments
Curtains & Draperies
Wood Furniture, not upholstered
Household Furniture
Wood Office Furniture
Paper Coating & Glazing
Pressed & Molded Pulp Goods
Fiber cans, Tubes, Drums, etc.
Building Paper & Board Mills
Industrial Controls
Aircraft Equipment
Transportation Equipment
Mechanical Measuring Devices
Optical Lenses and Instruments
Musical Instruments and Parts
Manifold Business Forms
Industrial Gases
Rubber Footwear
Glass Containers
Porcelain Electrical Supplies
Lime
Abrasive Products
Mineral Wool
Nonclay Refractories
Nonmetal Minerals
Electrometallurgical Products
Primary Aluminum
Primary Nonferrous Metals
Aluminum Rolling & Drawing
Aluminum Castings
Nonferrous Castings
Nonferrous Forging
Primary Metal Industries
Industrial Trucks & Tractors
Food Products Machinery
Woodworking Machinery
Electrical Measuring Equipment
Motorcycles, Bicycles, and Parts
Games & Toys
Automatic Temperature Controls
Surgical and Medical Instruments

*New in the sense that less than 25 employees were in each industry in Idaho for the third quarter of 1966.

While the main thrust of Idaho's industrial development program will be toward attracting and accommodating manufacturing industries, there are other growth opportunities which should not be over looked:

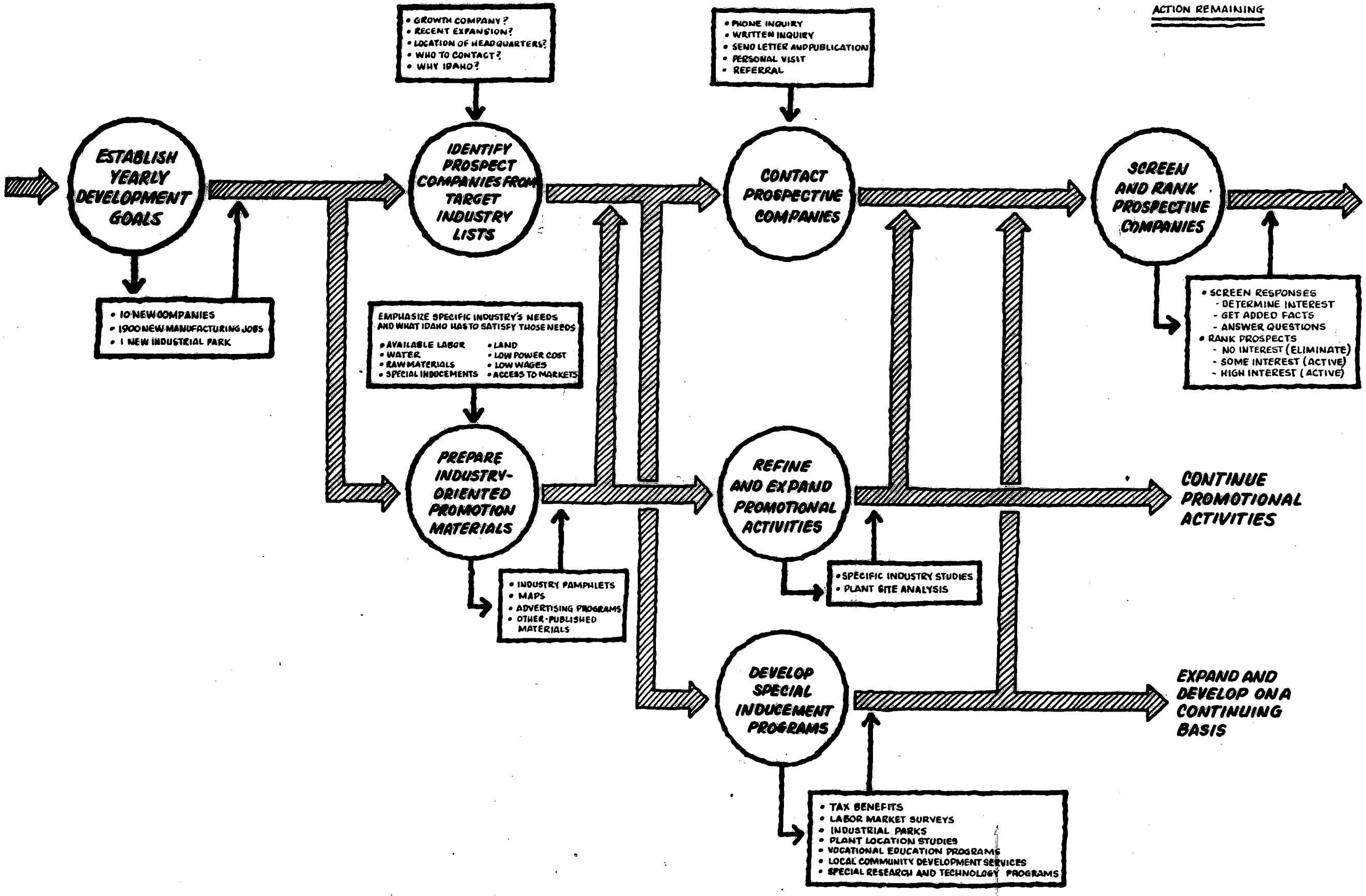
(1) The tourism and recreation industry is an important element of the state economy and should continue to grow in the future. Idaho has the natural resources to provide a wide array of recreational activities from camping to hunting and fishing to skiing. To assure that Idaho shares in the recreational market growth in America, requires comprehensive recreational planning, development and promotion on a continuing basis.

(2) Idaho appears to have an advantageous position from which to attract nuclear related research and industrial facilities. With the National Reactor Testing Station, a nearby university, and what finally appears as a growing market, the field appears to warrant promotional attention.

STAGE THREE

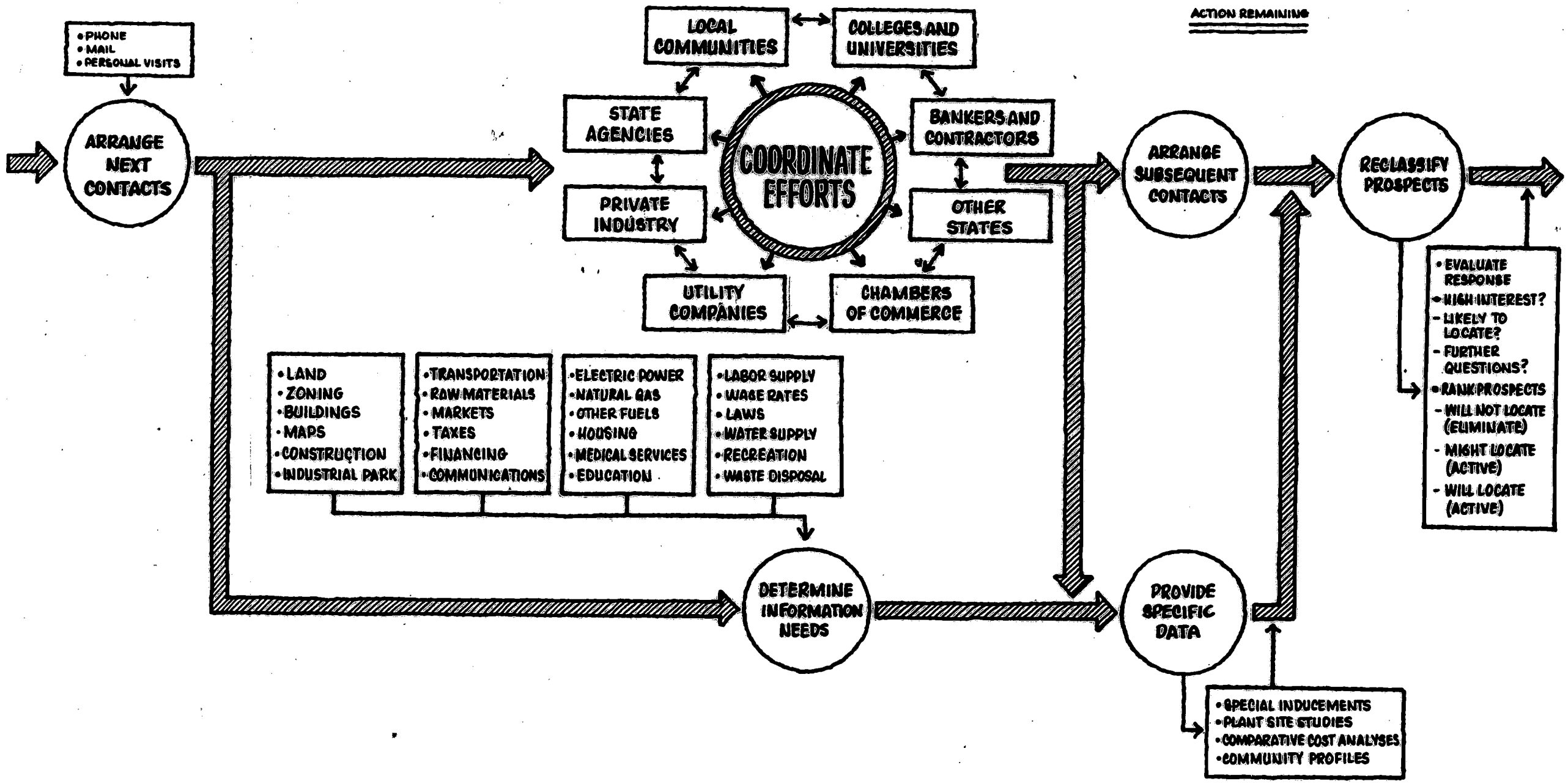
IDENTIFICATION AND PROMOTION OF COMPANIES

ACTION REMAINING



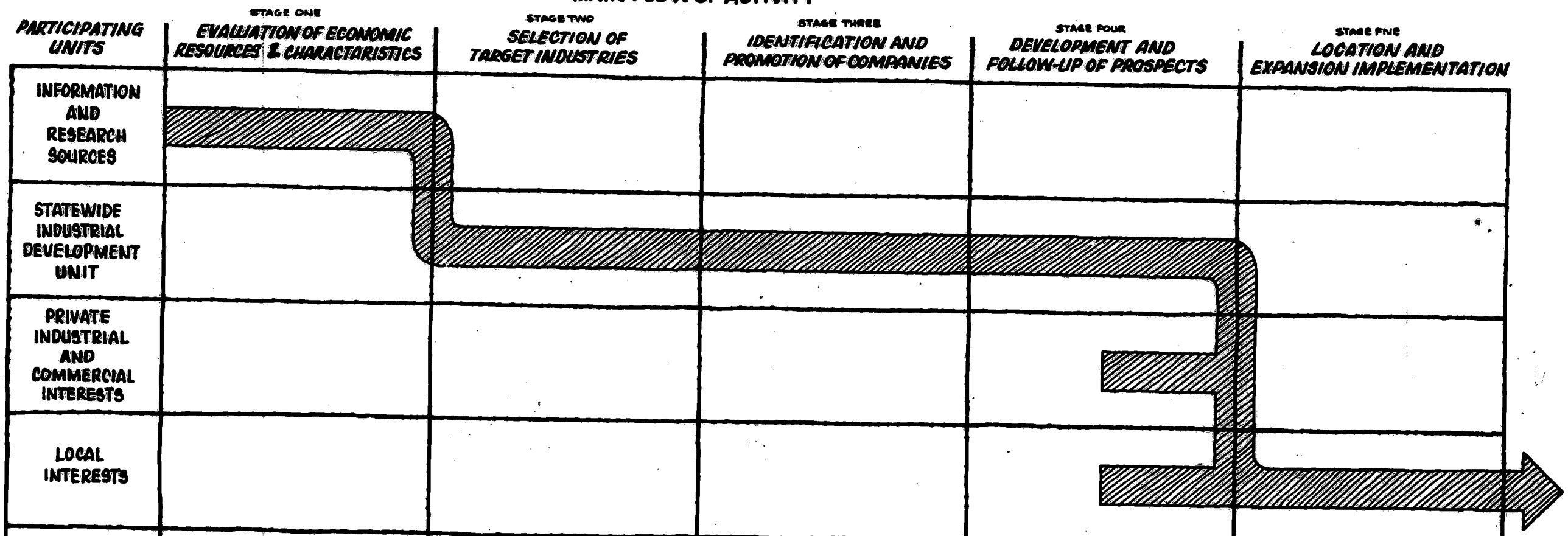
STAGE FOUR

DEVELOPMENT AND FOLLOW-UP OF PROSPECTS



THE PROCESS OF INDUSTRIAL DEVELOPMENT

MAIN FLOW OF ACTIVITY



PARTICIPATING UNITS	STAGE ONE EVALUATION OF ECONOMIC RESOURCES & CHARACTARISTICS	STAGE TWO SELECTION OF TARGET INDUSTRIES	STAGE THREE IDENTIFICATION AND PROMOTION OF COMPANIES	STAGE FOUR DEVELOPMENT AND FOLLOW-UP OF PROSPECTS		STAGE FIVE LOCATION AND EXPANSION IMPLEMENTATION
INFORMATION AND RESEARCH SOURCES						
STATEWIDE INDUSTRIAL DEVELOPMENT UNIT						
PRIVATE INDUSTRIAL AND COMMERCIAL INTERESTS						
LOCAL INTERESTS						
PRIMARY ACTIVITIES	• ANALYZE THE STATE ECONOMY • COMPARE TO SURROUNDING REGION AND STATES • IDENTIFY MAJOR PROBLEMS • PROJECT ECONOMIC FACTORS • ESTABLISH GOALS • DETERMINE WHAT THE STATE HAS TO OFFER INDUSTRY: - IDENTIFY ADVANTAGES - IDENTIFY DISADVANTAGES; INITIATE CORRECTIVE ACTION	• ESTABLISH CRITERIA FOR EVALUATING INDUSTRIES • EVALUATE POTENTIAL INDUSTRIES • SELECT TARGET INDUSTRIES	• ESTABLISH YEARLY DEVELOPMENT GOALS • IDENTIFY PROSPECT COMPANIES FROM TARGET INDUSTRY • PREPARE INDUSTRY-ORIENTED PROMOTION MATERIALS • REFINE AND EXPAND PROMOTIONAL ACTIVITIES • CONTACT PROSPECTIVE COMPANIES • DEVELOP SPECIAL INDUCEMENT PROGRAM • SCREEN AND RANK PROSPECTIVE COMPANIES	• ARRANGE NEXT CONTACTS WITH PROSPECTS • DETERMINE INFORMATION NEEDS OF PROSPECTS	• COORDINATE EFFORTS OF STATE REPRESENTATIVES • ARRANGE SUBSEQUENT CONTACTS • RECLASSIFY PROSPECTS	• CONDUCT FINAL MEETINGS • FOR POSITIVE ANSWERS: - PROVIDE ASSISTANCE IN LOCATION - PROVIDE FOLLOW-UP SUPPORT • FOR NEGATIVE ANSWERS: - DETERMINE REASONS - INITIATE CORRECTIVE ACTION - FILE AND MAINTAIN RECORDS - CONTACT PERIODICALLY

STAGE FIVE

LOCATION AND EXPANSION IMPLEMENTATION

ACTION REMAINING

- PLAN STRATEGY
- INCLUDE IMPORTANT PARTICIPANTS
- HAVE ANSWERS TO ALL PAST QUESTIONS
- SELECT MEETING PLACE CONVENIENT TO PROSPECT
- GET FINAL DECISION

CONDUCT FINAL MEETINGS

YES ANSWER

PLANT SITE TRIPS

PROVIDE ASSISTANCE IN LOCATION

ESTABLISH CONTACT WITH IMPORTANT REPRESENTATIVES

- CITY OFFICIALS
- LOCAL BUSINESS LEADERS
- FINANCIAL COMMUNITY
- UTILITY REPRESENTATIVES
- TRANSPORTATION REPRESENTATIVES
- LOCAL CONTRACTORS
- OTHERS AS REQUESTED

PROVIDE FOLLOW-UP SUPPORT

- INTRODUCTION TO STATE OFFICIALS
- EMPLOYEE PROCUREMENT SERVICES
- SCHOOL PLACEMENT PROGRAMS
- HOUSING ASSISTANCE
- WELCOMING MEETINGS

NO ANSWER

DETERMINE REASONS- INITIATE CORRECTIVE ACTION

FILE AND MAINTAIN RECORDS

CONTACT PERIODICALLY

LIAISON WITH STATE AND LOCAL GROUPS:

- CORPORATE TAX PROBLEMS
- LACK OF INDUSTRIAL LAND
- DISADVANTAGEOUS RATE STRUCTURE
- LACK OF EMPLOYEE SKILLS

INPUT TO STAGE 1

VT 003 690
First Annual Report of the Michigan RCU.

Michigan Vocational Education Research Coordinating Unit, Lansing
Michigan State Dept. of Public Instruction, Lansing
MF AVAILABLE IN VT-ERIC SET.
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*ANNUAL REPORTS; *RESEARCH COORDINATING UNITS; *EDUCATIONAL RESEARCH; *VOCATIONAL EDUCATION; *STATE PROGRAMS; PROGRAM DESCRIPTIONS; ADMINISTRATIVE POLICY
MICHIGAN

The purpose of the Research Coordinating Unit (RCU) is to stimulate vocational education research and developmental activities within the state. Its activities during the first year of operation included: (1) Operational policies were written and approved by the Department of Education, (2) A vocational education research funds policy was approved and placed on file in the U.S. Office of Education, (3) Totals of $220,544 from the State Vocational Education budget in 1965 and $127,524 in 1966 were allocated for institutions for research applications, (5) Guidelines, brochures, proposal formats, and flow charts of RCU purposes, activities, and services were distributed to stimulate projects, (6) Presentations were made at five conferences, and a research training workshop was sponsored to provide leadership in research, (7) The staff coordinated Unit research efforts with those of other agencies and professions, served consultants on research ideas and projects, developed long range plans for research, and identified research training needs and personnel, (8) The Unit disseminated briefs of completed research, lists of approved projects, and research projects from other states, and (9) It established a library of available research reports, began a research reference collection, and cooperated in gathering data for the Vocational Education Information System and Educational Resources Information Center. (MM)

VT 003 690

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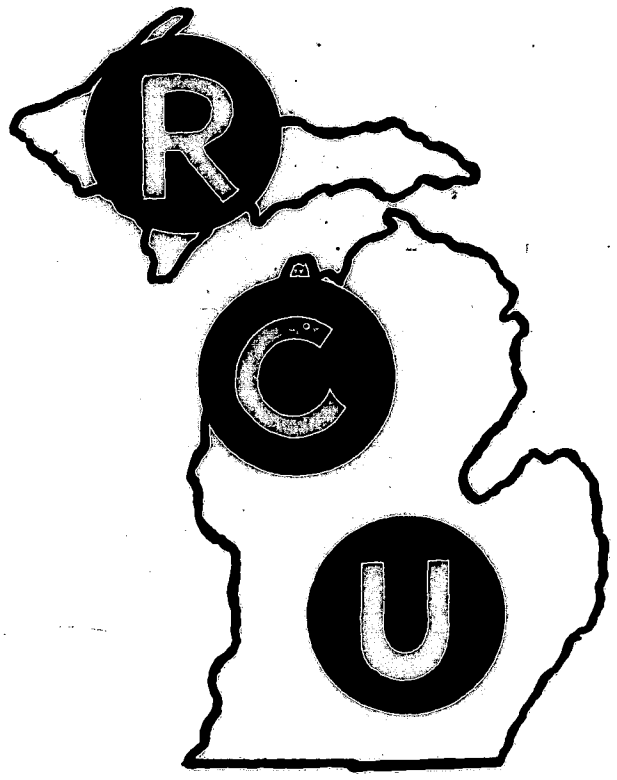
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First

ANNUAL REPORT

Of The

MICHIGAN



VOCATIONAL EDUCATION

Research Coordinating Unit

Published by

STATE BOARD OF EDUCATION
DEPARTMENT OF EDUCATION

Lansing, Michigan
1966

VT003690

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FOREWORD

Vocational Education is faced with the challenge of improving existing programs and developing entirely new programs of Vocational-Technical Education of high quality that will prepare people for gainful employment and upgrade those who need it. This poses three questions: What improvement is needed in existing programs? What new programs are needed? How can the money appropriated be expended most effectively?

These questions can only be answered adequately by obtaining reliable and valid data to aid in decision making. This type of information must be secured through well planned research. Research is already being conducted in the State, but not all of the critical occupational education problems are being attacked.

In an effort to stimulate, coordinate, and disseminate occupational education research efforts in Michigan, the United States Office of Education funded a Vocational Education Research Coordinating Unit in the Vocational Education Division of the Michigan Department of Education.

This first Annual Report summarizes progress of the Research Coordinating Unit (RCU) toward reaching its goals.

CONTENT

Purpose and Objectives of the RCU. 1

First Year Activities to Reach Objectives. 1

Setting. 5

Staff. 6

Appendicies

Purpose and Objectives of the RCU

The purpose of the Vocational Education Research Coordinating Unit is to stimulate research and developmental activities within the State which will improve existing programs of vocational education and develop needed new programs of vocational-technical education; to function as a coordinating unit for occupational research among those agencies and institutions conducting research and developmental activities; and to disseminate information that will reduce the time lag between research and practice.

The broad objectives for Research Coordinating Units set forth in the First National Meeting of Directors of RCU's in Washington, D. C., in July, 1965 are:

1. Build an atmosphere within a state that commits itself to research and is receptive to it - especially with state staff, school leaders, legislators.

2. Stimulate projects, ideas and understanding of research.

3. Provide leadership in research related activities ... seminars, conferences.

4. Coordinate state education research efforts in state agency and with other state government and professional agencies and professions.

5. Serve as consultants on research ideas and projects that forward vocational education.

6. Disseminate research information that enables others to utilize recent research findings.

7. Identify research training needs and personnel.

8. Work toward the identification of basic issues and problems needing research.

9. Develop long range plans for research.

10. Gather or assist in gathering needed data for a potentially computer based system of educational information.

11. Work closely with R & D Center and Project and U. S. Office of Education personnel in coordination of total research effort.

First Year Activities to Reach Objectives:

Operation of the Research Coordinating Unit was authorized to begin June 1, 1965, under a "letter contract." Contract Number OE-5-85-134 was received October 27, 1965, clearing announcement of the Unit's existence and releasing the Director of Vocational Education and the Unit Director to secure office space, equipment, and staff. Everything that could be done between June 1 and October 27 was done in terms of clearing personnel through Civil Service, locating and arranging for office space and equipment, forming and meeting with an advisory committee regarding proposed activities and the like.

Contacts were made with universities and local districts. Assistance was given in proposal writing and research proposals were reviewed. Contacts were made with the Services of the Division of Vocational Education, with key persons in other divisions of the Michigan Department of Education, with the Michigan Employment Security Commission, and with Battelle Memorial Institute. Consequently, progress was speeded and activities were begun before permanent office space was ready and equipment was moved in, December 13. Objectives and activities toward their accomplishment follow:

1. Build an atmosphere within the state that commits itself to research and is receptive to it -- especially with state staff, school leaders, legislators.

   a. Operational Policies for the Vocational Education Research Coordinating Unit have been written and approved by administrators of the Michigan Department of Education. (See Appendix A)

   b. A Vocational Education Research Funds Policy listing priorities, criteria for approving projects, items eligible for funding, and procedural steps for funding from ancillary and state funds has been approved and placed on file in the USOE. (See Appendix B)

   c. A total of $220,544 from the State's Vocational Education budget was allocated to research and development in 1965 and $127,524 has been allocated for 1966.

   d. Requests have been received from 64 schools, community colleges, and universities for research and development applications.

2. Stimulate projects, ideas and understanding of research.

   a. Two thousand five hundred brochures have been distributed to administrators, researchers, and other key people in Michigan to introduce the RCU and offer its services.

   b. Guidelines for writing proposals requesting State funds have been distributed.

   c. A proposal format for requesting funds under the provisions of Section 4(c) of the Vocational Education Act of 1963 has been prepared and disseminated with the Informal Check List for Proposals.

   d. A flow chart was prepared and used before various groups to describe purposes, activities, and services of the RCU. Included were the Michigan Educational Research Council, Research Committee of the Michigan Department of Education, Vocational Education Advisory Council, RCU Advisory Committee, Vocational Education Division Staff, and Trade and Industry Teacher Educators. (See Appendix C)

   e. A broadcast over WKAR - MSU describing RCU purposes and activities.

f. Two special meetings of the Vocational Education Division Staff were held. One to inform consultants of the Michigan State University Research and Development Program and the other to review activities of the RCU and promote understanding and communication.

3. Provide leadership in research related activities ... seminars, conferences.

   a. A Research Training Workshop will be held October 25, 26, and 27, at Michigan State University -- jointly sponsored by RCU and MSU College of Education.

   b. Presentations were made at:

      (1) Annual Conference of Michigan Educational Research Council.

      (2) State Conference of the Michigan Association of Schools and Colleges.

      (3) State Conference for Counselors.

      (4) Workshops for Vocational Directors.

      (5) Michigan State University Evaluation Project.

4. Coordinate state education research efforts in the State agency and with other State government and professional agencies and professions.

   a. Membership on State Curriculum Research Committee.

   b. Membership on Department of Education Research Committee.

   c. Membership on State Vocational-Technical Education Curriculum Committee.

   d. Co-sponsored state-wide area meetings on Michigan Manpower Study -- Battelle Project -- with Michigan Employment Security Commission, and Michigan Office of Economic Expansion.

   e. Participated in Area Vocational-Technical Education Studies meeting.

   f. Provided information to Governor's office.

   g. Utilized RCU Resource Committee of representatives from each service of the Vocational Education Division.

5. Serve as consultants on research ideas and projects that forward vocational education.

   a. Project proposal review panel for Cooperative Research Projects.

b. School Holding Power Advisory Committee member.

c. Home Economics Wage-Earning Study Advisory Committee member.

d. Helped the Agriculture Service write a 4(c) proposal.

e. Office and field conferences with persons from schools, community colleges, colleges and universities, and intermediate districts.

f. Collected information from other states regarding job clusters and worked with Vocational-Technical Curriculum Committee.

g. Identified persons assigned research responsibilities in K-12 districts, intermediate districts, and community colleges.

6. Disseminate research information that enables others to utilize recent research findings.

a. Briefs of completed research have been prepared and disseminated.

b. A library of available research reports has been made with a card cross reference index which is available to the Division and to visitors.

c. The beginning of a research library of such references as the ENCYCLOPEDIA OF EDUCATIONAL RESEARCH and the HANDBOOK OF RESEARCH ON TEACHING is available to the Division staff and visitors.

d. Lists of approved projects for 4(c) funding have been disseminated.

e. Research reports have been solicited from other states and provided to interested persons.

f. Information from those states where work is being done on job clusters was collected and provided to the Vocational-Technical Education Curriculum Committee (also reported in 5f).

7. Identify research training needs and personnel.

a. Conducted vocational education staffing needs survey.

b. Analyzed University Placement Office Summary Reports.

8. Work toward the identification of basic issues and problems needing research.

a. Returns are being received from a survey of research and development needs in vocational-technical education.

b. The RCU Advisory Committee and the RCU Resource Committee are helping with the survey and will use results to establish priorities for projects to be conducted.

c. Local educational agencies have been encouraged through the "Manual of Application for Vocational-Technical Program" to submit proposals for R & D projects needed.

9. Develop long range plans for research.

a. Long range plans are expected to be centered on the diffusion study which will identify innovative schools receptive to conducting pilot and demonstration projects identified from the R & D Needs Study.

b. Consultation has been done with directors of the annual school census to include items that will provide job performance information on 16-21 year olds.

c. Work is being done to improve state-wide follow-up study information.

10. Gather or assist in gathering needed data for a computer based system of educational information.

a. Member of VEIS Committee of the Division working on equipment inventory by use of data processing and watching development of Seven-State VEIS Project. (Vocational Education Information System)

b. Cooperating in collection of information for the USOE Educational Research Information Center (ERIC).

11. Work closely with R & D Center and Project and U. S. Office of Education personnel in coordination of total research effort.

a. Research reports have been collected for inclusion in ERIC, the Educational Research Information Center for information storage and retrieval.

b. Close coordination is maintained with the R & D Program at Michigan State University by having their director as a member of the RCU Advisory Committee and by serving in an advisory capacity on their projects. A jointly sponsored conference of the R & D Program and the RCU including approximately seventy-five persons was held June 3, 1966.

Setting:

The RCU is located in Room 1004 of the Bauch Building at 115 West Allegan Street, Lansing, Michigan, as a part of the Division of Vocational Education, Michigan Department of Education. Administratively, the RCU is responsible to the Supervisor of the Program Development Section of the Division of Vocational Education. Coordination of unit activities with the Bureau of Planning and Research of the Michigan Department of Education is assured by the Bureau Chief serving as chairman of the RCU Advisory Committee. Coordination with various research agencies and groups in the State is described under "First Year Activities to Reach Objectives" above. Communication with RCU's in other states is accomplished through exchange of reports, brochures, and other information including direct correspondence plus attendance at regional and national seminars.

Staff:

The RCU staff sees the role of the Unit as one of serving the Vocational Division, teacher education institutions, and local educational agencies served by the Division in their efforts to carry out the challenge given to vocational education by the Vocational Education Act of 1963. Namely, to maintain, extend and improve existing programs, to develop new programs in vocational education and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State will have ready access to vocational training or re-training which is of high quality which is realistic in the light of actual or anticipated opportunities for gainful employment and which is suited to their needs, interest and ability to benefit from such training. This includes persons attending high school, persons who have completed or left high school, and who are available for full-time study in preparation for entering the labor market, persons who have already entered the labor market and who need training or re-training to achieve stability or advancement in employment, and persons who have academic, socio-economic and other handicaps that prevent them from succeeding in the regular vocational education program.

The Unit is guided in its efforts by an advisory committee and by the RCU Resource Committee. The advisory committee membership is shown in Appendix D. The RCU Resource Committee consists of a representative from each of the services of the Division with membership as follows:

Agriculture	Edwin St. John (later replaced by R. Karelse)
Business	Earl Halvas
Home Economics	Barbara Gaylor
Trade & Industrial	Arthur Hansen
Manpower	William Pierce

The RCU Resource Committee is used in many ways. The Unit seeks advice from the respective service on matters pertaining to that particular service. For example, the committee was used to identify items that should be included in the research and development needs survey. Committee members are asked to review research and develop projects which fall in their particular occupational area.

APPENDICIES

APPENDIX A

OPERATIONAL POLICIES FOR THE VOCATIONAL EDUCATION RESEARCH COORDINATING UNIT

Purpose:

The purpose of the Michigan Vocational Education Research Coordinating Unit is to stimulate vocational education research; training; and experimental, demonstration and pilot programs; coordinate these activities; and disseminate results to the various educational agencies engaged in occupational education and training.

Activities:

1. Stimulate and encourage occupational education research and developmental activities in the State Department, local school districts, colleges and universities, and other appropriate agencies and organizations.

2. Coordinate occupational research activities conducted within the State with the agencies listed above and further coordinate such research activities with those being conducted outside the State.

3. Disseminate information on the results and application of occupational education research.

4. Stimulate activities which will result in increased interest and improved competence in research such as encouraging pre-service and in-service training of occupational researchers.

5. Participate in the review, monitoring or conduct as appropriate of occupational research and development projects supported by Federal, State, local, or private organization funds.

6. Identify and maintain an inventory of available occupational research and development resources in light of anticipated needs and programs within Michigan.

7. Cooperate with the Michigan Employment Security Commission in the dissemination of available data on employment opportunities, emerging occupational trends, and future job projections as a basis for planning vocational programs, curricula, and facilities within the State.

8. Provide consultative services to educational agencies and State Department personnel relative to the design and conduct of vocational education research.

9. Identify issues and problems relating to the nature and place of vocational education in the Michigan school system and determine the contributions which occupational research and development can make in resolving them.

10. Assist in the development of a continuous program of evaluation of vocational-technical education in Michigan.

Staff Relationships:

The Research Coordinating Unit is housed in the Vocational Division of the Michigan Department of Education.

Administratively the RCU is responsible to the Supervisor of the Program Development Section of the Division of Vocational Education. The unit director has the title, "Vocational Education Research Coordinator." Assistants have the title, "Vocational Education Research Consultant."

Functionally, the RCU operates under established policies of the Civil Service Commission and the Department Policy Guide which specify personnel policies and procedures. Travel regulations and all other State and Federal policies, regulations, and procedures governing Services and personnel of the Division apply to the Unit.

The unit director is a member of the Michigan Department of Education Research Committee and serves as a liaison person with the Research and Educational Planning Bureau of the Department. To aid further coordinating effort, the Research and Educational Planning Bureau, the General Education Bureau, the Higher Education Bureau, and the Administrative Services Bureau will each be represented by an advisory person mutually agreeable to the Vocational Education Division and the respective Bureau.

The Unit exercises a staff function and as such provides assistance to all Services of the Vocational Education Division relative to vocational education research. This includes stimulation of research and developmental activities by the various Services and rendering service to them on project design, instrument preparation, and project proposal writing; advising on data collection, analysis, and summarization; and promoting demonstration and pilot programs in vocational-technical education to further try out findings from research and to encourage adoption of worthwhile innovations.

Advisory Committee:

The RCU utilizes an advisory committee for advice on such overall matters as policy regarding use of State funds for vocational research, identification of vocational-technical research and training needs, experimental, demonstrational, and pilot programs that should be stimulated and other pertinent activities concerning operation of the Unit. Members are appointed by the State Superintendent of Public Instruction for a term of one year.

Relationships to Local Educational Agencies:

A major function of the RCU is its service to local educational agencies. It will endeavor to provide the following stimulatory and coordinative services for vocational-technical education programs:

1. Aid in identifying needs for research and developmental activities utilizing the advice of research and program specialists.

2. Provide information on the sources of funds for research and development projects.

3. Disseminate available data on employment opportunities, trends, and projections.

4. Maintain an inventory of occupational research and disseminate findings.

5. Provide help in project design, instrument preparation and clearing with the U. S. Budget Office, proposal writing, and give advice on collection, analysis, and summarization of data.

6. Provide a review panel for consideration of project proposals and assist with letters of endorsement and approval.

7. Assist in establishment of demonstrational and pilot programs of vocational-technical education.

8. Conduct conferences and workshops to provide training in research competency.

9. Assist in evaluation of local programs of vocational education and provide consultant help requested.

Approved by:

_____ _____

Supervisor, Program Development, Vocational Education — Date

_____ _____

State Director of Vocational Education — Date

_____ _____

Deputy Superintendent of Public Instruction — Date

VOCATIONAL EDUCATION RESEARCH FUNDS POLICY

The industrial world has long recognized the wisdom of committing a portion of its total budget to research and development. The educational world has come to see the wisdom of this, too.

The Vocational Education Division of the Michigan Department of Education proposes a commitment of vocational-technical research and developmental activities for next year and succeeding years sufficient to meet identified needs.

Proposals for research and developmental projects will be carefully screened by a review panel and by staff members of the Division using as guidelines criteria established with the help of an advisory committee. Approval will be granted for those kinds of projects that have been identified by the Division and its advisory groups as being vitally needed for the improvement and expansion of vocational-technical education in the State.

The following stipulations will be applied and modifications will be made in succeeding years as necessary:

1. First priority will be given to funding area vocational-technical studies with the goal of covering the remaining counties in the State with such studies.

2. Colleges and universities will be encouraged to apply for funds under Section 4(c) of the Vocational Education Act of 1963 on all projects that could qualify.

3. A minimum reimbursement rate of 50% will be used to fund approved projects. The possibility of increasing this rate will be dependent upon increased State funds for research.

4. Emphasis will be placed upon developmental projects such as pilot and demonstrational programs especially in local districts and community colleges.

5. Eligible items for reimbursement will be:

   a. Project director's salary and travel.
   b. Salary of instructional staff for portion assigned to the project.
   c. Salary of clerical staff for portion assigned to the project.
   d. Supplies and materials.
   e. Duplicating and printing costs.
   f. Consultant help.
   g. Salary of personnel in cooperating or clinical schools serving as a laboratory for research projects conducted by teacher education institutions for the portion of their time assigned to the project.

6. Procedures for processing proposals:

   a. Proposals will be accepted at all times of the year.
   b. Proposals will be reviewed when received and ranked in order of priority by February 1 of each year for funds to be allocated from the following fiscal year's allotment.

c. A response will be sent to the applicant within a few days.

(1) A card acknowledging receipt of the proposal will be sent by return mail giving a tentative schedule of action to be taken.

(2) Each proposal will be given a quick review by the Research Coordinating Unit staff to determine completeness of information. If further information is needed or if the proposal is obviously ineligible, a letter will be written immediately.

d. Criteria for approving projects will be established. Proposals will be approved on a priority basis and ranked so that projects falling on the "cut-off" line can be quickly shifted if an approved one fails to materialize.

Tentative criteria:

(1) The scope of the project in terms of state-wide significance.

(2) Need for project in terms of research and developmental needs identified by the Research Coordinating Unit and its advisory groups.

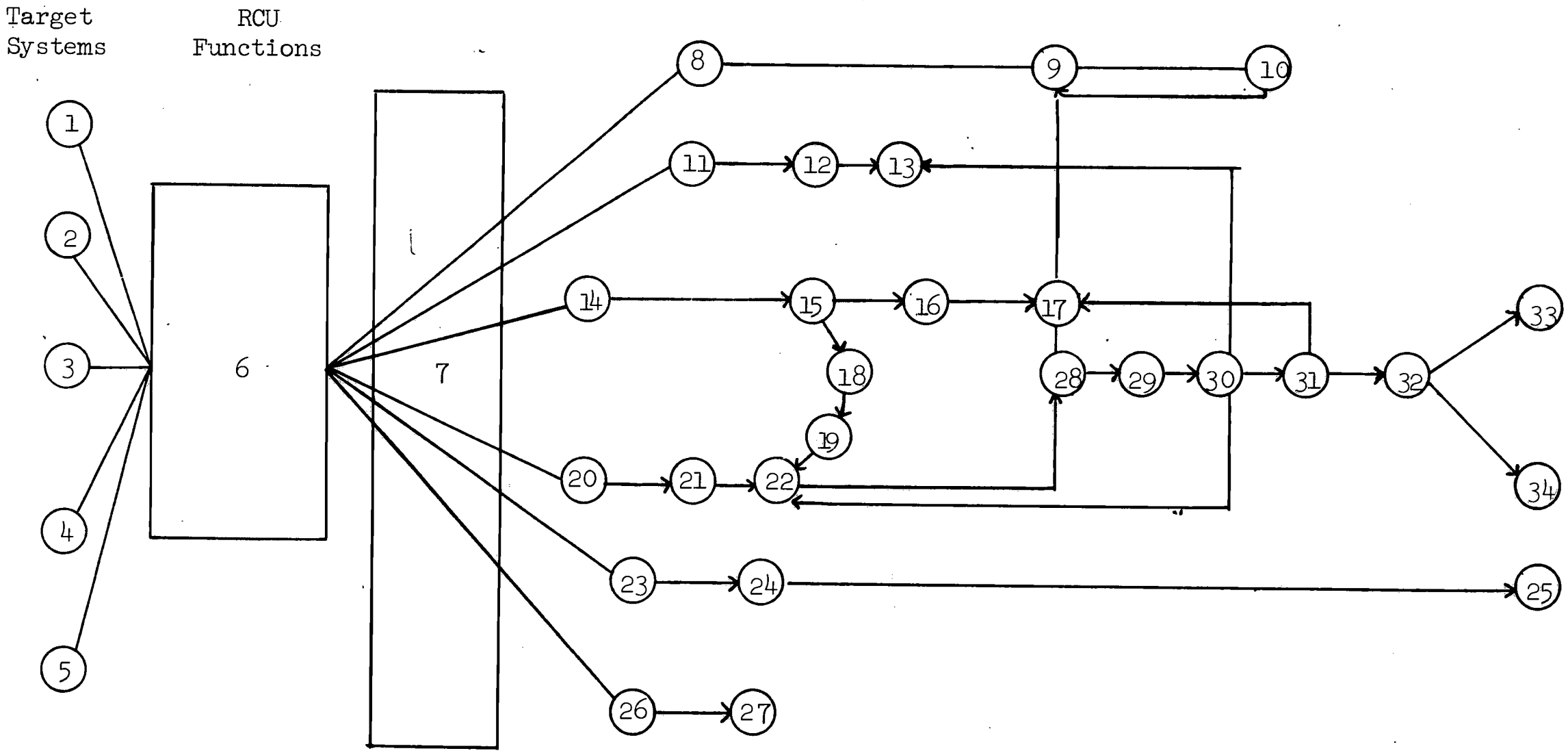
(3) Competency of principal investigator or project director and staff.

(4) Design and procedures.

(5) Facilities.

APPENDIX C

A FLOW CHART OF RCU ACTIVITIES



1. State Department
2. Local Schools
3. Community Colleges
4. Colleges & Universities
5. Others
6. Stimulation, Coordination, Dissemination
7. Advisory Committee
8. Funding Policy
9. Policy in Writing
10. Revised Policy
11. Evaluation Program
12. 5-Year Report
13. New R & D Needs Identified
14. Identify R & D Needs
15. List of R & D Needs
16. Establish Priorities
17. Commit $ $
18. Communication
19. Create Awareness
20. Conduct Diffusion Study
21. Diffusion Network
22. Motivation for Action
23. Research Training
24. Increased Research Competency & Participation
25. Increased Local R & D Activity
26. Voc. Ed. Statistical Information
27. Supplement Annual Descriptive Report
28. Contact for Conduct
29. Conduct: Pilot - Evaluation - Demonstration
30. Evaluate
31. Diffuse
32. Reduce Time Lag
33. Improved Programs
34. New Programs Developed

APPENDIX D

Michigan Department of Education
Division of Vocational Education

RESEARCH COORDINATING UNIT
Advisory Committee

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Michigan Employment Security
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Leon J. Alger
Supervisor of Program Development Section
Division of Vocational Education

Charles L. Langdon
Vocational Education Research
Coordinator
Advisory Committee Secretary

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Dennis, Lawrence E.
Education and a Woman's Life, Proceedings of the Itasca Conference on the Continuing Education of Women (Itasca State Park, Minnesota).

American Council on Education, Washington, D.C.
MF AVAILABLE IN VT-ERIC SET.
American Council on Education, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036 ($2.50).
Pub Date - 63 165p.; Proceedings from the Itasca Conference on the Continuing Education of Women (Itasca State Park, Minnesota).

*WORKING WOMEN; *WOMENS EDUCATION; *ADULT EDUCATION; CONFERENCES; COLLEGES; FEMALES; EMPLOYMENT OPPORTUNITIES; SOCIOECONOMIC INFLUENCES
*ITASCA CONFERENCE ON THE CONTINUING EDUCATION OF WOMEN

Eighty-five representatives of educational institutions, governmental and other agencies, and industry attended the conference on women's educational needs and opportunities. Major presentations were (1) "A Woman Is a Woman," by O.M. Wilson, (2) "Education and a Woman's Life," by K.J. Monsour, (3) "The Mileau of the Educated Woman" by C.E. Rothwell, (4) "Needs and Opportunities in our Society for the Educated Woman" by Esther Peterson, and (5) "The College and Continuing Education of Women" by G.W. Blackwell. In a panel discussion, "Pilot Projects for Continuing Education of Women," projects at the University of Minnesota, University of Kansas City, Rutgers University, Sarah Lawrence College, Radcliffe Institute for Independent Study, American Association of University Women Educational Foundation, and Brooklyn College were described. "The Facts, the Hopes, and the Possibilities" by Margaret Cullin Banning summed up the conference. Summaries of eight discussion groups, resolutions of the conference, and a list of participants were included. (FP)

VT 003 698

Education

AND A WOMAN'S LIFE

Edited by

LAWRENCE E. DENNIS

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EDUCATION
and a Woman's Life

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EDUCATION
and a Woman's Life

Proceedings of the Itasca
Conference on the Continuing
Education of Women
Itasca State Park, Minnesota

Edited by
Lawrence E. Dennis

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Foreword

MEANWHILE, back in the kitchen is another person. She does not work. Life requires of her merely that she cook, launder, and dust, shop, diaper, and scrub. She manages an establishment of more or less unruly personnel, only one of whom did she interview prior to accepting. She is purchasing agent, finance officer, processor of raw materials, and public relations counsel. But she is called "just a housewife." It is currently fashionable to mull over the role of the woman; to try to reconcile her biological nature with social freedom; to analyze her strengths and man's weaknesses; and to resolve the problems of her discontent via whatever means can be imagined—more education, less education, psycho-therapy, a new type childhood for girls. How a woman interprets her work reflects how she defines herself as a woman within the limits of social boundaries.

from an essay on "The Meanings of Work"
by Sidney J. Levy
published by the
Center for the Study of Liberal Education
for Adults

ERIC

Preface

On September 6–8, 1962, the American Council on Education, with assistance from the Carnegie Corporation of New York and the University of Minnesota, sponsored a conference on the Continuing Education of Women at Itasca State Park, Minnesota. This publication is a report of that conference.

Plans for the Itasca Conference were developed under the aegis of the Council's Commission on the Education of Women, the members of which rendered a distinguished national service through their combined and unstinting efforts to focus public attention on the serious need for more educated women in the United States. During the period of its work, 1960–62, the commission was guided by the beliefs stated in its policy statement of April 1960, *The Span of a Woman's Life and Learning,* one of the most widely distributed statements ever published by the Council.

Special acknowledgment for the success of the Itasca Conference should go to the Conference Steering Committee—Grace M. Henderson, chairman, Margaret Culkin Banning, Oliver C. Carmichael, Catherine B. Cleary, Charles S. Davis, Lois D. Irish, Paul A. Miller, and Catherine J. Robbins—and to the conference staff so ably headed by Mrs. Elizabeth L. Cless. The Council is also grateful to the University of Minnesota as the host institution, the staff of the remarkable facilities at Itasca State Park, and the officers of the Carnegie Corporation, whose financial assistance made the conference possible.

Editorial responsibility in preparing the report of the conference proceedings was shared by the editor with Mrs. Cless and Beverly Sinniger of the University of Minnesota staff, and with Mrs. Mary Iversen of the Council staff, to all of whom we shall be everlastingly indebted.

Lawrence E. Dennis
Editor

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WELCOMING REMARKS

A Woman Is a Woman Is a Woman . . .

O. Meredith Wilson
President, University of Minnesota

THE UNIVERSITY OF MINNESOTA is honored to be host to this conference, and it is with more than formality that I express our warm welcome to you. The fact that we are at Lake Itasca is, in a way, symbolic. Here are the headwaters of the Mississippi River. This is Longfellow's "land where the father of waters seizes the hills in his hands and carries them down to the ocean deep in its sands to bury the scattered bones of the mammoth." Only big things should arise in such a setting; we expect this conference to develop ideas of great significance and proportion.

It is to education, the means by which civilization is achieved, that this conference is directed. Education is not something to be dispensed to all people in the same quantity or in the same way. If you would deal with it properly, you must first determine who is to be affected. Thus, if you deal with the education of women, as you propose to do at this conference, it is important first to know what woman is. From this flows the title of my address: "A Woman Is a Woman Is a Woman . . ." It is a title that emerged from my lack of understanding of women and of Gertrude Stein.

Having chosen the title for this address, I became concerned with how little I knew of Miss Stein and her writings and proceeded to read them. As a result of my reading, I am probably better informed on Miss Stein than I am on women's education. At the outset I assumed that the words "A Woman Is a Woman Is a Woman" were chance alliteration, and that the proper mood with which to express them was one of perplexity. I discovered, however, that this particular form of expression appears at least a half dozen times in widely separated parts of Miss Stein's writ-

ings. In the poem "Sacred Emily," it appears as a simple, hard line, "A rose is a rose is a rose." In "An Elucidation," it takes the form, "To suppose to suppose to suppose,/Suppose that a rose is a rose is a rose." Several references are made to it in *The Autobiography of Alice B. Toklas.* There I discovered that not only was it so much a part of Gertrude Stein's literature that it became her hallmark, but that it appeared on her linen, her stationery, and even on a ring that she wore. It was, in fact, her way of expressing what to her was a major premise about literature.

In one paragraph in which she tried to explain literature, Miss Stein made clear that the thing she discovered, or invented, for literature was the principle of insistence. Some called it repetition, but to her there could be no such thing as repetition. And so you must read "A rose is a rose is a rose" or "A woman is a woman is a woman" as a series of continuing, differing, and accentuating affirmations. I would like to read a fascinating quotation from her writings. It worried me a little to use it as a basis for this talk, but the quotation charmed me. She wrote, "When I said 'A rose is a rose is a rose' and then later made that into a ring and made poetry, what did I do? I caressed, completely caressed and addressed a noun." A man needs to be careful in moving on from that rendering to the discussion of women. Yet it does help provide an estimate of the importance and the affection with which we approach the problem.

Another quotation pertinent to my choice of title is: "Civilization began with a rose; a rose is a rose is a rose is a rose." I would like to change this to read: "Civilization began with a woman; a woman is a woman is a woman is a woman."

At this point you might ask whether in our discussions of the education of women our concern should be for the plight of women or for the needs of society. Personally, I am not concerned with the plight of women; not as the central problem in the present discussions. I believe our concern should be for the needs of society; the need for society to discover better ways to draw from women the capacities for culture and for civilization.

The first part of our discussion should be merely a rephrasing of what would be said in any discussion on education. Here my language could be almost exactly what it would be if I were

talking to members of the legislature of the State of Minnesota, appealing for funds to carry on the work of the University of Minnesota, or precisely the same language that John Neumaier would use appearing before the same legislature for funds for Moorhead State College.

Western civilization cannot be explained properly without understanding the forces of formal education that operate in its midst. In the United States, almost nothing which we now know could continue, much less improve, without education. I once tried to determine the economic consequences of education. I had a professor of economics—a man for whom I had great admiration—provide me with the record of growth in per-hour production of American labor in the period between 1900 and the year of my request, which was 1956. According to his statistics, there had been a 3.3 percent increase per annum in the per-hour productivity of an American laborer during that period. If the 3.3 percent were considered as cumulative, then a typical American laborer engaged in productive enterprise in 1956 would have been 375 percent more efficient than his grandfather had been fifty years earlier.

How do you explain this increase in productivity? No one is willing to allege that man in 1956 had more muscles than man had fifty years earlier. No one is ready to allege better conditioning, for most of us have at some time participated in conversations in which adults were complaining of the softness of their children. A part of the increase might be attributed to additional capital investment, but this alone does not explain it. In the end it is apparent that approximately 50 percent of the annual gain in productivity resulted not from additional capital investment but from additional intellectual investment. The burden of life had shifted from man's back to man's mind.

Many changes have taken place in higher education in the past fifty years. A significant change relates to the number of women enrolled in higher education. In 1920 there were almost as many women attending colleges and universities in this country as there were men. Today the ratio in total enrollment is approximately three men to two women. Why this is so, I can offer only an armchair reflection.

In 1920 education was largely available to, and used by, a

relatively urban, fairly well-to-do segment of American society. The university was, in a way, a socially oriented organization. Going to college had economic consequences, but it was not yet a fundamental and central economic factor in life. Most of those enrolled in colleges and universities were from families who did not have to debate the question, "Which will we educate if we cannot educate all?" In today's society it is for the breadwinner, or the potential breadwinner, that a college education assumes major importance.

Related to this is another body of statistics of concern to admissions officers in institutions of higher learning. Half of the upper 25 percent of students graduating from high school do not go on to college. Most of these are women. In high school a girl is more conventional, more disposed to conform, more mature, and more ready to meet the norms required by the central office than are the boys. She is less subject to disciplinary actions and more likely to do her homework. As a result a disproportionate number of girls are in the upper 25 percent of high school graduates. The fact that our society has not thought it important that these girls go on to college helps explain why so large a part of those in the upper 25 percent of high school graduating classes fail to do so.

Beyond this concern for the failure of a high percentage of girls to continue their education beyond high school, there is a national concern—and certainly a Minnesota concern—with those who do go on to college and earn their degrees but then are withdrawn from productive society. It is at this point that I get troubled. I would like to see women educated, and their educated selves employed to the best advantage of society. But there are many schools of thought about what should happen in the education of women.

I read for this conference a series of papers written primarily for people in home economics, hoping to get a better understanding of this aspect of women's education. One of the first things that struck me was a comment which I doubt I could find in any other writings on education. The author described two schools of thought about general education and said that home economists believe in the second. I have never before met

so solid a phalanx among any group of educators. It was a sweeping proposition and implied that if I really got to the heart of women I might find a body of conformists who would agree on an educational proposition that would tear asunder every other group of scholars with whom I am acquainted. Perhaps my failure to recognize the possibility of this uniformity among women is but a symptom of my inability to understand women and their needs. That may be true, for when asked, "What should be included in the education of women?"—whether speaking of general education or education with a professional objective—I am disturbed by the disposition of many to separate mankind intellectually into two sexes.

A distinguished American, the late William Faulkner, had a view of what women should know. Faulkner observed that a woman needed to know how to ride a horse, how to tell the truth, and how to make out a check. These are important, I imagine, but I have never encouraged my wife to ride a horse after learning that she could do it better than I. I have never felt that I needed to urge her to tell the truth, and I learned early that she is quite competent at writing checks. Not only does she write checks but she is so busy with the management of our household that I find the statistics of the Department of Labor peculiarly lacking in insight when they describe women as unemployed unless they have a formal employer. What a distorted view of the facts of American life! These statistics also distort the problem you must deal with in a conference on the continuing education of women, for they obscure the objectives with which you must be concerned as you talk about the constructive roles, the contributing roles, the useful roles for which women should be prepared.

I must acknowledge, however, that when Mrs. Wilson and I sit down to talk with our children about curriculum we approach our sons' problems differently from the way we approach our daughters' problems.

When we talk about curriculum with our sons—one of them now graduated and one not quite ready to enter college—there is an immediacy relating to vocational or professional objectives that does not exist when we talk with two of our daughters who

are presently in college. When our daughters—one a sophomore and one a senior—ask us for advice, they receive counsel that is soft rather than hard in its orientation to vocational life. We do not eschew the idea of a vocation, and when they ask "Should we prepare for something?" we never say no. When questioned, however, about what courses they should take next year, we are almost certain to talk about civilizing and enlightening subjects. We are likely to make compromises with what we think are the instruments of wisdom only when we talk with our sons. While we urge our boys to gain the capacity for reflection and thought, there is always the overriding consciousness that they will need to be employable, for their own good and for the good of their families.

This provides a hint of why the people at the University of Minnesota established the Minnesota Plan. Certainly it is the reason that becomes persuasive to me when I hear its rationale explained. The Minnesota Plan does not begin with the assumption that you should invent special courses for women, even though some may be specially drawn up in the process. It begins, rather, with the idea that a university such as the University of Minnesota has tremendous resources. Given these resources, what is needed is guidance so that the individual may make optimum progress toward her particular career. The program, therefore, has become largely one of advice and guidance. It attempts to be forehanded for the generation fortunate enough to be entering college now, and it also attempts to repair the faults of an earlier generation. For the latter—those who would like either to restore rusty talents to modern use or to complete work previously set aside because they became creators in a different sense—the program provides a foyer for re-entry into the university.

As a conservative, starchy product of a masculine society, who has been modified by a happy life with attractive women, I feel that the sexes are essentially equal and that we should emphasize the common needs and attributes of both when dealing with the problem of educating adults. We are all preachers of reason. Together we should seek a capacity for conversation that will provide an abiding interest on an intellectual level in each household. We

all should have some appreciation of the rich tradition which Western society has made possible to us and at the same time a full awareness of the tremendous challenges with which the non-Western world confronts us. To achieve this appreciation and familiarity requires not separateness, but togetherness in the business of intellectual inquiry.

I am persuaded that a woman's voice and a woman's view, where it is different, is an important modification of any masculine conversation. I am equally persuaded that a group of women talking with ever so great animation about papers on international organization or economics or about a historical novel with deep philosophical overtones, such as *War and Peace,* will be better informed if they have an occasional irascible male mind affecting their otherwise idyllic conversations. In the long run, male and female will have to understand life together if there is to be complete appreciation of it.

The place, then, for modifying programs for the education of women is neither in the nature of the materials nor of their content; it is in recognizing that there is a tentativeness about women's commitments to intellectual life during the time they are twenty to twenty-five years old. This tentativeness becomes actual detachment for a period following marriage. The need is for counseling and guidance in the period prior to this time of tentativeness and detachment that will make more certain a later return to the world of inquiry and academic life.

When we speak of man as the creature of reason, we are speaking of mankind. H. G. Wells tells the story of Benham who was troubled during most of his life with morbid dreams of meeting a fierce man-eating tiger in the jungle. He found himself at length attached to a British forestry company on the edge of a jungle in India. Unable to sleep one night, he rose from his cot and was drawn almost hypnotically down a lonely trace into the jungle where he met in reality the dream that had been troubling him for most of his life. Confronted with the tiger, he spoke these words, "I am man, the thought of the world." The tiger flinched and Benham, almost inarticulately repeated: "I am man, the thought of the world." With that the beast slunk off into the wilderness.

If we are anything, we are the thought of the world. If we have any contribution to make, it is intellectual. If there is any persisting inspiration toward mastering thought, or preventing the waste of our potential for thought, it is kept alive and nurtured primarily by our mothers and our wives. It is for this reason that I particularly like to reword part of Gertrude Stein's writings to read, "Civilization began with woman; a woman is a woman is a woman is a woman."

Education and a Woman's Life

Karem J. Monsour
Psychiatrist and Psychoanalyst
Pasadena, California

IN DISCUSSING THE LIFE of women and the educational process, a man ought to step gingerly, since there may be a hint of bias, no matter how objective he tries to be. With this admonition firmly in mind, I would like to present briefly a few thoughts on women and education as they occur to the mind of a psychoanalyst.

It no longer seems necessary to champion the cause of women's education. The current task seems more to understand the life of women, how they adapt to the educational process, what sorts of consequences may result, and what information is available from every source with which to plan and implement further progress in this field.

Grotjahn[1] has remarked that a woman's life is in the family, and that the family is a projection of the woman's unconscious into the outer world. Formation of this unconscious image of a family group is the result of psychosexual developmental processes in the human female. Each stage of development has characteristic emotional patterns which are determined by the life-tasks of that stage. Erikson[2] calls these stages "circumscribed crises of inner-growth which are aggravated by discernible tensions in the sufferers' social condition." One of the discernible tensions in the social condition is the educational ritual. Yet, there are unique aspects of female life that resist influence by culture, society, *or* education. These special features, firmly embedded in the woman's unconscious mind, exert their motivating power on her

[1] Martin Grotjahn, *Psychoanalysis and the Family Neurosis* (New York: W. W. Norton & Co., 1960), p. 94.

[2] ERIK H. ERIKSON, Introduction, *Emotional Problems of the Student,* Graham B. Blaine, Jr., and Charles C. McArthur (New York: Appleton-Century-Crofts, 1961), p. xiv.

behavioral patterns throughout childhood, adolescence, and adulthood. They give rise to the curious realism of the woman and her optimistic, self-reliant nature which represent a kind of resigned acceptance. For instance, one might hear a woman say, "It isn't that you've ruined the best years of my life, it's just that you've spoiled my day!"

The beginning formation of these unique womanly qualities begins with the earliest maternalizing influences in the little girl of two and a half years. This process continues throughout childhood, puberty, and adolescence. A firm identity as a prospective wife and mother is ordinarily well established by the time the girl attains the age of eighteen to twenty.

For this reason, college years are not a satisfactory psychosocial moratorium[3] for women in the same way that they are for men. Women are psychologically prepared to embark on their life-task sooner than men. A four-year college moratorium cannot realistically be expected to detain the young woman in her anxious hopes for marriage and a family. The college environment should be an excellent and approved place to find a husband. Yet, current idealized concepts of higher education often seem incompatible with this primary goal in a woman's life.

Dr. Mary Bunting has noted in women a decline in intellectual interests shortly after finishing college, which is reminiscent of the previous decline in scholarship in the pubertal girl. The reason for this occurrence is that the young college-graduate mother is preoccupied with making use of her body and her capacities in the role of motherhood. Intellectual interests are shunted aside. Specific unconscious orientations direct her concern toward the realities of life and away from the mysteries of the mind.

Assuming, for the moment, that the woman is moderately successful in her motherhood venture, she will have gained an interval of stability in her life, a sense of personal fulfillment, and a quieting of her unconscious demands. She gives up some awareness of the larger world around her in the act of giving her attention to the small world she has created. Cessation of child-

[3] Erik H. Erikson, "The Problems of Ego Identity," *Journal of the American Psychoanalytic Association,* IV (1956), 56.

bearing around the age of thirty, however, limits her reprieve. It is a cruel blow to the woman's unconscious, since interrupting the flow of babies forces her to face a dilemma for which she has no naturally endowed solution. This state of affairs has produced a common clinical syndrome, which one might call the "early thirties crisis." It is characterized by a painful level of tension appearing in various forms of anxiety and depression. There is a recapitulation of many tendencies in the pubertal period such as phobic reactions and sexualized fantasies of promiscuity. Psychosomatic disturbances such as migraine, colitis, ulcer, and menstrual irregularities occur. A solution may be found in club work, volunteer efforts, getting a job, or plain social frenzy.

In Erikson's term, some solutions are generative, others self-destructive. Alcoholism is one of the latter. An excerpt from the conversation of a thirty-two year old woman with three children conveys the nature of her distress and her attempted solution. She speaks: "Most girls go to college with the idea of getting married. A good education seems secondary. Actually, in my freshman year I *thought* I was out to get an education. In my second year, I blossomed a bit and began my search. But I didn't consciously feel I went there [college] to get a husband, yet I somehow felt the idea was to get married by graduation, at *least*. I'm sure that now I don't feel my husband is really superior to me, but I wish I had some concrete evidence of my education. If I could only make myself want to be a teacher, which seems to be about the only avenue open, then I'd feel I could contribute something myself. Why am I always wanting something more? Because I have no *final* goal, I guess, no final aspirations. I had given up before I came here. Why else would I spend my time drinking, looking for oblivion everywhere I could? I felt I was trying to escape from myself." This particular woman had graduated first in her high school class and finished two years of college when marriage interrupted her education. She has now renewed her academic interests in an indirect way by going to work as a secretary to the head of a university philosophy department.

Of course, the educational community is not responsible for the

dilemma of many women such as the one quoted above. There are developmental processes in the woman herself which drive her toward the "early thirties crisis," regardless of the educational exposure. Binger[4] describes the young college women he encounters as sensitive, idealistic, and resilient. They uniformly become depressed some time in their college career, but they recover with proper and kindly care. However, after the childbearing period, the woman's unconscious resources for other role choices are less available and much less flexible than during adolescence and early college life.

From these remarks, one concludes that women face a new dimension of the identity problem in the postchildbearing years. Increased emphasis on socialness has made a larger task of midmarriage than it was formerly. Enlarged educational opportunities should assist the woman in this new life task. "A [woman's] soul is an expensive thing to maintain," writes George Bernard Shaw. "It requires special conditions under which to love."

Part of the inertia in activating new educational programs is due to cultural tradition regarding prescribed male and female roles. Cultural traditions, however, have their roots in collective unconscious motives aimed at preserving fundamental relationships which subserve the basic reproductive function. Out of this unconscious matrix emerges a paradoxical resistance in women to any change in the social order. Their resistance is due to a haunting fear of being left alone and empty. This fear persists in the deepest unconscious recesses. It gives rise in women to a silent sanction of many destructive forces around them. In the educational field, too, women seem to cooperate in their own subjugation. Yet, promising signs, such as this conference, appear to show that present generations of educated women have become aware of their folly.

Hopefully, the woman's capacity for creating human life in the family world may be rechannelled into the capacity for infusing humanistic life into the social world. Dr. Albert Szent-Gyorgyi, in analyzing the primitive cave man mentality with which we are trying to run the world, writes ". . . then we have

[4] Carl L. A. Binger, "Emotional Disturbances among College Women," *Emotional Problems of the Student*, Graham B. Blaine, Jr., and Charles C. McArthur, p. 172.

to look for a group which cares and has votes too. There is such a group . . . women, especially mothers. Women have more common sense then men; they have found out that high-energy radiation damages children and refuse to swallow whatever we tell them about permissible limits. They simply want none of it. I have the keenest hopes about peace groups composed of women."[5]

There are other resistances which account for inertia in comprehensive programs for women's education. Male dominance at high levels of educational administrative authority resist, with anxious caution, revision of the educational scheme originally designed by and for men. Such anxiousness in men is deeply felt, albeit disavowed consciously. It is questionable whether there is an immediate remedy for this situation. The traditional liberalism in educational circles, however, may gradually attenuate this resistance factor.

Yet, there is a resistance factor peculiar to the educational process itself. From the psychological viewpoint, education is as much a mind-training process as it is a learning one. Any mind-training method, however benignly used, has suppressing effects on mental life. Since education has a culture-transmitting function, and since adults educate children, it is difficult to escape the conclusion that education is to some extent always partisan. This function of education is subject to easy abuse and is used for fostering conformity to established rules. Educators who sincerely attempt to establish educational innovations such as are necessary to encourage women in their intellectual efforts will find themselves frustrated by inherent resistances in the very educational processes they are trying to use. At the very least, they should attempt to maintain a continuing awareness of this inescapable problem.

A primary effect of the educational process is to raise the level of symbolic mental function. This effect accounts for a relative increase in the prevalence of neurosis which can be thought of as a disturbance in symbolic processes. Education tends to replace (intuitive psychological) understanding with the logical, rational thinking prevalent in Western culture. Although the absolute

[5] Albert Szent-Gyorgyi, "Persistence of the Caveman," *Saturday Review*, July 7, 1962, p. 34.

incidence of mental and emotional disorder is not affected, the kinds of disorders change toward the neurotic, psychologically manifested varieties. Increasing intellectual awareness in women of this change accounts in part for their greater tendency to make use of psychotherapeutic methods.

There is a possible hazard for the future in the current enthusiasm for women's education. To paraphrase a statement of Grotjahn's regarding education by the use of humor, one might say that extensive education of women has not yet been tried in earnest. It would encourage irreverence and lead to a spirit of democracy in the next generation to an extent for which we are not yet prepared.

A certain amount of generalization is unavoidable when the terms men and women are used in any discussion. The unique character of the individual woman may go unnoticed. For this individual women, a paraphrase of Thoreau's words about man is pertinent. "If a woman does not keep pace with her companions, perhaps it is because she hears a different drummer. Let her step to the music which she hears, however measured or far away."

REMARKS IN ELABORATION OF WORKING PAPER

DR. MONSOUR: I want to start out by saying a few things about women and their nature as I understand them. I can describe a few characteristics that many of you may be aware of and that might prove of some general background interest. For instance, women are more narcissistic creatures than men. They are more involved in themselves and their person. They are more self-sufficient people. Their need to be loved is greater than their need to love. What they do is more an extension of their own person than a part of some separate being. For this reason women convey to their activities and to those around them more a part of themselves than men do. They put themselves into their life. Men take on projects; women give themselves to their projects.

The sexual attitude in women is less defensive than it is in

men. A friend of mine was going on a hike with a group of young men and women, and they saw a nudist colony down below. He was a middle-aged man and, thinking he would have a little fun, he said, "Let's all go down and see what they are doing down there." The other men promptly scattered in the opposite direction, but the women said, "Yes, let's go right down!" The girls did not seem worried about what they were going to encounter and about the fact that, of course, they would have to, in Rome, do as the Romans do. Women are canny about this attitude. They do not reveal that they really know what sex is all about. One girl, who was being paid some attention by a man, said, "Well, all I could do was blush and look embarrassed." She recognized his intention but tried to help the fellow out by giving him the idea that he was being very clever, but all along she knew what he was up to. She explained to me, "My eyes are very misleading. Men think I'm thinking wild, lovely thoughts when really I'm making out the grocery list." Women seem to have this capacity for detaching themselves. Sex doesn't seem to be a life and death matter to them. I think their attitude toward education is somewhat similar, and I'm going to explore that a little bit later.

There is a tendency toward a kind of inaneness in women, perhaps empty-headedness is a better word, which is very deceptive. A girl said to me, "So President Kennedy has established a commission on women—how delightful—how funny—I wish I knew what it meant." She didn't really think there needed to be a committee on the status of women, and I think she felt that women could pretty well take care of themselves. I am going to challenge that a little bit and see what comes of it. Women are naturally intuitive, and they often don't need formal education. They claim not to understand men, but they simply are not telling us all they know. They probably know a great deal more about us than we want to know or than they are willing to admit. I have a feeling that in educational circles, when women are in charge of things, they more or less tolerate the supervision by men because they feel that they will get their way in the end anyway; they are simply biding their time.

Perhaps the most important facet of women that I want to bring

out is that a woman cannot be understood outside the family context. The family image—the family idea—must have originated with women. I'm sure they created husbands; men would never have gone to that much trouble. The family image comes from their unconscious, and they project it into the world around them and, lo and behold, the world becomes what their unconscious is. And one of these things is the family. This family image which they project is not something they have learned from their own family. This family image is probably an inherent, built-in, unconscious characteristic of a woman which starts at a very early age before she really knows what a family is all about. It must start at least at the age of two to two and a half and is a product of the inevitable psychosexual development in a woman's life. Now, I won't go into a lot of technical detail about that except to say that the characteristics of unconscious development in women probably lead to the formation of this unconscious structure which they then project and in which context they probably have to conduct their lives or make some kind of suitable substitute that will provide gratification or expression of this unconscious force.

The woman's identity is that of a mother. There seems to be no escaping that for her. That does not mean that a woman has to become an actual biologic mother. There is a persistent necessity for expression of this characteristic, and women would not survive very well without some expression of this deep and probably unalterable characteristic in their nature. Apparently, women don't need to know a whole lot to fulfill this function. I asked a woman what she thought women should know, and she replied that a woman needs to know how to cook, clean house, and to read so that she can look up things in Dr. Spock and Gesell. Now I think their education should go a little bit further than that, but what she defined were some of the basic characteristics. She was expressing this primary factor in a woman's unconscious life.

It is interesting that the major events around which women's lives revolve are all bloody ones. Perhaps I should not use that word, but being a doctor, blood holds no fear for me. I mention this to point out that women surmount a great deal of violence

in their lives—that is, violent experiences that involve actual bloody events—and this makes a great impression on their unconscious development. I mention these few items, which belong to psychodynamic theory, primarily to form a basis for some assertions I want to make about characteristics of women that have to be taken into account in education.

In the family image of the women, she is the mother, and the man is always and forever a son. He can never escape this identity. A man's task is to learn things; a woman's is to train. The woman's main course in her family and in her personal life is to mature and grow. A man's main course is to learn, gather more information, perform. A woman's education really is primarily a part of family growth and maturation. I doubt that a woman's growth can occur in isolation.

At certain times in their lives women are not fully or easily educated. As a matter of fact, during certain periods in their lives they are highly resistant to education. In the early adolescent ages, girls are very difficult to educate, and sometimes they almost refuse to learn. This is the time when, if any of you have a daughter, you will find her coming home claiming that she is having trouble with the teacher because the teacher cannot understand why she is being so stupid, whereas formerly she was a very bright girl. This may last just a few years. When women are in love they are practically impossible to educate. Incidentally, women in love are also very difficult to analyze, which is a hazard we analysts face. They cannot be educated during that time, at least not as profitably as at other times. Women are not very easily educated when they are having a baby; that has been our experience both in psychotherapy and educational ventures. Freud, too, said that women were lost to education and psychoanalysis when they were in love and when they were having a baby. Not only that, he had a rather pessimistic attitude about education in general, as well as about the education of women. He thought that the results were always going to be unsatisfactory. I suspect that there will always be some unsatisfactory results no matter how hard you try, and this is especially true with regard to the education of women. One must be particularly careful, then, to try at the right times.

I am discussing the typical course of a woman's life. There are other courses a woman's life could take, which we would discuss in another way, but let us take this instance: in the postchildbearing years a woman comes up against the difficult problem of a cessation of the opportunities for gratification of her unconscious forces. This creates a degree of tension, which gives rise to a certain critical age in women. This may occur anywhere from the late twenties to the middle thirties and sometimes later on, depending upon the characteristics of the woman. This critical time, then, is a vital matter to educators, since it represents the most opportune time to get hold of women and do something to remedy their condition. The manifestations of tension and crisis at this time are numerous. Some of these expressions are satisfactory, some are frustrating, and some are pathologic. A woman in her postchildbearing years probably feels a real force for independence. She wants, in a sense, to separate herself to some extent from the family, because the family no longer offers her the chance to continue to generate and to create. She searches for some fulfillment in her own work. Hopefully, educational measures will provide here an important outlet for the tension which will in turn obviate the need for other symptomatic formations, namely, the somatic and psychological illnesses.

The self-fulfillment of women, therefore, has its opportunities for greatest fulfillment at this particular time. It can be done in a number of ways, all of which embody some symbolic expression of the mothering function. We will not go into the numerous ways that this force can be transferred to other endeavors and still symbolically express the primary force. This transfer may dilute the force to some extent but also may enhance it with certain characteristics which will give rise to creative expression in an important cultural or educational way. Whether or not this occurs in a woman will depend not only on her basic character structure, but also upon the opportunities available to her and how they are presented to her. This is an important aspect of your interest in educational programs.

As a psychiatrist I should be confining my remarks to women, but I am going to say a few things about education. Education from the psychological view is perhaps not so much a matter of

accumulating information or gathering knowledge, but rather it represents a mind-training process. None of us knows exactly how education began, but it is possible that in the evolution of culture, education did not necessarily begin as a method of accumulating information. It may have begun as a method of grouping people together in some kind of conforming arrangement where they were able to live together. The education ritual is like many other initiation rites and religious rituals that tend to initiate the person into the context of the group within which they function. This education, then, becomes a process of training the mind, rather than storing information within the mind. The person involved will change his way of mental function so that he operates on a different level of symbolic thought, and it will also lend different characteristics to his character structure. Consequently we find that educating people may change them from happy people to neurotics, to give an extreme example, where they are in more conflict than if they had remained allegedly innocent and naïve. Education, therefore, has some hazards from the psychological standpoint in what it does to the person as a person. In women, educational interests may be, and I say this with some temerity, more of a hobby than a life and death matter. Women have a vital interest other than education. Their vital interest is not necessarily education, and education often may be more a matter of doing something in their spare time. One woman said to me, "After all, what is education? It's just a part of everyday life; finding out something that you didn't know the day before." A man would never say anything like that. Education is for him a matter of covering a great deal of material, acquiring important skills, getting a degree. A woman takes a more lighthearted view of education, and this is more realistic for her. We cannot underestimate the fact that women may not channel all their interests and motivations into their education efforts as a man would.

There is some resistance—as a matter of fact, considerable resistance—to educating women, and the resistance comes from a number of sources, at least in the psychological view. One of these sources is the educational structure itself. Every group, no matter what its composition, tends to become more complex in its organization. The increase in organization requires more con-

formity and more structure and additional hierarchy, and soon you have resistance to change; thus a new orthodoxy is created from a revolutionary beginning. Education is no exception to this process and will resist change simply because it is a bulky structure by itself and has its own vested interest. Men resist the change in educational structure. They have a paternalistic attitude, and they speak with soft tongues to the girls and say, "Yes, we think you girls really have a good project going there, but keep it small. Don't let it get too big." Because if one really starts educating women, it might get bigger than the university and then produce a change in status which men would resist much more openly the more they were challenged. Men do not have to be too resistant right now, because they have the upper hand. They can afford to be kind and good-natured and pleasant about the whole thing, and in addition, they do it with good intentions and good will. They are not being consciously vindictive about it.

But the most important resistance to the education of women is from women themselves. They simply have built-in resistances to changing the order of things. Their resistance often is not apparent. They are for change and progress. They want to change things; they are militant, they are aggressive. This insistence on being forceful about the matter in many instances, in my view, is an expression of their unwillingness really to change; in fact, they are overcoming resistance in themselves by a compensatory increase in aggressive activity. I think by this that many times they arouse more antagonism than friendship, and this is not an effective way to bring about the change they want. It is necessary for them to recognize that they have internal factors in themselves that do not want to change the way they are or the way things are, and that to overcome this by being militant and aggressive may be defeating their own ends. It is true that integration of women has not yet taken place. They have been politically and economically enfranchised but have not been integrated as far as the sociological view is concerned, and this situation needs to be remedied. I do not think that women can look to the country to make use of their resources. To paraphrase President Kennedy, "Wait not for your country to avail itself of you, but force yourselves to avail yourselves to your country." This may

take a little more doing than simply waiting around for recognition to come. Of course, we men want you to do it in a very feminine, charming, and kindly fashion, and please leave us intact when you finish.

DISCUSSION

MODERATOR: MR. LOUIS T. BENEZET (President, Colorado College; President-elect, Claremont Graduate School and University Center): I will violate the moderator procedure to this extent only and suggest that what Dr. Monsour has reillustrated in his general statement is one of three views of women, at least of her education. The first view would be that there is no essential difference between men and women that would have any significance for education at all. The second view is that there is a difference in women which is, however, thrust upon her by the social pattern of man's existence; these difficulties that she labors under—most of which have been thrust upon her by men, as Dr. Monsour has suggested—must be dealt with and surmounted if women's full potentials are to be used. The third view is that woman by her own biology is a different creature. Because of a basic biological difference, her whole attitude and response to education is and will remain different and unique and will affect any kind of educational experience that she enters, with the result that the education itself must be patterned with this basic difference in mind. This is what you would expect the psychiatric view to be. I am quite aware that it is not accepted by many people, and with that open invitation for you to challenge Dr. Monsour, who wants to start?

MR. JOSEPH W. COHEN (Director, Inter-University Committee on the Superior Student): I wish you would clear up a little your views on education, especially if you are talking about institutional education when you say, for example, a woman becomes uneducable at certain times. Are you talking about the educational process in and of itself or are you talking about the unsuitablility for institutional education?

DR. MONSOUR: No, I am talking about the educational process, by itself; at least that is what I intended to say.

MRS. VIOLA HYMES (President, National Council of Jewish Women): When you say that a woman is uneducable at these particular times in her life, are you not really saying that *people* are uneducable at times in their lives when they are extremely disturbed or concerned emotionally? I observed that when my sons were in love and in a state of insecurity they were not particularly educable.

DR. MONSOUR: I will have to resist that challenge and say that I stand my ground, and I will try to tell you why. I think that a man is still approachable while he is in love because his primary interest is not the matter of love. His primary interest is in his drive to accomplish something, and this is always in the back of his mind in his love affair; although his love affair may seem tempestuous at times, it is not really as wholehearted an interest with him as it is with the girl. With the woman, being in love is an entirely different state than with the man; it takes over her whole unconscious interest. In other words, her total person—unconscious person—is going in this direction, and no room is left over for someone else to sneak in with a little bit of education.

MR. JOHN S. NEUMAIER (President, Moorhead State College): My view would be that you should think of women as people rather than women as women, because what do we men know of women? I would like to have the conference be concerned with women as people, and we might find under certain circumstances that women act very much like them.

You exaggerate observability, for instance, and immediately jump to the conclusion that these are innate differences and not a difference of degree. I would point out the difficulty in assessing to what extent the difference might actually be the female part of the species and to what extent the differences might be socially, economically, culturally, and historically determined. I think that this is very, very difficult to assess and that we ought to step gingerly in drawing conclusions about the causes.

DR. MONSOUR: My opinion, then, is diametrically opposed to yours. I believe that the difference is an important one, that it has to be emphasized and cannot be blurred away, and that the

cultural context has almost no influence upon these factors that I mentioned. The kernel of the questions is, "What is it about a woman's nature that one should take into account in planning an education program?" You are all aware of the social context in which we live, which is why the educational system automatically takes this into account in its structure. I do not think that the cultural, social, or economic context has anything to do with the points I mentioned. I think they are inherent in a woman, and they will be there regardless of whether she lives in Afghanistan or Madagascar or in Itasca State Park and will have to be viewed that way. I do not think that I am making too much of this point. I want to come back to the question "Can we do something by educational processes and experience that will lessen this difficulty?" I am inclined to believe that if this is to be done it has to start at a very early age. In other words, you have to start in the primary grades and envision an educational circumstance that will take these features into account. I do not think you can start at a late age and encourage women to be more attracted to education and that this will then supersede, or at least will deter, them in their interest. Not that one should not strive to light the fire of educational interest in women. After all, that's what we are all trying to do. But I don't think one should be too sanguine about that.

MRS. FELICE SCHWARTZ (Founder and first Executive Director, National Scholarship Service and Fund for Negro Students): I very much agree that the nature of woman is different from the nature of man. I think that in addition to this variation we must recognize that the *life* of a woman is different from that of a man; that is, if she does want to raise a family, it seems to me terribly important that she be realistic about the fact that her educational goals cannot be as comprehensive as a man's. A woman often feels guilty about the fact that she is not amortizing the cost of her education, but if she leaves home, she also feels guilty that she is not doing her job as a mother. It seems to me that we must address ourselves to being more realistic about what we expect from her. If we want her to contribute thirty years of service in order to justify her education, then we don't want her to be a woman; we want her to be a man. I think we would be

doing a great service both to the woman and to society if we became more realistic in our goals and said, in the case of a woman who is interested in medicine but who also wants to be a woman, we will invest money to educate her, but we won't expect thirty years of service from her. We will be satisfied if she spends fifteen years being a mother, and we will not expect more than fifteen years of service in her profession. Let her relax and enjoy both and probably contribute much more in each stage because she is not guilt ridden in either one.

DR. MONSOUR: That brings up the question of goals—the plans of the program. What are the goals of education of women? There has been a considerable discussion in the literature on that point, and I think it is a very difficult area in which to talk. First of all, who is going to evaluate what these goals should be? You are talking about what contribution we should expect the women to make—fifteen years or thirty years of service. This presupposes a value system—what is valuable, what should be accomplished, and what women should do. Now I think this is a very difficult area. One is expressing some personal bias when he talks about what should be accomplished from the standpoint of the cultural and societal needs and what women should contribute to them. I still prefer to look at it from the standpoint of the woman herself: What does she want to do? Who cares what society needs her for or what should be expected of her?

MR. BENEZET: Are there not a number of women whose processes of sublimation are so deep and so successful that their actual contributions to life and their orientation to life can be successfully judged by that sublimation rather than the fact that certain ego impulses—id impulses—are repressed? Their whole contribution to society must be evaluated by that successful sublimation.

DR. MONSOUR: You are taking us into a very difficult conceptual field of sublimation. All I wish to say about that is that the effects of what we call sublimation can be highly satisfactory in the accomplishments of any person, man or woman. What I thought you were going to say when you started was: Can't women express themselves in sublimated ways other than having a family and having babies? Of course, they can. However, the way they

express themselves, if analyzed and traced very carefully—that is if they are successful or live with some kind of peace with their efforts—always includes some elements of the primitive unconscious forces that I mentioned. For instance, every woman who has accomplished anything really important has been wedded to some great cause or principle and is in a sense married to her determined view of what she wants to do.

MRS. VIRGINIA SENDERS (Member of the Education Committee of the President's Commission on the Status of Women) : I don't understand all of what has been written about sublimation and repression and regression, so I am not going to talk about those things. It seems to me that the practical question with far-reaching consequences that you have raised both in your paper and in your statements this morning is that there are certain periods in a woman's life when she is uneducable. Essentially, you assert that during the very years that she is in college, a woman is least amenable to the educational process. Now you go further and assert that this is biologically determined, and when you are asked what your evidence is, being a psychiatrist and a psychoanalyst, you resort to case histories. Now, I am not attacking you or your discipline personally, but we have all had case histories. The consequences of your assertion are that the whole pattern of education should be rethought from the point of view of the timing of it; this seems to me to be practical, but I think what the later discussion points out is that we don't have enough evidence on it. This is an easily researched topic. Enough women are in love in the colleges today to provide us with some good evidence, and presumably, an equal number of college men are in love, too, although not necessarily with the same women. There are pregnant women, and though there are not pregnant men, we could use men with other crises in their lives as a control group in this research project.

I have one other comment to make. I know the case history of a young woman in love whose learning was disrupted. She is one of our Minnesota Plan women, and I feel pretty proud of her. I feel that she is somebody we saved in time. This girl had strong professional ambitions for most of her life. She wasn't a very attractive girl, and other factors in her background precluded

normal dating. I don't think it ever occurred to her that she might get married. She was going to be a mathematician, and she was heading in that direction when she fell in love. Then everything went to pieces. Her grades went zoom, and she herself kind of went zoom. She had always—in her concept of herself—seen herself in the role of a professional mathematician with a Ph.D. Suddenly there she was in love with a nice, young naval ensign, and the future looked so completely different from anything she had seen in the past for herself that she could hardly reconcile herself to the change. She was referred to our counselor because of the drop in her grades and because she was thinking of dropping out of school in her junior year. Well, our counselor neither examined her unconscious nor traced back her ego development. He simply said, "Look. There are a few facts about women's lives that you ought to know." I don't mean this was entirely didactic, but they did tackle some of the immediate practical questions: Can you get married and keep a small apartment and still be a student? Can you go to school on a full-time basis? Can you do it on a part-time basis? When is a good time to start having children? How much life is left over after the children are grown? How many children are you going to have? After some counseling sessions of this very practical and down-to-earth sort, the girl picked up where she had left off, completed the incompletes on her record, and graduated with the same kind of record she had been making all along. Incidentally, she is now married, has one baby, and is continuing to progress in a slower way toward her goal of becoming a first-class mathematician. If it is possible to do that sort of thing that simply, then I don't think we need to say that because of biological predispositions and unconscious motives, we can't educate women of college age.

DR. MONSOUR: Women of the college are educable. All I am saying is that you have to know how to do it. And you had better take into account the facts that need to be taken into account in order to do it successfully. I think that girls should be started in school much earlier than boys. I would be in favor of starting girls in school at four and boys at six or something of that kind. I could talk to you about a number of ideas concerning what I think should be done about the educational programs of boys

and girls. I think they should be planned differently. I don't want to sound entirely negative about my attitude about educating women. I think the education of women is probably one of the major forces for social change in this country and will continue to be and that continued large numbers of educated women will bring about social change all by themselves.

MR. THOMAS CARROLL (President, George Washington University) : I would like to ask your opinion about the desirability of coeducation versus separation by the sexes.

DR. MONSOUR: I don't think that girls have to be in separate classes. I think that four-year-old girls could be in the same class with six-year-old boys and be at their level of educational ability. I do think that there are certain times in educational life where coeducation is not as desirable as at other times. I think that junior high school is a particularly difficult time for coeducation and only compounds the injury rather than salves the wounds that occur at that time. I also feel that certain college ages possibly may be better educated separately than together. The social problems involved for girls make them somewhat frantic during their college years, and they become frantic to the point where they get more involved in the problems of love, marriage, and childbearing than they might do under less-pressured circumstances. And the coeducational exposure at that time might be somewhat difficult for them, depending upon the girl. On the other hand who is going to keep an eighteen-year-old girl back?

MR. CARL GRIP (Dean of Men, Temple University): Dr. Monsour, I get a completely different impression from your discussion this morning from that I got from reading your paper. It seems to me that in the paper you took a position that gave a greater importance to culture in influencing the pattern of the feminine life. Today you have given us the impression of a fairly rigid life structure for the women. Let me make this specific by referring to an illustration you used in the paper. You pointed out that when the flow of babies is interrupted there is a crisis in the feminine identity, and I certainly think this is true. Let me use as another illustration the experience that the woman has when she sends her first child off to nursery school. This would precipitate the same kind of an identity pattern or problem.

We found that the woman who had the greatest difficulty in parting with her child tended to be the person who was already neurotic; in other words, turning the child over to the nursery school was not the cause of her problem, but the difficulty was the consequence of a pre-existing identity problem. If this is true—and this seemed to be applicable to the later stage when the woman ceases to have children and begins to turn her attention to other activities—isn't there room for a much more permissive attitude toward precisely what the patterns are for women, rather than dogmatically predicting a pattern of an entire life that simply revolves around having babies?

DR. MONSOUR: I have gotten myself in a difficult position here. I can see that in attempting to emphasize the major point, I have perhaps sounded much more dogmatic than I wish to sound. I don't want to convey the impression that I am not aware of the cultural and social factors involved in women's status. As to your point that women can find sources of gratification other than this alleged immutable unconscious force, all I wish to say is, of course, they can. The personality formations are obviously unlimited and give rise to various kinds of endeavors that women undertake. The point I wanted to make was that in all these endeavors one finds the kernel of the basic forces that I have tried to emphasize, and that these basic forces have to do with the way in which women learn, the way in which they mature and grow, the way in which their personality structures form, and the way in which they express themselves.

The Milieu of the Educated Woman

C. Easton Rothwell
President, Mills College

MUCH HAS BEEN SAID in recent years about the problems of the woman who wants to gain an education, to amplify it in subsequent periods of her life, and to use it effectively. Imaginative steps have been taken to help women meet these problems. By holding this conference, however, we acknowledge that much more must be done. In part this is because the problems themselves are not standing still. They are growing and changing as an increasing number of women strive to cultivate their talents and to use them more effectively in the work of the world. A major part of our task here is to discover with some certainty the forces in our society that are causing this to happen and to identify the steps that will offer further help to women in the realization of their aspirations.

My subject is the milieu of the educated woman, but I cannot approach it without an awareness that many aspects of what I shall say about women are equally applicable to men. Without wishing to minimize the problems that are peculiar to the educated woman because of her sex, I submit that many of the problems we shall be discussing really involve educating *people* and helping educated *people* serve themselves and society well.

The milieu of the educated woman encompasses her from the moment, as a girl, she undertakes the task of gaining an education. It is the milieu of her life, and it affects her capacity to keep her education alive, to strengthen it. It also determines how often she will be able to use her education and how well she will do so.

Marriage and family formation is without question the most important of all the forces that condition the education of women. This has always been the case. Nonetheless, the trend of the past two decades toward early marriage and the early bearing of reasonably large families derives special significance from the fact

that it has coincided with a sharp increase in the number of women enrolled as college undergraduates and graduates. The impact of marriage and family upon the education of women and upon the educated woman is thus increased. Moreover, this is taking place at a time when the optimum use of human resources, both male and female, has become an essential goal of the nation. In consequence, the role of woman is more complicated and more challenging than at any time in this century.

Whereas the effects of the current trend are of great interest and demand the most careful analysis, we must not assume that the trend will continue indefinitely. A glance at the 1920's, and especially at the 1930's, should remind us that social patterns might change markedly if we should experience a little economic belt tightening, a shift in the requirements for personal security, or a change in the mores and social pressures affecting our youth.

One cannot escape the conclusion that early marriage and family formation or the anxieties about them are indeed interrupting the education of women. They are causing women to leave college; they are placing women under psychological pressures that diminish their academic performance; they are exerting some negative influence upon the pursuit of graduate degrees and careers.

The data which support these conclusions must be handled with great care, however, lest they mislead. For example, there is a high national attrition rate among women undergraduates, a rate that is undoubtedly related to early marriage. But there is also a high rate of "fall out" for men, and marriage may have something to do with this too. The statistics on graduate education disclose not only that the number of women who complete the bachelor's degree and thus become eligible for graduate work is just over half the figure for men; they also show that a progressively smaller proportion of women than men attain the master's degree and, ultimately, the doctoral degree. This is somewhat surprising in view of the concern of women graduates to obtain the master's degree as part of the preparation to teach.

In the light of these rather discouraging figures about women's graduate work, it is gratifying to learn from the June issue of *Women's Education* that a large proportion of the recent gradu-

ates of Eastern women's colleges and certain other colleges intend to start graduate studies in the autumn. The average reported for the women's colleges was just under 30 percent, whereas at Carleton College, City College of New York, and Brooklyn College the proportions of women continuing their education were 44 percent, 60 percent, and 62 percent respectively. I might add that the comparable figure at Mills College this year is 34 percent—higher than in any previous year.

These ratios are important for two reasons. They indicate a gain over previous years in the number of women undertaking graduate work, at least for the master's degree. More important, they suggest a significant overlap with marriage. I draw this conclusion from information concerning the marriage rate of Mills College graduates, which I believe does not differ significantly from the marriage rate of women at other colleges and universities. Over 40 percent of these young women enter matrimony within one year after graduation, more than 80 percent before the end of five years. The relatively high overlap between graduate work and marriage is self-evident on the basis of these figures. What will be the effects in the long run of this expanding common ground between matrimony and advanced education remains to be seen. I suspect, however, that if one analyzed the records of women who did graduate work during the past decade, while at the same time maintaining a married household, the findings would be very encouraging.

There are, of course, factors other than marriage and family formation that interfere with the education of women. Economic pressure upon the parents is too frequent a cause, especially when it is aggravated by insufficient financial assistance from the college of the girl's choice. Inadequate work opportunities is another factor and causes young women to suffer to a greater extent than do young men. The failure of parents to encourage within a girl the aspiration to attend college is a familiar factor and is often linked to the assumption that because a girl will marry soon, there is less reason to educate her than her brother. So much has been written about these and other factors, however, that I need not labor them.

My principal purpose is to consider the elements within our

society that help or hinder the young woman who wishes, after leaving college, to keep her education bright, to deepen it, and to put it to uses that will be socially significant and will at the same time help her realize her potential.

For the able, liberally educated woman, the years during which her children are young, underfoot, and making interminable demands upon her interests and energies are difficult. Yet, if we are to keep the young mother's problem in focus, we cannot isolate it from the realities which are equally pressing on her husband and her single sister who are facing similar frustrations during the same period. These are the years when a young man is serving what amounts to an apprenticeship in a business or profession. The budding executive is checking someone else's accounts with grammar school arithmetic; the developing diplomat is stamping visas. These activities may involve little of their liberal arts education, which they may begin to think of as a useless extravagance. The single woman on bad days during this beginning stage of her career may likewise have doubts about her education and look with envy upon her childbearing classmate's solid, if squalling, evidence of accomplishment.

And yet, if the education has been sound, the mother, her husband, and her single sister will normally come through the difficult years with the durable results of their learning unscathed if not enriched. The lasting outcomes of a genuine education are curiosity, concern, a yearning for self-expression, and the capacity to satisfy these hungers intelligently. We need to know much more about the educational circumstances that produce these qualities. Nevertheless, the number of young couples who remain intellectually alive and vital through the early years of marriage and career is evidence that a good education can last and flower even amidst frustrations. Only when the learning has been superficial, or has not "taken," or when it is thwarted by personality factors, do its effects attenuate during the first years of marriage.

The period in a married woman's life that causes most concern to those of us who wish to see her achieve the maximum realization of her potential is the span of active years that remains after her children are in school. The question most frequently raised

is, "How will she employ in fullest measure during those years the education she acquired a decade or more earlier and has managed to supplement formally and informally during her children's youth?" How will she?

I recently raised this question when speaking to a lively group of young mothers five to fifteen years out of a variety of colleges. They had just spent a year analyzing their own reactions to a questionnaire on continuing education and the job potential of the mother whose children are in school. Although these young women may not have been representative of all those in their suburban community, their group did include many emerging leaders. Their husbands were successfully making their way up the ladders of professional or business advancement. Despite their knowledge of the proportion of alumnae mothers who return to work on a part-time or full-time basis when the children are in school, or perhaps because of that knowledge, these young women were almost unanimous and wholly unequivocal in their rejection of any return to work as an alternative to spending their full time as wives and mothers. They were hostile to any insinuation that woman can be a "wasted asset."

I cannot know how typical these young mothers are of others similarly situated throughout the United States. I applaud their aspirations for their families and the intelligent roles they have conceived for themselves within the home and community. Somehow I did not feel that they had "returned to the cave." At the same time I suspected, and I am confident some of them suspected, that the national averages will ultimately catch up with certain of the group. They will seek work as a means of supplementing the family income, probably to help educate their own children in a period when college education becomes ever more expensive. They will seek unpaid outlets for their interests and energies in the PTA, the Red Cross, reading groups, investment clubs, alumnae or alumni associations, the AAUW, and the League of Women Voters. Some indeed are already at work in volunteer activities. This pattern seems to be a normal and widespread one. Is it one which brings maximum self-fulfillment; which makes the fullest and most intelligent use of the young mother's talents?

The self-realization a woman may attain will depend upon

her own aspirations and her will, as well as upon the opportunities available to her. So far as opportunities are concerned, today's college graduate mother lives in a society which provides almost unlimited possibilities for significant and satisfying volunteer activity, a subject to which I shall return later. She also lives at a time when the working role of women is greater than it has ever been in the United States, thanks in large measure to the pioneering enterprise of women who cared enough about certain interesting kinds of work to penetrate the barriers of custom and thus open them to other women.

The working mother is not a rare phenomenon in the United States. She constitutes one-half of all women of working age who are in the labor force. Indeed, almost one-third of all married women are employed, a proportion that it is predicted will increase substantially by 1970. It is a striking commentary upon our society, however, that less than one-sixth of the women who are working have had some college education and only one-eighth of them are professional and technical workers, the largest proportion of these being teachers.

Nonetheless, the college graduate mother returning to work will find herself in numerous company. She will also find certain patterns of opportunity that will shape and limit what she can do. There is an expanding area of significant and reasonably interesting positions—some traditional and some new—into which she will be welcomed. These will include, of course, teaching, nursing, and social work, which have long been regarded as within women's sphere. But there will also be a chance to exercise her judgment and her mathematics in computer technology and programming and, hopefully, in the posing of problems for which computer programming is used. Her capacities for responsibility and for the rendering of decisions will find outlets in an increasing number of high level places in industry and banking, and in legislative and administrative positions at the local, state, and Federal levels. Moreover, she will find a broadening range of opportunities in science and engineering. There will be careers for her in journalism and, to an increasing extent, in dentistry. But she will find less outlet for her talents in other professions—particularly, law and medicine. Even in these, however, there are certain areas of

specialization which male practitioners look upon as being suitable for women—juvenile delinquency, for example, and pediatrics.

College alumnae mothers have been accused of drifting into jobs instead of pursuing planned careers when they return to the labor force. This is true in a large number of cases and, in my judgment, is wholly justified. The mothers who avoid the demanding preoccupation of career most frequently do so, not out of a desire to find a softer life, as some writers have implied, but out of the conviction that their primary interest and energies must be devoted to their children until they are older. Some women, to be sure, can manage career and family well, but a much larger number do not possess that capacity or energy. Consequently, they search for the part-time opportunity or for the kind of job that can be done at home. This type of employment is broadening in range, incidentally, as electronics firms and other employers discover that they can tap a rich and reliable working reserve by using these methods. I have been speaking of a deliberate choice of noncareer jobs. There is also, unfortunately, the young mother who would really like to work toward a career, but who is lacking in adequate preparation and even in sufficient comprehension of the requirements of the profession because of the absence of suitable guidance and career planning when she was in high school and college. Sometimes these women strike out to learn a new field when their children are in school. They can take heart from a recent study made at the University of Chicago which concludes that women over forty who did well in high school can actually learn more rapidly and effectively than their younger college classmates.

Actually the mother returning to work behind the shield of her husband's secure salary and position has a much greater opportunity to experiment with employment than do men. She can "try on" jobs to see whether they suit her talents and temperament. She can take the time to refurbish her skills and tarnished knowledge. She can even run the risk of plunging into new fields of learning, because failure will not effect either her economic status or the standing of her family in the community.

Little need be said about volunteer activities except to suggest

that they are a much more essential part of the social and political fabric of the United States than of most other countries. They are a very important element in our democratic process. And they offer the college graduate mother a wide range of outlets for her talents that are neither dull nor make-work, but can challenge profoundly her creative and managerial capacities.

Earlier I commented that the self-realization of a woman will depend as much upon her aspirations and her will as upon the opportunities open to her. To aspirations and will, I should, of course, add ability and a sense of direction. Then I should say that the interweaving of these attributes can help a young woman toward satisfying self-realization at any stage in her journey through high school, college, graduate work, marriage, and motherhood, and the ultimate return to rewarding activities outside her home. One can name many women who exemplify the optimum blend of these qualities and who might serve as models for girls and young women at the beginning stages of the long journey. The Margaret Chase Smiths, the Mary Buntings, the Millicent McIntoshes, the Anne Morrow Lindberghs have all made the journey with distinction in their generation. I am sure that every teacher and administrator at this meeting can name women now on their faculties or in their student bodies who are launched in the same direction. The most important question to ask about them and their distinguished predecessors is where the drive and vision and high aspirations came from. In some cases the colleges are the source that kindled these drives, but I suspect that in most instances the source of the kindling must be sought earlier—in the schools and in the family. Indeed, ingredients of the flame, if not the flame itself, may have their origins in the genes.

In this paper on the milieu of the educated woman, I have attempted to describe the forces and factors which affect her as she moves through the several stages of her life. I have not sought to prescribe for the problems she encounters. That task remains for others. I must record my conviction, however, that her life—whether within the family, outside of it, or in some combination of the two—will more likely result in wholesome self-fulfillment and socially significant accomplishment if she is given excellent

counseling and challenging fare at both the high school and college levels. This is the fundamental and formative period. Hence I am attracted to the pioneering that is being done in this field. I find especially hopeful the program in continuing education that is in progress at the University of Minnesota and the program instituted this year at Sarah Lawrence College. Although it meets a different purpose, the Radcliffe experiment is badly needed for women who have gained some level of professional competence.

This is perhaps an appropriate place to set forth a conclusion that one cannot avoid reaching as he works through the scattered literature on the educated woman and regards the experiments being carried on in her behalf. There is serious need for pulling this literature together systematically, for deepening and broadening the study, and for extending the experimentation in some rational fashion. Our understanding would be facilitated if we had more detailed information about certain categories of women at various stages in their lives. We need more case studies of women who have either successfully or unsuccessfully sought to combine family and career. And we need analyses of control groups that have not chosen this course. Only thus will we make sufficient headway with the continuing education of women.

Let me add one final note. When we contemplate the continuing education of women, let us think not only of their repreparation for a place in the labor force or in the realm of volunteer activities, but also of continuing education to expand the ranges of knowledge possessed by both the wife and her husband. Together, they must face intelligently the most rapid and drastic period of change the world has known. This is not easy, and it requires systematic preparation. The problem is stated well by Dr. Robert D. Calkins, president of the Brookings Institution:

> In this fast changing world of discovery and innovation, new concepts, new fields of knowledge, political and social revolution, shifting values and changing philosophies, and the flood of daily events, only the most determined can keep their bearings. . . . [It is essential] to discover and to develop more informed leaders and to establish respected places where the most thoughtful people are glad to go for intellectual stimulation and

refreshment, and for a contemplation of the truly great issues of our society. Even a few places of this character and a few men of this character can make an enormous difference in any community.[1]

REMARKS IN ELABORATION OF WORKING PAPER

MR. ROTHWELL: I am setting aside my original paper for the moment. I am prepared to stand responsible for the things that are in it and prepared to answer questions on any points that I have made, but I should like to devote my comments here to two points. I would like to say something about the nature of the literature that is available on the education of women, and, second, I should like to say a little about the different phases in the process—a lifelong process—of the education of a woman and the problems of the educated woman. I should like to do the second first and then move back to point one.

As I read through the papers, I was much struck by the projects —some of them very imaginative—that are attempting to deal with the problem of the continuing education of the adult woman. I applaud all of these. I think, as I have attempted to indicate, that they are performing a distinctly valuable service. But I hasten to add that, in a sense, we are making up for our deficiencies with these kinds of programs. The real problem of the education of woman and of what happens to her following her education needs to be coped with during the years when she is most impressionable and most educable, and though I find some inconsistency here, most evidence suggests that this period occurs during her elementary school, high school, and college years. Consequently, I should like to emphasize this really creative and formative period.

I suggested in my paper that some qualities that we want in a woman may be there by virtue of the genes that she bears. I am confident that the elements out of which one can kindle the flame in woman that will carry her through many of the vicissi-

[1] From "New Tasks for Our Universities," an address given before the National University Extension Association, Lincoln, Nebraska, April 30, 1962.

tudes of life are there to start with, but there is a great deal that we can do. Having taught in elementary school, junior high school, high school, and graduate school, I am going to draw on this experience in making some observations. It seems to me that if somehow we can achieve the kind of education that Dr. Monsour started to develop for us—an education that is a formation of the mind and a formation of the person—in such a way that interests are aroused and curiosity is whetted, ideas will be implanted which will have great importance in later life. In addition, if we can cultivate some capacity for judgment, some ability to martial large bodies of information, some capacity to examine assumptions with a critical and objective eye, some ability to assess values and to make commitments with respect to values—if these things can be accomplished before a woman becomes involved in raising a family—I am quite convinced that they will carry her through the later periods. They will tend to diminish the problems a woman must confront when she reaches that later, and very educable, age when her children are in school because they will have immunized her and given her the inner resources for coping with the problems that arise when her children are very young.

This, then, is what we mean when we talk about educating women. Instead of the term "continuing education," it seems appropriate to use "sustained education" because what we are undertaking is to do something during this period that can be sustained. It is the self-generating, self-starting mind and creative spirit that we are seeking to evolve.

Another point that I want to make is about aspirations and expectations. During the early, formative period in a young woman's life, we are implanting the aspirations that will guide her educationally not only during her undergraduate years but in the years following graduation. If the pattern of aspirations is sufficiently rich and the level sufficiently high, I would have great confidence in her capacity to overcome some of the normal frustrations that confront her when she has to bear children, rear her family, and keep her husband happy during the difficult early years of their marriage. During the early, formative period we should quite consciously implant within her a pattern of expecta-

tions about her own future. Today, as I talk with young women who are graduating, I discover that often the pattern of expectations is cut off with marriage, which is regarded as a terminal thing. The pattern of expectation needs to look beyond marriage with some considerable realism about events that are going to occur. It can be a pattern that will point out to the young woman a whole sequence of alternatives she might explore singly or in combination as a means of successfully meeting the problems of her family, of successfully bringing about her own self-realization, of successfully making an essential contribution to the community and to the culture of which she is a part. I don't think we do these things well enough.

Let me interject at this point the caveat that I attempted to put into my paper and which bears upon some of our discussion. I think that men, too, have frustrations and problems during their early working years. Their problems are of a different kind from those of women but of the same magnitude. What I have suggested about implanting a pattern of educational aspirations—of expectations—in women applies equally to men and would help carry them through that difficult and rocky period.

President Meredith Wilson, in discussing the problem, referred to counseling as one remedy. I am wholeheartedly in accord with this, and I applaud what is being done through the program at Minnesota for the continuing education of women. I don't think, however, that counseling is the complete answer. I would hope that we could experiment with educational programs in elementary school, junior high school, high school, and, certainly, in college which by their tone, or if I may borrow a phrase from the anthropologists, by their style, would tend to make a real contribution toward implanting that kind of education which includes a pattern of expectations and aspirations for young people. I am sure this can be accomplished.

In a recent study of college values, there was considerable emphasis upon the role of the character or style of an institution as a distinctly formative factor. I think this is very important and would suggest that the current emphasis on the study of student cultures or the culture of a whole college community in relation to the academic aspects of the community is a significant move

that will open whole new vistas to us not only in the education of women but also in the education of men.

Now let me come to the other topic: the available literature on the education of women. As I read the papers, including my own, I was much struck by the fact that apart from those which describe specific projects, we have, in a sense, a series of concentric circles, and the common area within these concentric circles is very large. I doubt that I have added much that is significantly different from what appears in the other papers. I have written about the education of women for a year, and with the assistance of our dean of students, our librarian, and a lot of other people who assembled material for me, I covered a great deal of the existing literature. There is a basic sameness to it—a covering and recovering of the same ground. One can perceive the growth of certain clichés and the continued repetition of these clichés. I don't mean to be critical because I have participated in the process and have made my own contribution to the perpetuation of clichés. However, if this meeting is to be really significant, we ought to take a fresh look at the directions we can move to expose new areas of knowledge that can be creatively helpful to us. I don't pretend to have more than a few tentative suggestions, but I hope that they will stimulate you.

Let me start with the literature available on the areas of activity open to the mature woman once she wants to re-enter the work force. (Somehow the term "work force" grates, but, nevertheless, that is the technical term.) The Women's Bureau of the Department of Labor has done a superb job of pulling together a tremendous amount of data on this. Some of the more recent developments, however, may not be encompassed in this data. I would like to suggest as one possible area of inquiry—and I should like to see it done in the most scientific and thorough way possible—an examination of the activities open to the mature woman and the trends and changes that are taking place. We must not look at things in the dimension of 1960; we need only to look back, as I've attempted to suggest in my paper, to the 1930's and the 1920's to discover that trends do change and change quite significantly in this whole area. I should like to see a study that would look ahead for a period of ten years. All the colleges

are engaged in making ten-year plans. I should think that those interested in the education of women might also look ahead and anticipate changes that may come about in the patterns of employment and opportunities for women in various fields in the course of the next decade and also identify those factors that can be changed or manipulated. With all of this clearly identified, one would have some basis on which to proceed.

Let me give an example of what I mean. It was assumed a few years ago that corporations would make contributions to colleges at a very limited level and in certain distinctive patterns. Along came Frank Abrams of Standard Oil Company of New Jersey, Walter Paepcke of Container Corporation of America, and a few other able, public-spirited people. Through the formation of the Council for Financial Aid to Education, some of the manipulatable factors were seized upon, and today there is a generous response from the corporations in America to the needs of higher education. I don't think this is the best example, but this is the kind of thing I mean. I believe that the Commission on the Education of Women has performed a very important function in the sense that it hung a star in the sky and said this is something to which we must give attention. Now I think the time has come to approach the problem of the education of women in a much more systematic and scientific manner.

Let me conclude by referring to what we might do at the student level. I must confess that I've worked in this area only three years, and there's a great deal of literature of which I am ignorant. But I don't believe we have a series of studies on the various types of counseling that would come to grips with the problems of implanting a pattern of expectations and aspirations in women and that would demonstrate the pattern of counseling most effective in a given circumstance. I'm not sure whether we know that counseling at the University of Minnesota might be an entirely different kind of phenomenon than counseling at the University of Oregon, at Mills College, at Radcliffe, or at Columbia University. I'm sure each school has its idiosyncrasies, but we need detailed evidence of this. We need to know a lot more

about the impact of the campus culture—whether it be the campus of the college, the high school, or the junior high school—upon personality and character formation and the formation of a pattern of aspirations. I'd like to know whether the campus culture is a stronger formative force than what happens in the classroom or the influence of some distinguished and able teacher. Such studies are just beginning. Some of them are included in *American College: A Psychological and Social Interpretation of Higher Learning* by R. Nevitt Sanford,[2] but much additional work is needed.

It seems to me that information from such studies could open up new vistas and bring us closer to solving the problems that confront women today. There is a wonderful opportunity for the women's colleges to conduct such studies, and the coeducational institutions should also participate. They educate many more women than do women's colleges. The problems of educating women are different in the context of coeducation than they are in the context of segregated education, and I could expound a number of hypotheses about the differences. What I should like to get away from is the current impressionistic character of the literature in this field and find something that is harder and more firm upon which we can build. Now I'll stop and accept your questions.

DISCUSSION

MR. BENEZET: Dr. Rothwell agrees with the previous speaker that women are a problem—an educational problem—to other people, mainly men. However, stabilizers can be implanted early in life which help carry women past more difficult periods in their development, but whatever these stabilizers are, whatever the problems with which they deal, we ought to be more systematic and perhaps more total in our attack to filter out the kinds of knowledge that we want for fair and adequate counseling patterns.

[2] John Wiley & Sons, 1962.

MR. ARTHUR HITCHCOCK (Director, American Personnel and Guidance Association): I think what Dr. Rothwell has said really fits strongly into a pattern rapidly emerging in the whole area of guidance—mainly a quite decided shift in emphasis. It is generally agreed that the junior high school years are the crucial period for guidance and that at this time we should be more concerned in counseling with the emergent patterns of life or styles of living. One of the ideas emerging now is to look into the future in terms of changing patterns of life instead of being confined to the logic of the trends of the past. Past trends no longer can be projected into future patterns of living.

MR. ROTHWELL: I would like to make just one comment about that. Sometimes university faculties do not adapt readily to this kind of administrative readjustment in a field such as guidance. To change the tone of a college or university, the new idea must be diffused among the faculty, so that a consciousness of the change is fairly well spread throughout the institution. This is easier to accomplish in the smaller institution which is less, if you will forgive me, institutionalized.

MRS. RUTH USEEM (Research Consultant, Department of Sociology and Anthropology, Michigan State University): I think there are many opportunities for the college-educated woman to participate in the programs we are talking about. There is a real opportunity for the college-educated woman to bring the educational advantages that she already has to those sections of our society which are in need—whether that be in professional or volunteer work. I think here women may find some of the roles by which they can adjust to society.

MR. ROTHWELL: It has often occurred to me that even though men hold the front positions and the titles in our voluntary organizations, women frequently do most of the work. The voluntary organization is a very important part of the whole fabric of the American and democratic structure—politically and socially—so this is an important role. In enumerating the chief reasons for seeking to make a woman's education one that will enable her to accomplish what she wants in life, I would put self-fulfillment at the top of the list. The satisfaction of the national need for addi-

tional manpower comes below this. When women accomplish the first, the second will come almost automatically.

MRS. HYMES: I was gratified to hear Dr. Rothwell's statement about voluntary organizations. I have spent a lifetime working within a voluntary organization and have perceived in the past decade a downgrade both of voluntary activity and of the value of the organizations. A continuing of this downgrade will have a dire effect upon social development in the future. In what practical ways do you perceive that we might be able to make women recognize and appreciate again that the voluntary organization is a significant institution and is worthy of their participation?

MR. ROTHWELL: In the first place I suppose that courses in government and in the social sciences could give more place in their curriculum to an emphasis upon volunteer organizations. I suppose, too, that in the procedures of guidance some emphasis could be given to them, and some students could be made aware of the role the voluntary organization plays in our society and the role the well-educated woman plays in the organization. By well educated, I mean the woman who knows how to organize and has developed some managerial capacities. Usually such women have had some managerial experience at a lower level through their own extracurricular activities while they were in high school and college. They know how to get things started, how to handle a meeting, how to organize a conference and take care of the practical aspects of it. Voluntary organizations need much more careful exploration than they have recently received. I might add that I talked recently with a physician from San Francisco who told me that he thought participation of women in volunteer organizations was an exploitation of women. He said they are paid nothing, only a part of their capacities are used, and they do not have the sense of concrete personal satisfaction that professional women get. Well, take this as you will, I think something can be said about women having been exploited, but I do not think that exploitation is the norm in volunteer activity.

MR. ERNEST MCMAHON (Dean, University College and the University Extension Division, Rutgers—the State University of New Jersey) : I would like to comment on Mrs. Hymes's question about the downgrading of the volunteer worker. It seems to me

that some of the reasons for the downgrading fall within the area of education for correction. One is that we are in a society where many welfare activities have become professionalized, and, unfortunately, the volunteer worker in many instances continues to be an amateur. I believe that if many of the voluntary organizations encouraged continuing education on the part of their participants so that they could equal the professional social worker, for example, some of the stature of the voluntary organizations might be regained. I think that is probably the most important aspect of their problem. Second, we live in a society which almost makes a fetish of organizations, and too many voluntary organizations operate haphazardly. It seems to me that education can contribute in this respect by strengthening the capacities and the organized approach of voluntary organizations.

MR. BENEZET: I would like to ask the speaker whether he is satisfied with the drift the conversation is taking or whether he wants to bring it back to some other point in his own presentation. Would you like to reguide us or carry on with what we have gone into?

MR. ROTHWELL: I think that we could spend a good deal more time discussing the range and the fruitfulness of voluntary activity, but perhaps it might be useful to go back to the earlier problem of where to put major emphasis in the education of women and what steps to take to make this emphasis sustaining—self-sustaining —if I may go back to one of the terms that I used. It seems to me that this is the area of inquiry that we need to look at. I would also like some comment on the need for a systematic investigation conducted experimentally by professionally competent people into the whole range of problems that touch upon the education of women. The results of this investigation could introduce new concepts, new ideas, and new goals into our discussion.

MR. PAUL WARD (President, Sarah Lawrence College): I was struck when reading your paper by the example of the group of young mothers who rejected the idea of returning to work while their children were in school. I wonder whether more recent literature clarifies all that might be involved for other young mothers who might want to work during this period. Would it be

possible for them to carry forward responsible parenthood into those hours and days when they are involved in part-time or full-time work? What kinds of problems would be submerged? What kinds of risks would be involved? Would you comment on this?

MR. ROTHWELL: What you are suggesting is something that was raised during our last discussion, namely, that some of the things we do, and perhaps the example I cited in my paper was evidence of this, are culture-bound evidences of our own society. Maybe these young women—most of whom had two or three children—who insisted upon remaining home and following what they felt was their prime responsibility instead of going to work, who in a sense rejected the idea that a married woman with a family ought to go to work, are simply a reflection of something in our society. I suspect that part of the attitude of these women may be due to something that happened that night, however. In reporting the fact that I was going to speak, unfortunately, the newspaper left out the question mark at the end of the title of my talk, which was "Women—A Wasted Asset?" So there was a certain level of hostility in the audience that night. When I spoke, I didn't know about this. Nevertheless, I think the young mothers were quite genuine in insisting that their prime responsibility while their children were growing up and getting into school was in the home. I felt they saw this as a prime responsibility overriding all others, and I'm sure this view is a reflection of our culture. This brings me to another dimension of what I was trying to get at earlier when I suggested we study something about college cultures and the interrelationships between them and intellectual activity. I am quite sure that many aspects of our college and university culture patterns are a reflection of the general culture of the American scene. I think it would be quite interesting to determine by experiment whether it would be possible to change this cultural pattern and whether there would be any essential loss if a change took place. Different cultural patterns prevail at other levels in American society. When we look at the less-privileged classes in this country, for instance, we discover that in many cases children take care of children. The oldest child frequently takes care of

the younger children while the mother is out earning part of the livelihood for the family.

MRS. ESTHER WESTERVELT (Department of Guidance and Student Personnel Administration, Teachers' College, Columbia University): When President Meredith Wilson spoke last night, it occurred to many of us women that being the wife of a university or college president is in itself an occupation, and this can be true of the wife of a rising young executive, too. To make a home for her children and her husband, such a woman probably cannot take even a part-time job. In other words, we have to compare women and look at their total situation. When their children are in school, housework does not take up the whole day for some women, so they turn to volunteer careers or paying careers. But for other women, partly because of their husbands' occupations, this isn't true. How would you help a girl see these possibilities?

MR. ROTHWELL: This is part of what I was talking about when I said we should implant a pattern of expectation in women. It certainly is true that there is a diversity of occupations for women and many different types of women. Some women are seriously interested in having a career, and other women are more interested in the home. Some women have energy in abundance, whereas other women don't have the same energy levels. In other words, we must not make the mistake of generalizing too glibly about a woman's character.

We have a relatively small faculty at Mills. Five members of our faculty have wives with Ph.D.'s, who teach, maintain their homes, and have at least one child. Most of them have more than one child and continue to do the professional work for which they prepared themselves early in their lives. This is one pattern. There is also the pattern of the young women whom I mentioned in my paper who had families of about four children and who said, "We don't want to go to work. Our interest and our attention is, for the moment, right here." Well, I cannot take exception to this because I feel they are doing a good job. And, incidentally, most of them are taking part in a number of volunteer activities, even though they did not talk much about this. Another pattern—and I think my paper indicated my sympathy for this type of

woman—is that of the woman who searches for a part-time job because her time and energies are so limited that she cannot handle both a career job and her children as in her heart she feels they should be handled. We might be able to change our culture somewhat, but we have also to change this woman's heart. It is possible to accomplish this change, but I think we should be careful when doing so.

MRS. WESTERVELT: There is one point I want to make, though, Dr. Rothwell. Many women are not too involved in their husbands' occupations and have long hours when they are not with their children. Those of my children who are still at home leave for school at 7:30 in the morning and get home at 3:30 or 4:30 in the afternoon, and I know that this is a common pattern.

MR. ROTHWELL: Many jobs are opening up that can take care of the woman who is in this very situation. My own wife worked part time, and I am sure many men here could say the same of their wives. My wife handled a reasonably responsible professional job during the period of the day when it was possible for her to be away from home and came home when our children got out of school. Some businesses are recognizing that women in this position are a tremendous resource to be tapped for man power for certain types of jobs and are arranging their schedules to suit women who wish to work part time. Now I wouldn't discourage a woman whose aspirations are to move on to full professional attainment and full professional expression, and perhaps we should be more inspiring to those with such desires. But there are women without professional aspirations to whom we can suggest these alternative patterns.

DR. MONSOUR: There are now many different kinds of vocational opportunities and occupational styles, and we need to know more about the life patterns involved. There is, however, a large group of women who are extremely difficult to mobilize, and I find them often in my own work. If I say to a woman in her mid-thirties: "Why don't you get a job?" She has a very negative response to this. "Why don't you go back to school and take a few courses at the local college?" She isn't interested or she is not able to get herself going. Although many women do not react this way,

in my experience an extremely large group of women does. One reason they react this way, I feel, is because of their need to cling to the forces that anchor them to their homes and from which they are unable to escape without considerable guilt, and they develop a general phobic reaction to going out—either to work or to school. Women must recognize and overcome this hazard. They must become conscious of the problem in themselves. This should be accomplished, hopefully, in an educational context during their coeducational training in their earlier years so that they are made aware of this problem.

Needs and Opportunities in Our Society for the Educated Woman

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THERE IS A GROWING LITERATURE about the needs of educated women. Longer lives, healthier children, advanced technology, mass production and distribution, and a world that has managed to stay at peace affords us a measure of assurance that our women will have more and more leisure during, and especially after, the years of child care. If leisure implies uselessness, it is a sweet coating for a bitter pill. Each of us needs the inner satisfaction of making a continuing contribution, however small, to the society in which we live.

What about the needs of the community for the talents of educated women? There is no shortage of problems to tax the ingenuity and talent of educated women. The recent Ford Foundation *Statement on Policy for the Sixties* identifies among its large problem areas elementary, secondary, and higher education; the strengthening of our democratic institutions; the problems of urban growth; and youth development. Common experience reminds us of the possibilities for improved health services. We lack doctors, nurses, and hospital administrators. With a sharp increase in the numbers of the aging, our health services will be even less adequate. The shortage of scientific personnel in the face of the explosion of scientific knowledge has created a problem of indefinite proportions. This list is not exhaustive; it includes only the obvious "firsts."

And yet we are not coming close to educating all the women and men who have talent. We need better public schools. American children suffer from basic inadequacies in our public education system. More thought and action is needed before every child

—white or Negro—whether from suburb or slum, city or farm, has the chance for full personal development. We will improve the public schools with the help of Federal aid, state aid, foundation programs, and more imaginative use of the educated women in our communities. We need to salvage the child—boy or girl—who leaves school. We need to solve the problem of substandard housing. A Lincoln can emerge from a log cabin, but the overcrowded Spanish-speaking tenements on the New York upper West Side are not likely to produce many like him.

These problems are being attacked from many angles. The President's Committee on Juvenile Delinquency is carrying forward in selected communities a concentrated effort by all agencies—educational, welfare, health, and judicial. It is working toward the development of formulae for community action capable of widespread application. Foundation studies and programs have carried us a long way forward. Many communities are already working on their own problems with their own resources. In all these efforts to broaden the horizons of the community of tomorrow, there is an important place for the talent, imagination, and dedication of the educated woman of today. We need information about the opportunities that exist and how they can be made sufficiently flexible to fit the life pattern of those who are married and have children.

Who are our educated women?

Broadly speaking, we are talking about the women who have a college education, with the realization that not all women who have been to college take advantage of the education offered and many who cannot go to college manage to educate themselves. Educated women are not a small elite, although they are a minority. During the past six years, college enrollments for women have increased proportionately more than for men. As a result, the percentage of women among all college students has moved steadily up from 34.6 percent in 1956 to 37.7 percent in 1961. In 1920 less than one-third of a million women were enrolled in college. In 1960 there were one and one quarter million. We expect enrollments of college women to reach one and three quarter million in 1965 and two and one-third million in 1970.

The rate of growth is more impressive than the actual numbers. From 1920 to 1960 college enrollments of women almost quadrupled. In 1920, 16,642 bachelor's degrees were granted to women. In 1950 there were 104,000. In 1960 the number reached approximately 132,000—an eightfold growth in 40 years. In 1970 the figure is expected to rise to 234,000. Yet, these figures indicate that a significant number of women do not finish college. We need to understand more about the reasons.

Mrs. Mary Bunting has made one suggestion: "Precious little attention has been given to designing educational opportunities to meet the needs of married women. Rather, we have assumed that if she marries early she is not interested in continuing her education. The possibility that the choice could be a question of timing rather than goals has not received serious attention."

The Women's Bureau has just completed a study, *Fifteen Years After College: A Study of the Alumnae of the Class of 1945*, in which 580 alumnae of four colleges told us what we have come to expect to hear about the life pattern and interests of mature, educated women. It is especially noteworthy that the study questionnaire, which asked about marital status, children, employment, interest in work, training, and education, struck a responsive chord—about 85 percent of the 674 alumnae of the four colleges answered the questions.

A majority of these college women from the class of 1945 reported that they felt the need of additional education or training to obtain the type of position they would like. The percentages of women reporting this need was highest, of course, among those not employed at the time of the survey. A majority of the survey alumnae were housewives not working outside of the home. Their greatest interest was in further academic education or university courses. Significant numbers wanted to take courses leading toward teacher certification; a few reported interest in business and commercial courses.

High proportions—that is, from 46 to 63 percent of the participating alumnae from the four colleges—expressed an interest in a paid position for the future. Many graduates were already employed, although the figures ranged from 16 to 45 percent among the four schools. Higher proportions of graduates than nongradu-

TABLE 1: PERCENTAGE DISTRIBUTION OF EMPLOYMENT STATUS AND PLANS OF ALUMNAE,* CLASS OF 1945, IN FOUR COLLEGES

STATUS	ALUMNAE			GRADUATES			
	Total	Non-graduates	Graduates	A	B	C	D
Total respondents	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Currently employed: total	*32*	*25*	*33*	*33*	*36*	*16*	*45*
Full time	19	16	19	19	20	7	30
Part time	13	9	14	14	16	9	15
Seeking a position: total	*2*	*1*	*2*	*2*	*2*	*1*	.....
Interested in a future position: total	*53*	*49*	*53*	*54*	*50*	*63*	*46*
Within 1 year	4	9	3	4	2	.....	2
About 2 to 5 years	15	4	17	21	20	13	8
Perhaps later	34	36	33	29	28	50	36
Not interested in a position: total	*14*	*25*	*12*	*11*	*12*	*20*	*8*

* The term "alumnae" as used in this report refers to all members of the class of 1945, both graduates and nongraduates.

Source: *Fifteen Years After College: A Study of Alumnae of the Class of 1945*, U.S. Department of Labor, Women's Bureau Bulletin 283 (Washington: Government Printing Office, 1963).

ates were employed. (See Table 1.) Of the graduates who had had one or more paying jobs since graduation a majority reported a professional position as their most responsible job. The proportions ranged from 50 to 73 percent of the graduates of the four colleges. But 18 to 34 percent considered that their most responsible position had been clerical in nature.

The undergraduate major of the college graduates affected the nature of the job they had been able to get. There were larger proportions of professional workers among graduates who had majored in a technical or specialized field (nursing, health, chemistry, biological sciences, social work, or physical education) than among those with majors in the liberal arts (foreign languages, English, history, music, or social sciences). Of the nongraduates with some employment history, the proportions reporting professional positions ranged from only 11 percent to 29 percent in the four colleges.

A vast majority of the alumnae who were interested in future employment showed a preference for part-time work, but many of them lamented the scarcity of such opportunities. There was also some interest, particularly among the alumnae who were not employed, in obtaining assistance in choosing a suitable field of work. Though from only four schools, these findings confirm the mature college woman's interest in further learning and active participation in our society.

Aristotle tells us that "learning is an ornament in prosperity, a refuge in adversity, and a provision in old age." Although we live in a time of prosperity, I think that higher education for women is not ornamental; it is necessary for our survival as a free democratic society. From the beginning of our nation, our founding fathers recognized the importance of widespread general education, because they realized that only an educated people can expect to preserve democratic freedom. We recognize this necessity today in offering newly emerging nations our help and encouragement in meeting their own educational problems. Where higher education becomes the rule rather than the exception, this privilege must be shared by women, not only as a matter of simple justice, but because we cannot do without educated women in our homes, in the professions, in business and industry.

Educated women in the home

The significant influence of women in our society is felt first in the home. Women constitute the nucleus of family life. They are the first teachers of our children. For this reason alone, potential mothers should be educated to their highest capacities. It is staggering to think about the resources of knowledge, wisdom, and patience needed to answer truthfully and effectively, hour after hour, and day after day, the steady flow of questions which pours forth from little children. Any teacher can testify to the value of a home where books are read and issues discussed, where there is a love of music and the arts. How much value do we place on this use of education?

Mirra Komarovsky quotes the dilemma of a young mother who, having moved into an apartment with a coal stove, immediately baked a cake to please the children: "My family liked it, so I

baked another. They were less enthusiastic, so I baked a pie. My child asked, 'Why don't we have prunes and Jell-o, and what is an amoeba?' "

On the other hand, I am not so sure that we are doing a good job of educating women in home management and in the arts and ways of caring for children. These subjects do not seem to find a place in most educators' curricular discussions, but they are central to a woman's happiness. I suspect that many college-educated women feel uncomfortable in the household routine, not only because we fail to give it the dignity it deserves but because they have never mastered the basic skills that give a sense of pride in the work. Organization of time, so necessary to a successful college career, is even more essential for the well-being of a young mother. Mastery of household skills, wise use of time, and a comfortable attitude toward homemaking can give a woman the extra time she needs for intellectual pleasures when she is housebound.

No woman thinks it is humiliating to go to a driving school when she knows that she will spend a large portion of her time behind a wheel. The need for this training is taken as a matter of course. We need to think more about the kind of education or training needed for homemaking. Should the same education be given to all social and economic groups? Should it be given in school to young people and again later as on-the-job training? There are many techniques for experimentation—educational television; a service (like the agricultural extension service) for urban and suburban women; and "clinics" for health education, nutrition, baby care, and efficient home management.

Educated women in the labor market

We know that a growing number of married women will divide their time between home and a job. We have approximately 24 million working women in our labor force; 13.25 million are married. In fact, a third of all married American women hold jobs. Estimates show that by 1970, two out of every five women of working age will be in the labor force. (See Table 2.) The expected 18 to 20 million wives at work in 1970 may still be in the minority, but their contribution and their problems will have a real impact upon our society.

TABLE 2: PERCENTAGE OF WOMEN IN THE LABOR FORCE, BY AGE GROUP, 1960 AND 1970

Age Group	1960	1970
18–19	50.9	43.6*
20–24	46.0	45.2*
25_34 †	35.9	38.9
35–44*	43.2	47.0
45–54	49.4	54.5
55–64	36.8	43.0
65 and over	10.5	12.2

* Decline due to girls' staying in school longer.
† This age group supplies lowest proportion of women workers because of responsibilities at home.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

We can expect married women to return to the work force when family responsibilities permit. It is estimated that by 1970 over half the women in the 45–54 year age group will work, and almost half of those in the 35–44 year group. Three million mature women are expected to enter or re-enter labor force in the 1960's. This trend is not limited to the United States. In a recent Progress Report of the 16th Session of the United Nations Commission on the Status of Women, the United Kingdom, Australia, and other nations reported that increasing percentages of women enter paid employment as soon as their children no longer require their full attention at home.

There is a definite correlation between the amount of education a woman has and the likelihood that she will hold a paid job. A 1959 study showed that half of the women college graduates held jobs, in contrast with two-fifths of the high school graduates and one-third of those who did not go beyond elementary school. These figures remain firm today despite the fact that the probability of a woman's working is shown to decline as her husband's income rises.

We also know that the greatest increase in job opportunities will be found in occupations that require the most education. The rate of growth of the professional and technical group will be twice that of the labor force as a whole—over 40 percent in the next ten years. This will mean a rise from about 7.5 million to 10 million. Specifically, the engineers, scientists, technicians,

teachers, and medical and health specialists will increase the most rapidly. (See Tables 3 and 4.)

TABLE 3: ESTIMATED PERCENTAGE CHANGES IN LABOR FORCE REQUIREMENTS, 1960–70, AND EDUCATION OF WORKERS IN 1959, BY OCCUPATION

Occupation	Percent Change, 1960–70	Average Years of School Completed (1959)
Professional and technical	41	16.2
Proprietors and managers	24	12.4
Clerical and sales	27	12.5
Skilled	24	11.0
Semiskilled	18	9.9
Service	25	9.7
Unskilled	0	8.6

Source: *Occupational Outlook Handbook*, 1961 edition, U.S. Department of Labor, Bureau of Labor Statistics (Washington: Government Printing Office, 1961).

TABLE 4: LABOR FORCE IN PROFESSIONAL AND RELATED OCCUPATIONAL GROUPS, 1960

Professional and Related Occupational Groups	Number (thousands)
Teaching: total	*1,775*
Elementary	1,000
Secondary	600
College	175
Scientific and technical: total	*1,860*
Engineers	850
Technicians and draftsmen	675
Scientists	335
Health: total	*1,629*
Nurses	504
Physicians	235
Pharmacists	117
Dentists	93
Health technicians	330
Others	350
Other professional and related: total	*2,160*
Accountants	400
Clergymen	250
Lawyers	230
Musicians, music teachers	175
Social workers	105
Others	1,000

Source: *The Manpower Challenge of the 1960's*, U.S. Department of Labor (Washington: Government Printing Office).

Our growing population and our growing numbers of students through the college level means that our need for teachers is climbing too. Over 200,000 new teachers will be needed each year during the 1960's. (See Table 5.) Almost all elementary school teachers are women, and half of our secondary school teachers are women. A growing demand for teachers comes from qualitative changes in our educational system and changes caused by improvements in teaching methods and in curriculum as well as from population increase.

Research and development work in the areas of atomic power, aerospace, and electronics will create many new jobs for physicists, chemists, engineers, mathematicians, statisticians, and for a vast army of technical assistants. Women now represent about one in seven scientists, less than one percent of the engineers, and a small, but unknown, percentage of the technicians. All of these jobs need specialized training, and many require an intensive academic background. Employers have found women more than adequately able in these jobs, and they are beginning actively to recruit them. Medical and health services are increasing in type and number. How familiar we are with the shortage of doctors and nurses. Important research being done on the causes of disease, the prevention of illness, the effects of radiation, and the

TABLE 5: ESTIMATED NEED FOR TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS, 1960–69

(In Thousands)

YEAR	ELEMENTARY			SECONDARY		
	Replacements	New Positions	Total	Replacements	New Positions	Total
1960	88.8	19.0	107.8	52.1	40.0	92.1
1961	90.9	21.0	111.9	56.5	32.0	88.5
1962	93.2	11.0	104.2	60.0	29.0	89.0
1963	94.4	18.0	112.4	63.1	33.0	96.1
1964	96.4	16.0	112.4	66.7	36.0	102.7
1965	98.1	17.0	115.1	70.6	35.0	105.6
1966	100.0	14.0	114.0	74.4	00.0	74.4
1967	101.5	13.0	114.5	74.4	11.0	85.4
1968	102.9	11.0	113.9	75.6	15.0	90.6
1969	104.1	12.0	116:1	77.3	16.0	93.3

Source: U.S. Department of Labor, Bureau of Labor Statistics.

role of nutrition means an expansion in the numbers of trained workers needed.

It is impossible to predict accurately what specific skills and talents will be most needed in the future. Our young people must be prepared for work that does not yet exist and for a life that we can only imagine. The complex nature of jobs will place new emphasis on the quality of work; the demand will be greatest for those with the education and training that fits them to handle such jobs.

Educated women as volunteers

Not all jobs that need doing are in the labor market as such, and the majority of married women do not seek paid employment. For many women the greatest contribution they can make to society and the best outlet for their education and energy is in volunteer work. As income levels rise, many more women will be released for voluntary service.

There are many unmet and urgent needs in the traditional health and welfare area which might be met, at least in part, by the wise use of volunteers. One area which particularly needs exploration is the use of volunteers in growing public agencies. New large areas of need are being recognized which new or existing voluntary agencies might help to meet. There are many fruitful areas for experimentation. Even modest programs which could not be undertaken except by voluntary groups can lead to successful social effort. There are many relatively uncharted areas where experimentation might prove valuable—for example, after-school centers for the cultural enrichment and occupation of teen-agers, community health education and information, counseling and employment services for older persons, training and retraining programs, aids to homemakers and older persons, and care of children. Some volunteer jobs are relatively simple—in Sweden, volunteers visit and help care for six aged people a day. Some jobs require great talent and training—the use of art as therapy for disturbed children. In addition to the development of imaginative new services to meet the critical community needs of which we are aware, we need to think of services which will serve to identify changing needs and to channel volunteers to

immediately critical areas. What kinds of "clearing houses" now exist?

The volunteer should not be confused with the amateur. Well-planned volunteer work requires the full use of a woman's talents and abilities. It should draw upon her prior training and experience and offer new training, when needed, for the type of work that will be satisfying to her and useful to the community. We need more rigorous training programs for volunteers. What are the possibilities for cooperation between voluntary agencies and universities? Would it be possible to have programs of "career planning" for volunteers which would involve supervision and the keeping of personnel records that could be used later by other volunteer agencies, other communities, or by paying employers? Can a career planning program move volunteers into more responsible jobs as they acquire training and experience? Such volunteer work, which may indeed be interchangeable with paid work, should attract the most capable volunteer and at the same time provide part-time training and experience for the homemaker who needs to acquire or maintain her skills for the future.

In some professions volunteer activity is an integral part of the work experience. Doctors serve in clinics and lawyers in legal aid and voluntary defender organizations. Would not more rigorous training and career planning also elevate the status of the volunteer and thus attract more women of education, ability, and financial security to needed community service?

The need for guidance and training

We are beginning to examine the kinds of service and the kinds of education which will bring together the unused talent and the need for that talent. This conference is a reassuring example of the attention that is needed. It is going to be an enormous task. There will be no solution without skilled guidance for women—beginning early in life and continuing throughout. Our counseling programs must be brought in line with realities. Heretofore, school counselors often have been deterred in their counseling by the attitude of employers who restrict vocational opportunities for women and by negative public and personal attitudes toward

their employment. Nevertheless, we find women serving in almost every trade, occupation, and profession. Counseling as well as training courses for girls should be planned realistically, taking into account the fact that most girls will work at some time in their lives, that most will also marry and have children, and that they need help, encouragement, and training to prepare them for combining these experiences in a practical time sequence.

Guidance is more than information about the increasing pattern of re-entry into the labor market after children are grown. We should not wait until the woman is thirty-five with three children in school before telling her what the future holds. The Women's Bureau study, *Fifteen Years After College: A Study of Alumnae of the Class of 1945,* has already uncovered widespread dissatisfaction with the extent and timing of guidance services. Early guidance and an understanding of the married woman's life pattern can point to areas which are flexible and to ways in which professional skills can be kept alive during the years at home. But very often a woman's interests may change. Margaret Rioch says in describing her program of training housewives to be mental health therapists: "Women who manage families and raise children have to be concerned with people, their development and their problems. Many women emerge from this training ground in interpersonal relations with considerable skill in deciphering unspoken messages, in handling tensions, and in helping people to develop their potentials."

Effective guidance can lead women into the kind of retraining and continuing education program represented by the Minnesota Plan, by The Center for Continuing Education of Sarah Lawrence, and the Radcliffe Institute for Independent Study. Guidance plays a part in all of these plans. In some, the heart of the plan is guidance toward effective use of the educational and training resources already plentifully available in the metropolitan area.

The keynote of all these centers is experimentation and variety. This is important since we are only at the threshold of the effort to reap the dividend on our investment in women's education. Some institutes stress job training. At Northeastern University, the director spent hundreds of hours canvassing businesses in the Boston vicinity to find out what their needs were and in the

process helped educate them to the possibilities for flexible work schedules for well-trained women.

Continuing education is not only for the liberal arts major who has had a college education and wants to apply it. Many young girls graduate from high school, get married, and raise their families. What do we offer them when they have free time on their hands? The high school graduate can aspire to something more than a job in a laundry or on an assembly line. And in any event automation is going to eliminate many of these jobs.

The Federal Government has recognized some of these needs. The preamble to the Manpower Development and Training Act of 1962 states:

> The Congress finds that there is critical need for more and better trained personnel in many vital occupational categories, including professional, scientific, technical, and apprenticeable categories; that even in periods of high unemployment, many employment opportunities remain unfilled because of the shortage of qualified personnel; and that it is in the national interest that current and prospective manpower shortages be identified and that persons who can be qualified for these positions through education and training be sought out and trained, in order that the Nation may meet the staffing requirements of the struggle for freedom.

Women who undertake demanding education or new training for a job must be assured of equal opportunity and equal pay for work they do. Despite the increasing participation of women workers and the widening range of occupations in which they work, the majority of women are still in relatively few occupations; and the gap between the average earnings of men and women is widening. We are hopeful that the enactment and enforcement of Federal legislation, with its educational impetus, will remedy this situation.

For many women, higher education does not look toward a goal other than personal enrichment, and this is very important too. For many women, their first opportunity to go to college comes in the period of quiet when the children are grown. This is the time to survey the doors that can be opened. We need a

great deal of experimentation in order to open the doors of higher education to mature women.

Traditionally women are geographically trapped. Married women must be able to commute to the place of study. The community college will have a growing importance both for mature women students and teachers. We can look with great interest upon experiments in extension courses. The Department of Agriculture has well developed techniques that can serve as guides for different types of programs. We welcome the experiment in a national testing service undertaken by the University of Chicago that will provide an objective standard for the success of home study and freer transfer of credits.

Conclusion

The needs of women and the needs of our society are not in opposition—quite the contrary. The need for the educated woman is acute; her need to contribute is strong. The opportunities are there; often they are subtle. Because of her special life pattern, because so often she is not the chief wage earner of the family, she can see the undefined job—the job that is not classified but that needs doing—and she can go out and do it. A society as rich as ours can afford to shape its demands in a way which takes account of her special needs. The Commission on the Status of Women, the Women's Bureau, the centers for continuing education, universities, the many articulate scholars and writers have all contributed to a climate of concern about the American woman. In all of this discussion we should keep in mind the goal that all people may enjoy richer more satisfying lives. This can be achieved if we develop and use the talent which is so abundant in our society.

REMARKS IN ELABORATION OF WORKING PAPER

MRS. PETERSON: I am going to make just a few observations because we are short of time, and then I hope that we can begin the discussion. I think the needs of society and the needs of

women are interwoven and intermixed. They are the needs of both. To see the needs of society, you have only to look around your community. I don't think you even have to read. You have to be sensitive, and you have to open your eyes and feel and see. There is no need for me to list these needs because you all know them. They are limitless—absolutely limitless. If there has ever been a time when we need the imagination, intelligence, and integrity of all of our people, it's now. I am not a psychiatrist; I am not a sociologist. But I do have the opportunity to see our needs and to participate in a society that is quite wonderful in the democratic way it tries to meet these needs. There is no easy answer. The problems are complex; the answers are many and complex. And I felt today we were dividing things up too much. They are not divided. The spectrum between man and woman *is* a spectrum, and the differential in sex is a spectrum. So the needs are there, and some people, such as Dr. Wilson in his welcoming speech, felt the needs of society were definite but that the needs of the woman were not as great. I think that the needs of the woman are much greater, and I have much personal experience to illustrate this, as well as letters that come to us and studies and inquiries that we make.

The need for skilled workers, for example, is very great. Whenever I visit a community, I spend some time, usually early in the morning, in the employment office. There I always find the unskilled group—large numbers of women who have to work and who have left school early. The proportion reads like a graph. In the part of the employment office where the unskilled jobs are being filled, the benches are full. I used to interview a sampling of these people, and in that sampling I found economic need first. I found lack of education second. And I found lack of training third. In the section where the semiskilled jobs are being filled, the benches are a little less crowded. In the skilled section, there is almost no one sitting on the benches. They don't even have to come in; they telephone. And of the professionals, the employers are there saying, "Please, send us the people." This is, I think, the situation in our society that we educators have to look at.

We had an amusing experience the other day when I was in

one of the employment offices. An employer called, stating his need for a mathematical computer. The interviewer, who took the call at the employment office, said, "Well, I have a person here that has just come in . . . a graduate with the following experience . . . ." The man said, "Oh, send him over immediately." The interviewer said, "It isn't a him, it's a her." And he said, "Oh, I don't know. Will this work?" She replied, "That is up to you." He was so desperate that he said, "Well, let me try." He did try, and when I called him back, he said, "She is superb. Please send me some more like her." Another employer called and said, "I need a man for something—or a good woman." So we have all these situations. It is important for us to recognize the reality of these grave needs, and we need the imagination of people and the willingness to experiment in new ways and in new directions to find new answers to these problems.

Last, I want you to know how strongly I feel about the importance of the small percent of women—the educated woman—that we're talking about. They provide the climate of opinion that makes possible the formation of ideas in our country. This cannot be underestimated. Their intelligent participation in the communities is one of the greatest needs that we have. To me it is a matter of social engineering. There are no built-in answers to the problem of automation or to our other problems. Their solution is going to take thinking and political awareness. How do we find, under our democratic system, the way to solve these problems? For example, let's take the temporary unemployment insurance bill. This bill—to help meet the problem of our economy today, to allow extended benefits to persons who have exhausted their benefits and cannot find work but who are looking for work—was defeated. The biggest argument against the bill that was used in the Ways and Means Committee was that a large number of persons who would qualify are women whom they term marginal employees or marginal workers and, therefore, not deserving and not needy. Now, here are two fallacies. In the first place, unemployment insurance is not based on need; it is based on one's attachment to the labor force. Second, the women who do qualify are not marginal workers. They are

heads of families. They are women who are working to support themselves. They are not working for pin money. They are working for the same reasons that other people work all the time.

We must pinpoint these myths around us, I was called to the telephone this morning because I am working very hard on an equal pay bill in Congress which would say that a job is paid a certain amount regardless of who performs it. This would eliminate the situation where a man is paid more for performing a job than a woman performing the identical job. They telephoned me from the committee, asking if I would accept an amendment granting an additional allowance for the amount that it costs to employ a woman. Now, here I am faced with a policy decision based on a myth—on a myth about the value of women and how they work that is prevalent throughout our society. I thought immediately of the woman who came to me and said, "I have three children. I am a widow. I work in a bank. I get $15 a week less than a man right next to me who does identical work, although he has a wife working full time." You see, it is a myth that women cost more to employ.

Let's have research to investigate these myths thoroughly. We do not have all the facts. We find that there are individual differences with regard to matters such as absenteeism. All of these things depend on the person, but we have no evidence to show they are related to sex. I have studied myths associated with women who work in other countries and have found the same misconceptions. I'm thinking of one study that was done in Sweden on the effect on children of the employment of their mothers. It was found that the children of women who worked because of choice—who wanted to work—had the highest academic standing in the schools. The children who came from mothers who had to work because of economic necessity—who didn't want to work—had the lowest rate. So actually many possibilities exist, and I would appeal to you to tackle the problems on a realistic basis. Although educated women may constitute a small percent of the labor force, they play an essential role because they are the ones who will help determine the direction that our democracy will go.

DISCUSSION

MR. MCMAHON: I would like to comment on a couple of myths that I think appear in your paper. I say this not to quibble with you but to keep the record straight because you seem to feel that certain opportunities are not available to women which some of us think are. For example, you say, "For many women, their first opportunity to go to college comes in the period of quiet when the children are grown." Obviously there is no home responsibility of a child-caring nature at that point so you say we need experimentation to open the doors of higher education for mature women. I would like to point out that 145 evening colleges belong to the Association of University Evening Colleges. So from coast to coast there are places where these mature women can go to get higher education.

MRS. PETERSON: That is true, but 145 is a very small number when you consider the large number of cities without evening colleges.

MR. MCMAHON: Well, let us look at this factually because in the following paragraph you say that women are trapped geographically. Now we expect men to commute as many as forty to sixty miles to go to evening colleges. In my opinion, the man who works is just as trapped geographically as a woman. Let us grant that a woman should not drive in snow and ice for sixty miles. Maybe this is the difference for which there should be protection, but, nevertheless, my point is that there are many opportunities which exist that are overlooked in considering this problem. Second, I don't think a woman is more trapped geographically because of being married than is the man who is pinned to a job and a home.

MRS. PETERSON: I think she is more trapped geographically because of home responsibilities in her dual role.

MRS. ANTONIA CHAYES (Executive Secretary for the Committee on Education of the President's Commission on the Status of Women): I would like to answer further and say that when the children are grown and the husbands are at work all day, the daytime is a woman's free time. There may be 145 evening

colleges, but I think there are not enough available even though the possibility of part-time college and graduate school education exists for some. I think the experiments at the University of Minnesota and at Sarah Lawrence show that the need is far greater than the supply. I don't think anyone could say that there are as many opportunities now as there could be.

CONFEREE: May I describe a woman I know—the woman of the future. She is an electronic physicist. She is employed by Sylvania, and when she had her first child, the personnel man suggested that she work part time. When the child was about a year old, she hired a good housekeeper and went back to work. Her pay was prorated, and she resumed her full-time research. She followed this pattern for three children.

MRS. PETERSON: This is possible and represents the kind of new thinking that we need. Another possibility is that of extending the working day beyond the normal nine to five. Some insurance companies have begun what they call a mother shift. Women who cannot work during the day because of small children work an evening shift that begins between six and seven and ends between ten and eleven. A number of manufacturers who are in need of certain types of skilled women are experimenting with this plan. Again I think we need to think constructively about new plans and face the fact that the old patterns have to give way.

MODERATOR: MISS MARY DONLON (Judge, United States Customs Court) : I am sorry to report that Mrs. Peterson must leave to catch a plane. Questions should be directed to the panel composed of Mrs. Antonia Chayes, executive secretary of the Committee on Education of the President's Commission on the Status of Women, and Miss Jean Wells, chief of the Branch of Labor Force Research, Women's Bureau.

MISS FLORENCE ANDERSON (Secretary of the Carnegie Corporation and of the Carnegie Foundation for the Advancement of Teaching) : I would like to ask what studies have been made on part-time work for women? Do you have any quantitative studies?

PANEL MEMBER: We put out a report recently that was based on census material and supplemented it with some studies of

pertinent industry associations, manufacturers, and the like. We found that approximately one-third of the women in the labor force have part-time jobs, one-third have full-time jobs for the full year, and one-third work part of the year at full-time jobs. Therefore, only about one-third of the 24 million women in the labor force have jobs like men.

CONFEREE: Did you find any difference in the level of education between women holding part-time jobs and those holding full-time jobs?

PANEL MEMBER: My impression is that the education level of those working part-time is not very different from the education level of women in the labor force generally, where approximately 8 percent have a college degree. We found that the demand for women with professional training is great, and the supply is small. We receive a tremendous number of inquiries from women who say they wish that they could pursue their respective careers on a part-time basis. Working part time can be difficult, but these women could manage if they had more understanding from the employers. We in the Government say it is our policy to give women opportunities for part-time work, but when it comes to the actual fact, part-time work seems difficult to arrange. There is a book about part-time employment opportunities, however, that I think is still in manuscript form and will soon be published by Doubleday.

MRS. MARGARET HICKEY (Member, President's Commission on Status of Women and Chairman of its Committee on Federal Employment Policies and Practices): It seems to me that we have a very real need to explore the problems of the educated woman with regard to society's need for her educational qualifications and the opportunities open to her. What are the demands for educated women? Are there projections that call for more educated women with graduate degrees to meet new needs?

PANEL MEMBER: As we go over the list of occupations we find nothing that women aren't going to be needed for. Just as there is a tremendous demand for teachers, so there are demands for nurses, for social workers, for all the health occupations, for librarians, for everything. The advice that we give to women who write in and ask questions like yours is that they should

consider the entire gamut of available occupations and try to find out what is compatible with their temperament, abilities, and interests and then get the training necessary for that occupation. They are going to be needed in just about any field they choose, and the more education they have and the more they know about their field, the more they will be used and the happier they will be.

The College and the Continuing Education of Women

Gordon W. Blackwell
President, Florida State University

THE SUBJECT OF "WOMAN" has eternally been a fascinating field of research for man, but unfortunately his scholarly efforts in this area have not been as distinguished as in others. Great have been his accomplishments in scholarly and scientific research, but the nature of woman leaves him confused and uncertain. He surveys the field, collects material, analyzes the data—and then usually reduces his subject to an object for deeper research. He pursues his study and finally decides with supreme assurance that he now knows all that can be known of "woman." And then he finds in his hands an enigma, a dynamic force which defies cataloguing and precise knowledge and leaves him wondering if this is not one natural phenomenon which will forever escape his control. Man's only consolation in such a dilemma is the realization that intuitive knowledge is often more rewarding and exhilarating than precise knowledge which has been proved and reduced to formula. If I might resort to poetic license, I would like to make a slight change in Sophocles' eulogy of man in his *Antigone:* "Wonders are many, and none is more wonderful than woman." Which brings me, in my own fashion, to the education of women.

Higher education for women is a comparatively new phenomenon in America. As we all know, the first woman was admitted to an institution of higher learning at Oberlin College in 1837, and in the intervening 125 years women have made remarkable and miraculous use of the opportunities for which they fought so valiantly. It was natural that the pioneers in this movement—the first women to attend college and the many fine women's colleges which came into existence in the East and South—would establish for women the right to pursue the same curricula as

pursued by men to prove that women had the toughness of mind and the intellectual capacity to master any academic discipline. This battle has long since been won by women; the frontier of education for women has been conquered. We have reached a point where Ashley Montagu, a noted social anthropologist, has had the audacity and the courage to publish a treatise entitled *The Natural Superiority of Women,* which has been reluctantly accepted as truth by men as well as women! We are, therefore, now able to move from the proving ground to the experimental in the field of education for women and to examine without emotionalism the possibility that women may have peculiar needs which could demand, in part at least, a different kind—though not a different quality—of education from that required for men.

As we discuss the continuing education of women, let us note a position stated by John Gardner: "Our educational purposes must be seen in the broader framework of our convictions concerning the worth of the individual and the importance of individual fulfillment . . . what we must reach for is a conception of perpetual self-discovery, perpetual reshaping to realize one's goals, to realize one's best self, to be the person one could be."[1] When we give special attention to the continuing education of women, I suppose in the words of Gardner we are assuming that the process of "perpetual self-discovery, perpetual reshaping to realize one's goals, to realize one's best self, to be the person one could be" is different in some ways for women than for men in American society. Furthermore, certain of these sex differences account for the several types of adult women for whom we should provide continuing educational opportunities. Since the average age of marriage for women is now twenty and since the woman more frequently than the man drops out of education when marriage occurs, there are many women of intellectual ability whose college education was interrupted by marriage or who did not go to college at all. After leaving college some women begin a career only to interrupt it for marriage and child rearing. Many are now ready to return to gainful employment. Others have gone into marriage and child rearing immediately

[1] John W. Gardner, "The Servant of All Our Purposes" (New York: Carnegie Corporation of New York, 1959), pp. 1–2.

after high school but now desire to enter a career for the first time. Still others have had no work experience and do not desire a career because of personal inclination or a secure economic situation; for these, opportunities for liberal studies constitute their continuing educational need.

So much, then, for an introduction to the problem. My paper has two main parts. First I feel it necessary to say something about the education of college women because of the potential significance of these experiences for continuing education after the college years. Then I shall address myself to possibilities and problems facing the college in the continuing education of adult women.

Experiences in the college years

The counseling they receive in college directly affects the education of women after they leave the campus. (I might add that counseling in high school is also extremely important in this respect.) Adequate counseling should help the young woman come to understand the nature of life patterns and roles which lie ahead of her, the social stereotypes relative to women which are part of American culture and society, and the career opportunities which will be open to her. The young woman needs help in considering the next twenty to forty years so that she can more clearly perceive what the future may hold. For example, she should hear discussion of alternate patterns of study, marriage, and careers. She should see the possible variations for a girl of her age and with her particular intellectual capacities and career interests who wants a home and children. There are many alternatives. She could complete her college degree, work for a few years, marry and have children, then later return to study through refresher programs in a college (perhaps by television or programmed home learning), and eventually engage in her chosen profession for another twenty to twenty-five years. Or she could leave college after two years, marry and rear children, then return to complete a college education (again possible through TV, home study, and some resident work), and finally enter upon her career. And, of course, there could be several variations of these patterns.

Discussing these sorts of life patterns with professional counselors, the woman college student can be prepared more intelligently and more realistically to make decisions at certain choice points which lie ahead for her. Such counseling should impress upon the student the importance of developing her intellectual and creative talents to the utmost, first for the benefit of an increasingly complex society and its demand for responsible citizens and competent workers, both technical and professional, and second for her own personal fulfillment. Directing attention of the student to women members of the faculty as role models can be helpful in this connection. Also the intellectually superior women students (as well as the men) should be encouraged in the freshman year to begin to give serious thought to future graduate study and college teaching as a career.

Furthermore, the student should come to understand and develop a commitment to the idea that education must be a continuing process, something like a bus trip on which one may get off at any stop or continue to the end of the line. The rewards and satisfactions, both personal and monetary, in continuing one's education should be made clear.

But if we stop with providing specialized counseling for college women, we shall have missed several other opportunities. What we must do for the undergraduate woman student is to augment her educational opportunities on the campus and begin to build an intellectual bridge between the undergraduate years and later opportunity for continuing education. A first step should be to remove any barriers which may exist to the most effective possible undergraduate education of women. For example, scholarly achievement by women should be given a place of prestige in the culture of the student body. Special awards and recognitions may be offered for women students as one means of achieving this goal.

Our young people are among the most mobile group in the most mobile population of the world. The wife who married young and whose husband's work requires frequent moves often finds it necessary to study at several colleges before completing a degree. Discussions with student wives reveal the need for greater flexibility in the acceptance of transfer credits toward require-

ments of a college degree. In this connection some method of testing achievement in college work, particularly at the end of the sophomore year, is urgently needed, and it is encouraging that the Educational Testing Service is well along in the development of such an instrument. The time may come when we will have sufficient confidence in standardized testing to assign as much weight to these test scores as to the accumulation of formal course credits which often are difficult to evaluate. Such test data, incidentally, would help in decisions concerning the admission of women transfer students.

There are, of course, certain educational programs which are especially suited to women because certain occupations are differentially open to them. Furthermore, some educators maintain that a special kind of orientation course for women is needed in college, perhaps one focusing upon the life patterns of women in American society. Such a course with academically respectable content can be developed as more and more research is becoming available on these matters. There is a danger, however, that a course designed especially for women may be superficial. In fact, I know of such a required course which is little more than a how-to-do-it discussion of feminine charm, yet academic credit is given.

Finally, I would emphasize the importance of the alumni office in its contacts with students during their senior year. This is the time for the college to make a proper beginning in a continuing relationship with alumni and alumnae on an intellectual basis. Some colleges have found it effective to have a faculty-administration committee to focus attention on the education of women and to stimulate further efforts to provide maximum opportunities for women within the institution.

Educational counseling centers for women

Having discussed the responsibilities of the college (and I include the university as well) for making their undergraduate women students ready for continuing education, we turn now to a consideration of problems and possibilities in providing continuing educational opportunities for them. Here there is a clear need for educational counseling centers for women. There

are few places where women of thirty or forty or even fifty years of age can go for diagnosis of their intellectual potential, evaluation of their prior education, and review of their work experience, with subsequent counseling as to next steps in both education and career. Many of these women were in high school or college before Pearl Harbor, before atomic energy was harnessed, before man ventured into space. They find themselves in a different social environment in which opportunities for women have greatly expanded. With children in school or college and with the freedom from household chores provided by modern technology, they frequently feel a growing restlessness and antipathy toward mental and physical inactivity. They see about them evidences of an increasing acceptability of women in a wide variety of working roles. Their husbands, as well as their employers and other men in society, show signs of accepting this new role of women, and, in fact, frequently are anxious to accept them in partnership in other than home and family concerns. Furthermore, the chances are that they will outlive their husbands.

In the face of these aspects of modern society, women with more and more time on their hands are often anxious to seek new modes of personal development and social contribution. Inquiries made daily at colleges and universities, the popularity of adult education courses, the continuing invasion of the job market—all these attest the need of women to find ways of becoming and remaining genuinely active and productive. Whether for personal satisfaction, for enhancing employability and productive potential, or for learning to fill better a voluntary community leadership role, many women have revealed that they see a first step toward self-fulfillment in a return to education.

Adult women will bring these kinds of questions to an educational counseling center: What is my intellectual aptitude or potential? What professional or technical work should I prepare for? Based on the education I have had, what kind of educational program do I now need? What kind of general or liberal courses should I take to be intellectually and culturally alive? From what institution can I get the required educational program and through what medium—resident study for one or more years, occasional resident courses, resident summer session, correspond-

ence courses, television courses, or programmed learning in the home?

These inquiries about continuing education, however, also reveal a number of problems. The need for some intellectual exercise manifests itself, it would seem, as a vague but persistent uneasiness; pathways for easement are not so well traveled that the woman can easily examine a number of routes, determine where they might lead, and carry through on a choice to follow one or another. In other words, the trails are not so well blazed that they may be followed by many without a guide.

It is also apparent that further formal college course work, though sometimes available in evening colleges, is too often tailored to the needs and patterns of younger persons. The college, busy finding places and faculty for its expanding enrollment, generally has been a poor resource for aiding the older woman. Should the college give wide publicity to the courses likely to appeal to her, she would still be reluctant to return to the classroom. Her hesitancy points to the need for facilities to evaluate academic ability, for good descriptions of available educational opportunities, and for information concerning the levels of competitiveness in academic courses.

Because the man has been the usual breadwinner, educational guidance research and practices have been developed from a largely masculine point of view. Although one may find guidance agencies for other special groups, such as the aged, the handicapped, or racial groups, counseling or guidance agencies set up exclusively for women are rare. Because of heavy male case loads, the existing agencies have had little time to devote to the specialized educational guidance problems of women, despite the unique needs to be served. There are challenging guidance problems arising out of the particular roles of women in culture, attitudinal barriers to their employment in certain fields, and the general question of the productive utilization of education by women.

Guidance research should undertake the development of diagnostic devices specifically designed for adult women. With such instruments available, considerable research will be required to provide valid norms and other reliable bases for effective

counseling. Furthermore, a concerted effort should be made to recruit and train middle-aged women counselors, since such individuals may be able to relate more directly to the needs and problems of these clients.

Since educational choices are frequently determined by vocational problems, the educational counseling center should also be equipped to provide help to the counselees in relating possible educational programs to their vocational needs. The center would not serve as a job placement agency, however, except as problems in these areas relate to educational decisions. Neither would its function include personal counseling or therapy.

A secondary but important function of such a center would be to discover and develop opportunities for continuing education within existing institutions which might be profitably opened to women and to ascertain the value and suitability of such programs for adult women. Follow-up studies of persons placed in various educational programs would be conducted as a guide for the counselor and counselee. Such educational counseling centers for women would help salvage considerable intellectual potential among women and channel it into helpful lines of development.

Problems and possibilities in the continuing education of women

We turn now to consideration of what the college can do directly to meet the educational needs of adult women. One immediately encounters a number of roadblocks.

First, there is the matter of policy relative to admission of adult women students. Some college trustees and administrators seem to have a built-in adolescent bias and a corollary prejudice against mixing adults with regular students of so-called college age. In some instances there are unfavorable faculty attitudes toward adult women as students. When the woman who has not attended college for a number of years applies for admission, there are difficulties in determining the current adequacy of her previous work, whether for credit toward an undergraduate degree or for fulfilling the prerequisites for graduate study.

Then there is the problem of scheduling classes for the convenience of women with household responsibilities. As institutions begin to schedule classes throughout the day and into the evenings, this difficulty is minimized. Furthermore, academic attitudes toward degree credit for correspondence study, television courses, and programmed learning in home study must be kept flexible, and experimentation along these lines should be encouraged.

As to curriculum, again we say that most of the continuing educational programs and course work should probably be the same for women as for men. For example, several institutions now offer bachelor's or master's programs in general studies to meet adult interests in liberal education rather than in specific career preparation. But there are certain programs, such as nursing and home economics, which have special appeal for women. Furthermore, good results have been obtained in several programs designed to prepare adult women for teaching mathematics.

Many universities have a firm commitment to extend instructional services beyond the campus. Aside from the national home demonstration extension program, not much has been done that is pointed directly toward the educational needs of women. General extension is one of the largest areas of opportunity still to be developed in the continuing education of women. Imagination is needed for the development of new kinds of university organization which will no longer make extension a function viewed as somewhat apart from the other functions of the university. We need new kinds of administrative machinery to integrate the continuing education function with regular on-campus teaching and research. Rather than weakening or diluting these basic functions of a university, I believe that relating the research and teaching faculty to problems and activities in continuing education can have beneficial results.

I have already noted that the alumni office, working closely with academic departments, has an opportunity and a responsibility to develop and maintain continuing contacts of an intellectual sort with the alumni and alumnae. While the first response may come from former students with marked intellectual ability, I would hope that increasingly all alumni would be involved.

Articles of intellectual import should be carried by the alumni magazine, and alumni offices can provide annual reading lists. Though most suggested readings would be the same for men as for women, some lists specifically for women would be helpful. Faculty lectures at homecoming and other alumni meetings are becoming common.

Again, the idea of alumni or alumnae seminars for a long week end or even for a week or two is catching hold. At the Woman's College of the University of North Carolina we invited fifty graduates of the past ten years who had made good academic records to return to the campus for a two-and-a-half day alumnae seminar on modern philosophies. The response was enthusiastic with more than thirty attending, some from as far away as eight hundred miles. A number brought their husbands who participated fully. The reaction was universally favorable; some of the women emphasized that this was the kind of relationship which the college should establish with its alumnae. Incidentally, contributions to the alumnae fund from this particular group increased many-fold! Alumnae programs such as this are particularly important because they provide for women some of the opportunities in liberal adult education that business and industry are making available to management personnel but which in effect are primarily for men. Moreover, the alumnae seminars may focus on topics of special concern for women. The pioneering work of Vassar College in this kind of continuing education has demonstrated these points.

Assistance from outside the college or university

I would like further to suggest that there are ways through which colleges can be aided in expanding the continuing educational opportunities for women. I have two examples, one at the state-wide level and one for coordination and stimulation nationally.

In a number of states, efforts to coordinate higher education on a state-wide basis present new and unique opportunities in continuing education.[2] For example, in Michigan and Ohio, public

[2] See T. R. McConnell, *A General Pattern for American Public Higher Education* (New York: McGraw-Hill Book Co., 1962), chap. viii.

and private institutions of higher education through voluntary cooperation have developed a master plan for higher education in the state. In still other states, such as California, Florida, New Mexico, New York, and Texas, there is official coordinating machinery for the state-supported institutions. A master plan for state-supported higher education has already been blueprinted in California and New York. Florida is currently engaged in a role and scope study which will result in an allocation of functions to the several state universities. In each of these state-wide efforts continuing education is given consideration, but it is doubtful that particular attention has been devoted to the educational needs of adult women.

Particular note should be made of the recent establishment of the Florida Institute for Continuing University Studies. This new agency has a director with the status of a university president. The institute serves as the system-wide agency through which the state universities extend their programs and services to off-campus locations. Voluntary cooperation with private colleges is anticipated. If the institute and one or more of the state universities in Florida should decide that special attention must be given to the educational needs of adult women, administrative machinery is available to attack this program imaginatively on a state-wide basis. It may be noted that California and Oregon also have a state-wide structure for coordination of general extension, though with what appears to be less centralization of authority and administration than is the pattern in Florida.

At the national level, the American Council on Education, through its Commission on the Education of Women, showed what can be accomplished with minimum financing in the coordination and stimulation of efforts to extend and improve the education of women, including continuing education. The commission provided a national focus of interest on this segment of higher education. Through an effective newsletter, which is now published by the American Association of University Women, a clearinghouse function was established. My own experience in two institutions has indicated that there is considerable administrative and faculty interest in this newsletter. The commission planned and conducted several conferences pertaining to selected aspects

of the education of women such as the one we are now having. Furthermore, staff and members of the commission were able to stimulate interest in research concerning the education of women.

It is my opinion that the commission performed a helpful service to colleges and educational organizations, as well as to philanthropic foundations, news media, and women's organizations seeking a worthy cause. I firmly believe its reactivation is warranted by the nationwide interest which has been shown in the education of women, by the urgency of the special educational needs involved, and by the constructive experience of the commission during the several years of its existence. It is my hope that necessary funds will be provided for the re-establishment of this commission.

Conclusion

I would like finally to go beyond the purview of my assigned topic and suggest that the time has now come for action in the education of women. Through the studies of the Commission on the Education of Women and the Women's Bureau of the Department of Labor, through conferences such as this one in which we are participating, and through the research of individual social scientists and other scholars, we have dissected woman and her needs—personally, educationally, and professionally. We have come to the conclusion that the peculiar life cycles of women, the multiple roles which they must play in modern society, and their needs for self-fulfillment—intellectually and professionally—require special kinds of education. Some of these needs may be met by the institution of higher learning in its general educational program but other needs must be met with special programs for women. Some enterprising institutions have established specific opportunities for women such as the Program for Continuing Education of Women at the University of Minnesota and the Radcliffe plan for independent and creative research for able women. But not enough has been done, and the efforts of most of us are sporadic.

The American Association of University Women, perhaps the greatest influence in our country for quality education for women, has a slogan which seems to me apropos: "Action without

study is folly, but study without action is futile." We have studied, we have analyzed, and we have concluded. The time is now here for action. Lest I hear the whisper, "Physician, heal thyself," I hasten to state that last spring I appointed at my own university a Committee on the Education of Women. This committee is at work to find ways of improving our contribution to the education of our women students and our alumnae. This may not be the answer for other institutions and organizations, but it is a method of implementation which gives me the courage to suggest that each should take whatever step is appropriate to his own situation, a step which will translate study into action.

REMARKS IN ELABORATION OF WORKING PAPER

MR. BLACKWELL: I think it is to be expected that many of the things that I had in my paper and that I might say now have already been touched upon in this conference. I think we could not discuss the topics that were on the agenda without getting over into things which the colleges and universities are doing or should be doing. I will just remind you of a few of the points I made in the paper.

I talked first about the importance of the college years for the continuing education of the young women who do have some opportunity in college, whether or not they graduate. Counseling and guidance assumes real importance in this regard. A number of down-to-earth facts can be helpful if communicated to women in the counseling process. They have been touched upon—the alternative patterns that might be ahead for the women or, as someone else called them, expectations. The sequence in which she can engage in these life patterns vary. My experience in talking to college women has been that they have not allowed for these possibilities, but when confronted with statistics about the number of years the average college woman will work, they see things a little differently. So I believe that counseling and guidance at this level is important. I am disturbed that fewer women seem to be going into guidance, and those who do, I feel, are

prepared primarily to give guidance to the male students. I merely point out this wide area where the colleges are falling down and could do much better. Again, research is needed on this.

It seems to me there are certain barriers to the undergraduate education of women in our colleges that we might try to remove. I refer to the student culture in which intellectual achievement on the part of the woman is played down. This may be less true in the women's colleges but quite true I fear in many of the co-educational institutions, and we should do something about modifying this part of the student culture. I suggest that we need to be much more flexible in accepting transfer credits toward a degree. And we should do this for men as well, although women students seem to be more mobile for they follow their husbands who often move from job to job. This presents real difficulties in completing a college degree. I agree with President Wilson when he said that in this respect we are most conservative at the college or university. We need much more flexibility. I take the position that it is not the difference in content so much that we need in the education of women, although an occasional special course for women might be necessary. I would shy away from an orientation course at the freshman level, but a seminar later in the college experience of a woman, dealing with the results of research about the roles of women in American life, might be very helpful.

No one has mentioned the alumni office and its role. I would like to emphasize that as the alumni office gets away from promoting football only and begins to develop continuing intellectual contacts with the alumni, much can be done. And I feel that the alumni office should focus particularly on the problem of the education of women and her opportunities. One way a college or university can approach this matter of removing some of the barriers to the education of women is a faculty administration committee appointed to study the matter and to see that there is follow-up action taken in the institution.

As to the responsibility of the institution in the continuing education of women after they have left the campus, I suggest the importance of education counseling centers for adult women. My experience has been that when a woman goes back to the regular college or university counseling center, she usually is

greeted with a stony stare, or if the counselors want to be helpful, they don't know how. So it seems to me that we should at least experiment in a few places with an education counseling center focusing upon the needs of adult women. I would like to see some demonstration projects on this type of counseling center conducted by foundations with built-in research and evaluative devices, so we can determine whether this idea is worthwhile. Most women who have had only a year or two of college work or none at all are hesitant and somewhat frightened about the prospect of going back to college. They do not know how to evaluate their ability now or how to evaluate the schooling they have had in the past. And too often the college is not able to evaluate their past schooling either. This is one function that an educational counseling center might perform. I warn against such a center's becoming a job placement agency and against its becoming a place for women to bring their personal problems. You have to screen out the personal problem cases that will certainly come to such a center and focus on educational counseling.

As a college or university tries to meet the needs of adult women, certain roadblocks will be encountered. Too often, I fear, admissions policies are such that the adult woman is not admitted or her admission is made difficult, or prejudice is expressed against part-time students. The faculty often objects to adult women in class. Someone asked this morning if you could mix adult women with undergraduate students. Certainly you can in some courses. Child development was suggested. I did it in a course in community organization and leadership and found that several mature women with a group of undergraduate women was a perfect combination. The mature women gave case studies of the things I was trying to talk about. It worked fine in that kind of course, and I believe it would work quite satisfactorily in most courses. Someone mentioned this morning that class scheduling might be inconvenient for women. I think that we have to schedule classes throughout the day and evening to give women the opportunity to take courses at either time of day.

One glaring omission in my paper, which I will mention before Ernest McMahon does, is the role of the evening colleges. The evening colleges—and the junior colleges—can perform important

roles. A good place for a mature woman to be reintroduced to the academic process is near her home, and junior colleges are now being created near most homes in this country. University extension programs are important, too, and I pay my respects to the very real possibilities of correspondence work, of television work, and of programmed home study. I don't know how long it will be before the colleges and universities will give credit for this work on the basis of efficiency examinations. This calls for more flexibility in our academic institutions.

I conclude by saying that I feel the Commission on the Education of Women of the American Council on Education has performed a very real service and that a similar group is needed to sponsor future meetings such as this, to provide some coordination of the many different kinds of people in this very complex field, and to perform a clearinghouse function. Finally, I suggest that in our own institutions and organizations we should really gear for action.

DISCUSSION

MRS. EUNICE ROBERTS (Assistant Dean for Undergraduate Development for Women's Educational Programs, Indiana University): I want to take issue with our speaker on one point. I do not believe it is true that a woman student does not want to appear to be a good student. In my judgment, the woman student in the coeducational institution is just as proud of high scholarship as the man student, and there is a good deal of evidence to substantiate this.

MR. BLACKWELL: This may well be. I think it is an area in which we need further research. I am sure there are some instances that would bear out my generalization, but that is not enough, of course.

MR. SEYMOUR SMITH (President, Stephens College): I would like to raise a question about a matter that has been bothering me throughout the discussions so far. I feel we have been dealing with these questions in a rather segmented fashion—here a little piece and there a little piece. We have been talking about the

continuing education of women. You have been talking about it on the undergraduate level in terms of giving perspective to a younger woman. I don't think this can be done by guidance and counseling only, nor could it be done by force, but it is going to be done by the means that Dr. Rothwell mentioned. The campus culture, counseling, the attitudes of the faculty members, courses, the extracurricular enterprises, the residence hall program—all must help the girl realize that she has a long life ahead and that she must plan for it. If we are going to do a good job in an undergraduate college we had better be thinking in these comprehensive terms.

You have discussed adult education and continuing education for adult women. We have identified a variety of needs which are quite different. On the one hand, the goal of continuing education is to stimulate intellectual capacity; on the other hand, its goal is to update persons for vocations and a variety of other things. These different objectives are not going to be done through any single approach but through a variety of approaches, and I want to ask if we are going to formulate a long-range strategy in which an institution plans both on the undergraduate and postgraduate level. Such long-range planning would include motivation of women as well.

MR. BLACKWELL: I quite agree, and I would say that if an institution does some soul searching when making its plans, the results will depend a great deal on the type of institution and its own personality as an institution. I mentioned junior colleges. I think there is something they can do that is very different from a four-year girls' college. The situation is very different, again, at a large university with a national reputation. The answers will have to be worked out individually for each institution. The sites of institutions vary. The urban institution has different opportunities from the university located in a rural area.

MRS. SENDERS: I wanted to add one point to what you have said this afternoon. Even if an institution has many or all of the things that you hope it would have—counseling facilities, efficient examinations, reasonable attitudes toward the transfer of credit, an active college—one other thing desperately needed is publicity.

The services and facilities can be there, but if the community does not know of them, they are not going to serve the function that they should.

MR. CARROLL: I wonder if the American Council on Education could look into the problem of the transfer of credit and that whole bundle of related problems which are greater, I believe, for women than for men, for the simple reason that men tend to complete their educational process because they have a vocational objective that has to be met, whereas many women have interruptions in their education and frequently do not return to the same institution in which they started.

MR. BLACKWELL: I should say at least one thing in defense of the academic point of view—especially the view concerning graduate credit. I think the universities and the colleges have an obligation to determine what credit means and that it should mean the same throughout the academic world. There can be different requirements to get credit, but the concept of credit has some value. In fact the standards of American higher education have been built up because of this concept of valid credits. The use of proficiency examinations is something that has become acceptable, at least on the professional level, but I wouldn't want to take the position that we should throw out the traditional concept of credit nor encourage you to think that it could be done. The movement toward proficiency examinations in New York was mentioned, and I think this can gain acceptance. But once we talk about academic credit at the graduate level, I suppose I would become a little bit conservative.

MISS GRACE HENDERSON (Dean, College of Home Economics, Pennsylvania State University): I would like to make a point related to counseling and to the statement that the university or college must let people know of the facilities available. Universities are not only interested in continuing education for credit, they are also interested in an informal type of continuing education. I mention this because, as an adult educator, I have come to believe that if education could do only one thing it should be to help people recognize their potentials and realize them far beyond what they are now doing. Just before coming here, I received a letter from a woman who said, "I hope your

conference is going to pay some attention to this matter. There are women who know what they want. They recognize they want education, they go out and get it, and then they get a job. This is fine, but I believe there are large numbers of us who just have a sense of uneasiness. We're not quite sure what we want. We're not even sure that the uneasiness may not come from looking at our friends who are doing other things and thinking perhaps we ought to be doing something too. I wish discussion groups could be organized in communities all over this country as a result of your conference, which would bring women together to identify their own motives and to identify, if possible, their own potential abilities, and from this point, then, they could move." It also seems to me that this is a part of a responsibility of most alert institutions, that they help their citizens recognize their educational needs.

MR. DONALD MCNEIL (Collaborator on the study "The Role of the University in Adult Education") : I am doing a study with Dr. Fred Harrington of the University of Wisconsin on the role of the university in adult education. In the light of these last remarks, I thought it might be worthwhile to comment on the situation we found when we visited presidents, members of governing boards, members of state legislatures, foundation groups —all of the people directly or indirectly connected with adult education or continuing education. Our findings apply as much to continuing education for women as they do to the education of the rest of the population. Generally the situation is this. It was our impression that the top administration in most American universities and colleges gave lip service to continuing education. They talked a good deal about continuing education, but when we examined budgets and allocation of resources and when we talked to faculty members and heard their reaction to extension people or evening college people and saw the contempt with which adult educators or continuing education people are viewed by traditional faculty members, we came to the conclusion that someone is playing a hoax on someone else and that the people who are suffering are the clients. The problem originates with presidents and vice-presidents and deans who talk a good game,

but when the time comes to put out money and time to build a program, to sell the idea of life-long learning which does not stop at age twenty-five or with a degree, most of them do nothing. When you do find a university president who takes an interest and believes in the idea, you have the exception that proves the rule elsewhere in the country.

Pilot Projects for Continuing Education for Women

Margaret Habein Merry, *moderator*
Director of Admissions, Radcliffe College

MRS. MERRY: Tonight I am going to give the members of the panel a chance to say a few words about their programs. But before we get to the directors, I'm going to call on "our case history," Mrs. Lyda Boyer, who has been through continuing education at the University of Minnesota. She was a student of the Minnesota Plan, a graduate of "seminars," and is now enrolled in the degree program.

A CASE HISTORY

MRS. LYDA BOYER: I was asked to give a thumbnail sketch which would include my educational background, the intervening years, my connection with the Minnesota Plan, my re-entry into the University of Minnesota this fall, and, if possible, my goals for the future.

My college education began in 1937 at Brigham Young University. I enrolled as a physical education major simply because my high school instructor in physical education thought I had great talent as a dancer and had arranged for me to teach tap dancing to defray part of my tuition expenses. For two years I met the basic requirements as an undergraduate and, in addition, took every dancing class they had to offer. Some time during my junior year I decided that I really was not interested in physical education as a major and switched to a sociology major with an emphasis on social casework. At the end of my junior year I was married and went to the University of Wisconsin with my husband, who had a scholarship to work on his Ph.D. Our plan was that I would work for three years using my bread-and-

butter skills—shorthand, typewriting, and bookkeeping—and by saving our pennies, I would go to the university during our fourth year and receive my bachelor's degree when my husband received his Ph.D. This plan might have worked out except that when I went to enroll at the University of Wisconsin during the beginning of our fourth year, I was dismayed to find that in making the transfer I lost so many credits that it would be absolutely impossible to finish my degree in one year's work. One of the main reasons for losing credits, of course, was my switch in major. However, I decided to enroll full time in upper-division work in sociology. I was one of four students chosen for a practical program with the Family Welfare Society in Madison, training students for social casework. I was assigned three cases and energetically entered into my new program.

I did not enroll the second semester in Wisconsin because the first of our three children was on her way. I was not feeling very well and I also I was disappointed that I would not be able to accomplish my goal and receive the degree. As an alternative, I contacted Brigham Young University and told them of my many problems with the transfer of credits, and we worked out an arrangement whereby I would take correspondence work from Brigham Young University under their direction, return for one summer session, and complete my bachelor's degree there.

At the end of that year my husband accepted his first academic position at Stanford, and our first child was born. The intervening years included Stanford University, World War II, three children, moving to Minnesota, and many other things as well. I am not eager to pass over these intervening years as unimportant, for they relate to my education as a woman, and that is in no way unimportant. The many activities that I have engaged in during this fifteen- or twenty-year span have had a significant impact upon my over-all education, my attitudes, and my interests today.

Thirteen years ago we moved just outside St. Paul to a new suburban neighborhood with a population of about 6,000 and one schoolhouse with four rooms. Since we moved there, the population has grown to over 25,000. I immediately plunged into suburban living and the problems entailed in the rapid growth of our village.

One of the first problems was the school situation. I became involved in a fund-raising bond issue for the purchase of land and the construction of school buildings. I became immersed in local, regional, and national PTA activities; most of them centering around finance and curriculum. And here I want to justify this area of endeavor for a woman's work. The parent groups in our PTA have had a significant effect in many concrete ways. For instance, two years ago we were effective in getting a raise across the board for teacher's salaries in our school district over the recommendations of the school board. We have had significant success in curriculum, in foreign language classes, and in mathematics classes. I have been a school election judge for many years and have worked closely with the superintendent in special assignments. I have given an endless number of lectures at our high school on local government, the state constitution, the United Nations, and on a recent trip my husband and I made to Russia.

Another area of activity that I should mention is the League of Women Voters. Besides helping to organize the first League of Women Voters in Roseville, I served as one of its early presidents. During this time we promoted village planning for our village and hired a professional planner to carry through with the plans. We had a marked effect on such things as building zones, zoning regulations, and building requirements. I have served on the recreation board for several years, helped organize the first girl scout troop in Roseville, and served as a girl scout leader and a cub scout den mother.

This brings me to my connection with the Minnesota Plan. You can see that I believe in the volunteer efforts of women. I do not belittle them in any way, but I must say that I was reaching the point where it was a little uncomfortable for me to call my friends and hear the pause at the end of the line while they waited for me to ask them for money or for service. Also I began to have uneasy feelings when my telephone rang, and I was asked to perform an endless number of services because I was a "good, willing worker." In addition, I had more and more free time. Our older girl was a sophomore in college, another a senior in high school, and our boy was in ninth grade. I could

see the years stretching ahead of me, and I knew they would be quite different from my mother's years. I think that by the time their last child was in college and of marriageable age women of my mother's age no longer had the health and vitality for continued activity that we have today. Quite frankly, I was not happy with the thought of continuing with my voluntary activities and was casting around for some outlet, when Mrs. Cless, co-director of the Minnesota Plan, invited me to be a pilot member of its first seminar. This was in 1959, and we called our seminar "Critical Thinking in Contemporary Issues." It is now the New World of Knowledge Seminar. This seminar was exciting and stimulating for every woman who participated, and we were the envy of the professional men on campus who recognized the value and tremendous stature of the men giving these seminars.

I followed the first seminar with a second one, Arts of Reading, and a third one last year, Frontiers in Twentieth-Century Science. I have met the requirements for credit in these three seminars and made full use of Vera Schletzer, a counselor in the Minnesota Plan, in organizing and planning my courses.

Last fall I enrolled in the College of Science, Literature, and the Arts at the University of Minnesota and encountered some difficulty in getting my credits evaluated. I have had a scattered education, with credits from three universities as a student in residence, credits for correspondence work and as an adult special, and credits for the seminars in the extension division. At this point, I have no clear-cut goals or a definite major. I am sure my record must look horrid to an administrator who likes to see clear-cut goals and requirements filled. But I felt that I was welcome at the University of Minnesota and that the university officials were sympathetic and glad to have me there.

Some of the courses that I had taken at Brigham Young University and the University of Wisconsin were no longer listed in the catalogues so the officials didn't know whether to assign upper-division or lower-division credits to them. In many cases lower-division credits were assigned to the upper-division work that I so badly needed. Brigham Young University was not listed as an accredited school for correspondence work, and I needed their upper-division classes. I had to act as a guinea pig in getting my

credits from the Minnesota Plan accepted in the College of Science, Literature, and the Arts. But with the help of understanding people, all of this has been accomplished. I am enrolled this fall, and I expect to have my bachelor's degree by June. I am sorry that I have no clear-cut goals at this time, but to have completed this degree will be a source of great satisfaction. Maybe with a little guidance and understanding I can acquire some definite goals and make concrete plans for the future.

MRS. MERRY: I think you will agree with me that this is quite a case history. Thank you very much, Mrs. Boyer.

I would like to ask Jane Berry, director of the University of Kansas City Project for Continuing Education of Women, to make some observations on the program there.

[Miss Berry's comments follow her working paper.]

UNIVERSITY OF KANSAS CITY

Project for Continuing Education of Women

Jane Berry, *director*

THE UNIVERSITY OF KANSAS CITY Project for Continuing Education of Women was initiated in the fall of 1961 to:

1. Discover the needs for continuing education of women in the Kansas City area.
2. Plan, on the basis of well-considered research findings, experimental continuing education courses to fill identified educational needs of women in the Kansas City area.
3. Present special programs and symposia on current problems concerning the education of women.
4. Provide the basis for further study and research aimed at

long-range planning and guidance of special educational programs for women.

The philosophy of the University of Kansas City project is at present best characterized as one of experimentation. Research and program plans to date are regarded as pilot efforts designed to provide guidance and direction for further experimentation. These efforts will lead to the development of a substantial and sustaining program that will enable the university to serve the educational needs of women in a more comprehensive manner than is now possible.

From the inception of the project, we have been concerned about creating a climate both in the community and at the university which will encourage and facilitate the educational aspirations of women who have done some college work.

A unique feature of this project is the research forums[1] on women's education. These are day programs designed to bring together women of the community to consider continuing education of women and related problems. The format for the forums has consisted of general presentations by educators and behavioral scientists, followed by small group discussions in which the women have had an opportunity to discuss topics such as:

1. What can women do with an education?
2. Can women be both persons and mothers?
3. How do women perceive their life roles and opportunities?
4. Can women change the patterns of their lives?

The group discussions were recorded, and transcriptions have been analyzed. The following statements summarize the consensus of concerns of the women who participated:

1. The majority of women expressed a feeling that their formal education had been helpful, but they were *not* able to be specific about how particular courses of study contributed to what they are doing now.
2. Many of the women view education for personal development as the acquisition of specific skills with immediate utility

[1] Two of these forums have been held to date, and a third is tentatively planned for 1963. The first forum was attended by over one hundred women; more than three hundred participated in the second.

rather than a process through which some changes in attitudes and perspectives take place.

3. A substantial number of the forum participants expressed a feeling of confusion concerning the goals which our society has for women.
4. A number of women complained that their higher education to date had not provided the self-understanding and confidence necessary to set their own standards.
5. Women said they find themselves living in a child-centered culture, spending their time trying to keep young and evaluating themselves in terms of a "multitude of magazine and newspaper articles."

Achievement to date

An exploratory study of the need for continuing education for women was accomplished by means of a questionnaire which was distributed to the membership of well-established women's organizations in the Kansas City area.[2] The questionnaire and the segment of the population contacted were similar in many ways to those used in studies at Michigan State University and the University of Wisconsin. The questionnaire contained sections focusing on reasons for wanting to continue education, plans and needs for continuing education, interest in noncredit courses, and interest in seeking an advanced degree or completing a degree.

Data[3] obtained from the analysis of this questionnaire has been utilized in the design of two experimental noncredit courses to be offered in the fall of 1962 and as a basis for planning the next phase of our experimentation. The two noncredit courses are Art in the Context of History and The Exploration of the

[2] The leaders of these organizations were invited to a group meeting prior to the distribution of the questionnaire. This meeting provided an opportunity to discuss the general purpose of the project and to secure a basis for future cooperation with these groups. Organizations cooperating with the project are: American Association of University Women, Athenaeum, Delta Gamma Alumnae, Junior League, League of Women Voters, Leawood Women's Club, Council of Jewish Women, and Young Matrons. Twenty-five percent of 3,939 members of these organizations responded, thus making 968 questionnaires available for analysis.

[3] A report of the findings from this questionnaire is being prepared and should be available within the next few months.

Universe (based on a program of reading and discussion developed by the American Foundation for Continuing Education). These courses are being offered to meet the *most frequent request* of questionnaire respondents, which was for a course in art, and the *least frequent request,* which was for a course in science. All of the women responding to the questionnaire will receive preenrollment materials.

Plans are underway to evaluate these experimental courses in terms of motivations for enrollment, expectations and preconceived ideas regarding benefits to be derived from the courses, suggestions for altering them, and the organization of other noncredit courses for women.

Problems

We have learned from a preliminary analysis of the questionnaire, from the recorded group discussions held in connection with the research forums, and from individual women that there is a need for a program to close the "gap" for a substantial number of women who say they hope to continue their education but have no plans to do so.[4]

Our intention is to create on campus an experimental milieu—tentatively called a Women's Education Center—where women seeking to continue their education can have informal contact with their peers and selected faculty fellows in a specially designed academic setting. We want to try out the notion of Margaret Mead and others that peer influence is likely to be just as important in motivating this group of women to educational commitment as it is in the undergraduate and graduate student cultures. We are presently seeking support for this endeavor and for the related services and programs which our preliminary work indicates should be a part of such a center. Finally, we are concerned about the undergraduate women on our campus and hope to develop a way of making them aware of the issues and problems related to continuing education of women.

[4] Seventy percent of questionnaire respondents say they hope to continue their education, whereas only 17 percent say they have plans to do so.

REMARKS IN ELABORATION OF WORKING PAPER

MISS BERRY: We have been creating a greater climate of interest than we may be able to handle. Our pilot survey led to two experimental courses: one in the arts and one in science. The one in the arts is filled, but it is questionnable whether we are going to be able to give the one in science. Now the pilot survey has suggested some other things. Perhaps most striking is the number of people who say almost promiscuously that they would like to continue their education but that they do not have plans to do so.

There are some fascinating things to be discovered about what happens when you expose women who say they are interested in continuing education but have no specific plans to come back to school to an experimental, almost contrived, milieu of some non-credit courses, some counseling services, and some contact with what I'm tentatively calling faculty fellows, that is, people who might be released from some teaching to be available in our center to talk informally with these women. It is my feeling that one of the things we have discovered is the variety of needs in this continuing education. I have mentioned counseling; I have mentioned the credit courses; I have mentioned the need to continue research. How these are going to fit in administratively or if they must be established on a separate basis are some of the questions that should be raised.

MRS. MERRY: Thank you. Now I would like to ask Helen Marston, director of the Program for the Retraining in Mathematics of College Graduate Women at Rutgers, for a description of their program.

[Mrs. Marston's comments follow her working paper.]

RUTGERS—THE STATE UNIVERSITY

Ford Foundation Program for the Retraining in Mathematics of College Graduate Women

Helen M. Marston, *director*

THE PROGRAM WAS STARTED because of the current shortage of mathematics teachers and mathematically trained personnel in all fields. The philosophy of the program is that college graduate women who have raised families and are no longer needed full time in the home are anxious to get into, or get back into, professional work, and that in order to do this they need retraining and need help. As a group, these women are probably more capable, more mature, and more stable than the average woman in the labor market today and have a valuable contribution to make which, especially at this time of need for more workers, more teachers, more scientists and mathematicians, should not be disregarded.

This program aims to demonstrate that the needs of women and the needs of society can be very happily met in programs of this type. If our society is to reap the full benefit of the education and talents of its bright women, then similar opportunities should be made available to women in other areas, both educational and geographical.

We believe that this program is unique in each of the following ways: It was preceded by a survey in which over 21,000 college graduate women, 214 industries, and 345 schools and colleges in our area (ten counties—the approximate commuting area to Newark and New Brunswick) were reached and questioned so that the program might meet the needs of all in the area in the best way possible. It is limited in its academic scope to one

subject—mathematics. It is strictly vocationally oriented. The courses have been designed for women and are given at hours set for their convenience. The women study with others like themselves—just as old, just as rusty, equally diffident, and similarly motivated. Our program provides vocational guidance, academic guidance, courses, often the money for the courses, and, finally, the placement service.

Our immediate goal is so specific—namely, to get women with ability and a background of education in mathematics to go through whatever retraining is necessary for a job and then to get a job—that our achievements can be pretty well measured by counting heads. As of mid-June, nineteen heads are in full view and easy to count; another ten, roughly, are a bit obscured for one reason or another (substitute teaching is temporary; nursery school teaching is not really our achievement). Since the program has completed only three semesters, most of those who have enrolled are still in the retraining stage.

Insofar as we claim to have been successful, however, the claim is based on the types of jobs obtained, the generally high caliber of the companies that the women now in industry are working for, and the fact that nearly every woman who has enrolled in our program and has considered herself ready for a job has been placed—to date both happily and satisfactorily placed. Adjustments in the homes of these women have been made apparently with relative ease and considerable skill, thanks in part to the retraining period, which provided a bridge from housewife status to that of full-time professional employee. This kind of success, even though on a small scale, does much to give other women the confidence and courage that it takes to get back into studying and professional work, and it also does much to promote the hiring of mature women. Thus far we have had no success in placing people in part-time jobs, but the resistance to the part-time worker, we believe, is beginning to break down.

Our main problem is not enough candidates. A good class should have at least ten people in it; hence we should have at least a hundred candidates per semester, properly distributed, and thus far we have started each of our three semesters with only 53 candidates.

This may be partly due to our program's being young and as yet little known, but mathematics has never been a popular subject with women. On a six-college sample, the percent of graduates who majored in mathematics each year from 1930 to 1960 was very small, averaging about 3 percent, and did not increase during this period. (It is beginning to increase now, I believe.) Were we to run a program for the Retraining in English of College Graduate Women, we would be flooded with candidates but would have difficulty placing them.

Geographically, we are not ideally located. Our candidates come from approximately fifty miles south of New Brunswick to about fifty miles north of Newark, and in New Jersey all roads do not lead to Newark and New Brunswick, and when you do get there, there is no place to park. Dropout rate will probably always be high: husbands are transferred, children get sick, cars break down, and home responsibilities often have a way of just piling up.

REMARKS IN ELABORATION OF WORKING PAPER

MRS. MARSTON: Our program is different in one respect from what we have spoken about at this meeting. It is not really a program in continuing education, but in retraining for jobs. We serve both the needs of society and the plight of women, and to date have been equally successful, I think, in both. We have had eighteen people placed as of last June, and our program has had great acceptance from business firms. Systems Development Corporation was so interested in our program that they wanted to help with the courses in some way. They have invited us to visit for a day's orientation. Educational Testing Service has said that they are so pleased with the one woman they got and asked for another; they will even give her time off for study if she needs it. From the women's point of view we feel that we have been at least as successful. We mailed a short questionnaire to those who have gotten jobs primarily through our program, and the response was unanimously one of happiness with the job. With-

out exception, they all claimed that the adjustment in the home had been good. There was a spirit of cooperation in the home; the children took on responsibilities that they had not had before. There was a brand new spirit in the home, a new interest both in the mother's education and in her job, which seemed to everybody a very healthy, if a little surprising, thing.

As for number of students, I was a little misleading, I think, in my paper. We offer five courses, and because of our geographical spread, we offer these courses both in Newark and New Brunswick, which makes ten courses. This is why I said we should have at least a hundred people formally distributed for this, and we don't. I will not say that we have been disappointed by the numbers we have. When we did our survey in 1959–60, nothing in the response led us to think we would have even this many. It is not surprising that there are few when you think of the many qualifications that are necessary—the woman must have her children in school, she must be interested in retraining and in going back to work, she must be willing to give the time for retraining and must have mathematical ability. Since that survey, we have done quite a bit of study on census statistics and on college figures. Of course, there are various factors to take into account, but from 1930 to 1960 under 3 percent of women college graduates were mathematics majors. Of course we do not require that they be mathematics majors, but our research showed that interest in mathematics was also very slow during those years. A woman came into my office the other day and identifying herself as a graduate of 1938 from Smith, she said, "I got 800 on my College Board math test, but I have never taken a college math course." She smiled and added, "You know, it just wasn't the thing to do then."

What will become of the program? The way I envision it now is that it can be easily incorporated into the structure of Rutgers University. There are two aspects of this program that are different. First of all, it is given in the morning hours for the convenience of the women with school-age children. If we gave these courses in the evenings we would get an entirely new population of people who are now working. The other difference, and this applies only to two of the five courses, is that the courses

really are designed for the returner. We have one course called "Review: College Freshman–Sophomore Mathematics," which is for people who have been out of school about twenty years. This course is designed to cover the material of calculus 1, calculus 2, and college algebra. The students can review and update their mathematics, which is necessary whether they are going to teach or to work in industry. There is now a slightly different vocabulary, a slightly different approach, and this they learn with their review. Therefore, it isn't quite the equivalent of a normal undergraduate course. Another course, especially designed for women, was called "Background for Teaching in Mathematics." This is solely for those who want to go into teaching and is based largely on the new curriculum materials now given in the schools. The course acts as a review and gives the new teaching approach. The state was very generous and allowed six credits toward methods or toward subject matter for certification for this course. Our other courses are computer programming, calculus, and introductory statistics.

MRS. MERRY: Now, let's hear what Esther Raushenbush is doing as director of the Center for Continuing Education at Sarah Lawrence.

[Mrs. Raushenbush's comments follow her working paper.]

SARAH LAWRENCE COLLEGE

The Center for Continuing Education

Esther Raushenbush, *director*

THIS PROGRAM IS INSTITUTED to provide educational advice and to assist in educational planning for:

1. Women whose college education was interrupted before they completed their undergraduate studies and who now wish to resume study for the bachelor of arts degree.

2. Women who have a bachelor of arts degree and wish to study for an advanced degree.

Educational advice and planning

Programs appropriate to undergraduates of college age are sometimes not suitable for individuals who have years and experience to bring to their education and whose purposes are already defined. It is a function of the center to help women who wish to resume their college education make plans appropriate to their purposes, and it seeks to help them find ways in which they may pursue their studies. Such planning may involve study at Sarah Lawrence College, study at other institutions, or special plans appropriate to the individual situation.

The staff of the center interviews prospective students and discusses with them possible plans for study. We do not have a program of vocational counseling although we do, of course, discuss the educational requirements for professional or other work women wish to undertake. The individuals this center can serve best are those who know why they want to return to study and what they would like to do after finishing the degree. We try to help them find ways by which their educational objectives can be accomplished in this community. We are limiting ourselves to work with people within commuting distance of this college, who can study in institutions within commuting distance of their homes.

For undergraduate students for whom study at Sarah Lawrence College seems indicated, the college provides several continuing education courses especially organized for persons resuming an interrupted education. These are courses offered for full college credit, taught by members of the Sarah Lawrence College faculty, and paralleling courses offered in the regular undergraduate program. They may be taken only for credit and are not open to auditors or to listeners. Students returning to study after an absence who wish to work at Sarah Lawrence College enter through one of these continuing education courses as non-matriculated students. These courses serve as a guide to the student, helping her determine whether she is ready to undertake work for the degree again; they serve as a guide to the college

in deciding whether to accept the student as a degree candidate. After a semester in such a course, a student may apply to matriculate as a degree candidate and if she is accepted may enter any course in the college appropriate to her plans. Degree programs for such students are planned individually, as are our regular undergraduate programs, and in the planning we take into account the student's previous study, her intervening experience, and her present plans and expectations. If her plans call for some work not offered at the college, arrangements will be made for her to take individual courses elsewhere in the metropolitan area for which credit may be transferred to Sarah Lawrence College.

The center is able to provide information about other colleges and other institutions of higher education throughout Westchester County and in areas within commuting distance. If indications are that an individual should study at one of these institutions, the staff of the center tries to facilitate these plans by providing information and by consulting with officers of such institutions when necessary. Arrangements for independent study or other special programs will be developed as they are required to meet the needs of individual students.

In the case of prospective students who already have the bachelor's degree and who wish to undertake graduate or professional study, the staff of the center will discuss the appropriateness for graduate study of their undergraduate programs and ways in which their preparation may be supplemented if necessary. Sarah Lawrence College offers a program of graduate study leading to the master of arts degree, and students for whom that program is appropriate will be recommended for consideration to the Graduate Studies Committee of the college. The staff of the center will advise individuals about other graduate studies programs available to them.

While the center also wishes to serve women now ready to undertake full-time study, it is organized primarily for the woman who is occupied with her family and who is not now prepared to undertake full-time study, who must study within a short distance of her home, and whose plans for study and classes must take her home responsibilities into account. These will typically be part-time students.

The two most important issues to be dealt with in our program are these:

1. To help prospective students decide whether to resume study at this time, to set reasonable goals, and to determine the amount of time they can spend in order to do work of high quality and carry on their family activities.
2. To make as flexible and useful plans as we can with our institution and other institutions for this portion of the population. This means trying to arrange for part-time study in programs that typically call for full-time study and finding ways of freeing these students from some undergraduate requirements that are not as appropriate for them as they might be for the typical college undergraduate. How successful such efforts will be remains to be seen, but it is our view that the best way to develop the talents of able and mature women who need to complete their education is to consider which programs organized with the usual student in mind are appropriate for them and which, if they are to serve these individuals best, need to allow for exceptions or new planning.

The present and the immediate future

This is a new center. We had originally planned to open it this September, but when the prospective opening was announced last January a large number of women said they wanted to make plans for the coming fall and would like to get help in such planning. We opened temporary offices and have been interviewing individuals and exploring possibilities for study for them. A number of women will enter the Sarah Lawrence program, and a number will enter programs elsewhere. This fall the center will undertake a research program to discover the needs for further education of women in this community.

REMARKS IN ELABORATION OF WORKING PAPER

MRS. RAUSHENBUSH: I want to make just two points about our program. It is a very small program that rather matches both

the nature and size of our college. I especially want to stress this because it seems to me that the really exciting thing about setting up a series of new educational programs of this kind is that they can be as varied as the institutions that they are related to. The programs represented here are a very good illustration of that. Our college is a small college that has had a great deal of experience in making individual plans for students. The kind of program that has been set up is appropriate to it, and we had no roadblocks in our way as far as our own institution was concerned. In addition, the climate was favorable. We have gained considerable experience in planning with individual people whose needs differ one from the other.

This program really has two parts to it. One part is connected with our college; it belongs inside the program of the college. The program will admit this year, for example, about thirty women to study in two courses that have been planned especially for them. These two groups will be by themselves, not with the other undergraduates, and these women all want to go on to take a bachelor's degree. I think it is a good idea for a program, especially a small one, to be quite sure about what it will do and what it will not do. I think it is important for a program like this not to try to be all things to all men, and ours is quite sharply defined. All the people are candidates or want to be candidates for the bachelor's degree. All of them must have had at least one year of college. All other types of people who need and want education are important, too, but these are the ones with whom we are going to deal. Women entering these courses have not formally applied for matriculation, but the courses are five-point credit courses and can be taken only for credit. A woman may take one of these courses and decide at the end of the semester or at the end of the year whether to apply for matriculation. Once she applies for matriculation and is accepted, she then becomes a regular degree candidate in the college and takes whatever courses are appropriate for her. The courses in our program serve as a kind of bridge into the college. They give the student a chance to discover whether she really wants to study and really wants to go ahead for a degree. She is in a congenial group of people with

similar objectives. By the end of the course, she has a basis for decision, and we know whether she will be an appropriate candidate for a degree. It is important that these courses be given on a level that is the same as those given for the undergraduates.

The second part of our program is advice and counsel for women who should be going somewhere else for courses our college does not offer. We happen to be so situated that we can serve a great many people by giving them advice about many types of institutions in the metropolitan area. For me, one of the most interesting aspects of this part of the program is that we are trying to break through some of the roadblocks that other people have set up.

Thus far we have had some successes and some failures in this program. For instance, most colleges do not allow their students to take their final year on another campus. A student must get his last thirty points from the college that will grant his degree. Thus far, two very respectable institutions have agreed to allow women to take their final year with us, and they will still award degrees to them. On the other hand, I have tried very hard to get a very able person to be allowed to take a performing arts program in our own college because we have a good one. This young woman had been a dance major at the University of Wisconsin. She had had three years with them, and I felt that we could work out her last year in collaboration with the University of Wisconsin and that she could be granted a Wisconsin degree, but they were not willing to do this. Another woman was not allowed to enter a liberal arts program in one of our city colleges because twenty-five years ago she had not taken the college preparatory course when she was in high school. She had to go to business school and take packaging, distribution, and merchandising, although what she really wanted to do was learn how to teach blind children. She has very bad eyesight herself and, as a braille expert, would be an excellent teacher.

MRS. MERRY: I think you all recognize that one of the fascinating things about these programs is that they differ, and they differ in terms of the institutions in which they are housed and the people who are directing them. Still a different type is

represented by the Radcliffe Institute for Independent Study. The director is Constance Smith, whom I would like to call on now.

[Miss Smith's comments follow her working paper.]

RADCLIFFE COLLEGE

Institute for Independent Study

Constance Smith, *director*

THE RADCLIFFE INSTITUTE FOR INDEPENDENT STUDY was established in November 1960 to assist and encourage highly qualified women to continue important scholarly or creative work. In June 1961 twenty-one women were awarded fellowships to begin their work at the institute; this spring fifteen grants were renewed, and seventeen new scholars were appointed for the coming academic year. Almost all of these women are married and have family commitments; therefore, most live within reasonable commuting distance of Cambridge. None of our appointees devotes all of her time to her specialized work, and none may be a candidate for a degree. It is misleading to speak of *a* "program" for the institute—in fact, there are several types of fellowships which we have created in response to the needs we have found. We regard the institute as an experimental project, and we have endeavored to keep our selection criteria and the requirements for the fellowships as flexible as possible. It is our hope to remain flexible enough to provide support for women at varying levels of accomplishment in any scholarly, creative, or professional field. In addition to the fellowship programs, the institute also supports research studies relating to the problem of how to assist women with serious research and creative interests to utilize their talents most effectively.

Although the selection of scholars does not depend on rigid

academic qualifications, all but one of our first group of members are college graduates, eight have Ph.D. degrees, two have medical degrees, one has a dental degree, and one is a lawyer. Selection is based primarily on the merit of the plan of work proposed and the qualification of the applicant to undertake the proposed project. Scholars are appointed on annual grants of up to $3,000; the amount of each grant is determined by the requirements of the individual scholar.

Among the fellowship holders during the past year have been two physicians and a dental surgeon who have done course and clinical work at the Harvard Medical School and in associated hospitals. These women were exceptions to our general rule that members of the institute would not undertake course work. All three women have advanced degrees in their fields, and they are simply seeking to qualify themselves for full-time practice or for a new field of specialization.

From time to time, it will be possible for us to make a few awards for full-time work. Such fellowships are intended for women already notable for their scholarly or creative work and for whom other fellowship possibilities may not exist. In addition to these scholars chosen from applicants to the institute, it is our plan to appoint a few fellows of the institute. These women will be invited to come to Cambridge from any part of the country or the world for varying periods of time to work on writing, research, or other special projects of their own choice or to lecture to the institute members and Radcliffe undergraduates. These fellowships will be awarded by invitation only, and the stipends will be individually arranged.

The unique aspects of the Radcliffe Institute are: (*a*) support of part-time rather than full-time research or creative work and the provision of a few fellowships for highly trained professional women who seek to redirect or refine their specialized interests through course or clinical work; (*b*) the emphasis on supporting research rather than course work and, thus, the selection criterion of a graduate degree or its equivalent in achievement; (*c*) weekly seminars which provide an opportunity for the scholars to present their work for criticism and consideration by the other members of the institute.

After one year of operation, the most concrete achievement of the institute is that nine members have material ready for publication. We have also discovered that there is a surprisingly large number of highly trained women who are not eligible for other fellowships. From the outset of our program, we have received inquiries and comments from all over the world. Thus as a small pilot project, the institute has provided a focal point for interest and influence in the experimental area of continuing education for women.

The main problem of the institute has been how to distribute limited financial resources most effectively and efficiently in accordance with our basic premise. Unfortunately, thus far we have had almost ten applicants for every award we could make. However, we have tried to provide educational and vocational counseling services for applicants whom we could not include among our scholars and also for other highly qualified women in the Boston area. A staff psychologist has explored opportunities, especially part time, which are available for talented women who wish to return to scholarly or professional careers. She has met with a number of these women in a series of workshops held at the institute throughout the year.

In all probability the institute will not expand to more than fifty members, but both through our research projects and through our experimentation with this small group we hope to discover new educational methods and arrangements which may be generally useful. We see the institute as an experiment which may be adapted to other academic institutions interested in the encouragement of gifted and qualified women.

REMARKS IN ELABORATION OF WORKING PAPER

MISS SMITH: The purpose of our program is to assist highly qualified women carry on independent and creative work. We have attempted to fashion fellowship aids for people who are not otherwise eligible for fellowship aid. The group that we are working with in our first so-called associate scholar program is a

group of married women with children who can give only part of their time to their scholarly endeavors. Over half of them have Ph.D.'s, two or three have medical degrees, one is a lawyer, one is a dentist, and the rest have done graduate work, except for one poet who has no college work. They had gone to fellowship agencies or graduate schools all over the country and asked about fellowship assistance for part-time graduate work, but had received no encouragement. So we fashioned the first program for twenty-one people interested in carrying on their research selected from two hundred. As I have suggested in the report to the conference, the one tangible achievement to which we point with real pride is the fact that as of June there were nine manuscripts ready and accepted for publication. We felt this was an achievement not only for us but for these people who had been working for years on their own and who needed only a year of part-time support to finish. We are very proud of this.

Perhaps you have noticed in our publicity that we say our people cannot be candidates for degrees; they cannot take courses for credit. This is because of the acute situation in the graduate schools at Harvard and at Radcliffe, where it is not possible for people to take part-time graduate work. Therefore, the institute could not offer course work. It could only offer the resources of the library and financial awards to women who could then hire baby sitters, housekeepers, or whatever they needed to free their time to do the work that they needed to do. I am convinced that it is not the amount of the award that is important, as is providing the resources of a university situation and bestowing confidence to these people through our selection. This is the key to returning this type of woman to her professional career. Most of our people who have not finished their doctorate have no intention of doing so, and it is not required in terms of what they want to do. They are selecting a route of specialization and of publishing rather than course work, and this certainly is an acceptable alternative for some people.

Let me speak on one more question. How do we raise the sights of the undergraduate to take the long look into the future as well as the short look into the near future? This we are doing on a very small scale by associating our institute members with the

houses at Radcliffe. We are providing, in a way, models of women who are combining their scholarly and domestic activities. And one of the undergraduates said to me the other day after she had finished her honors thesis and had received highest honors, "You know, along about March I almost bogged down with my study. Then I got to talking with one of the people at the institute tea and somehow regained my perspective. Instead of quitting, I went ahead because she showed me that maybe sometime my degree might come in handy." I won't suggest this as a proper motivation, but the model idea and the incorporation of these people into an undergraduate community does far more than anything we can do by preaching to the young people. The example is far better than the precept.

And finally, I would ask for your suggestions and comments on the problem of counseling. In addition to the members of the institute or, as we call them, the associate scholars and affiliate scholars, who are medical people refurbishing their medical training preparatory for private practice, we have had about one hundred fifty to two hundred women coming to talk with our staff psychologist about plans for going back to work or for taking further training. Besides workshop sessions, our psychologist assigned readings and led them through a series of discussions trying to investigate some alternative possibilities. From her comments and her reports, certain characteristics of these women have emerged. Our particular problem is the transient nature of the American woman as she follows her husband from job assignment to job assignment. People become somewhat disassociated from their collegiate connections and in a new community and do not know where to turn for the kind of serious-minded advice they need.

The lack of self-confidence is an outstanding characteristic, not only of people who have come seeking advice on whether to go back to school, but also of the women who have Ph.D.'s and have had considerable experience in the field but have been away from their own profession for some years and who simply do not know where to go. They have lost a sense of professional purpose that is extremely important to their accomplishment.

These are some of the characteristics that we have found.

We will be carrying on some research at the institute; we have received one grant specifically for research and have some funds from our budget for this.

MRS. MERRY: Still another plan is that of the American Association of University Women, and Pauline Tompkins, the general director of the AAUW, will share some of her observations of this plan with us.

[Miss Tompkins's comments follow her working paper.]

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN EDUCATIONAL FOUNDATION

College Faculty Program

Pauline Tompkins, *general director*

THE OBJECTIVE of the College Faculty Program of the American Association of University Women Educational Foundation is to increase the resources of qualified personnel for higher education. The urgency of national need for qualified faculty in colleges and universities is great. Young people are turning to college careers in greater numbers than before, but there are not enough of them nor can they be prepared fast enough to meet the need. The AAUW program is based on the assumption that there are a great many able and interested women college graduates in their middle years who, with further education, would make excellent career faculty.

For that reason, and solely to augment the supply of faculty members, the Educational Foundation sought financial support for a three-year demonstration program in eleven Southern states. The foundation has been fortunate in receiving a grant of $225,000 from the Rockefeller Brothers Fund for that purpose. The program is unique in its single mindedness: to increase the

supply of qualified college faculty. It is unusual in that it is willing to work with high ability women who may have earned no more than a bachelor's degree and to offer them tuition and fees for full-time study toward an advanced degree (candidates who have earned doctorates are also eligible) and a small stipend to cover additional expenses. This support is for one year only. It gives the awardee a chance to re-enter academic life under favorable conditions. She can concentrate on her studies so that by the end of the year she will have demonstrated to the graduate school her ability to compete fully with other students, especially for support for completion of her graduate degrees and for recommendations for faculty positions. The graduate school which accepts the student receives a small cost-of-education subsidy.

One of the responsibilities assumed by the AAUW Educational Foundation is to counsel applicants to the program, whether eligible or not, as well as the awardees. Assistance in placement will also be given wherever possible.

As of the autumn of 1962, eighteen able women will be in full-time study at thirteen Southern graduate schools within commuting distance of their residences. They will be studying in such different fields as mathematics, psychology, plant pathology, English, and home economics. One is doing postdoctoral study, thirteen are master's degree candidates and four are seeking the doctorate. They range in age from thirty-four to fifty; sixteen are married, and two are single.

The program has significance for the whole country, though financial support is given for a demonstration program in only eleven Southern states. After six months of operation, it is already clear that this program will present new information about the problems of re-entering formal education after a long absence, and statements of the need for such a program have been received from other parts of the country. Many requests have come from mature, able, and available women who have almost completed their graduate education but who lack necessary financing to finish and whose education must be subsidized if they are to become career faculty members.

The College Faculty Program has already demonstrated the need of college women for information about appropriate second

careers and for help in selecting and preparing for them. The graduate schools and their departments have been most cooperative and cordial in joining in the demonstration. We anticipate that new evidence on which future admissions can be based will emerge from this experience.

REMARKS IN ELABORATION OF WORKING PAPER

MISS TOMPKINS: AAUW's Educational Foundation Program is unique in the sense that its single purpose is to prepare mature college women for going into college level work either in research, in teaching, or in administration. To the best of our knowledge there is no other program that has joined us in doing this exclusively. It is our feeling that what we need to do is to identify women who have not been actively engaged in academic work at a graduate level for some years and to make it possible, through rather modest grants, for them to resume their education and have their fees taken care of for one year. At the end of that time some may be ready to go into college teaching, whereas others should have proved to the institutions in which they are studying that they are able to compete successfully with the other graduate students. We are also unique in that we are not a college but rather are acting as a kind of middleman or perhaps I should say a midwife; we are unique in that we are delivering mature women to institutions.

Dr. Blackwell made a comment about the resistance which some faculties of higher institutions may express toward admitting older women into graduate programs. Before we received our grant from the Rockefeller Brothers Fund, we investigated whether such a program could find institutions who would be willing to cooperate and accept mature women. We visited a number of institutions in the South which are included in the program and talked to college and university presidents, deans of graduate schools, and college faculty counsels. I concluded that we would meet with no resistance whatsoever on the part of those with whom we talked, and our experience has borne this out.

Our first step after making an award is to get in touch with the college or university graduate school to find out if our assessment of the candidate's qualifications meet with the policy of the institution. In every instance except one there was no question whatsoever; all were admitted. In the case of the one who was discouraged, the reason was because she would have to commute one hundred miles a day, and the institution itself felt that this was too much. We had not realized the transportation problem was as grave as it was.

We still have a number of problems that we are concerned with. We have found that our program is doing something we had not intended that it would do; it is discriminating against single women. The single woman who has the sole responsibility for earning her living has more difficulty in entering our program than the married woman who does not have a job. This problem has distressed us very much, and we have yet to come to grips with it. We also find that the need for financial aid is much greater than the amount we have to give, with the result that we are going to have to reduce the total number of awards to ensure that the candidates we choose will have the necessary funds.

My concluding point is a bit peripheral to the others, but related. A problem still to be determined is what will happen to these women after they have qualified for college teaching. Are they going to be accepted? The institutions have accepted them as students; we do not expect these same institutions to take them on their faculty but will other institutions accept them? This is a question that we all must consider, for as you know, there is a great deal of discrimination still practiced in our colleges and universities in regard to the employment of women, their promotion on faculties, their tenure, and their salaries.

MRS. MERRY: Our next speaker will be Mrs. Vera Schletzer, codirector of the Minnesota Plan.

[Mrs. Schletzer's comments follow her working paper.]

UNIVERSITY OF MINNESOTA

The Minnesota Plan

Vera Schletzer, *codirector*

THE MINNESOTA PLAN was formally established at the University of Minnesota in June 1960 with the assistance of a grant of $110,000 from the Carnegie Corporation of New York for its first three years of operation. Its two objectives are: first, to return to the nation's paid and unpaid manpower pool a group of intelligent, educated women whose talents might otherwise be underused during their mature years; and second, to increase the personal happiness of many women by exposing them to new interests, by helping them to find new objectives, and by making the goals of the more distant future an integral part of their present lives. The Minnesota Plan is neither a college nor a curriculum nor a superinstitution. It is a facilitating and coordinating agency which aims to explore, exploit, and explain the available resources of the university to women and, conversely, to influence the university so that its facilities are more readily available for efficient, effective use by women.

The objectives of a program for the continuing education of already mature women necessitate different methods than those for young adult women. The mature woman who feels that she is not using her abilities to their fullest extent needs immediate and individualized help. She does not have a high school counselor to aid her in choosing the "right" college and "right" curriculum. She is hesitant to approach a staff member to ask which courses are appropriate to bring her "rusty" degree or major up to date. She may not want to resume a previous career and needs help in determining a new direction. Generally, she needs support, information, and assurance that there is a sympathetic and dignified means of approach to the university or the world of work. The personnel of the Minnesota Plan try to expedite this return in

many ways: by counseling, referrals to other persons on and off campus, job placement, liberal arts seminars designed especially for mature women, neighborhood seminars, scholarships, and special programs designed to meet specific needs—whether they be for information on schools of tomorrow or lectures on how to study. It has been our experience that many offerings have unexpected benefits. For instance, a newsletter distributed for information purposes often has motivational results.

The young adult woman has different needs from those of mature women although she may not be aware of them. With information in all fields expanding at such a rapid rate, she needs to plan ahead realistically. Although some undergraduates have had individual help from the Minnesota Plan personnel, we feel that much can be done in group situations. Part of our function is to educate and indoctrinate the personnel of the university who already have a responsibility for these students. Several of our "rusty" ladies report that the concern they felt twenty years ago for their own futures was met with cavalier treatment on the part of their advisers; our hope is to prevent this today.

To a great extent the uniqueness of the Minnesota Plan lies in the fact that it has been a pioneer and a leader in the concept of women's continuing education, although it is sometimes difficult to be a leader when you are still exploring uncharted territory. Also, the attitudes and facilities of a large state university in a metropolitan center provide opportunities that differ from those possible in other types of institutions in other locations. The University of Minnesota provides a climate that is receptive to innovation and experimentation.

The outstanding accomplishments of the Minnesota Plan for the Continuing Education of Women are, of course, the enrollment in the plan of almost seven hundred mature women and their individual success stories, along with over one hundred young women who have come to us for counseling about their futures. The interest and active support of already overburdened faculty must rank among our greatest achievements. The great amount of publicity, mostly unsolicited, that the program has received is another important accomplishment, for it indicates a general and growing concern with the problem of continuing

education. During the past year, our staff members have been asked to address sixty-nine groups. The far-reaching and long-term effects of these printed and spoken words are difficult to evaluate.

Our biggest problem is to get young women who are undergraduates to concern themselves with planning for continuing education. We have not yet reached faculty advisers in a way that satisfies us, and we were disappointed that the undergraduate seminar failed to attract adequate registration in its second year. Specific changes in university procedures that would be helpful are: (1) credit by examination in the social sciences, as we now have in mathematics and languages, (2) courses given during daytime hours but only once a week, as they are in the evening extension classes, and (3) elimination of certain fees for services used by the resident undergraduate but not the part-time mature student. Most important, we need the time and the staff to do research on the many problems connected with the continuing education of women.

REMARKS IN ELABORATION OF WORKING PAPER

MRS. SCHLETZER: From the great interest and enthusiasm with which women have approached the Minnesota Plan, you can see that we do not have to coerce women into coming back to school. We have to make the existing resources of the university available to them, and once they are available, the women will take advantage of them. We have had approximately 882 women come to us for help in using our resources. With the exception of the liberal arts seminars, and our counseling and guidance programs, we have added nothing new to the University of Minnesota. Perhaps many of you, too, have a flexible program available at your institutions but have not let the public know about it.

We do not screen applicants to the Minnesota Plan; one simply has to be a resident of the state and feel that she can benefit from the University of Minnesota to join the plan. Thus we have had some women who may have joined it by mistake. In

May of this year we sent a follow-up questionnaire to 471 women who had joined the plan prior to January. We asked how many had actually taken courses, whether they were daytime courses at the university, daytime courses elsewhere, extension division seminars, regularly scheduled evening classes, correspondence courses, or any college level work. Sixty-four percent, or 302 women, returned their questionnaires. I've asked several people to guess the percentage of women who have actually taken college level work since joining the plan, and I consistently got 20 percent as an estimate. Actually 72 percent of those answering have taken college level courses, and another 15 percent plan to start within this next year. Only 6 percent of the women answering have not taken courses, are not working, and have no firm plans to do so in the near future. I think this is evidence of the need and the seriousness of the women coming to us.

MRS. MERRY: Unfortunately, Mr. Bernard Stern, associate director of the School of General Studies at Brooklyn College, could not join us tonight, but the description of the program at Brooklyn College will reveal an interesting and unique approach to the continuing education of men as well as of women.

BROOKLYN COLLEGE

Special Baccalaureate Degree Program for Adults

Bernard H. Stern, *associate director, School of General Studies*

THE SPECIAL BACCALAUREATE DEGREE Program for Adults at Brooklyn College was established in 1953 as an experimental effort to meet the following objections of adults to formal degree study:

1. We already know from life experience much of what you require us to study.
2. We can go much faster than youngsters in a college curriculum.
3. We are treated like children in the classroom; we would do better if taught on an adult level.

The program has successfully solved these problems by providing for academic credit for life experience, accelerating adults by tutorial service and independent study, and establishing basic seminars in the four divisions of knowledge equivalent to the general education courses of the first two years of college, followed by advanced seminars which achieve integration and depth intellectually superior to the ordinary senior year.

The program differs from other adult projects in these respects:

1. It leads to a standard, regularly accredited, bachelor of arts or bachelor of science degree, fully recognized as valid for admission to graduate and professional schools.

2. It is possible for an adult without advanced standing who attends college only in the evening to attain the degree in about four years. If he is able to attend some day classes, the period of residence may be reduced to three years. In the regular curriculum the earning of the degree may take as long as twelve years.

3. The seminars, the core of the educational process of this program, are unique in their adult quality, their integration at a high level of scholarship, and their intellectual stimulation.

The most significant achievements of the program are that it clarifies the liberal arts value of adult experience; it prods faculty minds to think through the meaning of academic credit; it conducts research into the nature of adults as students; it establishes a relationship among life experience, intellectual acuity, emotional stability, adult motivation, personal growth, and social usefulness; and it illuminates the problem of screening procedures for college admissions. The chief problem faced by our committee has been the recruitment of teachers of adults qualified for the kind of commitment to adult education which this program requires.

Group Discussions of Assigned Questions

On the morning of the last day of the conference, the participants divided into small groups to discuss questions prepared for them by the Conference Steering Committee. Summaries of these group discussions follow and include many courses of action that universities and colleges could follow to establish, promote, and encourage programs of continuing education for women.

DISCUSSION GROUP 1

Leader: C. Easton Rothwell

With reference to the continuing education of women, what new administrative and program arrangements are needed in colleges and universities in order to improve the yield of guidance and counseling? What innovations in guidance and counseling are possible in agencies other than colleges and universities?

It was the unanimous judgment of the committee that there should be one person in the reference service of the college or university who could serve as a focal point for continuing education. This function should be set aside from, but related to, the general counseling and guidance functions of the institution.

Although there are some institutions in which counseling and guidance related to continuing education are handled solely by the guidance service itself, the more normal arrangement would require a referral from the person serving as the focal point to the various branches of the college or university, to the administration, to the faculty involved in the educational program, to the psychologists where special guidance in this area is necessary, or if the woman is interested in research, to those concerned with research programs.

There should be a close working relationship between counseling and guidance in each of these areas. At the same time, the person serving as the focal point for counseling and guidance should handle problems such as that posed by a young woman who indicates that she wants to get a Ph.D. in economics in order to engage in economic analysis. If the counseling and guidance person is persuaded economics is not the field in which this woman will do best, there should be some discussion of this and some special consultation with persons in economics. Through the focal point for counsel, the woman seeking a continuing education should acquire a better knowledge of the opportunities available in the college or university. Often times, ignorance rather than lack of desire has been responsible for mistakes in programming.

Some advantages can be gained by handling women in groups once they have been seen as individuals. Guidance given in groups can lead to mutual stimulation and clarification and tends to increase motivation. This is the experience of institutions, like the University of Minnesota, where this has been done.

Finally, it should be remembered that the real motivation for continuing education will be implanted during the growing-up and maturing period. This means the undergraduate years as far as college is concerned. Hence, counseling and guidance on continuing education should be extended to the undergraduate years and, in cooperation with other programs of counseling and guidance, should be geared toward the specific problems of the undergraduate.

Under any circumstances, the conditions essential to the success of a counseling and guidance program are: (1) warm support from the faculty and administration; (2) confidence on the part of the students; (3) a measure of flexibility in the educational program itself which permits some adjustment and adaptation; and (4) persons of high quality in the counseling function who are able to win faculty, administrative, and student support and confidence.

The group is aware that counseling and guidance is carried on by the Red Cross, the YWCA, the AAUW, certain industries, and certain unions. In large measure, this is precollege or pre-university counseling and should not be confused with that

conducted in the educational institutions. Insofar as there is a relationship between the institutions and these agencies, a liaison should be established to prevent contradictory advising or undesirable forms of overlap. On the other hand, the kinds of counseling and guidance given by these outside agencies may afford alternative programs in continuing education that may be of great significance to women.

DISCUSSION GROUP 2

Leader: VIRGINIA SENDERS

> *Given the pressures of increasing enrollments and continuing shortages of faculty members, what active steps can educational institutions take to meet the needs for continuing education in their own communities?*

In interpreting our assignment, the members of the group decided not to attempt to solve the problems posed by enrollment pressures and faculty shortages, but to address themselves primarily to the question of the development of continuing education programs that are realistic and feasible under these probable future conditions. The group's conclusions and suggestions can be summarized under three main headings: policy, implementation, and financing.

Policy

The most important single step that can be taken by educational institutions to support continuing education is to believe in it. For years, lip service has been paid to the principle that education continues throughout life, but in actual practice, the fulfillment of adult needs is placed at the very bottom of the hierarchy of institutional responsibilities. The four-year package continues to be accepted as a norm; teaching assignments are made with no thought of the continuing education needs of the community; funds are allocated for continuing education only when all other requests have been filled; class schedules are made up and curricular requirements determined with no thought of

the needs of the mature student. The junior colleges and community colleges, of course, provide the notable exception to these generalizations, and we may well look to them for leadership in the continuing education movement. Such gains as have already been made should be followed up *now*, while the movement is showing remarkable vigor across the whole country. The continuing education of women is only a part of the whole, but it is a part of such importance, a part where innovation is so relatively easy, that for the movement as a whole it may serve as the spearhead of progress.

The group felt that the American Council on Education, as the representative body of higher educational institutions in America, should issue a policy statement announcing strong and wholehearted support of the philosophy of continuing education and should encourage its member institutions to exploit old ways and seek new ways for implementing this philosophy.

Implementation

An institution truly committed to the principle of continuing education will find numerous ways of implementing its beliefs, even in the face of mounting enrollments and faculty shortages.

One of the most important and least expensive steps an institution can take is to examine its own procedures, including degree requirements, class schedules, tuition and fee structure, course prerequisites, and the like, with the needs of the mature, part-time student in mind. Inevitably, unexpected obstacles will appear. In one university, the fee structure severely penalizes the part-time student. In another, an unexpected physical education requirement prevents grandma from obtaining the coveted degree, or a required orientation course presents an absurd waste of time for a mature business man. To seek out and remove such obstacles is a real step forward in the support of continuing education.

An institution may already have taken this first important step and may feel that its offerings—its schedules, its fees, its requirements—are truly geared to the needs of the mature student. Its next job is to publicize its wares. Members of the community need to know what is available to them. They need to know

that they are welcome. They need to know that others like themselves are already making use of the university's offerings. Only then will going to school for life really seem like a completely natural, normal, reasonable thing for anyone to do. Right now, public relations is an integral part of the total educational job that remains to be done, for it is largely through public relations that attitudes are shaped and expectations formed. Many of the community and junior colleges have already taken these two important steps and have established their right to serve as models for other institutions. Widespread use of available educational resources by members of the community would, of course, mean additional pressure on enrollments in an era of coming faculty shortages. Ways must be sought to use teaching resources more effectively and to exploit untapped sources of faculty personnel. Full utilization of instructional aids such as programmed learning, correspondence courses, independent study, proficiency examinations, audio-visual aids, and very large classes will lead to more effective use of faculty time and ability. But these aids must be used correctly—not in such a way that the education of masses of people becomes nothing more than the education of people *in* masses. Our goal should remain the creation of a climate conducive to the full development of each individual to his own maximum potential. The Brooklyn College program, for example, takes as its starting point the evaluation of individual accomplishments and deficiencies and seeks individual ways to accredit the accomplishments and remove the deficiencies. It succeeds in weaving adult experience into the fabric of academic progress.

To achieve such a climate will require not only the full and efficient use of faculty members in such numbers as we now have, but the discovery and exploitation of new sources of teaching personnel. For example, regulations governing faculty retirement must be constantly scrutinized to foster the continued use of the talents of wise and experienced men and women who, though they have reached some specified chronological age, may be biologically and psychologically younger than colleagues who have had fewer birthdays. And women's talents must be used more

fully. There are many forms of discrimination against women on college faculties; some are overt, some covert. A few institutions quite openly state their preference for men. But women's potential professorial careers are less handicapped by such outspoken discrimination than by antinepotism regulations and by the unspoken requirement of "publish or perish." Women who are raising families, as President Clapp of Wellesley has pointed out, can readily maintain their professional knowlege and continue as effective teachers and advisers, but seldom can they add a research load to these other time- and emotion-consuming activities. To lose them as teachers or treat them as second-raters because they cannot simultaneously be wives, mothers, researchers, *and* teachers seems criminally wasteful. And instead of arbitrarily excluding faculty wives from teaching positions, we should examine their ranks for overlooked potential.

In addition to women and older faculty members, there may be an additional source of teaching personnel in the community. In industry, in government, in business, there are men (and women) who would welcome the opportunity to do some college teaching without devoting a major portion of their time to it. To some extent, such persons are already being sought out, especially by the evening colleges, but with a flexible system of individual or group tutorials combined with proficiency examinations, their abilities could be used even more fully and effectively.

Financing

More faculty members, changed schedules, better teaching aids —these will cost money. The money may come from three kinds of sources: individual tuitions and fees, private endowment and grants, and governmental aid. For a number of years, the Federal Government has been expending large sums of money for rural and agricultural education. But the United States has now become an urban society, and the urgent need at present is for the support of continuing education programs in urban centers. The General Extension Bill may be a source of funds for this purpose, and the group concurred in the hope that no unneces-

sary limitations would be placed on the institutions that were eligible for support under it. They should, of course, be accredited institutions, but should not be limited, for example, to public or private ones, or large or small ones.

For some time to come, private foundations may be expected to provide a substantial proportion of the funds for continuing education programs, especially those that are novel or experimental. In preparing proposals for foundations and in soliciting their support, voluntary organizations and citizens' groups might have significant contributions to make. Similarly, these same groups could help obtain legislative support and state funds for educational programs designed to meet the needs of the entire community. In general, a broader concept of the community's role in educational financing is needed.

Conclusion

Where there is a need and a real desire to meet that need, it will be met. Today there is a real need for more first-class educational offerings from the colleges and universities to the adults of their communities. The ways in which programs can be revised and supplemented are numerous, as are the possible sources of funds. Ultimately, what will determine our progress will be our policy, in the broadest meaning of that word. If we really want to do this job right, we can. The most important action we can take now is really to want.

DISCUSSION GROUP 3

Leader: SUSAN COBBS

> *What are the needed innovations in colleges and universities that would enable them to maintain continuous contact with women graduates and perhaps nongraduates who are engaged in the earlier years of homemaking?*

The group felt that innovations are not needed so much as a more imaginative use of facilities already in existence. These can be directed more specifically toward maintaining contact with

alumnae. Better use of existing facilities can be made in the following ways:

1. Organize counseling of women in such a way as to recognize that careers or even education may be interrupted and then resumed. It is important that such counseling be done with freshmen and sophomores as well as with upper-class women.

2. Encourage faculty members to keep careful records of majors and their subsequent activities. This can be one of the most effective lines of communication between alumna and institution.

3. Publicize in the alumni bulletins material that recognizes the concerns of women whose education or career has been interrupted. Both "precept and example" can be used.

4. Conduct an exit interview to establish a relationship with women who leave college before graduation and continue to communicate with such women through a special office or a part of the alumni office. In this way a return to academic work when the right time comes can be encouraged and facilitated.

5. Use all possible educational devices to reach beyond the institution: for example, television, alumnae seminars.

DISCUSSION GROUP 4

Leader: BROTHER LEO V. RYAN

What institutional reforms should be considered with reference to the increasing physical mobility of American families?

This male-dominated, administrative-oriented group approached our question somewhat gingerly. In this report we wish to suggest some techniques which might be explored and researched in considering the special problems we face in the continuing education of women. At the same time we wish to indicate that our suggestions for study should not be interpreted as a recommendation to relaxation in the administration of existing programs, but rather these suggestions point out possibilities for the realistic adjustment of procedures to achieve desirable goals.

Our suggestions are motivated by several considerations:

1. We believe that there is need for greater administrative flexibility and administrator friendliness—administrative flexibility toward highly rigid regulations as they generally exist and administrator friendliness toward highly motivated persons as they exist, even if they do not conform to neat, administrative categories.

2. We believe that traditionalism, which has been identified with educational institutions and which was rooted in the circumstances and spirit of an earlier time, was more appropriate to a time in which our society was less mobile. These traditions should be reviewed in the light of a changing society and of the greater mobility of our people.

3. We are essentially discussing undergraduate education, but not necessarily limiting our consideration to this area.

4. We question whether mobility of population and, therefore, study in several institutions really contributes to an eroding of the value of a degree. We wonder if this argument might suggest the need to restructure various degree programs, to rebuild the degree programs rather than to attempt to patch the present programs.

Specific suggestions offered by our discussion group were the following:

1. Review the present regulation in the acceptance and transfer of credits.

2. Increase the possibilities for independent study, reading, and research.

3. Increase the opportunities for students to qualify for credits by examination.

4. Liberalize requirements for advanced standing in programs of study by methods other than credit through examination.

5. Waiver prerequisites when the candidate can demonstrate equivalent or more than equivalent preparation and experience.

6. Give special consideration to an earlier participation in honors programs and seminars.

7. Give greater weight to experience and establish an educational equivalency for experience.

8. Conduct research into the methods, procedures, and substance of credit transfer between and among institutions.

9. Put less emphasis on credits and greater emphasis on educational achievement and accomplishment.

10. Allow mature students to secure a degree through comprehensive examination in areas of learning rather than in traditional courses. Preparation can range through a variety of educational techniques.

11. Ease the transition from one type of institution to another, for example, the transition from a small liberal arts school for girls to a large, complex state university.

12. Review the entire area of certification in terms of uniform and standard certification policies. There is a need for greater coordination among existing groups and for perfecting examinations.

13. Consider wider acceptance of extramural programs.

The suggestions offered by this group have a striking resemblance to many of the ideas which appear in the Report of the Council on Inter-University Cooperation based on findings of a study and conferences financed by the Carnegie Foundation. This discussion group recommends a study of that report as a source of ideas to help solve the present need for institutional reforms resulting from the increasing mobility of American families.

DISCUSSION GROUP 5

Leader: PAUL WARD

> *Contrasted with those of men, are the differences in the life cycles of women sufficient to justify special programs and services for the continuing education of women? If yes, what are the essential variations that should be arranged in such programs and services?*

We answered the first question with a quick "Yes." As to the second question, we agreed that special counseling is needed when a woman resumes the process of education in her mature years. Programs for the continuing education of women should

be publicized to encourage those who need only friendly advice and thoughtful guidance. Going beyond that, we would suggest that college vocational offices publicize any special guidance services to alumnae. Those colleges with tight exclusion policies with regard to older students should decide whether they will serve only those between the ages of eighteen and twenty-two or if they now have an additional responsibility to educate mature women. If they accept this responsibility, they should then provide certain instructional services and be flexible enough to make exceptions to the usual registration requirements and to cope with the special problems of returnees. These colleges should also take a more realistic view of what their degree means and should be willing to grant a degree to those who may not have had four years under their own instruction but who have satisfactorily fulfilled basic requirements.

Adult evening colleges and all colleges offering courses to mature women with family responsibilities should schedule classes at convenient times during the day. For example, a long seminar one day a week might be much more satisfactory than three classes per week. Those colleges and universities developing an adult program would do well to experiment with one or more introductory courses—courses designed exclusively for women returning to academic life. Such courses might be planned in consultation with students rather than by the administration or the faculty alone.

The group made the following recommendations for the education and counseling of undergraduate women: First, the vocational office should point out the problems of re-entering a career after dropping out and the possibilities (or impossibilities) for part-time work in certain careers, so that students who currently are not looking much beyond marriage are made aware of the special problems of interrupting their education or their work record. Second, the vocational office should conduct an exit interview with each dropout. Third, the faculty should be encouraged to rethink and reorganize certain undergraduate courses in view of the interrupted educational pattern of many women students.

DISCUSSION GROUP 6

Leader: CARL GRIP

What are the more urgent areas of research to backstop improved continuing education of women? Are there specific directives to be suggested to agencies such as colleges and universities, private and public organizations, and governmental departments at all levels?

In carrying out the charge above, our discussion group recognized that some of the following recommendations might properly be labeled as areas for research but that, more often, the recommendations involve the more mundane tasks of assembling information or data. We suspect that there already exists a good deal of data and some studies relevant to these questions. The mandate to delineate materials needed to "backstop" improved continuing education of women was taken literally. Implicit in most of our questions are assumptions which are not questioned but for which more substantial supporting data is sought:

1. It appears that a barrier exists in the form of a fear on the part of the mature woman that she will not be able to learn as easily as she would have when she was younger. The literature on IQ development has tended to suggest this. The University of Chicago's study, on the other hand, would seem to indicate that mature women perform better in the classroom than their "college-age" counterparts. More information on this point needs to be assembled and widely disseminated so as to reach women who may be considering a return to school.

2. Related to our first recommendation is the concern about the appropriateness of existing entrance and achievement tests for these women. Do these tests, with their emphasis upon substantive knowledge, blur the potential of these women to regain what may have been lost through disuse? Also, since even tests which aim primarily at abilities necessarily involve substantive material, do they thus underestimate the potential of these women as earlier forms of IQ tests were found to discriminate against city-bred children who had never seen cows?

3. More information is needed about the career patterns and choices of women who continue their education. What relationship is there to the career expectations expressed when they were in high school or when they previously attended college? To what extent is the resumption of education a consequence of changes in career choices? What problems are involved in such changes? Are there discernible trends for this group? (We are mindful, for instance, of some cases which were cited of women leaving quite lucrative jobs to take what they considered to be more challenging positions.)

4. What is the placement picture? Effective counseling with these women must await better and more extensive data on the types of jobs that are or will be available to women.

5. In instances where women have requisite skills and sex discrimination does not bar them from particular jobs, the availability of the jobs to women or, conversely, the tendency for women to fill the positions may depend upon special arrangements not directly related to the performance of the skill. Thus some women will be available for part-time employment who could not accept full-time employment. Cultural expectations seem to demand that when the husband or children are ill the wife takes charge, while the converse is not true. What are the unique demands made upon a married woman which affects her availability for employment? To what extent do these bar her from appropriate employment and deprive the nation of her talents? What changes can be made in employment patterns (hours, physical conditions) to alleviate this problem?

6. What are the implications for family life when the woman returns to school or takes employment? What is the effect upon her husband and children?

7. What types of financial assistance are needed to make continuing education available? What other material problems are involved for women going back to school?

8. The usual college curriculum and the patterns in which it is made available have been designed for full-time undergraduates just out of high school or, in some instances, for a somewhat amorphous evening school population. Are there other forms of

educational opportunities or other patterns or media which might be employed?

9. Related to the questions concerning career choices is lack of information about the incentives and motives of women who return to school. For instance, we have phrased several of these recommendations in terms of jobs. How many women who return to school are doing so for enrichment without intending later to seek employment? Our concern to provide opportunities for employment to women and to make available to the nation the skills of these women is already apparent. We should also be concerned with the improvement of continuing education in a non-vocational sense.

10. The growing number and variety of special programs in continuing education is gratifying. The usefulness of information about these programs to other institutions will be greatly enhanced if follow-up studies are made. We urge the institutions which have existing programs to carefully evaluate them, their patterns, and the participants and to make this information available.

DISCUSSION GROUP 7

Leader: ROYCE PITKIN

What are the needed innovations in campus experiences that would enable women students to better understand the multiple roles they will play in later life?

The general climate of the campus should be characterized by recognition on the part of the administration, the faculty, and student advisers of woman's specific role and educational needs. Our group recommends the establishment of a center of responsibility on each campus for the creation of the desired climate. It is felt that unless some person or agency serves as such a center the creation of the desired climate is likely to be bypassed because of the pressures of other interests.

The group recommends that institutional regulations be modi-

fied wherever necessary to make it easier for women to complete their interrupted education and to permit the employment of women as faculty members on a part-time basis, and that nepotism rules be modified so that women may be employed by the same institution as their husbands.

The group urges that the influence of models on the lives of students be recognized by helping younger students get acquainted with women faculty members who carry multiple roles, by permitting mature women to participate in undergraduate courses, by inviting to the campus as speakers and consultants women who are known to carry a variety of roles and who represent wide experiences. The group agreed that courses for undergraduate women should be planned to include experiences outside the classroom and even outside the campus which would demonstrate the varying roles of women and that provision be made for the discussion and interpretation of these experiences; that established courses should incorporate discussions of the roles women perform and that these discussions be supplemented by use of the film, television, literature, and drama.

Campus services should include those provided by counselors who are oriented to the specific problems of women as well as counseling for dropouts. The group felt that there was a special opportunity for counseling through the placement services. It was pointed out that vocational planning programs should be tempered with consideration of women's unique lives. The group recommends that information be designed to interpret to prospective college students, their parents, and high school counselors the kind of education needed for women in their multiple roles and that this information be disseminated through pamphlets, alumni journals, admissions offices, and speakers.

The final recommendation was that studies should be made of what women students actually think at various stages in their college careers about the roles of women. Such studies may reveal that women students are already giving a great deal of thought to the kinds of lives they are likely to lead, or they may reveal quite the opposite. It is also quite possible that their views change markedly as they move through college.

DISCUSSION GROUP 8

Leader: ERWIN STEINBERG

Given such exemplary programs for the continuing education of women as those now being sponsored by the reporting institutions, what additional types of programs or services would enrich the current experimentation? In short, are there experimental ideas that have been overlooked?

Our group felt that the following types of programs or services should be explored:

1. New channels and devices need to be developed to disseminate information about the need for continuing education for women and about programs of continuing education. The newsletter, *Women's Education,* of the American Association of University Women is excellent, but both the public and the colleges need additional sources of information.

2. Special counseling programs for women need to be developed and then introduced into the schools and colleges.

3. Facilities and services already available, such as extension programs, evening schools, the program to make mathematics teachers out of retired naval officers, and counseling bureaus, need to be adapted to continuing education for women.

4. Urban, area, state, or regional centers should be established to coordinate the facilities of colleges and universities, museums, and educational television stations for use in continuing education programs.

5. A policy to facilitate the transfer of college credits needs to be developed by the American Council on Education.

6. The four-year college program should be compartmentalized into two two-year programs. The educational disadvantages here are obvious, but it would be worth exploring this idea to see whether the facilitating of transferring as a result of such an organization of curricula might outweigh the disadvantages.

Resolutions of the Conference

THE FOLLOWING THREE RESOLUTIONS were adopted by unanimous vote of the conference:

Resolution Number 1

The Conference on the Continuing Education of Women, meeting at Itasca State Park, Minnesota, September 6–8, 1962, gratefully acknowledges its appreciation to the American Council on Education for sponsorship of the conference; to the Carnegie Corporation of New York for assistance that made the conference possible; to the University of Minnesota for leadership and staff assistance in the development and carrying out of the conference program; to the steering committee; to those who prepared papers, addressed the conference, and participated in the discussions at the conference sessions; and to the management and staff at Itasca State Park for the pleasant accommodations.

Resolution Number 2

The Conference on the Continuing Education of Women, meeting at Itasca State Park, Minnesota, September 6–8, 1962, under the auspices of the American Council on Education, reaffirms the significance to society of women's continuing education and of the role of American universities and colleges in such education.

In this conviction, recognizing strength in the potential diversity of the programs institutions may devise and relying on the opinion, often stated by many conferees, that this conference should lead into action, we earnestly request the president of the American Council on Education to appoint a committee charged to seek out ways in which, under the aegis of the Council, its member colleges and universities may be encouraged to originate and sustain effective programs for women's continuing education.*

* Editor's Note: During the 1962–63 academic year, responsibility within the American Council on Education for program development in the field of women's education was assigned to the Commission on Academic Affairs.

Resolution Number 3

The Conference on the Continuing Education of Women, meeting at Itasca State Park, Minnesota, September 6–8, 1962, brings to the attention of the Committee on Education of the President's Commission on the Status of Women the deliberations and ideas presented at the conference, as reported in the conference proceedings, and urges that the committee include in its report to the commission the importance of continuing education of women at all educational levels.

SUMMARY

The Facts, the Hopes, and the Possibilities

Margaret Culkin Banning
Author

THIS CONFERENCE will have its small niche in educational history, for never before has a national meeting been called to consider the subject which concerns us here. It has been a brave and a frank conference, its participants have made it a very distinguished one. At the conclusion of this meeting, we are certain that the need and desire for continuing education of American women is not regional but national, although it is not yet pervasive in the United States by any means. But the fires of interest have sprung up in noncontiguous areas and have not been started by any one hand. The roots of the movement seem to be the unused or undeveloped abilities of women and the conscientious belief of women, educators, and citizens that we are permitting a waste of ability that we cannot afford.

The first remarkable aspect of the conference is that its subject is taken so seriously that, at a time of year when academic pressures are very great, eighteen college presidents have attended, and the South, the East, the Middle West, and the Far West are all represented by leading educators. Many college and university deans of women and of men are also present, as are the leaders of many national organizations. The conversations have included the President of the National Council of Jewish Women, the President of the National Council of Negro Women, the Educational Director of the American Association of University Women, several members of the President's Commission on the Status of Women, the Assistant Secretary of Labor, representatives of great foundations, directors of workshops in vocations and human relations, and, most usefully, those who are presently in charge of pilot ventures in the continuing education of women.

The director of the American Personnel and Guidance Association was present, as was a representative of the International Business Machines Corporation. This idea obviously has its foot in some of the most important doors in the United States, doors which are the entrances to a variety of modern thoughts and actions.

If there ever was a conference without pride or pomposity, it has been this one. Every paper which cited efforts in the field of continuing education for women began with a statement about the experimental nature of the work that was being done. None boasted of a sure success. None had gathered enough case histories and records to be assured or content. Instead of adding up achievements, the leaders spoke of difficulties and resistances which had to be overcome.

The conference began with a consideration of some of the deepest and most subtle resistances. President O. Meredith Wilson, both the host and the keynote speaker, threaded his talk with the warning that a woman is a woman, saying, as did Dr. Karem M. Monsour and President Gordon Blackwell, that women remain an enigma to men. Although President Wilson said that "a woman's need is differentiated from a man's need," when he enumerated educational needs and possibilities, he also stated that his words related to both men and women and that he would make the same remarks to a committee of the legislature if he were addressing them on educational matters. With that apparent paradox, and President Wilson's statement that he was less interested in the plight of women than in the needs of society, the major problems that were to concern the conference were laid before it. They were recurrent. Most of what was said later, if it was relevant to the discussion, was based on a consideration of women's needs as differing from men's needs and on the fact that the progress and education of men as well as women was inherent in the development of continued and sustained education.

The brief period allowed for the meeting made it advisable to have each session a plenary one, instead of dividing the group into section meetings. This procedure not only gave the same information to everyone but also made it possible to sense the moods of the successive speakers. Each participant knew exactly

what had been said, where emphases had been laid, and the general reaction of the listeners. So the texture of this conference was more closely woven than is usually possible. The many suggestions made from the floor, plus all those reported from the breakfast meetings, add up to a very large body of working material which will be available for future development of projects.

The existence of resistance to the continuing education of women was presented early in the conference—and no one was allowed to forget it. Dr. Karem Monsour dealt with this in his discussion of the physical and psychological traits peculiar to women. He stated that unique aspects of a woman's life resist influence by culture, society, and education. He asserted that during certain periods in a woman's life—when she is in love, when she is bearing a child—it is impossible for her to learn. Disagreeing with his statement, Virginia Senders said that if there were such distracting periods of women's inability to learn, rethinking about women's entire education would be necessary. The conference was reminded by another commentator that men were also subject to emotional crises and often were not able to study when they were in love.

Dr. Monsour, in his paper and comments, indicated other resistances to continuing education for women. He suggested there might be male dominance at high levels of authority, perhaps disavowed or unconscious but nonetheless existent, and that there is resistance in the very educational processes that must be used by those who seek innovations. Some of his statements were hotly debated, but they were neither withdrawn by Dr. Monsour nor apparently rejected by the majority of his audience.

The subject of resistance to the education of women came up in several other talks and papers. There were contradictory findings. President C. Easton Rothwell of Mills College said that he had raised the question with a group of young mothers five to fifteen years out of college. They had just spent a year analyzing their own reactions to a questionnaire on continuing education of women and the job potential of a mother whose children are in school. These young women were almost unanimous and wholly unequivocal in their rejection of any return to work as

an alternative to spending their full time as mothers. On the other hand, Mrs. Esther Peterson spoke of the study, *Fifteen Years After College: A Study of Alumnae of the Class of 1945*, completed by the Women's Bureau in which 580 alumnae of four colleges responded. A majority of these women felt the need of additional education or training to obtain the type of position they would like, and from 46 to 63 percent expressed interest in paid positions for the future.

The conflict in responses established little except the feeling among members of the conference that more research was necessary. It was obvious that in so large a picture one viewer might see one aspect and another quite a different one. Mrs. Peterson felt that women were "traditionally trapped" by marriage because their husbands' occupations kept them in one place. President Blackwell found, on the contrary, "our young people are among the most mobile group in the most mobile population of the world. The wife who married young and whose husband's work requires frequent moves often finds it necessary to study at several colleges before completing a degree."

Although these differences of opinion and observation cropped up in the conversations, agreements also emerged. No speaker questioned the value of counseling girls and women early in life and at later periods, too. The inadequacy of present counseling was referred to in almost every talk.

New directions began to be defined. President Rothwell believes that there will be new areas of activity for mature women—that even automation may be a useful factor. He advised the conference, "Look ahead for ten years and see what changes can be identified and verified." He suggested that we need "something a little harder and firmer on which to build."

No one doubted or denied the existence of impediments more definite than the built-in psychological ones. No one disputed that more money is needed to further the continuing education of women. Greater public interest is equally essential. Correlation of efforts to explain the reasons for continuing education of women and to promote the establishment and growth of plans and methods in this field is desirable.

There was general agreement that each university and college

must select and develop a plan for the continuing education of women—and men—which is most suitable for the individual institution. The need for flexibility in the colleges and the serious problems of credits for the adult student and whether flexibility and innovation in proficiency examinations was possible in regard to them were spoken of many times. Modern methods of study by means of television, night courses, and programming for home study were endorsed. Donald McNeil, collaborator on the study, "The Role of the University in Adult Education," stated that most universities still paid only lip service to adult education and treated it with contempt. Surely, his criticism could not be applied to the participants in this conference.

Everyone who attended the conference possesses for study and reference the papers presented, and there is a stenographic record of the findings of the breakfast discussions. The mood of the meeting, its intention, its hesitations, and its vigor or enthusiasm are not in the reference book and cannot be taped, yet these are very important and, to some extent, can be summarized.

Examples of the differences between men and women, which undoubtedly create the need for a differentiation in their education, were seen again and again during the conference. These differences were evident in what Dr. Monsour spoke of as the "soft tongues" of the men when they talked to the women, in the deft compliments, in the flattering admissions that women were beyond understanding, in the affectionate references of husbands to wives and wives to husbands, and in the anecdotes of family life. We were men and women discussing the intricate problems of sex. In a way the conference proved its point: Women are different from men and are treated differently in many ways, including their education. Their education should be encouraged and improved, and it may be wiser to do it with "soft tongues" than with overardent demands. But it must be done, and it is being done.

The men and women who attended this conference will long remember the meeting on the second night when seven women told what is presently being done in pilot projects of continuing education for women. The case history of Lyda Boyer, with its vitality, adaptability, frankness, and unfinished quality, charmed

everyone. It revealed a woman whose education surely will be continued.

Jane Berry of the University of Kansas told of the experiment under her direction and said that women who begin by taking noncredit courses often change and want to work for credit. Because there is such a variety of needs, she said, there must be a variety of plans.

Mrs. Helen Marston of Rutgers told of retraining for jobs which need the study of advanced mathematics. She did not forget to tell the audience that this retraining in mathematics increased a good family spirit and that children take pride in their mothers as students.

Mrs. Esther Raushenbush, director of continuing education at Sarah Lawrence College, explained the carefully selective work at that institution. Applicants must want to work toward a B.A. degree and have had at least a year of college before applying. She also spoke of the pleasure of counseling women whom Sarah Lawrence cannot accept and of advising them where to go for their special needs.

Constance Smith of the Institute for Independent Study at Radcliffe gave a picture of a different group—those to whom assistance is given for excellence in various intellectual fields. She said the presence of these very intelligent women who continue their education at Radcliffe raises the sights of the undergraduates.

Pauline Tompkins of the American Association of University Women outlined the objective of that organization's continuing education project, which is to provide teachers at the college level. A resource of mature, able, and available women exists, but if they are to become faculty members, their education must be subsidized. It is sometimes easier for a married woman supported by her husband to re-enter college life than it is for a single woman, who has the sole responsibility for earning her living. This creates another problem to be solved.

Finally, Vera Schletzer talked of the Minnesota Plan—its wide scope and its many clients. If there was no Minnesota Plan for the Continuing Education of Women, there would have been no conference at Itasca State Park. Full credit for the organization

and management of the conference must go to Elizabeth Cless of the Minnesota Plan, who had almost full responsibility for its program and participants.

Five directors of plans for the continuing education of women attended this conference, but they are by no means the only directors of such plans. Margaret Habein Merry, chairman of the panel, had chaperoned this work from its inception and should be proud of the achievements that have come from an idea she had sponsored years ago. The pilot projects differ greatly. Their pattern is that they have no set pattern, but only a goal—happier and more useful women. As Esther Peterson remarked, if leisure implies uselessness, it is a sweet coating for a bitter pill.

Conference Participants

FLORENCE ANDERSON, Secretary of the Carnegie Corporation of New York and of the Carnegie Foundation for the Advancement of Teaching

MRS. MARGARET CULKIN BANNING, Author; Former Chairman, Commission on the Education of Women of the American Council on Education

LOUIS T. BENEZET, President, Colorado College

JANE BERRY, Director, University of Kansas City Project for Continuing Education of Women

GORDON W. BLACKWELL, President, Florida State University

MRS. ELLEN BODDY, Member, President's Commission on the Status of Women (Henrietta, Texas)

MRS. LYDA BOYER, Member of the Minnesota Plan for Continuing Education of Women

THOMAS CARROLL, President, George Washington University

MARTIN CHAMBERLAIN, Director, Continuing Education, University of Washington

ALEXANDER CHARTERS, Dean, University College, Syracuse University

MRS. ANTONIA CHAYES, Technical Secretary for the Committee on Education of the President's Commission on the Status of Women (Washington, D.C.)

SUSAN P. COBBS, Dean of the college, Swarthmore College

J. W. COHEN, Director, Inter-University Committee on the Superior Student (University of Colorado)

WILLIAM CONLEY, Director, Study of Catholic Education, University of Notre Dame

ALICE RICE COOK, Director, Human Relations Workshops, New School for Social Research

MARGARET CORMACK, Chairman of the Doctoral Program in Comparative and International Education, Department of Education, Brooklyn College

ANNE CRONIN, Director, Seven College Vocational Workshop (475 Riverside Drive, New York 27)

LAWRENCE E. DENNIS, Director, Commission on Academic Affairs, American Council on Education

MARY H. DONLON, Judge, United States Customs Court

SISTER MARY EDWARD, President, College of St. Catherine

MORTON GORDON, Associate Director, University Extension, University of California, Berkeley

CARL M. GRIP, Dean of Men, Temple University

MRS. EVA B. HANSL, Journalist and editor (New York City)
RUFUS C. HARRIS, President, Mercer University
DOROTHY HEIGHT, President, National Council of Negro Women
GRACE M. HENDERSON, Dean, College of Home Economics, Pennsylvania State University
MRS. MARGARET HICKEY, Public Affairs Editor, *Ladies Home Journal*
ARTHUR HITCHCOCK, Director, American Personnel and Guidance Association
MRS. MARJORIE HOWARD, Regent, University of Minnesota
MRS. VIOLA HYMES, President, National Council of Jewish Women
MRS. LOIS IRISH, Assistant Director, College Scholarship Service, College Entrance Examination Board
MARIANNA JENKINS, Associate Dean of the Woman's College, Duke University
MRS. PAULINE PARK WILSON KNAPP, President, Merrill-Palmer Institute (Michigan)
DOUGLAS M. KNIGHT, President, Lawrence College
HELEN LEBARON, Dean, College of Home Economics, Iowa State University
A. A. LIVERIGHT, Director, Center for the Study of Liberal Education for Adults (Illinois)
RITA MCCABE, Director of Planning Systems and Application Engineering, International Business Machines (New York City)
ERNEST E. MCMAHON, Dean, University College and the University Extension Division, Rutgers—The State University of New Jersey
DONALD MCNEIL, Collaborator in the study "The Role of the University in Adult Education" (Mesa, Arizona)
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MRS. HELEN M. MARSTON, Director, Retraining in Mathematics Program, University College, Rutgers—The State University of New Jersey
MARGARET J. MEALEY, Executive Director, National Council of Catholic Women
MRS. MARGARET HABEIN MERRY, Dean of Admissions, Radcliffe College
ROBERT MERRY, Director of the Doctoral Program, Graduate School of Business Administration, Harvard University
PAUL A. MILLER, President, West Virginia University
KAREM J. MONSOUR, M.D., Psychiatrist and psychoanalyst (Pasadena, California)
JAMES M. NABRIT, JR., President, Howard University
JOHN J. NEUMAIER, President, Moorhead State College
JULIUS M. NOLTE, Dean, General Extension Division, University of Minnesota

KATHRYN OLIPHANT, Consultant on Education, Association of the Junior Leagues of America, Inc.

MRS. ESTHER PETERSON, Assistant Secretary of Labor for Labor Standards and Director of the Women's Bureau, U.S. Department of Labor

ROYCE S. PITKIN, President, Goddard College

WILLA B. PLAYER, President, Bennett College

HARRY H. RANSOM, Chancellor, University of Texas

MRS. ESTHER RAUSHENBUSH, Director, Center for Continuing Education, Sarah Lawrence College

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SISTER MARIA RENATA, C.S.C., President, St. Mary's College (Indiana)

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MRS. EUNICE E. ROBERTS, Assistant Dean for Undergraduate Development for Women's Educational Programs, Indiana University

NANCY G. ROMAN, Chief, Astronomy and Solar Physics Programs of the Office of Space Sciences, National Aeronautics and Space Administration

SISTER M. ROSALIE, Academic Dean, College of St. Catherine

C. EASTON ROTHWELL, President, Mills College

HELEN ROWAN, Editor, *Carnegie Quarterly*

BROTHER LEO V. RYAN, C.S.V., Director of Continuing Education, Marquette University

MRS. FELICE SCHWARTZ, Founder and President of "Catalyst"; Founder and First Executive Director, National Scholarship Service and Fund for Negro Students

MRS. VIRGINIA L. SENDERS, Consultant on Women's Education (Lincoln, Massachusetts)

GENE SETZER, Rockefeller Brothers Fund (New York City)

ALAN SIMPSON, Dean of the College, University of Chicago

CONSTANCE SMITH, Director, Radcliffe Institute for Independent Study

SEYMOUR A. SMITH, President, Stephens College

ERWIN R. STEINBERG, Dean, Margaret Morrison Carnegie College, Carnegie Institute of Technology

BERNARD H. STERN, Associate Director, School of General Studies, Brooklyn College of the City University of New York

WILLARD L. THOMPSON, Assistant to the President, University of Minnesota

PAULINE TOMPKINS, General Director, American Association of University Women

MRS. RUTH HILL USEEM, Research Consultant, Department of Sociology and Anthropology, Michigan State University

RUA VAN HORN, Vocational Education Division of the Office of Education, U.S. Department of Health, Education, and Welfare

GEORGE WAGGONER, Dean of Arts and Sciences, University of Kansas

JEAN WALTON, Dean of Women, Pomona College
PAUL L. WARD, President, Sarah Lawrence College
CAROLINE WARE, Historian for Unesco (Vienna, Virginia)
MRS. CYNTHIA C. WEDEL, Assistant General Secretary for Program, National Council of Churches of Christ in the U.S.A.
MRS. ESTHER M. WESTERVELT, Department of Guidance and Student Personnel Administration, Teachers College, Columbia University
O. MEREDITH WILSON, President, University of Minnesota
STEPHEN J. WRIGHT, President, Fisk University
E. W. ZIEBARTH, Dean of Summer Sessions, University of Minnesota

AMERICAN COUNCIL ON EDUCATION

LOGAN WILSON, *President*

The American Council on Education, founded in 1918, is a *council* of educational organizations and institutions. Its purpose is to advance education and educational methods through comprehensive voluntary and cooperative action on the part of American educational associations, organizations, and institutions.

VT 003 708

West Virginia Research Coordinating Unit for Vocational Education. Quarterly Technical Progress Report, July 1, 1967-September 30, 1967.

West Virginia State Dept. of Education, Charleston. Bureau of Vocational, Technical and Adult Education
OEG-2-6-062722-2077
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BR-6-2722
Pub Date - 67 9p.

*RESEARCH COORDINATING UNITS; *PROGRAM DESCRIPTIONS; *EDUCATIONAL RESEARCH; RESEARCH PROJECTS; *VOCATIONAL EDUCATION; STATE PROGRAMS
WEST VIRGINIA

The Unit proceeded in a developmental stage with additional activities being added as experience and progress of the staff allowed. Five additional staff people were employed, and a Research Council of seven members was appointed to serve in an advisory and evaluative capacity and will meet on a bimonthly basis. The director participated in nine activities connected with research and organization. The Unit is participating in a state study of vocational education and is conducting studies of county vocational education programs. It developed a procedural guide for applying for grant funds and established liaison with various state agencies. It is providing consultative, informational, research, and planning and development services without cost to all agencies and individuals planning or conducting research in vocational education. It is anticipated that as the services offered by the RCU become known, the staff will be called on to assist in many ways in the coordinating and disseminating research activities. (MM)

VT 003 708

ED027441

WEST VIRGINIA RESEARCH COORDINATING UNIT FOR VOCATIONAL EDUCATION

QUARTERLY

TECHNICAL PROGRESS REPORT

SUBMITTED TO THE BUREAU OF RESEARCH

OFFICE OF EDUCATION

RESEARCH COORDINATING UNIT

JULY 1, 1967 -- SEPTEMBER 30, 1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Project No. 6-2722 Grant No. OEG-2-6-062722-2077

WEST VIRGINIA STATE DEPARTMENT OF EDUCATION
Bureau of Vocational, Technical, and
Adult Education
Capitol Building
Charleston, West Virginia 25305

VT003708

WEST VIRGINIA RESEARCH COORDINATING UNIT
for Vocational Education

Marshall University
Huntington, West Virginia

The attached material is sent for your information.

Glenn E. Smith
Coordinator

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I. INTRODUCTION

This is the second quarterly technical progress report submitted by the West Virginia Research Coordinating Unit to the Bureau of Research covering the period July 1, 1967 -- September 30, 1967.

II. STAFFING

Additional staff has been employed in accordance with the pattern established in the grant proposal. Additional staff and their effective date of appointment are as follows:

Person	Position	Date of Employment
Mr. Charles Divita, Jr.	Research Associate	July 1, 1967
Miss Gale Harrison	Secretary	July 15, 1967
	Resigned effective	August 31, 1967
Mrs. Jane Parlier	Secretary	September 1, 1967
Mrs. Diane Harris	Graduate Assistant Home Economics	September 5, 1967
Miss Roma Gay	Graduate Assistant Home Economics	September 5, 1967

III. RCU ACTIVITIES

The RCU has participated in a number of activities during the quarter which have served to assist in the organization of the unit and the development of projected activities in the field of vocational education. The RCU is proceeding in a developmental stage of activity.

IV. RESEARCH COUNCIL

The Research Council which is to serve in an advisory and evaluative capacity to the RCU was appointed and the first meeting conducted

on September 19, 1967. Research Council members are:

Dr. Sara Anderson - Professor, Business Administration, Marshall University
Mr. Chester A. Arents, Dean, College of Engineering, West Virginia University
Dr. Grace Bennett - Chairman, Department of Home Economics, Marshall University
Dr. R. C. Butler - Chairman, Department of Agriculture Education, West Virginia University
Dr. Neil L. Gibbins, Associate Professor of Education, Marshall University
Dr Clark K. Sleeth, Dean, College of Medicine, West Virginia University
Dr. Theodore S. Soistmann, Assistant Professor of Education, Marshall University

Additional meetings of the Research Council will be scheduled on a bi-monthly basis. The Research Council recommended the appointment of a Consultive Committee composed of members representing education, business, labor, industry and other governmental agencies to assist in the identification of research problems and priorities on a coordinated basis. The appointment of the members of this Committee will be completed in the near future and a joint meeting of the Research Council and Consultive Committee planned.

V. ACTIVITIES OF THE DIRECTOR

During the period of this report the Director of the Research Coordinating Unit participated in the following activities:

a. Visited West Virginia University to contact prospective Research Council members.

b. Acted as consultant to the Mason County school system in the area of vocational education and manpower training programs.

c. Visited the Kentucky RCU for orientation relative to RCU organization and activities.

d. Visited the Center for Leadership Development and Training and the ERIC Clearinghouse for Vocational Education at The Ohio State University.

e. Visited Lincoln, Pocahontas and Gilmer Counties to assist in planning of county surveys to determine needs for expanded programs in vocational education.

f. Served as a member of the Task Force Committee appointed by the State Director of Vocational Education for the Legislative Study of Vocational Education being conducted in West Virginia.

g. Attended a three day staff meeting with the State Vocational Education Staff and County Supervisors of Vocational Education.

h. Met with the State Staff Research Committee monthly to refine procedures for review of research proposals.

i. Attended the National Seminar for Vocational Teacher Education conducted by the Center for Leadership and Development at Chicago.

VI. RESEARCH ACTIVITIES OF THE RCU

During the past quarter the RCU staff has been associated with a number of projects which are of a research nature.

A proposal for the legislative study of vocational education was prepared for the State Director of Vocational Education who in turn appeared before the Legislative Sub-Committee on Government and Finance.

The study was subsequently approved by the sub-committee and the State Director of Vocational Education appointed as a co-director of the study.

In conjunction with the state study the RCU is conducting a survey of school administrators, school board members, business, industry and labor to determine their attitude toward vocational education. Survey instruments were developed and mailings have been made to over 2,000 business, industry, labor, and educational leaders.

A procedural guide for individuals and agencies applying for grant funds in the area of vocational education research was developed and is presently being printed.

Arrangements have been made to conduct studies of vocational education program needs in two counties and the RCU is currently processing requests from three other counties who desire this service.

Liasion has been established with the West Virginia Department of Employment Security, West Virginia Federation of Labor and the Center for Appalachian Studies and Development at West Virginia University as well as the Appalachian Educational Laboratory located in Charleston.

VII. SERVICES PROVIDED BY THE RCU

The following services are available without cost to all agencies and individuals planning or conducting research in vocational education.

I. Consultative Services
- (a) Identification of problem areas needing research
- (b) Advice about research design
- (c) Advice about funding
- (d) Referrals

II. Information Services
- (a) Brochures
- (b) Newsletters
- (c) RCU Publications
- (d) Bibliographical searches
- (e) Research abstracts
- (f) Published studies

The following services are provided for the Bureau of Vocational, Technical, and Adult Education. Persons desiring these services should contact the Bureau.

III. Research Services
- (a) County surveys
- (b) State studies
- (c) Regional studies
- (d) Area studies

IV. Planning and Development Services
- (a) Planning and conducting seminars, workshops, and institutes
- (b) Development of proposals for experimental, developmental, or pilot programs

VIII. UNANTICIPATED PROBLEMS

Due to the demand for usable office space the RCU is vacating its present quarters and moving to the second floor of the former home of the Marshall University President. Once remodeling has been accomplished these quarters will prove much more desirable in that the space will be more conducive to the RCU activity. In addition the vacating of present offices will release space badly needed by other University activities. Publishing of the descriptive brochure and newletter has been delayed due to the press of research activity and various meeting commitments of the RCU staff. It is anticipated that this activity will be completed in the near future.

IX. PROJECTED ACTIVITIES

During the next quarter the RCU anticipated the following activities:

a. Publishing a descriptive brochure of RCU activities.

b. Publishing the RCU Newsletter.

c. Assist in completing surveys in five counties to determine program needs and expansion.

d. Assist in completing the legislative study of vocational education in West Virginia.

e. Complete the study on attitudes of school administrators, school board members, business, labor and industry toward vocational education in West Virginia.

f. Appoint members of the RCU Consultive Committee.

g. Continue establishing liasion with additional West Virginia colleges and other state agencies.

h. Cooperate with Michigan State University in developing vocational education program evaluation activities.

i. Plan seminars, and/or institutes and/or workshops in vocational education.

j. Develop library of ERIC materials on vocational education.

k. Provide consultive services to counties, graduate students and others involved in vocational education research.

X. CONCLUSION

The Research Coordinating Unit is proceeding in its developmental stage with additional activities being added as the experiences and progress of the staff allow. It is anticipated that as the services offered by the RCU become known to additional individuals and agencies the staff will be called on to assist in many ways in the coordination and dissemination of research activities both within and outside West Virginia.

Institution Administrative
Grants Officer

Rex M. Smith
State Superintendent of Schools
W. Va. State Department of Education
Charleston, West Virginia 25305

Principal Investigator

Fred W. Eberle
State Director of Vocational Education
Bureau of Vocational, Technical, and
Adult Education
Charleston, West Virginia 25305

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Olds, Douglas V.; Saris, Ronald J.
A Study of the Vocational Education Needs in Josephine County, Oregon.

Oregon Univ., Eugene. Bureau of Educational Research
Oregon State Dept. of Education, Salem
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JOSEPHINE COUNTY; OREGON

A similar study for another region of Oregon has been abstracted for "Research in Education." See VT 003 197. (MM)

VT 003 718

LC 027 .U4 1

121 p

A Study of the Vocational Education Needs in Josephine County, Oregon

BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon
Eugene, Oregon

September 1967

VTC 03718

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A STUDY OF THE VOCATIONAL EDUCATION NEEDS IN JOSEPHINE COUNTY, OREGON

by

Douglas V. Olds

Ronald J. Saris

The research reported herein was supported financially by the State Department of Education, Division of Community Colleges and Vocational Education

BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon
Eugene, Oregon

September 1967

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AND

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Grants Pass School District #7
610 NE A Street
Grants Pass, Oregon 97526

Mr. T. W. Calkins, Superintendent
Josephine County Unit
706 NW A Street
Grants Pass, Oregon 97526

Dear Sirs:

The report, to which this letter is appended, fulfills the contract made between the School Districts of Grants Pass District #7 and the Josephine County Unit and the Bureau of Educational Research, School of Education at the University of Oregon.

The School of Education extends to you its appreciation for the opportunity it has had to be of specific service to the children and residents of Josephine County.

The vocational recommendations herein contained provide: (1) several insights into the county's need for an updated vocational program; (2) information upon which another perspective of vocational education can be based; (3) information which indicates that a successful vocational education program encompasses the resources of the entire community.

Appreciation is further extended to the staffs of the school districts, the County Courthouse personnel, the State Division of Employment, the Grants Pass Chamber of Commerce, other officials and interested citizens of Josephine County, who lent their time, information, concern, and enthusiasm to the completion of this project.

It is hoped that this report will serve as a basis for informed decisions and also act as a catalyst in achieving further advancement of the educational offerings within Josephine County.

Sincerely,

P. B. Jacobson, Dean
School of Education

PBJ:slu

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BACKGROUND AND EMPHASIS OF THE STUDY

Late in 1966, school officials of the Josephine County School District and the Grants Pass School District contracted with the Bureau of Educational Research and Service at the University of Oregon to study and make recommendations about the vocational education needs in the county. The study's purpose was to determine whether a need for a vocational or a vocational-technical school in the county does exist and whether such a unit is feasible in the county at this time.

The salient items of the contractual agreement specified the following: (1) an examination of the economy, including the job opportunities and potential manpower resources within the county, and reports of land use in terms of farming and lumbering; (2) analysis of the present high school vocational education programs and their facilities; (3) sampling of pupil attitudes relative to a vocational program, by questionnaire; and finally (4) reporting the findings on the extent of the need for a vocational-technical school in the county and the feasibility of establishing such a unit.

This report is a result of that study.

District Size

The Grants Pass School District, on September 12, 1966, had a total enrollment of 5,083 students. The district operated ten schools. The district's student population, by level of school attended, is shown below:

Level	Number of Buildings	Students
Elementary	7	2,270
Junior High	2	1,070
Senior High	1	1,743

The Josephine County School District at the same period of time (September 12, 1966) had a total enrollment of 3,347. The county district operated 15 schools. By school level, student populations were:

Level	Number of Buildings	Students
Elementary	12	2,190
Junior High	2	895
Senior High	1	262

Thus the total public school enrollment in the county was 8,430, with 4,460 pupils at elementary level, 1,965 in junior high schools and 2,005 at the senior high school level.

The school boards and chief school administrators of these two districts are alert to the social-technological changes of society and the potential for population and industrial growth in Josephine County. Because of their foresight, this study was commissioned.

DEFINITION OF TERMS

The recent interest and attention devoted to vocational education in the United States has contributed to the emergence of numerous terms. The following definitions, as used in this report, are provided to improve communications and encourage continuity of interpretation. Use of a standard set of terms facilitates comparison with similar studies conducted elsewhere.

Industrial Arts

A part of the general education program, designed to orient the student to the nature and problems of industry and our technical society. Exploratory in nature, industrial arts is concerned with tools, materials, processes, products and occupation in the labor market. It is prevocational, as English and mathematics are prevocational.

Vocational Education

All formal instruction and training for students at the high school level which prepares them for entrance into, and advancement within, an occupation or group of related occupations. Vocational education does not refer to instruction leading directly to a baccalaureate or professional degree.

Technical Education

A part of the natural continuum of vocational education. Technical education calls for more rigorous scientific and mathematical backgrounds and requires a higher degree of skill than vocational education.

Area Vocational School

A school that has two outstanding characteristics: first, it is vocational in nature, providing training which leads to employment in specific occupations, and second, it serves students of more than a single community or local school district.

Work Experience Programs

The work experience program is a type of semiapprenticeship which combines training on the job with related technical instruction at school. This program provides additional benefits to the student in the form of salary and school credits. Close cooperation exists between the school and the place of work. Students are released from class during the school day to work in related occupations in business and industry. (The apprentice, whom one generally encounters in the work force, is a full-time employee who has usually terminated high school association.) The training is conducted under a written program of training standards agreed to by employers, journeymen, and apprentices in accordance with federal and state laws. The program provides the beginning worker with the basic skills necessary for economic success in his craft.

Junior High School

An organizational unit composed of grades 7, 8, and 9 or a combination thereof. It is organized separately from other grades in the system, has an average of 100 or more students in each grade, and is approved as a junior high school by the State Department of Education. Its usual age range is from age 12 to age 15.

High School

An organizational unit composed of any of the following combinations: first, grades 10-12 in districts providing a junior high school; second, grades 9-12, either organized separately or as an organizational unit in cases where grades 1-12 are housed in one building; third, grades 7-12 organized in accordance with subsection 2 of this standard, and having the instructional program and extra class activities consistent with the recommendations of the State Department of Education contained in published bulletins, Guide to Junior High School Education in Oregon, for Grades 7-9; and Guide for High School Education in Oregon, for Grades 10-12.

For this report, we will be referring to a high school as first described in the above definition, grades 10-12 in districts providing a junior high school.

CHAPTER I

GENERAL DESCRIPTION OF JOSEPHINE COUNTY

Political-Geographic

Josephine County is located in the southwestern part of the state of Oregon and has a total land area of 1,625 square miles. It had a population, as of 1965, of 36,427.[1] The geographic characteristics of the county are marked by mountain ranges such as the Coast Range to the west, and the Siskiyou Mountains in the south and southeastern portions of the county. In and around Grants Pass, the largest city of Josephine County, is a valley with an elevation of some 935 feet above sea level.[2]

The Rogue River traverses this valley affording both scenic and recreational advantages. The county elevations range from a low of 900 feet to a high of 6,480 feet. The latter is the height of Whiskey Peak in the southern part of the county.

Politically, the area abuts Jackson County to the east, Douglas County to the north, Curry County to the west, and the California border to the south.

The city of Grants Pass, approximately 30 miles west and north of Medford, is the county seat of Josephine County. The northern part of the county is drained by the Rogue River and its tributaries. The Illinois River, which joins the Rogue River, and its tributaries provide drainage for the southern part of the county.

Climate

The climate, generally mild and uniform, is relatively humid. Average annual rainfall over the past 50 years has been 29-1/2 inches. About 25 inches of the

---

[1]Grants Pass and Josephine County Chamber of Commerce, Grants Pass and Josephine County Fact Summary at a Glance.

[2]Ibid.

total occurs between October 14 and May 15, leaving the summer months sunny and free from rain. Both winter and summer temperatures are moderate, the 50-year annual average being 55.5 degrees. Wind velocity, averaging approximately 3.3 miles per hour, is among the lowest in the United States.

The most important transportation facilities available to Josephine County are highway, rail, and air travel.

Highway

The principal highway providing north-south mobility is Interstate Highway 5, stretching from the Washington border through the state of Oregon to the California border. Three federal highways, Interstate 5, U.S. 99 and U.S. 199, as well as Oregon State Highway 238, join in Grants Pass. Approximate driving time to Portland is 4 hours; to San Francisco, 7 hours; to Ashland, 45 minutes; to the coast about 2 hours; and to Crater Lake, 1-1/2 hours. A recent highway improvement project has been the completion of the Randolph-Collier Tunnel, located at the summit of the Coast Range on U.S. Highway 199 which connects U.S. Highway 101 along the Pacific coast with Interstate Highway 5 in the valley's interior.

Railroads

The Southern Pacific, extending north and south, is the area's only rail service. The recent construction of facilities in Grants Pass improves services to local industry dependent upon rail transportation.

However, the most serious problem of rail service affecting the local economy still remains, that of the seasonal shortage of wide-door box cars which are essential to the plywood industry. This problem has defied local solution.

Airports

A large airport, just north of Medford, serves the Josephine County area. West Coast, United and Pacific Airlines all have carrier service out of this airport. Possibility exists for the development of freight service in conjunction with local manufacture of specialty items. The development of industrial sites in conjunction with airport facilities offers an unknown potential for future economic activities. There is also a Josephine County-owned airport which is located five miles from the center of Grants Pass. It has a 4,000-foot runway, lighted for night operation. This smaller airport provides private and charter services for the Josephine County area.

Population

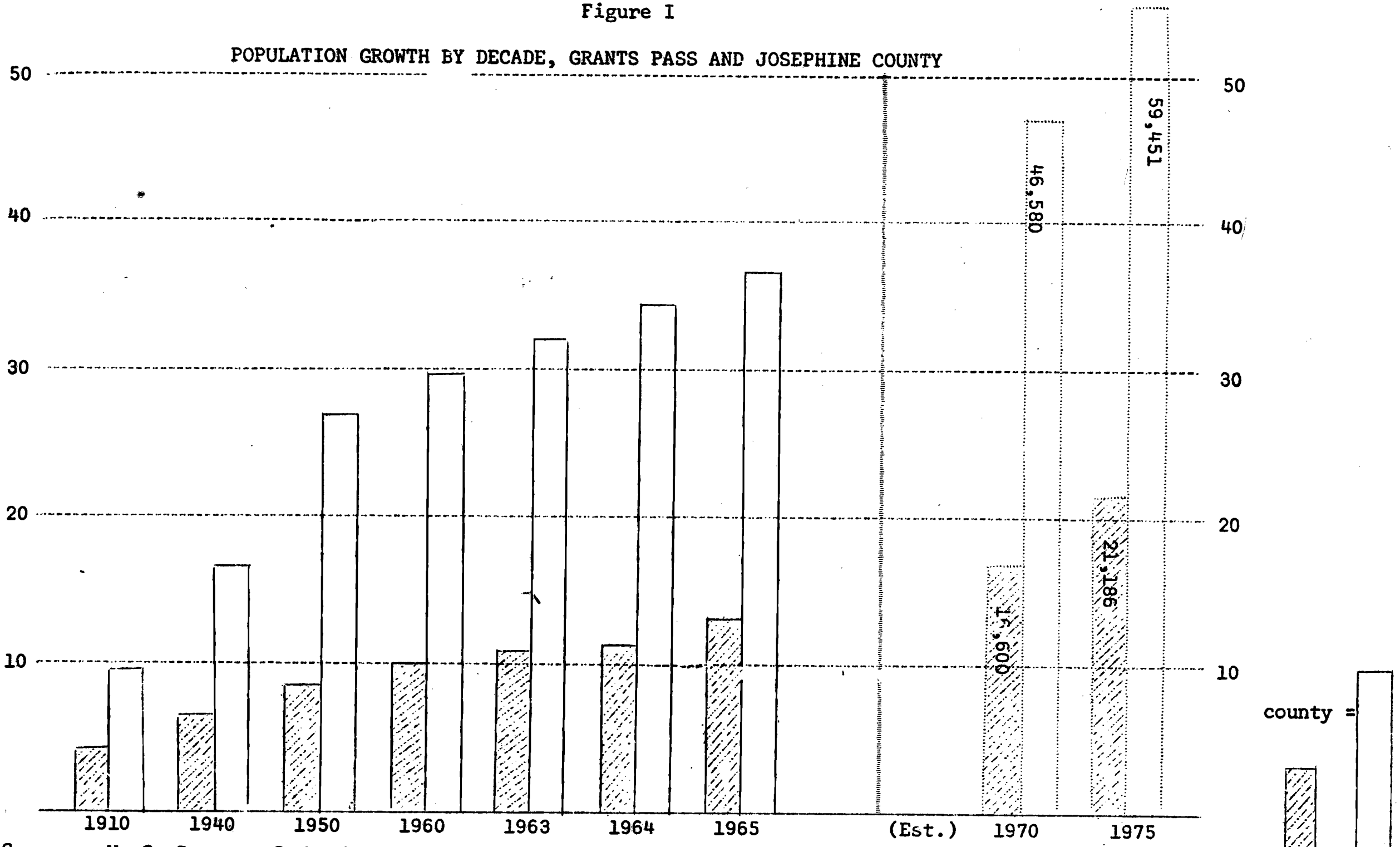
The population of Josephine County has been characterized by steady growth from 1900 to 1965. In 1960 approximately 25,000 persons, constituting 75 percent of the county's population, were living in or around the city of Grants Pass. The population of Grants Pass itself was 13,000 and the remainder of the 25,000 lived within a ten-mile area of the city. Figure I shows the comparative growth in thousands of both Grants Pass and Josephine County from 1910 through 1965. The graph also indicates the projected comparative population for 1970 and 1975.

For the period 1950 through projected 1975 there is a steady consistent pattern of growth with the county as a whole spreading its gap between its population growth and the population growth of its leading city.

A comparison of age group percentage distributions between Josephine County and the state of Oregon for 1960, 1965, and estimated 1970 indicates that the population of Josephine County for age 65 and over is increasing (see Table 1).

Figure I

POPULATION GROWTH BY DECADE, GRANTS PASS AND JOSEPHINE COUNTY



Source: U. S. Bureau of the Census, 1960, and Oregon State Board of Census (via Grants Pass Chamber of Commerce)

Table 1

COMPARISON OF AGE GROUP PERCENTAGE DISTRIBUTIONS
JOSEPHINE COUNTY AND THE STATE OF OREGON*

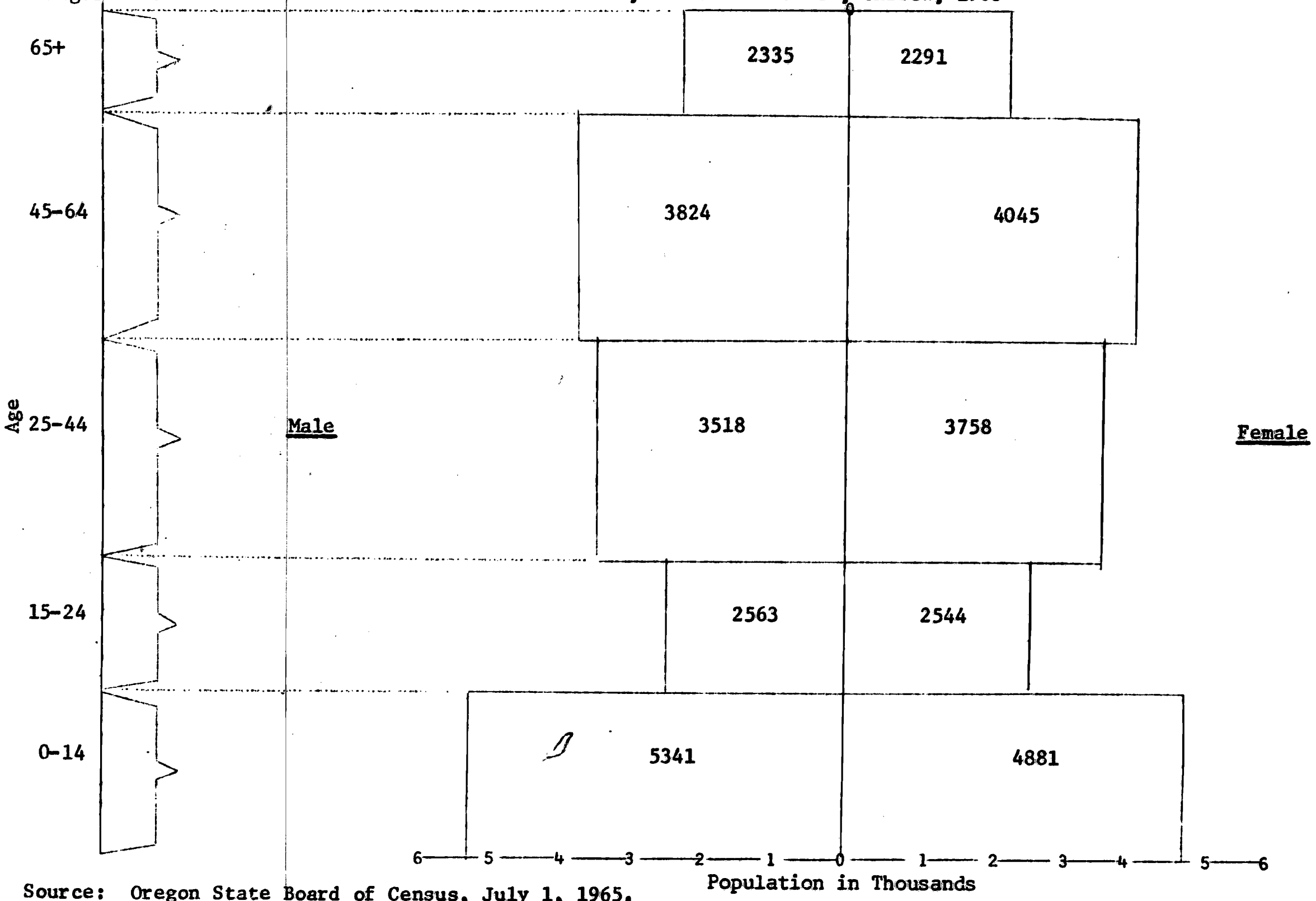
	1960		1965		Estimated 1970	
Age Group by Years	Josephine County	State	Josephine County	State	Josephine County	State
0-14	29.9%	30.8%	29.1%	30.5%	28.3%	29.9%
15-24	11.8	12.8	14.3	15.1	15.1	16.9
25-44	23.0	24.8	20.7	22.5	20.1	21.5
45-64	23.0	21.2	22.4	21.1	22.1	20.8
65+	12.3	10.4	13.5	10.7	14.4	10.9

*Population Bulletin, Oregon State Board of Census, Portland State College Box 751, Portland, Oregon, p. 9.

Figure II reveals by age group the relative number of males and females in thousands within the county for 1965. This figure was constructed on the basis of the information derived from Table 2 (see Table 2) which has an included feature, that of percentage breakdown.

Josephine County is not unlike the state of Oregon in its distribution of population by age group. Table 1 shows that the difference in percent of total population for each age group is within 2 or 3 percentage points of being the same as that for the entire state of Oregon. The 15-24 year age group, which consists of 14 percent of the population of Josephine County, is of particular importance. It is at this period that attitudes toward occupations may be developed. Persons

Figure II. POPULATION DISTRIBUTION BY AGE AND SEX, JOSEPHINE COUNTY, OREGON, 1965



Source: Oregon State Board of Census, July 1, 1965.

Table 2

DISTRIBUTION OF THE POPULATION BY AGE GROUP AND SEX
JOSEPHINE COUNTY, 1965

Years of Age	Male	Percent of Total	Female	Percent of Total	Combined Total	Combined Total Percent
0-14	5,341	15.22	4,881	13.91	10,222	29.13
15-24	2,563	7.30	2,544	7.25	5,107	14.55
25-44	3,518	10.02	3,758	10.71	7,276	20.73
45-64	3,824	10.90	4,045	11.52	7,869	22.42
65+	2,335	6.65	2,291	6.53	4,626	13.18
Sub-Totals	17,581	50.09	17,519	49.91	35,100	100.00

1965 Total 35,100 = 100%

Under 15 years 10,222
Over 65 years 4,626

Source: Oregon State Board of Census, July 1, 1965

of this age are completing their high school education and planning their futures. This group provides a core of workers upon which a community can build and prosper. It is also a time when post-high school education, military service, and employment in areas external to the county draw them away. The fact that the age group 15-24 and that 25-44 maintain a relatively consistent size indicates that a substantial number of the population of working age is either moving into or continues to reside in Josephine County. There appears to be little net loss in these age groups.

Population growth in any county is a function of economic growth. The opportunity for earning a living available in a county is á major factor in population change. Some of the factors that affect employment and determine the state of the overall economy of Josephine County are treated in following pages.

CHAPTER II

ECONOMIC FACTORS IN JOSEPHINE COUNTY

The economic base of Josephine County depends primarily on lumbering and wood products, wholesale and retail trade, agriculture, services, recreation and tourism. Much attention is being given to diversification and the utilization and expansion of economic activities related to park and forest resources.

Forest Resources

A considerable area which includes a substantial portion of Josephine County is contained in the Siskiyou National Forest. (See map, Figure III). The work which the Bureau of Land Management undertakes in the National Forest area is of significance to Josephine County. In Table 3 are listed receipts and expenditures for the entire Siskiyou National Forest for the fiscal year 1965. The effect of these returns is felt in the budgets of the community and the schools.

About 687,000 acres of commercial forest land is owned and managed by the U.S. Forest Service and the Bureau of Land Management. This has provided a return for 1965 of $617,584 to the county. The schools received 25 percent of this amount which was distributed to the two school districts on a pupil population basis. There were 10,366 students in the two districts combined. Josephine County District had 5,283 children or 51 percent, and the Grants Pass District had 5,083 or 49 percent. Of the $129,396 that was distributed to the districts, the former received $65,991.96 and the latter received $63,404.04. The remaining portion of funds, $517,584 or 75 percent of the total National Forest revenue, was used by the county for various other community needs.

Figure III

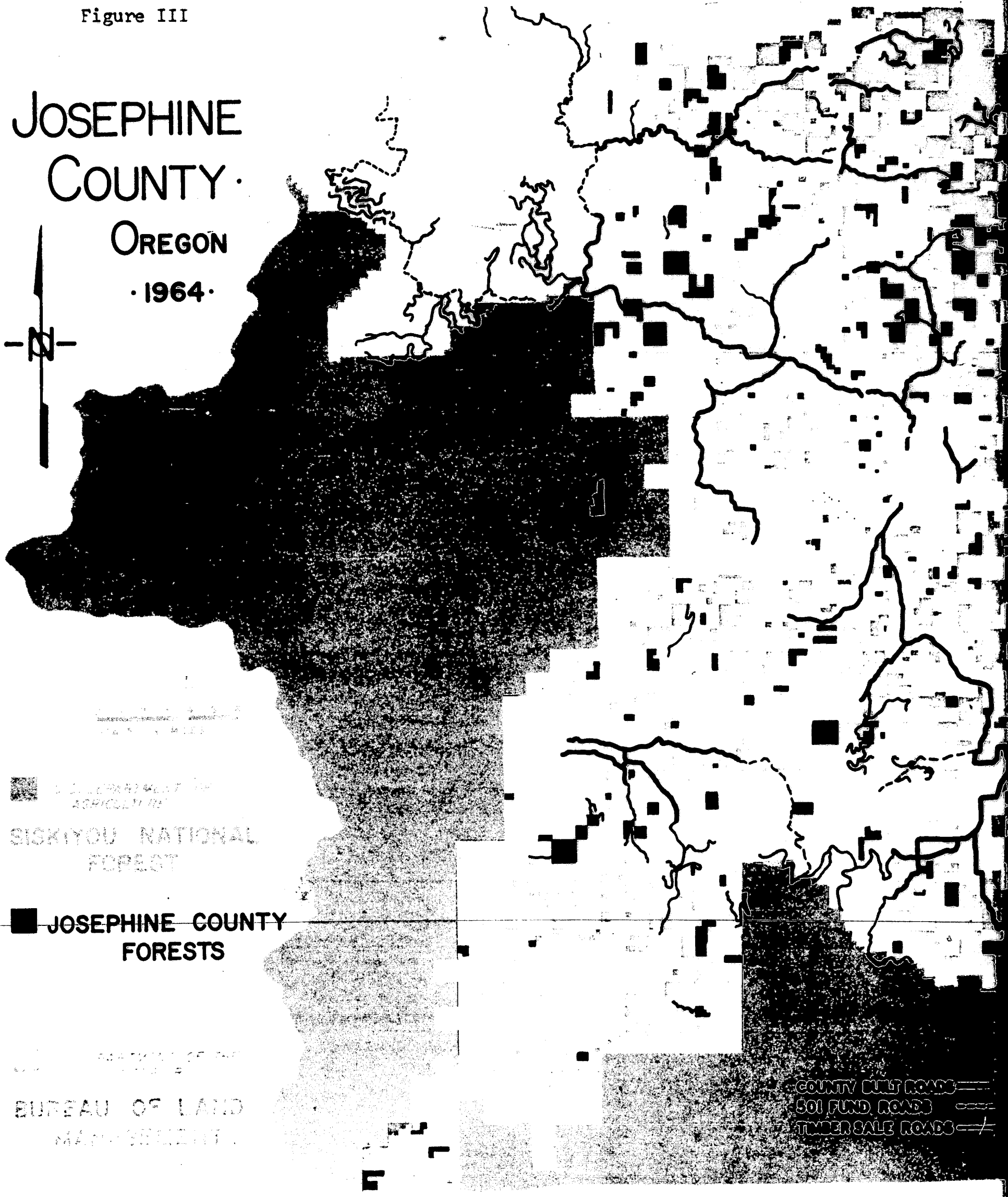

JOSEPHINE
COUNTY
OREGON
1964
N
SISKIYOU NATIONAL
FOREST
JOSEPHINE COUNTY
FORESTS
BUREAU OF LAND
COUNTY BUILT ROADS
501 FUND ROADS
TIMBER SALE ROADS

Table 3

RECEIPTS AND EXPENDITURES--FISCAL YEAR 1965
SISKIYOU NATIONAL FOREST
NATIONAL FOREST PROGRAM

	Receipts	Expenditures	
		Operating	Capital
National Forest Protection and Management & Land Use Projects	$	$ 901,944	$ 133,313
Fighting Forest Fires		45,388	1,568
Insect & Disease Control		11,790	
Road & Trail System--Construction & Maintenance		651,195	996,668
National Forest & Land Use Area Receipts			
Cooperative Work (including timber deposits for stand improvement)	323,634		154,619
National Forest Fund	4,856,244		
O & C Lands	1,334,265		
Other Miscellaneous Receipts	17,158		
Total of Receipts & Expenditures	$6,531,301	$1,610,317	$1,286,168
Less Cooperative Deposits--Improvement Receipts	323,634		
Net Receipts	$6,207,667		

Operating Expenses

a.	Operating Expenditures	$1,610,317
b.	Estimated annual depreciation on roads, trails, and other improvements in place on June 30, 1965	613,197
	Total	$2,223,514

Excess of Net Receipts over Operating Expenditures plus Estimated Depreciation	$3,984,153

Payments made to states pursuant to 16 USC 500 (25% of resource receipts)	Oregon	$1,178,368
	California	35,693

Source: Siskiyou National Forest, 1965 Progress, U. S. Department of Agriculture, Forest Service, Siskiyou National Forest, Grants Pass, Oregon.

Table 4

AREA OF COMMERCIAL FOREST LAND, BY COUNTY AND OWNERSHIP CLASSES, SOUTHWEST OREGON, 1963

(In Acres)

County	All Ownerships	National Forest	Other Public	Forest Industry	Farmer and Miscellaneous private
Coos	900,000	66,000	237,000	288,000	309,000
Curry	855,000	483,000	62,000	161,000	149,000
Douglas	2,864,000	960,000	684,000	695,000	525,000
Jackson	1,365,000	399,000	400,000	309,000	257,000
Josephine	915,000	359,000	328,000	61,000	167,000
Total, All Counties	6,899,000	2,267,000	1,711,000	1,514,000	1,407,000
Percent of Region Total in Josephine County	13.3	15.8	19.2	4.0	11.9

Source: Metcalf, M.E., and Hazard, J.W., Forest Statistics for S.W. Oregon, U.S. Forest Service Resource Bulletin PNW-8, U.S. Dept. of Agriculture, August 1964, p. 4.

About 228,000 acres are owned and managed by forest industry concerns or are farmer-owned land. Tables 4 and 5 make note of the managed forest areas in five Southwest Oregon counties. Both the U.S. Forest Service and the Bureau of Land Management are working toward controlled harvests, continuous seeding of cut-over areas and the development of large recreational areas in Josephine County. The

Table 5

AREA BY LAND CLASSES, BY COUNTY, SOUTHWEST OREGON, 1963
(In Acres)

Land Class	Total	County					Percent of Region Total in Josephine Co.
		Coos	Curry	Douglas	Jackson	Josephine	
Commercial Forest	6,889,000	900,000	855,000	2,864,000	1,365,000	915,000	13.2
Unproductive Forest	348,000	2,000	76,000	55,000	170,000	45,000	12.9
Productive-reserved Forest	56,000	3,000	47,000	2,000	3,000	1,000	1.8
TOTAL FOREST	7,303,000	905,000	978,000	2,921,000	1,538,000	961,000	13.2
Nonforest	847,000[1]	126,000	60,000	318,000	264,000	79,000	9.3
TOTAL ALL LAND	8,150,000[2]	1,031,000	1,038,000	3,239,000	1,802,000	1,040,000	12.8

[1]Includes 34,000 acres of water according to Forest Survey standards of area classification but defined as land by the Bureau of the Census.

[2]From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

Bureau of Land Management is selling timber at the rate of 90 million board feet per year. The timber has been cut at this rate since 1962. In 1969, there will be a survey of the timber area to determine whether this is an adequate yield or not.

Table 6 indicates the volume of saw timber on commercial forest land by species and county in southwest Oregon for 1963. Josephine County (using Scribner rule) had 11,812 million board feet softwood and 1,054 million board feet hardwood for a total of 12,866 million board feet. The Bureau of Land Management will build from 60 to 100 miles of forest roads in Josephine County for the next four to five years. Reforestation in Josephine County by the Bureau of Land Management will consist of about 1,000 acres per year. The National Forest service is also doing a tremendous amount of work in reforestation, planning, pruning and fertilizing of areas within the Josephine County area. The U.S. Forest Service in the County has approximately 283 miles of road and is contemplating increasing this to 653 miles in the next few years. This indicates the control that the U.S. Forest Service is maintaining on their property, as well as the control of cutting and maintaining the forests for which it is responsible. Effort is being made in Josephine County to see that the forest industries in the area can depend upon a constant yield of timber. Table 6 gives a detailed breakdown of both hard and softwood for the several counties in southwest Oregon. Josephine County has, as indicated, a predominance of fir and pine for softwoods, and oak and madrona for hardwoods. The softwood yield far exceeds that of the hardwood. Also, it should be noted that Josephine County trails in production of all species compared with its neighbor counties (see Table 6).

Table 6

VOLUME OF SAWTIMBER ON COMMERCIAL FOREST LAND BY SPECIES AND COUNTY, SOUTHWEST OREGON, 1963 (Scribner Rule)
(In million board feet)

Species	Total	County				
		Coos	Curry	Douglas	Jackson	Josephine
Softwoods:						
Douglas Fir	109,119	18,362	13,450	57,204	11,757	8,346
Ponderosa and Jeffrey Pine	2,868	---	80	826	1,359	603
Sugar Pine	3,777	42	361	1,467	681	1,226
Western White Pine	1,274	7	88	894	225	60
Lodgepole and other pines	372	25	53	217	36	41
White and Grand Fir	6,368	220	165	1,914	3,338	731
California and Shasta Red Fir	2,255	---	78	389	1,420	368
Other true firs	1,906	1	---	1,897	8	---
Spruces	810	213	19	530	47	1
Western Hemlock	5,850	1,401	167	4,103	164	15
Incense Cedar	3,122	15	127	1,891	844	245
Port Orford Cedar	925	545	252	11	3	114
Western Red Cedar	2,050	806	9	1,219	2	14
Other Softwoods	2,366	---	242	1,648	428	48
TOTAL	143,062	21,637	15,091	74,210	20,312	11,812
Hardwoods:						
Red Alder	2,586	1,231	405	860	28	62
Black Cottonwood	115	---	---	115	---	---
Bigleaf Maple	1,348	448	103	717	65	15
Oaks[1]	1,615	13	33	457	583	529
Tanoak	1,517	72	1,416	---	1	28
Pacific Madrona	1,451	2	283	489	375	302
Other Hardwoods	652	159	218	138	19	118
TOTAL	9,284	1,925	2,458	2,776	1,071	1,054
All Species	152,346	23,562	17,549	76,986	21,383	12,866

[1]Oaks consist of California Black and Oregon White Oak.

Source: Metcalf, M. E., and Hazard, J. W., Forest Statistics for S. W. Oregon, U. S. Forest Service Resource Bulletin PNW - 8, U. S. Department of Agriculture, August, 1964, p. 19.

Much progress has been made in Josephine County in the utilization of wood waste. Recent installation of barking and chipping equipment at many of the local wood manufacturing mills is supplying wood chips for shipment to other areas of the state. An estimated 150,000 tons of wood chips were shipped out of Josephine County during 1966. The tremendous volume of all growing stock and saw timber on commercial forest land indicates the probability of continuous production of timber for manufacturing of lumber products for many years to come.

Table 7

VOLUME OF ALL GROWING STOCK AND SAWTIMBER ON COMMERCIAL FOREST LAND BY COUNTIES, SOUTHWEST OREGON, 1963[1]

County	All Growing Stock		Sawtimber (International 1/4-inch rule)		Sawtimber (Scribner rule)	
	Million cu. ft.	Percent of Total	Million bd. ft.	Percent of Total	Million bd. ft.	Percent of Total
Coos	4,406	14.2	28,049	15.1	23,562	15.5
Curry	3,687	11.9	20,956	11.3	17,549	11.5
Douglas	14,945	48.2	94,234	50.6	76,986	50.5
Jackson	4,986	16.1	27,114	14.6	21,383	14.0
Josephine	3,002	9.7	15,845	8.5	12,866	8.5
All Counties	31,026	100.4	186,198	100.1	152,346	100.0

[1]In this and all subsequent tables, conifer volumes are in terms of 32-foot logs for Scribner rule and 16-foot logs for International 1/4-inch rule. All hardwood volumes are in terms of 8-foot logs.

Source: Metcalf, M.E., and Hazard, J.W., Forest Statistics for S.W. Oregon, U.S. Forest Service Resource Bulletin PNW-8, U.S. Dept. of Agriculture, August 1964, p. 4.

The volume of all growing stock and saw timber growing in southwest Oregon for the various communities is indicated in Table 7. A breakdown of ownership of that lumber is further explained in Table 8. However, Table 8 does not explain the Scribner rule as it does the International 1/4-inch rule; for those interested, the conversion to Scribner rule is a simple operation (See Tables 7 and 8).

While there appears to be a significant trend toward consolidation of ownership of smaller wood industry companies into larger and stronger industrial organizations in Josephine County, currently many small operations are evolving and entering the economic picture. The Grants Pass Molding Company, a new industrial firm manufacturing specialty wood products, is a typical example of the new ventures in the area. Plywood Mill Leaders, Inc., is another instance of an industry recently located within the county.

Many of the larger local forest industry organizations have been actively engaged in increasing or improving their respective operations through modernization of plant facilities or the addition of new operations. Some firms have increased the scope of their manufacturing operation and extended into new markets with the finished products. The private sector of the local forest industry appears to be in a healthy condition, perhaps more so than at any time in recent years.

Agriculture

Dairies account for approximately 40 percent of the income derived from the agricultural economy of Josephine County. A most significant dairying trend in recent years has been the decrease in the number of dairy farms, accompanied by a corresponding increase in size and production capacity of the remaining dairies. A slight increase in the total Grade A milk quota has occurred and as a result the

Table 8

VOLUME OF ALL GROWING STOCK AND SAWTIMBER ON COMMERCIAL FOREST LAND BY COUNTY AND OWNERSHIP CLASS, SOUTHWEST OREGON, 1963

County	Total	National Forest	Other Public	Forest Industry	Farmer and Miscellaneous Private
	----------Million Cubic Feet----------				
All growing stock:					
Coos	4,406	392	1,983	1,246	785
Curry	3,687	2,244	340	733	370
Douglas	14,945	6,237	4,281	3,626	801
Jackson	4,986	2,128	1,421	1,045	392
Josephine	3,002	1,234	1,398	77	293
Total	31,026	12,235	9,423	6,727	2,641
	----------Million Board Feet[1]----------				
Sawtimber:					
Coos	28,049	2,619	12,979	8,032	4,419
Curry	20,956	12,669	1,862	4,996	1,429
Douglas	94,234	40,191	26,596	23,575	3,872
Jackson	27,114	11,640	7,915	6,136	1,423
Josephine	15,845	7,198	7,485	397	765
Total	186,198	74,317	56,837	43,136	11,908

[1]International ¼-inch rule.

Source: Metcalf, M. E., and Hazard, J. W., Forest Statistics for S. W. Oregon, U. S. Forest Service Resource Bulletin PNW - 8, U. S. Department of Agriculture, August, 1964, p. 9.

local dairy organization has purchased milk from other areas of the state. There is a consequent expansion in the dairy industry in Josephine County.

Over 800 farms and farm operators in Josephine County sold products worth a total of $4,213,444 in 1964*. Tables 9 and 10 present some pertinent information about farms. However, for a detailed analysis, see the reference cited.

Of the 823 farms in Josephine County, 684 are full ownership and are operated on a full-time basis. These are divided into dairy, crop-land harvest, and pasture lands. Potatoes are the largest crop, but a variety of others are grown. A small amount of grain and substantial amounts of hay (alfalfa and clover) and vegetables are harvested. The large fruit crop includes berries, apples, peaches, pears, and cherries. This diversification of farm products denotes a healthy condition for the county. A potential cause for concern is the fact the average age of farm owners is 51.3 years. Of the 684 full-time owners, 144 are 65 years and older. This may imply that farming is not attracting the younger people, or it could be due to the capital resources necessary to engage in farming. Vocational training programs within the public schools and agriculture programs outside the school carry potential for increasing the interest of young people in farming as an occupation.

In December of 1964, Josephine County witnessed one of the most disastrous floods ever experienced in the Rogue River Valley. Estimated damage to the agricultural economy was in excess of $3 million. This experience emphasizes the importance of water to the economy of the area. Not only is it important to protect

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*Refer to Summary--farms, farm acreage, farm operators: 1964 and 1959, from the U.S. Census of Agriculture, 1964, a preliminary report, page 2.

Table 9

CHARACTERISTICS OF COMMERCIAL FARMS AND FARM LABORERS
IN JOSEPHINE COUNTY, 1964 and 1959,
COMPARED WITH JACKSON COUNTY AND STATE OF OREGON

	No. of	Josephine County		Jackson County		Oregon	
		1964	1959	1964	1959	1964	1959
Total All (Commercial) Farms	Farms	823	931	1,556	1,908	39,757	42,573
Land in Farms	Acres	75,948	76,878	643,386	627,051	20,509,302	21,236,298
Average Size of Farm	Acres	92.3	82.6	413.5	328.6	515.9	498.8
Farm Operators							
Working off Their Farms	Persons	487	552	924	1,165	22,781	23,969
Working off Their Farms 100 or More Days	Persons	406	465	783	973	18,445	18,489
With Other Family Income Exceeding Value of Agricultural Products Sold	Persons	712	---	1,290	---	34,304	---
Other Income		$3,933,338	---	$7,316,725	---	$185,532,749	---
Hired Workers	Farms	236	320	523	666	18,443	19,510
Earnings		$ 550,346	$857,605	$2,558,142	$2,420,488	$ 54,453,891	$49,505,734
Regular Workers (Employed 150 or more days)	Farms	27	74	124	123	4,516	3,766
	Persons	126	167	405	330	11,372	7,459

Source: U. S. Census of Agriculture (1964 and 1959), Preliminary Report on: Farms, Farm Characteristics, and Farm Products

Table 10

AGRICULTURAL INCOME FOR 1966 and 1964
JOSEPHINE COUNTY (estimated)

	1966 Est.*	1964 Est.**
Livestock		
Dairy (4,000 cows)	$2,032,000	$1,694,000
Beef (including cull dairy cows and dairy beef)	1,189,000	624,000
Swine	65,000	100,000
Sheep and Wool	30,000	26,000
Rabbits	40,000	108,000
Poultry	493,000	733,000
Breeding Stock (beef, sheep, swine, horses & rabbits)	236,000	218,000
TOTAL LIVESTOCK	$4,085,000	$3,503,000
Farm Crops		
Field Crops	$ 733,000	$ 825,000
Fruit & Nuts	102,000	101,000
Vegetables	54,000	67,000
Horticulture, Specialty, & Greenhouse	335,000	475,000
Farm Forestry	300,000	Misc. 400,000
TOTAL FARM CROPS	$1,524,000	$1,867,000
TOTAL AGRICULTURAL INCOME	$5,609,000	$5,370,000

*Source: Josephine County Extension Service, Courthouse, Grants Pass
**Source: Grants Pass and Josephine County Chambers of Commerce

against the ravages of flooding streams and rivers, but also to conserve the water resources for more effective utilization during the long dry summer months.

On the conservation side of the ledger, many of these small land owners, aided by the soil conservation service, have constructed new water storage reservoirs throughout the county for more effective utilization of water resources.

The Illinois and Maryland divisions of the Rogue River Project have estimated that 21,000 acres could be irrigated to yield additional products in Josephine County.

Recreation and Tourism

The proximity of Grants Pass to the recently completed freeway between Portland and the California border has provided it with new economic opportunity. The county, the city of Grants Pass, the National Forest, and the Bureau of Land Management have worked to increase the recreational facilities in Josephine County. For example, in a three-year period, the use of county recreational facilities has increased from 30,000 users to 200,000 users per year. Recreation and tourism is the second most valuable economic activity in the county. The entire route of the Rogue River Trail has been reconstructed by the Bureau of Land Management and the U.S. Forest Service. Use of the trail has been restricted to foot traffic. The state has constructed a major overnight campground in Jackson County but about 15 miles from Grants Pass, the nearest commercial center. Also, the U.S. Forest Service has built new campgrounds and improved those now in use. The city of Grants Pass has made extensive improvements in Riverside Park near the center of the city. Congress has been considering action which would include an extensive portion of the Rogue River in a proposed system of wild rivers.

The Redwood Empire Association has continued active promotion of the area as a part of its interest in northern California development. Also, the Coorda Recreational Development Association has been influential in encouraging high standards for public parks within the area.

"Winnemucca-to-the-Sea" highway advocates, capably represented by local interests, have conducted extensive promotion efforts toward obtaining a nationally designated east-west highway route through Grants Pass and direct to the coastal region. Favorable recreation characteristics of the local area have been spread through many mediums of communication.

Expanded motel facilities have contributed toward the expansion of the tourist-based economy. More than 80 new motel units have been made available during 1964 and 1965.

Two new enterprises were established to provide seasonal jetboat excursions for tourist groups between Grants Pass and the Hells Gate Canyon on the Rogue. Although there has been little change in the professional river guide services, it is estimated by local sources that numbers of visitors using professional river guide services have increased.

Transportation System

Highways. The region has been particularly affected by highway construction during the past four years. Such construction has included the opening of the interstate freeway highway and the completion of the Randolph-Collier Tunnel on U.S. 199 at the summit. Also of significance were improvements to the eastern section of the proposed Winnemucca-to-the-Sea Highway. At the county level, access roads have been extended into the more remote regions. Particularly noteworthy are improvements on the Hells Gate Section of the Galice forest access road.

Some changes in highway transportation services in the area have occurred. Consolidated Freightways has recently abandoned local terminal service; United Parcel Service has commenced a local delivery service; and an extensive fleet of trucks is currently engaged in a new venture of transporting wood chips to reloading facilities on the railroad. A substantial increase has occurred in the transport of veneer by truck into the plywood mills of Grants Pass.

The physical changes in the highway system have caused certain highway planning developments. A comprehensive origin-destination study of the vehicular traffic movement in and out of the commercial center of Grants Pass has been completed. Further analysis of this origin-destination information is now in progress, and is expected to form the basis for development of comprehensive plans for future construction of streets, bridges and highways in Josephine County and the city of Grants Pass.

Additional Indicators of Economic Health

Additional indicators of the economic health of an area are found in the fiscal transaction, building construction, summaries of property assessments, and reports of related activities.

Bank Deposits, Loans and Debits

An annual comparison of bank deposits, loans and debits indicates the county is financially stable. While not one of the wealthier counties in Oregon, the

Table 11

A COMPARISON OF BANK DEPOSITS, DEBITS, AND LOANS-DISCOUNTS FOR JOSEPHINE COUNTY AND OREGON, 1960-1966
IN THOUSANDS OF DOLLARS

	Josephine County			Oregon		
	Deposits	Debits	Loans-Discounts	Deposits	Debits	Loans-Discounts
1960	28,345	240,740	11,850	2,150,946	25,343	1,122,808
1961	30,987	239,247	N/A	2,322,789	25,085	N/A
1962	34,137	259,642	12,514	2,489,091	26,625	1,336,228
1963	37,817	273,083	16,043	2,638,396	29,415	1,532,282
1964	40,400	294,516	18,959	2,865,333	31,410	1,689,208
1965	45,795	315,121	23,004	3,161,290	35,018	1,889,153
1966	47,989	329,229	25,154	3,322,785	37,117	1,999,802

Source: (Primary source: Loans, Discounts, Annual Report Superintendent of Banks, State of Oregon Banking Department) Deposits and Debits, Oregon Economic Statistics, 1966 and 1967.

generally steady increase in deposits suggests profits are being realized by business firms and that private residents are able to reserve some of their income. The 1965 deposits are equivalent to approximately $1,305 per capita for the county; deposits for the State of Oregon are equal to approximately $1,664 per capita. The consistent increase in bank loans is indicative of greater use of money for general expansion. Bank debits represent the dollar value of checks drawn against the deposit accounts of individuals and business firms and are considered good indicators of current activity. Bank debits for Josephine County have generally and steadily increased since 1960 (see Table 11).

Property Valuation

The total valuation of property in Josephine County has increased each year except one since 1946. A brief decline in valuation, as shown in Table 12 occurred in 1955. During the eighteen years tabulated there has been a steady increase in the overall assessed valuation of Josephine County. Table 13 provides an analysis of the relative values of the kinds of property comprising the county's total valuation.

A major reason for the increase in property valuation since 1959 is the upgrading of existing property and the construction of new buildings. Valuations also reflect the effects of inflation upon property values as revealed through the regular reassessment program.

Building Permits

One measure of economic health is the number and value of the building permits issued. For the years 1960 through 1966 not less than 200 building permits were issued annually for an average yearly value in excess of $2,900,000.

Table 12

COMPARATIVE ASSESSED VALUATIONS AND TAXES LEVIED IN JOSEPHINE COUNTY
FOR THE YEARS 1946 - 1964, INCLUSIVE

Year	Total Assessed Valuation of County	Total County Tax (Includes Roads)	Total City Tax	Total Special School Tax	Total Irrigation, Fire Patrol and Misc. Tax	Total Amount of Taxes Levied For Each Year
1946	$12,200,319.35	$ 45,950.02	$ 99,155.67	$ 485,575.72	$18,841.42	$ 819,522.83
1947	13,954,791.43	167,457.57	106,276.57**	580,829.17	21,446.66	876,009.97
1948	15,788,137.43	244,716.14	127,515.32	708,124.81	18,406.17	1,098,852.44
1949	18,039,292.47	184,012.73	130,271.62	883,275.84	17,582.42	1,215,142.61
1950	18,896,199.18	194,640.70	133,023.34	1,033,374.08	14,820.56	1,380,858.68
1951	19,885,267.21	200,866.67	148,597.99	1,048,178.14	20,133.98	1,417,776.87
1952	20,439,339.10	212,569.12	181,146.80	1,041,677.43	23,063.97	1,458,457.32
1953	22,177,448.86	224,001.92	196,766.70	1,102,830.48	26,369.42	1,549,970.52
1954	23,009,741.03	225,479.60	220,482.06	1,123,831.13	43,035.19***	1,612,827.98
1955	22,440,874.46	226,645.34	206,755.41	1,034,606.31	38,765.85	1,506,722.91
1956	23,255,660.40	93,039.22	230,475.43	1,208,863.24	44,574.43	1,576,952.32
1957	26,074,585.13	91,274.74	248,552.14	1,160,667.34	44,001.28	1,544,495.50
1958	30,007,172.33	237,624.04	268,359.65	1,316,730.16	50,427.80	1,873,141.65
1959	30,690,278.91	248,594.25	261,464.32	1,477,641.30	53,019.34	2,040,719.21
1960	31,638,198.00	271,804.85	272,064.74	1,492,633.67	34,590.30	2,071,093.56
1961	36,774,497.00	285,680.63	288,394.82	1,639,801.68	44,404.75	2.258,281.88
1962	38,651,923.00	304,105.08	245,709.53	1,967,234.97	51,340.45	2,568,390.03
1963	39,782,937.00	234,725.83	302,477.31	2,231,949.86	60,014.65	2,829,167.65
1964	44,109,471.00	119,101.82	321,622.36	2,313,891.47	58,232.93	2,812,848.58
1965	49,470,578.00*					

* Source: Grants Pass and Josephine County Chamber of Commerce.
** City of Cave Junction included following 1947.
*** Includes Rural Fire Protection District No. 1.

Source: Statement of Taxes and Summary of Assessment Roll for Josephine County, Oregon, for the Fiscal Year Ending June 30, 1965. Assessment, 1964.

Table 13

JOSEPHINE COUNTY SUMMARY OF ASSESSMENT ROLL

	1959	1960	1961	1962	1963	1964	1965	1966
Real Property	22,113,320	23,941,520	28,116,340	29,809,290	31,520,085	35,435,065	39,617,395	42,931,690
Less Exemptions		23,940,695	28,115,565	29,808,885	30,668,715	34,114,580	38,129,970	41,819,057
Personal Property	5,477,735	4,223,240	4,803,415	4,545,410	4,692,355	4,983,895	5,500,760	6,155,940
Less Exemptions		4,219,835	4,797,205	4,545,240	4,687,110	4,978,775	5,499,295	6,151,095
Total Net Taxable Value as Equalized by County Board of Equalization	27,071,025	28,160,530	32,912,770	34,354,530	35,355,825	39,093,355	43,629,265	47,970,170
Value of Public Utilities	3,619,254	3,477,668	3,861,727	4,297,393	4,427,112	5,016,116	5,418,313	5,787,435
Total Valuation	30,690,279	31,638,198	36,774,497	38,651,923	39,782,937	44,109,471	49,047,578	53,757,605
Total Taxes Levied in County for All Purposes	2,040,719	2,071,074	2,258,282	2,568,390	2,829,168	2,812,849	2,923,428	3,588,094

Source: Statement of Taxes and Summary of Assessment Roll for Josephine County, Oregon, for the Fiscal Year Ending June 30, 1965. Assessment 1964.

The building permits (recorded in Table 14) are primarily for new construction rather than additions or alterations. It should be noted that permits are issued upon stated intent to build and thus the table records intentions and estimated value of construction rather than actual construction or value. It is reasonable to assume that most of the construction represented did occur. The table reveals a generally increasing trend in the number of permits and in the value of the construction during the seven-year period.

Wholesale and Retail Trade

The volume of wholesale and retail trade is also considered an acceptable barometer of the economy. The prosperity of a community or county, or its absence, is rapidly revealed in the volume of purchases made in a given period. Seasonal patterns of buying would make hazardous the measurement of the economy on a month-to-month basis. However, the annual summary of wholesale and retail sales is a reliable indicator of the direction in which the economy is moving.

Table 15 compares several categories pertaining to wholesale-retail trade for both Josephine and Jackson County and their chief cities, Grants Pass and Medford, for 1965. Table 16 is a comparison between Josephine County and Jackson County which indicates two trends worth noting, that of population and that of retail sales.

The first category, population, indicates that Josephine County had a stable period between 1955 and 1960, and from 1960-1965 experienced a rapid increase, while Jackson County has had a more conservative but continued increase.

The second category, retail sales, would appear to reflect individual population tendencies for both counties.

Table 14

JOSEPHINE COUNTY BUILDING PERMITS*

Year	Total Permits Issued
1940	$ 147,560
1950	1,222,723
1960	2,100,400
1961	1,902,595
1962	2,816,625
1963	2,413,850
1964	3,755,250
1965	3,222,015
1966--see months below	4,122,880

Year	No. of Dwellings	Cost	No. of Additions	Cost	No. of Non-residential Structures	Cost
1960	64	$ 784,000	100	$641,275	67	$ 554,125
1961	82	983,000	69	335,550	57	572,245
1962	74	892,450	95	317,950	50	1,606,225
1963*	116	1,486,150	71	323,500	66	604,200
1964	155	1,876,000	63	332,500	80	1,546,750
1965	137	1,995,525	74	263,900	80	962,590
1966	118	1,777,500	81	784,880	72	1,560,500
[months in 1966]						
January	19	264,000	8	47,550	2	790,900
February	13	185,500	8	57,400	4	54,650
March	20	391,500	6	16,230	9	50,100
April	12	179,000	8	12,050	6	365,750
May	16	197,000	5	9,250	13	52,400
June	8	121,000	12	26,600	8	51,700
July	4	55,000	10	41,200	4	161,500
August	2	44,000	5	413,650	5	1,900
September	14	178,500	7	40,000	5	29,200
October	5	75,000	4	32,500	5	2,300
November	1	13,000	5	60,700	1	100
December	4	74,000	3	27,750	0	0
	118	$1,777,500	81	$784,880	72	$1,560,500

*Duplexes and apartments included, 1963-1966
Source: City Auditor, Grants Pass, Josephine County

Table 15

A COMPARISON OF TRADE INDICES BETWEEN CHIEF CITIES AND COUNTIES FOR JOSEPHINE AND JACKSON COUNTIES 1965 ESTIMATES

	Grants Pass	Medford	Josephine Co.	Jackson Co.
Population Estimates				
Total Thousands	12.7	28.9	34.3	89.0
% of U.S.A.	.0065	.0148	.0176	.0456
Retail Sales				
Total Retail Sales ($000)	51,744	91,809	57,690	143,855
% of U.S.A.	.0184	.0326	.0205	.0511
Food ($000)	13,116	17,363	14,936	33,650
Eat and Drink Places ($000)	2,455	5,927	3,240	9,605
General Mdse. ($000)	5,261	11,774	5,360	22,219
Apparel ($000)	849	3,895	922	4,739
Furn., House Appliance ($000)	1,838	4,992	2,074	5,835
Automotive ($000)	13,348	24,573	13,854	30,817
Gas Station ($000)	2,992	5,343	4,542	9,493
Lumber, Bldg. Hdwre. ($000)	4,589	7,972	4,835	11,838
Drug ($000)	1,450	3,386	1,506	4,741
Sales Indexes				
Sales Activity	238	220	116	112
Buying Power %	.0103	.0209	.0174	.0455
Quality	158	141	99	100
Effective Buying Income				
Net Dollars ($000)	32,002	75,070	71,625	194,650
% of U.S.A.	.0069	.0163	.0155	.0421
Per Capita	$ 2,521	2,598	2,088	2,187
Per Household	$ 7,278	7,583	6,338	6,878
% Households by Income Groups				
$0-2,499	22.3	19.6	27.3	23.1
$2,500-3,999	21.6	19.7	23.1	22.6
$4,000-6,999	25.5	27.0	25.1	27.1
$7,000-9,999	12.3	15.4	11.0	12.7
$10,000-over	18.3	18.3	13.5	14.5

The above statistics are from pages D-220 and D-221, June 10, 1966, issue of Sales Management (The Magazine of Marketing), published by Bill Brothers Publications, 630 Third Ave., New York 10017.

Table 16

COMPARISON OF SELECTED ECONOMIC FACTORS IN JOSEPHINE AND JACKSON COUNTIES: POPULATION, EFFECTIVE BUYING INCOME, AND RETAIL SALES FOR THE YEARS 1955, 1960, 1964, and 1965

	Jackson County				Josephine County			
	1955	1960	1964	1965	1955	1960	1964	1965
Population	65,790	73,962	87,473	92,100	29,990	29,917	34,718	35,100
Incorporated areas	N/A	40,906	47,185	49,433	N/A	10,366	12,130	12,430
Unincorporated areas	N/A	33,056	40,288	42,667	N/A	19,551	22,588	22,670
Households	22,100	24,400	27,200	28,300	10,500	10,000	10,800	11,300
Effective Buying Income								
Net (000's)	$97,629	$138,053	$177,299	$194,650	$40,165	$51,601	$65,019	$71,625
EBI, Per Household	4,418	5,658	6,518	6,878	3,825	5,160	6,020	6,338
EBI, Per Capita	1,440	1,838	2,062	2,187	1,287	1,709	1,958	2,088
Retail Sales (000's)								
Total	$83,527	$ 95,728	$131,026	$143,855	$37,286	$37,297	$52,568	$57,690
Food	18,925	24,113	30,988	33,650	8,311	8,798	13,814	14,936
Eat & Drink	4,569	5,408	8,605	9,605	2,244	2,340	2,937	3,240
Gen. Mdse.	8,108	9,521	19,763	22,219	3,095	3,055	4,733	5,350
Apparel	2,503	2,807	4,586	4,739	789	703	883	922
Furn. and H. H. App.	3,782	4,121	5,616	5,835	1,425	848	1,981	2,074
Automotive	18,372	23,794	26,856	30,817	8,253	8,939	11,921	13,854
Gas Stations	5,756	7,274	8,777	9,493	3,294	3,656	4,293	4,542
Lbr., Bldg., Hrdwre.	8,797	7,291	10,981	11,838	4,355	3,717	4,453	4,835
Drugs	1,901	2,637	4,323	4,741	1,016	1,018	1,360	1,506
% of U.S.A.	.0450	.0435	.0446	.0456	.0201	.0169	.0203	.0205

Brief Summary	Population Increase 1960-1965	Retail Sales 1960-1965
Jackson County	24.5%	50.3%
Josephine County	17.3%	54.4%

Source: State Employment Division, Grants Pass, Oregon

Attention should be directed to the fact that the average growth quoted for 1960 to 1965 in percentages can be misleading; also that these percentages are relative comparisons and that the differences between the two counties exist in the actual facts of population and retail sales.

CHAPTER III

EMPLOYMENT DISTRIBUTION AND OCCUPATIONAL NEEDS OF JOSEPHINE COUNTY

An analysis of Josephine County workers by industry, occupations, sex, and age group reveals information useful to school personnel who are considering vocational education programs.

This chapter will relate to a study of the employment opportunities in the county in terms of: (1) existing employment distribution by occupation within each broad industrial group, (2) forecast of needs by broad occupational groups, (3) future demand for workers in certain selected occupations and (4) hiring requirements.

Methodology

The tabular data for this chapter were collected by the Oregon Department of Employment and cover all major non-agriculture divisions for which employment was reported in the first quarter of 1967. Agriculture, self-employment, unpaid family workers, and domestic services were excluded, as well as any business or occupation employing fewer than ten persons.

The data were developed by a sampling procedure. Total employment for each major industrial division was established and a sample list of employers was drawn, accounting for approximately 50 percent of the total employment in each division.

A confidential report form was sent to each employer in the sample list asking for the information listed in the first paragraph of this chapter. All employers were notified by letter that they had been selected for the sampling. A subsequent telephone call was used for establishing a definite date for an interview, and all succeeding contacts were made by field visits. The returned reports were viewed for accuracy and completeness, and occupations coded by use of the

Dictionary of Occupational Titles. Inflationary factors were applied to bring the employment represented by each industry sample group to the actual employment figure of that group.

Employment Distribution

Table 17 is a tabulation of the distribution of employment in Josephine County by sex, age, and occupation. Careful study of this table will give a complete understanding of the employment structure of the county as it relates to the industries and occupations sampled.

It will be seen that approximately 32 percent of the employees tabulated are women. There is a fairly consistent turnover of female employees and a steady demand for them. Experience shows that due to family responsibilities and other demands, approximately 20 percent of the women leave the work force after two years and 50 percent within five years. A small percentage of these women return at about 35 years of age. Nearly 40 percent of the employees in wholesale and retail trade are women. There is also a high ratio of female workers in the finance, insurance and real estate, service, and government classifications. Fifty-seven percent of the women are in clerical or service occupations.

Workers in the youngest age group, under 22 years, comprise 6.6 percent of the total work force sampled. It is noted that 156 of the 493 workers under 22 years of age are either semiskilled or unskilled employees.

Table 17

DISTRIBUTION OF EMPLOYMENT
BY AGE, SEX, AND OCCUPATION
JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65-over
PROF. AND TECH.								
Elec. Eng.	3	--	--	3	--	--	--	--
Elect. Drft.	6	--	--	2	--	2	1	--
Civil Eng.	42	--	--	14	17	7	2	2
Civil Draft.	5	1	--	1	1	1	1	--
Mech. Eng.	6	--	--	--	--	4	--	2
Mech. Draft.	3	--	--	--	--	1	2	--
Ind. Eng.	4	--	--	4	--	--	--	--
Surveyor	16	--	--	6	3	4	2	--
Rodman	5	--	1	4	--	--	--	--
Chainman	5	--	--	5	--	--	--	--
Landscape Draft.	19	1	--	12	6	--	--	--
Forester	33	--	--	13	11	5	4	--
Nursing Staff	22	15	--	5	3	9	4	--
Nurse - Gen. Duty	69	68	--	12	27	19	8	2
Dental Asst. LPN	57	57	--	4	19	12	15	6
Principal	33	1	--	4	11	10	7	--
Teachers, Sec.	165	71	--	52	32	33	41	6
Teachers, Elem.	304	218	--	97	64	51	78	13
Teachers, MR	11	8	--	2	5	2	1	--
Teachers, Handicapped	5	4	--	1	2	2	--	--
Librarians	11	11	--	2	--	4	4	1
Law Clerk	19	--	--	--	--	19	--	--
Ministers	43	6	--	10	8	9	9	7

Source: Oregon State Department of Employment

Table 17 (cont.)

DISTRIBUTION OF EMPLOYMENT BY AGE, SEX, AND OCCUPATION, JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65 - over
PROF. AND TECH. (cont.)								
Musicians	11	7	--	3	1	6	1	--
Camp Counselors	14	--	--	7	5	2	--	--
Case Workers	27	10	--	13	4	6	4	--
SUBTOTAL	938	478	1	276	219	208	184	50
MANAGERIAL								
Accountants	12	7	--	9	2	1	--	--
Budget Officers	16	11	--	--	8	3	4	1
Buyers	12	4	--	--	--	4	5	3
Mgr. Sales	24	--	--	2	13	7	1	--
Mgr. Public Serv.	11	8	--	2	7	1	1	--
Office Mgr.	69	4	--	6	27	31	5	--
Underwriters	13	13	--	6	--	6	--	--
Escrow Office	14	13	--	--	6	--	6	1
Branch Mgr.	52	1	--	14	19	7	11	--
Gen. Foreman	21	--	--	1	10	6	4	--
Mgr. Traffic	17	2	--	2	6	5	3	--
Mgr. Store	72	7	--	15	29	16	11	--
Comptroller	19	--	--	--	4	13	2	--
Cashier Bank	24	4	--	1	7	9	6	--
Loan Office	24	--	--	2	8	7	--	6
Mgr. Hotel	25	5	--	6	7	8	3	--
Mgr. Food Service	34	11	--	7	7	8	12	--
Pub. Administration	19	1	--	1	4	3	6	3
Mgr. Ind. Organizations	64	--	--	4	25	24	2	8
SUBTOTAL	542	91	--	78	189	159	82	22

Table 17 (cont.)

DISTRIBUTION OF EMPLOYMENT BY AGE, SEX, AND OCCUPATION, JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65 - Over
CLERICAL								
Secretary	115	113	16	18	37	36	7	--
Stenographer	41	41	3	16	10	8	3	--
Typist	19	19	--	7	1	10	--	--
File Clerk	10	10	2	3	--	4	--	--
Clerk Typist	142	132	13	38	53	32	4	--
Bookkeeper	135	119	6	22	38	40	25	3
Cashier Clerk	23	16	--	12	6	3	2	--
Bank Teller	54	53	3	10	19	11	10	--
Payroll Clerk	13	12	--	4	6	2	--	--
Clerk - Gen. Off.	189	171	16	50	62	38	20	1
Stock Clerk	24	3	5	15	--	1	3	--
Post Office Clerk	27	5	1	1	18	5	1	--
Mail Carrier	47	1	--	4	22	11	6	3
Telephone Operator	21	20	1	--	7	6	4	1
Receptionist	25	25	--	7	11	4	2	--
Desk Clerk	15	13	--	3	7	2	--	--
Order Clerk	63	61	7	7	24	20	4	--
SUBTOTAL	963	814	73	217	321	233	91	8
SALES								
Salesman Service	88	--	--	16	33	19	12	6
Salesman Commodity	369	204	34	77	121	89	43	5
Driver Salesman	47	--	--	12	20	6	7	--
Dept. Mgrs.	68	11	--	22	11	19	13	3
Groc. Clerk	53	34	4	13	25	9	1	--
SUBTOTAL	625	249	38	140	210	142	76	14

Table 17 (cont.)

DISTRIBUTION OF EMPLOYMENT BY AGE, SEX, AND OCCUPATION, JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65 - Over
SERVICES								
Bus Boys - Waitresses	182	153	51	37	54	26	8	4
Bar Tenders	16	--	--	2	3	10	--	--
Cooks	187	154	33	7	35	65	40	7
Butchers	23	--	--	4	11	6	2	--
Cook Helpers	35	30	3	2	9	15	3	2
Kitchen Helpers	66	60	4	13	15	27	5	--
Fountainmen	22	22	22	--	--	--	--	--
Maids and Housemen	77	77	--	10	30	22	13	--
Barbers	12	--	--	1	5	3	2	--
Beauticians	10	10	--	7	3	--	--	--
Attendants - Hospital	252	244	16	40	78	78	39	--
Chauffeurs	10	--	--	--	--	10	--	--
Flagmen-Watchmen	36	1	--	--	1	6	17	11
Firemen	16	--	--	9	5	1	--	--
Policemen	56	1	--	20	26	6	1	2
Sheriffs	28	3	--	5	12	1	9	--
Porters & Cleaners	153	21	27	8	11	43	52	12
Janitors	43	10	2	8	7	14	11	--
SUBTOTAL	1224	786	158	173	305	333	202	38
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR								
Grounds Keepers	39	--	9	1	4	17	6	--
Forester Aids	22	--	4	9	5	1	3	--
Barkers	29	15	3	5	5	12	2	--
Glue Mixers Plywood	18	--	--	2	6	10	--	--

Table 17 (cont.)

DISTRIBUTION OF EMPLOYMENT BY AGE, SEX, AND OCCUPATION, JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65 - Over
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR (cont.)								
Veneer Drier and Presser	160	--	24	43	47	37	9	--
Edge Gluer Mach. Op. - Stocking	123	--	3	53	36	29	2	--
Laborer, Hot Press	13	--	2	10	1	--	--	--
Machinist	12	--	--	4	2	4	2	--
Motorized Veh. Mech.	180	--	2	39	73	41	24	1
Maint. Mech.	48	--	--	10	12	17	9	--
Linotype Oper.	12	--	--	--	8	2	2	--
Printing Press Oper.	12	3	2	2	6	2	--	--
Sanding Mach. Oper.	20	--	2	9	5	2	1	--
Clipper Man	30	--	1	8	12	5	3	--
Milling and Planing Oper.	20	--	--	9	4	3	3	--
Sawing Oper.	115	--	4	23	41	36	9	1
Wood Mach. Occup.	408	2	27	139	137	74	29	1
Metal Assembly	17	6	4	9	4	--	--	--
Assemb. & Repair of Elect.	179	144	25	65	62	20	7	--
Plywood Patcher & Sander	93	--	6	21	32	23	11	--
Assembly Wood Prod.	37	--	--	31	6	--	--	--
Edge Blazer	23	--	4	7	6	5	1	--
Sheet Metal Worker	7	--	2	--	--	5	--	--
Trans. Equip. Assembly	69	15	14	20	8	19	6	2
Auto Body Repair	22	--	--	--	22	--	--	--
Welder	14	--	--	6	3	1	4	--

Table 17 (cont.)

DISTRIBUTION OF EMPLOYMENT BY AGE, SEX, AND OCCUPATION, JOSEPHINE COUNTY

Occupation	April 67 Total Employment	Female	Under 22	22-34	35-44	45-54	55-64	65 - Over
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR (cont.)								
Elect. Lineman & Helper	42	--	--	9	10	14	7	--
Communication Lineman	24	--	--	7	7	6	3	--
Elect. Appliance Repair	35	--	--	9	21	5	--	--
Plasterers & Related Occup.	40	--	7	21	12	--	--	--
Cement Mason	18	--	--	7	7	--	4	--
Bulldozer Oper.	15	--	--	7	1	4	2	--
Paving & Grading, Rel. Occup.	165	--	3	31	58	49	21	2
Carpenter & Build. Occup.	152	--	7	23	47	49	27	--
Plumbers	11	--	--	3	4	--	3	--
Misc. Const. Occup.	72	--	11	30	12	12	7	--
Foreman	14	--	--	3	5	6	--	--
Maint. Men. Factory	50	--	6	9	6	17	10	1
Truck Drivers	217	--	--	36	101	73	7	--
Railroad Occup.	40	--	--	--	10	20	10	--
Bus Drivers	60	27	--	8	21	14	13	3
Serv. Station Attend.	41	--	9	22	8	2	--	--
Car & Truck Washers	18	--	2	6	6	2	2	--
Packaging Occup.	64	14	32	10	6	11	4	--
Hoisting & Conveying Occup.	44	--	--	13	19	9	3	--
Moving & Storage	185	2	25	72	54	20	13	--
Materials Handling Occup.	202	--	4	89	53	47	7	2
Power Sawman	37	--	--	9	26	--	--	2
Choker man	67	--	--	35	21	10	1	--
Compositor	14	--	--	2	6	4	2	--
SUBTOTAL	3,349	228	244	986	1,068	738	309	15
GRAND TOTAL	7,641	2,646	514	1,870	2,312	1,813	933	147

Table 18 tabulates current employment totals as well as current and anticipated job vacancies in Josephine County.

Though it is difficult to forecast with certainty the occupational demands in any given community, it would appear that the greatest projected need in the professional and technical fields might be in those of teaching, nursing, and counseling, while in the managerial area the future demand may be heaviest for store managers and bank cashiers. In the category of clerical and sales (the general area of highest need), grocery checkers, department managers, general office clerks, and commodity salesmen will be most needed; and in the classification of services, hospital and health attendants top the list.

Hiring Requirements

As expected, employers' hiring requirements varied from job to job. However, some patterns emerged which are revealing of employment opportunities in Josephine County. Professional-technical occupations require a high level of mental activity; consequently, the education requirements for these jobs are also high. Nearly nine of every ten jobs require a college degree. Most employers feel that four years of college is adequate preparation and will not demand fully experienced applicants. Clerical and sales jobs do not require as much education but the pattern is similar. Nearly 70 percent of these jobs require a high school education, and applicants need not be fully experienced. Many clerical and sales occupations offer good employment prospects to young people starting their work careers.

For most jobs in the above occupational groups, the Manpower Resources Study shows that education is more important than work experience.

Substantial mental activity also characterizes managerial occupations but here the hiring requirements are somewhat different. More than two-thirds of all managerial jobs do not require a college education. However, high experience

Table 18

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES
JOSEPHINE COUNTY

Occupation	Employed April, 1967	Trainees Needed 2 yrs.	Trainees Needed 4 yrs.	Current Vacancies	Trainees Needed 2 yrs.	Trainees Needed 4 yrs.
PROFESSIONAL AND TECHNICAL						
Electrical Engineers	3	6	10	--	--	--
Electrical Draftsmen	6	6	8	--	1	1
Civil Engineers	42	51	58	--	1	1
Civil Draftsmen	5	6	8	--	--	--
Mechanical Engineers	6	5	5	--	--	--
Mechanical Draftsmen	3	4	7	--	--	--
Industrial Engineers	4	6	8	--	--	--
Surveyor	16	45	51	--	--	1
Rodmen	5	4	4	--	--	--
Chainmen	5	9	12	--	--	--
Landscape Draftsmen	19	23	25	--	--	--
Forester	33	30	35	1	--	--
Nursing--Staff	22	25	29	--	--	--
Nurse--General Duty	69	81	98	3	2	5
Dental Asst. & L.P.N.	57	89	101	7	--	--
Principals	33	32	33	--	--	--
Teachers--Secondary	165	176	186	--	--	--
Teachers--Elementary	304	313	331	--	5	6
Teachers--M.R.	11	11	11	--	--	--
Teachers--Handicapped	5	6	6	--	--	--
Librarians	11	20	21	--	--	--
Law Clerks	19	21	25	--	6	--
Ministers	43	46	48	4	1	2
Musicians	11	11	11	1	--	--
Camp Counselors	14	11	12	--	10	11
Case Workers	27	35	45	--	--	--
SUBTOTAL	938	1,072	1,188	16	26	27

Table 18 (cont.)

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES, JOSEPHINE COUNTY

Occupation	Employed April, 1967	2 yrs.	4 yrs.	Current Vacancies	Trainees Needed 2 yrs.	Trainees Needed 4 yrs.
MANAGERIAL						
Accountants	12	15	18	--	2	5
Budget Officers	16	18	22	--	--	--
Buyers	12	12	12	--	--	--
Manager--Sales	24	25	27	1	--	1
Manager--Public Service	11	12	12	2	--	2
Office Managers	69	67	75	--	2	4
Underwriters	13	13	16	--	--	--
Escrow Office	14	15	18	--	6	--
Branch Managers	52	52	59	--	1	1
General Foremen	21	22	24	2	--	--
Manager--Traffic	17	16	18	--	--	--
Manager--Store	72	69	72	4	15	26
Comptrollers	19	21	24	--	--	--
Cashiers--Bank	24	33	43	--	7	24
Loan Officers	24	25	30	--	--	--
Managers--Hotel or Motel	25	26	30	--	--	--
Managers--Food Services	34	34	37	--	--	--
Public Administrators	19	16	16	--	--	--
Manager--Ind. Organization	64	70	81	--	--	1
SUBTOTAL	542	561	634	9	33	64
CLERICAL						
Secretaries	115	129	159	1	1	1
Stenographers	41	41	47	--	3	3
Typists	19	28	33	6	--	--
File Clerks	10	10	11	--	--	2
Clerk Typists	142	139	159	7	4	8

Table 18 (cont.)

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES, JOSEPHINE COUNTY

Occupation	Employed April, 1967	2 yrs.	4 yrs.	Current Vacancies	Trainees Needed 2 yrs.	4 yrs.
CLERICAL (cont.)						
Bookkeepers	135	141	160	2	--	1
Cashier Clerks	23	24	26	--	--	--
Bank Tellers	54	67	88	--	2	3
Payroll Clerks	13	12	14	--	--	--
Clerks--General Office	189	207	233	--	11	24
Stock Clerks	24	89	154	--	4	10
Post Office Clerks	27	21	25	--	1	1
Mail Carriers	47	35	42	--	1	1
Telephone Operators	21	21	23	--	3	3
Receptionists	25	25	29	--	2	2
Desk Clerks	15	16	19	4	--	--
Order Clerks	63	57	63	--	4	10
SUBTOTAL	963	1,062	1,285	20	36	69
SALES						
Insurance Salesmen	38	40	56	--	--	8
Real Estate Salesmen	38	47	57	--	--	8
Salesmen--Services	12	20	25	--	--	--
Salesmen--Commodities	369	439	495	11	12	17
Driver Salesmen	47	51	60	--	3	6
Department Managers	68	69	72	5	14	22
Grocery Checkers	53	59	65	--	15	25
SUBTOTAL	625	725	830	16	44	86

Table 18 (cont.)

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES, JOSEPHINE COUNTY

Occupation	Employed April, 1967	2 yrs.	4 yrs.	Current Vacancies	Trainees Needed 2 yrs.	4 yrs.
SERVICES						
Bus Boys and Waitresses	182	192	221	6	--	--
Bartenders	16	16	19	--	--	--
Cooks	187	203	229	4	7	10
Butchers	23	24	25	1	7	13
Cooks--Helpers	35	39	45	--	--	--
Kitchen Helpers	66	70	78	--	--	--
Fountain Men	22	22	23	--	--	--
Maids and Housemen	77	89	109	2	--	--
Bakers	12	15	18	2	--	--
Beauticians	10	18	25	5	--	--
Attendants--Hospital and Health Services	252	270	319	--	150	83
Chauffeurs	10	11	14	--	--	--
Flagmen and Watchmen	36	41	42	--	--	--
Firemen	16	26	25	--	--	--
Policemen--Detectives Public Services	56	52	59	2	7	9
Sheriffs	28	58	64	2	--	--
Janitors--Window Cleaning Choresmen	196	209	230	2	--	2
SUBTOTAL	1,224	1,355	1,545	26	171	117
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR						
Grounds Keepers	39	40	46	--	--	--
Forester Aids	22	31	35	1	--	--
Barkers	29	31	33	--	6	11
Glue Mixers--Plywood	18	22	26	--	--	--
Veneer Drier & Processor	160	190	225	--	--	--

Table 18 (cont.)

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES, JOSEPHINE COUNTY

Occupation	Employed April, 1967	2 yrs.	4 yrs.	Vacancies	Trainees Needed 2 yrs.	4 yrs.
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR (cont.)						
Paper Machine Operators & Stocking Mach. Oper.	123	157	187	--	--	--
Hot Press	13	16	19	--	--	--
Machinists	12	31	47	1	--	--
Motorized Veh. Mech. & Repair	180	199	230	4	--	--
Maintenance Mechanics	48	59	69	--	1	3
Linotype Operator	12	10	11	--	--	--
Printing Press Operators	12	14	17	--	--	2
Sanding Machine Operators	20	24	29	--	--	--
Clippermen	30	34	40	--	--	--
Milling & Planing Oper.	20	21	24	--	1	3
Sawing Occupations	115	133	148	--	1	3
Wood Mach. Occupations	408	492	558	--	5	7
Metal Assembling	17	28	28	--	14	14
Assembly & Repair of Electric Components	179	188	226	--	6	7
Plywood Patchers & Sanders	93	110	130	--	--	--
Assembling Wood Products	37	46	55	--	--	--
Edge Blazer	23	28	34	--	--	--
Sheet Metal Workers	7	10	11	--	2	2
Equipment Assemblymen	69	84	116	--	15	35
Auto Body Repairmen	22	26	30	--	--	--
Welders	14	23	37	--	--	--
Elect. Linemen & Helpers	42	48	54	--	4	4
Communication Linemen	24	26	29	1	--	--
Electricians	16	20	28	--	--	5
Appliance Repairmen	19	21	22	--	--	--
Plasterers & Related Occup.	40	31	37	--	--	--

Table 18 (cont.)

CURRENT EMPLOYMENT TOTALS AND ANTICIPATED JOB VACANCIES, JOSEPHINE COUNTY

Occupation	Employed April, 1967	2 yrs.	4 yrs.	Vacancies	Trainees Needed 2 yrs.	Trainees Needed 4 yrs.
SKILLED, SEMI-SKILLED AND UNSKILLED LABOR (cont.)						
Cement Masons	18	17	21	--	--	--
Bulldozer Operators	15	22	26	5	--	--
Paving, Grading & Rel. Occup.	165	140	151	--	4	5
Carpenters & Related Occup.	152	175	212	24	3	4
Plumbers	11	14	16	1	6	9
Misc. Const. Occupations	72	81	97	--	--	--
Foremen	14	13	15	--	5	5
Maintenance Men - Factory	50	59	66	1	2	5
Truck Drivers	217	256	276	2	2	2
Railroad Occupations	40	46	52	--	--	--
Bus Drivers	60	64	70	--	--	--
Service Station Attendants	41	53	59	4	--	--
Car & Truck Washers	18	18	20	--	--	--
Packaging Occupations	64	77	85	--	32	31
Hoisting & Conveying Occup.	44	51	57	--	--	--
Moving and Storing	185	225	263	1	25	43
Materials Handling Occup.	202	265	294	9	5	5
Power Sawmen	37	82	89	8	--	--
Chockermen and Chasers	67	105	117	6	5	6
Compositors	14	11	11	--	--	--
SUBTOTAL	3,349	3,967	4,578	68	144	211
GRAND TOTAL	7,641	8,742	10,060	155	454	574

requirements offset this fact. Nearly four of every five jobs require applicants to be fully experienced. These findings point up the fact that managerial competence requires long periods of work experience.

Despite the widespread preference by employers for applicants with education, training, or experience, there are some jobs in the area which do not require extensive preparation. The majority of the service and unskilled jobs are not so complex but that workers can learn the job duties quickly.

Less than half the jobs in Josephine County require experienced persons to fill them, but education is crucial for employment in jobs where experience is not required.

Summary

It is significant that employers in the labor market of Josephine County have expressed a great interest in, and desire for, an expanded vocational education program for high school and post high school work.

The primary areas in which the schools could help resolve future occupational shortages are in the technical, clerical, and skilled occupations. While hiring requirements are not particularly high, the larger firms request a high school education, while smaller companies place a premium on experience.

Women comprise nearly 35 percent of the sampled workers and create a constant void by leaving the work force in large numbers each two- and five-year period. More than half of the workers are between 22 and 44 years of age. Workers under 22 years make up 7 percent of the employees and largely furnish semiskilled and unskilled labor.

New technology and expanding knowledge plus the rising demands for professional and personal services have made a marked impact on the labor market. Throughout

the nation and Josephine County, jobs are requiring more and more preparation because physical activities are being replaced with mental activities. The ability to do a job well, therefore, has become increasingly dependent upon a worker's education or job training.

CHAPTER IV

FINANCIAL ANALYSIS

Introduction

Prior to making decisions on whether there should be an area vocational school in Josephine County or whether there should be more classes added and more buildings built to meet the needs of the students within the political unit, there must be an assessment of the ability of the county to meet the financial requirements of additional vocational education. In other words, what can the county afford to spend on education? The amount of money generated and expended for public school education may be viewed as a numerical way of saying how much education is valued in comparison with other things. In reality, then, the financing of education is the infinitely complex process by which a community decides upon its educational wants and the resources it is willing to use to satisfy these wants.

In many ways, it is a quite personal matter--a voter in Josephine County has to decide, when he votes, what percentage of his own money he is willing to put into the education of the community's youth in support of proposed programs. In many other ways, it is a political matter, a social matter, and an expression of social theory, which assumes that ultimate control of the schools should be in the hands of the local citizens. The determinants of these kinds of decisions are varied and complex.

The strongest determinants of educational spending do not relate to the amount of taxable property behind each pupil. Perhaps the strongest single determinant is the way in which the community perceives the benefits of education. The excellence of educational offerings, while influenced by fiscal support, is not solely determined by the financial factor. Therefore, it must be conceded,

excellence is more than that which is proportional to a quantity of money. However, the question is one about which considerable disagreement has been evidenced. Pursuit of this issue can be found in the writings of Paul Mort of Teachers College at Columbia University and Richard O. Carlson of the School of Education at the University of Oregon.

A community that allocates a high level of its resources to public school support views education as influencing pupils and nonpupils in future, as well as present, generations. Benefits accrue to pupils not only by increasing their lifetime earning capacities, but also by enabling them to be more aware of the full range of human experience. Educational spending is viewed as an investment in human capital which, like physical capital, results in increased production per unit of input. Thus, spending for schools is viewed as increasing national productivity. Also, public school education contributes to a well-educated public with political and social values which accrue, not only to those going to a particular school, or to their families, or to those in the community where a school is located, but to almost all members of the social unit. Education serves a democratic ideal by providing the equality of opportunity which is the major characteristic of an equalitarian society. The underdeveloped nations, which lack a skilled human resource, are illustrative of this necessity.

From the standpoint of equity, relative fiscal ability relates to characteristics of the personal income base and the population to be served. A logical starting point in analyzing the ability and need in Josephine County is the examination of income and population data of the county.

The Josephine County Income Base

Since the ultimate tax base is dependent upon private income, consideration of local ability to support public schools must consider the relative capacity of a community in terms of that income.

State personal income is usually the starting point in analyzing fiscal ability, with differences in the distribution and per unit levels taken into account. While not a perfect measure of fiscal ability, personal income is generally preferred because of its currency, simplicity and objectivity.

In Table 19, the distribution of state income tax returns per income level is illustrated. The comparison is between Josephine County and the state total.[1] A measure of relative economic activity would be the number of returns on which an income loss was reported. Also of interest is the relative distribution of lower income groups, 0 to $4,000, since the educational need for this income range is great and the ability to pay property taxes is relatively small.

This table illustrates that the percentage of returns reporting a loss is relatively higher in Jospehine County as compared with the state total. This would indicate that out of 9,839 returns filed from Josephine County, only 163 or 1.65 percent reported zero ability to support local government, including schools. While significantly higher than the state total percentage, this number hardly seems great enough to retard education spending. In many respects, people from this category have the most to gain from public expenditures. A function of public school education is to distribute educational benefits to all levels of society irrespective of individual ability to pay. The problem inherent in the Josephine

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[1]Source: Analysis of Oregon's Personal Income Tax Returns for the Tax Year--1964. Oregon State Tax Commission, Salem, Oregon, Research and Planning Section, August, 1966.

Table 19

1964 INCOME LEVEL DISTRIBUTIONS OF PERSONAL INCOME TAX RETURNS, JOSEPHINE COUNTY AND STATE OF OREGON

Income Level	Income Level Percentage Distribution	
	Josephine County	State Total
Loss	1.65%	.96%
$ 0-$ 2,000	13.50	22.50
$ 2,000-$ 4,000	14.90	16.03
$ 4,000-$ 6,000	20.88	16.65
$ 6,000-$ 8,000	22.33	17.43
$ 8,000-$10,000	13.06	11.65
$10,000-$15,000	9.69	10.66
$15,000-$20,000	1.82	2.98
$20,000 and up	2.35	2.02

County income distribution schedule is to persuade those people with median and high income levels that it is their responsibility to support education and to shoulder the school tax burden for the less able levels.

The evidence indicates that Josephine County enjoys a relatively good position with income groups reporting ability to support education. In the income range of $4,000 to $8,000, the Josephine County distribution is about 10 percent higher than the corresponding state total distribution.

Of interest, and certainly relevant to the question of fiscal ability, is the level of income. Is Josephine County less able to support public schools as compared to the rest of the state?

Table 20

AVERAGE INCOME REPORTED PER TAX RETURN, JOSEPHINE COUNTY AND STATE OF OREGON. TAX YEARS: 1957 and 1964

	Average Income Reported Per Tax Return		
Tax Year	State of Oregon	Josephine County	Difference
1957	$4,634	$4,259	$375
1964	$5,718	$5,568	$150
Increased Ratio	123%	131%	

Table 20 summarizes personal income averages per tax return in Josephine County and the state as a whole for the tax years 1957 and 1964.[2]

These data indicate that in 1957 Josephine County income per tax return was $375 below the state average. By 1964 the gap had narrowed to $150. This difference does not appear to be statistically significant, and it appears that Josephine County enjoys average ability to support its schools. The rate of income growth during the seven-year period has been greater in Josephine County than for the state as a whole. This would indicate that local economic power to engage in educational spending is gaining strength.

If there is a question about the relative ability of the Josephine County area to support education, these data indicate an ability level at least commensurate with the state average.

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[2]Data from State Tax Commission. Ibid.

Population Age Distribution

The age distribution of the population is of interest in assessing both potential tax liabilities and negative or positive attitudes toward educational spending. A high percentage of the population represented in the 0-24 and the 65+ age groups represents a tax liability, for these groups generate greater demands for local public services, including education. Also, it is possible that a portion of the 65+ age group rely on fixed incomes that do not respond to increases in local property tax rates. It is understandable that requests for additional sums of tax revenue will be sharply questioned by this group, especially if a tax outlay equivalent to 25 percent or more of their net income will result. A popular "rule of thumb" to measure the burden of property taxes is the 6 percent rule. If local property taxes exceed 6 percent of a family's net personal income, the taxes are burdensome to that particular family. It is estimated that the state average ratio of homeowner property taxes to personal income ranges from about 6 percent to 1.5 percent.

Table 21 compares the population age group in Josephine County with the state as a whole. The population data for 1970 are estimates.[3]

These data tend to support the contention that Josephine County has a higher percentage of people age 65+ than the state as a whole. It is also noted that the tax liability represented by the group 0-24 years is relatively lighter in Josephine County.

The fact that people are living longer and seeking enjoyment of living in their later years can hardly be described as a problem. It simply means that those who are engaged in policy-making in the area of public services must be aware of this

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[3] Population Bulletin, Oregon State Board of Census, Portland State College, Box 751, Portland, Oregon, p. 9.

Table 21

COMPARISON OF AGE GROUP PERCENTAGE DISTRIBUTIONS
JOSEPHINE COUNTY AND THE STATE OF OREGON

	1960		1965		Estimated 1970	
Age Groups (years)	Josephine County	State	Josephine County	State	Josephine County	State
0-14	29.9%	30.8%	29.1%	30.5%	28.3%	29.9%
15-24	11.8	12.8	14.3	15.1	15.1	16.9
25-44	23.0	24.8	20.7	22.5	20.1	21.5
45-64	23.0	21.2	22.4	21.1	22.1	20.8
65 +	12.3	10.4	13.5	10.7	14.4	10.9

development and actively seek equitable taxing arrangements. Also, it seems apparent that educators and school board members must seek ways to acquaint this group with the aims of education, and achieve a cooperative definition of the means to attain these aims.

The Property Tax Problem

The regressive nature of the local property tax hits hard at low income and fixed income groups. Three measures of the merits of a tax are: (1) ability of taxpayers to pay; (2) benefits received by those who pay the tax; and (3) ease of administration of the tax. Since public education is a societal benefit which cannot be divided into segments and sold to users, the second measure of benefits received per tax outlay does not necessarily apply.

Table 22

PERCENTAGE OF TOTAL INCOME EXPENDED ON PROPERTY TAXES IN OREGON, 1959

Family Personal Income Range	Property Tax Payments as a Percent of Income
$ 0-$2,000	5.9%
$ 2,000-$3,999	4.6
$ 4,000-$5,999	4.1
$ 6,000-$7,999	3.7
$ 8,000-$9,999	3.4
$10,000-$14,999	2.8
$15,000 +	2.1

Table 22 illustrates the problem of the property tax as it relates to income levels.[4]

In dealing with local fiscal problems, educators and school boards should keep in mind the words of the late Dr. C. Ward Macy, Professor of Economics, University of Oregon, ". . . there is only one ultimate source of tax revenue and therefore only one final tax base, namely, private income."

There are no simple answers to the fiscal problems of education in a society that is becoming increasingly urbanized. Additional state aid is not the total answer because the non-educational demands on the local property base will tend to consume the relief afforded from the state. It is estimated that it takes $4 of additional aid to generate $1 of increased local spending.

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[4] Research Memo, Oregon Education Association, Portland, Oregon, August, 1964.

Perhaps the problem cannot be answered within a fiscal framework because it is not a fiscal problem. A community that can conceptualize the broadest benefits from educational investments will enjoy good schools. Financial analyses give us insights into the equity of support programs and the manner in which educators, school board members, and community have quantified their social, political, and economic values.

CHAPTER V

ENROLLMENTS AND ENROLLMENT PROJECTIONS

An understanding of the growth of schools in an area is important whenever the focus becomes vocational schools, programs and buildings. The projection of school enrollments is based on past enrollment, county birth rate and migration trends.

Based on the high enrollment projections for all Josephine County, the estimate of students in 1971 approaches 10,000, with a total high school population of 2,582 students. The three important questions, of course, are:

1. Is there sufficient ability to build and maintain a vocational school?
2. Are there enough students to make it practical economically?
3. Can the type of program necessary to meet the needs of those students requiring vocational training be developed?

This chapter focuses upon the future growth and the student enrollments that can be expected in a vocational school in Josephine County. The data shown in Table 23 are basic facts showing enrollments over the preceding six-year period.

Resident Births

The average number of resident births in the county in the past eight years (since 1957) is 574. There is no sharp change in the birth rate for this time period as there was between 1957 and 1958. Resident births are children born to parents who were officially resident in the county at the time of birth, regardless of the actual birthplace. (See Table 24.)

Table 23

PAST ENROLLMENT, 1961-1966*
JOSEPHINE COUNTY

Grades	1961	1962	1963	1964	1965	1966
1	639	723	705	687	749	763
2	636	652	696	712	708	710
3	627	646	662	722	751	686
4	624	646	673	696	767	716
5	600	640	632	700	720	767
6	611	622	646	638	711	733
Total 1-6	3737	3929	4014	4155	4406	4375
7	622	608	649	697	692	711
8	589	655	644	665	715	677
9	628	597	679	662	697	694
Total 7-9	1839	1860	1972	2024	2104	2082
10	521	638	601	684	676	663
11	442	494	609	587	671	665
12	434	527	479	574	592	629
Total 10-12	1397	1659	1689	1845	1939	1957
Total 1-12	6973	7448	7675	8024	8449	8414
Pupil Increase		475	227	349	425	-35
Percent of Increase		6.8%	3.0%	5.2%	5.2%	-.4%

*Enrollment as of September 30 for each year, from school district records.

Table 24

RESIDENT BIRTHS IN JOSEPHINE COUNTY, OREGON*

1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
692	620	664	632	560	580	585	571	596	553	585	565

*Data from the Oregon State Board of Health, Vital Statistics Section.

Ratios of First-Grade Enrollments

The ratio of first-grade enrollment to county births increased from a low of 1.04 in 1961 to a high of 1.31 in 1966 for an average of 1.18 (see Table 25). This increase may be due to one or a combination of the following factors:

1. Increased in-migration from outside the county or state.
2. Greater stability in Josephine County with a reduction of out-migration.
3. Reduction in death rates.

Table 25

RATIO OF FIRST-GRADE ENROLLMENT TO COUNTY BIRTHS
JOSEPHINE COUNTY, OREGON

Year	First-Grade Enrollment	County Births 6 Years Prior	Year	Ratio of Enrollment to County Births
1961	639	620	1955	1.04
1962	723	664	1956	1.09
1963	705	632	1957	1.12
1964	687	560	1958	1.23
1965	749	580	1959	1.29
1966	763	585	1960	1.31
			Av:	1.18

First-Grade Enrollment Compared with Biennial School Census

Table 26 is constructed as a check upon the reliability of the ratios reported in Table 25.

Table 26

RATIOS BASED UPON FIRST-GRADE ENROLLMENT TO NUMBER OF FOUR- AND FIVE-YEAR OLDS ENUMERATED ON OREGON BIENNIAL SCHOOL CENSUS JOSEPHINE COUNTY

Census Year	Age	Number Enumerated	School Year	First-Grade Enrollment	Ratio
1958	5	542	1959	641	1.18
	4	531	1960	662	1.25
1960	5	543	1961	639	1.18
	4	505	1962	723	1.43
1962	5	533	1963	705	1.23
	4	457	1964	687	1.50
1964	5	559	1965	749	1.34
	4	580	1966	763	1.32

The average ratio of enrollments of entering first-grade pupils to the census of five-year-olds the previous year is 1.23. The average ratio of enrollments of entering first-grade pupils to the census of four-year-olds two years prior is 1.27. In other words, the census enumeration is consistently lower than the number of pupils who enroll and, in the case of four-year-old children, may be as much as 50 percent in error. This contrasts with a lower error rate obtained through using births as the basis for comparison. The difficulty is probably due to the problems entailed in achieving complete coverage through census enumeration. Regardless of the degree of error related to these two techniques it is noteworthy

that both methods are consistently low. Stated differently, more pupils appear and enroll each year than can be predicted either from birth or census data. This indicates a steady in-migration at this age level.

The ratios in Tables 25 and 26 were computed by the following method:

$$\frac{\text{First-Grade Enrollment in 1963}}{\text{1962 Census of five-year-olds}} = \frac{705}{533} = 1.32$$

$$\frac{\text{First-Grade Enrollment in 1964}}{\text{1962 Census of four-year-olds}} = \frac{687}{457} = 1.50$$

$$\frac{\text{First-Grade Enrollment in 1965}}{\text{Resident Live Births in 1959}} = \frac{749}{580} = 1.29$$

Migration Factors

Table 27 indicates the effect of in- and out-migration from one year to the next. The figures in Table 27 are computed by subtracting the enrollment of a particular grade from the enrollment of the next higher grade for the following year. For example, first-grade enrollment in 1961 was 639, whereas second-grade enrollment the following year was 652, a net gain of 13 students between grades one and two from 1961 to 1962. This gain must be the result of in-migration.

The elementary grades show a net in-migration in 1962, 1963, 1964, and 1965. The year 1964-65 has a high net in-migration of 140 pupils but there is a loss of 83 pupils in 1966. The junior high school grades show an increase in in-migration from 1962 to 1965 inclusive, with a high of 104 pupils in 1964-65. However, in the following year, 1965-66, there was a loss of 36 pupils. The senior high school shows a slight increase of students in 1961-62, but decreases of 40 students in 1962-63 and 44 students in 1963-64 with an increase of 6 students in 1964-65 followed by a substantial loss of 87 students in 1965-66.

Table 27

NET GAIN OR LOSS BY MIGRATION, GRADES 1-12,
1961-1966, JOSEPHINE COUNTY

Grades	61-62	62-63	63-64	64-65	65-66
1-2	+13	-27	+ 7	+21	-39
2-3	+10	+10	+26	+39	-22
3-4	+19	+27	+34	+45	-35
4-5	+16	-14	+27	+24	0
5-6	+22	+ 6	+ 6	+11	+13
Total 1-6	+80	+ 2	+100	+140	-83
6-7	- 3	+27	+51	+54	0
7-8	+33	+36	+16	+18	-15
8-9	+ 8	+24	+18	+32	-21
Total 7-9	+38	+87	+85	+104	-36
9-10	+10	+ 4	+ 5	+14	-34
10-11	-27	-29	-14	-13	-11
11-12	+85	-15	-35	+ 5	-42
Total 10-12	+68	-40	-44	+ 6	-87
Total 1-12	+186	+49	+141	+250	-206

These figures may be due to both dropouts and migration. However, it should be noted that there was a definite market drop in lumber products in the years 1965-66 which has a strong relationship to the economy of the county. The lumbering industry may thus also affect the stability of the population of Josephine County.

Progression Ratios

Table 28 indicates the progression ratios for grades 1-12. A progression ratio can be defined as the ratio of the number in a higher grade in a given year to the number in the next lower grade in the preceding year. A progression

Table 28

PROGRESSION RATIOS FOR JOSEPHINE COUNTY, 1961-66

Grades	1961-62	1962-63	1963-64	1964-65	1965-66	High Prog. Ratios	Mean Prog. Ratios	Low Prog. Ratios
1-2	1.02	.96	1.01	1.03	.95	1.02	.99	.96
2-3	1.02	1.02	1.04	1.05	.97	1.04	1.02	1.00
3-4	1.03	1.04	1.05	1.06	.95	1.05	1.03	1.01
4-5	1.03	.98	1.04	1.03	1.00	1.03	1.02	1.00
5-6	1.04	1.01	1.01	1.02	1.02	1.03	1.02	1.01
6-7	.995	1.04	1.08	1.08	1.00	1.07	1.04	1.01
7-8	1.05	1.06	1.02	1.03	.98	1.05	1.03	1.01
8-9	1.01	1.04	1.03	1.05	.97	1.03	1.02	1.00
9-10	1.02	1.01	1.01	1.02	.95	1.02	1.00	.99
10-11	.95	.95	.98	.98	.98	.98	.97	.96
11-12	1.19	.97	.94	1.01	.94	1.06	1.01	.95

ratio of 1.00 indicates that the enrollment in a given grade is equal to enrollment in the corresponding lower grade in the previous year. A progression ratio greater than 1.00 indicates an increase in enrollment and a ratio less than 1.00 represents a loss.

The basic equation used in computing the progression ratio is as follows:

$$\text{Progression ratio} = \frac{\text{Enrollment in grade X in a given year}}{\text{Enrollment in grade (X-1) the previous year}}$$

The high progression ratio is computed by averaging the three highest ratios; the mean ratio is computed by averaging all five ratios; and the low progression ratio is an average of the three lowest ratios. Statistically, ratios cannot be averaged. However, if the denominators of the numbers involved are similar in magnitude, the results will be sufficiently accurate for the purpose intended.

Enrollment Projections

High enrollment projections for grades 1 through 12 forecast a steady increase for the next five years. In five years under this projection, the senior high school age-group will show a 625-pupil gain over the actual 1966 enrollment; the junior high school group will show a 528-pupil gain; and the elementary grades indicate a 138-pupil gain (see Table 29). Enrollment figures for 1966 were shown in Table 23 , page 66 .

The median projection shown in Table 30 indicates an overall gain of 20 pupils for five years. At the senior high school level there would be a gain of 189 pupils over the actual 1966 enrollment; at the junior high level, a gain of 92 pupils; and the elementary grades would sustain a loss of 261 pupils.

The low enrollment projection at the elementary, junior high and high school levels shows a steady decline (see Table 31).

Table 29

HIGH ENROLLMENT PROJECTIONS, 1967-71
JOSEPHINE COUNTY

Grades	1967	1968	1969	1970	1971
1	671	701	650	688	664
2	780	686	717	665	703
3	736	808	711	742	688
4	723	775	851	749	782
5	740	747	801	880	774
6	785	757	764	820	901
Total 1-6	4434	4474	4494	4543	4513
7	784	839	810	817	876
8	744	820	878	847	855
9	702	772	850	911	879
Total 7-9	2230	2430	2538	2575	2610
10	704	713	783	863	924
11	650	691	699	768	846
12	703	687	730	739	811
Total 10-12	2057	2090	2212	2369	2582
Total 1-12	8721	8994	9244	9487	9705

Table 30

MEAN ENROLLMENT PROJECTIONS, 1967-71
JOSEPHINE COUNTY

Grades	1967	1968	1969	1970	1971
1	671	701	650	688	664
2	758	666	696	646	683
3	703	751	660	690	639
4	699	717	765	673	703
5	710	693	711	758	667
6	766	709	692	709	757
Total 1-6	4307	4237	4174	4164	4114
7	749	783	724	707	725
8	716	754	788	729	712
9	684	723	762	796	737
Total 7-9	2149	2260	2274	2233	2174
10	683	673	711	750	783
11	628	647	637	674	710
12	644	608	626	617	652
Total 10-12	1955	1928	1975	2041	2146
Total 1-12	8411	8425	8423	8438	8434

Table 31

LOW ENROLLMENT PROJECTIONS, 1967-71
JOSEPHINE COUNTY

Grades	1967	1968	1969	1970	1971
1	671	701	650	688	664
2	730	642	671	622	658
3	674	693	610	637	591
4	669	657	676	594	621
5	677	632	621	639	562
6	740	653	610	599	616
Total 1-6	4160	3978	3837	3779	3712
7	726	733	647	604	593
8	682	697	703	620	579
9	659	664	678	685	604
Total 7-9	2067	2094	2028	1909	1777
10	659	625	630	644	650
11	605	601	571	575	588
12	602	548	545	517	521
Total 10-12	1866	1775	1746	1736	1758
Total 1-12	8093	7847	7611	7424	7247

Previously, it has been noted that the county birth rate is leveling off but that the ratio of first-grade enrollment to county births six years prior is increasing. The increase is probably due to migratory factors, and yearly projections should, therefore, be made to provide current data for future decisions concerning enrollment trends.

Projection Based on "Line of Best Fit"

The "line of best fit" is a line derived from a mathematical formula that most nearly conforms to the pattern of enrollment data. The equation used in computing the "line of best fit" is:

$$E = bY + a$$

Where

$$b = \frac{\Sigma YE - \frac{(\Sigma Y)(\Sigma E)}{N}}{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}}$$

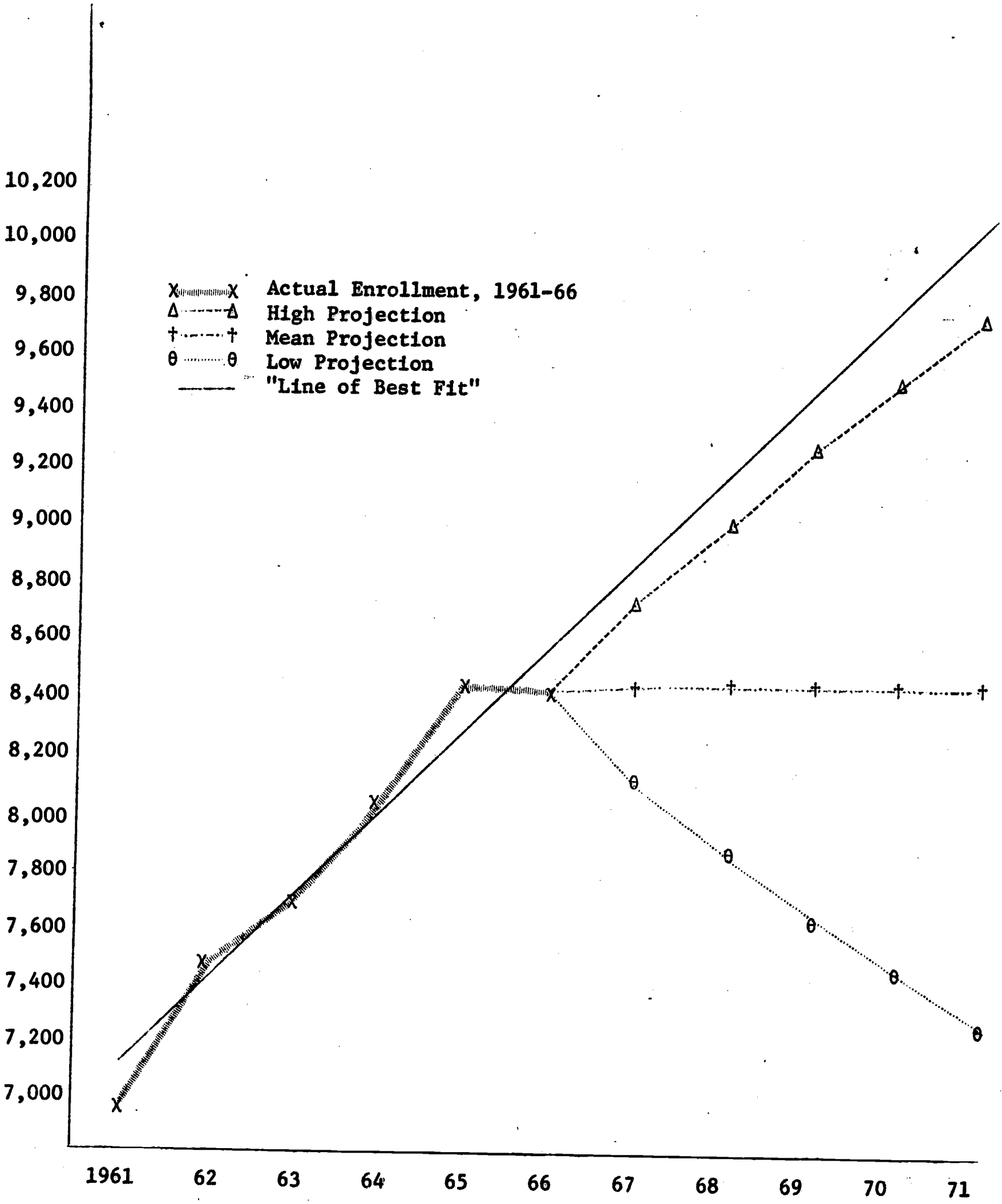
and $a = \overline{E} - b\overline{Y}$

The variables and operations involved in determining this line are illustrated at the end of this chapter. The principle involved in this technique is to rely upon past enrollment data and predict future enrollments by extending the line. Table 32 shows the predicted enrollment for the different grade levels based upon the "line of best fit."

In Figure IV, the "line of best fit" is slightly above the high projection. This is primarily due to the drop in enrollment in 1966. It would be advisable to recompute this line upon the basis of the enrollment in September of 1967 to see whether there is a recovery as is predicted by the "line of best fit." Table 32 indicates that the enrollment predicted by the extended line is 8,878; 9,168; 9,456; 9,745; and 10,034 for the years 1967-71 inclusive.

Figure IV

JOSEPHINE COUNTY, GRADES 1-12
PAST AND PREDICTED ENROLLMENTS



In the elementary grades, the enrollment projected by the line indicates a higher enrollment than the enrollment projected by the high survival ratio (see Figure V). This again is because of the drop in enrollment in 1966. If school building activity is contemplated, those involved would be wise to choose a line somewhere between the "line of best fit" and the high projection ratio.

Figure VI shows the past and predicted enrollment for the junior high school level. The "line of best fit" coincides with the mean prediction through 1969 and then stays above the mean prediction for 1970 and 1971.

The senior high school enrollments projected by the line indicate a close correlation between the high prediction and the line through 1971. In 1971 the enrollment projected by the line almost coincides with the high enrollment projection (see Figure VII).

Table 32

ENROLLMENT PROJECTIONS BASED ON THE "LINE OF BEST FIT"

JOSEPHINE COUNTY

Grades	1967	1968	1969	1970	1971
1-12	8,878	9,168	9,456	9,745	10,034
Elementary	4,568	4,690	4,812	4,934	5,057
Junior High	2,181	2,239	2,296	2,354	2,411
Senior High	2,129	2,239	2,348	2,457	2,566

Figure V

JOSEPHINE COUNTY, GRADES 1-6
PAST AND PREDICTED ENROLLMENTS

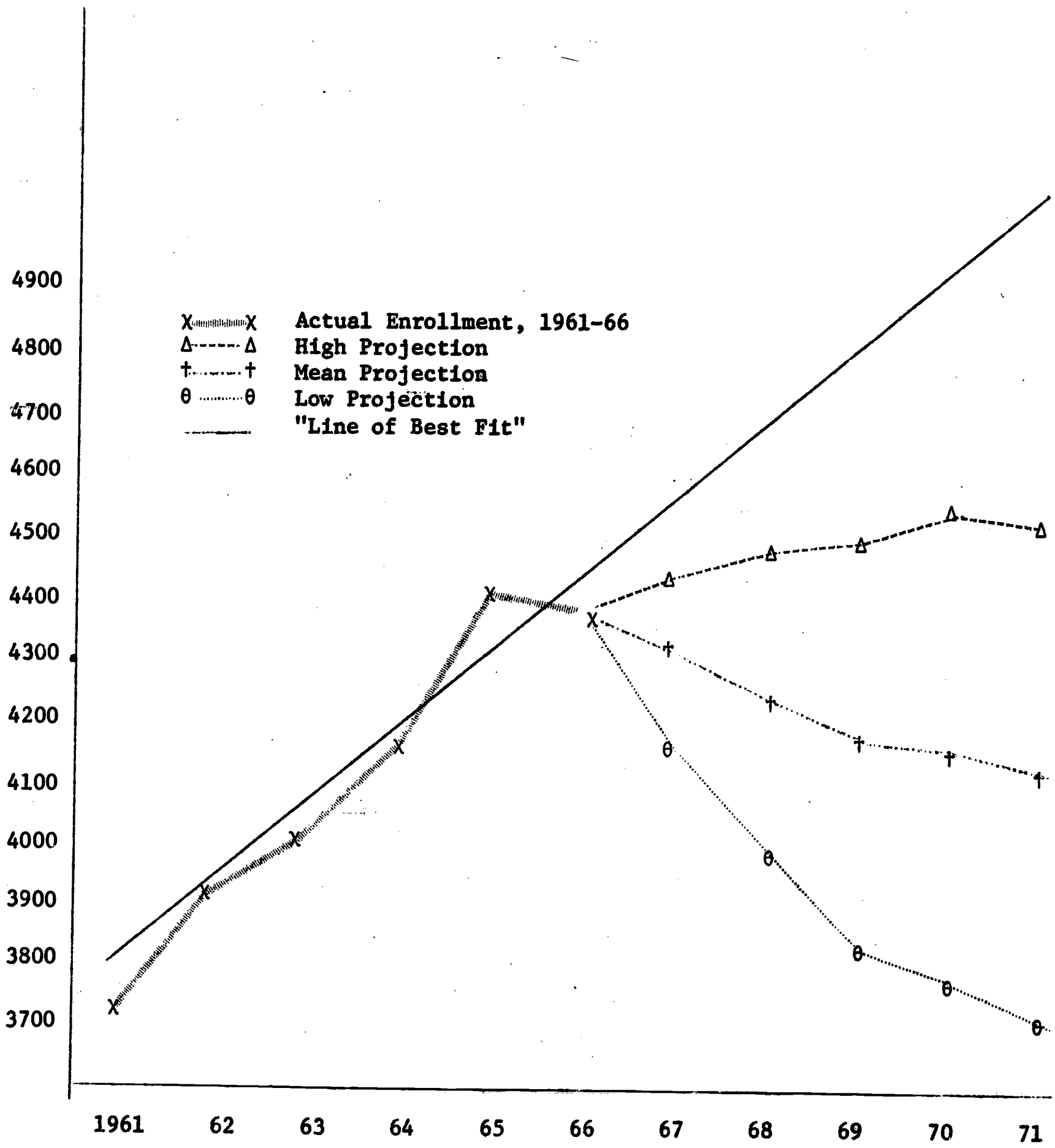


Figure VI

JOSEPHINE COUNTY, GRADES 7-9
PAST AND PREDICTED ENROLLMENTS

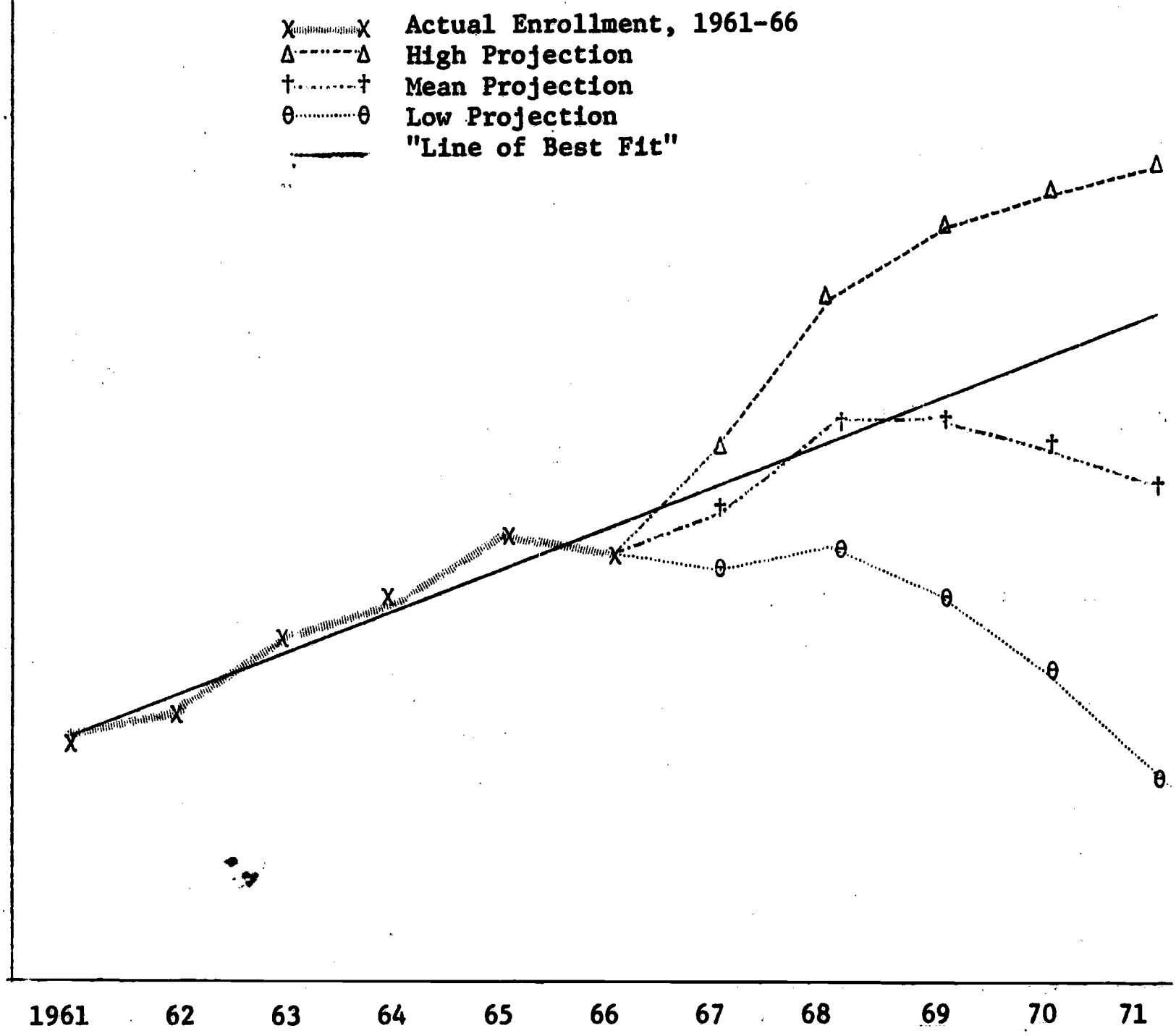
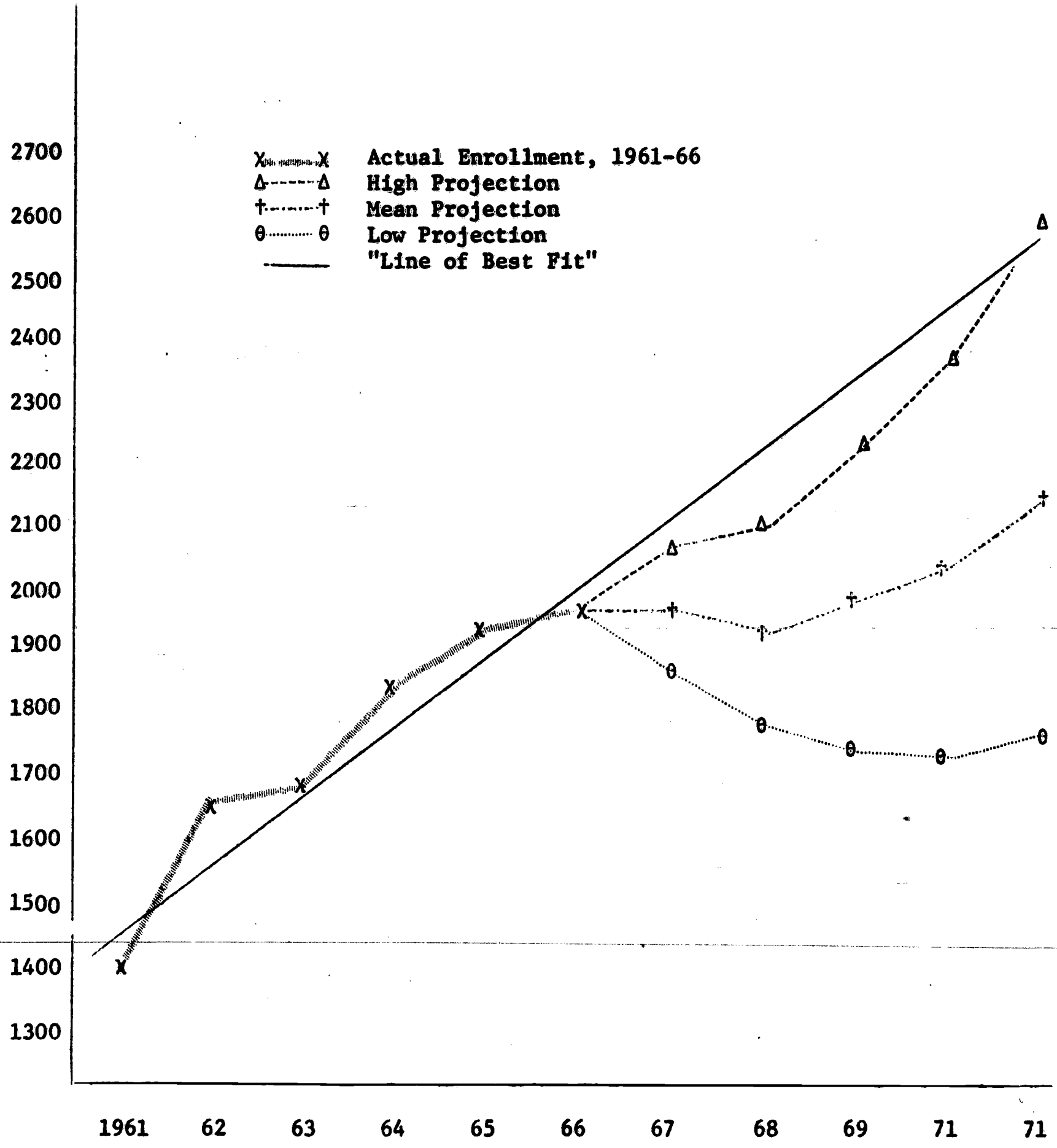


Figure VII

JOSEPHINE COUNTY, GRADES 10-12
PAST AND PREDICTED ENROLLMENTS



In answering the three questions, as set forth at the beginning of this chapter, the study committee feels that in light of the economic picture as described previously, the community will find difficulty financing the type of vocational-technical program that would be necessary to meet the broad spectrum of training appropriate for the students of Josephine County. Anticipated building needs of the county schools, the fluctuating economy in lumbering, and the lack of additional support by the state legislature make it questionable whether Josephine County alone can support the type of program needed at this time.

The number of students in Josephine County also does not suggest a rigorous vocational-technical program. However, a cooperative effort between Josephine County and Jackson County should furnish the number of students needed to warrant a sound vocational-technical program--a program with enough types of vocational experiences to meet needs of most students. It is the study committee's opinion that there should be a potential of a thousand full-time students to meet enrollment requirements for a vocational-technical school. The combined student population of Josephine County and Jackson County should provide not only the number of students but also the economic support that is needed in the development of a viable vocational-technical school.

Implications

1. In-migration appears to be a dominant factor in Josephine County. The county birth rate has leveled off, but first-grade enrollment continues to increase.
2. There was an overall increase of 1,441 pupils in all schools in the county from 1961-1966. There was a net in-migration of 420 pupils during this period; the remainder can be attributed to natural increase. Out-migration may be closely related to fluctuations in the lumber products market.
3. The "line of best fit" indicates that the high enrollment projection would be the most probable enrollment prediction, since it conforms most closely to the more recent enrollment patterns.
4. The predicted enrollments for 1971 are:

   Elementary schools: 4,513 to 5,057*

   Junior high schools: 2,411* to 2,610

   Senior high schools: 2,566* to 2,582

5. Enrollment projections need to be periodically updated to reflect the current state of the population growth in Josephine County.

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*Based on "line of best fit."

Table 33

ENROLLMENT PROJECTION USING THE "LINE OF BEST FIT"
JOSEPHINE COUNTY

Y (Year)	E (Enrollment)	YE	Y^2
1 (1960)	3,757	3,757	1
2	3,737	7,474	4
3	3,929	11,787	9
4	4,014	16,056	16
5	4,155	20,775	25
6	4,406	26,436	36
7 (1966)	4,375	30,625	49
$\Sigma Y = 28$	$\Sigma E = 28,373$	$\Sigma YE = 116,910$	$\Sigma Y^2 = 140$
$\bar{Y} = 4$	$\bar{E} = 4,053$		

Equation of "Line of Best Fit" : $\boxed{E = bY + a}$

Where $b = \dfrac{\Sigma YE - \frac{(\Sigma Y)(\Sigma E)}{N}}{\Sigma Y^2 - \frac{(\Sigma Y)^2}{N}} = \dfrac{116,910 - \frac{(28)(28,373)}{7}}{140 - \frac{(28)^2}{7}}$

N = 7, number of pairs of original data

$$b = \frac{116,910 - 113,492}{28} = \frac{3,418}{28} = 122.07$$

and $\boxed{a = \bar{E} - b\bar{Y}} = 4,053 - (122.07)(4) = 4,053 - 488.28 = 3,564.72$

Equation of Line: = $E = 122.07Y + 3,564.72$

1967	1968	1969	1970	1971
Y = 8	Y = 9	Y = 10	Y = 11	Y = 12
E = 4,568	E = 4,690	E = 4,812	E = 4,934	E = 5,057

CHAPTER VI

CURRENT VOCATIONAL EDUCATION PROGRAMS

Sources and Categories of Data

Population. During the 1966-1967 school year there were two high schools serving a total of 2005 students in the combined sophomore, junior and senior classes. Of these, 1743 were enrolled at Grants Pass High School, and 262 were enrolled at the Illinois Valley High School operated by the Josephine County School District.

Course Offerings. Data relative to vocational or occupational program offerings presently functioning were collected and analyzed.

Questionnaires. Questionnaires were distributed, responded to, collected, and evaluated. Among those queried were principals, counselors, librarians, teachers of vocational education courses, other teachers, all students in grades 7 through 12, and some recent graduates of both the high schools.

Philosophy of Education. Accepting the philosophy of the schools as a statement of educational values and goals embraced by the community and school personnel, the printed philosophy of each high school or district was reviewed to determine the school's position on vocational education. Generally, references to vocational education were brief but good, and indicated that there was a definite concern among community, administration, and teaching personnel for the area of vocational education. However, there was limited indication of curriculum integration--that is, references to such things as vocational mathematics, vocational English, etc.

Identification of Vocational Education Courses

For the purpose of this study, the identification of high school courses to be considered as vocational was an essential but complex task. At the Grants Pass High School all commercial courses are regarded as outside the vocational area. The work in Advanced Typing, Bookkeeping, Transcription, and Shorthand is not classified as vocational study. However, Homemaking I, II, III, and IV are included in the Grants Pass School District vocational course of study as are Vocational Agriculture, General Shop, Mechanical Drawing, Wood Shop, Auto Mechanics, and Driver Training. In the Illinois Valley High School, Vocational Agriculture I, II, III, and IV are classified as vocational, but Typing, Shorthand, Bookkeeping, General Shop and Shop I or Advanced Shop are not referred to as part of the vocational education program. It should be pointed out that very few schools visited throughout the state are consistent in their identification of vocational education. With this in view, one can easily see the difficulties presented. However, in order to treat the data consistently, all courses of similar implication will be considered in the vocational education category.

It was noted that none of the schools had comprehensive descriptions of the vocational courses, nor of those which they considered to be of relevance to vocational education. Many of the teachers contacted (mostly other than vocational teachers) had little conception of the difference between vocational education and industrial arts, or knew whether or not vocational education was a junior high program as well as a high school program. Understanding of what constitutes vocational education is an important point of departure in planning for the program. Administrators and school personnel must undertake to clarify this area of the curriculum for staff, parents, and

Table 34

VOCATIONAL EDUCATION COURSES IDENTIFIED BY DISTRICTS

Grants Pass High School	Illinois Valley High School
Bookkeeping	Vocational Agriculture
Shorthand	Typing
Agriculture	Shorthand
Home Economics	Bookkeeping
Typing	Office Practice
Mechanical Drawing	Wood Shop I & II
Transcription	Wood Shop III & IV
Business Law	General Shop
Office Practice	Home Economics
General Business	
Briefhand	
General Shop	
Wood Shop	
Auto Shop	

students. However, those courses classified by school personnel as vocational education will be considered as such in this report. They are listed in Table 34.

Enrollment Trends in Vocational Education Courses

Enrollment trends are an indication of the relative importance the students, teachers, and the administration place upon certain elective subjects. Students generally view vocational courses as a practical path to employment. Teachers of elective classes in the vocational area maintain enrollment through their teaching proficiency, personality, and enthusiasm for courses they teach. Certain courses appear to carry specific appeal for certain individuals, with each student electing the course according to his own desires. Administrators contribute to enrollment through insistence on proper counseling and emphasis upon program scheduling that is fair to all areas of curriculum, coupled with an attempt to encourage a general attitude viewing vocational education as of great importance.

An additional task of the educator is to determine priorities which should be considered as new courses are established, as well as to continually evaluate existing courses to keep the curriculum vital and current.

Vocational enrollment trends for Josephine County developed from actual enrollments since 1964 and projected through the 1967-68 school year can be derived from Figure VIII. These figures show that there has been a definite increase in the number of students attending the vocational classes in Josephine County for the period 1964 through 1967. However, for the 1967-68 school year, there seems to be a decline in the number of youngsters that intend to take vocational classes at both Grants Pass High School and Illinois Valley High School.

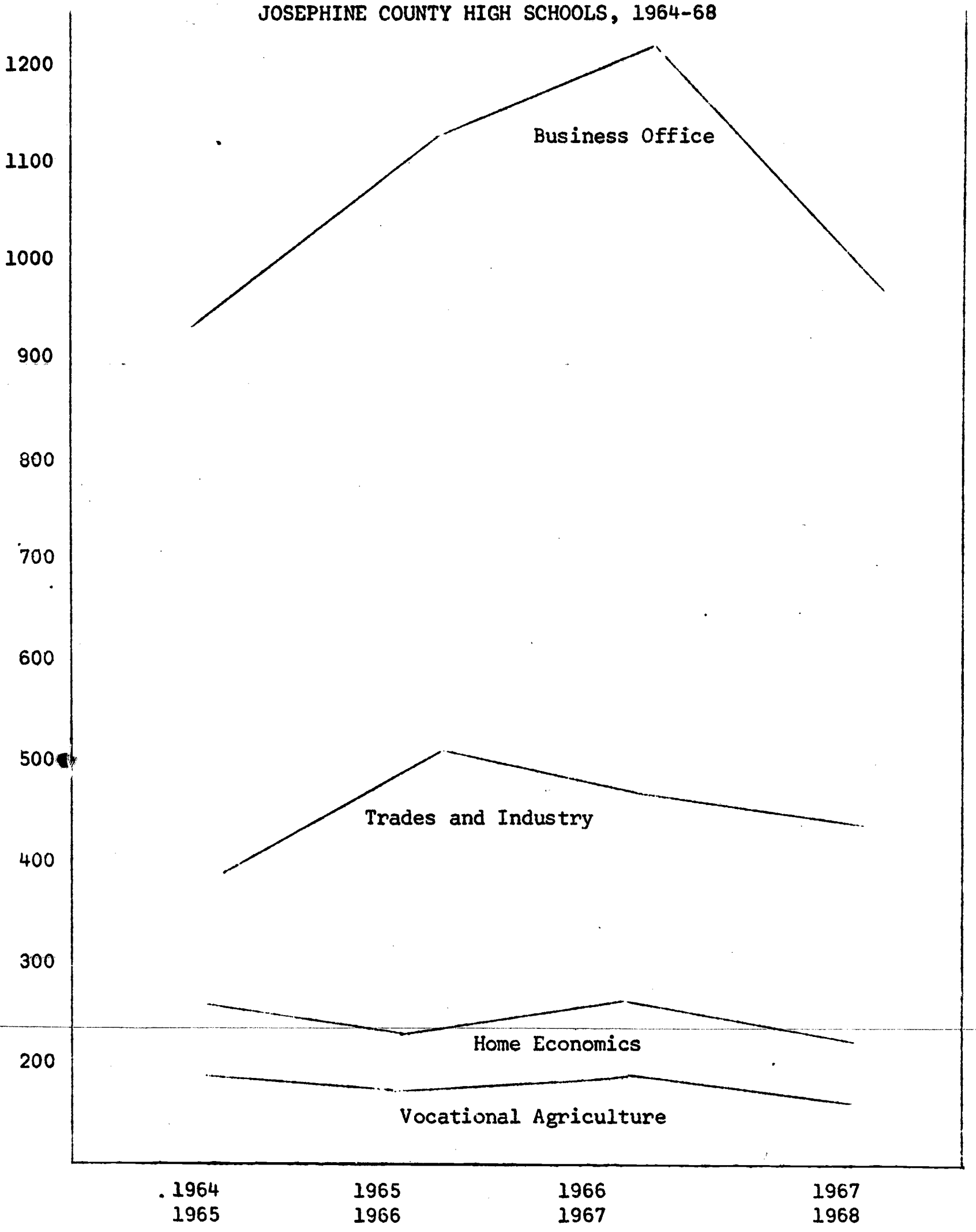
It was difficult to get a clear picture in the case of the Grants Pass High School because of relocation plans occasioned by expansion into the adjacent junior high, which is to be accompanied by certain curriculum changes. The high school will use not only the present high school building, but also the building vacated by the present junior high students. This change will allow more flexibility for classroom work and more space for the intended curriculum revision in the vocational area.

The Illinois Valley High School has a continuing problem due to its limited size. This condition creates great difficulty in any attempt to provide an improved vocational education program. In the judgment of the study team, this school is offering an unusually good vocational program in view of its space limitation.

Even under the conditions mentioned, certain trends can be noted. Under Business in the Office category, we see a definite increase for the school years 1964-65 through 1966-67. However, the indicated figures for 1967-68 show a decline

Figure VIII

VOCATIONAL EDUCATION ENROLLMENT TRENDS IN JOSEPHINE COUNTY HIGH SCHOOLS, 1964-68



to just a little more than the number enrolled in 1964-65. The information under Vocational Agriculture indicates three school years of consistent enrollment with a slight drop in 1967-68. The number of students taking part in Home Economics classes appears to be more constant. In the Trades and Industries category, a substantial increase is perceived for the past three years which again drops down in the 1967-68 school year prediction, but remains close to 50 more students than there were in 1964-65.

As has been stated, changes taking place in the total educational program at the Grants Pass High School might account for the decreased enrollment predicted in certain of the vocational courses. Other courses are being added to the curriculum, and it is possible that students are not taking as many vocational classes as they had in the past because of a greater variety of offerings being made available to them in 1967-68. The number of vocational courses that have been added to, modified, or dropped from the curriculum in the past five years will serve as an indicator of the recent changes that have occurred in Josephine County programs of vocational education.

The curriculum additions in the business and office areas at Grants Pass High School have expanded the range of courses for pupil selection. The following inclusions are examples which support this finding: addition of a year in Typing and Business Machines; addition of Office Practice classes; in the vocational agriculture area, addition of a farm where the students can go out and work at typical farm chores, raise cattle, and in general have a very real practical experience.

Land acquisitions and locations in this instance have been a significant aspect which has affected curriculum development. One school district in this state has recently acquired about 1500 acres from a forest reserve and intends to include forestry and forestry-related skills in its program.

Response of Students to Vocational Education Questionnaire

The interests and aspirations of students as immediate recipients of the existing vocational education programs in Josephine County were considered important to the study. Both junior high and high school students were invited to contribute to the study by filling out a questionnaire calling for an indication of their post-high school plans, occupational choices, and other thoughts regarding vocational education. All schools--four junior high schools and two high schools--cooperated fully in the study; 1,958 junior high students out of 1,965, or 99 percent, returned the completed questionnaire, and 1,835 out of 2,005 senior high students, or 95 percent, returned the completed questionnaire.

A careful analysis of the student questionnaire revealed that these students were unaccustomed to thinking in terms of vocational education, and that some comments and suggestions were unrealistic in terms of educational possibilities. It should be strongly emphasized, however, that the careful manner in which the questions were answered and the unsolicited comments on many papers indicate the students were sincere in their responses and vitally interested in the area of vocational education.

The sexes were similarly represented with 991 boys and 957 girls from the junior high, while in the high school, there were 916 boys and 919 girls.

The number planning to attend college--junior high, 64 percent, and high school, 58 percent--is appreciably higher than expected actual enrollment. It might

also be pointed out that the high school students are a little more realistic than the junior high students as to attendance at college. In other words, the closer they come to high school graduation, the more realistic students become. Unofficially, the administration estimates the number of students actually entering college to be between 30 percent and 35 percent. In Oregon, it is approximately 44 percent, and nationally the figure is close to 40 percent.

All of these students, of course, will not receive baccalaureate degrees. Throughout the United States, data show that eight out of ten youngsters now in school will earn less than a four-year college degree. The significance of these statistics is that 80 percent of today's youth, and there is no reason to omit Josephine County youth, will have need for some occupational education.

It was interesting to note the similarity in answers to the questionnaire between the junior high and high school students. There, however, were some dissimilarities such as the following: vocational training interest in the high school was 34 percent and only 16 percent in the junior high, while interest in community college attendance was only 8 percent in the high school and 20 percent in the junior high. It also should be noted again that 89 percent of the junior high students wanted more industrial arts subjects offered. (See Table 35.)

Summary. In summary, the students in Josephine County are giving thought to post-high school plans which include, for many of them, some vocational training. The similarities between high school and junior high students indicate that students are thinking, at an early age, what they plan to do when they complete high school. They are all indicating to the administration in Josephine County that they want a greater variety of industrial arts in the junior high school and vocational education in the high school.

Table 35

HIGH SCHOOL AND POST-HIGH SCHOOL PLANS OF
JOSEPHINE COUNTY HIGH SCHOOL STUDENTS

	Percent	
	H.S.	J. H.
Post-High School Plans		
Attend a Four-Year College or University	58%	64%
Enroll in Vocational Training or Industrial Arts	34%	16%
Attend a Community College	8%	20%
Plans for Remainder of High School Work		
Enroll in Vocational Training or Industrial Arts	26%	24%
Enroll in College Preparatory	40%	43%
Enroll in Both Vocational Training and College Prep.	23%	27%

Table 36

JUNIOR HIGH SCHOOL STUDENTS AND VOCATIONAL EDUCATION

Percentage Now Enrolled in Industrial Arts	47%
How Many Would Like More Opportunity to Take Industrial Arts	89.6%

Principal and Teacher Responses to the Questionnaires

A multitude of ideas were given when building principals and teachers were asked for suggestions as to what the school could do to better equip the student to move from the classroom to the job.

Those responses have been condensed and recorded as follows:

1. An enlargement of subject offerings should be made, particularly in the trade, industrial, and technical area courses; in addition, perhaps, a program of distributive education should be initiated.
2. The teachers' knowledge of job opportunities both inside and outside of the county is limited. The staff want to know more of what is going on; if they are going to help students, they must have a better understanding of the needs of the county.
3. More resource persons are needed to talk with and counsel students.
4. Field trips need to be expanded.
5. A greater number of business people should be called in who will give the staff a better understanding of the requirements and needs of business.
6. More help should be given terminal students, particularly those with a poor attitude.
7. Many of the teachers are at a loss to know what they can do.
8. A great number of teachers feel that they need to make students aware of job opportunities.

9. Very little time is spent with the terminal students as compared with the college-bound student.
10. There was an expressed need among both teachers and administrators for additional counseling efforts to help the non-college bound student understand more about work opportunities, view places of work in operation, and become generally acquainted with employment situations he can expect to be confronted with when on the job.

Teachers and principals were also questioned as to the long range goals and objectives they believe their school should consider relative to vocational education. The goal most frequently mentioned pertained to the establishment of effective work-experience programs which would allow students the opportunity to work on the job while still in school.

Both administrators and teachers expressed a belief that their schools, under the present financial structure, are generally unable to provide training that would permit the student to move directly to the job. Attention should, therefore, be given to either the strengthening of individual school programs through additional and more intensive course offerings or the sharing of students and programs with other schools such as the vocational school that the Josephine County people are considering at this time.

A third concept brought out by teachers was the necessity to increase the general prestige of vocational education through increased emphasis in counseling and by other means designed to upgrade the general attitude toward working with

one's hands as well as with one's mind. It should be noted here that 37 out of 40 teachers felt that the "vocational courses" were used by the schools as a "dumping ground" for poor students.

Vocational Counseling Programs

> Some good counselors say that there is no such thing as vocational guidance. There is just guidance--for life. Others say that all guidance is vocational guidance because education contributes to success and happiness in a vocation. . .Guidance may be conceived. . . as those procedures that reveal vocational aptitudes to those techniques that lead pupils to choose schools and vocations in which they will develop their highest potentialities and to those personalities (administrators, teachers, and counselors) who will inspire these youngsters to formulate high ideals and enable them to embody those ideals in their own lives.[1]

The vocational counseling program in each of the two county high schools has a minor role. Both administrators and teachers feel that a strong counseling program should be developed in the county to meet the needs of approximately 60 percent of the young people in the schools of Josephine County who are not going on to college. At the present time, most of the counseling is done for college-bound students. Assistance to students in securing employment is confined, for the most part, to vacation and part-time jobs. There are no formal placement services available to youth in either of the two schools studied. The standard pattern for moving the student from the classroom to the job is generally irregular and inefficient.

Employers needing workers will occasionally inform the local high schools and ask them to recommend or send a student for interview. There are no routine

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[1]Franklin J. Keller, Vocational Education Guidance, Vocational Education, 64th Yearbook of the National Society for the Study of Education, Part I, University of Chicago Press, 1965, p. 141.

channels or procedures. It is rather an informal arrangement in which the participants are personally acquainted. Ordinarily, the nature of this employment again calls for part-time help in retail stores and restaurants, or some unskilled maintenance work of short duration. Several of the teachers and counselors indicated that knowledge of permanent employment opportunities available to high school graduates in the nearby lumber mills is not routed through the schools but made available to selected students through relatives or acquaintances currently working at the firms. Extensive questioning further revealed that the student who withdraws from school without graduating is at an even greater disadvantage, since no effort whatever is made to place him in an occupation commensurate with his interests and his abilities because of his loss of contact with the school.

Summary. Overall it can be said that the vocational counseling programs in the two high schools are relatively dormant. Since sufficient time has not been made available to fully explore the abilities of the students and to place them in positions of employment, the schools are unaware of local employment opportunities other than part-time and vacation jobs. Virtually all of the occupational literature available to counselors adequately describes regional and national employment situations, but little is known of current and potential training to satisfy occupational needs other than short-term, part-time help within the county and adjacent areas. Limited follow-up occurs to guide students in acquiring employment skills commensurate with goals and competencies and in moving into an acceptable occupation or cluster of occupations. There is no way at the present time to measure the school's contribution to the student's vocational preparation. However, it must be pointed out here that most of these situations are now being discussed in the district, and both administrators and teachers are aware of the problems confronting

them in regard to vocational education, counseling and follow-up. Indications of activity in these areas were found by the study team. Especially in the Grants Pass school, many changes are being made both in buildings and in numbers and kinds of classes offered to students, which indicated that the administration and teachers are aware of the need for additional counseling and follow-up, and will undertake steps to strengthen these areas within the next year.

School Libraries and Vocational Education

School libraries serve as a repository of knowledge and perform an integral role in the learning experiences of high school youth. Libraries also serve as points for the dissemination of information. Because of this, it was deemed advisable to consider ways high school libraries contribute to programs of vocational education. In both the Grants Pass High School library and the Illinois Valley library, there was little evidence of much effort at the present time to make vocational books available for students. A report from the librarians indicated that probably less than five to six percent of the library volumes are devoted to vocational and technical subjects. Again, the librarians are aware of this and in the near future will make an attempt to see that more material is available. The number and variety of vocational and technical periodicals available is greater and constitutes a larger percentage of the total than is the case with the hard-covered volumes. Periodicals are particularly valuable in that they arouse attention and encourage use through attractive, colorful covers and illustrations and, most importantly, they give timely treatment of interesting subjects. Periodicals also frequently avoid the sonorous and pedantic image of many hard-covered publications. The librarian suggested that, while her records of school subscriptions are complete, vocational teachers may have some additional titles in their personal

possession that are not noted or recorded in the library. A precise definition of a vocational-technical type journal, and the identification of some periodicals closely related to vocational subjects should be made. Pamphlets and other abbreviated reports and descriptions can be an informative and valuable source of vocational information. They can simultaneously be selective in their content, revealing in their explanation, and current in their date of publication. Each high school library maintains a pamphlet file for student use, and contained in the files are numerous selections and some hard-covered books describing in detail major industrial groups and individual occupations.

Summary

This chapter has attempted to relate some of the information accumulated from the several questionnaires which were utilized in collecting data from administrators, teachers, pupils, librarians, and guidance personnel.

An assessment of several course offerings which are currently available in the high schools was also made. It was pointed out that courses related to vocational education should be identified by the entire staff.

A significant section of this chapter concerned itself with the enrollment trends in vocational courses in the high schools. It was indicated that a reappraisal should be made of the various course offerings in this area.

Students in response to their questionnaire indicated a need for more vocational information to assist them in making post-high school plans.

The faculty questionnaire revealed several areas in which further study would strengthen the vocational awareness of the entire staff.

A review of the vocational counseling program indicated: (1) that the primary emphasis was upon the college-bound student comprising approximately 40

percent of the student population; (2) that little is known about the actual job potential of the ocunty, state, and nation; and (3) that follow-up to investigate the program's impact upon the non-college bound student has been minimal.

Finally, this chapter was concerned with the needs of the school libraries in relation to the non-college bound student.

The information in this chapter would indicate that a vocational review encompasses the staff, and structure, and goals of the school program. What is done is dependent upon the identified needs, priorities, and commitments of the total school program.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

It is apparent that the secondary schools face duties of a magnitude that has seldom marked those of the past. Former U.S. Commissioner of Education, Francis Keppel, recently estimated that seven million young people will enter the work force in the next ten years without the benefit of high school graduation unless steps are taken to provide programs designed to meet their needs, interests, and motivations. Some major considerations which demand immediate attention include:

1. In the preparation of young people for careers, the customary lines of demarcation between major and traditional vocational areas must be removed. There is ample evidence of rapid growth in occupational groupings which cut across traditional limits of such areas.

2. The field of vocational homemaking now provides many more job opportunities for young people who will seek employment.

3. It has become increasingly evident that a liberal segment of general education is an essential part of total job preparation. Most employers acknowledge the need for young people to acquire skills, technical information and general education since a combination of these elements is required for ultimate success on the job.

4. The concept of comprehensiveness in the education of the young person being prepared for the world of work has been given attention in some secondary schools. Where this has occurred, there is evidence of articulation between general education and vocational education. Industrial art, home economics, business education and other similar offerings are, by their own definitions, part of general education. At the same time, they have the potential of providing more young people with a fuller understanding of the world of work and an opportunity to explore on a prevocational basis a variety of vocational possibilities.

The task of providing both general education and vocational education for millions of young people is assuredly an enormous one. Numerous patterns of school organization have been suggested to achieve it. Some writers feel strongly that

the comprehensive high school is the best possible means of meeting the challenge of the future. Other writers feel that the long and successful history of vocational education in many states has shown that the separate, area vocational school is the best possible means.

Economics

The general economy of Josephine County, as measured in this study, appears sound. Confronted with restricting factors such as small population, a limited number of large business and industrial firms, and low educational level for adults over 25 years of age, the county has continued to grow in many ways. Forest products is the large business in the county. Bank deposits, wholesale and retail trade, building permits and property valuation have all demonstrated a general upward trend. The rate of unemployment, which has steadily decreased over the past few years, except during a short period in 1966 when timber production dropped, is currently at its lowest level since 1958. The potential for industrial expansion and growth in Josephine County is promising.

Employment in the State of Oregon

The rate of employment is expected to increase in all of the standard industrial classifications during the next decade except agriculture, where it will decrease by 9.0 percent. New employment opportunities will be available primarily in the area of government, the many subdivisions of manufacturing, wholesale and retail trade, and non-agricultural employment.

Manpower Resources in Josephine County

Josephine County's largest employer is in wood products. There are numerous small firms in the county employing from one to ten workers and a few large firms

employing more than twenty-five workers. Because of the large number of small firms, the projected labor needs indicate that one or two workers are needed in each of many separate occupations. When the needs are consolidated into broad occupational groups and considered in terms of training that could be provided through vocational education programs, it is determined that the greatest needs in the next two and five year period will be in the areas of skilled clerical, sales, and service occupations. Considering all occupational groups except the professional and unskilled groups, by 1970 more than 300 workers will be needed because of worker replacement and firm expansion.

The hiring requirements of Josephine County firms are similar to those in Jackson and other neighboring counties--the large firms are most interested in educational qualifications while the small firms emphasize experience. The large firms would prefer applicants with vocational training applicable to their needs, but since this is not available in the county, the term "educational qualifications" refers to a general high school education. Most of the firms sampled indicated they would prefer to hire an applicant with two or more years of vocational training rather than one with no vocational training. Many spokesmen for the firms expressed a desire for additional information about vocational education conducted by the schools.

Several firms reported they would be willing to co-operate with the schools in establishing work experience programs for high school juniors and seniors.

Collectively, the employers are strongly in favor of vocational education programs in the high schools.

Present Vocational Education Programs in the Josephine County High Schools

The printed philosophies of education in each of the two school districts indicate that vocational education plays a minor role in the central purpose of the schools. Vocational education courses are offered in the areas of trade and

industrial education, business and office education, home economics and vocational agriculture. Neither of the schools had available a comprehensive description of the courses they consider to be vocational education. In view of the absence of complete description of course content and objectives of vocational education, it is difficult to assess thoroughly and accurately what is actually being done in the vocational education programs of the two high schools. However, it can be safely stated that neither of the schools has a complete and comprehensive program of vocational education. The current vocational programs are in reality pre-vocational in content in their relationship with occupational needs in Josephine County and surrounding areas.

Business and office education is perhaps nearer to being vocational in nature than are the other areas of education. Here the training is composed of the traditional work in shorthand, typewriting, bookkeeping and office machines, but there is no instruction in the newer areas of data processing and business organization and management. The home economics courses are "vocational" only in the sense that they prepare students for the vocation of homemaking through the development of those understandings, attitudes, and abilities which contribute toward effectiveness in the homemaking role. None of the home economics training prepares the student for the emerging role as a wage earner.

The trade and industrial courses are generally limited in scope and number of offerings available. No evidence was presented by the schools to indicate that the trade and industrial curricula were influenced either by local and regional employment needs or by the occupational personnel that will ultimately employ the students. As nearly as could be determined, vocational agriculture courses, while still offering the traditional preparation for farm employment and farm management,

are beginning to devote attention to related off-farm activities and areas of study.

In general, vocational education in Josephine County today bears little relationship to current and projected employment needs within and around the county.

Enrollment in Vocational Education Courses

Student enrollment in vocational education courses has begun to level off. However, the study team does believe there will be an upward surge in enrollment with some of the anticipated changes that are to be made in the two schools within the next year.

Vocational Counseling Program

All counselors who were respondents in the study reported that there was insufficient time within their present schedule to direct an effective vocational counseling program. No formal communication exists between the schools and business and industrial firms to coordinate training programs and employment needs. There are no organized placement services available to youth in any of the schools studied. There are no work experience programs conducted in the county to enable students to move more smoothly from the classroom to the job. Assistance to students in locating employment has been informally accomplished by individual teachers and has been confined to part-time work and summer help of short duration.

Library Material Available

Between 2.5 and 4.0 percent of the books in the two school libraries are vocational-technical titles. Most books were published prior to 1955 and are seldom used by the students. Vocational-technical periodicals show extensive use. The pamphlet files contain a wide assortment of occupational information on a

national and regional level, but contain very little data on local employment needs. Neither of the schools maintains a complete professional library of vocational-technical materials.

Student Need

Approximately 70 percent of Josephine County high school graduates will have some need for vocational training. More than 50 percent of them will pursue jobs outside of the county. The majority of the boys are unfamiliar with the apprenticeship program in Oregon and desire additional information. The students are vitally interested in and receptive to education and training that will prepare them for employment.

Recommendations

The recommendations submitted in this report are intended to pertain to the county as a whole. No recommendations will be offered for separate high schools.

1. It is recommended that the present high schools as well as the proposed high school be developed more fully into comprehensive educational institutions. The current vocational curricula can be further developed in cooperation with business, labor, and industry.

2. It is difficult for any one school to provide adequate vocational facilities for every student. It is the recommendation of the study team that the high schools work together in planning vocational curricula so that students may go from one school to another as needed to meet requirements in a chosen vocational field. This would make it possible to provide:

   a. a wider range of courses, facilities, and equipment within the county,

   b. greater flexibility of program, more adjustable to the needs of students,

   c. a broader tax base from which to work.

3. It is recommended that a survey of occupational clusters should be available to all students by ninth grade, designed to give information

on the many occupations within a particular field (unskilled, semi-skilled, skilled, clerical, technical, managerial, and professional).

4. It is recommended that the high school curricula be revised as follows:

   a. Less emphasis should be given to farm labor and farm management in vocational agriculture and increased attention devoted to preparing students for related agricultural activities such as farm machinery sales and service occupations, farm supplies and equipment occupations, forestry and soil conservation occupations, ornamental horticulture occupations and farm service occupations. These changes are needed because of the decreasing number of farms and the diminishing need for farm workers and managers.

   b. A distributive education program should be initiated to provide training in management and sales occupations. This program would become part of the work experience program and could also be directly related to business and office education.

   c. The home economics program should train students to become wage earners. Examples of training that would help fill the need for service workers include child-care training, vocational nursing, and hotel-motel housekeeping aide.

5. It is recommended that syllabi be prepared for all vocational courses offered in the county and made available for examination by all concerned with the aims and content of these training programs. Such information will contribute to improved communication, coordination between a given course of training and the balance of the program, and a general understanding of the total vocational program.

6. It is recommended in preparing students for various occupations that attention be given to developing in each student positive work attitudes and habits as well as appropriate understandings and skills.

7. It is recommended that students also be trained for employment opportunities external to Josephine County.

8. It is recommended that a complete vocational library be established in each junior and senior high school with current and meaningful literature available to students relative to their vocational interests, to the world of work, and to vocational programs available within the area.

9. It is recommended that a system of vocational guidance and counseling be given high priority to accomplish the following:

   a. Help students to determine their vocational interests, aptitudes and abilities and to relate these to the vocational offerings.

b. Provide school personnel an opportunity to give appropriate emphasis to the importance of vocational attitudes and skills in relation to economic and personal satisfactions.

c. Provide students with accurate and timely information relative to current and projected employment needs for local, regional and national areas.

d. Make vocational information available to all staff members, thus bringing general and vocational education closer together.

e. Conduct follow-up studies for high school graduates and dropouts.

10. Because of the much higher costs of vocational-technical education and because a large enrollment of students (full time equivalents) is required to make an adequately broad vocational-technical program practicable, it is recommended that Josephine County and Jackson County cooperate in evaluating the possibility of a joint post-high school vocational-technical* training program.

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*At the November 20th discussion of this study with school board members of Grants Pass and Josephine County, Mr. Douglas Olds stated that "vocational-technical" also could be interpreted to mean "community college."

APPENDIX

APPENDIX A

FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
Group I: For Construction				
Public schools	School Aid to Federally Impacted and Major Disaster Areas (P.L. 815)	Aid school districts in providing minimum school facilities in federally impacted and disaster areas	Local school districts	OE's Division of School Assistance in Federally Affected Areas
*Area vocational schools	Vocational Education Act of 1963	Construct or improve area vocational education school facilities	Public secondary and post-secondary schools providing education in 5 or more fields	State boards of vocational education (information from OE's Division of Voc.-Tech. Education)
Public libraries	Library Services and Construction Act--Title II	Aid construction of public libraries	State library administrative agencies	OE's Division of Library Services and Educational Facilities
Group II: For Programs, Instruction, and Administration				
School maintenance and operation	School Aid to Federally Impacted and Major Disaster Areas (P.L. 874)	Aid school districts on which Federal activities or major disasters have placed a financial burden	Local school districts	OE's Division of School Assistance in Federally Affected Areas

*Vocational Education

APPENDIX A. FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS (cont.)

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
Strengthening instruction in critical subjects in public schools	National Defense Education Act--Title III	Strengthen instruction in science, mathematics, modern foreign languages, and other critical subjects	Local school districts	State education agency
Strengthening instruction in arts and humanities in public schools	National Foundation on the Arts and Humanities Act of 1965	Improve instructional capabilities of public schools in humanities-arts fields	Public schools	State education agency
Programs for the disadvantaged	Elementary and Secondary Ed. Act--Title I	Support educational programs in areas having high concentrations of low-income families	State education agencies	OE's Division of Compensatory Education
School library resources and instructional materials	Elementary and Secondary Ed. Act--Title II	Support provision of school library resources, textbooks, and other instructional materials	Local education agencies	OE's Division of Plans and Supplementary Centers
*Vocational programs	Smith-Hughes, George Barden, Vocational Ed. acts	Maintain, extend, and improve vocational education programs; develop programs in new occupations	Public schools	State boards of vocational education (information from OE's Division of Voc.-Tech. Education)
*Guidance, counseling, and testing in public schools	National Defense Education Act--Title V-A	Assist in establishing and maintaining guidance, counseling, and testing programs	Public elementary and secondary schools, junior colleges, technical institutes	State education agencies
Pilot youth programs in science	Science clubs (P.L. 85-875)	Encourage young people interested in science	Colleges and universities, state education agencies	OE's Division of Plans and Supplementary Centers

*Vocational Education

APPENDIX A. FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS (cont.)

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
*Teacher training (vocational)	Smith-Hughes, George Barden, Vocational Ed. acts	Improve qualifications of teachers, supervisors, and directors of vocational education programs	Local school districts	State boards of vocational education (information from OE's Division of Voc.-Tech. Education)
National Teacher Corps	Higher Education Act of 1965--Title V-B	Strengthen educational opportunities of children of low-income areas	Local education agencies, colleges and universities	OE's National Teacher Corps
Experienced teacher fellowships	Higher Education Act of 1965--Title V-C	Improve the quality of education of elementary and secondary teachers and related personnel	Institutions of higher education offering graduate programs	OE's Division of Educational Personnel Training
Prospective teacher fellowships	Higher Education Act of 1965--Title V-C	Improve the quality of education of persons planning careers in elementary and secondary education	Institutions of higher education offering graduate programs	OE's Division of Graduate Programs
Institutional assistance grants	Higher Education Act of 1965--Title V-C	Develop and strengthen teacher training programs (elem.-sec.)	Institutions participating in fellowship programs 11-23, 11-24	OE's Division of Graduate Programs
*Librarian training	Higher Education Act of 1965--Title II	Increase opportunities for training in librarianship	Colleges and universities	OE's Division of Library Services and Educational Facilities
Talent search	Higher Education Act of 1965--Title IV-A	Assist in identifying and encouraging promising high school graduates	State, local education agencies, public or nonprofit organizations	OE's Division of Student Financial Aid
Educational opportunity grants	Higher Education Act of 1965--Title IV-A	Assist qualified high school graduates to go to college	Colleges and universities	OE's Division of Student Financial Aid

*Vocational Education

APPENDIX A. FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS (cont.)

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
*Occupational training and retraining	Manpower Development and Training Act of 1962	Provide training programs to equip persons for work in needed employment fields	Local school authorities (public, private nonprofit)	State vocational education agency (information from OE's Division of Vocational and Technical Education)
*Vocational guarantee reserve funds	National Vocational Student Loan Insurance Act	Provide adequate loan reserves for vocational student loans	State and private nonprofit guarantee agencies	OE's Division of Student Financial Aid
*Vocational work-study	Vocational Education Act of 1963--Sec. 13	Provide part-time employment opportunities for vocational education students	High schools, colleges, vocational or technical schools	State education agencies (information from OE's Division of Vocational and Technical Education)
Group III: For Teacher Training and Student Assistance				
Experienced teacher fellowships	Higher Education Act of 1965--Title V-C	Improve the quality of education of elementary and secondary teachers and related personnel	Experienced teachers planning to continue in elementary and secondary teaching careers	Local school boards or participating institutions (information from OE's Div. of Ed'l. Personnel Training
*Counseling and guidance training grants (institutes)	National Defense Education Act--Title V-A	Improve counseling of students in schools and colleges	Persons engaged in or preparing to engage in counseling and guidance of students	Participating institutions (information from OE's Division of Educational Personnel Training)
*Teacher training grants (institutes)	National Defense Education Act--Title XI	Improve the quality of teachers, school librarians, other specialists	Teachers, teacher trainers, and supervisors in 12 areas	Participating institutions (information, OE's Div. of Ed'l. Pers. Training)

*Vocational Education

APPENDIX A. FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS (cont.)

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
Librarian fellowships and traineeships	Higher Education Act of 1965--Title II	Increase opportunities throughout the Nation for training in librarianship	Fellows and others undergoing training in librarianship and related fields	Participating institutions (information from OE's Divison of Library Services and Educational Facilities)
*Vocational work-study	Vocational Education Act of 1963 --Sec. 13	Provide part-time employment for young people to help them begin or continue vocational training	Vocational education students	Participating institutions (information from State education agencies or OE's Div. of Voc.-Tech. Education)
*Qccupational training and retraining	Manpower Development and Training Act	Train skilled workers in all sections of the Nation	Persons referred by State employment services	Participating, institutions (information from OE's Division of Manpower Development and Training)
*Vocational loans and interest benefits	National Vocational Student Loan Insurance Act	Provide loan program for vocational school students through commercial lenders	Vocational students	Participating lenders or schools (information from OE's Division of Student Financial Aid)
*Vocational teacher training grants	Smith-Hughes, George Barden, Vocational Ed. acts	Improve qualifications of vocational education teachers	Teachers of vocational education subjects	Participating institutions (information from State boards of vocational ed. or OE's Div. of Voc.-Tech. Ed.)
*Adult basic education teacher training grants	Adult Education Act of 1966	Improve qualifications of teachers of adult basic education courses	Teachers and teacher trainers of adult basic education courses	Participating institutions (information, OE's Div. of Adult Ed. Programs)

*Vocational Education

APPENDIX A. FEDERAL SOURCES OF ASSISTANCE TO VOCATIONAL EDUCATION AND RELATED PROGRAMS (cont.)

Type of Assistance	Authorization	Purpose	Who May Apply	Where to Apply
Group IV: For Research				
*Curriculum research (general) (arts and humanities)	Cooperative Research Act	Support Research on the improvement of curriculum, including arts and humanities at all levels	Colleges, universities, State education agencies, private or public groups, or individuals	OE's Div. of Elementary and Secondary Research (Arts-Humanities: Div. of Labs and Research Development)
*Curriculum research (demonstration and development)	Cooperative Research Act	Support research--demonstration and development--on school curriculum improvement	Colleges, universities, State education agencies, private or public groups, or individuals	OE's Division of Elementary and Secondary Research
*Curriculum research (dissemination)	Cooperative Research Act	Support dissemination of research to improve curriculum	Colleges, universities, State education agencies, private or public groups, or individuals	OE's Division of Elementary and Secondary Research
*Educational media research	National Defense Education Act--Title VII	Support research on educational uses of TV. radio, motion pictures, other media	Grants: pub. or non-profit institutions, individuals; contracts: pub. agencies, individuals	OE's Division of Research Training and Dissemination
*Library research and demonstration	Higher Education Act of 1965--Title II-B	Research and demonstrations on libraries and lib. personnel training	Colleges and universities, agencies, and organizations	OE's Division of Research Training and Dissemination
*Research and Development Centers	Cooperative Research Act (amend. by ESEA--Title IV)	Support research on the major problems of educ.	Colleges, universities, agencies and organizations	OE's Division of Laboratories and Research Development
*Vocational research	Vocational Education Act of 1963 --Sec. 4 (c)	Develop res. and training, experimental and pilot programs for special vocational needs	State education agencies, colleges and universities, local education agencies	OE's Division of Adult and Vocational Research

*Vocational Education

APPENDIX B

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VT 003 721
Adult D.E. Programs in the Secondary School. Procedures Manual.

Indiana State Dept. of Public Instruction, Indianapolis
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct66 6p.

*DISTRIBUTIVE EDUCATION; *ADULT VOCATIONAL EDUCATION; *FINANCIAL SUPPORT; *FINANCIAL POLICY; PROGRAM ADMINISTRATION; *PROGRAM GUIDES; STATE STANDARDS; HIGH SCHOOLS

Information on reimbursement policy is presented to facilitate planning and initiating adult distributive education programs in the secondary schools. The "incentive" reimbursement of $5.00 per hour for the person who coordinates the program is provided regardless of whether or not the program is self-supporting. Reimbursement to school corporations for adult programs is contingent upon their adherence to the reimbursement criteria: (1) The preliminary report (form DE-4) must be on file in the state department 2 weeks prior to the first class meeting, (2) The actual cost and enrollment (form DE-5) must be on file 2 weeks after the course is completed, (3) The DE-4 form must be approved by the State Supervisor of DE and the State Director of Vocational Education, (4) The majority of enrollees must represent distributive businesses, (5) The course must meet for a minimum of 10 clock hours, (6) The course should have a minimum of 15 enrollees, (7) A course outline must be on file in the state department prior to the first class meeting, (8) The reimbursement of coordination and other expenses requires that all forms be completed, signed by school officials, and notarized, and (9) All aspects of the course must conform to the basic concepts of vocational education. The purpose for reimbursing is to encourage development of such courses where there is a felt need, promote establishment of specialized courses that may not be self-supporting and provide funds for promoting and coordinating such courses. (MM)

VT 003 721

ED027441

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PROCEDURES
MANUAL

ADULT D. E. PROGRAMS. IN THE SECONDARY SCHOOL

INDIANA DEPARTMENT of PUBLIC INSTRUCTION
W. E. Wilson, STATE SUPERINTENDENT
VOCATIONAL EDUCATION DIVISION
Mearle R. Donica, DIRECTOR
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VT003721

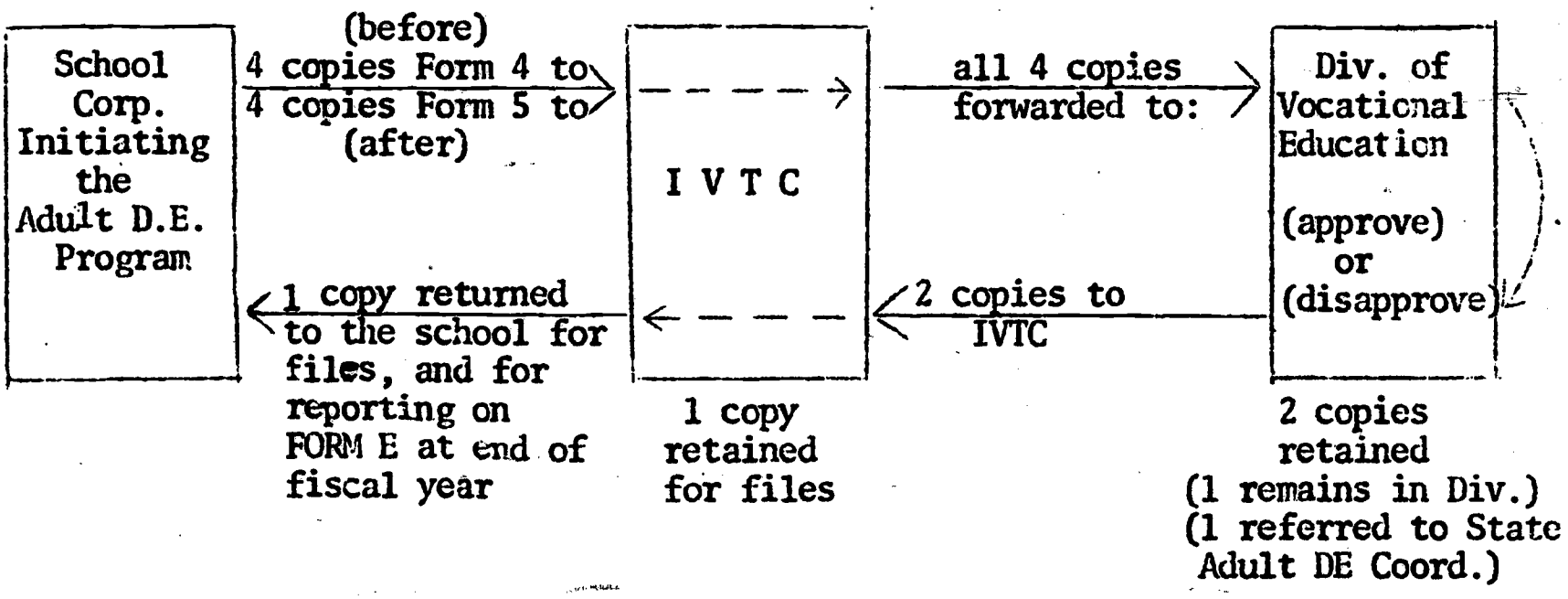
FOREWORD

To facilitate the planning and initiation of Adult Distributive Education programs in the secondary schools, the following administrative information is provided for superintendents, vocational directors, and D.E. coordinators.

Reimbursement to school corporations for Adult D.E. programs is contingent upon their adherence to the nine (9) points in the reimbursement criteria.

The "incentive" reimbursement of $5.00 per hour for the person who coordinates the program is provided irregardless of whether or not the program is self-supporting through enrollment fees.

The following diagram indicates the flow of reports for an Adult D.E. program:



REIMBURSEMENT POLICY FOR ADULT DISTRIBUTIVE EDUCATION CLASSES

Purpose

The purpose for reimbursing adult distributive education classes is three fold: (1) Encourage the development of such courses in all Indiana communities, regardless of size, where the business community feels a need for such instruction, (2) Promote the eatablishment of small specialized courses that may not be self supporting through enrollment fees, (3) Provide funds for the promotion and coordination of such courses.

Reimbursement Criteria

To qualify for reimbursement, all adult distributive education courses must conform to certain quality standards.

1. For each individual course there must be on file in the state department a D.E. 4 form two weeks prior to the first meeting of the class.

2. For each individual course there must be on file in the state department a D.E. 5 form two weeks after the course is completed.

3. The D.E. 4 form, including the proposed budget on the reverse side of the form, must be approved by the State Supervisor of Distributive Education and the State Director of Vocational Education.

4. The majority of the enrollees in any individual class must represent those businesses which distributive education is intended to serve as set forth in the Indiana State Plan for Vocational and Technical Education.

5. Each individual course must meet for a minimum of 10 clock hours.

6. Each individual course should have a minimum of 15 enrollees.

7. A course outline for each course must be on file in the state department prior to the first class meeting.

8. Reimbursement of coordination and other expenses requires the completion of all forms duly signed by an official of the local school corporation and also notarized.

9. All aspects of each individual course must conform to the basic concepts of vocational education as set forth in the Indiana State Plan for Vocational and Technical Education.

Schedule of Reimbursement

Reimbursement for approved adult distributive education classes will be made on one of the two separate plans.

Plan I: Those courses that do not cover their costs of operation through enrollment fees will be reimbursed as follows:

A. Those costs, other than the cost of coordination, appearing in the Actual Budget (form D.E. 5) will be reimbursed at the rate of fifty (50) percent.

B. The costs of coordination, as appearing in the Actual Budget (form D.E. 5) will be reimbursed at the rate of five dollars ($5.00) per hour of class instruction.

Plan II:

Those courses that do cover, or exceed, their costs of operation through enrollment fees will be reimbursed as follows:

A. The cost of coordination, as appearing in the Actual Budget (form D.E. 5) will be reimbursed at the rate of five dollars ($5.00) per hour of class instruction.

FORM D.E. - 4 - Preliminary Report for Each Distributive Education Class for Out-of-School Youth and Adults

FOUR copies of Form D.E. - 4 are to be submitted to:

INDIANA VOCATIONAL TECHNICAL COLLEGE
c/o Program Analyst
627-641 Architects and Builders Building
333 North Pennsylvania Street
Indianapolis, Indiana

at least TWO WEEKS prior to the first scheduled class meeting. Upon approval of the proposed course by the State Supervisor of Distributive Education, one copy of D.E. - 4 will be returned to the school corporation initiating the program, one copy will be retained by the State Division of Vocational Education, one copy will be provided the State Adult D.E. Coordinator, and one copy will be sent to the IVTC. Normally these are evening classes and are conducted on a short-term basis, utilizing the physical facilities of the public school, and the services of professional call-staff personnel. A course outline for the course should be submitted with the report. These short-term courses are financed by a combination of enrollment fees and reimbursement. This form covers a general description of the course and a proposed budget, both of which must be approved in order to receive reimbursement.

FORM D.E. - 5 - Report on Attendance in Each Distributive Education Class for Out-of-School Youth and Adults

FOUR copies of FORM D.E. - 5 are to be submitted to:

INDIANA VOCATIONAL TECHNICAL COLLEGE
c/o Program Analyst
627-641 Architects and Builders Building
333 N. Pennsylvania
Indianapolis, Indiana

within TWO WEEKS upon completion of the classes. Enrollment figures are necessary as a matter of record for the annual State report. The amount of reimbursement requested for the program must appear in "ACTUAL COST" report on the back of FORM 5. Upon approval by the State Supervisor of Distributive Education for the amount claimed for reimbursement for the completed program, one copy of D.E. 5 will be returned to the school corporation, one copy will be retained by the State Division of Vocational Education, one copy will be provided the State Adult D.E. Coordinator, and one copy will be sent to the IVTC. The school corporation should report the approved amount of reimbursement on the annual FORM E report at the end of the fiscal year.

VT 003 763
Straus, Murray A.; Sudia, Cecelia E.
Entrepreneurial Orientation of Farm, Working Class, and Middle Class Boys.

MF AVAILABLE IN VT-ERIC SET.
Rural Sociology; v30 n3 p291-298b September 1965.
Pub Date - 65 12p.

*SECONDARY SCHOOL STUDENTS; *GOAL ORIENTATION; MALES; FAMILY STATUS; *ASPIRATION; VOCATIONAL INTERESTS; SOCIAL INFLUENCES; BUSINESS SKILLS; *FARM MANAGEMENT; STUDENT CHARACTERISTICS; PERSONALITY ASSESSMENT; *PERSONAL VALUES
WASHINGTON COUNTY; WISCONSIN

Data obtained from 416 junior and senior boys enrolled in Washington County, Wisconsin, high schools were compared by farm, working class, and middle class family background on evaluative, cognitive, and affective aspects of entrepreneurial orientation. The hypothesis was that farm-reared boys would be the least entrepreneurially oriented of the three occupational groups studied. Data were collected by a questionnaire consisting of items selected to form Guttman and summated rating scales for each of the variables under study. Some findings were: (1) The farm boys had the lowest scores on the Business Values Profiles, the Business Knowledge Test, and the Business Career Interest Scale, (2) The middle class boys had the highest scores on the tests, and (3) The scores of sons from working class families were in between the two other groups but closest to the farm group. It was concluded that there were marked occupational class differences in the aspects of personality which has been called entrepreneurial orientation. To achieve the occupational aspirations and perform successfully in the role of farmer or small business man, the working class and farm boys need the knowledge and justifying ideology which the present research shows they lack. (WB)

VT 003 763

ED027441

Entrepreneurial Orientation of Farm, Working Class, and Middle Class Boys

MURRAY A. STRAUS *and* CECELIA E. SUDIA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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VT003763

MURRAY A. STRAUS *and* CECELIA E. SUDIA[1]

Entrepreneurial Orientation of Farm, Working Class, and Middle Class Boys[2]

ABSTRACT

This study compares 416 high school boys from farm, working class, and middle class families on evaluative, cognitive, and affective aspects of entrepreneurial orientation. The hypothesis predicting that farm reared boys would be the least entrepreneurally oriented of the three occupational class groups was supported: farm boys had the lowest scores on the Business Values Profiles, the Business Knowledge Test, and the Business Career Interest scale. Middle class boys had the highest scores, and scores of sons from working class families fell in between but were closest to the farm group. The findings are interpreted in the light of previous research on the socialization of farm and working class boys, and in relation to the potential role strain engendered by the low entrepreneurial orientation of the occupational classes from which most small businessmen are recruited.

Investigations of the attitudes, beliefs, and values of rural and urban populations have been conducted largely in isolation from each other. On the one hand, students of social stratification have typically omitted

[1] Murray A. Straus is Professor of Sociology and Cecelia E. Sudia is Instructor in Home Economics, University of Minnesota.

[2] Revision of a paper read at the 1964 meeting of the Rural Sociological Society. Work conducted under Minnesota Agricultural Experiment Station Project 2713H, Scientific Journal Series No. 5422; and National Institute of Mental Health, USPHS, Grant No. M-6115. The development of the instruments used to measure entrepreneurial orientation was carried out with the assistance of Richard T. Smith and Carl E. McNair. The authors are also indebted to Professor Israel Rubin for suggestions which aided in revising the manuscript.

the farm population from consideration;[3] on the other hand, rural sociologists have made surprisingly few empirical comparative studies.[4] In the past, this may have been partly due to the assumption that these two sectors of society are so obviously different that empirical comparisons are not necessary. More recently, comparative studies seem to have been avoided for the opposite reasons: that is, it is frequently assumed that social psychological differences between rural and urban or between farm and nonfarm populations in the United States have declined, in all but a few isolated areas, to such an extent that former differences have been erased and no longer are a fruitful type of investigation.[5]

The research reported in this paper is based on an almost opposite set of assumptions. Social psychological differences between the farm and nonfarm population are considered still in much need of empirical study both for their intrinsic descriptive interest to students of rural

[3] One recent exception is Blood and Wolfe's research on marital roles. They report that most of the farm-urban differences in marital behavior seem to be due to the differing demands of rural work, and not to differing values or ideology about the proper roles of husbands and wives. See Robert O. Blood and Donald M. Wolfe, *Husbands and Wives*, Glencoe, Illinois: The Free Press, 1960. Of course, many studies have documented the differences between urban social classes in life styles, values, and other indices of behavior, and the limitations of life chances based upon birth into a particular level, even in a relatively open, mobile society. Many of these studies are summarized in Joseph A. Kahl, *The American Class Structure*, New York: Holt, Rinehart, and Winston, Inc., 1957.

[4] Exceptions to this apparent disinterest in comparative rural-urban social psychological studies may be found in a few studies which used public opinion polls and election data to test hypotheses of rural-urban attitude differences. Three studies have consistently found differences. See Howard W. Beers, "Rural-Urban Differences: Some Evidence from Public Opinion Polls," *Rural Sociology*, 18 (March, 1953), pp. 1–11; John L. Haer, "Conservatism-Radicalism and the Rural-Urban Continuum," *Rural Sociology*, 17 (December, 1952), pp. 343–347; National Opinion Research Center, "Jobs and Occupations: A Popular Evaluation," in Reinhard Bendix and Seymour M. Lipset (eds.), *Class, Status and Power*, Glencoe, Illinois: The Free Press, 1953, pp. 411–426; Stuart A. Rice, *Farmers and Workers in American Politics*, Unpublished Ph.D. dissertation, New York: Columbia University, 1924; Samuel A. Stouffer, *Communism, Conformity and Civil Liberties*, New York: Doubleday and Company, 1955; and Paul H. Trescott, "The Broad Gap Between Rural and Urban Opinion," *International Journal of Opinion and Attitude Research*, 1 (March, 1947), p. 87.

Studies of educational and occupational aspirations also show important rural-urban differences, but comparisons of personality test scores have shown highly inconsistent results. See the summary of educational and occupational aspirations and personality variables in Lee G. Burchinal, Archibald O. Haller, and Marvin J. Taves, *Career Choices of Rural Youth in a Changing Society*, St. Paul: Minnesota Agr. Exp. Sta., Bull. 458 (North Central Regional Publication No. 142), 1962.

[5] See for example, Glenn V. Fuguitt, "The City and Countryside," *Rural Sociology*, 28 (September, 1963), pp. 246–261; and Richard Dewey, "The Rural-Urban Continuum: Real but Relatively Unimportant," *American Journal of Sociology*, 66 (July, 1960), pp. 60–66.

society, and as an elucidation of the way in which occupational class patterns are related to personality and to occupational role requirements. Within this framework, farming, manual labor, and white collar work are regarded as delimiting broad but distinctive occupational classes. This study examines the extent to which these three broad strata have socialized their sons in certain aspects of personality which constitute key elements of a heuristic typology of the personality of the entrepreneur.

ENTREPRENEURIAL ORIENTATION

The decision to focus the research on personality elements functional for entrepreneurship grew out of the assumption that farming is essentially a type of small business, and that one major source of the recent economic difficulties of the farm sector of the economy can be traced to many farmers' inadequacies in business management ability. It was further assumed that one factor accounting for the low average level of business management ability among farmers can be traced to socialization experiences and personality traits which inadequately equip farm youth for entrepreneurial roles.[6] Thus, even though the farm group is the only one of the three occupational class groups studied which is entirely composed of boys whose fathers own or operate their own business, the hypothesis posed for testing was that the farm boys will be the *lowest* of the three groups in entrepreneurial personality components.

To test this hypothesis three aspects or components of entrepreneurial orientation were chosen for study: a *cognitive* component, as indicated by knowledge of elementary business principles; an *evaluative* component, as indicated by adherence to the ideology of the "business creed"; and an *affective* component, as indicated by preference expressed for a business career.[7]

SAMPLE AND METHOD

The data for this analysis were obtained from boys enrolled in the junior and senior classes in the high schools of Washington County, Wisconsin in the spring of 1959. Washington County is on the fringe

[6] See Murray A. Straus, "Work Roles and Financial Responsibility in the Socialization of Farm, Fringe, and Town Boys," *Rural Sociology*, 27 (September, 1962), pp. 257–274. It should be noted that socialization which is inappropriate for the occupation followed by the father need not affect the majority of occupations, because in American society most occupations do not depend on the familistic recruitment that is characteristic of farming.

[7] For a discussion of these three elements of social roles, see Talcott Parsons, *The Social System*, Glencoe: The Free Press, 1951, p. 7. It should be noted that entrepreneurial orientations, dealt with in this paper, refers to role-*dispositions* rather than role-*performance*. It will require additional studies to determine to what extent such role dispositions are translated into role performance.

of the Milwaukee metropolitan area and was chosen because of its approximately equal division between farm, fringe, and urban residents and its large proportion of industrial workers among the latter two residence groups. The final number of cases available for comparison after elimination of incomplete and unusable cases was 416. Losses from the total enrollments were due mainly to illness, so it may be judged a relatively complete sampling, except that any high school sample will underrepresent the lower socioeconomic strata due to differential dropout rates.[8]

All data reported here were obtained by a questionnaire. The items in the questionnaire were selected to form Guttman and summated rating scales for each of the variables under study. These instruments will be described when the findings are presented.

The measurement of the independent variable in this research, occupational class, was made on the basis of the fathers' main occupation. The farm group (N = 112), consists of the sons of men whose principal occupation was farming. The working class group consists of all those boys (N = 174) whose fathers were engaged in manual work, including foremen, craftsmen, and personal service workers. Finally, the middle class group, for purposes of this study, consists of the 130 boys whose fathers were professionals, proprietors, managers, officials, and clerical workers.[9]

BUSINESS IDEOLOGY

To measure the evaluative or ideological component of entrepreneurial orientation, an instrument called the Business Values Profile (BVP) was constructed. The BVP consists of 71 items chosen to represent 16 components of the "business creed"[10] such as belief in

[8] For a more complete description of the sample and data collection, see Straus, *op. cit.*

[9] There is undoubtedly considerable variation within each of these three broad groups which influences entrepreneurial orientation. [See, for example, the findings and citations in Murray A. Straus, "Societal Needs and Personal Characteristics in the Choice of Farm, Blue Collar, and White Collar Occupations by Farmers' Sons," *Rural Sociology*, 29 (December, 1964), pp. 408–425.] However, the purpose of this paper is to test the idea that there are important differences between occupational class groups even when we group together such diverse groups as skilled and unskilled, clerical and professional, and large and small farmers. In addition, it should be noted that occupation has been shown by numerous studies to be the best single indicator of social class position. See, for example, Joseph A. Kahl and James A. Davis, "A Comparison of Indices of Socio-Economic Status," *American Sociological Review*, 20 (June, 1955), pp. 317–325.

[10] Francis X. Sutton, Seymour E. Harris, Carl Kaysen, and James Tobin, *The American Business Creed*, Cambridge, Massachusetts: Harvard University Press, 1956; see also William Lloyd Warner and Norman H. Martin, *Industrial Man: Businessmen and Business Organizations*, New York: Harper and Brothers, 1959, especially pp. 442–487.

competitiveness, individualism, rejection of government regulation, materialism–practicality, and the social utility of business. Typical items in this inventory are: "Competition is needed to encourage everyone to do their best"; and "The desire to make a profit is a basic motive on which the welfare of the country depends." Five items pertaining to each of the sixteen business values were included in the questionnaire. These have been formed into Guttman scales of four and five items with coefficients of reproducibility from .86 to .91.[11] A total Business Values score also was computed by summing each boy's scores on the 16 subscales and converting these into normalized Sten scores.[12]

Comparison of this total BVP score for the three occupational class groups of this study shows the middle class boys expressed the greatest allegiance to the values of the business creed (Mean = 4.95), the working class boys came next with a mean of 4.38, and the lowest scores were obtained by the farm boys with a mean of 4.20. Although these differences are statistically significant ($F = 5.06$, df =2 and 400, $p <$ .01), they are not very large.

This relatively small difference in total scores is best understood by examining the 16 specific subscales making up the BVP. On six of these scales there was essentially no difference betweeen the sons of farmers, manual workers, and white collar workers. These are the scales designed to measure the extent to which the respondent valued "Dignity of Work", "Individualism", "Materialism and Practicality", "Preference for Small Business", "Progress", and the "Social Utility of Business".

With respect to the remaining ten scales, the scores of the middle class boys were higher than those of the sons of both farmers and manual workers in every case. For three of these scales the farm and working class boys had scores which did not differ significantly from each other, but which were significantly lower than those obtained by the middle class boys. These are the scales designed to measure

[11] Although these scales meet the requirement of approximately equal spread between items in the percent scored plus, and the requirement that the maximum and minimum percentage of plus scores should not exceed ten to fifteen percent, caution is still in order for several reasons. First, even coefficients of reproducibility reaching the conventional requirement of .90 do not guarantee much when the scale has only four or five items (as in the present case, as well as in many other scales used in sociological research). Second, even if we could be sure of the cumulative characteristic of the scales (as would be the case if they had very high coefficients of reproducibility), this still provides no indication of validity. For example, the test may deal with aspects of life which as yet are beyond the experience of 17- and 18-year-olds, and to which they cannot really express an opinion. However, on the basis of discussion of the items with a pre-test sample, this is not believed to have been the case.

[12] See A. A. Canfield, "The 'Sten' scale—A Modified C-Scale," *Educational and Psychological Measurement*, 11 (Summer, 1951), pp. 295–297.

belief in competition, the morality and efficiency of businessmen, and universalism.

The scale designed to measure "Risk Willingness" also revealed a significant difference only for the middle class versus all other comparisons. However, in the case of this crucial variable, another (and probably superior) measure of risk taking propensity is also available for the sample.[13] Scores on this test showed the farm boys were less willing to take risks than either of the other two groups.

In the six scales for which there were significant differences between each of the three occupational class groups, the farm boys had scores indicating the least agreement with the business creed for all but two items. First, as might be expected, the "Labor Orientation" scores indicate that the farmers' sons were more anti-union than the sons of the manual workers. Second, the "Investment" scale suggests that the farm boys were more committed than the working class boys to the belief that business investment is necessary for general welfare.

Finally, there are the four scales on which the farm boys were not only found to have significantly lower scores than the middle class boys, but also had significantly lower scores than the sons of manual workers. These are the scales designed to measure the "Social Utility of Profit" (the idea that profits are a socially necessary motive to keep the economy running), the parallel scale to measure "Profit Rights" (indicating opposition to profit sharing plans and heavy taxation even when the taxes are to be used for socially desirable purposes), "Government Regulation" (the *laïssez-faire* ideology), and "Welfare State" (opposition to government welfare programs).

Overall, these differences in the subscales, together with the differ-

[13] This is a measure of actual, rather than self-reported, risk taking. It consists of 13 factual questions about business. The questions were designed to give the respondent the impression that he should know the answer, but were also chosen to make it unlikely that he would actually know the correct answer. The risk taking element was introduced by instructions stating that the test will be scored by subtracting two times the number wrong from the number correct, and the statement: "That is, you will lose points if you guess incorrectly."

The idea for this measure came from Robert C. Ziller, "Vocational Choice and Utility for Risk," *Journal of Counseling Psychology*, 4 (Spring, 1957), pp. 61–64. The factual knowledge items in this scale are similar to the Business Knowledge Test, and the test followed it in the questionnaire. However, the correlation between the two measures is very low ($r = .06$), indicating that risk taking is independent of the knowledge possessed by the individual. The formula used to score the test is:

$$RW = \frac{2\ (\text{No. of wrong answers})}{2\ (\text{No. of wrong answers}) + \text{No. of omitted questions}}$$

The differences among the three groups in their actual willingness to take a risk, *i.e.*, guess on a test, are significant. The middle class boys, with a mean score of 5.36, were the most risk willing; the working class were intermediate ($M = 4.73$); and the farm boys were by far the least risk willing, with a mean of 3.73 ($F = 11.18$, $df = 2$ and 413, $p < .01$).

ences in total scores, suggest that the farm boys were the least committed to the ideology of the business enterprise system as outlined by Sutton *et al.* and as operationalized in this study. However, while not denying the importance of this difference, the fact that the differences in total BVP scores were small even though significant, and the fact that there were no significant differences between occupational class groups on six of the component scales, must not be overlooked. The latter findings suggest that there is a broad base of support for the values measured by this test which cuts across the three occupational classes compared in this paper. In any case, the major difference is between the sons of white collar workers on the one hand and the sons of farmers and manual workers on the other.

BUSINESS KNOWLEDGE

In this section we turn from the value component of entrepreneurial orientation to the cognitive component. It is assumed that a role incumbent must not only possess the values which are appropriate to, and which validate the role, he must also possess the knowledge which will enable him to act in terms of these values.

In the present study, the cognitive component of entrepreneurial orientations was indexed by a 33-item multiple choice test of business operating principles called the Business Knowledge Test (BKT). This test resembles an ordinary class examination. The first item, for example, is: "Used cars are: (1) Cheaper in the winter, (2) Cheaper in the summer, (3) About the same price all year."[14]

Scores on this test ranged from 7 to 29, with a mean of 19.9 out of the maximum possible score of 33. Because BKT scores are not available for other groups, it is hard to interpret the meaning of these figures except to say that the mean falls approximately at the theoretical middle of the distribution, and the range suggests that the test was of an appropriate level of difficulty for the sample.

The analysis of variance shows a significant difference in the extent to which the three social class groups possessed the knowledge measured by this test. The farm group had the least knowledge, as shown by their Sten score mean of 4.00.[15] The middle class boys had the highest scores

[14] This item and a number of others were chosen with the idea that they deal with aspects of business which are salient for adolescents. Other items deal with insurance, interest rates, business cycles, elasticity of production, *etc.* Some of these items may be more within the experience of urban boys (*e.g.*, purchase of a used car) and some more likely to be salient for farm boys (*e.g.*, "Which adjusts production most rapidly to price changes? 1. Farms 2. Industry"). Theoretically more of these items should be known by the farm boys whose fathers are constantly dealing with the economic issues tapped by the questions.

[15] To simplify data processing and to better fit the assumptions of such statistical manipulations as correlation and analysis of variance, all two-digit variables in this study were transformed into normalized ten-interval "Sten scores." See A. A. Canfield, "Sten Scale . . .," *op. cit.*

(5.24) and the working class boys had intermediate scores (4.34).[16] These results support the hypothesis which predicted lowest business knowledge for the farm groups despite the fact that this is the only group made up entirely of boys whose fathers own or operate their own business.

The finding of lowest business knowledge for the farm boys is closely related to findings from a previous analysis of the socialization experiences of this sample.[17] This earlier analysis revealed that farm parents provided their sons with less opportunity to practice financial management that did other parents. This was interpreted as a dysfunctional element in the role patterns of farm families, because it deprives the son of an important role learning opportunity. The findings just reported on business knowledge are consistent with this interpretation as they show that the farm boys not only had the least opportunity to practice fiscal management, but also the least knowledge of elementary business principles.

BUSINESS CAREER INTEREST

Even the combination of value commitment and knowledge is theoretically inadequate to bring about role performance unless there is also positive, affective involvement in the role. Consequently, to complete the picture of the extent to which the farm, working class, and middle class boys are potential entrepreneurs, a Business Career Interest (BCI) scale was developed. This is a four-item scale, with a coefficient of reproducibility of .97, designed to index the extent to which the respondent is motivated to fill an entrepreneurial role. Two of the items making up the scale ask about the extent to which the respondent has thought about and would like to be the owner of a small business, and two parallel items concern consideration of and desire to be an executive in a large business.

The findings show highest scores for the middle class ($M = 1.87$), followed by scores for the working class ($M = 1.45$), and the farm boys ($M = 1.20$).[18] This pattern held for each of the separate items comprising the scale. The low business career interest of the farm and working class groups cannot be attributed, therefore, to the inclusion of items concerning interest in business executive positions. But although this rank ordering has emerged for a number of variables in the present analysis, is should be remembered that the only specific hypothesis with which the analysis was begun concerned the expected lower scores of the farm group. We deliberately did not specify a position for the working class, because conflicting factors did not permit a reasonably clear prediction.

[16] $F = 13.63$, $df = 2$ and 415, $p < .01$.
[17] M. A. Straus, "Work Roles and Financial Responsibility. . . . ," *op. cit.*
[18] $F = 12.28$, $df = 2$ and 413, $p < .01$.

On the one hand there are the findings of Lipset and Bendix showing the predominantly working class origins of the self-employed and their conclusion that "The desire of American wage earners to become self-employed is still very strong. . ."[19] This would lead to an hypothesis of relatively high entrepreneurial orientation (especially in relation to the career interest component) for the working class. On the other hand, the more limited knowledge, experience, and world view, and the lower average level of occupational aspiration which previous research has shown to characterize working class youth, suggest an hypothesis of low entrepreneurial orientation for the working class. Evidently, the latter set of considerations prevails, at least insofar as entrepreneurial orientation is measured in this study. It should be noted that these findings do not necessarily contradict Lipset and Bendix, whose analysis is based on a sample of men already in the labor force. It is possible that if their sample had been interviewed while in high school, the respondents would not have shown the degree of interest in business ownership which they display later in their life—presumably after experiencing the frustrations and limitation of mobility inherent in manual labor occupations.

SUMMARY AND CONCLUSIONS

This study examined the extent to which a sample of farm, working class, and middle class boys have the knowledge, value orientations, and career interests appropriate for the role of the entrepreneur. The findings are based on tests designed to measure these three components of "entrepreneurial orientation", administered to 416 high school students.

Scores for all three components of entrepreneurial orientation were lowest for the farm boys. The results also show that on most variables the working class evidenced less entrepreneurial orientation than did the middle class. Specifically, with respect to the values which comprise the validating and motivating ideology of the business enterprise system, the middle class boys obtained the highest scores. Scores of the working class boys were intermediate and the lowest scores were recorded among the farm boys. Similar class differences were found for the cognitive component of entrepreneurial orientations, as measured by a Business Knowledge Test, and for the affective component, as measured by a Business Career Interest scale.

These findings lead to the conclusion that there are marked occupational class differences in the aspects of personality which we have called entrepreneurial orientation. The fact that the farm boys tended

[19] Seymour M. Lipset and Reinhard Bendix, *Social Mobility in Industrial Society*. Berkeley, California: University of California Press, 1959, p. 180; also Ely Chinoy, *Automobile Workers and the American Dream*, New York: Doubleday and Company, 1955.

to be even less entrepreneurially oriented than the working class boys adds to the evidence calling for a revision of the Jeffersonian conception of the farmer as a bulwark of the individualistic free enterprise system.[20]

The findings further suggest the presence of a "cultural contradiction" or a dysfunctional element in the socialization of the farm and working class groups. The research of Lipset and Bendix and others has shown that the working class men have a strong desire to set up their own business, and consistent with this finding, the recruitment of small entrepreneurs is heavily from the ranks of the working class. Similarly, the farm group consisted entirely of the sons of self-employed men, and almost half of these sons plan to become farmers also. In order to actually achieve these occupational aspirations and to successfully perform in the desired occupational role of farmer or small businessman, the working class and the farm boys need the knowledge and the justifying ideology which the present research shows they lack. Thus, we see in the findings for this sample of high school boys the genesis of an important role strain in the occupational system of American society.[21]

[20] Of course there are many other reasons for rejecting this view. See A. Whitney Griswold, *Farming and Democracy*, New Haven, Connecticut: Yale University Press, 1952. See also Charles M. Hardin, *The Politics of Agriculture*, Glencoe, Illinois: The Free Press, 1952, Seymour M. Lipset, *Agrarian Socialism*, Berkeley, California: University of California Press, 1950; Carl C. Taylor, *The Farmers' Movement*, New York: American Book Company, 1953; and Edward Higbee, *Farms and Farmers in an Urban Age*, New York: The Twentieth Century Fund, 1963.

[21] A somewhat comparable example of dysfunctional socialization is described in David Landes, "French Business and the Businessman: A Social and Cultural Analysis," in E. M. Sarle (ed.), *Modern France*, Princeton, New Jersey: Princeton University Press, 1951, pp. 334–353.

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*HIGH SCHOOL STUDENTS; MALES; RURAL YOUTH; URBAN YOUTH; SUBURBAN YOUTH; *WORK EXPERIENCE; *INCOME; EXPENDITURES; CHILD ROLE; *CHILD RESPONSIBILITY; GRADE 11; GRADE 12; SURVEYS; COMPARATIVE ANALYSIS WISCONSIN

Selected aspects of the work experience, income, expenditure responsibilities, and family work role orientation for 470 high school boys attending the 11th and 12th grades in a metropolitan fringe county of Wisconsin were analyzed from data obtained from questionnaires and school records. Comparisons were made among farm, fringe, and town boys of similar socioeconomic levels. Some findings were: (1) There was near universality in task assignment starting with age 17 for the farm group and age 8 for the non-farm boys, (2) Parents expressed concern for providing meaningful work role learning experiences for their sons, (3) Farm boys worked longer hours, earned less, and were given less responsibility in providing for their needs from funds under their direct control than were the non-farm boys, and (4) The emphasis on work as an important part of the socialization process held for all residence groups but was more marked among farm families. It was concluded that the findings on fiscal responsibility for farm boys were a disfunctional element in the role structure of farm families. Further analytic research is needed to determine the motivations, values, and structural supports and constraints which account for variations in the fiscal and work roles assigned to children and the sanctions used to teach these roles. (WB)

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Work Roles and Financial Responsibility in the Socialization of Farm, Fringe, and Town Boys*

The work experience, income, expenditure responsibilities, and family work role orientation of 470 boys attending the eleventh and twelfth grades in a Wisconsin county are analyzed. The data show near universality in task assignment, starting at about age 7 for the farm group and 8 for the non-farm. The findings indicate widespread concern by parents with providing meaningful work role learning experiences for their sons. The emphasis on work as an important part of the socialization process holds for all residence groups but is most marked among the farm families in this study. Residence group differences in income and expenditure responsibility are the reverse of those for work experience and responsibility. Farm boys in the sample, although working longer hours, earned less and were less often given the responsibility of providing for their needs out of funds under their own direct control. The findings on fiscal responsibility are interpreted as a dysfunctional element in the role structure of farm families.

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This paper reports on a pilot study for a program of research on family determinants of entrepreneurial ability. For an outline of this program, see M. A. Straus, "Family Factors and Entrepreneurial Ability," in *Rural Sociology in a Changing Economy* (Urbana; University of Illinois Department of Agricultural Economics, 1959), pp. 40–45 (mimeograph). Other studies in this series include M. A. Straus, "Conjugal Power Structure and Adolescent Personality," *Marriage and Family Living*, XXIV (1962), 17–25; "Deferred Gratification, Social Class, and the Achievement Syndrome," *American Sociological Review*, XXVII (1962), 326–335.

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THE importance for the socialization process of intrafamily work roles and experience in the management of economic resources is reflected in the frequency of advice in parent guidance literature on how to initiate children into these roles;[1] yet empirical studies of the process and its consequences are meager.

One possible reason for the neglect of this important aspect of socialization may be a tendency to conceptualize the problem in terms of manifest functions. That is, the child's participation in work and financial management is usually conceived by researchers as having consequences for the learning of these specific behaviors, whereas both popular and professional interest have emphasized studies of factors which are seen as influencing personality at the more general "depth" or "basic personality" level, rather than at the "role personality" level.[2] If this is correct, then a double oversight is involved in the neglect of this area. The first is the failure to see the intrinsic importance of work roles and fiscal management (with the important exception of studies of roles which are occupationally specific). The second is the failure to look at the latent functions which may be involved in acquisition of these roles. That is, the interaction processes which are part of the learning and fulfillment of task and pecuniary responsibilities may well affect the more pervasive aspects of personality.

It is to the credit of the parent education field that its leaders have recognized these possible latent functions. For example, Osborne suggests that providing work experience in the home can "bring a feeling of personal significance and a sense of achievement," "add materially to the feeling of friendliness and acceptance of [adults]," teach appreciation of "what work means in the lives of human beings," and "may lay the foundation for a more intelligent choice of vocation."[3] Unfortunately a careful search of the literature revealed almost no empirical evidence for these rather sweeping claims. Even descriptive surveys

[1]Throughout this paper, the term *role* will be used in its normative aspect, that is, as role-*prescription* or culturally appropriate behavior for the incumbent of a specified status (see O. G. Brim, "The Parent-Child Relation as a Social System: I. Parent and Child Roles," *Child Development,* XXVIII (1957), 343–364. Consequently, when mention is made of learning a "work role," the intention is to refer to the child's acquisition of the behaviors appropriate to the status of worker. The term *work* is also troublesome due to the variety of senses in which it is used. It is here used in the sense of work relationship defined by Gross as a "relationship in which persons perform activities which are designed to achieve objectives usually defined by others." See E. Gross, *Work and Society* (New York: Crowell, 1958), p. 11.

[2]For an explication of these personality level differences, see A. Inkles, "Some Sociological Observations on Culture and Personality Studies," in K. Kluckholm, H. Murray, and D. Schneider, *Personality in Nature, Society and Culture,* rev. ed.; (New York: Knopf, 1953), chap. 37.

[3]E. Osborne, *How to Teach Your Child about Work* (Public Affairs Pamphlets, No. 216; New York, 1955).

of the extent to which children are provided with work experience and experience in expenditure of money are scarce or vague.[4] A similar lack of empirical evidence holds for the claims concerning the personality consequences of parent practices in the use and giving of money to children.[5] The purpose of the present paper is, therefore, to help fill this factual gap by comparing some aspects of farm, fringe, and town boys' work experience, income, and expenditure responsibility, together with limited information on perceived parental motivation in providing work role learning experience. Analyses now in progress of some aspects of the manifest as well as the latent consequences of these experiences will be presented in a subsequent paper.

[4]The extensive studies of Gesell *et al.*, for example, report the findings only in such general terms as: "Most boys aged 16 do some routine tasks at home," or "Many boys have really substantial jobs either after school or during the summer." We are not told what proportion constitutes "most" or "many," what these tasks or outside employment are, how much time is spent on them, or how much is earned. See A. Gesell, Frances L. Ilg, and Louise B. Ames, *Youth: The Years from Ten to Sixteen* (New York: Harper, 1956). The few studies which provide more specific information will be cited at appropriate points later in the paper.

[5]As expressed, for example, in such widely quoted works as S. M. and B. C. Gruenberg, *Parents, Children, and Money* (New York: Viking Press, 1933), or Frances L. Feldman, *The Family in a Money World* (New York: Family Service Association of America, 1957). The lack of scientific knowledge of this important area is well illustrated by the fact that a recent scholarly summary by Edith G. Neisser, "Emotional and Social Values Attached to Money," *Marriage and Family Living*, XXII (1960), 132–138, contains some sixty citations, but only seven are to quantitative, empirical studies, and only one of these presents data on the consequences for the child of parent money management practices. This one study (Esther E. Prevey, "A Quantitative Study of Family Practices in Training Children in the Use of Money," *Journal of Educational Psychology*, XXXVI [1945], 411–428), found no relationship between high-school students' money training and their adjustment and independence. For boys, early training in money management was related to adult competence in these roles and also to good home and emotional adjustment during high school. However, socio-economic status was not controlled and the findings may be spurious. Two other empirical studies tend to confirm Prevey's findings. A study by Harris *et al.* supports Prevey's negative findings of no relation between extent of participation in household tasks and children's responsibility; see D. B. Harris, K. E. Clark, A. M. Rose, F. Valasek, "The Relationship of Children's Home Duties to an Attitude of Responsibility," *Child Development*, XXV (1954), 29–33. A study by Helen R. Marshall and Lucille Magruder, "Relations between Parent Money Education Practices and Children's Knowledge and Use of Money," *Child Development*, XXXI (1960), 253–284, confirms the findings of relationship between money use training and competence in money use. The only other empirical study so far located in the literature is Nye's findings that very large sums of money available to male high-school students is related to the frequency of delinquent behavior. Of course, the causal relation between money and delinquency is not clear, as Nye recognizes when he quotes the comment, "It doesn't cost anything for girls to be delinquent, but it does for boys." See F. I. Nye, *Family Relationships and Delinquent Behavior* (New York: Wiley, 1958), p. 137.

SAMPLE AND METHOD

The locus of this study is Washington County, Wisconsin. This county is adjacent to Milwaukee and was chosen because it provided an opportunity to study a considerable urban fringe population as well as a town and a farm population. The sample consists of 470 boys enrolled in the eleventh and twelfth grades in the four high schools of the county. Data were obtained by a questionnaire administered in two parts and from school records.[6]

Since one of the major purposes of this paper is to compare farm, fringe, and town families, it is important that these three groups not differ in certain major socioeconomic variables. For example, differences between these groups might be due to income level rather than occupation and residence. To help avoid this problem, a high productivity and income county was chosen for study. As a result, no statistically significant differences in income or level of living characterize the three residence groups. The mean annual family income of the

[6]It will be noted that the term *sample* is used and also that probability statistics for making inferences from a sample to a universe are employed in this paper. This procedure is based on the assumption that the county studied presents the *hypothetical universe* of all other similar metropolitan fringe counties. Such an assumption enables the use of probability statistics as a convenient standard against which to judge the data presented. See Margaret J. Hagood and Daniel O. Price, *Statistics for Sociologists* (New York: Holt, 1952), p. 293.

It should be noted that this sample is deficient in two major respects. First, it completely omits all boys who have dropped out of high school. Second, of the boys enrolled in the eleventh and twelfth grades, two groups are missing: (a) One high school in the county was omitted completely from the study. This was a newly organized school with no senior class and only a very small junior class at the time of the study. Various administrative difficulties made the principal reluctant to participate. Since the exclusion of this group meant a loss of only seventeen students from the sample, the school was omitted. (b) Twenty-one boys were persistent absentees and could not be interviewed despite several visits to the schools, and seven schedules were discarded due to the boys' inability to read the questionnaire or to obvious signs of deliberately careless or inaccurate answers.

In addition, it should be noted that, as usual in questionnaire and interview studies, some specific questions were not answered by respondents who submitted an otherwise complete questionnaire, and some respondents did not complete both questionnaires. The effective sample size for specific tables is, therefore, always slightly less than 470.

All questions, except those asking for the father's occupation and the work engaged in for pay, were fully structured by the use of multiple choice response categories or check lists. Despite the well-known problems with this type of self-report data (see M. A. Straus, *Direct, Indirect and Disguised Measurement in Rural Sociology* [Washington Agr. Exp. Sta. Bull. 26; Pullman, 1957]), there are many indications that on the whole the respondents answered the questionnaires to the best of their ability and that the resulting responses are at least internally consistent as judged by a comparison of responses to questions calling for the same or similar data but worded differently or located in nonadjacent parts.

town families was $6,970, as compared to $6,960 for the fringe, and $6,450 for the farm families (chi square=6.522, *d.f.*=9, *P*<.70).[7] The farm group, in fact, had slightly higher scores on a ten-item level of living index.

A further indication that we are dealing here with ecological rather than social class groupings lies in the comparison of the occupations of the town and fringe families. Table 1 shows no significant difference in the two occupational distributions.

Table 1. Occupations of town and fringe fathers

Occupation	Percentage of	
	Fringe fathers* (N=96)	Town fathers* (N=241)
Professional	7	11
Proprietors	13	15
Manager and official	13	13
Clerical and sales	7	7
Skilled	37	31
Semiskilled and unskilled	23	23

Chi square = 2.164, *d.f.* = 5, *P*< .95.

*Fringe = open country resident other than farmers' sons. Town = any village or city resident regardless of size of place.

Although the three groups differed in the length of time they had been residing in the community, with the fringe group having (as might be expected) the least average stability of residence (9.8 years as compared to 12.7 for the farm and 11.6 for the town; chi square= 30.649, *d.f.*=6, *P*<.001), all three groups show a relatively long period of residence in the community. There are slightly more Germans in the farm group, but overall there is no significant difference between the three residence-occupational groups in ethnic origin.

There are, however, two important characteristics in which the three residence groups are significantly different. Both the mothers and the fathers of the farm boys in the sample had significantly less education than those of either of the other two groups. The farm fathers had a mean of only 6.3 years of schooling compared to 9.1 for the fringe and 9.5 for the town fathers (chi square=45.555, *d.f.*=6, *P*<.001). Sim-

[7]Chi square is used as the statistical test throughout this paper. In order to save the space needed for tabular presentation, the distributions compared are sometimes summarized in the text of the paper by use of the mean.

ilarly, the farm mothers had a mean of 7.8 years as compared to 9.2 and 10.0 years (chi square=23.576, *d.f.*=6, $P<.001$). In addition, the farm families are larger than the others. They have a mean of 4.7 children, compared to 4.2 for the fringe and 3.9 for the town groups (chi square=12.521, *d.f.*=6, $P<.10$).

Both parental education and family size are variables which can significantly affect the way in which children are initiated into work and fiscal roles. Consequently, it is important to bear in mind that the residence group differences reported in this paper are not simply reflections of rural-urban subcultural differences but probably also reflect the educational and family size differences just noted.[8]

FAMILY WORK ROLE PERFORMANCE

In an industrial society the urban family is a relatively minor unit in the production of goods.[9] With small families, low household goods production, easily prepared foods, and electrical appliances, all household tasks could easily be accomplished by the parents without the aid of the children. Nevertheless, almost all parents in this sample assign regular jobs to their sons. Some 84 per cent of the farm boys, 97 per cent of the fringe group, and 93 per cent of the town boys reported regular jobs other than farm work.[10]

[8]A sample of ten of the variables for which data are presented in this paper were reanalyzed, first with controls for level education and then with controls for size of family. This was done by dividing the sample into low, medium, and high groups on the basis of the control variable and repeating the analysis separately for each education and size of family group. (See M. A. Straus and Allen J. Estep, *Education for Technological Change among Wisconsin Farmers* [Wisconsin Agr. Exp. Sta. Res. Bull. 214; Madison, 1959] for details of this technique of multivariate analysis.) This reanalysis yielded residence group differences similar to those presented in this paper for all but four of the sixty bivariate tables. Because of these findings, coupled with the unreliability introduced by breaking the sample down into cells with relatively few cases and the cumbersomeness of the presentation which would have been necessary, it did not seem worth while to proceed with a full-scale multivariate analysis.

[9]The monetary value of the services provided for each other by family members is, however, enormous. Most estimates range from 20 to 30 per cent of the national income. See S. Kuznets, *National Income and Its Composition, 1919–1938* (New York: National Bureau of Economic Research, 1941), pp. 431–433.

[10]These figures are comparable to those reported by Dimock for a sample of two hundred Milwaukee and Kenosha, Wisconsin, boys in the early thirties. See H. S. Dimock, "A Research on Adolescence: The Social World of the Adolescent," *Child Development Monographs,* no. VI (1935). A 1953 study of 1,027 white Tampa, Florida, teen-agers from unbroken homes reports the percentage of teen-age boys doing each of a list of 18 household tasks. These ranged from 3 per cent for getting breakfast, to 80 per cent who take care of the yard. Whether these figures refer to regular or occasional task performance is not stated. See T. B. Johannis, Jr., "Participation by Fathers, Mothers and Teen-age Sons and Daughters in Selected Household Tasks," *The Coordinator,* VI (1958), 61–62. See also the figures for Ontario farm children in Helen C. Abell, *Special*

So widespread is this assignment of household jobs that it raises the question of motivations other than simply getting the job done. In fact, as will be shown later, the boys themselves perceive the motivation of their parents as extending beyond the economic value of the task. Moreover, the average age at which regular household jobs were first assigned ranges from 7.5 years for the farm group to 7.9 for the fringe and 8.7 for the town; and 40 per cent of the farm, 24 per cent of the fringe, and 20 per cent of the town boys had regular jobs at age 6 or under (chi square=37.891, $d.f.=6$, $P<.01$). Since the amount of work which a child of this age can accomplish is probably at least balanced by the expenditure of effort to get him to do the job, we can infer an ideological commitment to early induction into work roles, particularly in the case of farm families. In this connection it is pertinent to note McClelland's view of achievement motivation as a relatively stable personality disposition which is learned in early childhood largely by means of experiences in the successful mastery of difficult tasks.[11] This theory has been given empirical support by several small sample investigations and (with modifications) by a national sample survey study.[12] In the context of the present study McClelland's theory suggests an important implication: the early and relatively intense work role demands of farm families should result in a relatively high level of achievement motivation for farm-reared children.[13]

Study of Ontario Farm Homes and Homemakers, Report no. 2 (Toronto: Ontario Dept. of Agr., Home Economics Service, 1960).

[11]See D. C. McClelland, *Personality* (New York: Sloane, 1951).

[12]Marian R. Winterbottom, "The Relation of Need for Achievement to Learning Experiences in Independence and Mastery," in J. W. Atkinson, ed., *Motives in Fantasy, Action, and Society* (New York: Van Nostrand, 1958), chap. 33; B. C. Rosen and R. D'Andrade, "The Psychosocial Origins of Achievement Motivation," *Sociometry*, XXII (1959), 185–218; and Sheirly C. Feld, "Studies in the Origins of Achievement Motivation," unpublished Ph.D. dissertation (Ann Arbor: University of Michigan, 1959).

[13]Empirical testing of this hypothesis poses a number of difficult problems. First, the socioeconomic level of the farm and nonfarm groups must be adequately controlled. Second, a measure of achievement motivation which is more "culture free" than the presently used TAT method must be employed. This is because the relatively limited experience world of the farm family may canalize the achievement motive into a narrow area of expression. Thus, for farm boys, TAT card 1 (boy sitting at table looking pensively at violin) is unlikely to elicit as many stories about becoming a great performer as it does among urban boys. Yet the reverse might be the case if card 1 depicted a boy leaning against a tractor. Third, for similar reasons it is important not to confuse achievement motivation with the level of occupational aspiration, which is probably lower for farm than nonfarm boys. The socialization experiences of farm children (including such things as the relatively stronger leadership role of the father and early and consistent demands for task accomplishment) suggest a tendency to produce a personality characterized by high achievement motivation, self-sufficiency,

Table 2 shows that although almost all boys in the sample have household jobs, about half spent relatively little time (between one

Table 2. Number of hours a week spent in regular household jobs and in work on the family farm

Hours per week	Per cent doing household jobs			Per cent doing farm jobs (Farm only)
	Farm ($N=119$)	Fringe ($N=100$)	Town ($N=246$)	($N=119$)
None	16	3	7	4
1–2	30	20	27	1
3–4	26	36	29	1
5–6	8	20	16	3
7–9	8	6	10	6
10–14	4	11	8	9
15–19	3	1	2	15
20 & over	5	3	1	61

Chi square = 23.124, $d.f. = 8$, $P < .01$.

and four hours a week) at them. On the other hand, almost a third spent five or more hours a week at household tasks. The highest average household task work load was among the fringe families, with 5.7 hours a week as compared to 4.9 for both the farm and town boys.[14]

The relative equality of the farm and town groups in household tasks is deceptive, as the last column of Table 2 shows. By ages 17 and

and the capacity for independent accomplishment. But at the same time the farm family (at least as we have known it up until now) is probably much less effective than the urban family in equipping children with a breadth of interests and knowledge, a motivation for higher education and diversity of occupational positions, and upward mobility. Such a cognitive and motivational structure seems necessary effectively to utilize the capacity for independent accomplishment which other aspects of the farm boys' socialization probably tend to provide, and its relative absence may be a major part of the explanation for the poorer actual achievement level of the farm-reared individual in urban school and occupational settings. The available evidence, however, is both meager and conflicting. See A. O. Haller, "Research Problems on the Occupational Achievement Levels of Farm-reared People," *Rural Sociology,* XXIII (1958), 355–361.

[14]These figures are considerably higher than the only other estimate which I have been able to find in the literature: 2.5 hours a week for a sample of 16-year-olds. See Dimock, *op. cit.*

18, the ages characteristic of this sample, most of the work effort of the farm boys is directed to the farm enterprise. In fact, some 96 per cent of the farm boys did farm work for their families, and their contribution to the farm labor force was sizable: 61 per cent worked 20 hours or more a week, or at least half-time by current urban labor force standards.

Some indication of the variety of farm jobs undertaken and the average age at which such jobs were first done is given in Table 3.

Table 3. Percentage of farm boys regularly* doing specified chores and age at which the chore was first assigned ($N=119$)

Chore	Mean age at starting to do regularly	Per cent of boys ever doing chore regularly
Gather eggs	8.6	58
Help with garden	8.9	70
Stir litter	9.2	39
Help with milking	10.3	80
Care for calves	10.4	74
Feed cows	10.7	83
Clean and bed stalls	10.7	83
Feed and water chickens	10.9	60
Care for hogs	11.0	63
Do milking	12.5	70

*"Regularly" means for a period of at least one year.

These data will certainly not surprise anyone familiar with the farm family. Nevertheless, they are an interesting documentation of the extent to which family work patterns have persisted among farm families, even in an industrialized, high-income, and prosperous farming area.

On the whole, these data can be interpreted as indicating substantial household task responsibility for adolescent boys and apparently also considerable desire by parents to provide meaningful work role learning experiences for their sons.

FAMILY WORK ROLE ORIENTATION

If family work to the extent required of the farm boys in this sample were expected of urban boys, it would probably be strongly resented. In the urban setting the major task functions are external to the family and are the responsibility of the father. In the farm setting

economic production is a family function. Responsibility for this function is shared to some extent by all the family members. Moreover, in the farm setting the work performed always has an element of preparation for potential adult work roles. Some evidence of this realization is indicated by response to the question: "Do your parents try to have you do a number of different kinds of jobs at home so that you can get experience?" One-third of the farm boys answered "always" or "almost always" as compared with only 14 per cent of the fringe boys and 11 per cent of the town boys (chi square=58.466, *d.f.*=8, $P<.001$). More direct evidence comes from the fact that 73 per cent of the farm boys felt the work they did contributed directly to the family's well-being as compared to only 37 per cent of the fringe group and 28 per cent of the town group (chi square=33.521, *d.f.*=4, $P<.001$).

The nonfarm families used praise to reward good work more often than did the farm families: 37 per cent of both town and fringe parents praised "most of the time" or "always" as compared to 21 per cent of the farm parents (chi square=11.541, *d.f.*=4, $P<.05$). The farm boys, nevertheless, find working with their parents more enjoyable than do the other two groups. Some 19 per cent of the farm boys reported working with their fathers as very enjoyable, compared to 6 per cent of the fringe and 10 per cent of the town boys (chi square=12.598, *d.f.*=6, $P<.05$). Similarly, 18 per cent of the farm boys reported working with their mother as very enjoyable as compared to 13 per cent of the fringe and 9 per cent of the town boys (chi square=11.225, *d.f.*=6, $P<.10$). Finally, there is a relatively objective measure of the extent to which work roles are internalized by the three groups. This is the question, "Do you need to be told or reminded about doing your jobs?" Dividing the five possible answers into those who needed such reminders seldom or never and those who had to be told to do their jobs with varying frequency, we find that 72 per cent of the town and 76 per cent of the fringe families needed to remind their sons about doing their jobs as compared to only 47 per cent of the farm parents (chi square=32.373, *d.f.*=6, $P<.001$).

The findings just presented stress the greater emphasis on work roles in farm families than is found in other occupational groups. However, this should not be allowed to obscure the fact that a majority of the boys in all three residence groups perceive their parents as attaching considerable importance to family chores as work role learning experiences. Thus in all residence groups just over half of the boys felt that their parents assigned regular jobs more for the training value than for the work accomplished. Similarly, although as reported above it is only among the farm parents that a sizable proportion consistently rotate jobs to provide learning experi-

ence for the son, some 76 per cent of the fringe parents and 74 per cent of the town parents did this at least some of the time.

NONFAMILY WORK

Up to this point only work within the family system has been considered; yet we know that by the time the last two years of high school are reached a considerable proportion of boys have entered the labor market on a part-time basis. Strang, for example, estimates that about half of American high school seniors were holding part-time jobs in 1953–1954.[15] The findings of the present study for the town and fringe boys are almost identical with Strang's estimate; namely, 52 per cent and 55 per cent reported nonfamily employment at the time of the interview. For the farm group only about half as many (27 per cent) reported nonfamily employment. This is to be expected because of their heavy work contribution to the family farm, which, as occupational preparation, may be equivalent to the extrafamily employment of the nonfarm boys.

If one takes the entire previous year including the summer, the employment figures are considerably higher, reaching almost universality with some 87 per cent of the town boys and 92 per cent of the fringe boys reporting employment during the year. These figures are high even for the farm group: some 65 per cent reported working for pay outside the family during the previous year.

Nonfamily employment is the one type of adolescent work on which a considerable body of research has been done, but even that is limited to simple descriptions of the proportion working, sometimes with the added refinement of breakdowns by age, sex, or residence. In general, the studies available, including this study, are roughly in agreement in showing that (1) about 50 per cent are employed part time during the school year; (2) about 75 to 85 per cent are employed at some time during the year; (3) the percentage of girls employed is from ten to twenty percentage points less than that for boys, category by category; (4) the percentage of farm youth employed is from ten to twenty percentage points lower than that of others; and (5) employment increases by about ten percentage points during each year of high school.[16]

[15]See Ruth C. Strang, *The Adolescent Views Himself* (New York: McGraw-Hill, 1957), pp. 432–433. Hollingshead's data lead to a similar estimate, even though they refer to the period 1936–1942. He implies (pp. 366–367) sharp SES differences in the proportion with part employment, but the figures given in Appendix Table XVIII show differences in the type of job held, not the proportion holding part-time jobs, and omit completely classes I and II. See A. B. Hollingshead, *Elmtown's Youth* (New York: Wiley, 1949).

[16]In addition to the Dimock, Hollingshead, and Strang studies previously cited, these generalizations are based on Dorothy Dickins and Virginia Ferguson, *Practices and Attitudes of Rural White Children and Parents Concerning Money*

As to the current employment situation of the present sample, it will be remembered that the modal farm boy spent 20 or more hours a week at family farm work. Among all farm boys who reported any current work either within or outside the family the mean number of hours a week was 17.6. The figures for the nonfarm group are considerably smaller but they still represent a fairly sizable participation in the labor force, namely, 12.2 hours per week for the fringe and 12.1 hours per week for the town boys who were employed at the time of interview.[17] This employment ranged over a considerable variety of types of work as shown in Table 4.

INCOME AND FINANCIAL RESPONSIBILITY

The evidence presented up to this point indicates a considerably greater emphasis on work for the farm families than for the town and

Table 4. Nonfamily paid employment of Washington County, eleventh and twelfth grade boys during 1958–59

Type of work	Per cent of jobs reported by		
	Farm ($N=76$)	Fringe ($N=80$)	Town ($N=210$)
Unskilled and farm labor	67	30	13
Operatives and skilled labor	9	24	24
Odd jobs, baby sitting, and household service	13	20	20
Technical, clerical, and sales	5	15	21
Assist in retail business (except sales)	6	11	22

Chi square = 80.007, $d.f. = 8$, $P < .001$.

(Mississippi State College Agr. Exp. Sta. Tech. Bull. 43; State College, 1957); Marilyn Dunsing, "Money-Management Experiences of High School Students," *Journal of Home Economics,* LII (1960), 756–757; H. H. Punke, "Monetary Earnings and Allowances of High School Seniors," *High School Journal,* XXXVIII (1955), 142–147; and Bardin H. Nelson, *Role of Money in Rural Family Living* (Texas Agr. Exp. Sta. Bull. 979; College Station, 1961).

[17]As in the case of time spent in household tasks, the figures for the present study are considerably above those reported by Dimock, *op. cit.* His 16-year-olds work an average of 5.2 hours a week, but this figure averages in those without employment. The comparable figure for all nonfarm boys in the present study is 7.7 hours a week, which is still considerably higher than Dimock's findings. The difference is probably due to the greater age of the present sample and the ready availability of part-time work at this time in comparison to the depression period.

fringe groups. We may interpret this as in part arising out of the objectively greater need for the boy's labor in farm families and in part arising out of the "work-virtue" value system which is also functionally related to the more direct involvement in economic production characteristic of the farm family.[18] When we turn, however, to the income and financial responsibility of farm and urban boys, the differences are reversed.

The first indication of this reversal is the total amount of money which the boy has available to spend each week, as shown in Table 5.

Table 5. Income per week from all sources

Regular weekly income	Per cent		
	Farm ($N=118$)	Fringe ($N=99$)	Town ($N=245$)
None	12	7	8
$1 to $2	23	20	15
$3 to $4	21	10	12
$5 to $6	23	16	14
$7 to $9	6	7	14
$10 to $14	6	15	15
$15 to $24	3	18	14
$25 to $49	3	3	4
$50 and over	3	4	4

Chi square = 23.126, $d.f. = 6$, $P < .001$.

For both the town and fringe groups this averaged $10.80 as compared to $7.30 a week for the farm group.[19] In addition, Table 5 shows that over a third of the farm boys had either no regular income under their control or only token sums. It will be noted that the farm boys had the least cash despite the larger number of work hours they put in. This is probably because the farm work is viewed as a contribution to the family enterprise, which is characteristically paid at a lower rate and sometimes not paid for in cash at all.

Incomes were highest for those boys who worked at jobs outside the

[18]In this connection see M. A. Straus, "Personal Characteristics and Functional Needs in the Choice of Farming as an Occupation," *Rural Sociology*, XX 1957), 97–111.

[19]It is interesting that these figures are almost identical with those reported for seniors in the East Hampton Long Island High School in the *New York Times* for Dec. 13, 1959.

family. Town boys who did so earned an average of $12.16 a week, compared to $14.48 for the fringe group and $8.97 for the farm group (chi square=50.167, *d.f.*=6, $P<.001$).[20]

Despite these group differences, Table 5 also shows that almost all boys had some regular sum available to them each week and that these sums are often sizable amounts. Moreover, from Table 6 it can

Table 6. Intrafamily income sources

Source	Per cent			Mean amount per week for applicable group		
	Farm (N=118)	Fringe (N=96)	Town (N=243)	Farm	Fringe	Town
Allowance only*	15	16	19	$3.40	$2.60	$2.60
Pay for family work only	34	22	20	5.50	10.10	8.10
Both allowance and pay	21	20	21	10.70	8.50	8.90
Neither	30	43	39	—	—	—

*To obtain the proportion of boys receiving an allowance regardless of pay for work, the percentages in rows one and three must be added. For example, 15 per cent + 21 per cent or 36 per cent of farm boys received an allowance.

be seen that most of the families made some provision for regular cash payment to the son. This occurred somewhat more often in the form of payment for work done than as an allowance (i.e., payment not contingent on specific work performance), and the amounts paid for work done were considerably greater than the amounts paid as allowances.[21]

The relatively high frequency and amount of payment for doing household tasks may simply indicate difficulty in securing task per-

[20]These figures on earnings are considerably higher than those reported for two populations of southern students, probably due to regional differences in wage levels. See Punke, *op. cit.*, and Dickins and Ferguson, *op. cit.*

[21]The proportion of boys receiving an allowance is generally consistent with that found in a depression-year study. Adding the percentages shown in rows one and three of Table 7 shows that 36, 36, and 40 per cent of the boys received an allowance. This compares to the 48 per cent reported by V. L. Block in a paper, "Conflicts of Adolescents with Their Mothers," *Journal of Abnormal and Social Psychology*, XXXII (1937), 192–206. Similarly, Gesell reports that "a majority" of sixteen-year-olds receive an allowance. See Gesell, Ilg, and Ames, *op. cit.* The two southern studies previously cited, however, find a much lower proportion receiving an allowance, only 20 per cent of town and 16 per cent of farm seniors in Punke's survey and 27 per cent of 17-year-olds in Dickins and Ferguson's study.

formance without pecuniary incentive. On the other hand, it may also be motivated, at least in part, by a desire to provide wage-earning experience as part of the total process of teaching adult work roles.[22] Some indication that this is part of the motivation for payment for family jobs is provided by comparing the parental motivation for requiring household jobs perceived by boys who are paid for family work with that perceived by boys who receive no payment. Forty-eight per cent of the boys receiving payment for family work perceived their parents as always or most of the time trying to vary the jobs they did in order to provide them with experience, as compared to 36 per cent of the boys not receiving payment (chi square=6.530, $d.f.=1$, $P<.02$). Similarly, 57 per cent of the boys paid for family work perceived the primary motivation of their parents to be providing "good training for me" rather than getting needed work done. For the boys who were not paid, 50 per cent chose the first alternative (chi square=2.366, $d.f.=1$, $P<.20$).

Consistent with the lower total of money available to the farm boys is the finding that they less often have the responsibility of purchasing each of the eight types of goods presented in Table 7.[23]

Table 7. Percentage of boys expected to purchase selected goods with their own money

Type of purchase	Per cent who purchase all or part with own money			Chi square	P ($d.f.=2$)
	Farm	Fringe	Town		
Recreation, dates, records	84	93	92	5.244	<.10
Hobbies	75	81	86	6.901	<.05
Christmas and birthday gifts	67	73	81	9.307	<.01
Savings account	58	62	74	11.309	<.01
School supplies	57	56	63	1.178	<.70
Car	41	47	51	3.615	<.20
Clothes	32	47	47	7.449	<.05
Vacations	32	36	43	6.521	<.05

[22]Such a step is frequently advocated in the parent education literature for this purpose. See, for example, Feldman, *op. cit.*, pp. 52–53.

[23]Data on teenager purchase responsibility is also reported in Dickins and Ferguson, *op. cit.*, Dunsing, *op. cit.*, and T. B. Johannis, "Participation by Fathers, Mothers and Teenage Sons and Daughters in Selected Family Economic Activities," *The Coordinator,* VI (1957), 15–16. However, the variation in definitions makes comparison among these studies and with the present study unwise.

Four of these purchase responsibility items (hobbies, gifts, school supplies, and clothes), together with an item asking if any kind of budget or record of spending was kept,[24] were used to form a Guttman scale to measure the degree of financial responsibility assigned to boys in the sample. The scale has a coefficient of reproducibility of .92. This scale simply summarizes some of the separate items reported in Table 7. Using this scale, we find that despite the great importance of fiscal management in modern farming, the farm boys who wish to farm have even lower financial responsibility scale scores (mean of 2.4) than do the farm boys who are planning for either white-collar jobs (2.9) or blue-collar jobs (2.6). Thus, although the socialization experience of farm boys choosing to farm includes heavy emphasis on work roles, they have relatively less opportunity to learn fiscal management roles as measured by this scale.[25]

SUMMARY AND CONCLUSIONS

Selected aspects of the work experience, income, and expenditure responsibilities of boys in a metropolitan fringe county, together with limited information on parental motivation in providing work role learning experience, have been explored using questionnaire data secured from boys in the junior and senior classes of the county's high schools.

The data available show almost universal assignment of household tasks to boys in this age group, beginning on the average at 8 years of age. Boys in the sample spend an average of about 5 hours a week on regular household jobs. Farm boys are assigned work roles earlier than nonfarm boys and spend more time in such tasks. Most farm boys do not have outside employment, but they work at least 20 hours a week on the family farm. The 27 per cent who do have outside employment work considerably longer hours than the gainfully employed nonfarm boys. Of the town and fringe boys, just over half were employed outside the family during the school year and about 90 per cent during the previous summer. The employed town and fringe boys worked an average of 12 hours a week.

These data, together with the boys' perception of parental motivation in assigning jobs, are interpreted as indicating a widespread con-

[24]There were no significant residence group differences on the record-keeping item: about 30 per cent of all groups report such records.

[25]However, the scale may omit the most crucial types of fiscal management experience for farm-oriented boys. A more adequate measure would include such things as the boy's participation in and knowledge of the fiscal management of the family farm and whether he has had financial responsibility for some sub-enterprise within the family farm, such as his own livestock or his own field of wheat. In the present sample, for example, some 77 per cent of the boys owned their own livestock at some point, and the average age at which this personally owned livestock was acquired was 12.2 years.

cern on the part of parents with providing meaningful work role learning experiences for their sons. The emphasis on work as an important part of the socialization process holds for all residence groups, but is most marked among the farm families in this study.

As for responsibility in the handling of money, there is a similar near universality of experience. About 90 per cent of the sample had at least some regular income at their disposal. Nevertheless, it may be important that even 10 per cent of the boys in late adolescence should have no regular money at their disposal and that a sizable proportion should have control of only token sums.

Residence group differences in income and expenditure responsibility are the reverse of those for work experience and responsibility. Farm boys in the sample, although working longer hours, earned less and were less often given the responsibility of providing for their needs with funds under their own direct control. The farm boys had an average of $7.30 per week of regular income, compared to $10.80 for the fringe and town groups; and a larger proportion of the farm boys had either no regular income under their control or very small sums.

The need of farm boys to learn financial responsibility is at least as great as that of the fringe and town groups. For that half of the farm group who say they would like to farm, it can be assumed that there is an even greater need since skill in fiscal management is probably even more important than technical production skill for a successful farm career.[26] The future farmer therefore needs as much experience as possible in the allocation of income to alternative uses. Yet the results of this study show that farm boys have less opportunity to practice financial management than other boys, and farm boys choosing to farm still less opportunity. It is likely that this pattern constitutes a dysfunctional element in the role structure of farm families. It should, however, be noted that no evidence that this pattern actually impedes the learning of fiscal management skills and interests has been presented.[27]

[26]See, for example, M. A. Straus, *Matching Farms and Families in the Columbia Basin Project* (Washington Agr. Exp. Sta. Bull. 588; Pullman, 1958).

[27]In this connection it should be pointed out that some observers would reject even the plausibility of the interpretation offered in these conclusions. For example, in commenting on this paper when it was read at the meetings of the Rural Sociological Society, Melvin Brooks argued "that for a high school youth to have ten or fifteen dollars per week to spend just as he pleases when his parents furnish him not only room and board but also (as occurred in over half the cases) all car, clothing, and vacation expenses, is hardly realistic or practical training for judicious spending after he has acquired the responsibilities of a family. It seems just as likely that such role experience will result in spending habits which will later prove dysfunctional." In refutation of Brooks's interpretation I would answer that it would be worse if the parents provided everything and gave no free spending money, for surely something is learned even

It is clear that further research is badly needed, especially studies based on current report by parents rather than retrospective self-report as in the present study; above all, analytic rather than purely descriptive research is needed. This includes studies to determine the motivations, values, and structural supports and constraints accounting for variations in the fiscal and work roles assigned to children and the sanctions used to teach these roles. Finally, both cross-sectional and longitudinal research is needed explicitly to test the many unsupported generalizations concerning the personality consequences of different patterns of childhood and adolescent work and financial experience. At the role personality level, for example, we need to know how early vs. late initiation into financial and work roles influences evaluation of and motivation toward work and entrepreneurial roles. At the basic personality level, studies are needed to explore the consequences of these experiences for anxiety and security, acceptance and rejection of parents, and achievement motivation.[28]

from the experience of managing funds which are not committed to necessities. See in this connection the studies of Prevey and by Marshall and Magruder cited in note 5. Counter arguments are, I am sure, possible, all of which only serve to emphasize the urgent need for empirical studies in this important area.

[28]In this connection see the provocative book by D. C. McClelland, *The Achieving Society* (Princeton, N. J.: Van Nostrand, 1961).

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*ANNOTATED BIBLIOGRAPHIES; *MANPOWER DEVELOPMENT; *MANPOWER UTILIZATION; LABOR ECONOMICS; *RESEARCH PROJECTS; *MANPOWER NEEDS
INDIANA

A listing of 72 manpower research projects in Part I and 16 papers, articles, and other items of interest related to manpower concerns in Part II comprises this second inventory. For most listed research projects, arranged alphabetically by author, complete bibliographic data is supplemented with brief statements of objectives and procedures. Included are a number of research projects in process and their expected dates of completion. Most of the documents were published during 1966 and 1967. A subject index is included.

VT 003 781

ED027441

INDIANA MANPOWER RESEARCH ASSOCIATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INVENTORY OF MANPOWER RESEARCH PROJECTS IN INDIANA

VT003781

July 1967 - Number 2

A N N O U N C E M E N T

THE THIRD INDIANA MANPOWER RESEARCH CONFERENCE

WILL BE HELD AT INDIANA UNIVERSITY ON

NOVEMBER 29 - 30, 1967.

GENERAL CHAIRMAN: DALE BRICKNER (INDIANA UNIVERSITY)

PROGRAM CHAIRMAN: JOSEPH ROCHA (BALL STATE UNIVERSITY)

MORE INFORMATION WILL BE AVAILABLE AT A LATER DATE.

INVENTORY OF MANPOWER RESEARCH PROJECTS IN INDIANA

This is the second inventory compiled by the Indiana Manpower Research Association. At the first conference held in Indianapolis on December 7 - 8, 1965, the conferees agreed that it would be mutually beneficial to continue efforts to advance manpower research, create a repository of related studies and data, coordinate activities, and establish liaison among researchers and users. The Association was formally organized at the Second Conference held at Purdue University on November 15 - 16, 1966.

Through its inventories, proceedings, and other activities, the Association disseminates information about completed, on-going, and planned manpower research, as well as information about needs. Through these efforts, research gaps can be indicated and duplication lessened.

This listing was compiled from inventory forms returned by researchers. Coordinating Board members distributed the forms originally, followed by a mailing from the Indiana Employment Security Division Research staff. Additional items were obtained from several publications and listings. Part I includes research projects while Part II lists papers, articles and other items of interest. A Subject Index starts on Page 25.

If you are conducting or know of research projects which have not been included in this inventory, please help to achieve a more complete listing by using the inventory form on the last page. We also ask you to send information about or copies of studies completed so that the repository of manpower research can be actively realized. Inquiries and requests for additional copies of the Inventory may be directed to Research and Statistics, Indiana Employment Security Division, 10 North Senate Avenue, Indianapolis, Indiana 46204.

Indiana Manpower Research Association Coordinating Board

Dwight Kelley, Chairman (Indiana Employment Security Division)
J. P. Lisack, Secretary (Purdue University)
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ERIC Clearinghouse on Vocational
and Technical Education

Among the Educational Research Information Center (ERIC) clearinghouses established by the U. S. Office of Education is the ERIC Clearinghouse on Vocational and Technical Education located at Ohio State University. It is responsible for research documents in the general field of vocational and technical education. The Clearinghouse acquires, selects, abstracts, and indexes all relevant documents. The full texts of documents are stored on microfilm and are thereafter made available at nominal cost in reproduction or microfiche form. The documents are abstracted and indexed in the monthly announcement bulletin, Research in Education.

Some of the research projects in this Inventory would be appropriate for inclusion in the ERIC Clearinghouse system. Researchers are requested to send two copies of their studies to:

Dr. Robert E. Taylor, Director
ERIC Clearinghouse on Vocational
and Technical Education
Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

PART I

RESEARCH PROJECTS

ADAMS, R. F., see DREW, ALFRED S.

ANDREWS, WILLIAM H. and MILLER, TAULMAN A.
Indiana University, Economics
IMPACT OF AUTOMATION AND TECHNOLOGICAL CHANGE ON EMPLOYMENT PATTERNS OF THE STEEL INDUSTRY IN INDIANA
(Mimeo Pamphlet, In process)

1. To analyze employment trends for the Indiana steel industry in comparison with the total employment in this industry in the U. S.

2. To consider insofar as possible productivity trends in steel for Indiana and the United States.

3. To relate employment developments to changes in technology and other factors through discussions with representatives of the industry and other sources.

ANDREWS, WILLIAM H., see CHRISTENSON, C. L.

ARNOLD, JOSEPH P.
Purdue University, Industrial Education
A SUMMER INSTITUTE FOR THE IMPROVEMENT OF TECHNICAL TEACHER EDUCATION PROGRAMS
(Final report of the Project and Guidelines for the Establishment of Technical Teacher Education Programs, November, 1967, will be available through ERIC)

The Institute will deal with the problems, issues, and current practices in technical teacher education. Presentations and discussions will focus upon the development of quality baccalaureate programs in the preparation of technical teachers for the rapidly expanding offerings of junior colleges, technical institutes, and other institutions. Specific concerns will be: (1) delineation and review of the expected capabilities and backgrounds of technical teachers, (2) cooperative development and critique of sample technical teacher services, (3) discussion and review of recent relevant research, (4) development of a framework for technical teacher education baccalaureate programs, and (5) examination of existing bachelors', masters', doctoral, and in-service technical teacher education programs.

BAIN, R. K., see DREW, ALFRED S.

BIRDCELL, JOHN J. and EVANS, WILLIAM
Indiana Vocational Technical College, Research Department
70,000 HIGH SCHOOL SENIORS: THEIR EDUCATIONAL AND VOCATIONAL PLANS
(Booklet, January, 1967, $1.00)

The survey attempts to identify the specific desires and plans of Indiana's graduating seniors. Their career and educational choices were related to the larger problem of fulfilling manpower needs by vocational technical training.

BLEDSOE, HARRY J.
Purdue University, Industrial Education
A COMPARISON OF THE EDUCATIONAL DEVELOPMENT OF DIVERSIFIED COOPERATIVE EDUCATION STUDENTS AND NON-DIVERSIFIED COOPERATIVE EDUCATION STUDENTS IN SELECTED INDIANA HIGH SCHOOLS
(Ph.D. Thesis, Purdue Univ., June, 1967)

Objective: To ascertain whether high school cooperative education programs adversely affect the educational development of participants when compared with their counterparts who obtain all their instruction within the formal school.

Procedure: Test-retest design with the Iowa Tests of Educational Development (ITED) which provides ten measures in nine areas, including a composite measure of tests one through eight. Subjects were equated, within predetermined limits, with respect to sex, chronological age, attendance, initial ITED composite score, grade, and school. Single factor covariance analysis was used to test differences. Initial scores were used as independent variables and post-test scores as dependent variables. Preliminary findings indicate no significant difference between participants and non-participants over the ten measures provided by the Iowa Tests of Educational Development.

BLEDSOE, H. J., see DREW, ALFRED S.

BONSER, CHARLES
Indiana University, Bureau of Business Research
STUDY OF HIGHER EDUCATION NEEDS IN INDIANA

With a grant from HEW, and sponsored by the Indiana Commission on Academic Facilities and the Indiana Conference on Higher Education (consisting of presidents of all public and provate colleges in the state) a two year study will be conducted to determine post-high school educational needs over a fifteen year period. Starting projects include a survey of existing facilities and programs offered.

BORUS, MICHAEL E.
Michigan State University, Labor and Industrial Relations
RESEARCH TO DEMONSTRATE THE USES OF UNEMPLOYMENT INSURANCE WAGE REPORTS
(June, 1968)

The goal of this project is to demonstrate that individual wage reports are potentially valuable as a source of information in the study of manpower problems. To illustrate the applicability of the wage reports to manpower research, three sub-studies will be made, using the reports as a primary source of data: (1) Post-retraining earnings and the unemployment experience of retrained workers will be examined to supplement and check the validity of information derived from present retraining follow-ups and to determine which groups profit most from retraining; (2) the costs and benefits of various vocational education programs will be compared; and (3) the accuracy of data obtained through personal interviews and mail questionnaires will be checked through a comparison with parallel information secured from the wage reports and Social Security records.

BOULGER, J. R., see DREW, ALFRED S.

BOWERS, DELOSS, see LISACK, J. P.

BOWERS, ROBERT, see THUMA, EDISON L.

BUREAU OF BUSINESS RESEARCH, INDIANA UNIVERSITY
INDIANA POPULATION PROJECTIONS, 1965-1985
(Two volumes, October, 1966)

The study presents projections of the population of the counties to 1985. The primary technique selected for the study was a variation of the U. S. Bureau of the Census component method, calling for the separate treatment of the three components affecting population change: fertility rates, death rates, and net migration. The study provides three projection series based on different assumptions concerning these components. Volume I presents the more general results with a summary of the three series of projected population totals for the state, its economic regions, and its ninety-two counties for each of the five-year projection periods from 1965-1985. The subjective analysis is also included in the volume. Volume II contains more detailed projections by sixteen age groups and sex for each area, and for all the projection periods.

CALHOUN, ROBERT A.
Indiana State Board of Health, Public Health Statistics
INDIANA BIRTHS, 1900-1965
(Booklet, July, 1967)

Tabulation of Indiana births, 1900-1965, with brief explanatory text. Included are total births, natural increase, birth rates, fertility rates, gross reproduction rates, births by age of mother, births by children born to mother, births by race and sex births by months, illegitimate births, hospital births, female population estimates aged 10 to 49 by five year age group, births by geographic area.

CALHOUN, ROBERT
Indiana State Board of Health, Public Health Statistics
STATE POPULATION PROJECTIONS
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

CALHOUN, ROBERT, see THUMA, EDISON L.

CALLAHAN, J. C. and SCHUH, G. E.
Purdue University, Forestry and Conservation, Agricultural Economics
SOCIO-ECONOMIC EFFECTS OF SURFACE MINING ON LOCAL COMMUNITIES AND REGIONAL ECONOMIES
(Bulletin, 1969)

This study will examine the effects on the local community of the strip mining operation, including the expenditures by the company in the local community, their tax contribution, their effect on the tax base, and their effect on employment and income. Another objective is to determine the present and potential effects of surface mining on land use changes and the resulting effects and impacts on local and regional economic growth, demographic patterns and social institutions.

CHRISTENSON, C. L. and ANDREWS, WILLIAM H.
Indiana University, Economics
A COMPARATIVE STUDY OF LABOR MARKET ADAPTATION TO TECHNOLOGICAL CHANGE IN BRITISH AND AMERICAN COAL MINES
(One or more articles, February 1, 1968)

The investigators propose to make a critical analysis of the labor market adaptations to technological change in an industry that has been basic for the economies of the two countries. This will include study and appraisal of:

a. Changes in total labor utilization and the portion of this attributable to technological change.

b. Changes in labor force structure within the industry.

c. The relation of these changes to such variables as geographic distribution of production, production in different types of mines, productivity of labor in the industry, extent of total or partial unemployment, and regional economic development of the areas involved.

d. The role of training and retraining programs in labor force adjustments.

e. Possible future manpower developments in this industry.

COMMUNITY SERVICE COUNCIL OF METROPOLITAN INDIANAPOLIS, INC.
SOCIAL CHARACTERISTICS ANALYSIS OF ELEVEN SELECTED POVERTY TARGET AREAS IN INDIANAPOLIS, INDIANA
(Booklet, July, 1966)

Prepared for Community Action Against Poverty of Greater Indianapolis, Inc., this analysis presents 1960 and 1965 tabular data on population, housing, income, education, the Aid to Dependent Children program, the Old Age Assistance program, and juvenile delinquency for eleven areas of Indianapolis.

CRAIG, MARION, see REDEKOP, CALVIN

DeWITT, NICHOLAS
Indiana University, Economics
INTERNATIONAL SURVEY OF EDUCATIONAL DEVELOPMENT AND PLANNING
(Two or more books in 1968 or 1969. Interim results: Pakistan's High Level Manpower and Human Resource Development Planning. U. S. Agency for International Development: Pakistan Mission. February, 1965. Mimeo. Comments on the Education Commission Activities and Review of the Design of India's National Education Plan. Government of India: Education Commission. September, 1965. Mimeo.)

World survey of the relationship between educational development and national economic and political development with particular emphasis on the economics of education and planning. Special attention will be given to the role of scientific-technical personnel, professional manpower and professional higher education in economic development. The research objective is the study of criteria for setting educational and manpower planning goals. Methods will include review of available plans, documents and interviews with officials responsible for preparation of such plans. The research is being sponsored by the Carnegie Corporation, Indiana University and Ford Foundation and in cooperation with international organizations (OECD and UNESCO).

DREW, ALFRED S. (Project Director), ADAMS, R. F., BAIN, R. K., BLEDSOE, H. J., BOULGER, J. R., HASSENMILLER, M. G., JOHNSON, P. V.
Purdue University, School of Technology
A STUDY OF THE NEED FOR EDUCATIONAL AND TRAINING ADJUSTMENTS IN APPRENTICESHIP PROGRAMS FOR SELECTED CRAFT OCCUPATIONS
(Report to U. S. Dept. of Labor, OMPER, October, 1967)

The goals for this national project include attempts:

1. To develop procedures, or guidelines--perhaps, a pattern or framework--for an optimum apprenticeship training system(s);

2. To compare contemporary training systems with the optimum; and

3. To generate suggestions, if needed, for the improvement of on-going programs.

The interdisciplinary team, composed of research scientists from Industrial Engineering, Sociology, Industrial Education, Labor Relations and Economics, and Industrial Psychology, will analyze data obtained from individuals and organizations involved in the apprenticeship system by a variety of survey instruments. To determine a pattern for an optimum apprenticeship training system, consideration will be given to:

1. The basic criteria of accrediting agencies.

2. The factors basic to the development of superior workers who adapt to technological and other changes.

3. The discriminators between superior and other types of training programs.

4. The kinds of analyses and feedback systems which must be identified and used to keep workers in a state of operational readiness.

DUNBAR, J. O., see WADSWORTH, H. A.

EVANS, WILLIAM, see BIRDCELL, JOHN J.

FAHEY, FRANK J.
Notre Dame, Sociology
ASSISTING PAROLEES TOWARD SOCIO-ECONOMIC ADJUSTMENT
(In process)

The objective of this project is to develop a training program at the Indiana State Reformatory for the purpose of preparing inmates for jobs in the steel industry in Lake County.

FARMER, RICHARD N.
Indiana University, Graduate School of Business
ORGANIZATIONAL TRANSFER AND CLASS STRUCTURE
(Article, Academy of Management J., Sept., 1966; Reprinted in Indiana University Bureau of Business Research Reprint Series No. 23)

This paper examines some of the reasons why class structures are built into technology and what some of the implications of such technological borrowing are. Nations borrowing technology from more developed countries often fail to realize that much of the developed country's class structure, behavior and attitude are often implicitly built into its technology. Thus, a developing nation may be obtaining more than it bargained for in such technological borrowing. The developing country may either have to change its own class structure or partially fail in its efforts to borrow.

FARMER, RICHARD N.
Indiana University, Graduate School of Business
TECHNOLOGICAL TRANSFER AND CLASS STRUCTURE IN THE UNITED STATES
(Paper, Indiana University Aerospace Research Applications Center, 1967)

The purpose of this paper is to apply sociological concepts to the problem of barriers to technological transfer, with the intention of exploring whatever insights into these barriers may be related to behavior and organizational structure. The specific problem explored is the transfer of high level technology of the sort generated by NASA to typical business firms. A basic assumption made is that technological knowledge can be successfully transferred between organizations, and that such transfers can be made more efficient.

FRANK, RONALD, see LISACK, J. P.

HARRIS, JOHN, see THUMA, EDISON L.

HASSENMILLER, M. G., see DREW, ALFRED S.

HELLER, MARTIN
Indiana Employment Security Division, Research and Statistics
INDIANA MANPOWER TRENDS TO 1975
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

HEWLETT, ROBERT
Vocational Education, Dept. of Public Instruction
MASTER PLAN FOR THE DIVISION OF VOCATIONAL EDUCATION
(Mimeo., February, 1967)

This plan presents past and current enrollments for the various disciplines with a projected growth for the next five years.

INDIANA DEPARTMENT OF COMMERCE, RESEARCH DIVISION
1966 NEW AND EXPANDING INDUSTRY
(Booklet, 1967)

This publication lists the firm, product manufactured, square footage added and employees added during 1966 by new and expanding firms from information obtained from the power companies, Chambers of Commerce, and the Indiana Employment Security Division.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
EVANSVILLE AREA SKILL SURVEY
(Booklet, November, 1966)

This study assessed the supply and demand in occupations of the Evansville area. An employer survey was conducted in Warrick, Vanderburgh

and Henderson Counties to obtain employer projections of needs for training in these occupations. A survey of local schools was conducted to project the supply of trained people in these occupations. Local offices also made an applicant file survey.

INDIANA EMPLOYMENT SECURITY DIVISION
GARY - HAMMOND - EAST CHICAGO REGIONAL MANPOWER PROJECTIONS
(Booklet, in process)

Projections of the labor force, industry and occupational employment are being prepared for the region. This study is intended as a prototype for the other regions in the state. Previously unpublished industry employment data will be used to provide greater detail for the region.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
IMPORTATION OF ALIEN WORKERS BY INDIANA EMPLOYERS
(Mimeo. report, January, 1967)

This report analyzes and summarizes the experience in Indiana since December, 1965 of the program under the Amendments to the Immigration and Nationality Act, which established the guidelines to facilitate the efforts of U. S. employers in the importation of alien workers to fill critical and shortage occupation job openings.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
INDIANA MANPOWER TRENDS TO 1975
(Booklet, 1967)

Projections to 1975 were prepared for the State's population, labor force, industry employment demand, and occupational demand.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
LABOR FORCE STATUS OF CLAIMANTS AFTER THEY EXHAUSTED THEIR TEC BENEFITS
(Booklet, September, 1966)

This report summarizes the labor force status, personal characteristics, industry, occupation, etc. of claimants three months after they had exhausted their benefits.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS, AND THE U. S. DEPARTMENT OF LABOR
THE LONG-TERM UNEMPLOYED: FINANCIAL RESOURCES AND ADJUSTMENTS
(Booklet, August, 1966, Special TEUC Report No. 5, BES No. U-225-5)

This report analyzes the resources available to, and the adjustments made by, claimants who received unemployment benefits under the Temporary Extended Unemployment Compensation (TEUC) and regular State programs. The study data for thirteen states are based on local employment security office records and on information obtained from claimants interviewed in May 1961, September 1961, and January 1962.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
MANPOWER REQUIREMENTS IN INDIANA HOSPITALS
(Booklet, June 1967)

This study presents current employment and vacancies by detail occupation, and projections of needs to 1970 and 1975 for the State. The basic occupational data was furnished by Indiana Hospital Association, supplemented by data from the Indianapolis Hospital Development Association for the Indianapolis area.

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
UNFILLED JOB OPENINGS IN LOCAL EMPLOYMENT OFFICES, APRIL 1966, BY OFFICE AND OCCUPATIONAL TITLE
(Mimeo., May, 1966)

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
UNFILLED NONAGRICULTURAL JOB OPENINGS, GARY-HAMMOND-EAST CHICAGO, FEBRUARY, 1967
(Mimeo., March 1967)

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
UNFILLED NONAGRICULTURAL JOB OPENINGS, INDIANAPOLIS AREA, FEBRUARY, 1967
(Mimeo., March, 1967)

INDIANA EMPLOYMENT SECURITY DIVISION, RESEARCH AND STATISTICS
WEEKS OF WORK AND WEEKLY WAGES
(Booklet, in process)

In this study, an analysis will be made of the weeks of work and earnings for each week during the 52 weeks preceding the claim. A sample of people who filed new claims for unemployment benefits was selected, and their previous employers furnished the necessary data.

INDIANA RESEARCH COORDINATING UNIT FOR VOCATIONAL AND TECHNICAL EDUCATION
Indiana State University
MANPOWER PROJECTIONS AND TRAINING NEED FORECAST TO 1975 FOR THE TERRE HAUTE AREA
(Mimeographed report, November, 1966)

This report is an updated revision of L. W. Yoho's Survey of Terre Haute Industries as a basis for Vocational-Technical Education Planning in the Public Schools (1960).

INDIANA VOCATIONAL TECHNICAL COLLEGE
SUMMARY OF INDIANA VOCATIONAL TECHNICAL COLLEGE MASTER PLAN
(Printed Loose Leaf, January, 1967)

The Indiana Vocational Technical College contracted Booz, Allen and Hamilton, Inc. to conduct a study and provide recommendations on the organization, administrative procedures, location of training

facilities and training requirements of the college. The summary provides the recommended plan for the development of IVTC in graphic form. The exhibits indicate the projected student enrollment of IVTC compared to the State's total net manpower training requirements for vocational technical education.

The exhibits also project the facilities, faculty, operating and capital expenditures required to meet enrollment goals and the specific educational programs which are of highest priority. These goals and projections are made for fiscal year 1967 and for each year through fiscal 1977.

INDIANA VOCATIONAL TECHNICAL COLLEGE
WABASH VALLEY TECHNICAL INSTITUTE:
A SURVEY OF THE MANPOWER NEEDS AND TRAINING PROGRAMS
(Booklet, July 1967)

Presents information about manpower needs and vocational training programs for the eight county area around Terre Haute. Includes projections, estimates of growth and replacements from an employer survey, trainee supply, and educational programs of the Institute.

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.
SURVEY OF NURSING RESOURCES IN INDIANAPOLIS METROPOLITAN AREA
(Booklet, June, 1965)

This report by Booz, Allen and Hamilton studies the current supply and characteristics of nurses, estimates the demand and supply for nurses between 1965 and 1975 according to present plans and practices, and recommends a plan for the development of nursing resources to meet community needs in the decade.

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.
SURVEY OF SELECTED HEALTH MANPOWER RESOURCES IN METROPOLITAN INDIANAPOLIS
(Mimeo., May, 1967)

The summary includes data on the five year needs and net supply available for health occupations in the metropolitan Indianapolis area.

JESWALD, THOMAS, see McCORMICK, ERNEST J.

JOHNSON, P. V., see DREW, ALFRED S.

KELLEY, DWIGHT, see THUMA, EDISON L.

KYNER, DAVID, see McCORMICK, ERNEST J.

LANE, JAMES E.
Wabash Valley Interstate Commission
(on leave from Indiana State University, School of Business)
AN ECONOMIC IMPACT STUDY OF A SUGGESTED CROSS-WABASH VALLEY WATERWAY

A study to initially determine the economic impact that a suggested Cross-Wabash Valley Waterway might have upon the economy of a limited area of Illinois, Indiana, and Ohio. Areas of study include the effect on marketing and distribution patterns, transportation costs, resource value changes, industrial development and expansion, effects upon land values and tax bases, to be conducted by researchers at Illinois, Indiana, Purdue, Southern Illinois and Indiana State. A traffic survey of potential users has been started. Interviews will be conducted with representative members of the barge industry, shippers, competing transportation agencies, and government agencies.

LeBOLD, WILLIAM K., see PERRUCCI, CAROLYN CUMMINGS

LISACK, J. P.
Purdue University, Office of Manpower Studies
A REPORT OF EMPLOYMENT TRENDS IN FIVE INDIANA COUNTIES (Allen, Lake, LaPorte, Marion, and Porter)
(Booklet, February 1, 1966)

LISACK, J. P.
Purdue University, Office of Manpower Studies
OCCUPATIONS, WORKER TRAITS AND QUALIFICATIONS, AND AREAS OF WORK IN ARCHITECTURAL, CONSTRUCTION AND RELATED FIELDS FOR JOBS ABOVE THE SKILLED CRAFTSMAN LEVEL
(Booklet, March 10, 1966)

LISACK, J. P.
Purdue University, Office of Manpower Studies
FOUNDRY TECHNICIANS AND THE FOUNDRY INDUSTRY IN INDIANA
(Booklet, Manpower Report 66-4, March 30, 1966, $1.25)

The foundry industry in Indiana was examined to develop quantitative and qualitative requirements for foundry technicians. Recommendations for related Associate Degree educational programs are included. The data were obtained through survey and interview techniques. The analysis was made with foundry industry firm representatives and the assistance of the Foundry Educational Foundation.

LISACK, J. P.
Purdue University, Office of Manpower Studies
EMPLOYMENT TRENDS AND TECHNICIAN NEEDS IN WAYNE COUNTY, INDIANA
(Booklet, April 4, 1966)

LISACK, J. P.
Purdue University, Office of Manpower Studies
METHODS AND RATIONALE FOR DETERMINING TECHNICIAN-LEVEL MANPOWER REQUIREMENTS BY LOCALE, AND FOR A SPECIFIC INDUSTRY
(Booklet, July 20, 1966)

LISACK, J. P.
Purdue University, Office of Manpower Studies
SELECTED TECHNICAL EDUCATION NEEDS IN HOWARD COUNTY, (THE KOKOMO STUDY)
(Booklet, Manpower Report 66-7, August 1, 1966, $1.25)

The objective of this study was to identify the post-high school technical education programs needed in the Kokomo area. Trends in population and employment in industry were examined. Using questionnaires, manpower and training needs data were obtained from firms representing over ninety per cent of the manufacturing employment. The findings were confirmed through meetings and discussions with representatives of major industries, local education committees and through local Chamber of Commerce cooperation.

LISACK, J. P.
Purdue University, Office of Manpower Studies
SELECTED MANPOWER AND EMPLOYMENT DATA FOR DELAWARE COUNTY, INDIANA
(Booklet, August 15, 1966)

LISACK, J. P.
Purdue University, Office of Manpower Studies
REGION ONE MANPOWER STUDY
(Booklet, Manpower Report 66-9, October 18, 1966, $1.25)

This report presents selected manpower, employment, industry, and occupational group data for the seven counties in the northwest corner of Indiana. It identifies trends in employment by industry groups and the changing composition of the work force by occupational groups projected to 1975. It discusses occupational areas where deficiencies or surpluses are projected. The projections were developed through application of state factors computed by the Indiana Employment Security Division to the regional situation, modified as dictated in the local setting.

LISACK, J. P., FRANK, RONALD, AND BOWERS, DELOSS
Purdue University, Office of Manpower Studies, Mechanical Technology, Engineering
MANPOWER REQUIREMENTS FOR INDUSTRIAL ILLUSTRATORS AND DRAFTSMEN IN THE INDIANAPOLIS AREA
(Booklet, Manpower Report 67-1, May 1, 1967, $1.25)

The objective of this study was to determine manpower requirements for industrial illustrators and draftsmen (at five occupational levels). Present employment, job vacancies and qualifications were ascertained and future requirements for job turnover and growth were projected. The impact and effects of technological changes on the drafting/design

processes were examined and implications for educational program objectives due to such changes were presented. The developing inversion of the occupational ladder sequence, due to diminishing requirements for tracers and increasing needs at higher levels, was confirmed. The data were obtained through survey techniques, interviews, and pertinent literature.
(Similar reports are being prepared for the Gary, Hammond, East Chicago complex, and for Fort Wayne. Results will be available by July 1 and August 1, 1967, respectively.)

LISACK, J. P. and PRITCHETT, S. L.
Purdue University, Office of Manpower Studies and Mechanical Engineering Technology
MANPOWER AND TRAINING NEEDS IN FLUID POWER FOR INDIANA INDUSTRIES
(Booklet, Manpower Report 66-10, November 30, 1966, $1.25)

This study develops quantitative factors for determining specific manpower requirements at five occupational levels--from skilled workers to engineers-for each major industrial classification, which require skill and understandings in the fluid power area, viz. fluidics, hydraulics, and pneumatics. Also ascertained was the depth of understandings (cognitive domain) required at each occupational level in technical and supporting courses. Data was obtained through interview and survey of selected Indiana firms employing nearly 90,000 people. The research was conducted under auspices of North Indiana Chapter No. 25 (Kokomo) of the Fluid Power Society.

LISACK, J. P. and SADAKA, A. R.
Purdue University, Office of Manpower Studies, and Computer Technology, Indianapolis Campus
COMPUTER AND ELECTRONIC DATA PROCESSING MANPOWER REQUIREMENTS FOR INDIANAPOLIS AREA
(Booklet, Manpower Report 67-2, May 10, 1967, $1.25)

This study provides descriptions and qualifications for 23 occupations related to computer and EDP operations. Current employment and future requirements were analyzed. The average annual requirements for new personnel in each occupation were calculated. Ascertained were the training programs now being conducted and the nature and amount of support to educational programs and students that can be expected. Kinds of equipment and nature of present operations were determined. Projected manpower requirements were compared with future equipment acquisitions. Recommendations were made for the types of educational programs needed. The data were obtained through surveys, interviews and pertinent literature.
(Similar reports are being prepared for the Gary, Hammond, East Chicago complex, and for Fort Wayne. Results will be available by August 1 and September 1, 1967, respectively.)

MASCHA, BETH VAIL, GRANGAARD, GEORGE, LEEP, ALBERT and SCHULTZ, KENNETH
Ball State University, Winona State College,
Ohio University, Miami Dade Junior College
THE ELEMENTARY EDUCATION SELECTION RESEARCH PROJECT
(Book, 1966)

This study was designed to test and improve the selection of teacher candidates. The procedure consisted of an eight year study of teacher candidates through their first year of teaching.

McCORMICK, ERNEST J. (Principal Investigator), WAIBEL, JAMES, JESWALD, THOMAS, and KYNER, DAVID
Purdue University, Psychology
STUDY OF JOB DIMENSIONS
(Report to Office of Naval Research, Summer 1968)

The objective of this study is to identify the various "dimensions" of jobs in terms of human behaviors. A worker-behavior job analysis check list and rating scale format is being developed. The job analysis format will be used in analyzing a sample of jobs. Factor analysis of the resulting data will be performed to identify statistical factors (dimensions).

MILLER, TAULMAN A., see ANDREWS, WILLIAM H.

MILLER, WILLIAM, see WADSWORTH, H. A.

MILLS, RICHARD L.
Indiana University, Economics and Bureau of Business Research
TRANSITION MATRIX--COHORT SURVIVAL MODEL FOR SMALL AREA POPULATION FORECASTS
(Ph.D. Dissertation, August, 1967)

One of the basic hypotheses of this study can be roughly stated as: a net migration rate is insufficient for small area population forecasts. If migration is the most volatile component of population change under normal circumstances, then the migration component should be as detailed as possible in any small area forecast. The model is basically a cohort-survival technique with a transition matrix substituted for the net migration rate. The transition matrix is composed of probabilities of going from one area to another. Thus, even if the probabilities do not change, the number of migrants to and from a particular area varies as the population of the various areas changes.

MONTGOMERY, RICHARD W.
DePauw University, Economics (On leave at Oklahoma State University)
A THEORY OF ECONOMIC GROWTH AND INFLATION
(Paper, multilithed, Okla. State Univ., 1967)

This paper provides a theoretical framework for analysis of trade-offs between full employment and anti-inflationary policy objectives. This

theory is related to the Phillip's curve analysis, to structural unemployment, and to the Harrod and Domar growth models.

ONILA, JOHN
Purdue University, Sociology
IMPACT OF TECHNOLOGICAL CHANGE ON THE STEELWORKER CASE STUDY: INLAND STEEL CORPORATION
(Ph.D. Thesis, March 1, 1966)

The objective of this study is to obtain factual data to support or refute the many charges made as to the impact of technological change on the worker. It is also hoped that the data will support a change from the traditional way (the standard hourly wage) in which a worker's plight or well-being is measured after a technological change.

The earnings record, hours worked, vacation pay, educational level, race, age, company service, marital status, number of dependents and recruitment area for the period 1950 through 1964 was obtained for all employees involved in the 10 technological changes occurring at Inland Steel, Harbor Works, since 1953.

Before and after earnings curves for each employee will be calculated, and recovery period determined, if appropriate. It is hoped that the individual earnings curves will be sufficiently similar to allow the construction of an earnings curve or curves for each technological change. The individual technological change curves will be examined in an attempt to find a common pattern. If one should exist, then there exists a possibility for constructing a model in which future changes could be applied and results of outcome predicted.

OTLEWSKI, ROBERT E.
Indiana University, Economics
ANALYSIS OF MALE SECONDARY SCHOOL TEACHER MOBILITY
(Ph.D. thesis, August, 1968)

The objective of this study is to ascertain the pattern of job changes, reasons for observed patterns of mobility, and the communication links (formal and informal) utilized by teachers in changing jobs.

PATTERSON, D. JEANNE
Indiana University, Business
(Ph.D. Dissertation, September, 1966)

Community industrial development efforts in cities with a population of under 25,000 were examined. Industrial development corporations were of primary interest. Thirty communities were selected for interview and analysis.

PATTERSON, D. JEANNE
Loyola University, Business Administration
THE LOCAL INDUSTRIAL DEVELOPMENT CORPORATION
(Book, Indiana Univ. Bureau of Business Research, Summer, 1967)

An examination of the role of the local industrial development corporation as a nationwide institution, with discussion of similarities and differences in State programs. Special attention is given to a group of corporations in Indiana cities under 25,000 population.

PERRUCCI, CAROLYN CUMMINGS
Purdue University, Sociology
ENGINEERS AND SCIENTISTS: A COMPARATIVE ANALYSIS OF PROFESSIONSL VALUES AND BEHAVIOR
(Monograph, articles, August 31, 1967)

This project is concerned with examining the extent to which engineering and science are professions, and with determining whether or not engineering and science should be treated as the same profession. Comparative analyses of three aspects of the careers of engineers and scientists will be undertaken: (1) the influence of educational experience upon adaptations to work roles in organizations; (2) the organizational career histories, with special attention to transition from technical-scientific to management functions; and (3) the degree of participation in professional activities outside the work organization, involving colleague contact and the contribution and dissemination of new knowledge.

The data for the project were collected from random samples of Purdue University engineering and science graduates stratified by degree level, year of graduation, and sub-field within the broad schools of engineering and science. The total sample consists of approximately 5,000 alumni who were graduated between 1947 and 1964 inclusive, with bachelor, master and doctoral degrees in nine engineering sub-fields and four science sub-fields. Questionnaires were mailed to all who were sampled.

This research is being conducted under a grant from the U. S. Department of Labor, Office of Manpower Policy, Evaluation and Research.

PERRUCCI, CAROLYN CUMMINGS
Purdue University, Sociology
THE FEMALE ENGINEER AND SCIENTIST: FACTORS ASSOCIATED WITH THE PURSUIT OF A PROFESSIONAL CAREER
(Book, articles, August 31, 1968)

This research will examine factors which distinguish women engineering and science graduates who are pursuing careers in these fields from those who are not; will estimate the relative ease or difficulty with which women not pursuing a career in engineering or science could do so if necessary; and will investigate the career patterns of women compared with men who are working in engineering and science.

Within the framework of a larger study of Purdue University engineering and science alumni of the classes of 1947 to 1964, inclusive, special

randomly selected subsamples of female engineering and science graduates were obtained. A total of four hundred thirty alumnae was sampled with a return rate of seventy per cent. Questionnaires were mailed to all who were sampled.

PERRUCCI, CAROLYN CUMMINGS and LeBOLD, WILLIAM K.
Purdue University, Sociology and Freshman Engineering
THE ENGINEER AND SCIENTIST: STUDENT, PROFESSIONAL AND CITIZEN
(Mimeo, summary report available from Engr.-Science Alumni Study Rm. 101, Engr. Adm. Bldg., Purdue; and Engineering Experiment Station Bulletin, Summer, 1967, about $2.50)

The objectives of this study were to provide descriptive information regarding the pre-college background, college experiences, and post-college work, community and leisure activities of post World War II engineering and science alumni of Purdue University; to analyze data in the above-mentioned areas by year of undergraduate graduation, level of Purdue degree obtained and major field for those alumni who received a bachelor's degree from Purdue; and to compare the above-mentioned experiences of engineers with those of scientists.

Data were obtained from samples of Purdue University engineering and science alumni, stratified by year of graduation for the classes of 1947 - 1964 and major field for bachelor's degree recipients; and stratified by year of graduation for the classes 1950 - 1964 for master's and doctorate degree recipients. The total sample N is 5,000.

POLLIARD, FORBES W.
Indianapolis Hospital Development Association, Inc.
THE FEASIBILITY OF A SYSTEMATIC STUDY OF MANPOWER REQUIREMENTS AND EDUCATION AND TRAINING PROGRAMS OF SELECTED HEALTH OCCUPATIONS
(Mimeo, November, 1966)

POND, MARTIN T., see WADSWORTH, H. A.

PRITCHETT, S. L., see LISACK, J. P.

REDEKOP, CALVIN and CRAIG, MARION
Earlham College, Sociology
EMPLOYMENT AND HOUSING STUDY
(Several articles, Summer, 1967)

The survey of housing and employment conditions in Wayne County has been completed. Analyses are currently being conducted. The basic theoretical orientation is that a medium-small size city has a unique set of problems based on social relations that derive from city size. One of the emphases will be the analysis of the resources and interests of the impoverished, and the opportunities to achieve objectives on the part of the impoverished.

SADAKA, A. R., see LISACK, J. P.

SCHUH, G. E., see CALLAHAN, J. C.

STOLNITZ, GEORGE
Indiana University, Economics
AMERICAN MANPOWER MOVEMENTS AND REGIONAL ECONOMIC CHANGES
(EDC 1967)

Using OASDI data for 1960-1963, the industrial and regional origins and destinations of the one per cent sample labor force covered by OASDI are traced. Such origin--destination patterns will be related to wage movements, demographic characteristics, regional/industrial changes and metropolitan-nonmetropolitan location of work.

TAYLOR, DAVID P., see ULLMAN, JOSEPH C.

THUMA, EDISON L. (Dept. of Commerce), HARRIS, JOHN (Dept. of Revenue), CALHOUN, ROBERT (State Board of Health), KELLEY, DWIGHT (Ind. Employ. Sec. Div.), BOWERS, ROBERT (Ind. Employ. Sec. Div.)
1967 ECONOMIC REVIEW AND FORECAST
(Booklet, Indiana Dept. of Commerce, January, 1967)

This report provides a three year forecast of population, employment, personal income and revenue for the state.

ULLMAN, JOSEPH C.
Purdue University, Industrial Relations
USING TURNOVER DATA TO IMPROVE WAGE SURVEYS
(Article, Personnel Journal, October, 1966; reprinted in the Purdue University Krannert School of Industrial Administration Reprint Series)

ULLMAN, JOSEPH C. and TAYLOR, DAVID P.
Purdue University, Industrial Administration & M.I.T.
THE INFORMATION SYSTEM IN CHANGING LABOR MARKETS
(Paper, Proceedings of the Eighteenth Annual Meeting, Industrial Relations Research Association, December, 1965; reprinted in Purdue University Krannert School of Industrial Administration Reprint Series No. 151)

This paper describes and attempts to evaluate the information systems in two labor markets that have recently undergone rapid change.

WADSWORTH, H. A
Purdue University, Agricultural Economics
EMPLOYMENT AND WAGES IN INDIANA, 1957-1964
(Booklet EC-310, Cooperative Extension Service, October, 1966)

This report is a compilation of employment and earnings statistics for

major industrial groups in the State, thirteen regions, and the individual counties. Trends discussed in the report serve to illustrate the changing location of employment as well as changes in type of employment and wages received.

WADSWORTH, H. A.
Purdue University, Agricultural Economics
EMPLOYMENT AND WAGES IN INDIANA, 1965
(Booklet-Supplement to EC-310, Cooperative Extension Service, April, 1967)

WADSWORTH, H. A.
Purdue University, Agricultural Economics
IMPACT OF NEW INDUSTRY ON A RURAL COMMUNITY
(Booklet, RB-811, Cooperative Extension Service, July, 1966.)

WADSWORTH, H. A.
Purdue University, Agricultural Economics

A study to facilitate industry location analysis. Social and economic characteristics which are deemed important to industries in locating potential plant sites will be determined. Values or ratings for the characteristics will be assigned to communities so that towns meeting the specifications of a company can be rapidly listed.

WADSWORTH, H. A., (Leader), DUNBAR, J. O., POND, MARTIN T. and MILLER, WILLIAM L.
Purdue University, Dept. of Agricultural Economics
ANALYSIS OF THE FACTORS AFFECTING ECONOMIC AND SOCIAL DEVELOPMENT IN INDIANA
(Research and Extension Bulletins, June 30, 1969)

1. To identify the changes in the pattern of the types and location of industries in Indiana.

2. To determine major economic factors which influence the location of different types of industries in Indiana.

3. To determine the economic and social effects on the local community of changes in the industrial composition of the community.

WAIBEL, JAMES see McCORMICK, ERNEST J.

WENTWORTH, JACK R.
Indiana University, Bureau of Business Research
DEVELOPING INDIANA COUNTY POPULATION PROJECTIONS
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967.)

YOHO, L. W.

Indiana State University, Division of Industrial Education
SURVEY OF TERRE HAUTE INDUSTRIES AS A BASIS FOR TECHNICAL EDUCATION PLANNING IN THE PUBLIC SCHOOLS. SUPPLEMENT - PROJECTION OF TRAINING NEED FORECAST TO 1975
(Booklet, 1960, No longer available)

Objectives were:

1. To develop a system for determining manpower needs on a continuous basis.

2. To use the continuous manpower needs to convert to training needs

3. To seek means of measuring effectiveness by establishing a ratio of training needs to training done.
(See Indiana Research Coordinating Unit for Vocational and Training Education for a revision of this report.)

PART II

PAPERS, ARTICLES AND

OTHER ITEMS OF INTEREST

ADMINISTRATIVE MANAGEMENT SOCIETY, INDIANAPOLIS CHAPTER
BUSINESS, ITS PLACE IN EDUCATION
(Booklet, 1967)

This booklet surveys educational and career opportunities for students in the metropolitan Indianapolis area.

BEMIS, MAYNARD and MCLURE, WILLIAM
Phi Delta Kappa Inc., Bloomington, Indiana
SYMPOSIUM IN OCCUPATIONAL EDUCATION, MANPOWER, AND ECONOMIC CHANGE IN THE UNITED STATES FINAL REPORT
(July, 1966, No. ED-010-127, Microfiche $0.09, or Hard copy $1.40 from ERIC Document Reproduction Service, Bell and Howell Company, 1700 Shaw Avenue, Cleveland, Ohio 44112)

Dialogue was presented at a symposium for the purpose of providing leadership and direction for a series of educational research and practice. Participants and discussants at the symposium were scholars in Anthropology, Economics, Education, Government, and Sociology. Authors of major papers included Solon Kimball, Fred Strootbeck, Arthur Ross, Leonard Lecht, Hector Correa, and Gerhard Colm. Papers and the discussion revealed how the increasing urbanization, secularization, and specialization of work have affected individual values in mass society and at the same time increased the importance of education as a bridge between the private work of family and the mass society of work and politics. There is a summary of discussion areas, including--(1) problems that face schools which attempt to educate children from unstable family backgrounds, (2) the effects of technological change in the economy on society, (3) the economic value of education to society, (4) a history of the government's commitment to insure full employment, and (5) how national goals are translated into dollar costs and manpower requirements. Conclusions, implications, and recommendations are also summarized.

BLACKBURN, CLEO W.
Board for Fundamental Education, Indianapolis

An experimental program to upgrade the education of 1,600 steel workers in the Gary, Indiana and Baltimore, Maryland areas is being initiated in collaboration with the United Steel Workers Union and a number of firms in the steel industry. The program is designed to qualify steel workers for higher level jobs. Steel workers taking part in the basic education program will receive up to six hours of classroom instruction a week on their own time for a total of at least 150 hours. The student will be raised four grade levels during the fourteen month course. The program is funded by the Department of Labor under the Manpower Development and Training Act.

BRICKNER, DALE (Editor)
Indiana University, Labor Education and Research Center
INDIANA MANPOWER RESEARCH CONFERENCE, 1966 PROCEEDINGS, NOVEMBER 15 - 16, PURDUE UNIVERSITY
(Booklet, Indianapolis, Indiana Manpower Research Assn., May 1967)

CHAVRID, V. D.
U. S. Department of Labor, Bureau of Employment Security, Office of Manpower Analysis and Utilization
IMPLICATIONS OF A POSITIVE MANPOWER POLICY ON EMPLOYMENT SERVICE RESEARCH
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

DUNCAN, J. W.
Battelle Memorial Institute
SOME FINDINGS OF THE MICHIGAN MANPOWER STUDY
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

EPSTEIN, JOSEPH
U. S. Department of Labor, Office of Manpower Policy, Evaluation and Research, Economic Development and Manpower Resources Group
NEW DIRECTIONS IN MANPOWER RESEARCH AT THE FEDERAL LEVEL
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

FARMER, RICHARD N.
Indiana University, Graduate School of Business
THE ETHICAL DILEMMA OF AMERICAN CAPITALISM
(Article, California Management Review, Summer, 1964; Reprinted in Indiana University Bureau of Business Research Reprint Series No. 21)

The purpose of this paper is to explore the development of the two contradictory ethical themes which have dominated American life from the very founding of this country. The thesis advanced here is that the cleavage between two major ethical themes--Calvinism and competition on the one hand and traditional Judeo-Christian ethics on the other--has led to a crisis which has to be resolved.

FRIEDMAN, MARVIN
AFL-CIO, Department of Research, Washington, D. C.
LABOR'S VIEW OF CURRENT MANPOWER PROBLEMS
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

HADDEN, ROBERT J.
Atterbury Job Corps Center, Westinghouse Management Services, Inc.
INDUSTRY'S PARTICIPATION IN THE NATION'S EDUCATION PROGRAM
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

INDIANA DEPARTMENT OF COMMERCE
POPULATION PROJECTIONS FOR U.S., THE EAST NORTH CENTRAL REGION, AND INDIANA, 1960-1985
(Booklet, 1966)

Section I presents illustrative projections from the Current Population Reports, Series P-25, No. 326 for the United States, and the East North Central States for 1970 to 1975. Section II presents projections of the state and its counties prepared by Cole and Williams Engineering Joint Venture for the Indiana Highway Needs Study Committee.

LIEBHAFSKY, E. E.
University of Houston
PROGRAMS AND GOALS OF A UNIVERSITY HUMAN RESOURCES INSTITUTE
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

MCLURE, WILLIAM, see BEMIS, MAYNARD

MCNAUGHTON, CHARLES R.
Ball State University, Director of Placement

Data on the employment of Ball State graduates, B.S., M.A. and Ph.D. Each year, data on the position and location of employment of graduates are obtained through post card questionnaires and other means, resulting in almost 100 per cent coverage. Bound copies of these data are used by the Alumni Office and by graduate students for dissertations and theses.

NICKLAS, FRED
IBS Corp., Chicago Office
PERSONNEL SKILL DATA SYSTEM
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

OLSON, THEODORE F.
U. S. Bureau of the Census, Chicago Office
REVIEW OF THE 1970 CENSUS OF POPULATION AND HOUSING
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

STAFFORD, WILLIAM F.
Community Action Against Poverty, Indianapolis
SKILL DEVELOPMENT AMONG THE UNDERPRIVILEGED
(Paper, Indiana Manpower Research Conference, 1966 Proceedings, November 15 - 16, 1966, Purdue University. Indianapolis: Indiana Manpower Research Assn., May, 1967)

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Automation	Andrews
	Christenson
	Onila
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Computer occupations	Lisack
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Foundry technicians	Lisack
Health occupations	Indiana Employ. Sec. Div.
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	Polliard
Hospital occupations	Indiana Employ. Sec. Div.
	Indianapolis Hosp. Dev. Assn.
	Polliard
Human resource development	DeWitt
Impact of new industry	Wadsworth
Industrial development corporations	Patterson
Industrial illustrators occupation	Lisack
Industry expansion	Indiana Dept. of Commerce
Industry location analysis	Wadsworth
Industry studies	Andrews
	Callahan
	Christenson
	Onila
Inflation	Montgomery
Information systems	Borus
	Ullman
	Wadsworth

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Job dimensions	McCormick
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Labor market adaptation	Christenson
Labor market information	Pilgrim
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	Milkovich
	Stolnitz
Mining	Callahan
	Christenson
Mobility	Milkovich
	Stolnitz
Nursing resources	Indianapolis Hosp. Dev. Assn.
Occupations	Admin. Mgmt. Soc.
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	Indiana Employ. Sec. Div.
	Lisack
	Perrucci
	Pollard
Organizational transfer	Farmer
Parolees	Fahey
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	Indiana Dept. of Commerce
	Mills
	Wentworth
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Productivity	Christenson
Professional careers	Perrucci
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	Heller
	Indiana Dept. of Commerce
	Indiana Employ. Sec. Div.
	Indiana Res. Coord. Unit
	Indianapolis Hosp. Dev. Assn.
	Mills
	Thuma
	Wentworth
	Yoho
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	Indiana Employ. Sec. Div.
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	Lisack
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	Onila
Teacher education	Arnold
	Mascha

Teacher mobility	Olesen
Technical education	Birdsell
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	Unila
Technological transfer	Farmer
Training	Birdsell
	Christenson
	Drew
	Fahey
Turnover	Ullman
Unemployment	Indiana Employ. Sec. Div.
Unemployment insurance	Indiana Employ. Sec. Div.
Vocational education	Birdsell
	Borus
	Howlett
	Indiana Voc. Tech. Coll.
Wage reports	Borus
Wage surveys	Ullman
Wages	Indiana Employ. Sec. Div.
	Wadsworth
Women	Perrucci

THIRD INVENTORY OF INDIANA MANPOWER RESEARCH PROJECTS

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Project Title

Brief Statement of Objectives and Procedures

Final Form e.g., Book, Article, Paper, etc. Please Give Citation	Date of Completion, or Expected Date	Price of Copy

What are the Names of Other Manpower Researchers Who Should Receive This Form?

Return to: Dwight Kelley, Chief of Research
Indiana Employment Security Division
10 North Senate Avenue
Indianapolis, Indiana 46204

VT 004 009
Adams, Spencer D.
The Degree to Which Utah High Schools Students Are Being Oriented as to Vocational and Technical Goals.

Brigham Young Univ., Provo. Dept. of Industrial Education
Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 129p.

SENIORS; *STUDENT OPINION; *OCCUPATIONAL GUIDANCE; *PROGRAM EFFECTIVENESS; *HIGH SCHOOL STUDENTS; OCCUPATIONAL CHOICE; *GOAL ORIENTATION; VOCATIONAL EDUCATION; TECHNICAL EDUCATION
UTAH

The purpose of this study was to determine the degree to which high school seniors had been oriented toward vocational goals during high school. Of the 701 males and 579 females surveyed in 31 schools, 40.6 percent were in a general, 33 percent in a college preparatory, 10.4 percent in an industrial vocational, 13.8 percent in a commercial or business, and 2.1 percent in a special curriculum. Findings included: (1) 27.3 percent of the students had not visited the counselor, (2) 31.6 percent had made one or two visits, (3) 62.8 percent of the males and 69.7 percent of the females indicated that counselors had no influence on their occupational plans, (4) About 42 percent planned to attend college while about 6.6 percent planned to attend a vocational or technical school, (5) About 70 percent of those who had selected an occupation did so between grade 10 and graduation, and (6) 91.4 percent stated they would like to have learned more about job opportunities. It was concluded that students are not being oriented to vocational and technical occupations. Recommendations concerned conducting workshops to acquaint counselors with student occupational opportunities, testing student interests and abilities with results to be interpreted by counselors, defining and recognizing counselor responsibilities, and establishing vocational and technical schools and vocational guidance programs. The questionnaire is included. (EM)

VT 004 009

THE DEGREE TO WHICH UTAH HIGH SCHOOL STUDENTS ARE BEING ORIENTED AS TO VOCATIONAL AND TECHNICAL GOALS

BY

SPENCER D. ADAMS

VT004009

THE DEGREE TO WHICH UTAH HIGH SCHOOL STUDENTS ARE BEING ORIENTED AS TO VOCATIONAL AND TECHNICAL GOALS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A MASTERS STUDY CONDUCTED

BY

SPENCER D. ADAMS

Through the Department of Industrial Education, Brigham Young University and in cooperation with the Coordinating Unit for Research in Vocational and Technical Education.

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CHAPTER I

INTRODUCTION

All people need guidance of some kind sometime during their life. Perhaps the most important time of a person's life for guidance is during his years in high school. It is during this time that he must make many decisions concerning his future, some of which will affect his future life. Among the important decisions he must make is the type of employment he will choose to follow.

In this complex industrial world it is almost impossible for a person to choose a suitable occupation without guidance and counseling. Guidance counselors in high schools have a great responsibility to help young people to understand themselves, their interests, and abilities so that they can choose an occupation in which they can succeed.

I. THE PROBLEM

Statement of the problem. The problem was to survey Utah high school students to determine to what degree they are being oriented to vocational and technical goals.

II. DEFINITIONS OF TERMS

Vocational guidance. The process of assisting individuals to understand their capabilities and interests, to choose a suitable vocation, and to prepare for, enter, and make successful progress in it.

Vocational and technical education. Training intended to prepare the student to earn a living in an occupation in which success is dependent largely upon technical information and an understanding of the laws of science and technology as applied to modern design, production, distribution, and service.

Vocational and technical occupation. An occupation in which a worker has learned specific manual skills along with an understanding of the laws of science and technology.

Occupational goal. Any occupation that a student is working towards. The student who has an occupational goal plans his program of study to prepare him for the occupation he plans to enter in the future.

III. DELIMITATIONS OF THE STUDY

This study was limited to a sample of senior students attending Utah high schools during the 1966-1967 school year and it involved both male and female students. Only the area of vocational guidance was considered. This study involved only the public supported high schools.

CHAPTER II

REVIEW OF LITERATURE

I. BACKGROUND OF VOCATIONAL GUIDANCE

Vocational guidance, like many other facets of education, has evolved because of the changing needs of man. In ancient times, people were born into a vocation and it was the responsibility of the parents to teach their children the trade that they followed. But as time changed, man became free to choose the type of work he wished to follow.

Formal vocational guidance had its beginning in the years 1900-1916. It was during this time that the trend was toward urbanization and industrialization. People were moving from the farms into the cities. Henry Borow in his book, Man in a World at Work, described the situation at that time.

> The world in which vocational guidance had its beginning was one of strident industrial growth and often ruthless conflict; of "robber barons," of sweatshope, child labor, and struggle by labor for recognition of rights; of intellectual and theological conflicts typified by controversies over Darwinism; of national expansion westward and the passing of free land; of agrarian troubles and revolt.[1]

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[1]Henry Borow, Man in a World at Work (Boston: Houghton

Three individuals credited for contributing much toward the pioneering of vocational guidance were Frank Parsons, William Rainey Harper, and Lightner Witmer.

Frank Parsons (about 1896) was credited with developing techniques of diagnosing capabilities of adolescents and with helping them choose a vocation for which they were qualified. He gave three steps in doing this.

> First a clear understanding of yourself, aptitudes, abilities, interests, resources, limitations, and other qualities.
>
> Second, a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work.
>
> Third, true reasoning on the relations of these two groups of facts.[2]

William Rainey Harper (about 1899) organized a program of personal services for college students. He stated:

> Institutions of higher learning are accustomed to accord a common treatment to all the students within their walls . . . no matter how different their temperament, how varied their tastes, or how peculiar their physical conditions. They are treated in mass.
>
> There should be a diagnosis of each student, in order to discover his capacities, his tastes, his tendencies,

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Mifflin Co., 1964), p. 6.

[2]E. G. Williamson, Vocational Counseling: Some Historical, Philosophical, and Theoretical Perspectives (New York: McGraw-Hill Book Co., 1965), p. 76.

> his weaknesses and his defects; and upon the basis of such a diagnosis his course of study should be arranged . . . Every student should be treated as if he were the only student in the institution; as if the institution had been created to meet his case. The cost of such a policy, it may be suggested, would be very great. True, but the waste avoided would more than counterbalance the cost.
>
> For the waste involved in the failure of the university to deal specifically with each student, its failure to use in every case the proper method of instruction, and above all, its failure properly to correlate his work, a remedy will be found in the provision of offices whose first duty it will be to make exhaustive study of each individual in some such manner as a physician would study the case of his patient.[3]

Lightner Witmer (1896), a psychologist, initiated what was then called clinical psychology. He was the innovator of the development of modern techniques and concepts of counseling.

In 1921, Witmer established a clinic for vocational and industrial guidance. In this clinic, people were analyzed as to their abilities and defects and given advice regarding the kind of job which promised success. Another important work of this clinic was that it engaged in research in job analysis in order to determine the abilities necessary for success in the different kinds of work.

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[3] Ibid., p. 83.

In 1910, the National Vocational Guidance Association was organized in Boston. It included manufacturers, employees, businessmen, social workers, and educators.

The U. S. Office of Education established guidance services in the schools in 1938. One year later the first edition of the Dictionary of Occupational Titles was published under the direction of the Department of Labor.

II. DEFINITION OF VOCATIONAL GUIDANCE

The term vocational guidance is not clearly understood by many people. James W. Gaither, in an article titled "Should Vocational Guidance be Junked?," defined the term:

> Extremists picture all vocational counseling as direct job-centered advice issued with appropriate jovian resonance. In reality, this simply isn't so. Students are neither forced to make a sudden decision nor told abruptly that they should enter a specific occupation. Rather, vocational guidance concentrates on exploring the many possibilities which exist in the world of work.[4]

George Myers in his book, Principles and Techniques of Vocational Guidance, gave the shortest and most complete meaning to the term.

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[4]James W. Gaither, "Should Vocational Guidance be Junked?" NEA Journal, 52:31, December, 1963.

> Vocational guidance is the process of assisting the individual to choose an occupation, prepare for it, enter upon and progress in it. It is concerned primarily with helping individuals make decisions and choices involved in planning a future and building a career--decisions and choices necessary in effecting satisfactory vocational adjustment.[5]

III. NEED FOR VOCATIONAL GUIDANCE

Industry changes very rapidly. New jobs are being created and old jobs are being phased out. Earl H. Hanson, in an article in Parents Magazine titled, "Do our Schools Neglect the Average Student?," made a statement about how rapid change is taking place.

> We must accept the fact that change doesn't come any longer merely at the speed a horse can run; it comes as fast as a jet can fly. Students should be taught to accept that fact and to be psychologically ready to change with the times.[6]

With the rapidly changing world, greater demands are being placed on education to enlighten youth as to the many occupational opportunities. Even though there are many

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[5]George Myers, Principles and Techniques of Vocational Guidance, (New York & London: McGraw-Hill Book Co. Inc., 1941), p. 3.

[6]Earl H. Hanson, "Do our Schools Neglect the Average Student?" Parents Magazine and Better Homemaking, 38:140, September, 1963.

occupations to choose from, the common labor jobs are decreasing. J. Chester Swanson stated:

> Automation and more efficient organization of business and industrial activities have whittled away the number of jobs available and have increased the skills required for those who are employed. These conditions require vocational education for more mature persons and for periods longer than those provided by the high school.[7]

Gilbert Wrenn in his book, The Counselor in a Changing World, gave the Department of Labor's Estimated Change in Employment 1960-1970.

Estimated Change in Employment 1960-1970*[8]

Occupation	Per Cent Change from 1960-1970
Professional and technical workers	+41
Proprietors and managers	+24
Clerical and sales	+27
Skilled workers	+24
Semiskilled workers	+18
Service workers	+25
Unskilled workers	0
Farmers and farm workers	-17

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[7] J. Chester Swanson, "Whither Vocational Education," NEA Journal, 52:59, October, 1963.

[8] C. Gilbert Wrenn, The Counselor in a Changing World, (Washington, D. C.: American Personel and Guidance Association, 1964), p. 20.

In order for a person to be assured of a job he will have to go to college or take vocational training in or beyond high school. Through proper vocational counseling, many young people who are potential school drop-outs can be channeled into training for employable skills. Wrenn indicated the responsibility of school administrators and school counselors in this regard:

> School administrators and school counselors up and down the line must move to see: (1) that students capable of high school graduation and beyond are identified early and individually motivated to continue to their optimum educational level; (2) that students easily discouraged in academic work are given as meaningful an educational experience as possible; (3) that potential dropouts for whatever reason in both elementary schools and high schools are prepared for vocational entrance; (4) that continuation education is provided for early school leavers who discover through experience their need for further part-time or full-time school work.[9]

Arthur Goldberg, when he was Secretary of Labor, stated that by 1970 there will be a need for 5,000,000 additional skilled workers in the United States.

It is estimated that during the years 1960-1970 26 million young people will seek their first job. In 1960, there were about 13,800,000 workers below the age of

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[9] Ibid., p. 23.

twenty-five. It is estimated that by 1970 this number will increase to 20,200,000.

Of the people who are unemployed today, two-thirds of them failed to complete high school.

> Vocational counseling meets a normal need of normal people; it is not a form of theropy for problem people. Any student may need specialized assistance in gradually evolving career decisions. Discussing their plans with parents, teachers, and friends is helpful. In the complex and rapidly changing world of today, the counselor is needed to provide up-to-date information on occupational trends and employment standards, on college admission requirements, and on scholorships or other forms of financial aid. Any one of these types of information may be crucial to the student.[10]

IV. OBJECTIVES OF VOCATIONAL GUIDANCE

Each year the world of work is getting more complex and it is getting more and more difficult for a young person to decide on a suitable career without the help of a well qualified vocational counselor. It is not the purpose of guidance to make up one's mind for him but rather, to make him aware of his interests and abilities so that he can intelligently choose for himself.

Jones gave the following as specific aims of vocational

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[10] Gaither, loc. cit.

guidance:

1. To assist the student to acquire such knowledge of the characteristics and functions, the duties and rewards of the group of occupations within which his choice will probably lie as he may need for intelligent choice

2. To enable him to find what general and specific abilities and skills are required for the group of occupations under consideration and what are the qualifications, such as age, preparation, and sex, for entering them

3. To give opportunity for experiences in school (tryout courses) and out of school (after-school and vacation jobs) which will give such information about conditions of work as will assist the individual to discover his own abilities and help him in the development of wider interests

4. To help the individual develop the point of view that all honest labor is worthy and that the most important bases for choice of an occupation are (a) the service that the individual can render to society, (b) personal satisfaction in the occupation, and (c) aptitude for the work required

5. To assist the individual to acquire a technique of analysis of occupational information and to develop the habit of analyzing such information before making a final choice

6. To assist him to secure such information about himself, his abilities, general and specific, his interests, and his powers as he may need for wise choice

7. To assist economically handicapped children who are above the compulsory attendance age to secure, through public or private funds, scholarships or other financial assistance so that they may have opportunities for further education in accordance with their vocational plans

8. To assist the student to secure a knowledge of the facilities offered by various educational institutions for vocational training and the requirements for admission to them, the length of training offered, and the cost of attendance

9. To help the worker to adjust himself to the occupation in which he is engaged; to assist him to understand his relationship to workers in his own and related

occupations and to society as a whole

10. To enable the students to secure reliable information about the danger of alluring short cuts to fortune through short training courses and selling propositions, and of such unscientific methods as phrenology, physiognomy, astrology, numerology, or graphology, and to compare these methods with that of securing really trustworthy information[11]

Williamson stated:

> The significant and strategic role of counseling today is to enable each individual to understand his own capabilities and then to exercise his freedom of choice.[12]

Basically, the ultimate goal of vocational guidance is the best utilization of man's capabilities for himself and society.

V. SCOPE OF VOCATIONAL GUIDANCE

Vocational guidance covers a very broad area. It is not something that starts when a person enters high school and ends when he leaves. Guidance should start long before a person reaches high school and continue for as long as the individual needs it.

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[11] Arthur J. Jones, Principles of Guidance (New York, San Francisco, Toronto, London: McGraw-Hill Book Company Inc., 1963), pp. 161-162.

[12] Williamson, op. cit., p. 10.

Hanson stated:

> Beginning with the primary grades, we must set up school programs so that the children know what the programs are for and accept their purposes as being desirable. We must make sure that every school task is really worth while and that the youngsters recognize this.[13]

The elementary and junior high schools share in the responsibility of teaching students about occupations; however, the real burden lies with the high school. It is the students at this age level who should be concerned with the choosing of an occupation.

Leighbody stated:

> No young person should leave high school without an understanding of the opportunities and the demands of the world of work or without the basic general education which will be required for success in all jobs of the future.[14]

Vocational guidance should provide the individual with an adequate testing program to point out his interests and abilities along with all the information available on occupational opportunities that the individual may be interested in. As James Bane stated:

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[13] Hanson, op. cit., p. 138.

[14] Gerald B. Leighbody, "The Import of Change on Occupational Education," School Shop, 25:38, March, 1961.

If guidance can help many individual pupils to think more meaningfully about their life work, their plans to train for it, to enter it with confidence and hope, if it can stimulate worth-while career thinking, then it has succeeded.[15]

Myers identified eight services involved in a program of vocational guidance in high school. They are:

1. Vocational Information Service: Aiding the individual to obtain needed information concerning occupations.
2. Self-Inventory Service: Aiding the individual to obtain needed information pertaining to his own abilities, aptitudes, limitations, and personality traits.
3. Personal Data Collecting Service: Bring together of many kinds of personal data concerning the individual in convenient form for use by the counselor.
4. Counseling Service: Consists of interviews between counselor and the one being counseled in which sincere and frank efforts are made to face the facts that should determine decisions and plans.
5. Vocational Preparatory Service: Determining what preparation is needed and where and in what manner it shall be obtained.
6. Placement or Employment Service: Assistance in placing the individual in a suitable place to start to work in his chosen occupation.
7. Follow-up or Adjustment Service: Aiding the individual to make necessary or desirable readjustments after entering upon his vocation.
8. Research Service: Gathering and keeping up to date of information concerning opportunities and requirements of local occupations. Also evaluating the techniques and methods used in other services.[16]

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[15] James E. Bane, "Guidance in Industrial Education," Industrial Arts and Vocational Education, 50:14, February, 1961.

[16] Myers, op. cit., p. 104, 105, 106.

VI. RECENT RESEARCH IN VOCATIONAL GUIDANCE

In a recent study made by Dr. William E. Mortimer, in which he interviewed school superintendents, school counselors, and school directors, concerning vocational guidance, brought out the following:

> Counselors, superintendents, and school directors were asked concerning the effectiveness of counselors in helping students select a vocation. About three fourths of the counselors responding believed they were effective in this regard, but only 12.5 per cent of the superintendents expressed this belief. About 50 per cent of the superintendents believed the counselors were not effective and 35.0 per cent believed they were partly effective. The beliefs of the counselors and the superintendents are far apart.[17]

As stated above, there seems to be a wide difference of opinion between the superintendents and counselors as to the effectiveness of the counselors. However, 85 per cent of the counselors stated that there should be more emphasis placed on vocational guidance.

Dr. Mortimer further stated:

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[17] William E. Mortimer, "Programs of Guidance and Counseling as They Relate to Young People and Their Preparation for Work" (Salt Lake City: Department of Industrial and Technical Education Engineering Experiment Station USU Logan, Utah and Pupil Personnel and Guidance Services Utah State Department of Public Instruction, 1965), p. 70. (Mimeographed.)

One of the real problems pointed out by superintendents was that most of the counselors are academically trained persons. The usual pattern followed by most people who become counselors is to take an academic program through high school and then in college to take a teacher training program--frequently in an academic subject or as a coach. These people then go out to teach in their field of specialization and have little opportunity to become acquainted with the world of work. As a result, when they counsel their students they emphasize the college education and especially in the academic disciplines. They seem to feel their greatest adequacy along these lines and in cases where they have not had work experience outside of the education field it is understandable that they would stress academic work. It is probably true also that without work experience they would not fully realize the importance of other kinds of occupations, nor would they realize the vast majority of jobs outside of those closely associated with academic fields. Superintendents pointed out further that too many of the counselors have learned something about testing, some psychology, and a little bit about vocations from a course in Occupational Information, but have little else to offer.[18]

Ogborn in his study at Brigham Young University of Industrial Education students and Technology students stated:

> A poll of the industrial education students reveals that they feel their parents and relatives influenced them most in the selection of a major or vocation. Next in order of importance they listed "self" and "friends in industrial education." The groups differed in their rating of the high school industrial education teacher in that the technology students rank him much lower. Counselors in high school were ranked very low by both groups. It was also noted that the occupation of the parents and relatives who influenced the technology

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[18] Ibid., p. 39.

students most was predominately in industry while other teachers influenced students in education the most.[19]

Ogborn further found that:

> About 70 per cent of the students indicated that their choice of a major was made by the time they were juniors in college. They also indicated that experiences in work and in hobbies influenced them greatly.[20]

The above statement brings out a very definite need for good vocational guidance programs in the high schools. Students should be making their occupational choices during high school.

Ogborn polled the students as to the value of their interview with their school counselors. He stated:

> The teachers in 76 per cent of the responses rated the value of the interview of little or no value to them. The technology students in 45 per cent of the responses rated the value of the interview of little or no value to them. Again, this tends to support the implications . . . that students do not receive realistic and meaningful counseling from high school counselors.[21]

Even though formal vocational guidance has been in existence for over 60 years, it has had many problems and

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[19] Alton Fred Ogborn, "A Study of the Influences Bearing on Industrial Education Students in the Selection of a Major at Brigham Young University" (unpublished Master's thesis, Brigham Young University, Provo, 1964), pp. 29-30.

[20] Ibid., p. 30.

[21] Ibid., p. 26.

has come under much criticism. The following quotation brings out some of the reasons for these criticisms:

> The present inadequacy of guidance activities is illustrated by the fact that close to half of the states receiving Federal funds for their programs spend less than 1 per cent of that money on occupational guidance and counseling. The problem begins in college-oriented high school guidance departments which too often are staffed by people who have neither the knowledge to help students select an occupation nor the inclination to direct them towards the appropriate vocational or technical education opportunities. It continues once the student arrives in the vocational or technical school; although no other segment of education has recognized the importance of vocational guidance to the extent that these schools have, lack of funds, or reliable testing materials, and of approperately trained vocational guidance counselors limits what the vocational and technical school is able to do.[22]

VII. THE COUNSELOR IN VOCATIONAL GUIDANCE

If the guidance counselor is to be effective, he must win the student's confidence; then they will want to seek his advice. Many counselors lose their effectiveness by being looked upon as the school's disciplinarian. This is not the function of the counselor. Students should feel free to go to the counselor without fear of being punished

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[22]Grant Venn, Man Education and Work (Washington D. C.: American Council on Education, 1964), p. 36.

for their wrong doings.

The counselor has the responsibility to set up a guidance program that fits his particular school. Bane made the following statement:

> Any adequate program of guidance services must be adjusted to local, state, and current needs. A guidance program functioning in one school cannot be lifted out of context and placed in another school. The guidance program of five years ago is not adequate today. State and national laws change guidance. Just as industrial educators must struggle constantly to keep up with the times, so must the guidance worker struggle to keep his practices and procedures current.[23]

Dr. Mortimer stated what the superintendents feel the counselor's responsibilities should be in the school.

The school district superintendents were quite concerned about counselors and counseling programs. They recognized the need for good counseling and guidance but believed that the programs were not functioning nearly as effectively as they should. The duties and responsibilities they thought counselors should have are as follows:

Helping students in choosing a vocation and in selecting an educational program to help them toward their vocation.

Helping students with personal problems.

Understanding students better in order to give them better help in planning for the future.

Organizing and administering a testing program and using the results properly in counseling with students.

Helping students evaluate themselves in terms of

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[23] Bane, op. cit., p. 1.

their academic and vocational potential.

Working with parents in an honest apprasial of where the student is going.

Working with teachers to assist them in their part of the guidance program.

Helping students to adjust to school.

Giving the student orientation to a school which he or she might attend after finishing the one where presently enrolled.[24]

If the counselor is to be effective, he must not be burdened with administrative details and the disciplining of students.

Jones stressed four things important to effective guidance.

> Four things are imperative to effective guidance: We need a better understanding of children and youth and of their developing problems and needs. We need to have the youth understand himself, his home, his school, his community, and his physical environment. We need to discover, by cooperative effort, effective methods of helping the home, school, and community to adjust themselves to the constant changes in their functions and character and of helping children and youth to learn how to use their extended freedom and wider opportunities. Finally, we need to help youth to develop necessary restraints and to evolve a set of values that will enable them to form self-concepts that are realistic and that will help them in their choice of personal, social, and occupational activities.[25]

Wrenn stressed the importance of the counselor helping

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[24] Mortimer, op. cit., p. 69.

[25] Jones, op. cit., p. 48.

the student to understand himself.

> In order to help a student a counselor must know how to help him understand himself. Vocational choice is seen as a process, not an event, with many choices made over a lifetime. The validity of the choices made will increase as the individual increases in clarity of self-understanding as well as in understanding better the world of work.[26]

VIII. SUMMARY

Formal vocational guidance had its beginning during the early part of this century. Since then it has encountered many problems and has come under much criticism.

The need for unskilled laborers is decreasing, and the need for highly trained workers is steadly increasing. It is becoming more and more difficult for a person to choose an occupation in which he can succeed without the help of a well qualified counselor.

Vocational guidance should start as early as the elementary grades and continue as long as the individual may require.

Counselors have the responsibility of helping the individual to understand his capabilities and limitations

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[26] Wrenn, op. cit., p. 59.

along with his interests. The purpose of counseling is to help the individual in such a way that he can make his own choices.

CHAPTER III

DESCRIPTION OF THE RESEARCH DESIGN

Design Format

The purpose of this study was to find out from Utah high school students the extent of vocational counseling they had received during their years in high school.

Answers to the following four questions were sought for in this study:

1. Are guidance counselors, in the Utah high schools, orienting students to vocational and technical occupations?

2. Are students of the Utah high schools being helped to determine their interests and abilities so that they can select an occupation in which they can succeed?

3. Are students of the Utah high schools selecting and working toward vocational and technical goals?

4. Do students of the Utah high schools desire the help of a guidance counselor to determine the type of occupation they should plan and work towards?

Population and sample design. The population for this

study consisted of senior students attending Utah high schools during the school year 1966-1967. Thirty-one high schools were selected to participate in the study. They were selected by classifying both Class A and Class B schools as to large, medium, or small, according to the population of each school. Schools were listed in each category from the school with the largest population on down to the school with the least population. The median population was established in each category and the schools closest to the median were selected to participate in the study. Table I gives the classification of schools by population and the number of counselors in each school.

TABLE I

CLASSIFICATION OF SCHOOLS BY POPULATION

	Large	Medium	Small
Class A			
School population	2400 - 1900	1800 - 1000	999 - 500
Number of counselors	5 - 6	3 - 4	2 - 3
Class B			
School population	650 - 400	399 - 240	239 - 70
Number of counselors	1 - 2	1	1

The Class B small schools who do not have a counselor listed in the "Utah Pupil Personnel Services Bulletin," have a person designated in the school to be a counselor. This may be a teacher or an administrator; so in appearance all schools have a counselor.

Student questionnaires were sent to the schools selected. To determine the number of questionnaires sent to each school, the total population of each category was computed. With this, the per cent of each category to the total high school population was determined. A total of 1,400 student questionnaires were sent out. The per cent of each category to 1,400 determined the number sent to each. These were divided equally among the schools selected in each category. A list of the schools selected for this study can be found in Appendix A.

Observational Design

Before the questionnaires were sent out to the schools selected, permission was granted by the district superintendent. The Director of the Research Coordinating Unit for Vocational and Technical Education, Mr. John F. Stephens, sent a letter to the superintendents requesting their support

of this study. A copy of this letter is found in Appendix B. The writer in turn sent a letter to the superintendents asking for their support along with a copy of the student questionnaire. A copy of this letter and student questionnaire is found in Appendix C. Student questionnaires were sent to each school through the principal's office. A copy of the letter sent to principals is found in Appendix D. Questionnaires were administered in classes made up entirely of senior students.

There were 31 schools selected and 1,400 questionnaires sent out. Of these 1,400 questionnaires, 1,280 were returned and used in the report of this study.

Procedure. Data received from the student questionnaires were transfered to data processing cards. Tabulations were made by the Brigham Young University Computer Center. Comparisons were made by (1) sex of the students, (2) size of the counseling staff in the school, and (3) the course of study the student had pursued during high school.

CHAPTER IV

RESEARCH RESULTS

I. INTRODUCTION

The purpose of this research was to survey the senior students of the Utah high schools to determine the degree to which they had been oriented toward vocational and technical goals during their years in high school. Answers to the following four questions were sought for in this study:

1. Are guidance counselors in the Utah high schools orienting students to vocational and technical occupations?

2. Are students of the Utah high schools being helped to determine their interests and abilities so that they can select an occupation in which they can succeed?

3. Are students of the Utah high schools selecting and working toward vocational and technical goals?

4. Do students of the Utah high schools desire the help of a guidance counselor to determine the type of occupation they should plan and work towards?

Answers to the above questions were determined by a

student questionnaire sent to 1,400 senior students in 31 different high schools in the state. In writing this report, comparisons were made by (1) sex of the student, (2) number of counselors, and (3) the program of study the student had followed during high school.

There were 701 males and 579 females for a total of 1,280 students who participated in this study. It was found that 40.6 per cent followed a general course of study, 33 per cent an academic (college preparation) course, 10.4 per cent an industrial vocational course of study, 13.8 per cent a commercial or business course of study, and 2.1 per cent followed a special course of study.

Table II gives a breakdown of the 1,268 students responding to the question as to the course of study followed during high school.

TABLE II

PROGRAM OF STUDY FOLLOWED BY STUDENTS IN HIGH SCHOOL

Program of study	No.	%
General	515	40.6
Academic (college preparation)	419	33.0
Commercial or business	175	13.8
Vocational	132	10.4
Special	27	2.1
Total	1268	100.0

II. QUESTION 1: ARE GUIDANCE COUNSELORS IN THE UTAH HIGH SCHOOLS ORIENTING STUDENTS TO VOCATIONAL AND TECHNICAL GOALS?

A number of questions were asked the students about what had taken place between them and the counselor. One question asked the students was the number of times they had visited the counselor to discuss occupational plans with him. Another question asked the reason why they visited the counselor to discuss their occupational plans. It was found that the majority, 32.6 per cent, had had one to two visits with the counselor while 27.3 per cent had had no visits with the counselor regarding their occupational plans during the years they spent in high school. Only 18.6 per cent stated that they had three to four visits with the counselor during high school.

Table III shows the number of visits students had with the counselor by the program of study followed as compared to the reason they gave for visiting the counselor. This table shows that 41.7 per cent of the students stated that they had voluntarily sought his help, while 21.4 per cent visited the counselor at his request. Other reasons students

TABLE III

REASONS STUDENTS GAVE FOR VISITING COUNSELOR AS COMPARED WITH PROGRAM OF STUDY AND NUMBER OF VISITS

Program of study	Number of counselor visits	Reason for visiting counselor															
		No visits		Counselor request		Student volunteered		Parent suggestion		Friend suggestion		Teacher suggestion		Other		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Academic	0	92		0	0	0	0	0	0	0	0	0	0	0	0	92	100
	1-2	0	0	42	33.8	60	48.4	1	0.8	1	0.8	3	2.4	17	13.7	124	100
	3-4	0	0	26	29.9	54	62.1	2	2.3	3	3.4	0	0	2	2.3	87	100
	5-6	0	0	11	20.7	39	73.6	1	1.9	0	0	0	0	2	3.8	53	100
	6+	0	0	4	6.8	53	89.9	1	1.7	0	0	0	0	1	1.7	59	100
Commercial or Business	0	48		0	0	0	0	0	0	0	0	0	0	0	0	48	100
	1-2	0	0	25	32.5	44	57.2	3	3.9	0	0	1	1.3	4	5.2	77	100
	3-4	0	0	10	35.7	17	60.8	1	3.6	0	0	0	0	0	0	28	100
	5-6	0	0	3	25	7	58.2	1	8.3	0	0	0	0	1	8.3	12	100
	6+	0	0	2	25	6	75	0	0	0	0	0	0	0	0	8	100
General	0	153		0	0	0	0	0	0	0	0	0	0	0	0	153	100
	1-2	0	0	67	34.4	92	47.2	13	6.8	1	0.5	3	1.5	19	9.8	195	100
	3-4	0	0	34	35.4	51	53.2	2	2.1	2	2.1	0	0	7	7.3	96	100
	5-6	0	0	7	23.3	19	63.4	4	13.3	0	0	0	0	0	0	30	100
	6+	0	0	5	15.1	24	72.8	2	6.2	1	3.1	0	0	1	3.1	33	100
Special	0	5		0	0	0	0	0	0	0	0	0	0	0	0	5	100
	1-2	0	0	5	50	4	40	0	0	0	0	0	0	1	10	10	100
	3-4	0	0	0	0	4	66.8	0	0	0	0	0	0	2	33.2	6	100
	5-6	0	0	0	0	2	66.6	1	33.3	0	0	0	0	0	0	3	100
	6+	0	0	0	0	2	100	0	0	0	0	0	0	0	0	2	100
Vocational	0	43		0	0	0	0	0	0	0	0	0	0	0	0	43	100
	1-2	0	0	16	33.3	23	47.9	4	8.3	0	0	1	2.8	4	8.3	48	100
	3-4	0	0	7	31.8	11	50	0	0	0	0	2	9.1	2	9.1	22	100
	5-6	0	0	1	14.3	5	71.5	0	0	0	0	0	0	1	14.3	7	100
	6+	0	0	2	33.3	4	66.6	0	0	0	0	0	0	0	0	6	100

gave for visiting the counselor were: "parent suggestion," "friend suggestion," "teacher suggestion," and "other." However, these had few responses. Table III also shows that the majority of the students who had more than one to two visits with the counselor did so on their own volition. Example: Of the students following an academic course of study who had more than 6 counselor visits, 89.9 per cent volunteered to see him.

A summary of what the counselor did in visiting the students as compared to sex and number of counselors in the school is found in Table IV.

The students were asked about what the counselor did in discussing their occupational plans. The greatest response to this question was in the area of interpreting the results of tests that the students had taken. The students were asked if they had taken aptitude tests and 44.2 per cent of the males and 36.7 per cent of the females stated that they had. On the other hand, only 15.2 per cent of the males and 14.8 per cent of the females stated that the counselors interpreted their aptitude test results. This implies that less than half of the students taking aptitude tests are having them interpreted for them. On the achievement test results,

TABLE IV

WHAT THE COUNSELOR DID IN VISITING WITH STUDENTS AS COMPARED WITH SEX AND NUMBER OF COUNSELORS

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
1 counselor				
1. No visits	23	5.2	14	4.3
2. Interpreted aptitude test results	81	18.4	53	16.5
3. Suggested interest inventory	10	2.2	9	2.8
4. Interpreted high and low interest areas	46	10.4	34	10.6
5. Discussed educational requirements of students' occupational choice	53	12	38	11.8
6. Spoke of future job possibilities of students' choice	55	12.5	38	11.8
7. Introduced student to other occupations	28	6.3	23	7.1
8. Provided literature	38	8.6	30	9.3
9. Interpreted students' scholastic aptitude test results	48	10.9	43	13.4
10. Interpreted students' achievement test results	58	13.1	38	11.8
Totals	440	100	320	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
2 counselors				
1. No visits	30	13.1	18	7.2
2. Interpreted aptitude test results	37	16.1	41	16.4
3. Suggested interest inventory	3	1.3	5	1.9
4. Interpreted high and low interest areas	31	13.5	34	13.8
5. Discussed educational requirements of students' occupational choice	24	10.4	40	15.9
6. Spoke of future job possibilities of students' choice	27	11.7	34	13.8
7. Introduced student to other occupations	20	8.7	17	6.8
8. Provided literature	15	6.5	16	6.4
9. Interpreted students' scholastic aptitude test results	21	9.1	24	9.6
10. Interpreted students' achievement test results	22	9.6	22	8.8
Totals	230	100	251	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
3 counselors				
1. No visits	29	14.4	13	5.7
2. Interpreted aptitude test results	32	15.9	37	16.2
3. Suggested interest inventory	4	1.9	1	0.4
4. Interpreted high and low interest areas	20	9.9	21	9.2
5. Discussed educational requirements of students' occupational choice	23	11.4	32	14
6. Spoke of future job possibilities of students' choice	21	10.4	29	12.7
7. Introduced student to other occupations	18	8.9	15	6.5
8. Provided literature	7	3.4	10	4.3
9. Interpreted students' scholastic aptitude test results	23	11.4	33	14.4
10. Interpreted students' achievement test results	24	11.9	37	16.2
Totals	201	100	228	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
4 counselors				
1. No visits	69	14.1	51	14.6
2. Interpreted aptitude test results	78	16	57	16.3
3. Suggested interest inventory	11	2.2	3	0.8
4. Interpreted high and low interest areas	54	11.1	36	10.3
5. Discussed educational requirements of students' occupational choice	56	11.5	44	12.6
6. Spoke of future job possibilities of students' choice	43	8.8	39	11.1
7. Introduced student to other occupations	28	5.7	20	5.7
8. Provided literature	21	4.3	21	6
9. Interpreted students' scholastic aptitude test results	57	11.7	40	11.4
10. Interpreted students' achievement test results	69	14.1	38	10.8
Totals	486	100	349	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
5 counselors				
1. No visits	52	35.1	38	23
2. Interpreted aptitude test results	16	10.8	14	8.4
3. Suggested interest inventory	1	0.6	4	2.4
4. Interpreted high and low interest areas	11	7.4	16	9.6
5. Discussed educational requirements of students' occupational choice	18	12.1	24	14.5
6. Spoke of future job possibilities of students' choice	14	9.4	23	13.9
7. Introduced student to other occupations	3	2	3	1.8
8. Provided literature	7	4.7	8	4.8
9. Interpreted students' scholastic aptitude test results	10	6.7	15	9
10. Interpreted students' achievement test results	16	10.8	20	12.1
Totals	148	100	165	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
6 counselors				
1. No visits	61	37.4	48	30.7
2. Interpreted aptitude test results	10	6.1	16	10.2
3. Suggested interest inventory	4	2.4	1	0.6
4. Interpreted high and low interest areas	10	6.1	16	10.2
5. Discussed educational requirements of students' occupational choice	16	9.8	15	9.6
6. Spoke of future job possibilities of students' choice	12	7.3	16	10.2
7. Introduced student to other occupations	7	4.2	7	4.4
8. Provided literature	14	8.5	6	3.8
9. Interpreted students' scholastic aptitude test results	14	8.5	13	8.3
10. Interpreted students' achievement test results	15	9.2	18	11.5
Totals	163	100	156	100

TABLE IV (continued)

What the counselor did in counseling students	Boy		Girl	
	No.	%	No.	%
	Total*			
1. No visits	264	15.8	182	12.3
2. Interpreted aptitude test results	254	15.2	218	14.8
3. Suggested interest inventory	33	1.9	23	1.5
4. Interpreted high and low interest areas	172	10.3	157	10.6
5. Discussed educational requirements of students' occupational choice	190	11.3	193	13.1
6. Spoke of future job possibilities of students' choice	172	10.3	179	12.1
7. Introduced student to other occupations	104	6.2	85	5.7
8. Provided literature	102	6.1	91	6.9
9. Interpreted students' scholastic aptitude test results	173	10.3	168	11.4
10. Interpreted students' achievement test results	204	12.2	174	11.8
Totals	1668	100	1470	100

Note: This table should be read as follows In the schools having 5 counselors, 35.1 per cent of the boys and 23 per cent of the girls had no visits with their counselor during high school, 10.8 per cent of the boys and 8.4

TABLE IV (continued)

per cent of the girls stated that the counselor interpreted their aptitude tests results, 0.6 per cent of the boys and 2.4 per cent of the girls stated that the counselor suggested that they take an interest inventory, etc.

*This was a multiple response question therefore the total is greater than 1280.

12.2 per cent of the males and 11.8 per cent of the females stated that he had explained the results of their tests.

In the area directly concerned with vocational counseling, only 1.9 per cent of the males and 1.5 per cent of the females stated that the counselor suggested that they take an interest inventory. However, there were 10.3 per cent of the males and 12.1 per cent of the females which stated that the counselor did speak of future job possibilities that the students had selected. On the other hand, only 6.1 per cent of the males and 6.9 per cent of the females stated that the counselor provided literature for them to study further about the occupation they had selected; and only 6.2 per cent of the males and 5.7 per cent of the females stated that he introduced other occupations for which they had aptitude.

It is interesting to note in Table IV that the number of students who stated that they had no visits with the counselor increases very sharply between the schools having 4 counselors and the schools having 5 and 6 counselors. In the schools having 4 counselors, 14.1 per cent of the males and 14.6 per cent of the females stated that they did not have counselor visits. In the schools with 5 counselors,

35.1 per cent of the males and 23 per cent of the females stated that they did not have any counselor visits. The percentage is even higher in the schools having 6 counselors.

Table V was prepared to show the items that counselors considered in talking to students about occupations. As to be expected after studying Table III, the most discussed item was the student's test profile. Of the students responding to this question, 31.9 per cent of the males and 33.1 per cent of the females stated that the counselor used their "aptitude test profile" in their visits. The items pertaining to vocational counseling were used very little. Only 9.6 per cent of the males and 10.8 per cent of the females stated that the counselor used "books on occupations," and 9.7 per cent of the males and 10.8 per cent of the females said that he used "occupational briefs." As to the "charts on job trends," there were only 6 per cent of the males and 3.6 per cent of the females who stated that the counselor used this item, and 3.4 per cent of the males and 2.4 per cent of the females said that the counselor used "posters on educational requirements" of certain occupations.

The students were asked to what extent the counselor had encouraged them to attend a university or college, junior

TABLE V

MATERIALS USED BY COUNSELORS AS COMPARED WITH SEX AND NUMBER OF COUNSELORS

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
1 counselor				
1. College catalogue	30	15.4	27	20
2. Aptitude test profile	62	31.9	45	33.3
3. Interest test profile	35	18	23	17
4. Books on occupations	25	12.8	17	12.5
5. Occupational briefs	22	11.3	15	11.1
6. Charts on job trends	7	3.6	4	2.9
7. Posters of educational requirements	5	2.5	2	1.4
8. Other	8	4.1	2	1.4
Totals	194	100	135	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
2 counselors				
1. College catalogue	13	14.5	22	18.5
2. Aptitude test profile	26	28.9	35	29.4
3. Interest test profile	22	24.4	27	22.7
4. Books on occupations	11	12.3	18	15.1
5. Occupational briefs	7	7.8	10	8.4
6. Charts on job trends	8	8.9	5	4.2
7. Posters of educational requirements	2	2.2	1	0.8
8. Other	1	1.1	1	0.8
Totals	90	100	119	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
3 counselors				
1. College catalogue	24	22.6	15	17.2
2. Aptitude test profile	31	29.2	27	31
3. Interest test profile	21	19.8	16	18.3
4. Books on occupations	10	9.4	10	11.4
5. Occupational briefs	8	7.5	13	14.9
6. Charts on job trends	10	9.4	2	2.2
7. Posters of educational requirements	2	1.8	1	1.1
8. Other	0	0	3	3.3
Totals	106	100	87	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
4 counselors				
1. College catalogue	31	14.5	28	20.1
2. Aptitude test profile	74	34.7	53	38.1
3. Interest test profile	47	22	26	18.7
4. Books on occupations	15	7	9	6.4
5. Occupational briefs	22	10.3	12	8.6
6. Charts on job trends	12	5.6	4	2.8
7. Posters of educational requirements	9	4.2	4	2.8
8. Other	3	1.4	3	2.1
Totals	213	100	139	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
5 counselors				
1. College catalogue	11	24.4	12	21.4
2. Aptitude test profile	11	24.4	15	26.7
3. Interest test profile	5	11.1	5	8.9
4. Books on occupations	4	8.8	6	10.7
5. Occupational briefs	5	11.1	5	8.9
6. Charts on job trends	5	11.1	5	8.9
7. Posters of educational requirements	3	6.6	6	10.7
8. Other	1	2.2	2	3.5
Totals	45	100	56	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
6 counselors				
1. College catalogue	13	26.5	9	20.9
2. Aptitude test profile	19	38.7	17	39.5
3. Interest test profile	6	12.2	9	20.9
4. Books on occupations	2	4	3	6.9
5. Occupational briefs	4	8.1	3	6.9
6. Charts on job trends	0	0	1	2.3
7. Posters of educational requirements	3	6.1	0	0
8. Other	2	4	1	2.3
Totals	49	100	43	100

TABLE V (continued)

Materials used by counselor	Boy		Girl	
	No.	%	No.	%
	Total*			
1. College catalogue	122	17.5	113	19.5
2. Aptitude test profile	223	31.9	192	33.1
3. Interest test profile	136	19.5	106	18.3
4. Books on occupations	67	9.6	63	10.8
5. Occupational briefs	68	9.7	58	10
6. Charts on job trends	42	6	21	3.6
7. Posters of educational requirements	24	3.4	14	2.4
8. Other	15	2.1	12	2
Totals	697	100	579	100

Note: This table should be read as follows: In the schools having 5 counselors, 24.4 per cent of the boys and 21.4 per cent of the girls stated that the counselor used a college catalogue in counseling with them, 24.4 per cent of the boys and 26.7 per cent of the girls stated he used their aptitude test profile, 11.1 per cent of the boys and 8.9 per cent of the girls stated he used their interest test profile, etc.

*This was a multiple response question therefore the total could be greater than 1280.

college, vocational or technical school, or business school. Table VI shows that the extent of the counselors influence on the students' post high school education is "little or none." Of the 1,005 students responding to the question to what extent the counselor had influenced them to attend a vocational or technical school, 757 or 75.2 per cent stated that he had influenced them "little or none," 12.3 per cent stated that he had influenced them "some," and 12.3 per cent stated that he influenced them "much or very much" to attend a vocational or technical school. However, a little different picture is obtained in the extent of influence the counselors are extending to the students to attend a university or college. Of the 1,107 students responding to the question as to the extent the counselor had influenced them to attend a university or college, only 45.2 per cent stated that he had influenced them "little or none," 19 per cent stated that he influenced them "some," and 35.7 per cent stated that he influenced them "much or very much." The percentages point out that the influence the counselors are having in the students post high school education is toward the academic rather than the vocational or technical type of education.

Table VII shows the person most helpful to the student

TABLE VI

EXTENT OF INFLUENCE OF COUNSELORS ON STUDENTS IN THEIR POST HIGH SCHOOL EDUCATIONAL PLANS

Influence to attend	Extent of influence							
	Little or none		Some		Much or very much		Totals	
	No.	%	No.	%	No.	%	No.	%
University or college	501	45.2	210	19	396	35.7	1107	100
Jr. college	685	70.3	155	15.9	135	13.9	975	100
Vocational or technical school	757	75.2	124	12.3	124	12.3	1005	100
Business school	775	81.2	97	10.2	79	8.3	951	100

TABLE VII

PERSON MOST HELPFUL TO STUDENT IN DETERMINING OCCUPATIONAL GOAL AS COMPARED WITH SEX AND COURSE OF STUDY

Program of study	Sex	Mother		Father		Ind. arts or voc. teacher		Other teacher		School counselor		School principal		Friend		Other		Totals	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Academic	M	26	16.5	46	29.2	7	4.4	19	12.1	8	5	0	0	11	7	40	25.4	157	100
	F	37	29.3	15	11.9	5	3.9	31	24.6	10	7.9	0	0	6	4.7	22	17.4	126	100
Commercial or Business	M	4	16.6	5	20.8	1	4.1	2	8.3	2	8.3	0	0	2	8.3	8	33.3	24	100
	F	43	43	4	4	8	8	10	10	6	6	0	0	11	11	18	18	100	100
General	M	10	7	37	26	12	8.4	12	8.4	6	4.2	1	0.7	21	14.7	43	30.2	142	100
	F	48	33.8	11	7.7	3	2.1	14	9.8	6	4.2	0	0	19	13.3	41	28.8	142	100
Special	M	1	11.1	1	11.1	0	0	3	33.3	0	0	0	0	3	33.3	1	11.1	9	100
	F	3	27.2	0	0	0	0	0	0	1	9	0	0	2	18.1	5	45.4	11	100
Vocational	M	5	7.8	26	40.6	17	26.5	3	4.6	1	1.5	0	0	4	6.2	8	12.5	64	100
	F	12	54.5	3	13.6	1	4.5	0	0	1	4.5	0	0	1	4.5	4	18.1	22	100
Total	M	46	11.6	115	29	37	9.3	39	9.8	17	4.2	1	0.2	41	10.3	100	25.2	396	100
	F	143	35.6	33	8.2	17	4.2	55	13.7	24	5.9	0	0	39	9.7	90	22.4	401	100

in determining his occupational career as compared with sex and program of study. The students who had stated that they had chosen their occupational career were asked what person had been most influential to them in selecting the occupation they had chosen. The greatest number of the boys, 29 per cent, stated that their "father" had been the person most influential to them, and 35.6 per cent of the girls stated that their "mother" had been most influential to them. Other responses to the question were: "industrial arts or vocational teacher," "other teacher," "school counselor," "school principal," "friend," and "other." Only 4.2 per cent of the boys and 5.9 per cent of the girls stated that the "school counselor" was most influential in helping them select an occupation, while 25.2 per cent of the boys and 22.4 per cent of the girls stated "other persons" to be the most influential to them in choosing their career. The students listed "other persons" as uncles, relatives, and people they had worked for or had been well acquainted with as being most influential in helping them to choose an occupational career.

Table VIII shows to what extent counselors have influenced students in their post high school education as compared to the extent the counselors have influenced them in

TABLE VIII

THE EXTENT COUNSELORS HAVE INFLUENCED STUDENTS IN THEIR POST HIGH SCHOOL EDUCATION AS COMPARED TO THE EXTENT THE COUNSELORS HAVE INFLUENCED THEM IN THEIR OCCUPATIONAL PLANS AND BY THE NUMBER OF COUNSELORS

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 1 counselor									
University or college	Little or none	2	11.1	9	5.4	11	6.5	24	16.3
	Some	1	5.5	12	7.3	7	4.1	9	6.1
	Much or very much	1	5.5	24	14.6	27	16	11	7.4
Jr. college	Little or none	4	22.2	14	8.5	19	11.3	18	12.2
	Some	0	0	10	6	11	6.5	11	7.4
	Much or very much	0	0	19	11.5	9	5.3	9	6.1
Vocational or tech. school	Little or none	3	16.6	26	15.8	28	16.6	21	14.2
	Some	2	11.1	9	5.4	7	4.1	8	5.4
	Much or very much	0	0	5	3	10	5.9	3	2
Business school	Little or none	4	22.2	27	16.4	28	16.6	29	19.7
	Some	0	0	6	3.6	7	4.1	2	1.3
	Much or very much	1	5.5	3	1.8	4	2.3	2	1.3
Total		18	100	164	100	168	100	147	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 2 counselors									
University or college	Little or none	4	12.5	14	11.2	14	9.1	26	14.3
	Some	3	9.3	5	4	9	5.8	12	6.6
	Much or very much	1	3.1	12	9.6	18	11.7	7	3.8
Jr. college	Little or none	4	12.5	17	13.6	19	12.4	27	20.4
	Some	2	6.2	7	5.6	9	5.8	6	3.3
	Much or very much	1	3.1	6	4.8	7	4.5	1	0.5
Vocational or tech. school	Little or none	4	12.5	18	14.4	24	15.6	38	20.9
	Some	3	9.3	12	9.6	3	1.9	5	2.7
	Much or very much	2	6.2	5	4	16	10.4	3	1.6
Business school	Little or none	4	12.5	17	13.6	21	13.7	39	21.5
	Some	3	9.3	6	4.8	7	4.5	6	3.3
	Much or very much	1	3.1	6	4.8	6	3.9	1	0.5
Total		32	100	125	100	153	100	181	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 3 counselors									
University or college	Little or none	2	7.6	9	5.5	12	9	31	17.6
	Some	6	23	10	6.1	6	4.5	9	5.1
	Much or very much	3	11.5	25	15.4	18	13.6	10	5.6
Jr. college	Little or none	2	7.6	22	13.5	16	12	3	17.6
	Some	0	0	6	3.7	7	5.3	9	5.1
	Much or very much	3	11.5	12	7.4	11	8.3	1	0.5
Vocational or tech. school	Little or none	3	11.5	21	12.9	20	15.1	38	21.5
	Some	1	3.8	8	4.9	5	3.7	3	1.7
	Much or very much	1	3.8	12	7.4	7	5.3	2	1.1
Business school	Little or none	4	15.3	23	14.1	23	17.4	39	22.1
	Some	1	3.8	5	3	3	2.2	2	1.1
	Much or very much	0	0	9	5.5	4	3	1	0.5
Total		26	100	162	100	132	100	176	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 4 counselors									
University or college	Little or none	5	15.6	23	9.3	13	4.7	100	16
	Some	3	9.3	11	4.4	18	6.5	34	5.4
	Much or very much	1	3.1	28	11.3	44	16	32	5.1
Jr. college	Little or none	5	15.6	40	16.1	43	15.6	126	20.1
	Some	1	3.1	12	4.8	11	4	14	2.2
	Much or very much	2	6.2	9	3.6	10	3.6	11	1.7
Vocational or tech. school	Little or none	5	15.6	46	18.6	49	17.8	129	20.6
	Some	2	6.2	12	4.8	8	2.9	13	2
	Much or very much	1	3.1	7	2.8	9	3.2	14	2.2
Business school	Little or none	4	12.5	44	17.8	51	18.5	137	21.9
	Some	2	6.2	7	2.8	9	3.2	6	0.9
	Much or very much	1	3.1	8	3.2	10	3.6	8	1.2
Total		32	100	247	100	275	100	624	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 5 counselors									
University or college	Little or none	3	16.6	7	8.8	3	3.4	74	19.3
	Some	0	0	7	8.8	5	5.7	13	3.4
	Much or very much	2	11.1	12	15.1	20	22.9	25	6.5
Jr. college	Little or none	2	11.1	12	15.1	11	12.6	82	21.4
	Some	1	5.5	4	5	4	4.5	9	2.3
	Much or very much	1	5.5	3	3.7	4	4.5	0	0
Vocational or tech. school	Little or none	3	16.6	14	17.7	14	16	86	22.5
	Some	0	0	1	1.2	5	5.7	1	0.2
	Much or very much	2	11.1	2	2.5	2	2.2	3	0.7
Business school	Little or none	4	22.2	14	17.7	12	13.7	85	22.2
	Some	0	0	3	3.7	5	5.7	3	0.7
	Much or very much	0	0	0	0	2	2.2	1	0.2
Total		18	100	79	100	87	100	382	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 6 counselors									
University or college	Little or none	2	10.5	10	10.5	9	10.9	73	17.2
	Some	1	5.2	8	8.4	1	1.2	15	3.5
	Much or very much	1	5.2	9	9.4	13	15.8	24	5.6
Jr. college	Little or none	2	10.5	17	17.8	13	15.8	95	22.4
	Some	2	10.5	5	5.2	4	+.8	2	0.4
	Much or very much	1	5.2	0	0	3	3.6	5	1.1
Vocational or tech. school	Little or none	3	15.7	20	21	13	15.8	94	22.2
	Some	0	0	1	1	4	4.8	6	1.4
	Much or very much	2	10.5	3	3.1	3	3.6	7	1.6
Business school	Little or none	3	15.7	19	20	14	17	94	22.2
	Some	1	5.2	2	2.1	2	2.4	6	1.4
	Much or very much	1	5.2	1	1	3	3.6	2	0.4
Total		19	100	95	100	82	100	423	100

TABLE VIII (continued)

Counselor influence to attend	Extent of influence	Encouraged change		Only talked about occupations		Endorsed student's plan		No influence	
		No.	%	No.	%	No.	%	No.	%
		Totals							
University or college	Little or none	18	12.4	72	8.2	62	6.9	328	16.9
	Some	14	9.6	53	6	46	5.1	92	4.7
	Much or very much	9	6.2	110	12.6	140	15.6	109	5.6
Jr. college	Little or none	19	13.1	122	13.9	121	13.4	389	20.1
	Some	6	4.1	44	5	46	5.1	51	2.6
	Much or very much	8	5.5	49	5.6	44	4.9	24	1.3
Vocational or tech. school	Little or none	21	14.4	145	16.6	148	16.4	406	21
	Some	8	5.5	43	4.9	32	3.5	35	1.8
	Much or very much	8	5.5	34	3.8	47	5.2	32	1.6
Business school	Little or none	23	15.8	144	16.5	149	16.6	423	21.8
	Some	7	4.8	29	3.3	33	3.6	25	1.2
	Much or very much	4	2.7	27	3	29	3.2	15	0.7
Total		145	100	872	100	897	100	1932	100

Note: This table should be read as follows: In the schools having 5 counselors, 3.4 per cent of the students who stated the counselor endorsed their occupational plans also stated that the counselor influenced them little or none to attend a university or college, 5.7 per cent stated that the counselor influenced them some to attend a university or college, 22.9 per cent stated the counselor influenced them much or very much to attend a university or college, etc.

their occupational plans by the number of counselors. The number of counselors in the school made very little or no difference as to the influence the students received as to their education after high school or to their occupational plans. Of interest in this table is the fact that most of the students stated that the counselor had "no influence" in their occupational plans and that he influenced them "little or none" to attend any school after high school.

Of the 1,250 students responding to the question asking to what extent the counselor had influenced them in their occupational plans, 3.8 per cent stated that he "encouraged them to change," 24.2 per cent stated that he "only talked about occupations," 24 per cent stated that he indorsed the student's plan inasmuch as he felt that the student had the aptitude to succeed in the occupation he had chosen, and 48 per cent stated that he had not influenced them in their occupational plans.

III. SUMMARY

It was found that 31.6 per cent of the students had one or two visits with the counselor during high school while 27.3 per cent had no visits with the counselor. Of

the students who visited the counselor, 41.7 per cent voluntarily sought his help while 21.4 per cent stated that the counselor requested that they see him.

This study indicated that counseling programs in the Utah high schools were centered around the giving and interpretation of tests. However, only 44.2 per cent of the males and 36.7 per cent of the females stated that they had taken aptitude tests, and only 15.2 per cent of the males and 14.8 per cent of the females said that the counselor had interpreted these tests for them.

It seems evident that very little counseling of a vocational nature was taking place in Utah high schools. There was very little use of materials related directly to vocational counseling such as books on occupations, occupational briefs, charts on job trends, and little evidence that counselors were providing literature about occupations to the students.

This study shows that counselors were influencing more students to attend a university or college than any other type of school. There were 35.7 per cent of the students who stated that the counselor influenced them "much or very much" to attend a university or college and only 12.3 per cent

stated he influenced them "much or very much" to attend a vocation or technical school.

Students stated that their parents were the most influential to them in helping them select an occupational career. For the males, 29 per cent stated that their "father" was the most influential, and 35.6 per cent of the females stated that their "mother" was the most influential to them. Very few, 4.2 per cent, of the males and 5.9 per cent of the females stated that the counselor was most influential to them in helping them select an occupation.

The number of counselors in the high school made little or no difference as to the influence the counselor had on the student's post high school education or occupational choice.

IV. QUESTION II: ARE STUDENTS OF THE UTAH HIGH SCHOOLS BEING HELPED TO DETERMINE THEIR INTERESTS AND ABILITIES SO THAT THEY CAN SELECT AN OCCUPATION IN WHICH THEY CAN SUCCEED?

The students were asked if the counselor had helped them to identify some of their interests and abilities. The majority, 62.8 per cent of the boys and 69.7 per cent of the

girls, stated that the counselor did not help them to identify their interests and abilities and that the counselor had had "no influence" on their occupational plans. It is interesting to note the difference between the high schools having two counselors and the schools having six counselors in the way the students responded to this question. Example: In the schools in which there were two counselors 53.8 per cent of the males and 50 per cent of the females stated that the counselor had not helped them to identify their interests and abilities and that he had "no influence" on their occupational plans; where as in the schools with six counselors this same response jumps to 80 per cent for the males and 68.6 per cent for the females.

Table IX shows what influence the counselor had on student occupational plans as compared to counselor help in identifying student interests and abilities.

A question was asked the students to what extent the classes they had taken in school had oriented them to occupations in their field. The students were also asked to state the extent of orientation they had received in the following classes: science, math, social studies, English, physical education, music, industrial arts, homemaking,

TABLE IX

COUNSELOR INFLUENCE ON STUDENT OCCUPATIONAL PLANS AS COMPARED TO COUNSELOR HELP IN IDENTIFYING STUDENT INTERESTS AND ABILITIES

Counselor has helped identify abilities and interests	Sex	Encouraged change		Only talked about occupations		Endorsed student's plans		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 1 counselor									
Yes	M	3	100	32	88.8	30	85.7	19	61.2
	F	1	50	14	66.6	20	83.4	7	33.3
No	M	0	0	4	11.1	5	14.2	12	38.7
	F	1	50	7	33.3	4	16.7	14	66.6
Total	M	3	100	36	100	35	100	31	100
	F	2	100	21	100	24	100	21	100
Counselor influence: 2 counselors									
Yes	M	4	50	21	95.4	22	84.6	12	46.1
	F	2	100	18	81.8	21	84	15	50
No	M	4	50	1	4.6	4	15.3	14	53.8
	F	0	0	4	18.1	4	16	15	50
Total	M	8	100	22	100	26	100	26	100
	F	2	100	22	100	25	100	30	100

TABLE IX (continued)

Counselor has helped identify abilities and interests	Sex	Encouraged change		Only talked about occupations		Endorsed student's plans		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 3 counselors									
Yes	M	3	100	23	79.3	8	57.1	15	38.4
	F	2	33.3	14	70	20	74	8	53.3
No	M	0	0	6	20.6	6	42.8	24	60.5
	F	4	66.6	6	30	7	26	7	46.6
Total	M	3	100	29	100	14	100	39	100
	F	6	100	20	100	27	100	15	100
Counselor influence: 4 counselors									
Yes	M	2	28.5	31	67.3	32	82	52	54.1
	F	2	100	15	55.5	27	71	21	26.9
No	M	5	71.4	15	32.6	7	18	44	45.8
	F	0	0	12	44.4	11	29	57	73
Total	M	7	100	46	100	39	100	96	100
	F	2	100	27	100	38	100	78	100

TABLE IX (continued)

Counselor has helped identify abilities and interests	Sex	Encouraged change		Only talked about occupations		Endorsed student's plans		No influence	
		No.	%	No.	%	No.	%	No.	%
Counselor influence: 5 counselors									
Yes	M	1	33.3	7	63.6	6	50	11	15.9
	F	1	33.3	9	50	10	58.8	7	14
No	M	2	66.6	4	36.3	6	50	58	84
	F	2	66.6	9	50	7	41.1	43	86
Total	M	3	100	11	100	12	100	69	100
	F	3	100	18	100	17	100	50	100
Counselor influence: 6 counselors									
Yes	M	2	50	9	56.2	7	63.6	14	20
	F	2	100	9	64.2	7	46.6	16	31.3
No	M	2	50	7	43.7	4	36.3	56	80
	F	0	0	5	35.7	8	53.3	35	68.6
Total	M	4	100	16	100	11	100	70	100
	F	2	100	14	100	15	100	51	100

TABLE IX (continued)

Counselor has helped identify abilities and interests	Sex	Encouraged change		Only talked about occupations		Endorsed student's plans		No influence	
		No.	%	No.	%	No.	%	No.	%
				Totals					
Yes	M	15	53.5	123	76.8	105	76.6	123	37.1
	F	10	58.8	79	64.7	105	71.9	74	30.2
No	M	13	46.4	37	23.1	32	23.3	208	62.8
	F	7	41.1	43	35.2	41	28	171	69.7
Total	M	28	100	160	100	137	100	331	100
	F	17	100	122	100	146	100	245	100

Note: This table should be read as follows: In the schools having 5 counselors, 15.9 per cent of the males and 14 per cent of the females stated that the counselor had no influence on their occupational plans, but stated that the counselor did help them to identify their interests and abilities, 84 per cent of the males and 86 per cent of the females stated that the counselor had no influence of their occupational plans and that he did not help them to identify their interests and abilities.

business, and vocational. The majority of students in all classes except English stated that they had received little or no occupational orientation in the classes they had taken in high school. The majority of students stated they had received much or very much occupational orientation in their English classes.

The students were asked to what extent they knew their aptitudes, and 15.6 per cent stated they knew some of their aptitudes and 41.4 per cent said they knew much or very much of their aptitudes.

The majority of the students stated that they knew what their interests are, 62.8 per cent stated that they knew much or very much about their interests, 28.6 per cent stated that they knew some of their interests and 8.4 per cent stated they knew little or none of their interests.

Table X was prepared to show the reasons students gave for visiting the counselor as compared to whether the counselor had helped the student identify his interests and abilities. Of interest in this table is that almost half of both the males, 48.1 per cent, and females, 55.7 per cent, who answered yes to the question asking them if the counselor had helped them to identify their interest and abilities,

TABLE X

STUDENT REASON FOR VISITING COUNSELOR COMPARED TO WHETHER COUNSELOR HAD HELPED IDENTIFY STUDENT'S INTERESTS AND ABILITIES

Counselor has helped identify abilities and interests	Sex	Reason for visiting counselor															
		No counselor visits		Counselor request		Student volunteered		Parents request		Friend suggestion		Teacher suggestion		Other		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	M	53	13.9	107	28.2	183	48.1	10	2.6	2	0.5	5	1.3	21	5.5	381	100
	F	31	11.1	66	23.8	155	55.7	11	2.9	2	0.7	3	1.1	10	3.6	278	100
No	M	146	48.2	42	13.8	88	29	7	2.3	2	0.7	2	0.7	16	5.3	303	100
	F	109	38.5	51	18	96	33.9	8	2.8	2	0.7	0	0	17	6	283	100
Total	M	199	29.2	149	21.8	271	39.6	17	2.5	4	0.6	7	1.1	37	5.4	684	100
	F	140	24.9	117	20.8	251	44.7	19	3.4	4	0.7	3	0.5	27	4.8	561	100

stated that they had visited the counselor on their own volition. On the other hand, the students who answered no to the same question, 48.2 per cent of the males and 38.5 per cent of the females, stated that they had "no counselor visits." Here again it is shown that the majority of the students who are visiting the counselor are doing so on their own initiative.

V. SUMMARY

The majority of the students, 62.8 per cent of the males and 69.7 per cent of the females, stated that the counselor did not help them to identify their interests and abilities and that he had "no influence" in their occupational plans. Also, this study brought out that the schools with more counselors were doing less in helping students identify their interests and abilities and were having less influence on student's occupational plans.

Most of the classes that students were taking were not orienting them to occupations in the area that they teach. The majority of students in almost all classes stated they had received little or no occupational orientation. One exception to this was the English classes in which the

majority stated they received "much or very much" occupational orientation.

About half of the students who stated that the counselor had helped identify their interests and abilities said they visited the counselor on their own volition. On the other hand, 48.2 per cent of the males and 38.5 per cent of the females who stated that the counselor had not helped them identify their interests and abilities said they had "no counselor visits."

This study also shows that students did not know what their aptitudes are. Only 41.4 per cent stated they knew "much or very much" about their aptitudes, and 43 per cent stated they knew "some" of their aptitudes.

The majority of students, 62.8 per cent, stated they knew "much or very much" about their interests.

VI. QUESTION III: ARE STUDENTS OF THE UTAH HIGH SCHOOLS SELECTING AND WORKING TOWARD VOCATIONAL AND TECHNICAL GOALS?

To help determine the answer to the above question the students were asked about their plans after high school graduation, if they had selected an occupation, the type of

occupation selected, how certain they were of the occupational choice, how long they plan to take to prepare for the occupation, and when they decided on the type of occupation they chose.

The students were asked what they plan to do after they graduate from high school and the results of this question was compared to whether they had selected an occupation. The results of this is shown in Table XI. The majority of the students, 42.7 per cent of the males and 41.5 per cent of the females, stated that they plan to attend a university or college. It is interesting to note that the majority of all students whether they had made an occupational selection or not still plan to attend a university or college. There were only 6.5 per cent of the males and 6.8 per cent of the females who stated they plan to attend a vocational or technical school and only 0.8 per cent of the males and 5.7 per cent of the females who plan to attend a business school.

Table XII shows the occupations students have selected as compared by sex. Of the students who stated they had selected an occupation, 46.4 per cent of the males and 52.8 per cent of the females selected an occupation in the "professional" area. Table VII, page 52, shows that the

TABLE XI

STUDENT PLANS FOLLOWING GRADUATION COMPARED TO WHETHER STUDENT HAS SELECTED OCCUPATION

Have selected occupation	Sex	Plans following graduation																			
		Get job		Attend vocational or technical school		Attend business school		Attend jr. college		Attend university or college		Attend other school		Enter armed forces		Undecided		Other		Totals	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	M	54	14.2	38	10	3	0.8	41	10.8	182	47.9	2	0.5	28	7.4	20	5.3	12	3.2	380	100
	F	82	20.5	32	8	29	7.3	33	8.3	175	43.8	15	3.8	4	1	19	4.8	11	2.8	400	100
No	M	52	16.7	7	2.2	3	1	44	14.1	114	36.5	0	0	37	11.9	46	14.7	9	2.9	312	100
	F	50	29.2	7	4.1	4	2.3	11	6.4	62	36.3	2	1.2	0	0	25	14.6	10	5.9	171	100
Total	M	106	15.3	45	6.5	6	0.8	85	12.2	296	42.7	2	0.2	65	9.3	66	9.5	21	3	692	100
	F	132	23.1	39	6.8	33	5.7	44	7.7	237	41.5	17	2.9	4	0.7	44	7.7	21	3.6	571	100

TABLE XII

STUDENT OCCUPATIONAL AREA BY SEX

	Sex	Occupational area																			
		Agricultural		Clerical		Craftsman or foreman		Manager, official or proprietor		Operative		Professional		Technical		Sales		Service		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Have selected occupation	M	32	8.5	6	1.6	62	16.5	15	4	5	1.3	174	46.4	59	15.7	9	2.4	13	3.4	375	100
	F	1	0.2	103	26.4	1	0.2	0	0	1	0.2	206	52.8	25	6.4	1	0.2	52	13.3	390	100
Total		33	4.3	109	14.2	63	8.2	15	1.9	6	0.7	380	49.6	84	10.9	10	1.3	65	8.4	765	100

"father" was most helpful to the boys and the "mother" most helpful to the girls in selecting an occupational career. Inasmuch as one half of the students are selecting the "professional" area, this implies that the parents are themselves influencing the students toward the "professional" rather than the vocational or technical occupations. Only 16.5 per cent of the males selected a "craftsman or foreman" occupation, and only 15.7 per cent of the males and 6.4 per cent of the females selected a "technical" occupation.

The students were asked how certain they were of entering the occupation they had selected. The response was that 27.2 per cent stated they were very certain, 50.2 per cent said they were certain, 20.5 per cent stated they were uncertain, and 2 per cent said they were very uncertain.

Table XIII shows when students selected their occupation. Of the students who stated that they had selected an occupation, 12.4 per cent selected it before they entered the 9th grade, 13.6 per cent before the 10th grade, 21.6 per cent before the 11th grade, 24.8 per cent before the 12th grade, and 27.1 per cent during the 12th grade.

Table XIV shows the number of years students plan to take in preparing for their occupation. The majority who

TABLE XIII

WHEN STUDENTS SELECTED OCCUPATIONAL CAREER COMPARED BY SEX

	Sex	When student selected occupational career										Total	
		Before 9th grade		Before 10th grade		Before 11th grade		Before 12th grade		During 12th grade			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Have selected occupation	M	48	12.5	51	13.3	78	20.4	99	25.9	106	27.7	382	100
	F	50	12.4	56	13.9	92	22.9	96	23.9	107	26.6	401	100
Total		98	12.4	107	13.6	170	21.6	195	24.8	213	27.1	785	100

TABLE XIV

YEARS TO PREPARE FOR OCCUPATION COMPARED TO PLANS AFTER HIGH SCHOOL

Plans after high school graduation	Sex	Years to prepare for occupation																	
		Less than 1 year		1-2 yrs		2-3 yrs		3-4 yrs		4-5 yrs		5-6 yrs		6-7 yrs		7-8 yrs		8+ yrs	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Get job	M	10	38.5	11	20.8	10	30.3	13	15.1	6	5.8	4	11.4	1	4.8	3	14.3	1	7.7
	F	34	59.7	27	24.1	7	21.9	9	15	9	7.8	1	5.6	0	0	0	0	1	25
Attend vocational or tech. school	M	4	15.4	22	41.5	7	21.2	5	5.8	1	1	0	0	0	0	0	0	0	0
	F	5	8.8	23	20.5	4	12.5	0	0	0	0	0	0	0	0	0	0	0	0
Attend business school	M	0	0	2	3.8	1	3	0	0	0	0	0	0	0	0	0	0	0	0
	F	5	8.8	18	16.1	4	12.5	3	5	0	0	0	0	0	0	0	0	0	0
Attend jr. college	M	1	3.9	3	5.7	2	6.1	16	18.6	14	14	2	5.7	2	9.5	4	19.1	0	0
	F	0	0	5	4.5	1	3.1	6	10	19	16.5	1	5.6	1	20	0	0	0	0
Attend university or college	M	2	7.7	1	1.9	7	21.2	41	47.7	70	68	23	65.7	16	76.2	13	61.9	11	84.6
	F	1	1.8	16	14.3	11	34.4	40	66.7	81	70.4	16	88.9	4	80	2	100	2	50
Attend other school	M	1	3.9	0	0	0	0	0	0	0	0	0	0	1	4.8	0	0	0	0
	F	2	3.5	10	8.9	1	3.1	2	3.3	0	0	0	0	0	0	0	0	0	0
Armed forces	M	7	26.9	5	9.4	3	9.1	2	2.3	7	6.8	3	8.6	1	4.8	0	0	0	0
	F	2	3.5	0	0	0	0	0	0	2	1.7	0	0	0	0	0	0	0	0
Undecided	M	1	3.9	7	13.2	2	6.1	7	8.1	2	1.9	1	2.9	0	0	0	0	0	0
	F	3	5.3	10	8.9	4	12.5	0	0	3	2.6	0	0	0	0	0	0	0	0
Other	M	0	0	2	3.8	1	3	2	2.3	3	2.9	2	5.7	0	0	1	4.8	1	7.7
	F	5	8.8	3	2.7	0	0	0	0	1	0.9	0	0	0	0	0	0	1	25
Totals	M	26	100	53	100	33	100	86	100	103	100	35	100	21	100	21	100	13	100
	F	57	100	112	100	32	100	60	100	115	100	18	100	5	100	2	100	4	100

plan on taking one or two years in preparing for their occupation stated they plan on attending a vocational or technical school. The largest number of students plan on taking four to five years in preparation for their occupation and, of course, these students plan on attending a university or college.

A comparison was made between the course of study the students followed and the type of occupation they had chosen. The results of this is shown in Table XV. This table shows that 61.9 per cent of the males and 50 per cent of the females who chose an occupation in the "professional" area followed an "academic" course. Of the males who chose a "craftsman or foreman" occupation only 33.9 per cent followed a "vocational" course of study as compared to 49.4 per cent who followed a "general" course of study in high school. Of the students who plan a "technical" occupation, 37.7 per cent of the males and 20.8 per cent of the females followed a "general" course of study, 29.5 per cent of the males and 37.5 per cent of the females followed an "academic" course of study, and 21.4 per cent of the males and 16.7 per cent of the females followed a "vocational" course of study. This implies that students need more guidance in helping them to follow the course of

TABLE XV

OCCUPATIONAL CHOICE COMPARED BY PROGRAM OF STUDY AND SEX

Course of study	Sex	Occupational choice																	
		Agricultural		Clerical		Craftsman or foreman		Manager, official or proprietor		Operative		Professional		Technical		Sales		Service	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Academic	M	14	41.2	1	16.7	6	9.2	8	53.3	1	14.3	112	61.9	18	29.5	5	50	0	0
	F	0	0	8	7.3	0	0	0	0	0	0	102	50	9	37.5	0	0	5	9.4
Commercial or business	M	0	0	1	16.7	4	6.2	4	26.7	0	0	4	2.2	4	6.6	3	30	3	23.1
	F	2	100	72	66.1	0	0	0	0	0	0	14	6.9	5	20.8	0	0	7	13.2
General	M	13	38.2	3	50	32	49.2	3	20	6	85.7	43	23.8	23	37.7	1	10	6	46.2
	F	0	0	26	23.9	1	100	0	0	1	100	72	35.3	5	20.8	1	100	34	64.2
Special	M	0	0	0	0	1	1.5	0	0	0	0	6	3.3	3	4.9	0	0	0	0
	F	0	0	0	0	0	0	0	0	0	0	4	2	1	4.2	0	0	2	3.8
Vocational	M	7	20.6	1	16.7	22	33.9	0	0	0	0	16	8.8	13	21.3	1	10	4	30.8
	F	0	0	3	2.8	0	0	0	0	0	0	12	5.9	4	16.7	0	0	5	9.4
Total	M	34	100	6	100	65	100	15	100	7	100	181	100	61	100	10	100	13	100
	F	2	100	109	100	1	100	0	0	1	100	204	100	24	100	1	100	53	100

study that will best prepare them for the occupations they have chosen.

Table XVI shows a comparison between the occupational area the students have chosen and the plans they have after high school graduation. Here again, this table shows that the majority plan to attend a university or college and that the largest number plan to train for a profession. Of those who plan to train for a "professional" career, 66.3 per cent of the males and 66 per cent of the females plan to enter a university or college. Of the students who intend to train for a "technical" occupation, 37.7 per cent of the males and 41.7 per cent of the females plan to enter a university or college. The majority of the males, 33.3 per cent, who plan on a "craftsman or foremen" type of occupation plan to enter a vocational or technical school. Of the males who chose an "agricultural" type occupation, 48.5 per cent plan to attend a university or college as compared to only 12.1 per cent who plan to get a job. Apparently the students who are entering the agricultural area are entering those areas which require the baccalaureate degree.

TABLE XVI

OCCUPATIONAL CHOICE BY SEX COMPARED TO PLANS AFTER HIGH SCHOOL GRADUATION

Plans after graduation	Sex	Occupational choice																	
		Agricultural		Clerical		Craftsman or foreman		Manager, official or proprietor		Operative		Professional		Technical		Sales		Service	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Get a job	M	4	12.1	0	0	21	31.8	2	13.3	1	14.3	13	7.3	7	11.5	4	40	4	30.8
	F	2	100	42	38.5	0	0	0	0	1	100	28	13.6	3	12.5	0	0	12	22.2
Attend voc. or tech. school	M	0	0	2	40	22	33.3	1	6.7	0	0	2	1.1	10	16.4	1	10	2	15.4
	F	0	0	4	3.7	0	0	0	0	0	0	5	2.4	5	20.8	0	0	17	31.5
Attend business school	M	0	0	0	0	0	0	0	0	0	0	1	0.6	2	3.3	0	0	0	0
	F	0	0	29	26.6	0	0	0	0	0	0	0	0	0	0	1	100	0	0
Attend jr. college	M	8	24.4	1	20	2	3	1	6.7	2	28.6	20	11.2	9	14.8	0	0	1	7.7
	F	0	0	1	0.9	0	0	0	0	0	0	25	12.1	3	12.5	0	0	3	5.6
Attend university or college	M	16	48.5	2	40	5	7.6	10	66.7	1	14.3	118	66.3	23	37.7	3	30	1	7.7
	F	0	0	19	17.4	1	100	0	0	0	0	136	66	10	41.7	0	0	4	7.4
Attend other school	M	1	3	0	0	0	0	0	0	0	0	1	0.6	0	0	0	0	0	0
	F	0	0	2	1.8	0	0	0	0	0	0	1	0.5	2	8.3	0	0	9	16.7
Enter armed forces	M	2	6.1	0	0	5	7.6	0	0	2	28.6	12	6.7	3	4.9	0	0	4	30.8
	F	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	3.7
Undecided	M	1	3	0	0	8	12.1	0	0	1	14.3	5	2.8	6	9.8	0	0	1	7.7
	F	0	0	7	6.4	0	0	0	0	0	0	7	3.4	1	4.2	0	0	4	7.4
Other	M	1	3	0	0	3	4.6	1	6.7	0	0	6	3.4	1	1.6	0	0	0	0
	F	0	0	5	4.6	0	0	0	0	0	0	2	1	0	0	0	0	3	5.6
	M	33	100	5	100	66	100	15	100	7	100	178	100	61	100	10	100	13	100
	F	2	100	109	100	1	100	0	0	1	100	206	100	24	100	1	100	54	100

VII. SUMMARY

The majority of the students, 42.7 per cent of the males and 41.5 per cent of the females planned to attend a university or college. This was the case whether they had selected an occupation for which to train or not. Only 6.5 per cent of the males and 6.8 per cent of the females planned to attend a vocational or technical school.

The students who stated they had selected an occupation, 46.4 per cent of the males and 52.8 per cent of the females, selected a "professional" career. Only 16.3 per cent of the males selected a "craftsman or foreman" occupation, and only 15.7 per cent of the males and 6.4 per cent of the females selected a "technical" occupation.

The students feel quite certain about the occupations they have chosen inasmuch as only 20.5 per cent stated they were uncertain and 2 per cent stated they were very uncertain about the occupation they had chosen. The majority, 27.3 per cent, stated they were very certain and 50.2 per cent stated they were certain about the occupation they had chosen.

Most of the students plan to take "four to five" years in preparing for their occupational career, and the majority

plan to attend a university or college.

The largest percentage of the students did not select their occupation until they were in the 12th grade. Approximately 70 per cent of the students selecting occupations selected them between the 10th grade and during the 12th grade.

There is a strong implication that students need guidance to help them follow the course of study that will help them to prepare for the occupation they have chosen. As an example: the majority of the males who chose a "craftsman or foreman" occupation followed a general course of study during high school. These students could have benefited more by following a vocational course of study.

VIII. QUESTION IV: DO STUDENTS OF THE UTAH HIGH SCHOOLS DESIRE THE HELP OF A GUIDANCE COUNSELOR TO DETERMINE THE TYPE OF OCCUPATION THEY SHOULD PLAN AND WORK TOWARDS?

The students were asked if they would like to have learned more about job opportunities during high school, and 91.4 per cent stated that they would while only 8.4 per cent

stated that they would not. Also, they were asked if they needed help in choosing an occupational career, and 63.4 per cent said yes while 36.5 per cent said no. When asked if they felt that the school counselor should provide this help, 87.5 per cent stated that he should and 12.3 per cent stated no to the question.

Table XVII shows a comparison between whether the students would have liked to have learned more about job opportunities during high school and the person to whom they would go for help in choosing an occupation. The majority of all students would go to the "counselor" for help whether they had stated they would like to have learned more about job opportunities or not. Over-all, 21.3 per cent of the males and 46.4 per cent of the females stated that they would go to the "counselor" for help. Of the students who stated that they would like to have learned more about job opportunities during high school, 42.2 per cent of the males and 47.7 per cent of the females stated that they would go to the school "counselor" for help in this area. Of the students who answered no to the same question, 33.4 per cent of the males and 31.9 per cent of the females still stated that they would go to the "counselor" for help.

TABLE XVII

PERSON TO WHOM STUDENT WOULD GO FOR HELP COMPARED TO WHETHER STUDENT WOULD LIKE TO HAVE LEARNED MORE ABOUT JOB OPPORTUNITIES

Would like to have learned more about job opportunities	Sex	Person to whom student would go for help															
		Librarian		Teacher		Principal		Parents		Friend		Counselor		Other		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	M	5	0.8	111	19	11	1.8	127	20.6	40	6.5	260	42.2	64	10.2	618	100
	F	12	2.3	116	22.2	10	0.9	79	15.1	13	2.5	250	47.7	44	8.4	524	100
No	M	4	7.4	12	22.3	1	1.9	4	7.4	2	3.7	18	33.4	13	24.1	54	100
	F	1	2.1	13	27.7	0	0	12	25.6	1	2.1	15	31.9	5	10.6	47	100
Total	M	9	1.3	123	18.3	12	1.8	131	19.5	42	6.3	278	41.3	77	11.4	672	100
	F	13	2.3	129	22.7	10	1.7	91	15.9	14	2.5	265	46.4	49	8.6	571	100

Table XVIII shows the number of counselor visits compared to program of study, sex, and whether students would like to have learned more about occupations during high school. Of interest as shown in this table is the fact that whether the student answered yes or no to the question asked them if they would have liked to have learned more about job opportunities during high school, that still the majority of these students had none, or one to two visits with the school counselor. This implies that either the counselor does not have enough time to see the students for vocational counseling purposes or that the students themselves do not understand the purpose of the counselor in the school.

The students were asked if they needed help in choosing an occupation, and the majority of them said yes. However, when the results of this question are compared with the course of study the students followed and the number of counselor visits they had, the results still showed that the largest percentage of the students were having only one to two or no visits with the school counselor. As Table XIX shows, there is little distinction between the program of study, the number of counselor visits, and whether the students need help in selecting an occupation or not. The

TABLE XVIII

NUMBER OF COUNSELOR VISITS COMPARED TO COURSE OF STUDY, SEX, AND WHETHER STUDENTS WOULD LIKE TO HAVE LEARNED MORE ABOUT OCCUPATIONS DURING HIGH SCHOOL

Program of study	Would like to have learned more	Sex	Number of counselor visits											
			0		1-2		3-4		5-6		6+		Total	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Academic	Yes	M	56	25.1	78	35	40	17.9	22	9.9	27	12.1	223	100
		F	25	17.2	35	24.1	40	27.6	23	15.9	22	15.2	145	100
	No	M	8	27.6	8	27.6	6	20.7	5	17.2	2	6.9	29	100
		F	1	5	5	25	2	10	4	20	8	40	20	100
Commercial or business	Yes	M	6	16.2	22	59.5	7	18.9	1	2.7	1	2.7	37	100
		F	29	23	59	46.8	22	17.5	10	7.9	6	4.8	126	100
	No	M	1	50	0	0	1	50	0	0	0	0	2	100
		F	1	11.1	6	66.7	0	0	1	11.1	1	11.1	9	100
General	Yes	M	71	21.1	108	4.2	53	20.2	15	5.7	15	5.7	262	100
		F	62	28.7	85	39.4	43	19.9	12	5.6	14	6.5	216	100
	No	M	8	40	6	30	2	10	2	10	2	10	20	100
		F	2	16.7	2	16.7	5	41.7	2	16.7	1	8.3	12	100
Special	Yes	M	3	33.3	4	44.4	2	22.2	0	0	0	0	9	100
		F	1	9.1	3	27.3	4	36.4	1	9.1	2	18.2	11	100
	No	M	0	0	1	33.3	0	0	2	66.7	0	0	3	100
		F	1	50	1	50	0	0	0	0	0	0	2	100
Vocational	Yes	M	31	33	35	37.2	22	23.4	4	4.3	2	2.1	94	100
		F	9	36	10	40	1	4	3	12	2	8	25	100
	No	M	1	16.7	3	50	1	16.7	0	0	1	16.7	6	100
		F	1	33.3	2	66.7	0	0	0	0	0	0	3	100

Note: This table should be read as follows: Of the students following a general course of study and stating that they would have liked to learned more about occupations, 21.1 per cent of the males and 28.7 per cent of the females had no visits with the counselor, 4.2 per cent of the males and 39.4 per cent of the females had one to two visits with the counselor, 20.2 per cent of the males and 19.9 per cent of the females had three to four visits with the counselor

TABLE XIX

NUMBER OF COUNSELOR VISITS COMPARED TO WHETHER STUDENTS NEED HELP SELECTING AN OCCUPATIONAL CAREER, PROGRAM OF STUDY AND SEX

Program of study	Need help	Sex	Number of counselor visits											
			0		1-2		3-4		5-6		6+		Total	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Academic	Yes	M	43	26.9	57	35.6	27	16.9	17	10.6	16	10	160	100
		F	19	19.2	29	29.3	25	25.3	17	17.2	9	9.1	99	100
	No	M	19	21.4	29	32.6	19	21.4	9	10.1	13	14.6	89	100
		F	7	10.6	11	16.7	17	25.8	10	15.2	21	31.8	66	100
Commercial or business	Yes	M	5	20.8	14	58.3	4	16.7	0	0	1	4.2	24	100
		F	21	24.4	41	47.7	14	16.3	7	8.1	3	3.5	86	100
	No	M	2	13.3	8	53.3	4	26.7	1	6.7	0	0	15	100
		F	9	18.4	24	49	8	16.3	4	8.2	4	8.2	49	100
General	Yes	M	50	25	89	44.5	41	20.5	10	5	10	5	200	100
		F	45	31.9	51	36.2	34	24.1	7	5	4	2.8	141	100
	No	M	30	36.1	24	28.9	14	16.9	7	8.4	8	9.6	83	100
		F	18	20.9	36	41.9	14	16.3	7	8.1	11	12.8	86	100
Special	Yes	M	2	50	1	25	1	25	0	0	0	0	4	100
		F	1	25	1	25	1	25	0	0	1	25	4	100
	No	M	2	22.2	4	44.4	1	11.1	2	22.2	0	0	9	100
		F	1	11.1	3	33.3	3	33.3	1	11.1	1	11.1	9	100
Vocational	Yes	M	18	29	27	43.6	15	24.2	2	3.2	0	0	62	100
		F	5	35.7	6	42.9	0	0	2	14.3	1	7.1	14	100
	No	M	14	36.8	11	29	8	21.1	2	5.3	3	7.9	38	100
		F	5	35.7	6	42.9	1	7.1	1	7.1	1	7.1	14	100

Note: This table should be read as follows: Of the students following a general course of study and stating that they need help in selecting an occupation, 25 per cent of the males and 31.9 per cent of the females had no counselor visits, 44.5 per cent of the males and 36.2 per cent of the females had one to two visits with the counselor, 20.5 per cent of the males and 24.1 per cent of the

exceptions to this are the female students who followed an academic course of study in which a slight majority of them stated that they did not need help in selecting an occupation. However, 31.8 per cent said that they had had 6 or more visits with the counselor.

The majority of the students stated that they would go to the school "counselor" for help in determining their occupational career even though they listed someone else as most helpful. Table XX shows a comparison of the person most helpful in assisting students with occupational plans as compared with sex and person to whom students would go for help. In the case of the male students who stated the "industrial arts or vocational teacher" as being most helpful, 51.3 per cent still stated that they would go to a "classroom teacher" for help. Also, the female students who stated that a "teacher," other than the "industrial arts or vocational teacher," as being most helpful, 55.5 per cent stated that they would go to a "classroom teacher" for help. The results of this comparison implies that the students are looking to the schools for help in determining the type of occupation they should train for and enter. However, they are receiving most of this help outside of the school from

TABLE XX

PERSON MOST HELPFUL IN ASSISTING STUDENT WITH OCCUPATIONAL PLANS AS COMPARED WITH SEX AND PERSON TO WHOM STUDENT WOULD GO TO FOR HELP

Person most helpful in assisting	Sex	Person to whom student would go for help															
		School librarian		Classroom teacher		School principal		Parents		Friend		Counselor		Other		Totals	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mother	M	1	2.1	5	10.8	1	2.1	11	23.9	2	4.3	19	41.3	7	15.2	46	100
	F	3	2	27	18.8	2	1.3	23	16	4	2.7	73	51	11	7.6	143	100
Father	M	1	0.8	22	19.4	1	0.8	31	27.4	4	3.5	43	38	11	9.7	113	100
	F	0	0	5	14.7	0	0	10	29.4	0	0	18	52.9	1	2.9	34	100
Ind. arts or voc. teacher	M	1	2.7	19	51.3	0	0	1	2.7	3	8.1	11	29.7	2	5.4	37	100
	F	0	0	7	41.1	0	0	2	11.7	0	0	5	29.4	3	17.6	17	100
Other teacher	M	1	2.5	11	28.2	1	2.5	4	10.2	1	2.5	18	46.1	3	7.6	39	100
	F	3	5.5	30	55.5	1	1.8	2	3.7	0	0	16	29.6	2	3.7	54	100
School counselor	M	0	0	5	29.4	0	0	1	5.8	0	0	11	64.7	0	0	17	100
	F	0	0	6	25	0	0	1	4.1	0	0	17	70.8	0	0	24	100
School Principal	M	0	0	0	0	1	100	0	0	0	0	0	0	0	0	1	100
	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Friend	M	1	2.4	10	24.3	2	4.8	4	9.7	9	21.9	13	31.7	2	4.8	41	100
	F	1	2.5	5	12.8	4	10.2	4	10.2	3	7.6	19	48.7	3	7.6	39	100
Other	M	1	1	16	16.6	2	2.0	17	17.7	3	3.1	36	37.5	21	21.8	96	100
	F	4	4.3	19	20.4	0	0	11	11.8	4	4.3	39	41.9	16	17.2	93	100
Total	M	6	1.5	88	22.5	8	2.0	69	17.6	22	5.6	151	38.7	46	11.7	390	100
	F	11	2.7	99	24.5	7	1.7	53	13.1	11	2.7	187	46.2	36	8.9	404	100

Note: This table should be read as follows: Of the students who stated that their mother was most helpful to them in selecting an occupational career, 2.1 per cent of the males and 2 per cent of the females stated they would go to the school librarian for help in this area, 10.8 per cent of the males and 18.8 per cent of the females would go to a classroom teacher for help, 2.1 per cent of the males and 1.3 per cent of the females would go to the school principal, etc.

their parents.

IX. SUMMARY

This study brought out that the majority of the students need help in determining the type of occupation they should enter and that the majority of the students would have liked to have learned more about occupations during high school. Also, it is the opinion of 87.5 per cent of the students that the school counselor should provide help to the students in occupational planning.

There was little difference as to whether the students would have liked to have learned more about occupations or not and whether the students needed help in determining their occupational career or not because the majority are still having one to two or no visits with the counselor.

Even though students are receiving little help from the counselor in occupational planning, the majority of the students stated that they would go to the "counselor" for help in this area. The exception to this were the students who were receiving most of their help from teachers and who said they would go to a teacher for additional help in occupational planning.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

This study brought out that 27.3 per cent of the students were not visiting the school counselor and that 31.6 per cent of the students were only having one or two visits with the counselor during the years they had spent in high school. Because of the few visits the students were having with the school councelors it is unlikely that they had received much guidance from them. The majority of the students who did visit the counselor did so on their own volition.

Less than half of the students who stated that they took aptitude tests had them interpreted for them. The material being used the most by counselors in student visits was the student's test profile. There was very little material used that directly applied to occupational counseling. It is recognized that test profiles are important in the area of occupational counseling; however, there are many other materials such as books on occupations, occupational briefs,

charts on job trends, posters depicting educational requirements for certain jobs, etc. that are important in orienting students in occupations.

The largest percentage of the students stated that the counselor had little or no influence on their post high school education. What influence they did receive was toward the college or university type education. There was little indication that the counselors influenced students to attend a vocational or technical school.

The majority of the students, over 60 per cent, stated that the counselor did not help them to identify their interests and abilities. Aptitude and interest tests were being given in the schools and the reason for them is to give the counselor a basis on which he can work with the student in determining his abilities and interests. Of the students who stated that the counselor had helped them identify their interests and abilities, the majority visited him on their own volition.

Most of the classes that students were taking were not oriented to provide information about occupations in the area. The majority of students stated that they had received little or no occupational orientation in any of their classes.

A comparison was made of the help students received in identifying their interests and abilities and the number of counselors in the school. It was found that the students in schools with more counselors were less aware of counselors help in identifying their interests and abilities than the schools with fewer counselors.

This study brought out that 42.7 per cent of the males and 41.5 per cent of the females plan to attend a university or college. This was the case whether they had selected an occupation or not. Only 6.5 per cent of the males and 6.8 per cent of the females plan to attend a vocational or technical school.

It was found that the father was most influential to the boys and the mother most influential to the girls in helping them to select an occupation. It was also found that half the students who stated that they had selected an occupation selected it in the professional area. This implies that the parents are influencing the students to plan for a professional career rather than a vocational or technical occupation.

This study brought out that the majority of the students need help in determining the type of occupation they

should enter and that they would have liked to have learned more about occupations during high school. Also, it is the opinion of 87.5 per cent of the students that the school counselor should provide help to the students in occupational planning.

Even though there was very little indication that the counselors had helped the students in their occupational planning, the majority of the students stated that they would go to the counselor for help in selecting an occupation.

II. CONCLUSIONS

1. Students of the Utah high schools are not having sufficient visits with their school counselor for vocational counseling.

2. Students in the Utah high schools are not being oriented to vocational and technical occupations.

3. Counselors in the Utah high schools are not helping the majority of students to identify their interests and abilities.

4. Students in the Utah high schools are not receiving occupational information in the classes they are taking.

5. The role of the counselor is not clearly defined

in the Utah high schools. The larger schools that have five or six counselors are doing less to help the students identify their interests and abilities than the smaller schools with less counselors.

6. Students in the Utah high schools are oriented towards the universities or colleges more so than the vocational and technical schools.

7. Students of the Utah high schools are not selecting and working towards vocational and technical occupations.

8. Students in the Utah high schools need and desire the help of a guidance counselor to help them determine the type of occupation they should plan and work towards.

III. RECOMMENDATIONS

In view of the above conclusions, the following recommendations are proposed:

1. That the ratio of counselors to students be not more than one counselor to 250 students as recommended by the White House Conference on Education in April of 1960.

2. That workshops be conducted in cooperation with business and industry whereby counselors may become acquainted with the different opportunities for young people in these areas.

3. That a testing program be established whereby all students will be tested as to their interests and abilities and that each student's test be interpreted to him by his counselor.

4. That the courses of study in all subjects taught in the secondary schools include a unit on occupations in that subject.

5. That the State Department of Public Instruction and all school districts clearly define the duties and responsibilities of the school counselors. Steps should be taken to insure that these duties are understood by the counselors themselves, the teachers, the school administrators, and especially the students.

6. That a program be initiated which will promote a better attitude in the minds of the students, teachers, and the public towards the vocational and technical schools.

7. That vocational and technical high schools be established in areas where the population is large enough to justify such a school whereby students who are so inclined may receive adequate training to either enter a job upon graduation or be able to pursue further education in their chosen field.

8. That programs of vocational guidance be established at the State and district level. These programs should be so constructed as to insure that all students beginning in the junior high school will enter into a vocational guidance program with their parents and counselor and will continue this program each year through high school.

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BIBLIOGRAPHY

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APPENDIX A

RECORD OF QUESTIONNAIRE RETURNS

	SCHOOL	No. SENT	No. RETURNED
1.	Am. Fork	35	35
2.	Bingham	35	35
3.	Bonneville	100	98
4.	Bryce Valley	10	10
5.	Clearfield	100	87
6.	Davis	100	94
7.	Dixie	25	25
8.	Duchesne	10	10
9.	East Carbon	20	12
10.	Emery	20	16
11.	Enterprise	10	10
12.	Granite	100	97
13.	Green River	10	10
14.	Hillcrest	100	97
15.	Hurricane	25	25
16.	Juab	25	25
17.	Logan	35	33
18.	Monticello	20	20

19.	Morgan	25	25
20.	North Rich	10	7
21.	Ogden	100	84
22.	Parowan	20	19
23.	Pl. Grove	35	32
24.	Roy	100	53
25.	South	100	100
26.	South Rich	10	0
27.	South Summit	20	18
28.	Spanish Fork	35	32
*29.	Springville	70	45
30.	Union	25	25
31.	West	100	97

*The first questionnaires sent to this school were misplaced. Another 35 were sent and the school returned a total of 45 questionnaires.

APPENDIX B

UTAH STATE BOARD OF EDUCATION

1400 UNIVERSITY CLUB BUILDING • 136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

Office of the
STATE SUPERINTENDENT
OF PUBLIC INSTRUCTION

T. H. BELL
Superintendent

February 8, 1967

A study is being conducted to determine the extent that students of the Utah high schools are being oriented as to vocational and technical goals. This study is being supported by the State Vocational Education Division and the Research Coordinating Unit for Vocational and Technical Education. Spencer D. Adams is the researcher for this project.

With your permission, brief questionnaires will be sent out by the middle of February to the high schools selected to participate in the study. These questionnaires are to be filled out by senior students only and in classes made up entirely of seniors.

A letter will be sent to you from Mr. Adams along with a copy of the questionnaire, informing you of the schools in your District selected to participate in the study, and requesting your cooperation.

Your support in helping us carry out this study is greatly appreciated.

Sincerely,

John F. Stephens, Director
Research Coordinating Unit

JFS:mg

WALTER D. TALBOT, Deputy Superintendent for Administration • **LERUE WINGET**, Deputy Superintendent for Instruction • **JAY J. CAMPBELL**, Deputy Superintendent for Institutions

APPENDIX C

116 So. 5th E.
Kaysville, Utah
February 11, 1967

Dear Superintendent:

At the request of the State Vocational Education Division and the Research Coordinating Unit for Vocational and Technical Education, I am conducting a study to determine the extent that students of the Utah high schools are being oriented as to vocational and technical goals.

Mr. John F. Stephens, Director Research Coordinating Unit, sent you a letter requesting your cooperation in carrying out this study.

Enclosed is a copy of the questionnaire to be filled out by senior students only. The following schools in your District have been choosen to participate in the study:

The questionnaires will be mailed out to the above named schools within the next few days unless I hear from you to the contrary. Your help in carrying out this study is greatly appreciated. The results of the study will be sent to you.

Sincerely,

Spencer D. Adams

Dear student:

The purpose of this survey is to learn more about the orientation and preparation high school seniors have received in formulating their occupational goals. By filling out this questionnaire, you will help us gain a better understanding of the factors that affect students in determining their occupational goals.

PLEASE FOLLOW THESE INSTRUCTIONS

1. Read each item carefully. Answer to the best of your knowledge.

2. Be sure to answer each question unless special instructions indicate otherwise.

3. Put an (X) in the blank that applies to you. If you do not find any suggestions that fit your case, please write in the blank spaces.

4. Be sure to check one response only for each question unless directed otherwise.

NAME OF SCHOOL_____

SEX: Male_____ Female_____

1. Which program of study have you pursued in high school?

(1)_____Academic (college preparation)
(2)_____Commercial or Business
(3)_____General
(4)_____Special
(5)_____Vocational

2. How many visits have you had with your counselor regarding your occupational plans since you entered high school?

(1)_____none
(2)_____1 - 2 visits
(3)_____3 - 4 visits
(4)_____5 - 6 visits
(5)_____6 or more visits

3. If you have discussed your occupational plans with the counselor, was it because:

(1)_____have not discussed occupational plans with counselor.
(2)_____he called you in.
(3)_____you voluntarily sought his help.
(4)_____your parents suggested you see him.
(5)_____one of your friends suggested you see him.
(6)_____one of your teachers suggested you see him.
(7)_____other (specify)_____

4. To what extent has a counselor attempted to influence you in your education beyond high school? He has encouraged me to: (CIRCLE THE NUMBER THAT APPLIES IN EACH AREA)

	None	Little	Some	Much	Very Much
(1) attend a university or college	1	2	3	4	5
(2) attend a Jr. College	1	2	3	4	5
(3) attend a vocational or technical school	1	2	3	4	5
(4) attend a business school	1	2	3	4	5

5. To what extent has a counselor attempted to influence your occupational plans?
(CHECK ONE ONLY)

(1)_____He feels the choice I have made is not consistent with my aptitudes and interests and has encouraged me to change.

(2)_____He has talked to me about what is involved in different occupations but wants me to make up my own mind.

(3)_____He has encouraged me in my occupational choice since he feels I have the interest and the aptitude to succeed.

(4)_____He has not tried to influence me in my occupational plans.

6. Has your school counselor helped you identify some of your abilities and interests? ___Yes ___No

7. Have you taken any aptitude or interest tests to help you plan for the future? ___Yes ___No

DIRECTIONS FOR QUESTIONS 8 TO 9 (CIRCLE THE NUMBER THAT APPLIES)

	None	Little	Some	Much	Very Much
8. To what extend do you feel you know what your aptitudes are? (e.s. mechanical, clerical, special, etc.)	1	2	3	4	5
9. To what extent do you feel you know what your interests are?	1	2	3	4	5

10. In discussing my occupational plans with the school counselor, he: (CHECK ONLY THOSE THAT APPLY)

(1)_____has not discussed my occupational plans with me.
(2)_____explained or interpreted what my aptitude test scores were.
(3)_____suggested that I take an interest inventory.
(4)_____interpreted my high and low areas of interest.
(5)_____discussed the educational requirements of my occupational choice.
(6)_____spoke of the future job possibilities of my occupational choice.
(7)_____introduced me to other occupations for which I have aptitude.
(8)_____provided me with some literature to read on my occupational choice.
(9)_____interpreted my scholastic aptitude test results to let me know if I have the ability to go to college.
(10)_____interpreted my achievement test results to let me know how I compare with other students in reading, math, english, etc.

11. Materials used by the counselor in discussing my occupational goal: (CHECK ONLY THOSE THAT APPLY; IF NONE APPLY, LEAVE BLANK)

(1)_____college catalogue
(2)_____test profile of my aptitudes
(3)_____test profile of my interests
(4)_____books on occupations
(5)_____occupational briefs
(6)_____charts on job trends and opportunities
(7)_____posters depicting educational requirements
(8)_____other (specify)_____

12. What do you expect to do this fall? (CHECK ONLY ONE)

(1)_____get a job. What kind of work?_____
(2)_____go to vocational or technical school. Which school?_____
(3)_____go to business school. Which school?_____
(4)_____go to Jr. College. Which Jr. College?_____
(5)_____go to a university or college. Which college?_____
(6)_____go to other school. Which school?_____
(7)_____enter armed forces
(8)_____undecided
(9)_____other (specify)_____

13. Have you decided on an occupational career?
___Yes ___No

NOTE: If you answered YES to question 13 answer questions 14 - 18, otherwise skip to question 19.

14. If you have decided on an occupational career, how certain are you of your choice?

(1)_____very certain
(2)_____certain
(3)_____uncertain
(4)_____very uncertain

15. When did you decide on your occupational career?

(1)_____before 9th grade
(2)_____before 10th grade
(3)_____before 11th grade
(4)_____before 12th grade
(5)_____in 12th grade

16. How many actual years of schooling beyond high school will it take to prepare you for your occupation?

(1)_____less than a year
(2)_____1 - 2 years
(3)_____2 - 3 years
(4)_____3 - 4 years
(5)_____4 - 5 years
(6)_____5 - 6 years
(7)_____6 - 7 years
(8)_____7 - 8 years
(9)_____more than 8 years

17. Is your occupational choice in the area of: (SELECT ONE)

(1)_____ Agricultural Worker such as: farmer, rancher, dairyman, etc.
(2)_____ Clerical such as: secretary, collector, cashier, telegraph operator, typist, etc.
(3)_____ Craftsman or Foreman such as: baker, boiler maker, welder, electrician, locomotive engineer, machinist, etc.
(4)_____ Manager, Official or Proprietor such as: post master, railroad, railroad conductor, shipper of farm products, store owner, etc.
(5)_____ Operative or Kindred Worker such as: bus driver, delivery man, dry cleaner operator, meat cutter, railroad brakeman, etc.
(6)_____ Professional such as: doctor, lawyer, teacher, engineer, etc.
(7)_____ Technical such as: draftsman, designer, production supervisor, etc.
(8)_____ Sales Worker such as: salesman, insurance agent, real estate agents, etc.
(9)_____ Service Worker such as: barber, beautician, fireman, law officer, etc.

18. Which person, other than yourself, was most helpful in assisting you to determine your occupational goal? (CHECK ONE ONLY)

(1)_____mother
(2)_____father
(3)_____industrial arts or vocational teacher
(4)_____teacher other than industrial arts or vocational (specify)_____
(5)_____school counselor
(6)_____school principal
(7)_____one of your friends
(8)_____other (specify)_____

19. To what extent have the following classes in school oriented you to occupations in their field? (CIRCLE THE NUMBER THAT APPLIES TO EACH CLASS)

		None	Little	Some	Much	Very Much
(1)	science	1	2	3	4	5
(2)	math	1	2	3	4	5
(3)	social studies	1	2	3	4	5
(4)	english	1	2	3	4	5
(5)	physical education	1	2	3	4	5
(6)	music	1	2	3	4	5
(7)	industrial arts	1	2	3	4	5
(8)	homemaking	1	2	3	4	5
(9)	business	1	2	3	4	5
(10)	vocational	1	2	3	4	5

20. Would you have liked to learn more about job opportunities during high school? ___Yes ___No

21. Do you feel that you need help in choosing an occupational career? ___Yes ___No

22. If yes, do you feel that the school counselor should provide this help? ___Yes ___No

23. Which one person would you go to for assistance in learning more about occupational opportunities?

(1)_____school librarian
(2)_____classroom teacher_____
(specify subject area)
(3)_____school principal
(4)_____your parents
(5)_____a friend
(6)_____counselor
(7)_____other (specify)_____

APPENDIX D

116 So. 5th E.
Kaysville, Utah
February 13, 1967

Dear Principal:

A study is being conducted in the State to determine the extent that students of the Utah high schools are being oriented as to vocational and technical goals.

This study is being conducted at the request of the State Vocational Education Division and the Research Coordinating Unit for Vocational and Technical Education, and with the approval of your District Superintendent.

Enclosed are questionnaires to be administered to SENIOR students only. Detailed instructions on the administration of the questionnaire is enclosed.

Your help in carrying out this study is greatly appreciated.

Sincerely,

Spencer D. Adams

VT 004 017
Dunn, Charlie M.
Summer Technical Training Program at Kirkman Technical High.

Tennessee State Dept. of Education, Nashville. Div. of Vocational Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 25Sep67 13p.

*EXPERIMENTAL PROGRAMS; *ENRICHMENT EXPERIENCE; *VOCATIONAL EDUCATION; *SUPERIOR STUDENTS; HIGH SCHOOL STUDENTS; TRADE AND INDUSTRIAL EDUCATION; STUDENT ATTITUDES; PROGRAM ATTITUDES; CHANGING ATTITUDES; TECHNICAL EDUCATION
TENNESSEE

A 3-year summer vocational education training program was designed to provide an opportunity for the above average junior and senior high school student to become involved in vocational programs suitable for his interest and aptitude. Sixty-seven students attended 3-hour blocks of occupational training in electronics, drafting, and machine shop under experienced vocational teachers as a 90-hour, non-credit, enrichment program without grades. The students were free to explore their selected areas of interest to limits of their abilities, and records were kept of the progress made by each student. A vocational education attitude survey questionnaire was administered to the students during the last week of the program to help identify attitude changes. Approximately 95 percent of the students agreed that the program was a rich experience and that they would recommend it to other students. Although a majority of the students were probably college oriented, 48 percent agreed that a vocational school would be a satisfactory place for them to continue their education. Eighty-eight percent agreed that their work habits had improved because of their summer shop experience. A student followup was to be made to ascertain the influence of these students in orienting fellow students to the opportunities offered by a technical school, (WB)

VT 004 017

ED027441

STATE OF TENNESSEE
DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
205 CORDELL HULL BUILDING
NASHVILLE 37219

September 25, 1967

MEMORANDUM:

TO: INTERESTED PERSONNEL

FROM: CHARLIE M. DUNN, ASSISTANT COMMISSIONER
VOCATIONAL-TECHNICAL EDUCATION

RE: SUMMER VOCATIONAL-TECHNICAL PROGRAM

Attached is an evaluation of a summer technical training program at Kirkman Technical High School designed to provide an opportunity for the above average student to become involved in vocational programs of his interest and aptitude.

Mr. Jack Carr, Coordinator of General Education of Chattanooga City Schools, was the proposer of this project and assisted greatly in the supervision and evaluation.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

VT004017

Summer, 1967

SUMMER TECHNICAL TRAINING PROGRAM

AT KIRKMAN TECHNICAL HIGH

INTRODUCTION

The Summer Technical Training Program at Kirkman Technical High School was designed to provide an opportunity for the above-average student to become involved in vocational programs of his interest and aptitude.

This program was designed as a three-year summer project for exceptionally bright students in the Chattanooga junior and senior high schools who do not have an exposure to vocational or technical courses in our schools.

The 67 students attended three-hour blocks either in the morning or afternoon in which instruction by experienced vocational teachers in the areas of electronics, drafting and machine shop offered them practical occupational training opportunities.

The program was offered as a ninety-hour, non-credit, enrichment experience program. The students did not have the pressure of competing for grades and were free to explore their selected area of interest to the limits of their abilities.

Progress charts were kept on each student to record his or her development of manipulative skills required in the chosen vocational area.

A Vocational Educational Attitude Survey Questionnaire was developed and administered to the 67 students the last week of the program to help identify attitude changes in the students who participated in the program. The questionnaire was developed to evaluate certain specific objectives of the summer project.

The majority of the questions centered around six basic factors:

1. Upgrading of vocational education.
2. Influence he or she will have on other students in their school and in the community.
3. Student's evaluation of vocational choice.
4. Attitudes of pupils and parents toward vocational choice.
5. Aptitudes.
6. Attitudes toward vocational education.

This experimental three-year program provides the instructors an opportunity to work with small classes who have been carefully screened, advised and selected and have the aptitude to achieve in their chosen vocation.

A follow-up of these 67 students will be conducted to ascertain the influence these students have had in orienting fellow students to opportunities offered in a technical high school. The survey findings indicate that these and their fellow students will select technical programs as their high school curriculum.

CRITERIA FOR SELECTION OF STUDENTS

Scholarships were awarded to junior and senior high students and graduating seniors in the Chattanooga and Hamilton County School systems. The students were selected on the recommendation of teachers, guidance counselors and principals. Selections were based upon high aptitude in the Mechanical Reasoning (upper quartile) on the Differential Aptitude Test.

The morning classes consisted of ninth and tenth grade students. The afternoon classes were composed of juniors, seniors and graduating seniors.

The orientation program for parents of the students was held on the first night. Approximately 75 parents participated and were presented with a brief overall description of how the project was developed and the objectives of the program. They visited the facilities and inspected equipment which the students would use, and they also had an opportunity to talk with the entire staff.

Upon the completion of the ninety-hour course, the scholarship winners were presented certificates by Ed B. Hudgens, Coordinator, Program Services, State of Tennessee, Department of Education, Division of Vocational Education. This was the first experimental program of this type in the United States. The parents were invited to attend this program and the local newspapers and television stations covered the event.

DISCUSSION OF SUMMER EXPERIMENTAL VOCATIONAL EDUCATIONAL SURVEY

(1) Influence on Other Students

The students, approximately 95%, agreed that this project was a wonderful experience and that they would recommend it to other students in their school and community. They felt strongly that the students in their school and the people in the community should be informed of their shop experiences.

(2) Attitude toward General Education

Sixty-five of the students agreed that their parents should urge them to do well in school. As would be expected from the experimental project, a majority of the students favored a general education program over a vocational program although the negative approach to vocational education was approximately 60%.

The stigma that a vocational school has easier subjects was disproved by this group when 53% were of the opinion that academic subjects would not be easier in a general high school.

(3) Upgrading Vocational Education

One very significant opinion in this area was the strong agreement that the program should be expanded next year and that more courses should be offered.

The general opinion was that this type of summer program would encourage more of the above-average students to choose a vocational or technical school for future education. A significantly high percentage agreed that the reputation or stigma of a vocational school is bad. They also were emphatic that this program will do a great deal in upgrading the image of vocational education in Chattanooga. Only 4% of the enrollment felt that this program had not been a worthwhile experience.

(4) Aptitudes

Only 4% did not agree that a technical school student should be average or better in mathematics. A strong background in science was not strongly agreed upon as a prerequisite for a vocational school. Over half the students disagreed

that the vocational school was for the below-average. This is a significant opinion as the vocational educators in the past have adapted their program strongly in the area of average and below average students. The students who took part in this experimental project apparently do not agree with this type of programming.

The ability to work with his or her hands and the ability to succeed in the area of their choice was seen as a definite aptitude (less than 10% disagreed) for success in a vocational school program.

(5) Attitudes Toward Vocational Education

Because the majority of the student population is probably college oriented, they did not overwhelmingly rate a vocational program over an academic program, although 48% agreed that a vocational school would be a satisfactory place for them to continue their education.

One very significant finding in this area is that 72% disagreed that a vocational school has a bad reputation.

Three-fourth of the students disagreed that a vocational school was best for the below-average students.

The instructors in the program were highly rated as 98% agreed that the teachers in a vocational school would help you in your future vocational plans.

(6) Attitude Toward College Training

The most significant finding in this area was the almost unanimous opinion (only one dissenter) that what they learned this summer would help them later on; in fact, 76% very strongly agreed at this point!

This group strongly agreed that college training was a necessity today and that their salaries would be much higher because of their training.

They overwhelmingly disagreed that they would lose prestige with their friends if they did not attend college. They also placed high significance in grades as a prerequisite for college admittance.

(7) Attitudes of Pupils and Parents Toward Vocational Choice

The students agreed 100% that they should be allowed to decide on their own careers, but that the opinion of their parents should be taken into consideration. They also believed strongly that there was no serious conflict between their parents and themselves as to occupational choice.

(8) Students' Interest

The majority of the students would prefer jobs where they would work by themselve and where more mental than physical activity is required.

(9) Students' Evaluation of Vocational Choice

Thirty-two (47%) strongly agreed that they will be able to make a wise vocational choice because of this summer program. In connection with this area, 95% agreed that shop experiences are helpful in finding out whether or not you like a certain occupation.

Only one pupil felt that his experience in this program had not contributed to his educational development.

Ninety-eight percent agreed that their experiences at Kirkman this summer will assist them in their college program.

The program proved to these students that they would be able to understand the practical application of difficult matters, and it provided them with practical experience which will be invaluable to them when they are out working in their chosen fields.

Eighty-eight percent agreed that their work habits had improved because of their summer shop experiences.

VOCATIONAL EDUCATIONAL ATTITUDE SURVEY

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
APTITUDES	%	#	%	#	%	#	%	#	%	#
7. A vocational student should be an average or above average student in Math.	43	29	34	23	19	13	2	1	2	1
17. A student should be able to work with his hands in order to be successful in a trade school.	32	22	29	19	32	22	16	14	None	
26. A trade school student should have a strong background in science.	7	5	16	11	54	36	16	11	6	4
35. A student who attends a trade school should have ability in the shop area he or she selects.	29	19	37	25	30	20	4	3	None	
44. A student who attends a vocational school will have a better chance for success if they are average or above average in academic subjects.	18	12	25	17	30	20	23	16	3	2
53. The ability to get along with people is a necessity for a person to be successful in a vocational school.	16	11	27	18	42	28	13	9	2	1
62. A student who is below average in school should attend a vocational school.	9	6	6	4	31	21	48	32	6	4
ATTITUDES TOWARD VOCATIONAL EDUCATION										
9. A vocational or trade school would be a satisfactory place for me to continue my education.	15	10	15	10	18	12	39	26	13	9
15. I believe that a vocational or technical school has a bad reputation.	4	3	2	1	22	15	43	29	29	19
24. I feel that vocational schools are best for students who are below average in intelligence.	2	1	None		23	16	43	29	32	21
33. The best school in which to learn a good trade is a vocational school.	39	26	30	20	19	13	12	8	None	

		Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
		%	#	%	#	%	#	%	#	%	#
42.	I believe that a vocational school would be more helpful to a student in finding a purpose in life rather than other school programs.	16	11	22	15	30	20	27	18	4	3
51.	The teachers in a vocational school will help you in your future plans.	15	10	34	23	49	33	2	1	None	
60.	I feel the training you receive in a vocational school will help you in becoming an average or above average wage earner.	22	15	32	21	35	24	9	6	2	1
69.	I rate the program in a vocational school above that of an academic high school program.	15	10	9	6	27	18	40	7	9	6
	UPGRADING VOCATIONAL EDUCATION										
8.	I would be willing to advise a fellow student to attend a vocational school.	30	20	25	17	33	22	11	7	2	1
18.	I like the reputation of a vocational school.	4	3	15	10	45	30	28	19	7	5
27.	The training you receive in a trade school gives you a feeling of accomplishment.	30	20	39	26	30	20	2	1	None	
36.	I believe that shop programs such as we have experienced this summer should be offered in a regular high school.	33	22	33	22	25	17	6	4	3	2
45.	This program has been a very worthwhile experience.	54	37	30	20	12	8	2	1	2	1
54.	More shops should be offered during the summer for Jr. & senior high students.	56	38	29	19	13	9	None		2	1
63.	I believe that a summer program such as this will do a great deal for the prestige of vocational education.	34	23	25	17	39	26	2	1	None	
71.	A program such as this will encourage more of the average and above average students to attend a vocational school.	13	9	25	17	47	31	12	8	3	2

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
	%	#	%	#	%	#	%	#	%	#
76. I feel because of my experiences this summer that my parents will be more favorable toward Vocational Education.	12	8	13	9	48	32	22	15	4	3
79. I believe that one of the advantages of a trade school education is that it trains you for a specific skill.	30	20	45	30	22	15	2	1	2	1
80. The biggest advantage of a vocational education is that it offers the best opportunity for learning.	9	6	16	11	32	21	36	24	7	5
ATTITUDE TOWARD GENERAL EDUCATION										
5. I feel that my parents should urge me to do well in my academic subjects.	44	29	30	20	23	16	3	2	None	
14. I feel that my parents would rather have me attend a general high school.	22	15	18	12	25	17	22	15	12	8
23. I believe that a vocational high school is where I would like to attend school.	18	12	7	5	12	8	54	36	9	6
32. General education is a better program for most students.	7	5	19	13	37	25	34	23	2	1
41. A technical vocational program is better for most students.	2	1	13	9	25	17	51	34	9	6
50. I believe that I can decide on what occupation is best for me by attending a general high school.	7	5	16	11	37	25	29	19	10	7
68. Academic subjects would be easier in a general high school.	None		10	7	36	24	40	27	13	9
74. I feel that a general high school course would better prepare me for a vocation.	9	6	10	7	27	18	37	25	16	11
78. If I attended a vocational school I believe my friends will think less of me.	3	2	6	4	15	10	40	27	36	24

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
ATTITUDE TOWARD COLLEGE TRAINING	%	#	%	#	%	#	%	#	%	#
6. If I choose a career in Eng., Electronics or Drafting, what I'm learning this summer will help me later on. .	76	51	15	10	7	5	None		2	1
16. A trade school would be a good school to attend if you didn't plan to attend college.	45	30	25	17	22	15	6	4	2	1
25. I feel that college training is almost a necessity today.	39	26	21	14	27	18	10	7	3	2
34. It is important for a student to have good grades to go to college.	40	27	37	25	15	10	6	4	2	1
43. A vocational student is better prepared for college training than a regular school student.	9	6	9	6	22	15	42	28	18	12
52. I believe that a vocational student would have to overcome an educational disadvantage to succeed in college.	4	3	16	11	32	22	29	19	18	12
61. This experience in a summer program will encourage me to go on to higher education.	22	15	39	26	30	20	6	4	3	2
70. One should attend college because of the prestige you will receive from your friends.	2	1	None		7	5	48	32	44	29
75. The salary I will receive will be much higher if I have a college education.	48	32	25	17	15	10	7	5	4	3
STUDENTS' EVALUATION OF VOCATIONAL CHOICE										
2. I feel I will be able to make a wise vocational choice because of my shop experience this summer.	22	15	25	17	41	27	10	7	2	1
11. I would like to enter the same occupation which I have participated in during the summer program at Kirkman.	12	8	12	8	23	16	45	30	7	5

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
	%	#	%	#	%	#	%	#	%	#
20. Shop experiences are helpful in finding out whether or not you like a given occupation.	51	34	32	22	12	8	3	2	2	1
29. My experiences in the shop this summer have contributed to my educational development.	60	40	22	15	16	11	None		2	1
39. If I attend college I feel my shop experiences this summer will aid me in my college program.	34	23	27	18	37	25	None		2	1
47. My shop experiences this summer will enable me to understand the practical applications of difficult matter, i.e., math, science, etc.	19	13	30	20	48	32	2	1	2	1
55. Working in a given shop area is a good way to understand how a workman performs the job.	22	15	39	26	36	24	3	2	None	
65. After my experiences this summer, I would not mind working at a blue collar job.	6	4	9	6	36	24	43	29	6	4
70. My work habits have improved as a result of my shop experiences.	13	9	34	23	40	27	10	7	2	1
77. My experiences in shop have made me realize I would not mind working in a factory.	3	2	9	6	36	24	33	22	19	13
INFLUENCE ON OTHER STUDENTS										
3. When I return to school in the fall, I would enjoy talking about my vocational experiences.	19	13	33	22	45	30	3	2	None	
12. Other students in school should have the opportunity to participate in a summer vocational program.	37	25	34	23	25	17	3	2	None	

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
	%	#	%	#	%	#	%	#	%	#
21. I wouldn't mind telling people in the community about this summer's experiences.	30	20	36	24	30	20	3	2	2	1
30. By talking with other students about vocational education I could influence them on how they feel about semi-skilled or skilled occupations.	6	4	18	12	54	36	21	14	2	1
39. I should be allowed by my teachers to tell about my vocational shop experiences.	2	1	12	8	60	40	23	16	3	2
48. Students in my school would benefit from being informed about vocational shop experiences such as those offered in this school.	27	18	29	19	37	25	7	5	None	
57. Talking with other students about their interests is a good way to learn about other occupations.	13	9	42	28	33	22	12	8	None	
66. It is difficult to tell other people about my summer shop experiences.	3	2	2	1	15	10	67	45	13	9
73. I would heartily endorse this summer experience for other students that may be interested.	38	26	29	19	30	20	None		3	2
ATTITUDES OF PUPILS AND PARENTS TOWARD VOCATIONAL CHOICE										
1. My parents are concerned about what occupation I will enter as my life's work.	53	35	21	14	23	16	3	2	None	
10. A student such as myself should not be influenced by other people in choosing an occupation.	23	16	27	18	21	14	19	13	9	6
19. I believe parents have too much influence upon the choice of an occupation which a student makes.	7	5	9	6	21	14	49	33	13	9

	Very Strongly Agree		Strongly Agree		Agree		Disagree		Strongly Disagree	
	%	#	%	#	%	#	%	#	%	#
28. Opinions of parents should be considered but the "right of choice" for a given occupation should be left to the student.	73	49	16	11	10	7	None		None	
37. Parents nowadays make too many decisions for their children.	18	12	16	11	30	20	30	20	6	4
46. Parents seem to think young people cannot be trusted to choose an occupation.	7	5	13	9	21	14	49	33	9	6
55. My parents want me to be one thing, and I would like to choose a different occupation.	2	1	3	2	4	3	45	30	46	31
64. I want to decide for myself what occupation is best for me.	60	40	27	18	13	9	None		None	
STUDENT INTERESTS										
4. I'd like a job which requires more mental than physical ability.	29	19	25	17	29	19	13	9	4	3
13. I like a job which requires a great deal of physical activity.	6	4	6	4	22	15	57	38	9	6
22. I'd like a job that requires more thinking rather than physical activity.	19	13	27	18	37	25	13	9	3	2
31. I'd like a job which requires a great deal of mental activity.	16	11	29	19	40	27	13	9	2	1
40. I'd like a job where you talk a great deal with people.	9	6	12	8	36	24	31	21	12	8
49. I'd like a job where frequently I would be in contact with the general public.	7	5	16	11	27	18	42	28	7	5
58. I'd like a job where there are machines, tools, motors, etc., with which I could work.	9	6	16	11	39	26	31	21	4	3
67. I'd like a job where I worked by myself.	6	4	13	9	18	12	44	29	19	13

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NORTH DAKOTA

Questionnaires returned by 2,674 parents in 23 counties revealed their opinions on community schools, vocational training, reasons for not attending vocational school, themselves, adult education, and mobility. The "average" parent was in his late forties, had lived most of his life in the state, had completed grade 11, had a strong interest in his schools and little doubt that high school training is of great importance. About half of the parents thought more vocational training was needed in their community and accounting, bookkeeping and secretarial training was that most desired. Nearly two-thirds planned for their children to attend college, and 54 percent wanted them to have vocational training after high school. About one-third said their children were not interested in vocational school. Parents and guardians saw themselves as being helpful or extremely helpful in their children's career planning. Half expressed an interest in adult education, and would like to continue their high school education. Over 80 percent said they had no intention of moving from their present community. A copy of the questionnaire is included. (MM)

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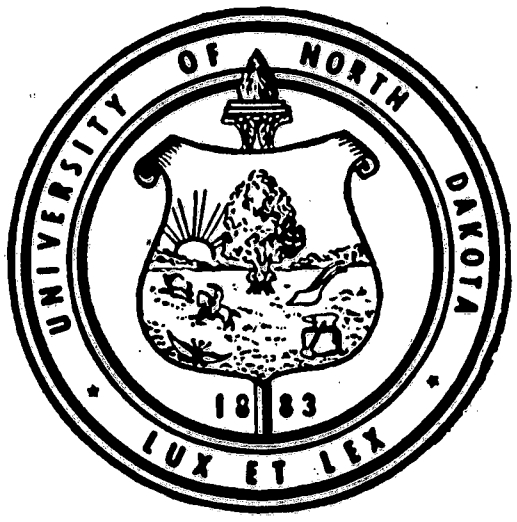
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A Survey of Parents of North Dakota High School Students Who Were Seniors in 1966

Thomas J. McCrystal

Research Report No. 6

CENTER FOR RESEARCH IN
VOCATIONAL AND TECHNICAL EDUCATION



College of Education
University of North Dakota
Grand Forks

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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June, 1967

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FOREWORD

The present report is one of a series of studies, carried out by the Center for Research in Vocational and Technical Education, in an attempt to better understand the high school student. These have been studies of the parent as well as of the student. The rationale for studying parental attitudes and economic conditions is best summarized in the 1966 Manpower Report of the President (p. 91);

> The reasons young people give for dropping out of school frequently overlap and are likely to describe the surface reasons rather than the real cause. Poor academic performance, adverse social climate in the school, and the economic need of the student and his family--three major reasons advanced--frequently operate together.

The planning and data gathering stages of this study were completed by the Staff of the Center. I am grateful to Dr. Elwyn H. Nagel, Director of the Center, who provided comments and suggestions for the preparation of this report.

T. J. McCrystal
Principal Researcher, Center for Research
in Vocational and Technical Education

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INTRODUCTION

Sampling Procedure

This report is based on a survey taken of the parents of 2,674 North Dakota high school students who were seniors in 1966. A random sample of 23 North Dakota counties was used in the study.

From each of these 23 counties three communities were selected. The three communities from each county included (1) a middle-sized community randomly selected from those having a population from 1,000 to 2,500; (2) a small-sized community randomly selected from those having a population of less than 1,000; and (3) the county seat of that county.

Three of the counties in the sample--Ransom, Stark and Walsh--asked that each community within that county be studied, and the data for each community in these three counties is included in the sample.

The parents, whose average age is in the late forties, have lived most of their lives in North Dakota, with a large part of that time spent in their present community. The average parent is not a high school graduate, although the average parent did complete the eleventh grade.

Average	Father	Mother
Years of Age	48.5	45.0
Years in Present Community	27.3	23.6
Years in North Dakota	40.2	37.2
Years in Present Job	18.2	14.6
Highest Grade Completed	11.1	11.3

Number of Sons	2.4
Number of Daughters	2.4

Adequacy of Community Schools

Many people in the communities sampled were not satisfied with the present conditions in their schools. Over two-thirds of the parents thought improvements were needed.

	Yes (%)	No (%)	No Response (%)
Q. Do you think your community's schools need improving?	68.9	14.9	16.2

While two-thirds of the parents thought their schools needed improving, three-fourths believed their community's schools to be as good as or better than those of other communities.

	Choices	Per Cent
Q. Compared with neighboring communities, how would you rate your community's schools?	Not as good	4.6
	About the same	25.4
	Better	50.6
	No opinion	9.6

From the parents' point of view, the principal improvements needed in the schools concern equipment, number of courses, teachers and building.

	Frequency	Per Cent
Q. What kinds of improvements are needed?		
Equipment	987	58.6
More Subjects	935	50.9
Better Teachers	799	40.7
Buildings	707	34.4
Transportation	309	12.6
Other	364	15.2

Interest in Community Schools

There was little disagreement among the parents that high schools are a help to youth, and that to drop out of high school imposes a great handicap on the child.

	Yes (%)	No (%)	No Response (%)
Q. Are high schools a great help to youth?	91.8	2.0	6.2
Q. Is it a great handicap not to finish high school?	94.3	1.7	4.0

More than half of the parents contended that people in the community are interested in schools and would even pay more taxes for better schools.

	Yes (%)	No (%)	No Response (%)
Q. Would you say that people in your community:			
lack interest in schools?	24.6	65.3	10.0
would pay more taxes for better schools?	53.8	28.8	17.4

Adequacy of Vocational Training

Parents were nearly evenly divided on the question of whether North Dakota has adequate vocational training facilities.

	Yes (%)	No (%)	No Response (%)
Q. Are present vocational training facilities adequate:			
in your local area?	32.7	54.3	13.1
in North Dakota?	36.9	41.5	21.6

On the question of vocational training in high schools, nearly one-half the parents responding thought more courses should be offered; however, one-third were satisfied with the number of courses offered now.

	Yes (%)	No (%)	No Response (%)
Q. Do high schools offer enough vocational training?	33.9	49.5	16.6

Interest in Vocational Training

For those parents who would like their child to attend a vocational school, accounting, bookkeeping and secretarial training are the vocational courses desired for the child by at least twenty per cent of the parents.

	Frequency	Per Cent
Q. In which courses would you like to have your child enrolled?		
Accounting	679	24.58
Bookkeeping	648	23.46
Secretarial Training	567	20.53
Clerical Training	380	13.76
Practical Nursing	292	10.57
Medical Secretary	286	10.35
Medical Laboratory Assistant	278	10.07

Nearly two-thirds of the parents said that they plan for their child to go on to college, while only twelve per cent plan to send the child to a trade school.

	Frequency	Per Cent
Q. How much further education do you plan for your child to complete?		
College	1727	62.5
Trade School	347	12.6
Junior College	162	5.9
High School	110	4.0
Other	145	5.3
No Opinion	273	9.9

It should be noted that while close to two-thirds of the parents above wanted their children to have a college education, over one-half of the parents sampled said they would like their child to obtain vocational training after high school. Possibly, they had in mind vocational training in college.

There were nearly twice as many parents in favor of the child obtaining vocational training after high school as were opposed to such training.

	Yes (%)	No (%)	No Response (%)
Q. Would you like your son or daughter to obtain vocational training after high school?	54.8	28.5	16.8

Reasons for Not Attending Vocational School

While approximately one-third of the parents stated that their child was not interested in vocational school, one-fifth give cost as the reason for not attending a vocational school. The next important reason given was that the child is going on to college. Only ten per cent thought distance was an important factor.

	Frequency	Per Cent
Q. Which of these may be reasons for your child not attending a vocational school?		
Not interested	812	31.28
Costs too much	545	20.99
Going on to college	398	15.33
Too far to school	261	10.05
Will be trained in Armed Services	154	5.97
Will be trained on the job	77	2.97
Marriage	15	.58

	Yes (%)	No (%)	No Response (%)
Q. Would you be in favor of your child attending a vocational, trade, or technical school if one were located close to home?	52.1	27.9	20.0

Those who responded *Yes* to the above question were then asked in which community should the school be located and how far would this be from their home. The first choice, in terms of median distance from the parent's home, is 24.7 miles away while the second choice given by the parents is 60.2 miles from the parents home. (Since the distribution is not normally distributed, the median was used here rather than the arithmetic average.)

Parents' Self-view

Parents and guardians saw themselves as having been "helpful" or "extremely helpful" to their child in planning his career. Two-thirds of the parents were also willing to give as much credit to the teachers for helping the child plan his career.

	Helpful or Extremely Helpful (%)	Not Helpful (%)	No Response (%)
Q. How much do you think the following people helped your child in making his occupational plans?			
Parents	78.7	4.1	17.2
Teachers	66.6	12.5	20.9
School Counselor	59.1	16.2	24.7
Friends	53.7	18.8	27.5
Siblings	49.2	23.4	27.4
Principal - Supt.	47.3	26.5	26.2
Clergyman	36.7	35.7	27.6
4-H Club Leader	7.5	51.2	41.3
Agricultural Agent	5.8	54.6	39.4
No One	4.5	20.8	74.7
Other			92.3

Some example of the types of response that fall under *other* are the following:

"A 17 year old child should decide for herself or himself."

"We believe the best assistance is to allow the child to make his own plans."

Adult Education

There was considerable interest expressed by the parents in adult education programs.

	Yes (%)	No (%)	No Response (%)
Q. Would you be interested in adult education in your community?	46.7	35.4	17.8

One-fourth of those favoring an adult education program would be interested in taking general high school courses.

Q. In what courses would you be interested?

Courses	Frequency	Per Cent
General High School	438	25.78
Extra Curricula	258	15.19
Clerical Training	175	10.30
Bookkeeping	118	6.95
Secretarial Training	103	6.06
Needle Arts	82	4.83
Commercial Artist	59	3.47
Ag. Farm Manager	50	2.94
Accounting	48	2.83
Practical Nursing	44	2.59
Sales & Service	41	2.41

Mobility

Only a small number of the population of parents sampled seemed to have any plans for moving from their community.

Q. What are your thoughts about moving from your present location?

Choices	Frequency	Per Cent
No intention	2212	80.08
Consider moving	197	7.13
Have definite plans	111	4.02
Have indefinite plans	110	3.98
No response	132	4.78

When the parents were queried as to where they would like to live, of all the places they know, the majority either did not respond or replied, "North Dakota." California was chosen by five per cent and Colorado by four per cent of those in the sample.

The parents saw the major problem associated with moving to be that of leaving old friends and the social life to which they are accustomed to in their present community. This factor was more important than either job or income.

Q. What personal problems might arise if you were to move to a larger urban area:

	Frequency	Per Cent
Friends	332	23.8
Jobs, income, and occupational related responses	248	17.8
Facilities: shopping, medical, public utilities	186	13.4
Living conditions, home, taxes, weather, etc.	138	9.9
Schools, education, opportunity	89	6.4
Recreation, scenery, etc.	26	1.9
Size	133	9.5
Other	241	17.3

What was liked most about the present community by over one-third of the parents is the friendships and social relationships that have formed. Jobs, income, recreation and scenery were the least desirable factors.

Q. What do you like best about your present community?

	Frequency	Per Cent
Friends, social life	954	34.34
Schools, educational opportunity	438	15.77
Size	381	13.71
Living condition, home, taxes, weather, etc.	284	10.22
Facilities: shopping, medical, public utilities	188	6.76
Jobs, income, and occupational related response	94	3.38
Recreation, scenery, etc.	86	3.10
Other	353	12.71

Jobs were considered to be the most undesirable feature of the community by one-fifth of the parents.

Q. What do you like least about your present community?

	Frequency	Per Cent
Jobs, income and occupational related responses	376	21.6
Living condition, home, taxes weather, etc.	269	15.4
Recreation, scenery, etc.	261	15.0
Facilities: shopping, medical, public utilities	216	12.4
Friends, social life	134	7.7
Schools, educational opportunity	77	4.4
Size	39	2.2
Other	373	21.4

SUMMARY

The average parent of the senior students is in his late forties and has lived most of his life in North Dakota. He has a strong interest in his schools. He thinks his community's school system is good compared to those of neighboring communities but he is quick to admit that his own schools are in need of improvements. He wants more equipment in the schools, a greater variety of subjects taught, better teachers, and more buildings.

There is little doubt in the minds of the parents that high school training is of great importance to their children. No doubt this parental attitude is partially responsible for the increasing tendency for young people to complete high school and to continue their education beyond the high school level.

Half of the parents sampled were of the opinion that more vocational training is needed in their community and in their high school. The specific courses most desired were accounting, bookkeeping, and secretarial training.

One-third of the parents sampled thought enough vocational courses were offered now and said that their children were not interested in vocational training. The cost of vocational schools is prohibitive for one out of five of the families sampled. Another major reason for no interest in vocational schools is that the child is college-bound. Nearly two-thirds of the parents plan for their child to attend college.

Over one-half of the parents did express an interest in vocational training for the son or daughter after high school. In the eyes of the parents, moving the vocational school closer to home would not increase the child's interest in vocational training. Their first choice for a school location away from home would be at a distance of 25 miles.

The present day definition of vocational training may be briefly stated as: meaningful education for gainful employment. It is the opinion of this writer that many of the parents surveyed do not embrace the modern definition of vocational training. Possibly many parents hold to the antiquated concept that "academic" preparation is for the fortunate students blessed with brains and "vocational" training is for the social rejects. This concept of vocational education may account for the high percentages of parents who stated that they were not interested in vocational training for their children.

Half the parents expressed an interest in adult education and would like to continue their own high school education, possibly to get their diploma, since the average parent is but one year away from graduation.

The average parent has little or no intention of moving from his present community. He has lived in that community for a quarter of a century and although he is somewhat dissatisfied with his job, living conditions, recreation facilities and the "scenery", he is a middle-aged citizen who does not want to leave his friends and present way of life.

APPENDIX

Dear Parents of 12th Graders:

The Research Coordinating Unit, located at the University of North Dakota, in cooperation with the State Board for Vocational Education, is conducting a survey of the employment supply and demand in North Dakota. The results of this survey will help determine what occupations are available, the present and future labor supply, and the training and retraining needs of this area.

As the major source for new employees, the plans of present high school students are of great interest. The seniors in selected high schools are being asked to complete a questionnaire about their educational and vocational plans. Each student is also asked to bring forms home for his parents to complete. The information from this questionnaire will be used to plan educational and training programs needed for the youth of your area.

This survey can only be successful with your help. Please complete these forms with the assistance of your spouse and return them in the envelope provided. Thank you for your interest and concern.

1.

	AGE	HOW MANY YEARS HAVE YOU LIVED IN: YOUR PRESENT COMMUNITY?	NORTH DAKOTA?
Husband	___	_____	_____
Wife	___	_____	_____

2.

	OCCUPATION?	FULL-TIME	PART-TIME	YEARS AT PRESENT JOB
Husband	_____	___	___	_____
Wife	_____	___	___	_____

3. WHAT WAS THE HIGHEST GRADE IN SCHOOL COMPLETED BY: (Circle the highest number)

	GRADE	HIGH SCHOOL	COLLEGE
Husband	1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4 Bachelor Master Doctorate
Wife	1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4 Bachelor Master Doctorate

4. AGES OF CHILDREN AT THEIR LAST BIRTHDAY:

Sons	___	___	___	___	___	___	___	___	___	___
Daughters	___	___	___	___	___	___	___	___	___	___

5. FOR WHAT CAREER OR OCCUPATION WOULD YOU LIKE YOUR 12TH GRADE CHILD TO PREPARE?

First Choice _____ Second Choice _____

6. HOW MUCH DO YOU THINK THE FOLLOWING PEOPLE HELPED YOUR CHILD IN MAKING HIS (HER) OCCUPATIONAL PLANS? (Please check one answer for each)

	EXTREMELY HELPFUL	HELPFUL	NOT HELPFUL
1. Clergyman	_____	_____	_____
2. School Counselor	_____	_____	_____
3. Teacher	_____	_____	_____
4. Principal and/or Superintendent	_____	_____	_____
5. Parents or guardian	_____	_____	_____
6. Brothers or sisters	_____	_____	_____
7. Friends	_____	_____	_____
8. County Agriculture Agent	_____	_____	_____
9. 4-H Club leader	_____	_____	_____
10. No one	_____	_____	_____
11. Other (specify) _____	_____	_____	_____

7. HOW MUCH FURTHER EDUCATION DO YOU PLAN FOR YOUR CHILD TO COMPLETE?
___ High School ___ Junior College
___ Trade School ___ College Other (specify) _____

8. WHAT COURSES WOULD YOU LIKE TO SEE OFFERED AS PART OF THE HIGH SCHOOL CURRICULUM THAT ARE NOT NOW OFFERED?

a. Academic courses — Would you have liked your son or daughter to enroll in such a course?

_____ Yes_____ No_____
_____ Yes_____ No_____
_____ Yes_____ No_____

b. Vocational courses (Home Ec., Shop, Business, etc.)

_____ Yes_____ No_____
_____ Yes_____ No_____
_____ Yes_____ No_____

9. DO HIGH SCHOOLS OFFER ENOUGH VOCATIONAL TRAINING? Yes____ No____

10. NOT FINISHING HIGH SCHOOL IS A GREAT HANDICAP. Yes____ No____

11. HIGH SCHOOL SUBJECTS ARE A GREAT HELP TO YOUTH. Yes____ No____

12. PEOPLE IN THIS COMMUNITY LACK INTEREST IN SCHOOLS. Yes____ No____

13. PEOPLE IN THIS COMMUNITY WOULD PAY MORE TAXES FOR BETTER SCHOOLS. Yes____ No____

14. DO YOU THINK PRESENT VOCATIONAL TRAINING FACILITIES ARE ADEQUATE?

In your local area: Yes ___ No ___ In North Dakota: Yes ___ No ___

15. WOULD YOU BE INTERESTED IN AN ADULT EDUCATION PROGRAM OFFERED IN YOUR COMMUNITY? Yes ___ No ___
IF YES, IN WHAT COURSES WOULD YOU BE INTERESTED?

_____ _____
_____ _____

16. WHAT ARE YOUR THOUGHTS ABOUT MOVING FROM YOUR PRESENT LOCATION?
____ No present intentions to move
____ Considered moving
____ I am going to move but plans are not definite
____ I have definite plans to move
____ If so, where? _____
when? _____
why? _____

17. WHAT DO YOU LIKE BEST ABOUT YOUR PRESENT COMMUNITY? _____
_____

18. WHAT DO YOU DISLIKE MOST ABOUT YOUR PRESENT COMMUNITY? _____
_____

19. WHAT PERSONAL PROBLEMS DO YOU THINK MIGHT ARISE IF YOU WERE TO LEAVE YOUR PRESENT COMMUNITY TO LIVE IN A LARGER URBAN AREA? _____

_____

20. OF ALL THE PLACES YOU KNOW, IN WHICH PLACE WOULD YOU LIKE TO LIVE? _____

_____

21. HOW DOES YOUR SCHOOL COMPARE WITH THOSE IN NEIGHBORING COMMUNITIES?
Better _____ Same _____ Not as good _____

22. WOULD YOU LIKE YOUR SON OR DAUGHTER TO OBTAIN VOCATIONAL TRAINING FOLLOWING HIGH SCHOOL? Yes _____ No _____

23. a. WOULD YOU BE IN FAVOR OF YOUR CHILD ATTENDING A VOCATIONAL, TRADE, OR TECHNICAL SCHOOL IF ONE WERE LOCATED CLOSER TO HOME? Yes ___ No ___

b. IF YES, IN WHICH COMMUNITY SHOULD THE SCHOOL BE LOCATED? HOW FAR WOULD THIS BE FROM YOUR HOME?

1st Choice _____ Miles from your home: _____
(community)

2nd Choice _____ Miles from your home: _____
(community)

24. CHECK THE FOLLOWING COURSE OR COURSES IN WHICH YOU WOULD LIKE TO HAVE YOUR CHILD ENROLL

___ Accounting
___ Agriculture-Farm Management
___ Airconditioning & Refrigeration
___ Appliance Repair
___ Architectural Drafting Technician
___ Auto Body Rebuilding
___ Auto Mechanics
___ Aviation Mechanics
___ Baker
___ Barber
___ Bookkeeping
___ Bricklaying
___ Cabinetmaking
___ Carpentry
___ Chef or Cook
___ Clerical Training
___ Commercial Artist
___ Cosmetology or Hairdresser
___ Data Processing Technician
___ Dental Assistant
___ Electric Power Technician
___ Electrician (Construction)
___ Electricity (Maintenance)
___ Electronic Technician
___ Engineering Drafting
___ Farm Mechanics
___ Floral Shop Operation
___ Food Services - Waitress
___ Furnace Repair
___ Heavy Equipment Operation & Maintenance
___ Industrial Drafting Technician
___ Machinist
___ Medical Laboratory Assistant
___ Medical Secretary
___ Needle Arts and Sewing
___ Patternmaking
___ Plumbing
___ Practical Nursing
___ Printer (Graphic Arts)
___ Radio and TV Repair
___ Sales and Service Management
___ Sales Training
___ Secretarial Training
___ Sheet Metal
___ Shoe Repair
___ Tailoring
___ Technicial Drafting
___ Tool and Die Maker
___ Upholstering
___ Watch Repair
___ Welding
___ _____(other)
___ _____(other)

25. WHICH OF THE FOLLOWING MAY BE REASONS FOR YOUR CHILD NOT ATTENDING A VOCATIONAL SCHOOL?

__ Not interested
__ Costs too much
__ Lacks the ability
__ Will be trained in Armed Services
__ Will be trained as an apprentice or on the job
__ Too far to school
__ Other (specify) _____

26. DO YOU THINK YOUR SCHOOLS NEED IMPROVING? Yes ____ No ____

27. WHAT KINDS OF IMPROVEMENTS ARE NEEDED?

__ Better Buildings
__ Better Teachers
__ Better Transportation
__ Better Lunch Program
__ More Subjects
__ More Equipment
__ Other (specify _____

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NORTH DAKOTA

Of 1,744 senior boys from 75 schools who responded to questionnaires to find if those who intended to migrate differed significantly from those who did not intend to migrate, 1,185 had low migration aspiration and 558 had high migration aspiration. The perceived social cost of migration did not appear to be a factor in migration. Although the prestige of the planned occupation was not reliably related to migration aspiration, the degree of certainty of occupational choice was higher in the high migration aspiration group. Students who planned to migrate had a higher mean composite score on the Iowa Test of Educational Development than those of the low migration aspiration group. The attitude of the student toward his present community was reliably related to his migration aspiration. Factors having no relation to migration aspiration appeared to be education aspirations, ratings of aid provided by the school in making occupational and educational plans, size of school class, and occupational prestige of fathers, occupational levels of parents, or family income. Students with high migration aspiration lived in larger communities and had lived fewer years in their present community. Students living on farms or communities of less than 1,000 had generally lower migration aspiration although many in the group probably will be forced to move in order to earn a living. This suggests a need for special counseling of these students during their high school years. (MM)

VT 004 046

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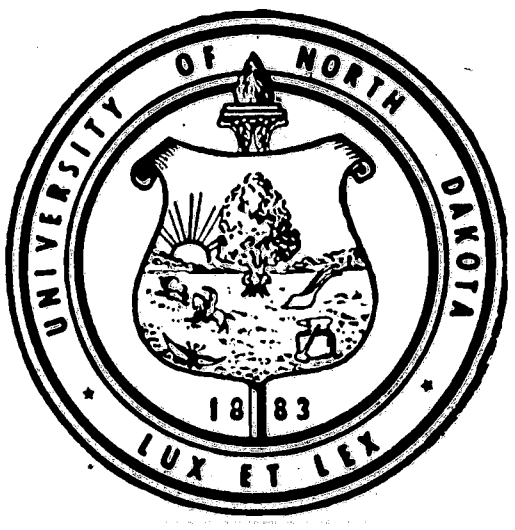
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The Migration Aspiration of North Dakota Senior Males

James J. Kiefert

Research Report No. 7

CENTER FOR RESEARCH IN
VOCATIONAL AND TECHNICAL EDUCATION



College of Education
University of North Dakota
Grand Forks

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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August, 1967

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J.J.K.

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INTRODUCTION

American youth have been since Colonial times and still are future-oriented; much of their normal life is spent in thinking about and preparing for their future roles in adult society. Our educational system is designed to focus upon this future role in vocational and educational terms. The selection and attainment of an occupation are of overwhelming importance to youth, for upon them depend substantially the individual's attainment of other status goals and general satisfaction with life.

Until fairly recent times, there was little concern in most societies for occupational planning; the individual usually inherited his job as an ascribed feature of his family's rank in society. Contemporary American society grants a great deal of freedom to the individual in finding his way through the maze of possibilities related to his decisions, and the importance of the decision-making process is stressed throughout the developmental years in our schools.

Serious recognition is given to aspirations and decisions regarding the occupation in which the individual will engage and the amount and type of further formal education he will seek. Fulfillment of these aspirations often requires the individual to change his place of residence. This phenomenon is particularly critical for the youth in a rural area where occupational opportunities are very limited and formal education opportunities above high school level are virtually nonexistent.

The Census of Population, 1960, listed North Dakota's population as 64.8 per cent rural, 35.2 per cent urban; during the previous decade, the State had lost some 105,000 people through out-migration. Most of those who migrated did so when between the ages of 16 to 29, the years

immediately following high school; this age selectivity is strongest for the rural population. Further: in 1960, between one-third and one-half of North Dakotans aged 20 to 24 had moved out of the rural areas during the previous decade (Adams, 1964).

Rural migrants moving to the city are faced with a radical change in environment and greater handicaps than the urban migrant must overcome. Studies have pointed out the fact that rural male migrants have less success than urban male migrants in achieving satisfactory occupations (Bauder and Burchinal, 1965). Rural youth who have migrated to the city have poorer school attendance records, lower educational achievements and fewer vocational skills than urban youths (Shannon, 1961). Parents with rural backgrounds were the least educated among migrants, and even when age and education controls were applied, men with rural backgrounds were still overrepresented in low-status occupations (Burchinal and Jacobson, 1963).

These and many other factors contribute to the problems arising from migration from rural to urban areas. The rural-to-urban migrants tend to enter the labor force as manual workers and often live in the poorer housing areas. This situation tends to persist and may prolong the period of adjustment to the new community by at least five years (Beegle, 1961). It would appear that the rural migrant has the greater number of obstacles in relation to adjustment, and also that it is the home community's responsibility to furnish the background of skills which will enable the youthful migrant to cope with the problems consequent to migration.

Statement of Problem

The purpose of this study is to investigate whether North Dakota high school senior boys who intend to migrate differ significantly from

those who do not so intend. The study seeks answers to the following questions:

1. Is migration aspiration related to the students' perceived social cost of migration and the students' attitudes toward their present communities?
2. Is migration aspiration related to the prestige of the students' planned occupations, their degree of certainty of occupational choice, their ratings of the helpfulness of certain sources of guidance in making occupational plans, and their ratings of the importance of values which influence occupational choice?
3. Is migration aspiration related to the occupational prestige of the students' fathers, their parents' educational levels, and their families' annual incomes?
4. Is migration aspiration related to educational aspiration, perceived adequacy of information and assistance furnished by the school in making occupational and educational plans, size of high school graduation class, and level of academic achievement?
5. Is migration aspiration related to the number of years lived in North Dakota and in the present community, and the type of residential area in which students live?

RESEARCH DESIGN

Description of the Population Studied

The population of this study was part of the subject population for a state-wide study of North Dakota high school seniors carried out in the late spring of 1966 by the Center for Research in Vocational and Technical Education at the University of North Dakota. A random sample of twenty-two counties was selected from the fifty-three counties in North Dakota.

In each of the twenty-two counties three communities were selected. One was the county seat; the other two communities were selected at random. In the total of 66 communities selected there were 77 high schools, 71 of which responded and were included in the sample. Other schools requesting to take part in the study were included, to bring to 75 the total number of schools participating. The size of the senior class ranged from ten to 641 for the schools participating in this study.

A total of 1744 usable questionnaires were obtained from high school boys through the 75 responding schools. The questionnaires were completed in the late spring of 1966, when it was reasonably certain that each respondent would soon be a graduate and would of necessity soon be making decisions in accordance with aspirations and plans.

The 1744 senior boys were then divided into two groups according to their response to item 20 on the questionnaire. Those students who stated that they had no present intentions to move or were only considering moving were classified as having low migration aspiration: they numbered 1186. Those students who indicated a general intention to move or had definite plans to move were considered to have high migration aspiration. A total of 558 senior boys were classified in this group.

Collection of Data

During the spring semester of 1966, representatives from the Center for Research in Vocational and Technical Education made personal contact with the superintendents of the randomly selected sample of schools throughout the state of North Dakota. The questionnaires were then distributed through the superintendents and teachers to the senior boys.

Instructions for standardized procedures were included with the questionnaires to assure their uniform and consistent administration. Upon completion of the questionnaires by all senior boys in attendance at classes that day, the questionnaires were mailed directly to the Center for Research in Vocational and Technical Education.

Analysis and Results

This study dealt with the relation between the level of migration aspiration of high school senior boys and such variables as: the students' perceived social cost of migrating, attitudes toward their present community, and variables related to occupational choice and familial-educational background.

Data were obtained from questionnaires completed by 1,744 senior boys from 75 North Dakota high schools. The high migration aspiration group (N=558) were those students who indicated plans to migrate. The low migration aspiration group (N=1186) were those who expressed no intention to migrate.

The students' planned occupations and their fathers' occupations were first coded according to the Bureau of the Census (1960) list of occupations, then translated into the National Opinion Research Center code as a measure of occupational prestige.

The results of this study indicated that eight of the sixteen variables tested were reliably related to level of migration aspiration. The findings of this study support the following general conclusions:

1. The student's perceived social cost of migration was not related to migration aspiration, but the student's attitudes toward his present community were reliably related to migration aspiration (See Table 1).

TABLE 1

t-TEST OF THE DIFFERENCES BETWEEN MEANS DERIVED FROM NINETEEN ATTITUDES TOWARD THE PRESENT COMMUNITY BY STUDENTS LEVEL OF MIGRATION ASPIRATION

Attitude toward present community	High Migration Aspiration		Low Migration Aspiration			
	M	SD	M	SD	t	P
Anything of a progressive nature is generally approved	2.72	1.07	2.51	.96	4.08	.001
With a few exceptions the leaders are capable and ambitious	2.54	.98	2.45	.91	2.01	.05
It is difficult for people to get together on anything	3.00	1.08	3.20	1.04	3.69	.001
Everyone helps to decide how things are to be run	3.46	1.04	3.24	.99	4.26	.001
The future of the county looks bright	2.85	1.08	2.50	.96	6.70	.001
The high school teachers are equal to teachers anywhere	2.44	1.14	2.25	1.02	3.42	.001
Persons with real ability are usually given recognition	2.45	1.01	2.32	.91	2.65	.01
The area is not located in a very desirable section	3.17	1.26	3.66	1.06	8.26	.001
A person has to leave the area in order to have a good time	2.88	1.29	3.27	1.22	6.00	.001
There are not many families you would want to marry into	3.21	1.18	3.46	1.13	4.18	.001
People have to do without adequate shopping facilities	3.48	1.16	3.63	1.15	2.50	.05
The medical facilities are good and adequate	2.43	1.13	2.37	1.13	.99	NS
Employment opportunities are practically nonexistent	2.71	1.19	3.13	1.09	7.07	.001
Recreation facilities are abundant and varied	3.63	1.19	3.42	1.21	3.34	.001
Not much can be said in favor of a place this size	3.29	1.17	3.62	1.02	6.01	.001
The climate is as good as any other place in the U.S.	3.73	1.32	3.34	1.34	5.60	.001
Few, if any, of the neighboring areas are able to surpass this area as a place to live	2.99	1.19	2.67	1.09	5.48	.001
Our school's course offerings are wide and varied. Programs can be "tailored" to one's needs	2.98	1.18	2.74	1.09	4.16	.001
Salaries are usually fair and adequate in this area	3.36	1.20	2.94	1.09	7.15	.001

2. The prestige of the student's planned occupation is not reliably related to his migration aspiration; however, the degree of certainty of occupational choice is higher for the group having high migration aspiration, (See Table 2).

TABLE 2

DEGREE OF CERTAINTY OF OCCUPATIONAL PLANS AND MIGRATION ASPIRATION: OBSERVED FREQUENCIES FOR A CHI SQUARE TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Certain	88	16.1	124	10.8
Reasonably certain	333	60.9	670	58.3
Uncertain	126	23.0	356	30.9
Total	547		1150	

$X^2 = 16.97$; $P \leq .05$, $X^2 = 5.99$; $df = 2$

A reliable relation was found between migration aspirations and the rating of helpfulness of sources of guidance in making occupational plans; parents or guardians (Table 3), county agriculture agents (Table 4), and 4-H club leaders (Table 5) were judged helpful or extremely helpful by more students in the low migration aspiration group than in the high migration aspiration and the reported helpfulness of clergymen, school counselors, teachers, principals, and superintendents, brothers and sisters, or friends.

Migration aspirations and the ratings of importance of certain values influencing occupational choice were found to be reliably related

TABLE 3

MIGRATION ASPIRATION AND THE HELPFULNESS OF PARENTS OR GUARDIANS IN MAKING OCCUPATIONAL CHOICE: OBSERVED FREQUENCIES FOR A CHI SQUARE TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Extremely helpful	221	41.3	502	43.3
Helpful	236	44.1	536	46.7
Not helpful	78	14.5	109	9.0
Total	535		1147	

$X^2 = 9.51$; $P \leq .05$, $X^2 = 5.99$; df = 2

TABLE 4

MIGRATION ASPIRATION AND THE HELPFULNESS OF COUNTY AGRICULTURE AGENTS IN MAKING OCCUPATIONAL CHOICE: OBSERVED FREQUENCIES FOR A CHI SQUARE TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Extremely helpful	3	0.6	25	2.3
Helpful	16	3.2	74	7.0
Not helpful	468	96.0	945	90.5
Total	487		1044	

$X^2 = 15.03$; $P \leq .05$; $X^2 = 5.99$; df = 2

TABLE 5

MIGRATION ASPIRATION AND THE HELPFULNESS OF 4-H CLUB LEADERS IN MAKING OCCUPATIONAL CHOICE: OBSERVED FREQUENCIES FOR A CHI SQUARE TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Extremely helpful	2	0.4	30	2.9
Helpful	16	3.3	54	5.2
Not helpful	460	96.2	939	91.7
Total	478		1023	

$X^2 = 12.96$; $P \leq .05$, $X^2 = 5.99$; df = 2

(Table 6). Students with high migration aspirations when compared with students in the low migration aspiration group gave higher ratings of importance to the following values: opportunity to travel, opportunity to get ahead rapidly, and opportunity to pursue one's interest and hobbies. Students in the low migration aspiration group rated the importance of local availability of jobs higher than did the high migration aspiration group.

3. There was no reliable relation between the migration aspiration of the students and the occupational prestige of their fathers, their parents' occupational levels or their families' incomes.

4. There was no relation between migration aspirations and educational aspirations, ratings of adequacy of information and aid provided by the school in making occupational and educational plans, or the size of the high school graduating class. There was, however, a reliable relation between the level of academic

achievement and migration aspiration (see Table 7); students with high migration aspiration had a higher mean composite score on the Iowa Test of Educational Development than that of the low migration aspiration group.

TABLE 6

t-TEST OF THE DIFFERENCE BETWEEN MEANS DERIVED FROM RATINGS OF THE IMPORTANCE OF VALUES WHICH INFLUENCE OCCUPATIONAL CHOICE BY STUDENT'S LEVEL OF MIGRATION ASPIRATION

Values	High Migration Aspiration		Low Migration Aspiration			
	M	SD	M	SD	t	P
Income	1.65	.63	1.68	.62	1.08	NS
Interesting work	1.13	.35	1.16	.38	1.62	NS
Suits your ability	1.35	.53	1.41	.56	1.95	NS
Opportunity to travel	2.32	.73	2.53	.64	6.07	.001
Opportunity to help others	2.10	.70	2.04	.72	1.50	NS
Opportunity to work with people	1.89	.73	1.94	.73	1.31	NS
Opportunity to supervise others	2.36	.68	2.41	.67	1.51	NS
Opportunity to get ahead rapidly	1.80	.71	1.89	.70	2.57	.05
Opportunity to work with things (Materials)	2.07	.81	2.02	.80	1.30	NS
Being able to look forward to stable, secure future	1.30	.55	1.28	.51	.46	NS
Opportunity to do original, creative work	2.03	.77	2.02	.75	.18	NS
Opportunity to be independent and free from supervision	2.08	.76	2.04	.74	1.22	NS
Have time for one's family	1.60	.71	1.64	.72	1.41	NS
Have time to pursue one's interests and hobbies	1.73	.67	1.80	.68	2.13	.05
Opportunity to pursue further studies	2.01	.72	2.00	.69	.35	NS
Opportunity to improve one's work	1.96	.71	1.97	.66	.40	NS

5. There was a reliable relation between migration aspiration and the student's residential background, and the number of years

the student had lived in North Dakota and in his present community (see Tables 8, 9, 10).

TABLE 7

t-TESTS OF THE DIFFERENCES BETWEEN MEANS DERIVED FROM THE IOWA TEST OF EDUCATIONAL DEVELOPMENT COMPOSITE SCORE BY STUDENTS' LEVEL OF MIGRATION ASPIRATION

	High Migration Aspiration		Low Migration Aspiration			
	M	SD	M	SD	t	P
ITED Composite Scores	35.53	21.91	33.96	21.06	2.16	.05

The students with high migration aspiration lived in larger communities and had lived in their present communities and in North Dakota fewer years than the low migration aspiration group.

TABLE 8

MIGRATION ASPIRATION AND THE NUMBER OF YEARS LIVED IN NORTH DAKOTA: OBSERVED FREQUENCIES ABOVE AND BELOW THE MEDIAN FOR A MEDIAN TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Frequency above the median*	249	45.4	609	52.1
Frequency below the median	299	54.6	560	47.9
Total	548		1169	

$X^2 = 6.59$; $P \leq .05$, $X^2 = 3.84$; df = 1
*Median = 17 years lived in North Dakota

TABLE 9

MIGRATION ASPIRATION AND THE NUMBER OF YEARS LIVED IN THE PRESENT COMMUNITY: OBSERVED FREQUENCIES ABOVE AND BELOW THE MEDIAN FOR A MEDIAN TEST

	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Frequency above the median*	242	44.0	624	52.8
Frequency below the median	308	56.0	558	47.2
Total	550		1182	

$X^2 = 11.60$; $P \leq .05$, $X^2 = 3.84$; $P \leq .001$, $X^2 = 10.83$; df = 1
*Median = 17 years lived in the present community

TABLE 10

MIGRATION ASPIRATION AND THE TYPE OF RESIDENTIAL AREAS LIVED IN: OBSERVED FREQUENCIES FOR A CHI SQUARE TEST

Type of Residence	High Migration Aspiration		Low Migration Aspiration	
	N	%	N	%
Farm	113	20.3	356	30.0
Community less than 1000	36	6.4	90	7.6
Community of 1000-2500	81	14.5	87	7.3
Community of 2500 and above	328	58.8	653	55.1
Total	558		1186	

$X^2 = 35.29$; $P \leq .05$, $X^2 = 5.99$; df = 3

Students with high aspiration to migrate listed opportunity to travel, to get ahead rapidly, and to have time for hobbies as values important to choice of occupation. These values are found in occupations of high prestige.

Personality factors measurable by such instruments as the Edwards Personal Preference Schedule may in future research reveal certain personality variables (high manifest need for achievement, autonomy, change, and possibly agression) as being related to high migration aspiration, and such needs as deference, order, affiliation, succorance and nurturance as related to low migration aspiration. Further research may also provide a comparison of the vocational interests of students who have high migration aspiration with those of students in the low migration aspiration group.

The names of the students who were the subjects of this study are on file in the Center for Research in Vocational and Technical Education. A follow-up study might produce valuable information as to the degree to which the students' expressed aspirations and intentions are realized, and might help to determine the relation between migration aspiration and actual migration.

Limitations of the Study

Of the 77 high schools chosen at random and asked to cooperate in this study, six chose not to participate; four schools outside the chosen group requested to participate, bringing the total of schools to 75. The schools omitted in this study appear to have student enrollments similar in character to those of the sample schools.

Responses from participating schools were not one hundred per cent; some students were absent from school on the day the questionnaire was

completed. A small proportion of returned questionnaires (64) were found unusable. Despite these limitations, the sample is believed to be fairly representative of North Dakota senior high school boys.

Thanks to the dearth of research on migration aspiration, the measurement of variables included in this study has been hampered by the lack of standardized, valid instruments. More sophisticated measurement devices might have revealed a greater number of reliable relations between variables. These considerations limit the conclusions to be drawn from this study.

Implications

Knowledge of the factors related to students' migration aspiration will be of use to counselors in helping school-age youth to make educational and occupational plans and to weigh the possible costs of migration. This study indicates that migration aspiration follows no pattern of social class; however, difficulties resulting from migration are more acute for rural-to-urban migrants (Bauder and Burchinal, 1965; Burchinal, 1961; Burchinal and Jacobson, 1963).

The finding that students with low migration aspiration are from largely rural backgrounds suggests the need for special counseling in their high school years, since they may be forced eventually to migrate. The decline in farm population and the corresponding reduction of small rural communities which were once important service centers are releasing a steady flow of rural youth toward the urban areas.

More and better occupational information provided by the schools would help direct rural youth who are potential migrants to the areas where their abilities would be most in demand; for instance, wider knowledge of placement and other services available in public employment agencies would

help to eliminate prolonged joblessness among migrants who reach a designation with no definite job offers. In some cases, knowledge of some pilot relocation projects set up under the Manpower Development and Training Act might provide needed financial aid.

The counselor's role requires him to work with students on self-understanding, educational and vocational planning and decisions, and adjustment in personal and social relationships; with an understanding of factors related to migration aspiration, he can give invaluable aid to students who may be faced with the need for personal and social adjustment to life in a new community.

SUMMARY AND CONCLUSIONS

The findings of the study support the following general conclusions:

1. The perceived social cost of migration does not appear to be a factor in migration aspiration; a possible explanation is that most high school boys have not developed a realistic evaluation of social relationships and are unconcerned about the emotional consequences of leaving friends and familiar groups.
2. The student's attitude toward his present community is reliably related to his migration aspiration; in this study, eighteen of nineteen tallied attitudes appeared influential. This finding is not conclusive, however; it is possible that a high school senior may be satisfied with many aspects of his present community but see greater opportunity in some other community.
3. Although the prestige of the planned occupation is not reliably related to migration aspiration, the degree of certainty of occupational choice is higher in the group with high migration aspiration. There is no reliable relation between the students' migration aspirations and the occupational prestige of their fathers, their parents' educational levels or their families' annual incomes.
4. Factors having no relation to migration aspiration appear to be educational aspirations, ratings of adequacy of aid provided by the school in making occupational and educational plans, and size of high school graduating class. There is, however, reliable relation between level of academic achievement and migration aspiration; students who planned to migrate had a

higher mean composite score on the ITED test than that of the low migration aspiration group.

5. There is a reliable relation between migration aspiration and the student's residential background, the number of years he has lived in North Dakota, and the time he has lived in his present community. Students with high migration aspiration lived in larger communities, and had lived fewer years in their present communities and in North Dakota than had the students in the low migration aspiration group. Since many had already migrated at least once, from another North Dakota community or from another state, it may be presumed that they would be less influenced by the social cost of another migration.

The relationship between high migration aspiration and residential background may be partially explained by Nelson (1963), who found that urban children in grades three to eleven had occupational knowledge superior to that of their rural counterparts. This occupational knowledge may, in turn, explain the high degree of certainty of occupational choice in the high migration group.

Students living on farms or in communities of less than 1,000 people have generally lower migration aspiration; they rate local availability of jobs as highly important, and in general their planned occupations have less prestige than those of the high migration group. The shortage of less prestigious jobs in rural areas makes it almost certain that many of the low aspiration group will have to move in order to earn a living.

Students with low migration aspiration reported more help from parents, guardians, county agriculture agents and 4-H Club leaders in making occupational plans.

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*PROGRAM GUIDES; *COOPERATIVE EDUCATION; HIGH SCHOOLS; *TRADE AND INDUSTRIAL EDUCATION

This manual was developed by vocational instructors in summer workshops to provide frequently needed information for coordinators, supervisors, and administrators. Topics include: (1) Advantages of the Program, (2) Facts about the Part-Time Cooperative Industrial Education, (3) Reimbursement to School, (4) Qualifications of Teachers, (5) Advisory Committees, (6) The Beginning Coordinator, (7) Selection of Students, (8) Placement of Students, (9) Coordinator's Yearly Time Schedule, (10) Recommended Coordinator's Daily Time Schedule, (11) The Related Instruction Class, (12) Group Instruction, (13) Supervised Technical Study, (14) Personal Conferences, (15) Promotion and Surveys, (16) Followup, (17) Laws Affecting Co-op Training, (18) Child Labor Law of the State of Iowa, (19) Iowa's Workman's Compensation Law, Unemployment Compensation, (20) Social Security, (21) Child Labor Provisions of the Fair Labor Standard Act, (22) Hazardous Occupations, and (23) Bureau of Apprenticeship and Training. Supplementary materials include samples of nine forms, a bibliography of selected references, and a glossary. (EM)

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PART-TIME COOPERATIVE INDUSTRIAL EDUCATION

A Guide for Administrators, Supervisors, and Coordinators

Edited By

Owen Shadle, Vocational Teacher Educator
Industrial Education Curriculum
Iowa State University

In Cooperation With The

Division of Vocational Education
State Department of Public Instruction

Revised 1965

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PART-TIME COOPERATIVE INDUSTRIAL EDUCATION

A Guide for Administrators, Supervisors, and Coordinators

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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In Cooperation With The

Division of Vocational Education
State Department of Public Instruction

Revised 1965

F O R E W O R D

The success of any program of part-time cooperative industrial education depends to a large degree upon the thoroughness of the coordination of the school work and the employment experiences of the part-time student learner. The coordinator must be a superior teacher, a good organizer, and have a great deal of information about a variety of occupations. It is his job to work harmoniously with the public school personnel, the businesses and industries of the community.

The content of this manual, a compilation of information and data which the coordinator may need frequently, will assist him as well as others connected with this type of work in making the program more effective.

The original handbook was prepared by A. P. Twogood, trade and industrial teacher trainer of Iowa State College, and members of a workshop group working with him during the summer of 1952.

The following were members of that workshop: Herman Arrasmith; Melvin S. Bell; V. W. Hahn; George Leebl; Earl E. Marihart; Owen J. Shadle; John G. Sherbo; Ray B. Stone; Charles E. Zink.

Mrs. Irene Friesner, then State Supervisor, Distributive Education, and H. W. Carmichael, State Supervisor, Trade and Industrial Education, served as consultants during part of the workshop. The group borrowed heavily from the manuals of other states.

The first revision 1961, was made by Ed Burns, Director, Fort Dodge Public Schools, and Owen Shadle, Director, Ames Public Schools at Iowa State University during the Summer of 1961. O. H. Beaty, State Supervisor of Trade and Industrial Education made suggestions that were very helpful in focusing to present conditions.

The present revision contains the suggestions of the following directors and coordinators in Iowa:

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PART-TIME COOPERATIVE INDUSTRIAL EDUCATION PROGRAM

A Guide for Administrators, Supervisors, and Coordinators

INTRODUCTION

The gap that exists between the experiences of many high school pupils while attending school and the situations they will face after leaving school has become a matter of great concern, not only to the educator but also to the general public. Vocational education programs have helped considerably in narrowing this gap. A fundamental precept of vocational education is that it serves best when it supplements general education.

Among the vital responsibilities of a good citizen is that of earning a living for himself and family. The better an individual is prepared for his life work, the greater satisfaction he will derive from his occupation. The role of vocational education is to coordinate job training with general education so that the individual will be more efficient as a worker and as a member of society.

One plan to implement the training resources of the school and the community has become known as the Part-time Cooperative Industrial Education Program. The controlling purpose of this plan is to provide instruction and training to persons 16 years of age and over in the senior year of high school with the objective of increasing their civic and vocational intelligence so that they will be better prepared to enter upon and continue in the occupation of their choice. This plan for cooperative training concerns the school, the student-learner, and a training agency.

The program of Part-time Cooperative Industrial Education is a definite part of the high school curriculum. While several different occupations may be included in the over-all vocational program, the individual student-learner receives training and experiences in only one occupation.

To make sure that the Part-time Cooperative Industrial Education Program is vocational in every respect, there are certain federal and state standards that must be met. This also safeguards the expenditure of federal and state funds.

ADVANTAGES OF THE PROGRAM

The part-time cooperative industrial education program offers many advantages:

FOR THE STUDENT

The Program --

1. Provides education and training in an occupation under actual working conditions with highly qualified persons.
2. Offers try-out period to test student's aptitude in his chosen field.
3. Combine occupational training with other education leading to a high school diploma.
4. Provides incentive to complete high school.
5. Increases student employability upon completion of course.
6. Develops proper work habits under school and industry supervision.
7. Assists student in his adjustment to employment through learning a saleable skill.
8. Provides organized training in areas related to the job.
9. Promotes feeling of self respect and achievement in student learner.
10. Helps student-learner train on modern, up-to-date equipment.
11. Meets College entrance requirements if student later decides to go to college.
12. Recognizes student-learner as one of a few students representing the school in the business district.

FOR THE SCHOOL

The Program --

1. Offers occupational training for those planning full-time employment upon graduation from high school.
2. Broadens the Curriculum of the high school.
3. Gives the student better part-time job opportunities while he continues formal schooling after high school.
4. Reduces drop-outs in high school.
5. Saves expensive equipment since manipulative skills are learned on the job.
6. Keeps school abreast of times in business and industrial areas.
7. Meets small school needs for vocational courses by using community resources.
8. Permits placement of students as a step in the guidance process.

FOR THE COMMUNITY

The Program --

1. Encourages young people to remain in the community.
2. Promotes closer cooperation between school and community.
3. Meets community needs as revealed in a local survey.
4. Raises Community Morale through broader education for its young people.

FOR THE EMPLOYER

The Program --

1. Provides organized training on the job.
2. Reduces cost of basic training.
3. Encourages further training through apprenticeship or adult education courses.
4. Provides better selection of young trainers.
5. Combines school, business, and industry in an educational program fitted to each employer's needs.
6. Builds Cooperation in planning the Vocational courses.
7. Provides self satisfaction in helping youth learn an occupation and develop good work habits.

FOR WORKING PEOPLE

The Program --

1. Offers training for young workers often not available otherwise.
2. Offers a start in training for the skilled trades areas and service occupations.
3. Avoids displacement of regular workers for student-learners.
4. Provides better foundation on which to build specialized training.
5. Encourages the student-learner to seek adult education classes during full time employment.
6. Encourages adult workers to seek further training.
7. Provides cooperation with school in adult education planning.
8. Insures practical training on the job.
9. Provides participation in planning the program through advisory committees.

FACTS ABOUT THE PART-TIME COOPERATIVE INDUSTRIAL EDUCATION PROGRAM

1. Legal Standing	Yes - (Smith-Hughes, George-Barden, and Vocational Education Act of 1963.
2. Organized Training	Yes - Training program in school and on job organized and supervised by school and cooperating employer.
3. Supervision of program in school	Yes - School employs coordinator to handle program.
4. Supervision on the job	Yes - Coordinator, together with the employer, organizes and supervises the training on the job.

5.	Qualifications for co-ordinators established	Yes - through state plan for Vocational Education
6.	Minimum time schedule	Yes - 15 hours weekly released school time
7.	Definite instructional content	Yes - Organized around each occupation.
8.	Rating of training stations	Yes - Definite standards
9.	Geared to community needs	Yes
10.	Advisory committee	Yes
11.	Written agreements between school, employer, & trainee	Yes
12.	Training followed by full-time employment	Yes - For at least 65% of trainees
13.	Training for specific employment	Yes
14.	Time-tested	Yes - Proven by many years of successful programs. National - 1918 Iowa - 1935
15.	Restrictions on enrollment	Yes - For senior students who want it, need it, and can profit by it.
16.	Complete student records.	Yes
17.	School credit	Yes - A part of the school curriculum
18.	Pay on job	Yes - Wage comparable to training status
19.	Part of organized national program for Vocational Education	Yes
20.	State Staff available for local assistance	Yes
21.	Federal and/or State reimbursement	Yes - Definite plan

General Conditions

1. All participating schools and classes must be under public supervision.
2. The program must prepare students for entry into useful employment.
3. The instruction must not be toward a college degree.
4. The student-learner must be 16 years of age or more and the instruction must be designed to meet the needs of persons of this age.
5. Student-learners in hazardous occupations covered by wage and hour acts must be 18 years of age, unless exempted under wage and hour acts. (See page 31)
6. The purpose of the program is to provide vocational training through cooperation of the school and industrial and business establishments for groups of young people whose individual occupational objectives differ, and whose cooperative agreements provide for legal employment, systematic training on the job, and related training in the school.
7. Safety education must be provided on the job and in the related class.
8. A satisfactory classroom shall be provided with an adjoining office.
9. The distribution of the hours of the school day shall be as follows:
   a. The time for work shall equal or exceed the time in clock hours per week devoted to school instruction throughout the year.
   b. The student-learner shall be legally employed for a minimum of 15 hours per week throughout the school year.
   c. The arrangements of time schedule under this cooperative plan of half-time in school and half-time in employment shall be; half-day in school followed or preceded by a half-day in employment.
   d. One or more school periods per day for related instruction, equal in length to the other regular school periods, shall be provided for the group of students who are enrolled in this type of work. These students shall be handled in separate classes with the coordinator in charge. The instruction given to the members of this group shall be designed to prepare them for satisfactory employment. It may include instructions in industrial relations and problems of employment, as well as technical materials directly related to the occupation.
10. Since workers from a variety of occupations will be enrolled, the related instruction shall be largely on an individual basis.
11. The coordinator shall have available at least two consecutive, preferably three, regular periods each day which shall be used in coordinating school instruction with employment. The information thus secured may be used in adjusting the related instruction given to the specific needs of the student. The coordinator will need many hours for individual conferences to guide the student-learner in developing proper work habits.

12. A training outline shall be prepared by the coordinator in cooperation with the employer. This shall be used as a guide for the training to be given.
13. The employer must agree to make the work educational insofar as possible under the working conditions.
14. Training for the student-learner must be restricted to any service or industrial occupation which requires a minimum of one year's training, and offers an opportunity for advancement.
15. Occupational surveys and observations should be conducted on a near continuous basis to ascertain employment opportunities.

Reimbursement to Schools

A local school district may operate and receive reimbursement from the State Division of Vocational Education by adopting these guidelines. The provisions of the contract are in brief that the school shall do the following:

1. Provide and maintain suitable rooms and accommodations for this type of work
2. Maintain a program suitable for conditions in this district.
3. Maintain separate classes in this work and admit only such students as meet the requirement.
4. See that students enrolled have the proper time to work in the trade or service occupation.
5. Employ a teacher approved by the State Division of Vocational Education.
6. Provide for proper supervision and accounting of expenditure of funds according to policies of the State Division of Vocational Education.
7. Make promptly all reports required by the State Division of Vocational Education.
8. Keep on file a signed statement of approval of the parent or guardian of each pupil enrolled in the course. (See form entitled co-operative agreement for training on page 39.)
9. Comply with all provisions of the federal and state laws insofar as they apply to teaching of this work.
10. Appoint an advisory committee to assist in promoting and conducting the program. (See page 8.)
11. Provide, when advisable, a local supervisor of industrial education.
12. Follow-up studies of former student trainees shall be conducted according to the state plan.
13. Supply final notarized request for reimbursement as required by law.

Qualification of Teachers

Teachers of Part-time Cooperative Industrial Education shall have a minimum of three years of experience in one or more trades or industrial pursuits and shall have completed or shall be in the process of completing 18 quarter hours of approved industrial education courses for the training of industrial teachers. The courses available at Iowa State University with three quarter hours credit for each are:

Required

1. Foundations of Industrial Education
2. Techniques of Teaching Trades and Technologies (related Technical information)
3. Coordination of the Part-time Cooperative Industrial Education

Recommended Electives

1. Problems in Industrial Education
2. Trade and Technical Analysis
3. Industrial Conference Methods
4. Administration and Supervision of Industrial Education
5. Materials, Products, and Processes of Industry
6. Evaluation in Industrial Education
7. Analysis and Organization of Teaching Materials
8. Curriculum Building in Industrial Education
9. Shop organization, management, and planning

If a teacher plans to teach any subject other than vocational, it will be necessary for him to obtain an Iowa teaching certificate issued by the State Department of Public Instruction.

ADVISORY COMMITTEES

3845. Code of Iowa. Local advisory committee. "The board of directors of any school district having a population of more than five thousand persons, maintaining a school department, or class receiving the benefit of federal monies under the provisions of this chapter shall, as a condition of approval by such state board as herein provided, appoint a local advisory committee for vocational education, consisting of persons of experience in agriculture, industry, home economics, and business, to give advice and assistance to such board of directors in the establishment and maintenance of such schools, departments, and classes. The state board may require the board of directors of any school, department, or class, to appoint such an advisory committee. Members of such advisory committee shall serve without compensation." (C24, 24, Sec. 3845)

Advisory committees are essential in the operation of a part-time Cooperative Industrial Education program. If the members are carefully selected and the meetings well planned, the advisory committee can be of much assistance to the coordinator. The members should be a group of interested employers, employees, and school officials to whom he can go for counsel and advice in the operation of the program. Both management and labor will have a clearer understanding of the aims and purposes of the program through participating in it as members of advisory committees and as consultants. Likewise, school authorities (Supt., principal, counselor, etc.) will gain more complete knowledge of the desires, needs and attitudes of management and labor. Such a committee is advisory only.

Each coordinator will want a general advisory committee which will function throughout the year. In addition, he may organize in larger cities, a number of craft or trade advisory committees to aid in the organization of instructional material for specific occupations and to advise on special problems.

GENERAL ADVISORY COMMITTEE

A. Personnel of Committee:
   1. Character of Committee:
      It should consist of representatives of employers and employees to serve in a consulting capacity, together with one or more representatives of the school system (i.e. superintendent, principal, counselor).
   2. Method of appointment:
      a. The board of education upon recommendation of the superintendent of schools should officially make the appointments.
      b. The local director of vocational education and/or coordinator should be consulted before any appointments are made.
   3. Basis for selection:
      Members of the committee should have one or more of the following qualifications:
      a. May be a leader in some occupational group, such as Trades and Labor Council, Association of Manufacturers, or others.
      b. May be the chairman of some occupational group, such as Educational Committee and Apprentice Training Committee.
      c. May be the representative of some civic group that is interested in vocational training.
      d. May be a civic leader, man or woman, who has evidenced special interest in the Part-time Cooperative Industrial Education program.
      e. May be a member of the Board of Education who is especially interested in vocational education.

B. Purposes and Duties of Committee:
   1. To advise and assist the coordinator in setting up, carrying on, and improving the program in Part-time Coop.
   2. To advise on various occupations in which there are definite needs for training.
   3. To advise on job placement -- selection of firms or employers.
   4. To assist in selling the program and keeping it sold.
   5. To assist in obtaining the cooperation of labor, employers, and the school.
   6. To recommend personnel for occupational advisory committees.
   7. To assist in maintaining high standards.
   8. To assist the coordinator in arriving at a fair beginning hourly wage.

C. Suggestions to the Coordinator:
   1. Help the chairman and the members of the committee conduct meetings in a business-like way.
   2. Be prepared for problems which may arise (work out an agenda with chairman and mail to advisory committee in advance of meeting).
   3. Don't waste time.
   4. Encourage short, snappy meetings.
   5. Know your committee -- get acquainted with them individually.
   6. Make every question or issue as clear-cut as possible.
   7. Have outlines, suggestions, etc., duplicated and distributed for each committeeman's study and consideration.

8. Take notes, and write minutes <u>without</u> quoting individuals for later distribution.
9. Promote a feeling of ease, see that each member meets every other member and is informed as to what group he represents.
10. Endeavor to meet the members of the committee on the level of cooperative enterprise.
11. Ask for suggestions, comments, and criticisms about the program, the work of the department, course outlines, equipment, etc.
12. Be prompt, be on hand and start at the appointed time.
13. Explain clearly and definitely what you are trying to do.
14. Extend equal courtesy to members of all occupational groups.
15. Refrain from comment which might offend a sensitive person.
16. Ask for suggestions of faculty applicants.
17. Above all, meet only when there is some specific reason to meet.

THE BEGINNING COORDINATOR

Opening a new program by either an experienced or an inexperienced coordinator requires a period of careful thought and thorough planning. The success or failure of the entire program will hinge upon the contacts and planning made in the early stages of development.

Preparation for Arrival in the Community: Upon arrival on the job the coordinator should secure a map and a telephone directory of the community, lists of business concerns, manufacturing plants, and contractors. The maps and lists are usually available through the Chamber of Commerce or the Mayor's office. Careful study of these will save hours of valuable time.

First Contacts: The coordinator should arrive about six weeks to two months prior to the opening of school so that the major phases of the Part-time Cooperative Industrial Occupations program will be organized before classwork begins. Upon arrival in the community, he should immediately contact the superintendent, principal and vocational director. All of them have information on the present stage of organization, and in addition they will be of great assistance in furnishing information concerning interested students contacted in the spring during their junior year and possible training stations.

Get-Acquainted Tour: The superintendent, principal, or director can supply a list of the leading people of the community who are interested in the program. As many of the local manufacturing concerns should be visited as possible to meet the leaders and learn of the training possibilities in their areas. This list should be used cautiously, and all contacts should start with top management. See the attached list for suggested occupations into which student-learners may enter:

1. Air conditioning repairman
2. Aircraft and engine mechanic
3. Auto body and fender mechanic
4. Auto mechanic
5. Auto parts man
6. Auto maintenance mechanic
7. Baker
8. Blacksmith
9. Broadcasting technician
10. Bookbinder
11. Bricklayer
12. Cabinet maker
13. Carpenter
14. Commercial artist
15. Cook - hotel or restaurant
16. Decorator - interior
17. Diesel mechanic
18. Dental assistant
19. Draftsman
20. Drainage mechanic
21. Dry cleaner
22. Electrician - wiring and maintenance
23. Electrician - appliance repair
24. Electrician - switchboard repairman
25. Electronics - radio and TV repairman
26. Feed & seed preparation
27. Floor & wall covering mechanic
28. Food processor - poultry & meat
29. Food processor - butter & cheese
30. Greenhouse worker
31. Heat treater
32. Heating installer
33. Implement repairman

34. Laboratory technician
35. Linotype operator
36. Locksmith
37. Machinery repair - heavy
38. Machinist
39. Meat cutter
40. Monument maker
41. Moulder
42. Neon signmaker & repairman
43. News reporter
44. Nurses aide
45. Painter & decorator
46. Pattern maker - metal & wood
47. Photographer
48. Piano tuner
49. Plater - electro
50. Plumber or steamfitter
51. Printer
52. Refrigeration repairman
53. Service Station, auto maintenance
54. Sewing machine repairman
55. Sheet metal worker
56. Shoe repairman
57. Sign painter
58. Storekeeper
59. Tailor
60. Tile setter
61. Tire recapper
62. Tractor mechanic
63. Upholsterer
64. Watch & jewelry repairman & engraver
65. Welder
66. Well drillings, pump repair

See also O.E. 84029, Coded Occupational Titles in Trade and Industrial Education, Office of Education, United States Department of Health, Education and Welfare, Washington, D. C.

SELECTION OF STUDENTS

Selection of students for vocational training is more than a decision of school authorities. The decisions of the prospective student, his parents and the coordinator are just as much a part of the process. In schools where sufficient personnel is available, the selection can be a joint process, but in smaller schools the coordinator may be responsible for all phases of selecting and scheduling trainees. The coordinator should keep in mind the following objectives:

A. Guidance objectives:
   1. To promote favorable adjustment of the individual.
   2. To meet the demands of the employment market as to numbers trained, kinds and levels of skills required.
   3. To make a maximum contribution to society and economic well-being of the individual.
   4. To minimize transfers, drop-outs, failures, and occupational maladjustment.

B. Student objectives:
   1. To secure dependable and realistic information in advance of his decision on occupational and education opportunities and requirements.
   2. To have assistance in formulating his own personality profile from a record of his aptitudes, abilities, interests and home background.

C. Coordinator objectives:
   1. Training to those who are 16 years of age or over.
   2. Training to those who want it, need it, and are able to profit by it.
   3. Select as trainees those who are employable in personality and appearance.
   4. Make the schedule of classes of trainees flexible to eliminate conflicts with other activities of the school and on-the-job training.
   5. Secure the consent of the trainee's parents before he is scheduled.
   6. Inform the trainee of the details involved in the training so that he is able to make a real choice.
   7. Select as trainees only those free of physical weaknesses that might contribute to permanent injury through participation in the part-time training program.
   8. Use care in the placement of student-learners.

D. Aids to student selection:

   The coordinator should familiarize himself with the uses and availability of the following materials used in selection:
   1. Pupil records, selection tests, counseling materials and forms used in interviews.
   2. Procedures for presenting occupational information.

3. Cumulative records for the purpose of determining:
   a. Health and physical data.
   b. Scholastic tests and records.
   c. Evidence of aptitudes other than scholastic.
   d. Interests, vocational and other.
   e. Social growth and personality.
   f. Family data.
   g. Pupil background data.
   h. Educational and vocational plans.
   i. Activity data.
   j. Work experiences prior to the senior year.
   k. School attendance record.

E. Evaluation of student selection:

An evaluation procedure to be used at the end of the school year is desirable. The following three methods are suggested as effective devices:

1. Weigh the effectiveness of the related study by means of periodical employer rating sheets which show the development of the student while in on-the-job training.
2. Conduct a follow-up investigation, using employer rating sheets after the student has completed school and is employed on a full-time basis.
3. Conduct a survey to determine the percent of former trainees who have remained in the employment for which trained or in allied fields, the percent who have changed to other fields, and the percent unemployed.

In the selection of a trainee, verbal learning ability should not be the only criteria. If he possesses other traits, such as willingness to learn, cheerfulness, enthusiasm, and eagerness to cooperate and accept responsibility -- traits which will make him liked by his employer -- his weaknesses in verbal learning may be of less importance.

If a prospective trainee possesses high learning ability but lacks desirable personal qualities, his high learning ability may not balance his lack of other qualities to the extent that he should be admitted to the program.

PLACEMENT OF STUDENTS

The success of a Part-time Cooperative Industrial Education Program depends greatly upon wise placement of student-learners in training situations. One poor placement can have a demoralizing effect upon the entire present and future program. The coordinator assumes most of the responsibility for this phase of the program, but he can accomplish the task more easily if he enlists the help of others in the community. His job may be divided into four main tasks.

First, prospective employers must be informed of the requirements and the advantages involved in cooperative training through talks to service organizations, manufacturers' and builders' associations, and chambers of commerce. The talks should be well organized, concise and to the point. Prospective employer-trainers should know details involving pay, rotating the learners between different jobs, minimum hours, reports required by the school, fair labor standards, social security and other information pertinent to the program. This information should be made available to them before the placement campaign starts.

Second, placement involves leading the students through a period of preparation. They must be familiar with what is involved in the following:

1. Employer-student interviews.
2. Dress, appearance, and behavior during the interview.
3. Application forms, and information which must be available when completing them. (See Appendix), Social security card and student check sheet.
4. Entrance testing in cooperation with the Iowa Employment Security Commission Office. (GATB).
5. Work schedules and school schedules.

Third, intelligent placement of students involves the analysis of each training situation in advance. The student should understand the opportunity for employment after the training period is completed, stability of the employment, opportunities for advancement, social values of the industry in which the job occurs, length of the training period, training carry-over to related occupations, regularity of employment, training facilities, and hazards which may be present. Care should be taken to place trainees where personality differences are not too great.

Fourth, talking to employer groups and writing articles for publication in the newspapers are introductory devices only and will not get on-the-job training for students. Employment must be secured by personal visits of the coordinator with the employers. The visits should be short and not overdone by the coordinator. Let the

employer talk as much as he wants. If it can be shown that there is a student who wants to do the kind of work that the employer is able to furnish, placement will be made much easier. The duties of the coordinator should be clear to the employer at the outset. This will eliminate many of the special placement problems which are bound to occur even in well-supervised programs.

It is essential that the coordinator be able to anticipate problems and their solutions. This ability will increase with experience and through association with other coordinators. Probably no phase of school work offers a greater opportunity for the exercise of initiative than does coordination of a cooperative part-time program.

COORDINATOR'S YEARLY TIME SCHEDULE
A Partial Listing

Early Spring of Junior Year	make presentation to juniors on the Part-time Cooperative Industrial Education Program
Spring of Junior Year	student applications and student interviews
July and August	new employer contacts
Two weeks before school opens through first two weeks of school	contact all student applicants, arrange interviews, and follow-up for employer acceptance
Third week of school	parent conference for approval through training agreement (see page 39 of program forms)
Fourth Week	employer acceptance through signing of training agreement
Third through fifth weeks	complete training outline with employer (see page 43 of program forms)
Fifth Week	organize Co-op Club for students
Sixth Week	establish system of contacts with employer and observation of student trainee at work a maximum of three week intervals
Fall	first advisory committee meeting to organize events for the year and advice on policies
Seventh or Eighth Week	begin contacts with employer for confidential report (see page 41 of program forms) this to be repeated each grading period
Ninth or Tenth Week	begin observation of junior students' work especially in Industrial Education classes
Spring	interview student applicants; second advisory committee meeting to set policies for the coming year
Late Spring	evaluate training stations for next fall; annual employer-employee luncheon or banquet

RECOMMENDED COORDINATOR'S DAILY TIME SCHEDULE

I. Full-time coordination with a maximum of thirty student-trainees
   A. Related Instruction - one or two periods for related subjects class each day equal to the length of other class periods, to be taught either before lunch period or first period in the school day*. The class should be composed of student-learners in about twelve to fourteen different occupations for effective instruction.
   B. Coordination - five or six full class periods per day for coordination of student-trainees' training with employer. The afternoon for coordination is helpful because most student-trainees should be scheduled on-the-job.

II. Half-time coordination with a maximum of seventeen student-trainees

The above time schedule should be followed with some exceptions. The time for coordination should be three hours preferably in the afternoon. It is recommended that a half-time coordinator have one or possibly two class preparations in addition to this vocational work.

In both instances the availability of secretarial help will have much influence upon effective use by the coordinator of his scheduled coordination periods.

*With related subjects class before lunch, a student-trainee may be scheduled on-the-job three hours prior to class. Or with the class scheduled first period of the day, a student-trainee may be scheduled on-the-job three hours after class and prior to lunch.

OPERATING THE PROGRAM

(1) See page 17 "Coordinator's Yearly Time Schedule"
(2) See page 18 "Coordinator's Daily Time Schedule"

The chief duty of the coordinator in operating the program is to correlate the in-school program with the on-the-job training. Successful results are nearly always reflected in the manner in which the many duties of the coordinator are performed.

Unless all of the functions of the program are treated in a professional manner, it is apt to become a disorganized work-experience program having little training value.

Records: All organizations find that record keeping is an important and necessary part of their administration. Records will assist greatly in selling the program to the administration, the students, and the community. They are invaluable for use in surveys and professional reports. The coordinator should look at them as a valuable asset in developing and maintaining his program. The sooner the coordinator develops in himself an appreciation of the value of current records for up-to-date reference and cumulative records for evaluation and publicity, the more effective will be his program -- and the easier to administer.

Scheduling the Student's Program: This problem will vary according to the number of class periods in the school day and the amount of credit allowed for related subjects and on-the-job training. The student must spend at least as many hours (clock) on the job as he spends in school; a minimum of 15 hours per week. Usually he will carry two non-vocational courses in addition to his vocational program. In most instances, he will earn more credits with this schedule than the majority of his classmates in school full time.

Training Outline: (See page 43) Following completion of selection and scheduling of students, it will be necessary to develop a list of processes to be learned by the student. It is derived from an analysis of the occupation in which the student is to be trained. Most coordinators find it advantageous to include an outline of directly related study to be carried on simultaneously with the job processes.

The coordinator, working with the employer or a member of the advisory committee, makes a break-down of the major phases or processes to be learned. These should be arranged in order of difficulty whenever possible. Under each major phase are listed enough typical jobs to give a cross-section of the work performed. The related subjects to be studied in school should be worked out at the same time.

A flexible time schedule should be assigned. The employer should understand that the student showing satisfactory progress is to be advanced to the next general process according to the time schedule.

Training Agreement: (See page 39) The coordinator must point out the respective responsibilities of the school, employer, student, and parent in carrying out the student-learner's training program. This is best done through a training agreement that is signed by the student and parents, one for permanent school records, and one for the employer.

Developing the Related Study Assignment: A regular schedule of supervised technical study (directly related) assignments for each student should be developed for the entire year. However, special related subject problems may arise from experiences on the job. These can be developed from the weekly student progress report (see page 40), which are a daily recording of the students' work activities. This means considerable checking of the progress reports by the coordinator to locate these needs. As the course progresses, the student-learners may assist in determining their own needs.

Materials for immediate lesson development should be readily available. The coordinator should study the training outline so that he will be able to anticipate the needs and have the materials on hand. All coordinators should be collecting related materials constantly and cataloging them for easy reference.

Coordination: The coordinator performs such duties as job visitations, home visitations, counseling with staff and administrators, and widening his circle of contacts.

Unless special problems arise, periodic visits to each training agency should be made. These visits must be purposeful with definite points to be observed such as general conditions, hazards, attitudes of fellow workers, specific operations, related instruction needed, personal appearance of trainee, and interest of trainee and employer. Information gained from this visit helps the coordinator evaluate the student-learner's progress. A record should be kept of each visit with comments concerning the coordinator's reaction to the progress and nature of training. This may be kept on a student's record form that can be carried in a small notebook. See also page 42.

Home visits are extremely valuable in keeping the parents informed of the student's progress both in school and on-the-job. In turn the coordinator learns of home conditions and parental attitudes that will be helpful in counseling the student concerning his school work and on-the-job training. A better understanding of home conditions will also be of benefit to the employer, but tact and discretion must be exercised in giving out this information. Records of these visits should be kept in the coordinator's confidential files.

Consultation with other faculty and administrative staff members should be held when necessary to discuss a student's progress, but care must be taken that such conferences do not become mere gossip. Broad benefits may be derived from such conferences as follows:

1. Understanding of the purposes and objectives of the program by other teachers.
2. Appreciation of the effectiveness of the program.
3. Understanding of problems of a Part-time Cooperative Industrial Education student.
4. Better counseling and referrals to your program.

Avoiding Difficulties: The following is a list of some difficulties which may be encountered in the operation of a program.

Possible Difficulties	Suggested Remedies
1. Poor selection of trainee.	1. a. Set a higher standard in the future. b. Consult advisory committee. c. Confer with principal and former teachers. d. Do a better job of explaining to junior students and parents.
2. Poor selection of training agency.	2. Same as above, a. b.
3. Improper supervision of student on the job.	3. a. Carefully outline the objectives to the training agency. b. Secure a thorough knowledge of requirements on part of the employer. c. Suggest different types of training. d. Suggest methods of supervised study. e. Assist in better planning of work.
4. Lack of cooperation with faculty.	4. a. Demonstrate desire to work with others. b. Explain program and promote good will
5. Coordinator has not kept alert.	5. Be alert at all times for suggestions from all directly concerned.
6. Lack of advisory committee interest.	6. a. Counsel with members. b. Be prepared to give information. c. Anticipate situation in advance and secure advice.

7. Improper publicity	7. a. Hand in material in writing. b. Seek cooperation of local newspapers. c. Help editors and reporters to get better knowledge of program. Send in corrections about misstatements.
8. Lack of proper consideration of other persons.	8. Try to use other person's point of view.
9. Failure to follow proper lines of authority.	9. Make a study of the proper line of authority and follow it.
10. Inadequate coordination.	10. Contact and counsel regularly with student's parents, employer, school officials, and citizens.
11. Lack of clear understanding of program.	11. Have a complete and clear knowledge of program and be able to explain it.
12. Lack of coordination of related instruction with the work on the job.	12. Know what the student is doing on the job and plan the related materials accordingly.
13. Failure to build and maintain student interest.	13. Counsel with students to discover real cause of lack of interest.
14. Lack of community cooperation.	14. Call on general advisory committee for help.
15. Inadequate instructional material.	15. Add materials to the library obtained from employer, consult with other coordinators, State Teacher Trainer, and State Department of Public Instruction.
16. Student-learner interested in pay only.	16. Impress student with educational value of job training.
17. Too many outside interests.	17. Do the coordination job first.
18. Inadequate records by co-ordinator.	18. a. Keep brief records from day to day. b. Have definite file for records. c. Have regular time to work on them.

THE RELATED INSTRUCTION CLASS

The relation between the related subjects teacher (i.e. coordinator) and the part-time cooperative industrial occupations class is less formal than that of the regular school class. Certain basic fundamentals must be taught, but the problems of adapting this material to job-training experiences differ with each individual. If the students have been selected on the basis of their interest in and desire for training for a job, there should be few problems of discipline. Trouble-makers and loafers should be "weeded out" to make room for those who mean business. However, no one should be dropped until an earnest effort has been made to arouse his interest in the job training.

A brief outline of some fundamental principles of good teaching may be helpful in preliminary planning for the related subjects class.

The foundation of all learning is <u>interest</u>, a desire to learn. A few of the bases for interest are:

1. <u>Activity</u> - mental, physical, or both of a challenging nature.
2. <u>Curiosity</u> - something unfamiliar arousing question in the student's mind.
3. <u>Creativeness</u> - a desire to produce something different or better.
4. <u>Future ownership</u> - present accomplishment determining student's future success.
5. <u>Praise</u> - an occasional word of approval or commendation.

The basic steps in teaching are:

1. <u>Preparation</u> - getting all minds focused on the subject, creating interest.
2. <u>Presentation</u> - instruction, using necessary and helpful teaching aids.
3. <u>Application</u> - performance by student under direct teacher supervision.
4. <u>Testing</u> - performance by student entirely on his own.

The related subjects class accomplishes three purposes:

1. It provides instruction to the entire group on related information of interest and importance to <u>all</u> workers.
2. It provides time and supervision for individual study of a technical nature pertinent to the student's part-time training on the job.
3. It provides for personal conferences between the teacher and student.

The three purposes will be treated more in detail, but first a suggestion as to the time to allot within the related subject class for each of these purposes may be helpful. It is suggested that the group instruction take one-half or less of the total class time with considerable emphasis upon job safety. The exact division of time will vary according to the needs of the group. More time in the early weeks of the program should be given to group instruction on problems common to all workers. As the end of the course approaches a larger share of the time should be devoted to individual study of technical materials related to the individual's job.

I. GROUP INSTRUCTION*

The following units are only suggestive from coordinators in Iowa of what may be taught to the group as a whole. The final decision, of course, is dependent upon the local needs. However, an effort has been made to include topics of importance to all student-learners. Information and assignment sheets will be helpful in bringing this material together for presentation to the group. In teaching some of these topics it may be helpful to call in local specialists to meet with the class.

1. Orientation:
   a. Explanation of the cooperative part-time program as a part of Vocational Education
   b. The Coordinator's part in the program
   c. Why do we work?

2. Finding the job:
   a. Matching men and occupations
   b. How to apply for a job?

3. Holding a job
   a. Employer-employee relations
   b. Employee-employee relations

4. Job ethics.

5. Job safety
   a. General safety practices
   b. Safety related to student-trainee jobs
   c. First aid

6. Your social security

7. Labor-management relations
   a. Capital
   b. Early labor organizations
   c. Development of the modern labor movement

*See appendix page 46 for instructional materials titles

d. Between two World Wars
   1. Labor laws with particular emphasis upon Wage and Hour Law
   2. Social Security and U. S. Employment Service

e. The Second World War and After
   1. Taft-Hartley Act
   2. Collective bargaining
   3. Grievance procedures
   4. Fringe issues
   5. Incentives - suggestion plan, piece rate
   6. Child Labor Laws

8. Income tax, using Federal and state bulletins

9. Credit - budgeting
   a. Legal problems (practical problems of law)
   b. Contracts - negotiable instruments
   c. Courses of credit
   d. Determining rate of interest

10. Your personality and your job
   a. Mental health - emotional maturity.
   b. Organization of leisure time

11. Insurance and savings
   a. Life
   b. Property, auto, health, and accident
   c. Places and methods of saving

12. Related mathematics

13. Iowa Workmen's Compensation Law

II. SUPERVISED TECHNICAL STUDY

The student materials for the individual student should be on the same topic as his part-time training on the job. This individualized study may be organized around the Related Study Guides put out by several state vocational education departments and publishing companies. A complete set-up usually consists of a student's manual, references which supply information to the questions in the student's manual, and a teacher's manual with keys to the questions. No effort is being made here to list the hundreds of study guides in the field. However, the following partial list of sources should be helpful in obtaining related study materials.

(1) List of Instructional Materials For the Supplementary Training of Apprentices and Other "On-The-Job" Trainees, Office of Education, Division of Vocational Education, Washington 25, D. C., U. S.
(2) American Technical Society, Chicago, Illinois.
(3) Delmar Publishing Co., Albany, N. Y.
(4) State Departments of Vocational Education. i.e. Missouri, Texas, Ohio, California, and others.
(5) Industrial Education Curriculum, Iowa State University

INDIVIDUAL TECHNICAL STUDY FORM*
(For Student's Use in Related Class)

_____ _____
Title of Job or Operation to be Studied — Student's Name

_____
Occupation

I. Preliminary (to be filled out prior to study)
What are you planning to do or learn with this assignment?
(written by instructor or more able student)
Do _____
or
Learn _____

II. Summary of Individual Study
A. Tools and equipment needed on the job.

B. Safe practices and work precautions.
1.
2.
3.
etc.

C. Procedure and Steps that I found I should use.
1.
2.
3.
4.
5.
6.
etc.

D. Outline of information that I believe I should remember.
(Emphasize the why)
1.
2.
3.
4.
etc.

E. Questions on subtopics that I want to know more about.
(by instructor or more able student)
1.
2.
3.

*This form could be duplicated on two pages for more adequate answering of various parts.

III. PERSONAL CONFERENCES

The student may have problems of a very personal nature which may require a conference with the coordinator. Such conferences may be held during the supervised study period or any other convenient time during school or occasionally on the job. Space should be provided for individual conferences with students.

PROMOTION AND SURVEYS

Promotion is one of the most important, yet most neglected phases of the Part-time Cooperative Industrial Education program. It is a continuous, never-ending process of getting the program before the public and keeping it there. Promotion should begin when the program is still in its early stages of organization, and should continue to expand, even after it is well established.

It is important that the coordinator study carefully the community in which he is working in order that the cooperative program may be made most effective. In fact, this made-to-measure feature of the program is one of its greatest advantages. The coordinator must make an effort to contact and make friends with all agencies in the community which can contribute in any way to the program. Citizens should be made aware at all times that the education of all youth for life's work is a community responsibility of great importance.

The following points are set-down as a guide for promotion of the Part-time Cooperative Industrial Education Program.

1. Acquaint the student body with the program through personal contacts, the school paper, junior class meeting, and the counselors.
2. Acquaint the public with the program through service clubs, civic organizations, newspapers, radio, display windows, and any other available means.
3. Inform the superintendent, principal, and faculty of the value of the program.
4. Inform employers and the community on the merits of the program as a whole. Cordial relationships between all parties will mean more and better training stations.
5. Recommend capable advisory committee members to the administration.
6. Promote social meetings of employers and trainees.
7. Use home visits to acquaint parents with the objectives of the program.
8. Inform labor organizations of the benefits of the program.

SURVEYS

The coordinator should use caution in attempting any lengthy and time-consuming surveys. However, certain local information is needed as the basis for development of the cooperative part-time industrial education program. Within restricted fields, informal surveys may produce sufficient data to serve as a guide in setting up the program.

These surveys should include the following data:

1. The student's interest and need for training.
2. Local establishments with training possibilities.
3. The various payroll jobs within these organizations.
4. The length of training required for various jobs.
5. The rate of labor turnover in the various jobs.
6. The capacity of the community to absorb the trained students upon graduation.
7. The follow-up to determine the value of the vocational program to the trainee and to the employer on first year graduates and four or five year graduates.

Agencies such as the local chamber of commerce and local employment bureaus may have valuable community surveys available. These surveys should be used whenever possible.

FOLLOW-UP

An evaluation of the Part-time Cooperative Industrial Education program should be made in the form of a follow-up to find out what had become of the graduates and to determine the effectiveness of their training.

Follow-up records should be kept over a period of about five years in order that satisfactory service may be rendered the student. During this time there may be a number of changes in employment, all tending to discourage him if he does not have competent advice. The vocational school or department does not turn out its graduates with good wishes and little more. The successful coordinator becomes a vocational advisor and follows his graduates through the adjustment period with every possible service he can render. He provides the community with a service far greater than just the supervision of some classes.

The following is a suggested form that may be used in a follow-up survey. The explanatory remarks will help in filling out the form.

1. Number of graduates - number who have completed a prescribed course of occupational training.
*2. Trade - number of graduates who entered occupation for which training was given.
3. Allied occupation - occupations other than that for which training was given and in which the training proves an important vocational asset. For example, training in auto-mechanics for a boy who becomes an automobile salesman.
4. Non-related occupations - any occupation in which the training received is not directly related.
5. Unemployed - graduates without employment including girls who have married and are not otherwise employed.
6. Total number of graduates who have completed the trade training course and are enrolled in institutions of higher learning.
7. Technical - graduates enrolled in technical schools or colleges for which occupational training was preparatory.
8. Non-technical - graduates enrolled in liberal arts or professional schools or colleges.
9. Armed Service - unable to determine capacity in which graduate is serving, or entered services direct from school.
10. Status unknown - graduates not in the survey.

*If graduate is in armed services and definite knowledge is available that he is engaged in occupation for which he was trained in high school, he should be included under (2) and not under (9).

LAWS AFFECTING COOPERATIVE TRAINING

The employment of high school students in cooperative training programs must conform to federal and state laws regarding the employment of minors. The coordinators should maintain standards of part-time programs in this respect as high as, or even higher, than those established by federal and state governments.

Child labor refers to the employment of boys or girls under the specific provisions of the Federal Fair Labor Standards Act or the corresponding state child labor act. "Oppressive" child labor refers to the violation of the acts. The acts do not apply to school activities or home duties or chores.

The coordinator should familiarize himself with all laws both federal and state which pertain to the welfare of minors, and check each student and training station in his program to make sure that all such laws are observed. Among the many laws that he will have to familiarize himself with are: The child labor provisions of the "Fair Labor Standards Act" (The Federal Wage and Hour Law). "Iowa Workman's Compensation Law," "Unemployment Insurance," both federal and state "Social Security Law," and the Apprentice Training Service.

Since federal laws apply only to those engaged in the production of goods in interstate commerce and Iowa laws apply to the production of goods in intrastate commerce, the coordinator should ascertain which laws apply in each specific case. Most of the time this information can be obtained from the employer who desires to participate in the part-time cooperative plan. The coordinator should ask the employer if he is engaged in interstate commerce. It is the responsibility of the coordinator to state to the employer the position of the school in relation to their student learners and the Fair Labor Standards Act.* The coordinator should also bear in mind that national and state legislatures amend many of the laws each time they are in session. For this reason, some of the information that is to be found in this manual regarding these laws may soon be out-dated. The coordinator should acquaint himself with all changes in the laws pertaining to child labor as they occur. This information can be secured from the State Teacher Trainer and the State Department of Public Instruction, Des Moines. Parts of the child labor provisions of the Fair Labor Standards Act and the Iowa child labor laws most applicable to co-op on-the-job training may be found on the following pages.

*See Handy Reference Guide to the Fair Labor Standards Act, Publication 1122, Wage and Hour and Public Contracts Divisions, United States Department of Labor.

CHILD-LABOR PROVISIONS OF THE FAIR LABOR STANDARDS ACT

"The child-labor provisions of the Fair Labor Standards Act apply to ANY EMPLOYER who employs any minor IN INTERSTATE OR FOREIGN COMMERCE or IN THE PRODUCTION OF GOODS for such commerce, and to any PRODUCER, MANUFACTURER, or DEALER who ships goods or delivers goods for shipment in interstate or foreign commerce."

"The EMPLOYMENT of ANY OPPRESSIVE CHILD LABOR in INTERSTATE OR FOREIGN COMMERCE or in the PRODUCTION OF GOODS for such commerce is prohibited. The SHIPMENT or DELIVERY FOR SHIPMENT, in interstate or foreign commerce, of goods produced in an establishment situated in the United States is also prohibited if within 30 days prior to the removal of such goods oppressive child labor has been employed in or about that establishment."

"Employment of children UNDER THE MINIMUM AGE act for various types of work by the act or by regulations issued under the act is defined as "OPPRESSIVE CHILD LABOR." Employment includes, to suffer or permit to work."

"An employer can protect himself from unintentional violation of the minimum-age provisions by obtaining and keeping on file an AGE OR EMPLOYMENT CERTIFICATE for each minor employed, showing the minor to be of the age established for the occupation in which he is employed. Employers should obtain such a certificate and have it on file before the minor starts work. Age or employment certificates issued under Iowa State child-labor laws are accepted as proof of age by the Federal Government." The certificate may be obtained by the student-learner from the superintendent of schools office.

*"16 years for most; 18 years for jobs declared particularly hazardous;" are the minimum ages for employment of student-learners by companies engaged in interstate commerce.

HAZARDOUS OCCUPATIONS

"Hazardous-occupations orders are regulations issued by the Secretary of Labor declaring occupations to be particularly hazardous for minors. The effect of these orders is to raise the minimum age for employment to 18 years in the occupations they declare hazardous. (Described on the following pages.) These orders are based on investigations or hazards made by the Bureau of Labor Standards, and are issued after public hearings have been held on proposed orders.

*The Iowa State Plan requires that "Co-op" Student-Learners be 16 years of age.

Information on the (interstate commerce) occupations now covered by hazardous-occupations orders, with the definitions used in the orders and with amendments and exemptions, are given on the following pages."

(1) Manufacturing or Storage Occupations Involving Explosives - This has to do with occupations in or about plants manufacturing explosives or articles containing explosives components.

(2) Motor-Vehicle Occupations - the occupations of motor-vehicle driver and helper. (Full time occupational pursuit.)

(3) Coal-Mine Occupations - All occupations in or about any coal mine, except the occupation of slate or other refuse picking at a picking table or picking chute in a tipple or breaker and occupations requiring the performance of duties solely in offices or in repair or maintenance shops located in the surface part of any coal-mining plant.

(4) Logging and Sawmilling Occupations - All occupations in logging and all occupations in the operation of any sawmill, lath mill, shingle mill, or cooperage-stock mill. (See exemptions.)

(5) Power-Driven Woodworking Machine Occupations - The occupation of operating power-driven woodworking machines including the supervising or controlling the operation of such machines, feeding, setting up, adjusting, repairing, oiling, or cleaning of such machines, feeding, setting up, adjusting, repairing, oiling, or cleaning power-driven woodworking machines.

a. Exemptions: This order shall not apply to the employment of a student-learner in occupations herein declared particularly hazardous: Provided, however, that such a student-learner is enrolled in a course of study and training in a cooperative vocational training program under a recognized State or local educational authority or in a course of study in a substantially similar program conducted by a private school; Provided, further, that such student-learner be employed under a written agreement which shall provide: (1) that the work of the student-learner in the occupations herein declared hazardous shall be incidental to his training, shall be intermittent and for short periods of time, and shall be under the direct and close supervision of a qualified and experienced person; (2) that safety instruction shall be given by the school and correlated by the employer with on-the-job training; and (3) that a schedule of organized and progressive work processes to be performed on the job shall have been prepared. Such a written agreement shall carry the name of the student-learner, and shall be signed by the employer and the school coordinator or principal. Copies of the agreement shall be kept on file by both the school and the employer. This exemption for the employment of student-learners may be revoked in any individual situation wherein it is found that reasonable precautions have not been observed for the safety of minors employed thereunder.

(6) Occupations Involving Exposure to Radioactive Substances and to Ionizing Radiations.

(7) Power-Driven Hoisting Apparatus Occupations - Involves the operation of elevators, crane, derrick, hoist, high-lift truck, riding on a manlift or freight elevator or as an assistant in the operation of a crane, derrick, or hoist.

(8) Power-Driven Metal Forming, Punching, and Shearing Machine Occupations - The occupations of operator of or helper on the following machines is covered by this order: rolling machines, pressing or punching machines, bending machines, hammering machines and shearing machines.

a. Exemptions: Student-learners enrolled in a course of study and training in a cooperative vocational training program under a recognized State or local educational authority are exempted. (See Order "5a" on the preceding page.)

(9) Occupations in Connection With Mining, Other Than Coal -

(10) Slaughtering, Meat Packing and Rendering Plant Occupations

(11) Power-Driven Bakery Machine Occupations.

(12) Power-Driven Paper Products Machines - This order covers the operation of or the assisting in the operation of wire stitchers, staplers, circular or band saw, corner cutter or mitering machine, corrugating and single-or double-facing machine, die cutting guillotine paper cutter or shear, horizontal bar scorer, scrap paper baler, laminating or combining machine, vertical slotter, sheeting machine, platen die cutting press, or punch press.

a. Exemptions: Student-learners enrolled in a course of study and training in a cooperative vocational training program under a recognized State or local educational authority are exempted. (See Order "5a" on the preceding page.)

(13) Occupations Involved in the Manufacture of Brick, Tile and Kindred Products.

(14) Occupations involved in the operation of circular saws, band saws, and guillotine shears.
An extension of previous orders pertaining to wood and paper to all occupations regardless of material being cut. Includes meatcutting. (See Order "5a" on the preceding page.)

(15) Occupations involved in wrecking, demolition, and ship-breaking operations. Order pertains to all operations including cleanup and salvage performed at the site of total or partial razing, demolishing or dismantling.
No exemptions provision to apprentices or student-learners.

(16) Occupations involved in roofing operations (See Order "5a" on the preceding page.)

(17) Hazardous Occupations - Excavation (See Order "5a" on the preceding page.)

"Whenever State standards for employment of children are higher than Federal standards, the State standards should be observed."

CHILD LABOR LAWS FOR THE STATE OF IOWA

In some respects the Iowa law regarding the employment of minors will differ from the federal law. After determining whether the case at hand comes under federal or the state law, the coordinator should acquaint himself with that particular provision of the law, bearing in mind that the Fair Labor Standards Act provides, "Whenever State standards for employment of children are higher than Federal standards, the State standards should be observed."

Chapter 92 entitled, Child Labor Laws of the State of Iowa, 1934 Code, provides as follows:

"92.6 LABOR PERMIT-HOW OBTAINED. A work permit shall be issued only by the superintendent of schools or by a person authorized by him in writing, or, where there is no superintendent of schools, by a person authorized in writing by the local school board in the community where such child resides, upon the application of the parent, guardian, or custodian of the child desiring such permit. (16 years of age minimum for Co-op programs.)

For further information Bulletin No. 21, LABOR LAWS OF THE STATE OF IOWA, 1954 Code, is available from the State Labor Commissioner, State House, Des Moines, Iowa.

UNITED STATES MINIMUM WAGE

The minimum wage is $1.25 per hour for all workers except for industries in Puerto Rico and the Virgin Islands if provided for under the Fair Labor Standards Act, time-and-a-half pay for over-time after forty hours except as otherwise specifically provided by the Act. For authority to employ at less than the minimum wage applicable under Section 6 of the Fair Labor Standards Act, for a student-learner enrolled in a vocational training program under the supervision of the State Board of Vocational Education, or other recognized vocational training agency, the coordinator should fill out form "Application for a Special Student-Learner's Certificate for Employment Training," from the U. S. Department of Labor, Wage and Hour and Public Contracts Divisions, Washington, D. C., or nearest office.

There are no minimum wage requirements under the Iowa State laws.

IOWA WORKMAN'S COMPENSATION LAW

Before the enactment of workman's compensation laws, industrial employees were afforded no protection from economic loss resulting from injuries suffered during the course of their employment. The only avenue of relief open to an injured workman was legal action for damages against his employer, a procedure which was most unsatisfactory as far as the workman was concerned. With this in mind, the Iowa legislature passed an act known as the "Iowa Workman's Compensation law," the purposes of which were:

"a. To furnish certain, prompt, and reasonable compensation to the victims of work accidents and their dependents."

"b. To free the courts from the delay, costs, and criticism incident to the great mass of personal injury litigation."

"c. To relieve public and private charity of much of the destitution due to uncompensated industrial accidents."

"d. Eliminate economic waste in the payments to unnecessary lawyers, witnesses, and casualty corporations and the expense and time loss due to trials and appeals."

"e. Supplant concealment of fault in accidents by a spirit of frank study of causes, resulting in good will between employer and operative, lessening the numbers of preventable accidents, and reducing the cost and suffering thereunder."

UNEMPLOYMENT COMPENSATION

Iowa, with all the other states, has an unemployment compensation law designed to protect the employees when out of employment through no fault of their own, so that they will have some income to get along on while they are looking for other work. The plan is financed entirely by a tax on pay rolls. The tax is paid solely by the employer. Cooperative part-time students are not eligible for unemployment compensation while enrolled in school; see bulletin "Un-employment Compensation in Iowa," Iowa Employment Security Commission, Des Moines, Iowa

The tax is paid by employer for 4 or more employees after 20 weeks of partial or full employment (if not exempted) after a few years of payment it does decline from about 3% of employees' pay to .5%.

SOCIAL SECURITY

The Social Security Act was born during the Great Depression, at a time when ten million workers were without other employment other than work-relief, and when some eighteen million people were dependent for subsistance on relief. Of the several features of this Act, only the Old Age and Survivors Insurance section will be

treated here. Benefits from this Act are financed by payroll deductions, at the present time 3 5/8% of earnings from the employee and this is matched by the employer. In 1966, deduction will be at the rate of 4.2% up to $6,600 yearly earnings and matched by the employer. The deduction will increase to 4.9% in 1969. The coordinator should determine at the nearest local office of the Social Security Board what jobs are covered. The student-learner should be made aware of the disability benefits of the act. Changes are constantly being written into the Act, and as this is being written, Congress is considering additional changes. Any student embarking on his first job should secure a social security number through his local post office or the nearest office of the Social Security board. He will carry this number throughout his life. Further information may be obtained from the Social Security Board, Des Moines, Iowa.

BUREAU OF APPRENTICESHIP AND TRAINING

The national apprenticeship law passed by Congress in 1937 was enacted to promote the furtherance of labor standards of apprenticeship...to extend the application of such standards by encouraging the inclusion thereof in contracts of apprenticeship, to bring together employers and labor for the formulation of programs of apprenticeship, to cooperate with state agencies in the formulation of standards of apprenticeship.

An apprenticeable trade is one that requires four thousand hours (two years), or more to learn. Iowa has a state apprentice council whose responsibility is to formulate standards and give assistance to local joint apprenticeship committees, and also review and approve or disapprove apprentice standards and indenture contracts sent in for registration.

Local joint apprenticeship committees are empowered to evaluate any previous training a student may have had either in school or otherwise, and to allow him credit on his apprenticeship.

Part-time Co-operative Industrial Education Program

(Name of School) (attach picture)

STUDENT APPLICATION FOR ADMITTANCE

Student's Name_____ Home Room_____
Last First Middle

Address_____ Phone No._____

Date of Birth_____ Height_____ Weight_____ Age_____

Social Security Number_____ _____
Parent's Name

Parent's Address_____ Occupation_____

Why do you wish to enter this program?_____

_____

In what out-of-class activities do you participate?_____

List the names of Industrial Education courses and the grades earned in high school.

_____

_____

List your previous employment:

COMPANY	TYPE OF WORK	DATE (month and year)
_____	_____	_____
_____	_____	_____
_____	_____	_____

In what type of work do you desire training?

First choice_____

Second choice_____

References:

Indefinite_____

_____

_____

If accepted I agree to abide by the rules and regulations necessary for the operation of this training program.

Signed _____ _____
STUDENT DATE

(Do not write below this line)

Coordinator's

approval of application_____

rejection of application_____

Counselor's (Vice Principal's) Recommendation

Example of information coordinator should have about the student applicant. (Most information will be available from student's cumulative record or principal's files.)

1. Abilities tests
2. Aptitude tests
3. Interests tests
4. General intelligence
   a. verbal
   b. non-verbal
5. Grades
   a. general
   b. industrial education
6. School attendance record
7. General school conduct
   a. other teacher's comments
   b. observations especially in shop courses
8. Out-of-school conduct

PART-TIME CO-OPERATIVE INDUSTRIAL OCCUPATIONS PROGRAM
INTRODUCTION CARD

Mr. _____

Company _____ Address _____

This will introduce _____ who is applying for the position of _____.

Date _____ _____
COORDINATOR

(Name of School)

PART-TIME CO-OPERATIVE INDUSTRIAL EDUCATION PROGRAM
CO-OPERATIVE AGREEMENT FOR TRAINING

19__ - 19__

The_____will permit_____
Training Agency Student

to enter their establishment for the purpose of gaining practical knowledge and experience in the occupation of_____from_____
Beginning Date

to_____. This training will be in accordance with the
Closing Date

general training outline and the following conditions:

1. The student, while in training, shall be deemed a student-learner and shall progress from job to job in order to gain experience in all phases of the operations and duties. The time schedule, as indicated in the training outline, shall be followed as closely as possible. Safety Instruction shall also be included on the training outline. Safety taught in the related class shall be correlated with the safety emphasis on the job. (See supplement - page 47.)

2. The training agency will provide not less than fifteen hours per week of training which will be primarily accomplished during the school day hours.

3. The school will provide instruction in the technical and related subjects for a minimum of one regular class period per day.

4. A wage comparable to the training status of the trainee will be paid by the training agency on a co-op basis. This rate to be_____per hour.

5. The trainee will adhere to all rules and regulations of the training agency, and make every effort to report for work promptly. In the event of illness or emergency, the trainee must notify the employer and the coordinator immediately.

6. If for any reason the employer can no longer employ the trainee, arrangements will be made with the coordinator to remove the trainee.

7. The employer agrees not to hire the student trainee on a full-time basis during the period of this agreement except by permission of school officials.

School_____Employer_____
Coordinator

Parent_____Student_____

(Name of School)

PART-TIME CO-OPERATIVE INDUSTRIAL EDUCATION
STUDENT PROGRESS REPORT

_____ _____ Week of _____ to _____

Student's Signature Training Agency

	Hours Start - Quit	Brief Description of Work
MONDAY		
TUESDAY		
WEDNESDAY		
THURSDAY		
FRIDAY		

Hourly rate _____ Total hours _____

Total wages received for week (before deductions) _____

New operations learned during week _____

_____

Questions for later discussion _____

_____

Note: The student-trainee will be expected to return this to the school coordinator by the beginning of a new week of training.

_____

Signature of Company Training Supervisor

(Name of School)

EMPLOYER'S CONFIDENTIAL REPORT*
Part-time Co-operative Industrial Education Program

_____
Student

_____
Firm

_____
Training area

For Grading:
Place one of the numbers in each box within the grading period col
1-Outstanding (grade in
2-Very good (comparison
3-Good (to a new-
4-Satisfactory (young employe
5-Unsatisfactory

	First Nine Weeks	Second	Third	Fourth
PERSONAL HABITS				
Punctuality- - - - - - -				
Accepts instruction				
Personal appearance				
Choice of language				
Uses good judgment (for a beginner)				
Dependability				
Ability to get along with people				
Initiative				
Care of equipment				
Interest shown in work				
WORKMANSHIP				
Accuracy- - - - - - -				
Attention to details				
Quality of work				
Orderly with work				
Safety conscious				
Other skills peculiar to this occupation _____				
_____				
_____				
School Coordinator's Grade	_____	_____	_____	_____

Space should be allotted, probably on the back of this report, for the employ to write general comments each grading period. Also, each grading period th employer should be encouraged to write deficiencies that the student trainee possesses. Space should also be provided for the employer's signature each grading period. The following may be used:

First Nine Weeks

General Comments

Deficiencies

_____
Employer's signatur

*May or may not be confidential

Example of: Coordinator's Observation Record for a Student-Learner During One Year

Student Trainee

Training Establishment

Code:
A - Absence from work
C - Call upon student trainee at work
P - Phone call to employer
V - School vacation days
S - End of first semester

EMPLOYER CONTACTS

ATTENDANCE RECORD

EMPLOYER CONTACTS

	Weeks of School Year	M	Tu	W	Th	Fr	
	Aug-30 to Sept. 2						
	8-30,9-2	X					Employer accepted trainee
	9-5,9-9	X					Parent conference - written agreement signed
	9-12,9-16					C	Employer signature on written agreement "
	9-19,9-23		A	A			Flu
	9-26,9-30				P		Employer satisfied with student's progress
	10-3,10-7						
	10-10,10-14		C				Employer pleased with student's enthusiasm
	10-17,10-21						
	10-24,10-28						
	10-31,11-4			C		V	Employer confidential grading report-report
	11-7,11-11						Card grade determined (followed by trainee Conf
	11-14,11-18						Coffee break problem cleared up
Thanksgiving	11-21,11-25				V	V	
Vacation	11-28,12-2						
	12-5,12-9		C				Student personal problem affecting job progress
	12-12,12-16						
Christmas Vac.	12-19,12-23				V	V	
	1-2,1-6	V		P			Problem resolved, job progress again good
	1-9,1-13						
	1-16,1-20		C			S	Employer confidential grading report
							Report card grade determined
	1-23,1-27						
	1-30,2-3				P		Student - Trainee given 10¢ per hour raise
	2-6,2-10						
	2-13,2-17						
	2-20,2-24					C	New responsibilities added as per training outl
	2-27,3-3						
	3-6,3-10			A			Head cold
	3-13,3-17	P					Trainee needs more job related math
	3-20,3-24			C			Employer confidential grading report
Easter Vac.	3-27,3-31					V	Report card grade determined
	4-3,4-7	X			C		Trainee sent to 3 evening company training
	4-10,4-14						School sessions
	4-17,2-21						
	4-24,4-28		C				Job related math improving
	5-1,5-5					X	
	5-8,5-12						
	5-15,5-19			C			Employer confidential report

(Name of School)

PART-TIME CO-OPERATIVE INDUSTRIAL EDUCATION PROGRAM

TRAINING OUTLINE
19__19__

For_____While training in_____

At_____Under supervision of_____

Units	Job Instructor	Time Schedule in Weeks

Approved by: Date_____

_____
Employer

_____
Coordinator

Time in training
_____to_____

SURVEY OR GRADUATES OF PART-TIME COOPERATIVE INDUSTRIAL EDUCATION CLASSES

Report on Occupational Use of Training Made by Graduates of Public High School Co-op Classes

Between January 1, 19__ and December 31, 19__

Number of

Male _____
Female _____

Coordinator _____ School _____

Occupation	Number of Graduates	Number Not Presently Available for Placement		Number Obtaining Full Time Jobs			Number Employed Part-time	Number Un-Employed	Number Status Unknown
		Entered Armed Forces	Continued Full time School	All Other Reasons	In Occupation for which training	In field not related to training			

(Name of School)

Co-op Industrial Education Education**Permanent Record Card

Student_____

Date of Birth_____Sex____Age____Grade____Date Enrolled_____

_____

Employer | Address | Telephone | Occupation

Date Began | Date left | Hours of Work | Wages per Week

Reason for Leaving:_____

Employer | Address | Telephone | Occupation

Date Began | Date left | Hours of Work | Wages per week

Reason for Leaving:_____

Date left Program | Yes( ) No( ) Graduate | If "no" State Why

Home Address | Telephone

Front of Card

Name of Party for Reference | Address | Telephone

POST HIGH SCHOOL EMPLOYMENT RECORD

Date	Employer	Occupation	Wages Week	Sex	Graduate	Classi

Back of Card

For detailed information contact:
Owen Shadle, Teacher Educator
Trade and Technical Industrial Education
Iowa State University, Ames

SELECTED REFERENCES

Information concerning the organization of the Part-time Cooperative Industrial Education Program:

Bulletin Number Misc. TI-39 (Division of Vocational Education, State Department of Public Instruction, State Office Building, Des Moines.

ORIENTATION

1. Coordinator's own notes on Foundations of Vocational Industrial Education.
2. Part-time Cooperative Industrial Education Program, a guide and handbook for coordinators. (Industrial Education Curriculum, Iowa State University, Ames.)

FINDING THE JOB

3. W. K. Lasher, How You Can Get A Better Job, (American Technical Society, Chicago, 1964).
4. Pamphlet, How to Get and Hold the Right Job, (local employment offices, Iowa Employment Security Commission).
5. Pamphlet, Can I Get the Job, (General Motors Educational Relations Section, Public Relations Staff, Detroit, Michigan 48202).
6. Booklets, (Science Research Associates, 57 West Grand Avenue, Chicago, Illinois).
7. E. N. Chapman, Your Attitude is Showing, (Science Research Associates).
8. Charles R. Foster, Psychology For Life Today, (American Technical Society, Chicago, 1961).

HOLDING THE JOB

9. Mary Bredemeier, The Worker in Modern Society, (Vocational Division, Curriculum Laboratory, New Brunswick, New Jersey).
10. Booklets available upon request, (local telephone company business office).
11. Booklets, (Bureau of Business Practice, New London, Connecticut).

JOB ETHICS

Local school philosophy and objectives
Local advisory committee
Local community code of ethics

JOB SAFETY

12. Booklets, pamphlets, other publications, (National Safety Council, 425 North Michigan Avenue, Chicago, Illinois).
13. Accident Prevention Can Be Learned, (Metropolitan Life Insurance Company, New York, New York).
14. Pamphlets, booklets, charts (Superintendent of Documents, United States Government Printing Office, Washington, D. C. 20402).

YOUR SOCIAL SECURITY

15. Booklets, charts, pamphlets, (local or district Social Security representative).

LABOR MANAGEMENT RELATIONS

See reference No. 8

16. Bulletin No. 1000, A Brief History of the Modern Labor Movement, 1964 Edition, United States Department of Labor, 40¢, (Superintendent of Documents, United States Government Printing Office, Washington D. C. 20402).
17. Pamphlets and booklets, AFL-CIO, (AFL-CIO Building, Washington, D. C.).
18. Pamphlets and booklets, (National Association of Manufacturers, 2 East 48th Street, New York, New York).
19. Bulletins, (Iowa Development Commission, Des Moines).

INCOME TAX

20. Student handbook, general, Teaching Taxes, also teacher's guide, United States Treasury Department, Internal Revenue Service (available upon request, United States Government Printing Office, Washington, D. C. 20402).

CREDIT-BUDGETING

21. Booklet, How to Use Consumer Credit Wisely, (International Consumer Credit Association, 375 Jackson Avenue, St. Louis, Missouri).
22. Pamphlets, (Public Affairs Committee, Incorporated, 22 East 38th Street, New York, New York).
23. Wilhelm, Consumer Economics, 2nd Edition, Gregg Publishing Co.

YOUR PERSONALITY AND YOUR JOB

24. Booklet, Personality Pays by John Luther (The Economics Press, Montclair, New Jersey, 1962).
See reference No. 7.

INSURANCE AND SAVINGS

25. Catalog of free and inexpensive teaching aids on life insurance, health, and money management, (Educational Division, Institute of Life Insurance, 488 Madison Avenue, New York, New York).

PRIVATE ENTERPRISE

26. Printed matter, (United States Chamber of Commerce, Education Department, 1615 H. Street N. W., Washington, D. C.).

IOWA'S WORKMEN'S COMPENSATION LAW

27. Iowa's Workmen's Compensation Law, (Iowa Industrial Commissioner, State House, Des Moines).
28. Pamphlet, State Workmen's Compensation Laws, (United States Government Printing Office, Superintendent of Documents, Washington, D. C. 20402).

GENERAL

29. Catalog of materials furnished upon request, (National Association of Manufacturers, 2 East 48th Street, New York, New York).
30. Bimonthly mailing upon request, Road Maps of Industries, (National Industrial Conference Board, 845 3rd Avenue, New York, New York 10022).
31. Mailing list for publications, (United States Government Printing Office, Division of Public Documents, Washington, D. C. 20402).
32. General Related Study Guide, coordinator's and student manuals (Department of Industrial Education, University of Missouri, Columbia, Missouri).
33. General Related Study Guide, book I and II, (Industrial Education Department, Division of Extension, The University of Texas, Austin, Texas).

GLOSSARY OF WORDS AND TERMS
(Used in the Part-time Cooperative)
(Industrial Education Program)

Advisory Committee

General Advisory Committee: A group of persons representing business, industry, labor, and the community who advise and aid a coordinator in the over-all operation of the program.

Agreement - Training

An agreement entered into by each student-learner before he starts to work. Wages and terms of employment are stated. This agreement is approved by the employer, the school, the student-learner and parents or guardian.

Agreement - Training Outline

Required for each student-learner is an outline which shall include among other things: a schedule of processes to be learned on the job and the related instruction to be given in school, and provisions for job progression and such other items as may be pertinent.

Areas of Related Instruction

On the job: That instruction which the student-learner should receive on the job in the performance of assigned tasks.
Individual technical study: That specific information which the student-learner needs to perform the operations connected with his work.
General related study: That technical and non-technical information which makes the student-learner a more intelligent worker. The units of instruction which may be taught to the entire group of student-learners.

Child Labor Standards

All the federal and state laws regulating the employment of minors.

Coordination

That phase of the coordinator's responsibility which involves visits to homes and training agencies, conferring with the student-learners' employers, and correlating the related study in school with job progress. The process of operating all phases of a Part-time Cooperative Industrial Education.

Coordinator

The indivividual who is responsible for the operation of a Part-time Cooperative Industrial Education Program.

Employer's Confidential Report

A report by the employer of the student-learner's progress on the job.

Exemption Certificate

A certificate issued by the United States Department of Labor which permits a student-learner to be employed at less than the minimum wage, so long as he remains a student-learner in the Part-time Cooperative Industrial Education.

Follow-up Record

A record showing the employment status of former graduates who have participated in the Part-time Cooperative Industrial Education.

General Related Study

General: Any information of a broad nature which is desirable for all workers.
Specific: Any information definitely essential to the performance of certain job operations.

Hazard (occupational)

Any factor or phase of an occupation which may be dangerous to the student-learner's well being.

Hazardous Occupation

Any and all of those occupations which the United States Department of Labor has ruled are too dangerous for workers under 18 years of age. This ruling makes such employment illegal and subjects employers to severe penalties in the event of violations. Only affects companies engaged in interstate commerce.

Job Analysis

The process of classifying duties and responsibilities of an occupation into major blocks or divisions. These blocks are in turn broken down into units and jobs. This makes for more systematic training on the job, and for more complete preparation of an outline of related instruction.

Job Progress-Record (Student's Work Report)

A form listing, the block of work, the date a certain job was performed, and the number of hours spent doing the work.

Job Progression

Work experiences through which the student-learner is rotated to become proficient in the occupation of his choice.

Occupation

The word used to cover any vocation for which training may be given in the diversified occupations program.

Related Instruction Class

The class at school where related study takes place and related materials are used under the coordinator's direction.

State Plan

An agreement between the United States Office of Education and the State Division of Vocational Education for the promotion and operation of vocational education within the state. It outlines the standards under which each phase of vocational education must operate if federal and state funds are to be used in reimbursing the local board of education.

Student-learner

Any student having the proper qualifications who has been selected and enrolled in the Part-time Cooperative Industrial Education program.

Survey

A collection of data for the purpose of determining facts pertinent to the operation of any phase of the program.

Trade Journal

A publication relating to a specific occupation or business, in which may be found information that can be used as related text material by the student-learner.

Training agency

Any business, shop, or industrial establishment which employs a student-learner for the purposes of giving on-the-job training in cooperation with the school.

Work Permits (proof of age)

A permit, required of students who are under 16 years of age, issued by the superintendent of schools or some one designated by him. This establishes the student-learner's age for the information and protection of the employer.

VT 004 185
RCU Research and Study Projects.

Wisconsin Univ., Madison. Center for Studies in Vocational and Technical Education
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Nov67 27p.

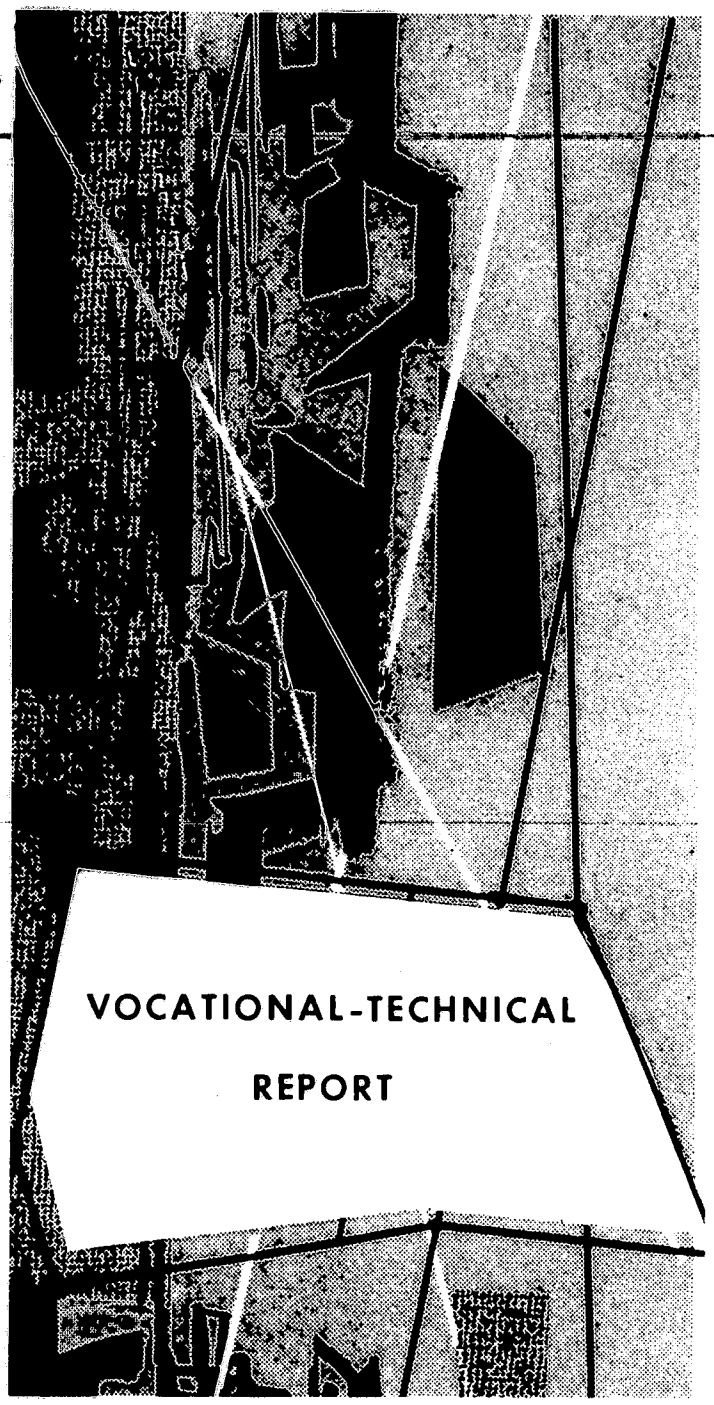
*RESEARCH COORDINATING UNITS; *RESEARCH PROJECTS; *VOCATIONAL EDUCATION; *BIBLIOGRAPHIES

The 392 completed and in-process research projects and activities on all phases of vocational and technical education which are listed indicate the range and scope of the research and activities of 29 research coordinating units. They are listed by states. A topical index is included. (EM)

VT 004 185

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November 1967

RCU RESEARCH AND STUDY PROJECTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CENTER FOR STUDIES IN VOCATIONAL AND TECHNICAL EDUCATION

The University of Wisconsin

Industrial Relations Research Institute

VT004185

M E M O R A N D U M

TO: Directors of State Research Coordinating Units

FROM: Center for Studies in Vocational and Technical Education
University of Wisconsin

DATE: November - 1967

Here is the second list of RCU research projects as compiled from reports and newsletters from the states indicated on the list.

The purpose of the list is to enable all RCU's to review the range and scope of activities in other states, and thus to facilitate exchange of information between RCU's on projects of mutual interest.

The number and scope of research activities is truly impressive. There are 392 projects reported by 29 RCU's, on all phases of vocational and technical education. No doubt there are many more not reported.

This list is made up of projects either in progress or completed, not identified in our first report. Wherever possible, we identified the agencies carrying out the research. It does not include the many projects which are in the proposed stage. Additional information about individual projects can be obtained from the RCU directors, who in many cases, may refer you to the project director.

The list in no way is an effort to compare state activities. Many RCU's had studies reported in the last listing--some states report all identifiable research in their state which is associated with vocational education, while others limited their reports to those activities in which they had a direct role. Some RCU's have just initiated their programs and have little to report, and still others made reference to research studies which they had reported in previous quarterly reports not in our possession.

The Center hopes that this information has value to the RCU's and that later reports will include projects from all states.

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RCU RESEARCH AND STUDY PROJECTS
(List No. 2)

November, 1967

ARIZONA: Arthur M. Lee, Director

1. "Arizona Survey of Engineering Technology." (In Progress)

2. "Vocational-Technical Education Study" a report on the present status and future needs of vocational-technical education in Arizona. (In Progress)

3. "Characteristics of Outstanding Engineering Technicians in Arizona." (Completed)

CALIFORNIA: Dr. Everett D. Edington, Director

1. A project designed to provide the cooperative efforts of six districts in the Berkeley-Oakland area for offering vocational education.

2. Off-farm agricultural work experience demonstration project, San Luis Obispo School District.

3. "Selection Approaches for Vocational Education Studies," Contra Costa Jr. College. (Funded)

4. "Teaching Agricultural Science to Students of Vocational Agriculture by Feed-Back Approach," Vacaville Unified High School District. (Funded)

5. Using data processing in an instructional program, Southwestern College.

6. Pre-apprentice training project, Roseville Joint Union High School.

7. Establishing wood technology curriculum innovations, Modesta Junior College.

8. Vocational education follow-up study, Oakland Public Schools.

9. "Pre-High School Vocational Group Guidance for Potential Dropouts and Non-College Bound Students," Tracy Joint Union High School District. (Funded)

10. "Dominant Factors Relating to Successful Employment of a Selected Group of Culturally Disadvantaged Youth," Emery Unified School District. (Funded)

11. "Vocational Education Programs of Foothill Junior College," Foothill Junior College District. (Funded)

12. "A Developmental Program for Improvement of Teacher Education for Teachers of Persons with Special Needs Directly Applicable to Mexican-American Students," University of California at Los Angeles. (Funded)

13. "A Project Intended to Provide Information for Improvement of Counselor Education in Vocational Guidance," San Jose State College. (Funded)

14. "Municipalities as a Model for New Careers and Redirection of Vocational-Technical Education Programs," Institute for Local Government, Berkeley. (Funded)

COLORADO: Douglas Sjogren, Director

1. Three pilot projects to establish vocational education for youth with special needs.

2. A survey of counselors' feelings about the kinds of support and help they need in the area of vocational guidance. (Completed)

3. A system for follow-up studies by the State Board. (In Progress)

4. Vocational education interests of Colorado high school students. (Completed)

5. A study to determine the in-service training needs of trade and industrial teachers. (Completed)

6. A follow-up of girls who graduated from high school ten years ago. (In Progress)

7. A study of vocational maturity of various occupational groups. (In Progress)

8. A study to determine reasons why schools with vocational agriculture programs are not initiating programs of training for ag.-related occupations. (In Progress)

9. Attitudes of Colorado administrators toward guidance, counseling, and vocational education. (Completed)

CONNECTICUT

1. Survey of the training needs for aircraft mechanics in Connecticut, Connecticut State Department of Labor. (Completed)

2. Summary of research conducted in vocational education in Connecticut. (Completed)

3. Survey of the seventeen labor market areas in Connecticut, University of Connecticut. (Completed)

4. A study to identify the office job entry positions in Connecticut business firms and the skills, knowledge, attitudes, and understanding necessary for beginning workers, University of Connecticut. (Completed)

5. Development of an instrument to measure M.D.T.A. trainee success, Connecticut State Department of Labor. (In Progress)

DELAWARE: Fred C. Finsterbach, Director

Twenty-three proposals are in process. Those approved will be reported in subsequent reports.

FLORIDA: K. M. Eaddy, Director

1. "Technicians for Florida Industries," State Department of Education.

2. "Factors Related to Educational and Occupational Aspirations of Early Adolescent Males from Culturally Deprived Families," Florida State University.

3. "Analysis of Research on Selected Aspects of Evaluation in Adult Education," Florida State University.

4. "A Proposal for the Development of a Pre-Vocational Education Literacy Course to be Used in Computer-Assisted Instruction with Disadvantaged Youth and Adults," Florida State University.

5. "A Follow-Up Normative Study of Negro Intelligence and Achievement," Florida State University.

6. "Development of Post-High School Wage Earning Programs in Home Economics Education Utilizing the Resource Guide Care and Guidance of Children," Florida State University.

7. "A Study to Identify Problem Areas Through Investigation and Research," Florida State University.

8. "An Assessment of Occupational Opportunities in the State of Florida Which Utilize Knowledge and Skills Derived from the Field of Home Economics," Florida State University.

9. "Identification of and Possible Solutions to Problems Encountered by Home Economics in Clothing Construction Classes," Florida State University.

10. "Change in Learning Patterns of Adults," University of Florida.

11. "An Inter-Disciplinary Approach to Improving the Development of Culturally Disadvantaged Children," University of Florida.

12. "A Study of Instruction Needed in Mechanics in High School Vocational Agriculture Classes," University of Florida.

13. "Development of a Course of Study for High School Vocational Agriculture," University of Florida.

14. "Development of a Design for Research and Plans for Vocational Development in Agriculture," University of Florida.

15. "A Study to Identify Problem Areas Through Investigation and Research," University of Florida.

16. "A Work Experience Program in Business Education," University of Florida.

17. "Professional Competency of Teachers of Technical Education," University of Florida.

18. "A Pilot Study in Effectiveness of Large Typewriting Classes," University of Florida.

19. "An Experimental Program in Office Education Using Block Time Scheduling and Emphasis On an Integrated Approach to Materials Development," University of Florida.

20. "Proposal for Improving the Quality of Vocational-Technical Education at Florida Agricultural and Mechanical University Through Improved Ancillary Services and Activities," Florida Agricultural and Mechanical University.

21. "A Study to Identify Business Education Problem Areas Through Investigation and Research," Florida Atlantic University.

22. "A Study in Occupational Education," University of Southern Florida.

23. "A Survey of Small Business in the Tampa Bay Area," University of Southern Florida.

24. "Differential Identification of Successful Technical Students in Junior Colleges," Central Florida Junior College.

25. "Computerized Drafting and Design," Miami-Dade Junior College.

26. "Development of an Experimental Design for a Multi-Cultural Non-Graded Area Vocational School Associated With a Community College," Brevard County.

27. "An Evaluation of Secondary Programs for Disadvantaged Youth," Brevard County.

28. "An Evaluation of a Program to Provide Extensive Vocational Explorative Opportunities of Ninth Grade Students," Brevard County.

29. "A Pilot Study in Home Economics to Evaluate an Innovative Secondary Program," Broward County.

30. "A Determination of Occupational Needs," Charlotte County.

31. "A Survey of Vocational-Technical Education Needs of Communities Served by Lake City Junior College," Columbia County.

32. "Learning Laboratory to Teach Basic Skills in a Culturally Deprived Area," Dade County.

33. "Teaching Typewriting Through the Use of Three Methods With Varing Group Sizes," Dade County.

34. "A Study Designed to Aid in Determining the Direction of Vocational Program Development in Desota County," Desota County.

35. "Study for Planning a Vocational-Technical Program," Escambia County.

36. "A Study to Determine Vocational Needs for Franklin County," Franklin County.

37. "A Survey of Related Agricultural Occupations," Gadsden County.

38. "A Survey to Determine Occupational Needs in Glades County," Glades County.

39. "A Survey of Construction Plans of the Lake County Area Vocational Center," Lake County.

40. "Meeting the Needs for Vocational and Related Information in Levey County," Levey County.

41. "A Survey of Occupations Needing Agricultural Skills and Competencies in Lee County," Manatee County.

42. "A Survey of Nassau County with Emphasis on Employment Needs," Nassau County.

43. "An Off-Farm Agricultural Occupational Survey," Palm Beach County.

44. "Palm Beach County Industrial Survey," Palm Beach County.

45. "A Study to Provide Pinella County School System with Data for Improvement and Extension of Vocational Education," Pinella County.

46. "Development of a System to Gather, Analyze, and Use Pertinent Data to be Used in Program Determination," Pinella County.

47. "An Agricultural Occupations Survey," Polk County.

48. "County Survey of Occupational Needs," Putnam County.

49. "A Survey of Agricultural Occupations," Lanta Rosa County.

50. "An Area Vocational Survey of Four Counties," St. Johns County.

51. "A Survey of Related Agricultural Occupations," Suwanee County.

52. "An Occupational Survey of Walton County," Walton County.

GEORGIA: Gene Bottoms, Director

1. "Evaluation of Full-Time Homemakers and Homemakers Who Are Also Full-Time Employees." (Completed)

2. "Manual of Self Evaluation of Georgia Area Vocational-Technical Schools." (Completed)

3. "Developmental Project for Personnel Services in Area Vocational Schools." (In Progress)

4. "Determining the Promotability of Graduates of Area Vocational-Technical Schools." (In Progress)

5. A project desinged to develop guidance programs for comprehensive high schools in Georgia. (In Progress)

6. The evaluation and reorganization of technical curriculum in Georgia's area vocational-technical schools. (In Progress)

IDAHO: Kenneth M. Loudermilk, Director

1. "Study of Agriculturally Related Occupations." (Completed)

2. "Career Choice and Development Study." (In Progress)

3. "Study of Vocational Student Characteristics," Idaho State University. (In Progress)

4. A study of vocational decision making in Idaho secondary schools. (In Progress)

5. Appraising school facilities, educational programs, administrative organization, and other phases of the school's operation in six Idaho school districts, University of Idaho. (In Progress)

ILLINOIS: V.E. Burgener, Coordinator

1. An experimental program in electronic data processing to prepare pupils for employment and for further post-secondary educational training in this field. (In Progress)

2. A summer school vocational experimental program emphasizing social-vocational experiences and informational enrichment for handicapped students at the high school level, Springfield. (In Progress)

3. A summer school work experience program for dropout-prone students that offers the possibility of eventual vocational training in some jobs commensurate with the ability of the student, Quincy. (In Progress)

4. A proposed occupational program for the potential dropout and the educationally deprived, Decatur. (In Progress)

5. A special vocational program for students who are severely underachieving in reading, Barrington. (In Progress)

6. A training program for teacher aides involving high school juniors who devote one-half day to academic subjects and job related information and one-half day to on-the-job experiences in the elementary school, Chicago. (In Progress)

7. A conservation and training project for juniors and seniors consisting of an in-depth study and analysis of area natural resources, Warrin. (In Progress)

8. An adult education experimental counseling and guidance program for the disadvantaged that includes screening, testing, counseling, and adult cooperative work experience, Cairo. (In Progress)

9. A project to determine the extent of cooperative vocational education that can best assist high school students to prepare for part-time and full-time employment, Champaign. (In Progress)

10. A health occupations program primarily for adults that has two objectives: one to provide short term instruction for cooks, food service workers, and health aides in the field of long term patient care; the second to develop a profile of health occupations, and to prepare curriculum for certain of these occupations, Chicago. (In Progress)

11. The Hanover experimental vocational education program is an interrelated program utilizing a school operated motel, restaurant, and the Daniel Boone Camp as workshops and laboratories for students, Hanover. (In Progress)

12. A vocational program to encourage low ability students to complete high school, Marengo. (In Progress)

13. A work orientation project for underachievers and potential dropouts that involves special occupational orientation in regular subjects, a related class in occupational-technical curriculum and remedial communication skill development, special counseling with students and parents and vocational instruction in technical processes and manufacturing, Mt. Prospect. (In Progress)

14. A continuing one-half day occupational orientation subject matter program for potential dropouts, Streator. (In Progress)

15. A vocational communications project to create the environment and methods through which non-college bound students can develop their communication skills individually, Toledo. (In Progress)

16. Special orientation in common learnings for slow learners in junior high school, including shelter workshop using mass production techniques for developing vocational awareness, job skills, and attitudinal competencies, Urbana. (In Progress)

17. A project to channel slow learners and potential dropouts into conventional, vocational, and occupational oriented classes with special emphasis on interdisciplinary curriculum, Urbana. (In Progress)

18. A vocational aerospace studies program, Dupo. (In Progress)

19. A visual communications program for slow learners and potential dropouts involving business education, home economics, and industrial education, Orland Park. (In Progress)

20. Vocational guidance and occupational information for students through television-closed circuit and video tape, Sterling. (In Progress)

21. An aeronautics project to introduce students to the vocational opportunities in the field of aviation, Villa Park. (In Progress)

22. A project in the fields of biological science and agriculture designed to enrich the basic scholastic skills of slow learners and underachievers through classroom experiences and a land laboratory, Peoria. (In Progress)

23. A project to reach and motivate underprivilaged boys who are potential dropouts and potential delinquents by capitalizing on their interests in automobiles and other mobil equipment, Peoria. (In Progress)

24. A project to motivate students to complete high school, Carbondale. (In Progress)

25. A study to evaluate the curricular and procedures used in pilot training programs of vocational horticulture specialty programs for secondary students, University of Illinois. (In Progress)

26. A comprehensive labor market survey to ascertain whether the present curricula of St. Clair County Schools meet the need of modern industry, St. Claire County. (In Progress)

27. Development of world of work instructional programs to be used as guidelines for planning and evaluating instructional programs about the world of work, University of Illinois. (In Progress)

28. Computerization of vocational information for guidance use in Willowbrook High School, Villa Park. (In Progress)

29. An evaluation of Illinois post-high school educational programs in agriculture, Southern Illinois University. (In Progress)

30. A project to develop curriculum guides for the occupational aspect of home economics at the secondary and post-secondary levels, University of Illinois. (In Progress)

31. A public information project to assist in recruitment for occupational programs in Chicago City College, Chicago City College. (In Progress)

32. A project to determine the adjustments in living which high school graduates face when accepting business positions away from their parental homes, Southern Illinois University. (In Progress)

33. A project for special vocational students to determine whether hypothetical remedial practices in vocational education will retain potential dropouts in school, Southern Illinois University. (In Progress)

34. "Black Hawk College Occupational Survey," Black Hawk College. (Abstract)

35. "Curriculum Development in Engineering Technology," University of Illinois. (Abstract)

36. "Demonstration Project on Occupational Information in Selected Work Areas in Metropolitan Chicago for use in Guidance and Counseling." (Abstract)

37. "Development of Curriculum Guides for Integrated Program of Home Economics at the Secondary Level: Homemaking and Family Life Education, Employment Education, and Pre-Professional Education Aspects," University of Illinois. (Abstract)

38. "Development of the Public Service Program for Careers in the Public Agencies at All Levels of Government," Chicago City College. (Abstract)

39. "Differential Costs of Curricula in Comprehensive Junior Colleges," University of Illinois. (Abstract)

40. "Evaluation and Report Writing on Pilot Supervised Job Training Programs - Robinson, Des Plaines, and Park Ridge High Schools, and Drake Vocational Guidance and Educational Center," Southern Illinois University. (Abstract)

41. "Feasibility Study for a Junior College in the Kaukakee Area, A," Kankakee. (Abstract)

42. "Feasibility Study for a Public Junior College in Central Illinois," Decatur. (Abstract)

43. "Feasibility Study of Junior College Needs in McLean County and Adjacent Areas," Bloomington. (Abstract)

44. "Feasibility Study to Determine the Need and Justification for Establishing an Area Vocational School in Kane County," Geneva. (Abstract)

45. "Follow-up of Fulton County Graduates in Selected Classes to Determine Implications for Vocational Guidance and Business and Office Education," Lewistown. (Abstract)

46. "Follow-up Study of Collenville High School Students, Classes 1959-1963," University of Illinois. (Abstract)

47. "Identification and Follow-up of Special Students of District No. 5; Alexander County, Illinois," Southern Illinois University. (Interim Report)

48. "Keshwaukee Community College Study," Sycamore. (Abstract)

49. "Labor Market Survey," Belleville. (Abstract)

50. "Lake County Technical Need Study," University of Illinois. (Abstract)

51. "Occupational Information and Diagnostic Center of Youth and Adults," University of Illinois. (Abstract)

52. 'Overview and Analysis of Factors Contributing to Present and Future Health Manpower Needs," Chicago. (Abstract)

53. "Pilot Programs in Agriculture Education," University of Illinois. (Abstract)

54. "School Survey of Champaign, Ford, Douglas, and Piatt Counties for a Comprehensive Junior College," Urbana. (Abstract)

55. "Study of the Efficacy of Using Automated Instruction Devices in Teacher Training," University of Illinois. (Abstract)

56. "Survey of Information on Vocational and Technical Education in the State of Illinois," Chicago. (Abstract)

57. "Vocational Horticulture Specialty Programs for Secondary Students," University of Illinois. (Abstract)

58. "Vocational Need Study of Satine, Gallatin, Hardin and Pope Counties," Southeastern Junior College. (Abstract)

59. "Experimental Program in Cooperative Work Training," Chicago. (Abstract)

60. "Experimental Program to Prepare Vocational-Technical Teachers for Laboratory Classes Designed for Dropout Prone Youth," University of Illinois. (Abstract)

61. "Integrated Program - Business Education and Industrial Education with Occupational Orientation," Glenview. (Abstract)

62. "Learning Center Program - A Vocational Program for Slow Learners Potential Dropouts, Progressive Report," Aurora East. (Abstract)

63. "Marengo Experimental Vocational Program," Marengo. (Abstract)

64. "Occupational Orientation Program for Potential Dropouts," Streator. (Abstract)

65. "Participation Occupational Experience Program (P.O.E.)," Evanston. (Abstract)

66. "Program for Wage Earning Classes," Champaign. (Abstract)

67. "Program in Health Occupational Education." (Abstract)

68. "Program to Meet Potential Dropouts," Peoria. (Abstract)

69. "Project for Slow Learning Boys in Alton Senior High School." (Abstract)

70. "Special Vocational Orientation Program for Slow Learners," Urbana. (Abstract)

KANSAS

1. A pilot course in vocational opportunities in related home economics, Winfield. (In Progress)

2. A survey of RCU information services. (In Progress)

3. "Demonstration Center in Occupations Experiences," Paola. (Report Available)

KENTUCKY: Daniel S. Arnold, Director

1. "An Experimental Study of Guidance Treatments to Accelerate Vocational Development in Eighth Grade Males in Appalachia." (Completed)

2. "A Study of the Image of Vocational Education in Kentucky as Viewed by Knowledgeable Persons." (Completed)

3. "Communications Network in Vocational Education in Kentucky." (In Progress)

4. "A Follow-up Study of M.D.T.A. Trainees in the Somerset Area." (In Progress)

5. "A Study to Identify Factors Associated with Completion and Non-Completion of Youth Mobility Project, YM6178." (In Progress)

6. "A Pilot Occupational Education Project in Covington, Kentucky." (In Progress)

7. "Cost-Effectiveness Study of Vocational Programs of Mayo Area Vocational School." (In Progress)

8. "A Study to Provide Background Materials for the Advisory Committee of Vocational Education Needs of the Louisville Metropolitan Area." (In Progress)

9. "Vocational Education Pilot Project for Kentucky Village." (In Progress)

10. "A Study of Research Resources in Kentucky Which May be Orineted to Occupational Research Significance in Vocational Education." (Completed)

11. "A Study of Guidance Patterns and Shortages in Central Kentucky." (Completed)

12. "A Follow-up Study of Graduates of Area Vocational-Technical Schools in Kentucky." (Completed)

13. "A Follow-up Study of M.D.T.A. Trainees at Lafayette Area Vocational Technical School." (Completed)

14. "A Study of What Services Unemployed Women Need in Order to Become Employable." (Completed)

15. "A Study of Research - Resource Libraries and Information Retrieval and Dissemination Systems as a Basis for Organizing a Resource Library for the Kentucky RCU."

16. "Development of a Guiding Philosophy and Objectives of Vocational Education in Kentucky." (Completed)

17. "Study of Employment Opportunities and Competencies Needed in Farming Occupations in the Purchase and West Kentucky Districts." (In Progress)

18. "Study of Opportunities for Gainful Employment in Home Economics Related Jobs in Kentucky." (In Progress)

19. "Study Predicting the Success of Prospective Students in Licensed Practical Nursing Programs." (In Progress)

20. "A Comparative Study to Determine the Relative Effectiveness of Four Methods of Teaching Office Practice." (In Progress)

21. "A Pilot Project for Youth with Special Needs in Fayette County Schools." (In Progress)

22. "A Feasibility Study of the Needs for Training Programs in Distributive Education for Persons to be Employed in State Parks and Similar Kinds of Work." (In Progress)

23. "A Summary of Studies that Relate to Employment Opportunities, Human Resources, and Educational Resources in Kentucky." (Complete)

24. "A Summary of Studies and Articles that Relate to Manpower Development Program Planning and Implementation." (Completed)

25. "Cost-Effectiveness Study of the Vocational Programs of Somerset Vocational Schools." (Completed)

26. "Survey to Determine the Interest on the Part of Vocational Educators to Receive Information Concerning Research." (Completed)

27. "Status of Distributive Education in Kentucky High Schools." (In Progress)

28. "A Survey of Central Kentucky's Training Needs for Employment Opportunities (Skilled, Technical and Clerical Jobs)."

29. "A Survey of Secondary Data to Determine Training Needs for Semi-Skilled Occupations in Central Kentucky."

30. "Employment Opportunities and Usable Skills in Non-Farm Agricultural Occupations in Appalachia."

31. "State-Wide Assessment of Employment Opportunities of Concern to the Different Program Fields in Vocational and Technical Education."

32. "Demonstration Project at Reidland High School for Training Farm Youth in Non-Farm Agricultural Occupations."

33. "A Study of Training Programs in Eastern Kentucky that Operate Under the Manpower Development and Training Act."

34. "A Study to Identify the Role of the Trade and Industrial Teacher in Kentucky Area Vocational Schools as it Relates to Skills and Knowledges Commonly Ascribed to Trade Teachers in the Nation and Teachers in General."

35. "Study of Off-Farm Opportunities in South Central Kentucky." (In Progress)

36. "Study of Gainful Employment in Home Economics Related Jobs in Kentucky." (In Progress)

37. "Evaluation of Vocational Home Economics in Terms of the Effectiveness of Full-Time Employees Who are Also Homemakers." (In Progress)

38. "The Identification and Quantification of Technical Competencies Needed by Teachers of Selected Areas of Vocational-Technical Education." (In Progress)

MICHIGAN: Charles Langden, Director

1. "An Experimental Project to Determine More Effective Certification Procedures in Michigan," Eastern Michigan University. (Completed)

2. "Effects of Cooperative Vocational Education Upon Behavior in the Labor Market," Michigan State University. (Brief Available)

3. "Procedures for Establishment and Evaluation of Training Programs for Wage Earning Occupations Related to Home Economics," Michigan State University. (In Progress)

4. "An Evaluation of a Method or Methods for Developing Local Leadership for Functional Regional Vocational Education Programs Among Cooperating School Districts," Northern Michigan University. (In Progress)

5. "Mathematical Fundamentals Needed by Technicians in Michigan Industries," Wayne State University.

6. "The Value of Programmed Instruction as a Tool for the Enhancement of High School Cooperative Education Student Career Objectives," Western Michigan University. (Completed)

7. "A Pilot Project in Vocational Guidance, Placement and Work Experience for Youth for Whom Existing Work Experiences are Not Appropriate," Livonia Public Schools. (In Progress)

8. "The Present and Projected Demands for Technically Trained People in Michigan," Ferris State College. (In Progress)

9. "Characteristics of Michigan Labor Force for the Next Fifteen Years," Battelle Memorial Institute. (Completed)

10. "Area Vocational-Technical Education Studies."

11. "Research and Development Needs Survey." (Preliminary Report)

12. "Vocational Training Program for Child Care Aides," Ferndale Public Schools. (In Progress)

13. "Developing a Program of Occupational Education for All Students," Niles Community Schools. (In Progress)

14. "Audio-Visual-Tutorial Methods Study in Secretarial Skills at Community College Level," Lansing Community College. (In Progress)

15. "Michigan Vocational-Technical Education R & D Needs Survey." (Completed)

16. "A Study of the Diffusion Process of Vocational Education Innovations." (Completed)

17. "Report of a Survey of the Needs for Technicians in the Automotive Manufacturing Industry in the Detroit Metropolitan Area," Detroit Public Schools. (Completed)

18. "Office Machines Used in Business Today," Wayne State University. (Completed)

19. "Portage High Schools Practical Training Program," Portage High School. (Progress Report)

20. "A Pilot Project in Programmed Learning to Extend Purposes and Increase Factors of Motivation," University of Michigan. (Brief Available)

21. "Education and Training for the World of Work: A Vocational Education Program for the State of Michigan," UpJohn Institute for Employment Research. (Completed)

22. "Training for Off-Farm Agriculture Occupations," Michigan State University. (Completed)

23. "Michigan Study of Industrial Teacher Competence," Wayne State University. (Completed)

24. "A Follow-up Study of a Sample of Trainees from the Mayor's Youth Employment Project," Detroit Public Schools, Wayne State University. (Completed)

25. "Career Pattern Analysis of a Selected Group of Former Vocational Teachers," Michigan State University. (Completed)

26. "A Follow-up of the First Fifty Graduates of Trade and Technical Education," Ferris State College. (Completed)

27. "Development of a Planning Project to Plan and Implement Pre-Technical Education in Michigan," Bridgeport Community Schools. (In Progress)

28. "The University of Michigan Leadership Development Program for Vocational and Technical Education," University of Michigan. (In Progress)

29. "Teaching for Wage Earning in Home Economics for Gainful Employment," Western Michigan University. (In Progress)

MINNESOTA: Jerome Moss, Howard Nelson, Co-Directors

1. "Planning for a Cooperative Region-wide Study of Occupational Education." (Completed, Not Available)

2. "Bibliography of Studies in Occupational Education Conducted in Minnesota, 1965-67." (Completed)

3. A methodlogical investigation to identify the technical information possessed by competent workers in skilled and technical occupations. (In Progress)

4. Study about the factors influencing the occupational choice of high school seniors. (In Progress)

5. A study of the success factors of M.D.T. trainees. (In Progress)

6. The evaluation of an industrial education undergraduate curriculum. (In Progress)

7. A study of the effective creative abilities on the success of convergent and divergent instruction. (Completed)

8. A study of the relationship of maturity and intelligence factors in learning psychomotor skills. (Completed)

MISSISSIPPI: James Wall, Director

1. "State-wide Self-Evaluation of Vocational-Technical Education in Mississippi." (In Progress)

2. "Occuapational and Educational Aspirations and Expectations of Negro Rural Male High School Seniors in the Mississippi Delta." (In Progress)

MONTANA: William H. Nightwine, Director

1. "An Analysis of Montana Educational Needs in the Area of Heavy Equipment Maintainence and Operation." (In Progress)

2. "Employment Opportunities Survey of Health Occupations in Montana." (In Progress)

3. "A Study of the Effectiveness of the Multi-Media Approach in the Education of educable Mentally Retarded Students." (Completed)

4. "A Study to Develop a Standardized Method of Gathering, Analyzing, Synthesizing and Reporting on School Leaves." (Completed)

NEBRASKA: James T. Horner, Roy D. Dillon, Co-Directors

1. A state-wide computerized model for ascertaining occupational opportunities. (In Operation)

NEVADA: J. Clark Davis, Director

1. Criterion development in the area of career development. (In Progress)

2. A follow-up study of parents and students in the White Pine County School District. (In Progress)

3. A follow-up study of graduates, dropouts and parents in Washoe County School District. (In Progress)

4. "World of Work Program," Lincoln County School District.

NEW JERSEY: Ralph Lo Cascio, Director

1. "Development of Multi-Media Programmed Instructioned Materials for the Training of Law Enforcement Officers," New Jersey City State College. (In Progress)

2. A study of the basic education program at Newark Manpower Training Skills Center. (Completed)

3. An investigation of the use of a coordinator of occupational education in three counties: Hudson, Camden and Gloucester. (In Progress)

4. A study to examine the extent to which community college experience affects the development of self and occupational concepts, Rutgers University. (In Progress)

NEW MEXICO: Joel Price, Director

1. "The Vocational Core Follow-up Project," Hobbs Municipal Schools. (In Progress)

2. "Follow-up Survey," Northern New Mexico State School. (In Progress)

3. A survey of female vocational-technical education students, Eastern New Mexico University.

4. A survey to establish and compare the priority of activities of vocational agriculture teachers in New Mexico. (In Progress)

5. "New Mexico Employers: Industry, Size and Location," Employment Security Commission of New Mexico. (Completed)

NORTH CAROLINA: Joe R. Clary, Director

1. "An Analysis of the Student Population in Agricultural Education at North Carolina State University." (Completed)

2. Three other studies, one in home economics, one in introduction to vocations, and one in agriculture. (In Progress)

NORTH DAKOTA: Norman D. Ehresman, Director

1. "A Survey of Parents of North Dakota High School Students Who Were Seniors in 1966." (Completed)

2. "The Migration Aspirations of North Dakota Senior Males." (Completed)

3. "A Study of the Job and Educational Experiences of the 1959 Vocational Agriculture Graduates in Selected North Dakota High Schools." (Completed)

4. "Variables Related to Persistance, Transfer and Attrition of Engineering Students." (Completed)

5. "State Manpower Survey." (In Progress)

6. "Information Concerning the Crites' VM Scale for Indian Adolescents." (In Progress)

7. "Educational Plans of North Dakota Ninth Graders." (In Progress)

8. Determining the needs for distributive education in Bismark, Bismark schools. (In Progress)

OHIO: C.O. Tower, Director

1. "Ohio's Master Plan for School District Reorganization," (vocational education phase). (In Progress)

2. Statewide vocational education survey. (Completed)

3. The use of data processing in gathering of information for administering vocational education programs. (In Progress)

4. Studies for the development of Cleveland, Ohio vocational education programs. (In Progress)

5. An analysis of recruitment, class size, number of teachers and enrollment patterns in Penta County Joint Vocational District.

6. Farm management instruction, adults. (Completed)

7. Farm management instruction, high school. (Completed)

8. "Skills, Knowledge and Experience Required for Gainful Employment Other than Farming in the Area of Agricultural Mechanics," Ohio State University.

9. "A Comparative Study of the Employee Training Acceptable to Employers Under Varing Degrees of Labor-Market Stringencies," Battelle Memorial Institute.

10. "Occupational Opportunities and Educational Needs for Horticulture Technicians in Ohio," Ohio State University.

11. "The Teaching of Basic Economic Principles to Secondary Students in Vocational Agriculture," Ohio State University.

12. "A Comparative Analysis and Evaluation of a Programmed Laboratory for Shorthand Instruction," The University of Akron. (Completed)

13. "Rotational Industrial Laboratory Project," Cincinnati Public Schools. (In Progress)

OREGON: T.A. Ryan, Director

1. Gresham-Corvallis home and family living project. (In Progress)

2. Personalized education program development. (In Progress)

3. Deschutes County vocational needs. (In Progress)

4. Deschutes County program implementation study. (In Progress)

5. Yamill IED vocational needs study. (In Progress)

6. Curry IED vocational needs study. (In Progress)

7. Washington County vocational needs study. (In Progress)

8. Josephine County vocational needs study. (In Progress)

9. David Douglas program implementation study. (In Progress)

10. Clackamas Community College program implementation study. (In Progress)

11. Roseburg evaluation project. (In Progress)

12. Lebanon evaluation project. (In Progress)

13. Portland Girls Polytechnic High School evaluation study. (In Project)

14. East Central Lin County vocational needs. (In Progress)

15. Gresham-Reynolds vocational needs study. (In Progress)

16. Clatsop Community College vocational agriculture needs. (In Progress)

PENNSYLVANIA: Jay Smink, Director

1. "Post High School Educational Needs in Buck County." (In Progress)

2. Numerous local studies, identified by community. (In Progress)

RHODE ISLAND: Charles Hailes, Director

1. "Study for Teaching Low Ability Students the Operation of Computers." (Completed)

2. "Study for the Training of Prospects for the Fishing Industries." (In Progress)

SOUTH CAROLINA: Earl T. Carpenter, Director

1. "Teaching the Importance of Agriculture and Agricultural Facts." (In Progress)

2. "Pennies Grow on Plants," (home economics for the educable mentally handicapped). (In Progress)

3. "Follow-up Study of Agricultural Education Graduates of Clemson." (In Progress)

4. "Teaching Principles of Air-Cooled Engines via Programmed Instruction." (In Progress)

5. "Recruitment Activities of Teachers of Vocational Agriculture." (In Progress)

6. "Development of a Criterion Measure to Evaluate Vocational Home Economics Programs at the Secondary Level." (In Progress)

TENNESSEE: Douglas C. Towne, Director

1. "The Roles of Occupational Education and Training Organizations in Tennessee." (In Progress)

2. Research in the development and direction of a mid-management training program. (In Progress)

UTAH: John F. Stephens, Director

1. "Utah VIEW Program." (In Progress)

2. "Catalog of Vocational and Technical Education Scholarships Available to Utah High School Seniors." (In Progress)

3. "Study of Appropriate Vocational Programs Applicable to the Utah State Industrial School." (In Progress)

4. "An Assessment of Typewriting Skills in the Secondary Schools of Utah in Relation to Entry Job Requirements." (In Progress)

5. "The Adequacy of Utah's Distributive Education Graduates." (In Progress)

6. "Evaluation of the Manpower Schools in Salt Lake City and Ogden, Utah." (In Progress)

7. "Survey of Commercial Arts Curriculum." (In Progress)

8. "A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Scholarships in Tooele County, Utah." (In Progress)

9. 'Feeder Study (High School Vocational Education)." (In Progress)

WASHINGTON

1. "A Survey and Analysis of Major Tasks, Knowledge Associated with Work in Child Care Occupations." (Completed)

2. Follow-up study of Intermediate District #5. (In Progress)

3. A study of vocational needs of non-college bound students, Mercer Island School District. (In Progress)

4. Distributive Education media development project, Seattle Public Schools. (In Progress)

5. An analysis of a cooperative training program. (Completed)

6. A project to ascertain present status of real estate salesmen and brokers.

WISCONSIN: Roland Krogstad, Director

1. "Flexible Scheduling - Continuation School," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

2. "Group Counseling with Underachieving College Students," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

3. "Employer Job Requests, 1966-67 School Year," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

4. "Development of a Master Plan for Eighteen Area Vocational, Technical and Adult School Districts in Wisconsin." (In Progress)

5. "The Feasibility of Expanding the Curriculum in the Numerical Control Programming Associate Degree Program at the Fond du Lac Technical Institute," Fond du Lac School of Vocational, Technical and Adult Education. (In Progress)

6. "A Student Housing Needs Study for 1968-75," Fond du Lac School of Vocational, Technical and Adult Education. (In Progress)

7. "Development of a Model System for Program Planning in Wisconsin Vocational, Technical and Adult School Districts."

8. "Graduate Profiles - Adult School," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

9. "Articulation - Milwaukee Institute of Technology and Four-Year Schools of Higher Learning," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

10. "Dropout Follow-up Adult School - Milwaukee Institute of Technology," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

11. "Attitudes Toward Guidance at the Milwaukee School of Vocational, Technical and Adult Education," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

12. "Teaching Technical Science," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

13. "Curriculum Evaluation - Maintenance and Construction Electrician Apprentices," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

14. "Curriculum Evaluation - Painter Apprentices," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

15. "Curriculum Evaluation - Machinist, Tool and Die Apprentices," Milwaukee School of Vocational, Technical and Adult Ecuation. (In Progress)

16. "Student Follow-up Continuation School," Milwaukee School of Vocational, Technical and Adult Education. (In Progress)

17. "Leading to Learning," Milwaukee School of Vocational, Technical and Adult Ecucation. (In Progress)

18. "Diesel Mechanics Survey, Fall, 1967," Wisconsin Rapids School of Vocational, Technical and Adult Education. (In Progress)

19. "Real Estate Survey, Fall, 1967," Wisconsin Rapids School of Vocational, Technical and Adult Education. (In Progress)

20. "Pulp and Paper Making Technology Survey," Wisconsin Rapids School of Vocational, Technical and Adult Education. (In Progress)

21. "Follow-up Report of 1967 Graduates and Dropouts from Full-Time Vocational Preparatory Programs." (In Progress)

22. "Study of Curriculum Changes in English Courses for Technical Students," La Crosse School of Vocational, Technical and Adult Education. (In Progress)

23. "Adult Education Survey." (In Progress)

24. "Student Reasons for Attending Milwaukee Junior College," Milwaukee School of Vocational, Technical and Adult Education. (Completed)

25. "Part-time Day and Evening Students," Wisconsin Rapids School of Vocational, Technical and Adult Education. (Completed)

26. "Graduate Follow-up Study, 1966," Wisconsin Rapids School of Vocational, Technical and Adult Education. (Completed)

27. "Admission Policies and Procedures and Pre-entrance Test Validity," Wisconsin Rapids School of Vocational, Technical and Adult Education. (Completed)

28. "A Survey to Determine Types of Students and Their Reasons for Selecting Programs of Business Training in Wisconsin Schools of Vocational, Technical and Adult Education." (Completed)

29. "Follow-up of Nursing Assistants," Two Rivers School of Vocational, Technical and Adult Education. (Completed)

30. "Placement Report," Two Rivers School of Vocational, Technical and Adult Education. (Completed)

31. "Survey of Openings in Full-time Programs in Wisconsin Schools of Vocational, Technical and Adult Education." (Completed)

32. "Vocational, Technical and Adult Education Facilities." (Completed)

33. Two and Five Year Graduates Follow-up in Adult School and Milwaukee Institute of Technology," Milwaukee School of Vocational, Technical and Adult Education. (Completed)

34. "A Study of the Inter-Intra School Supervisory and Faculty Communications in the Wisconsin Vocational, Technical and Adult System," Stout State College. (Completed)

HAWAII: David R. Lynn, Director

1. "Annotated Bibliography Occupational Research and Related Studies," (for Hawaii). (Completed)

2. "Community College System Student Survey - Fall, 1966." (Completed)

3. "Education in a Changing World of Work in a Democratic Society." (Completed)

4. "Occupational Survey of the Aircraft Transportation Industry." (In Progress)

5. "Concepts of Career Fields Held by Eleventh Grade Students." (In Progress)

6. "Profile Study of Industrial Education Teachers in the State of Hawaii." (In Progress)

7. "State Master Plan for Vocational Education." (In Progress)

8. "Parental and Peer Group Influence on the Behavior of Youth." (In Progress)

9. "Study of Hawaii's Industrial Opportunities." (In Progress)

10. "The Job Seeker in Hawaii." (In Progress)

11. "Summary of Career Choice Questionnaire," Radford High School. (Completed)

VT 004 199
Stephens, John F.
Utah Coordinating Unit for Research in Vocational and Technical Education. Interim Report.

Utah State Dept. of Public Instruction, Salt Lake City
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 15Sep67 35p.

OEG-4-7-063046-1612

*RESEARCH COORDINATING UNITS; *PROGRAM DESCRIPTIONS; RESEARCH PROJECTS; *VOCATIONAL EDUCATION; *STATE PROGRAMS; *EDUCATIONAL RESEARCH; CRITICAL PATH METHOD
UTAH

During the quarter from June to August 1967 two projects, "A Study of Appropriate Vocational Programs Applicable to the Utah State Industrial School" and "An Assessment of Typewriting Skills in the Secondary Schools of Utah in Relation to Entry Job Requirements" were completed. Nine projects in progress were (1) Utah VIEW Program, (2) The Adequacy of Utah's Distributive Education Graduates, (3) Evaluation of the Manpower Schools at Salt Lake City and Ogden, Utah, (4) Inservice Training Program for Vocational Director, (5) A Study of the Qualifications and Duties of Local Vocational Director, (6) Followup Study of Utah's Vocational Graduates, (7) Sevier Valley Tech Curriculum Design Workshop, (8) Study of the Adequacy of the Training Available for Volunteer Fire Departments in Utah, and (9) A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Education Scholarships in Tooele County, Utah. Federal expenditures through August 31, 1967 totaled $28,027.65. State Expenditures totaled $11,403.49. Program Evaluation and Review Technique networks, diagrams showing progress, for all projects are included. (EM)

VT 004 199

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INTERIM REPORT

PROJECT NO. 6-3046

Grant No. OEG-4-7-063046-1612

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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UTAH COORDINATING UNIT FOR RESEARCH IN VOCATIONAL AND TECHNICAL EDUCATION

15 September 1967

U. S. Department of
Health, Education, and Welfare
Office of Education
Bureau of Research

VT004199

UTAH COORDINATING UNIT FOR RESEARCH IN VOCATIONAL AND TECHNICAL EDUCATION

Project No. 6-3046
Grant No. OEG-4-7-063046-1612

John F. Stephens

15 September 1967

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare

Office of the State Superintendent
of Public Instruction

Salt Lake City, Utah 84111

1. INTRODUCTION

Status of projects introduced in previous reports will be reported herein by PERT charts. New projects initiated since the last report will be described by narrative and PERT network. Final reports of projects completed since the last interim report are attached.

2. ORGANIZATION

No change

3. METHOD

No change in the focus of attention or in the technique for selecting follow-on projects.

4. RESULTS

Of the research programs supported in whole or in part by the RCU, two have been completed since the last Quarterly Report, new programs have been initiated, resulting in 9 in progress. Copies of the final reports of the completed projects are attached.

5. DISCUSSION

a. Utah VIEW Program

Continuing; see PERT, enclosure 1, for status.

b. Study of Appropriate Vocational Programs Applicable to the Utah State Industrial School

Completed, see PERT, enclosure 2. Two copies of the final report are attached.

c. An Assessment of Typewriting Skills in the Secondary Schools of Utah in Relation to Entry Job Requirements

Completed, see PERT, enclosure 3. Two copies of the final report are attached.

d. The Adequacy of Utah's Distributive Education Graduates

Continuing, see PERT, enclosure 4 for status. This program is well behind schedule due to the Principal Investigator's prolonged and serious illness. Hopefully, his health will permit completion of the project by December.

e. Evaluation of the Manpower Schools at Salt Lake City and Ogden, Utah.

Final Report being prepared, see PERT network, enclosure 5.

f. In-Service Training Program for Vocational Teachers

With the concurrence of the Utah State Administrator for Vocational Education a subjective evaluation is being made of the effectiveness of the in-service training programs for vocational teachers.

The research design includes a survey of the types of in-service training programs in other states, a questionnaire to administrators and vocational teachers in the state, interviews with State Vocational Specialists, an analysis of the objectives of an in-service training program.

Based on an analysis of the information gathered, a workshop model will be developed for an improved in-service workshop.

During June 1968, a workshop, using the new model, will be conducted in cooperation with Utah State University and local industry for teachers in one of the vocational disciplines.

The evaluation of the workshop will be based on the opinions of the vocational teachers and administrators involved. An additional evaluation of other in-service training devices will be based on an analysis of the questionnaires and interviews.

The study is in progress and its status is reflected by the PERT network, enclosure 6.

g. A Study of the Qualifications and Duties of Local Vocational Director.

The purpose of this study is to gain information concerning the professional and personal qualifications of the district-level Vocational Directors and to make a job analysis of their positions. It will compare the duties actually being performed by the directors to those which the directors consider to be of most importance to their district vocational programs.

A survey will be made of the status of such positions in other states, and questionnaires will be distributed to Superintendents, Vocational Directors, and to teachers within the State of Utah.

If successful, the study will serve as a basis for better definition of the position of district vocational director, will provide criteria for selection of personnel to fill the positions as vacancies occur, and will lead to better in-service training programs for Vocational Directors.

The progress made to date in the program is reflected on the PERT network at enclosure 7.

h. Follow-Up Study of Utah's Vocational Graduates

In the past there has been no consistent follow-up of the graduates of the vocational and technical courses in the Utah schools. That information which has been provided in the past concerning the vocational graduates has been on a one year basis for the purpose of completing the Federal Report due each December. An attempt to do a cost-effectiveness study recently, emphasized the fact that lack of information precluded any sort of effectiveness study of our vocational program. To remedy this situation it was proposed that vocational course graduates in public schools be followed up for five years after leaving school; favorable consideration was given to the proposal by the State Superintendent of Public Instruction and by local district superintendents.

A similar Washington study, "A Follow-Up System for Vocational- Preparatory Students for the State of Washington", was chosen as a model and adapted to use in Utah. If successful, the experiments will produce much more detailed and consistent information about the graduates of Utah's vocational courses and will permit much more valid effectiveness studies to be made in the future.

The status of the program is reflected on the PERT Network at enclosure 8.

i. Sevier Valley Tech Curriculum Design Workshop

After a one month "back-to-work" experience in industry, the participants in this program in a two-week workshop produced curricula in drafting, auto mechanics, building construction, office occupations, electricity/electronics, and career planning. These curricula are expressed in terms of measurable objectives related to the skills required by entry workers in those fields. These curricula are undergoing a one-year "shakedown" at Sevier Valley Tech at the present time. A follow-on workshop during the summer of 1968 has been proposed to evaluate, expand, and correct the curricula based on the year's use.

The status of the project is portrayed by the PERT Network at enclosure 9.

j. Study of the Adequacy of the Training Available for Volunteer Fire Departments in Utah.

The Utah Technical College, Salt Lake, for a number of years has been charged with providing training as required to the volunteer fire departments throughout the state. The Technical College requested that the RCU try to determine the adequacy of the scope of the courses offered and the effectiveness of the training.

A survey of volunteer fire department training available in the other states was begun, an advisory committee was formed, and plans were laid for questionnaires and visits to local fire departments. If the study is successful, it would lead to more effective training of volunteer fire departments in Utah and possibly to a lowering of insurance rates in rural districts.

The status of the study is reflected on the PERT Network at enclosure 12.

k. A Pilot Program to Test the Feasibility of Increasing the Number of Vocational and Technical Education Scholarships in Tooele County, Utah.

This program was described in earlier Quarterly Progress Reports and the final report is now being prepared. The test was considered successful to the extent that plans are now being made to expand the program to five or six other counties in Utah.

A PERT Network showing the major events in the program is attached at enclosure 13.

6. MANPOWER

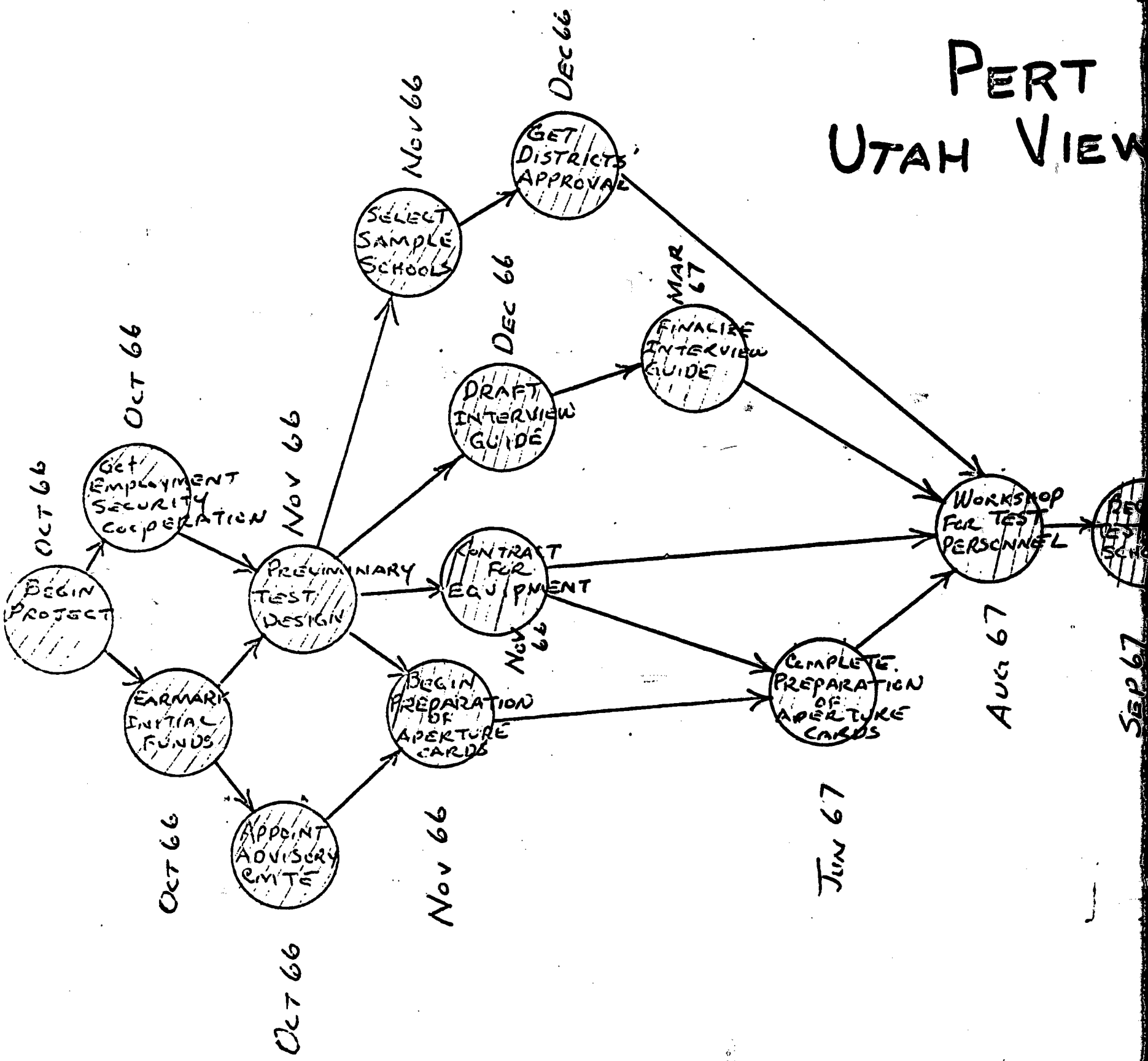
The manning level for the RCU since the beginning of the grant is shown on the "Time or Effort Report" at enclosure 14.

7. FUNDING

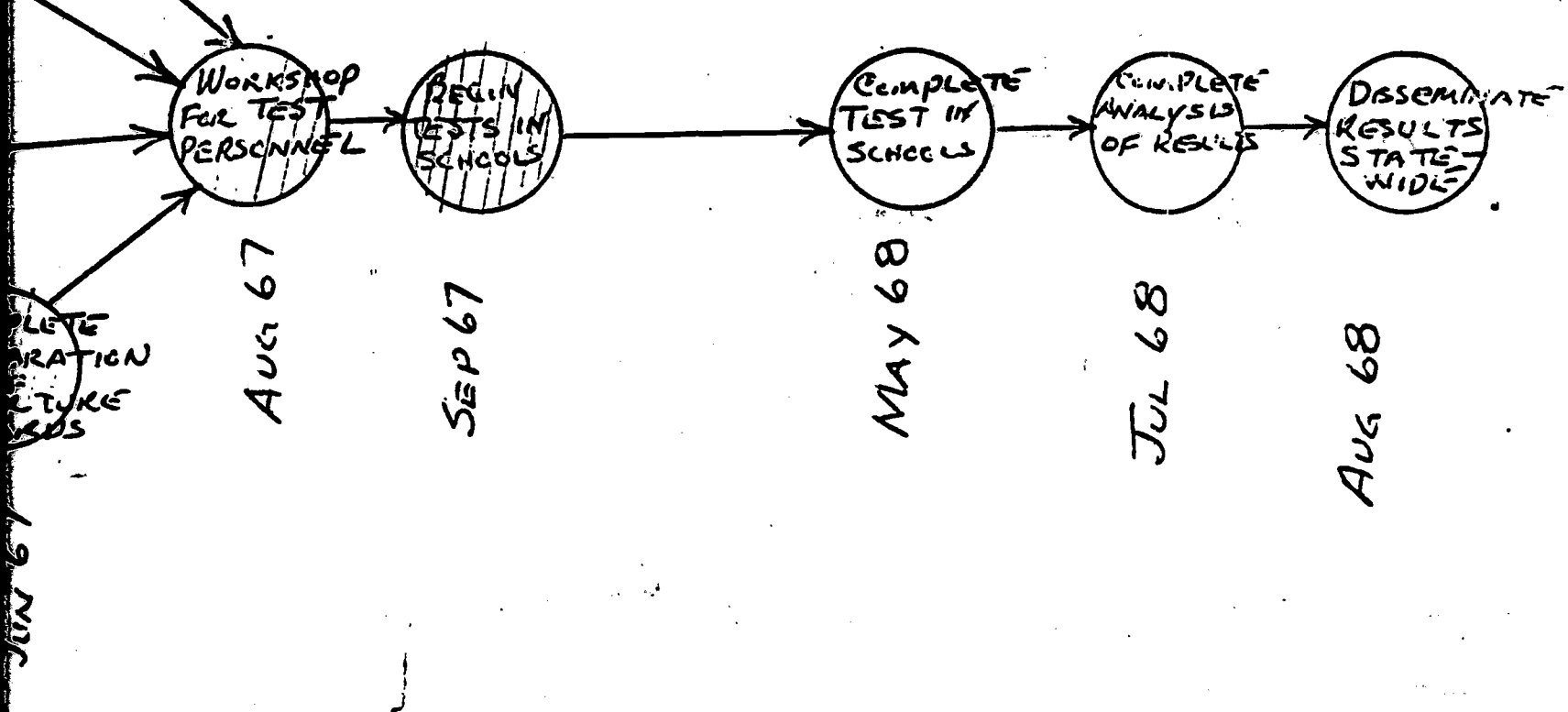
The Federal expenditures through 31 August 67 total $28,027.65 and the State expenditures total $11,403.49. Enclosure 15 lists the expenditures by budget category and by source of funds.

An estimate of the expenditures anticipated for the months September, October and November 1967 is reflected on USOE Form 5141, attached as enclosure 16. Please authorize the withdrawal of the needed funds by letter of credit.

PERT
UTAH VIEW

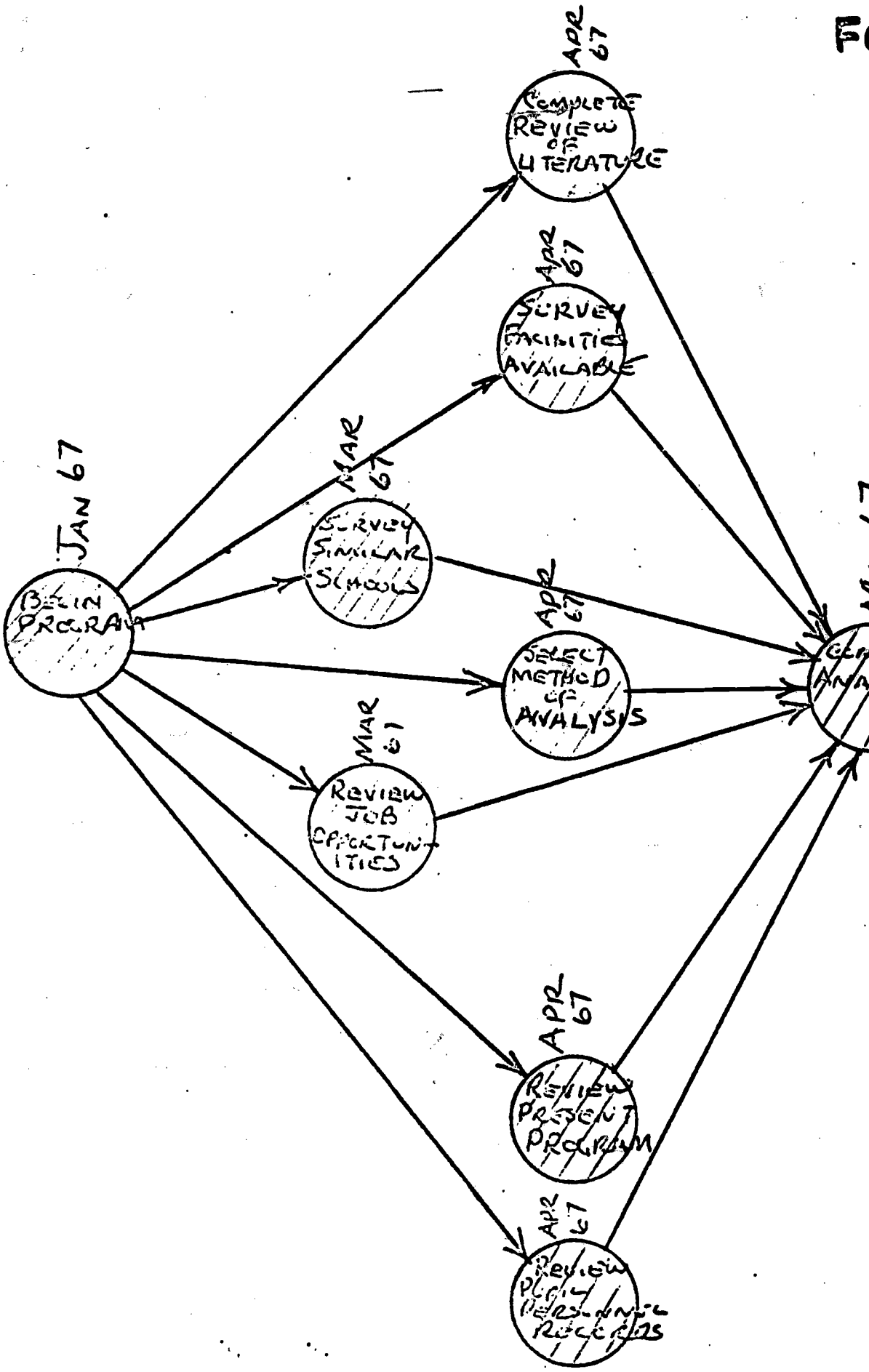


PERT NETWORK
UTAH VIEW PROGRAM



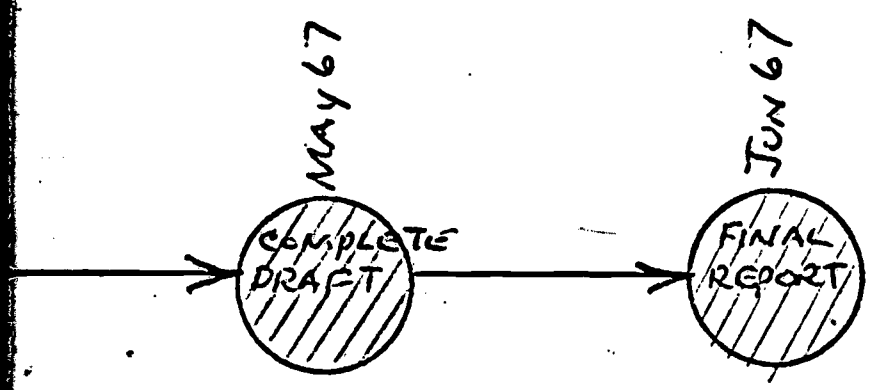
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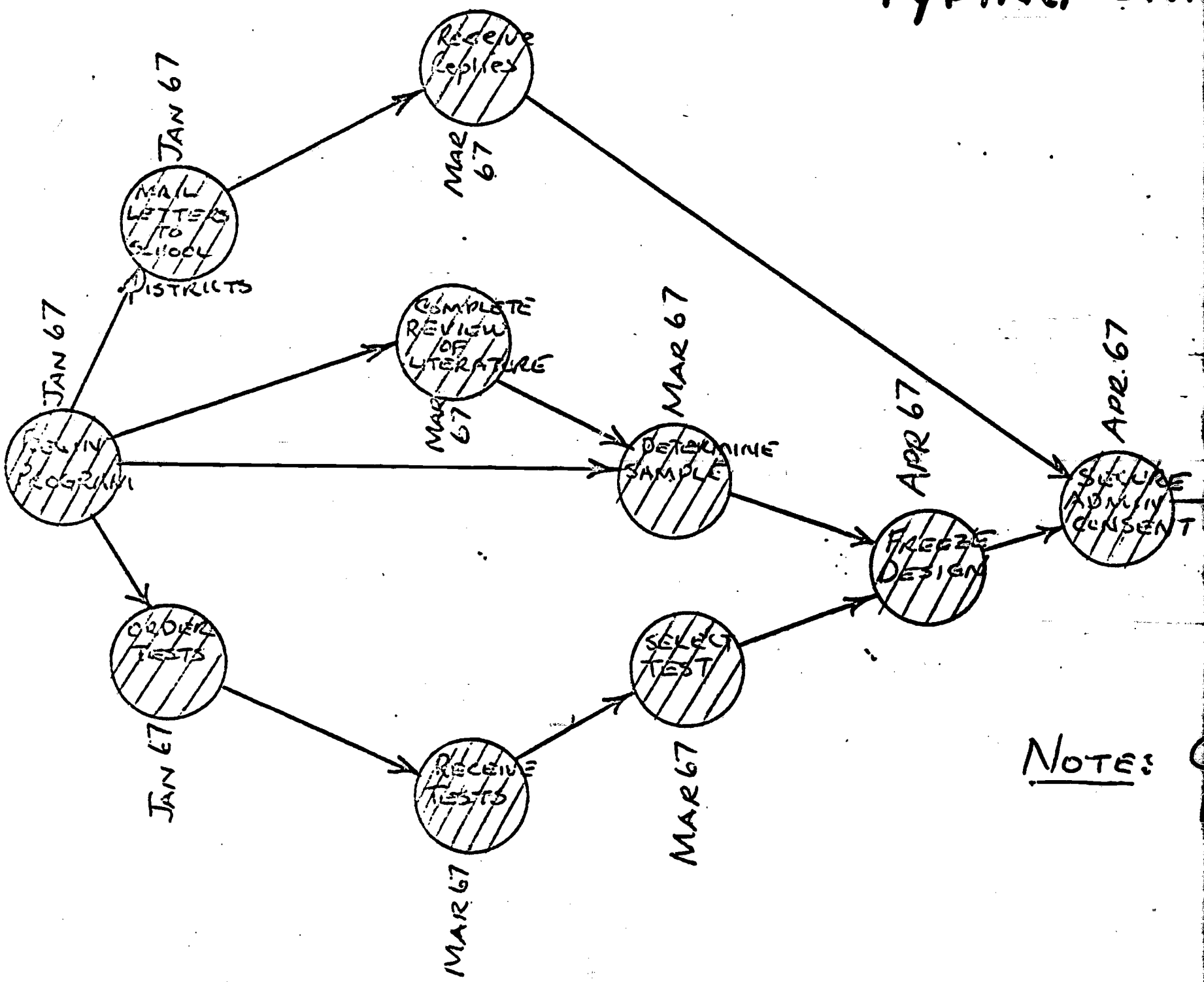
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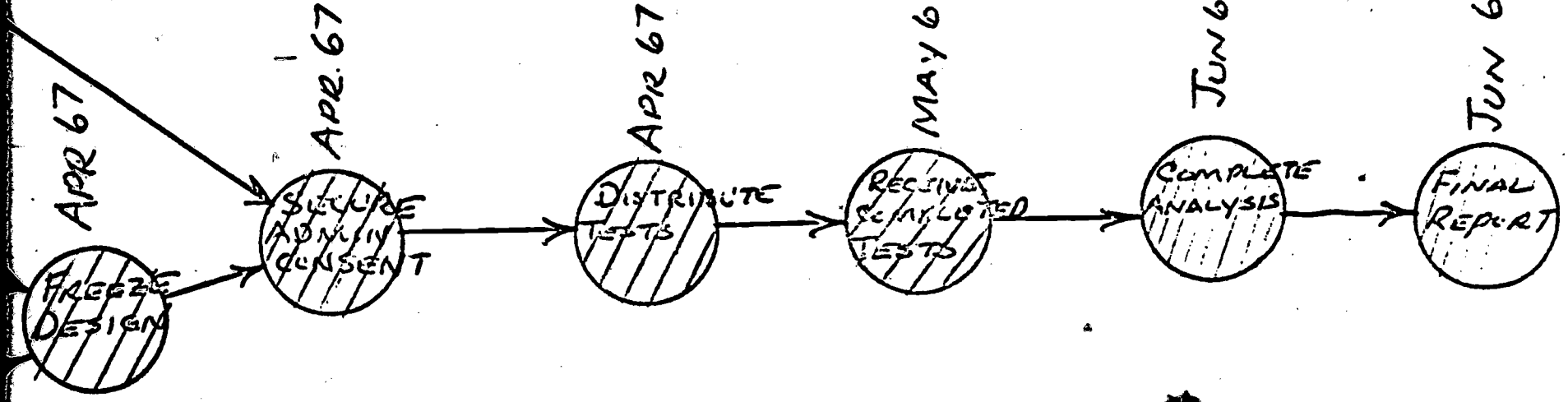
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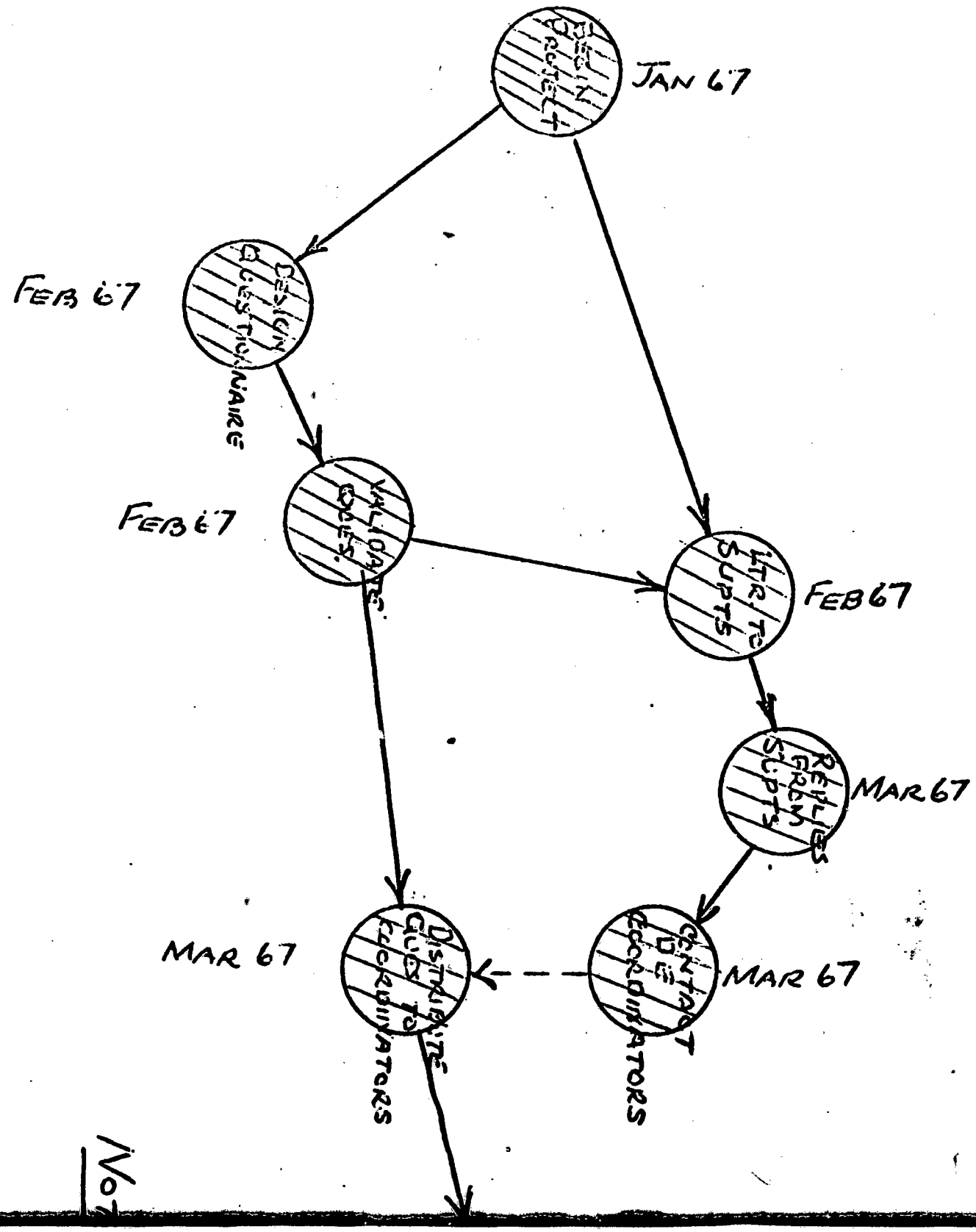


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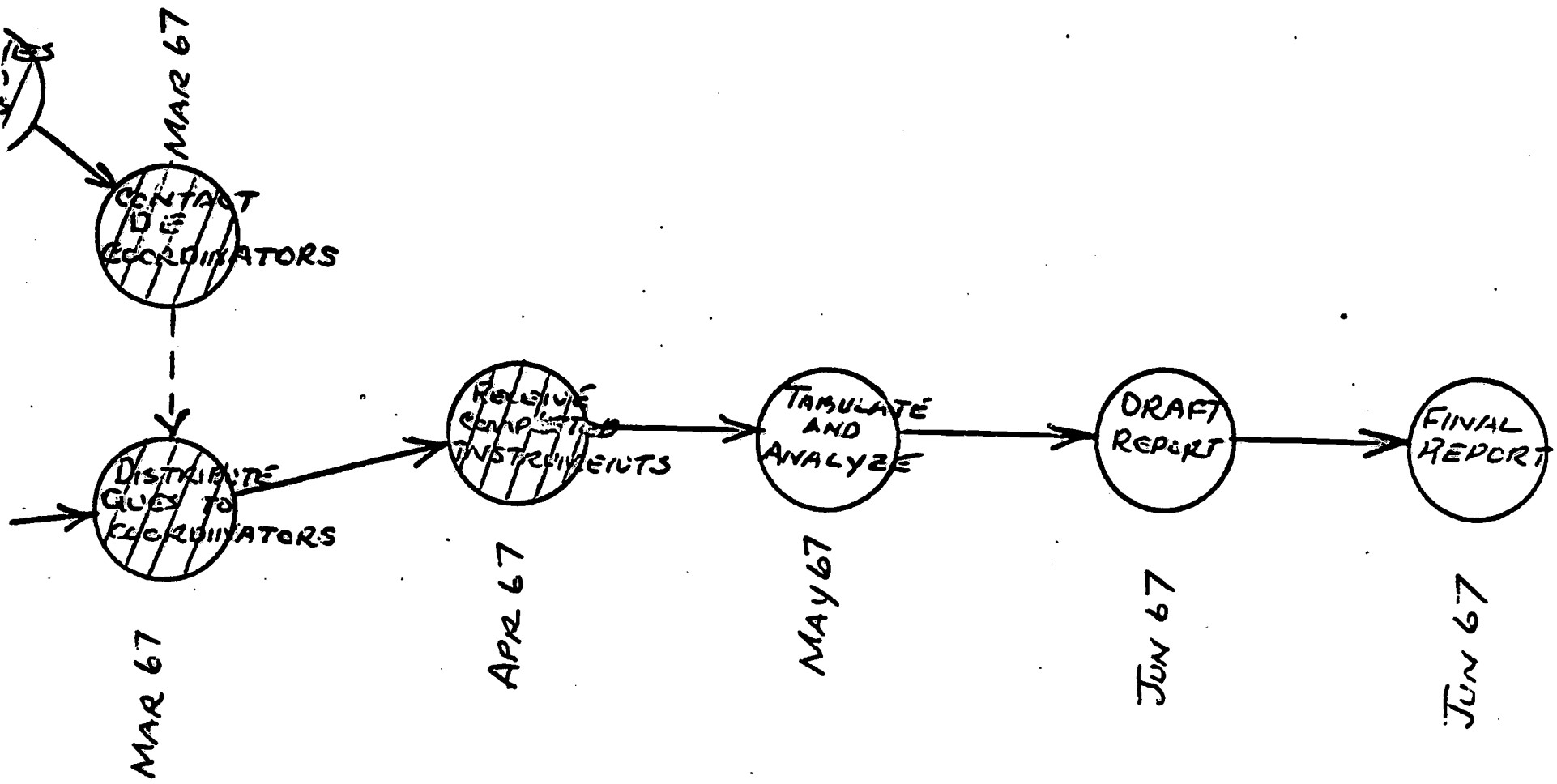
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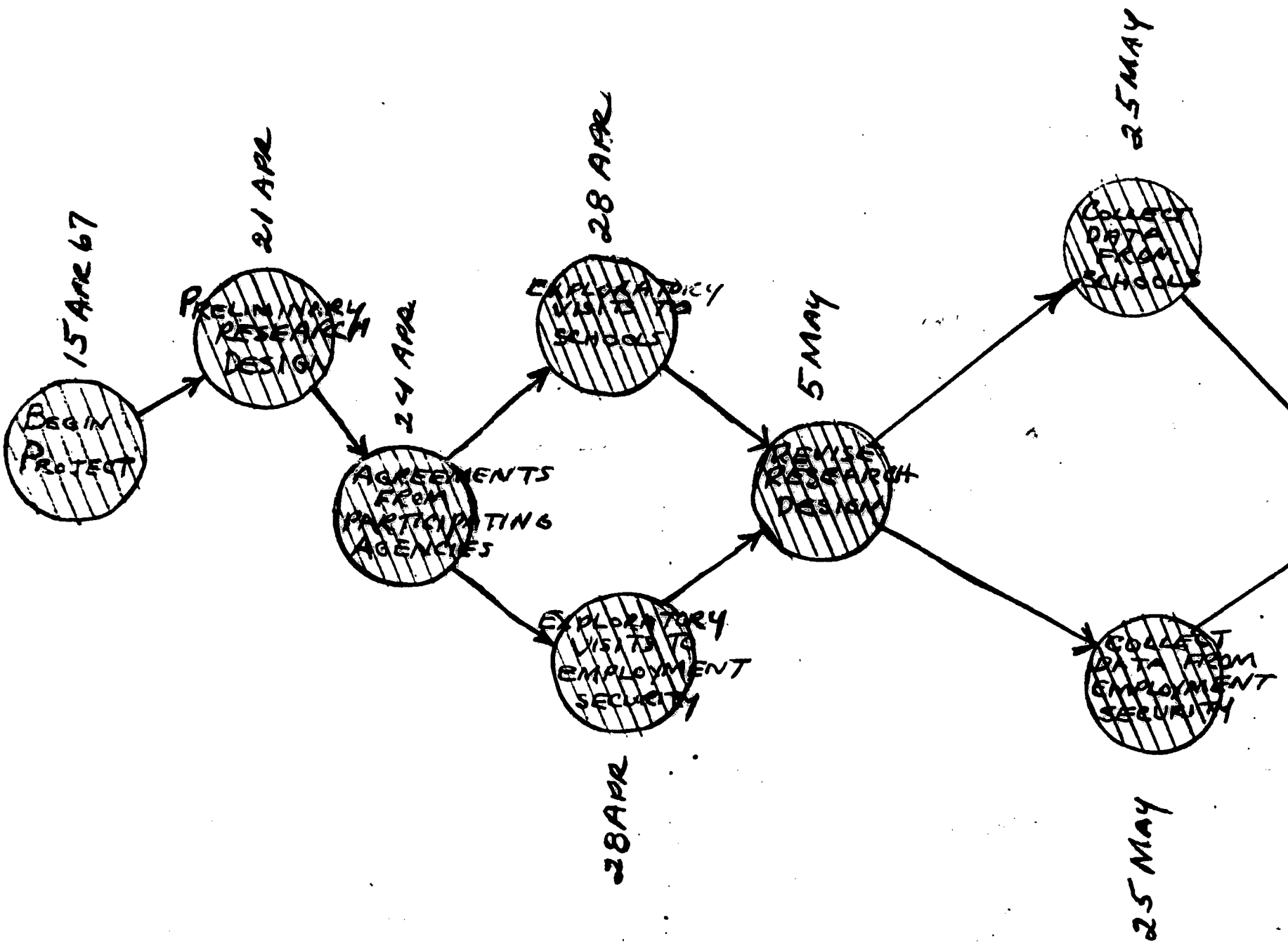
EVALUATION OF UTAH'S SECONDARY LEVEL DISTRIBUTIVE EDUCATION PROGRAM



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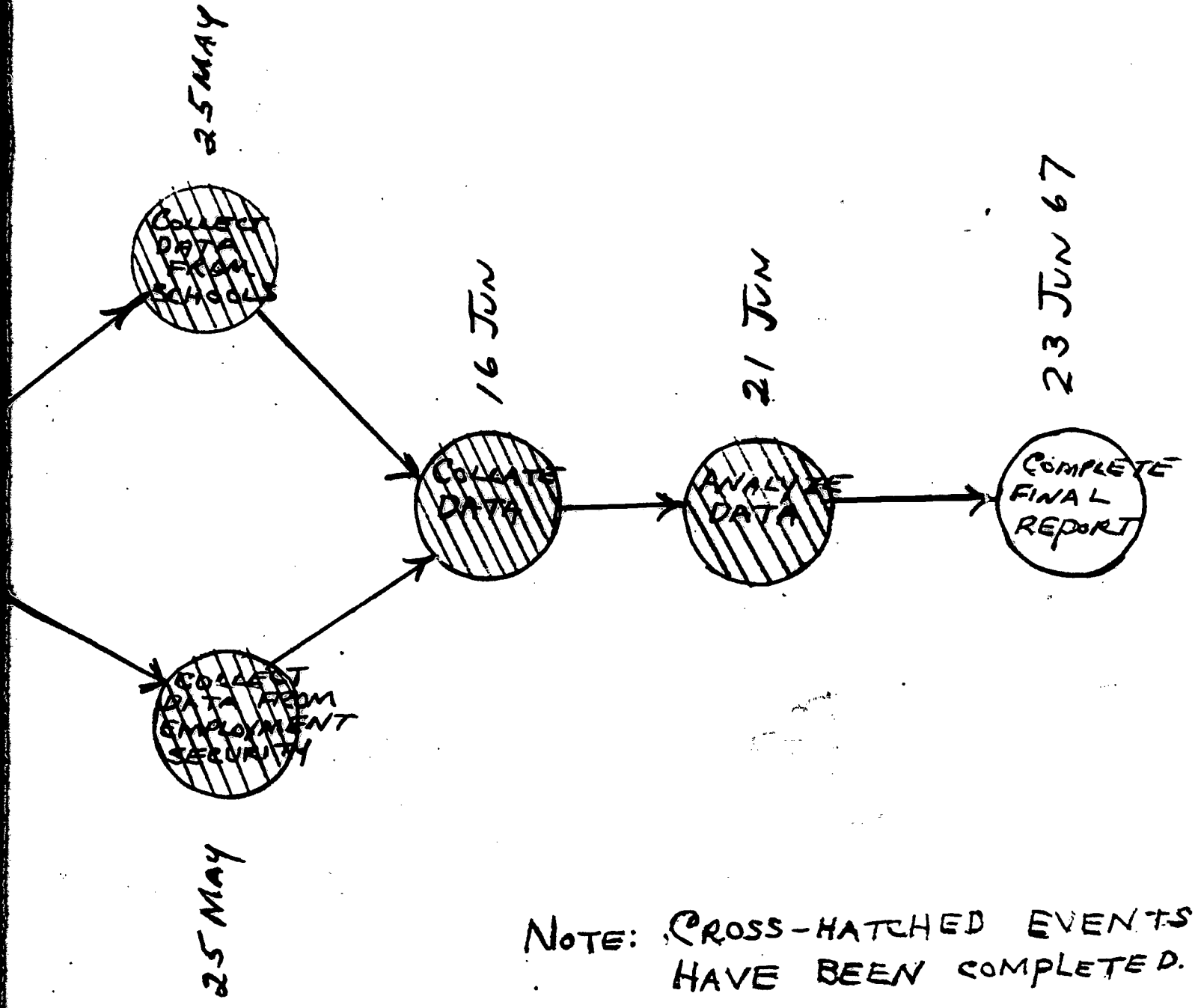
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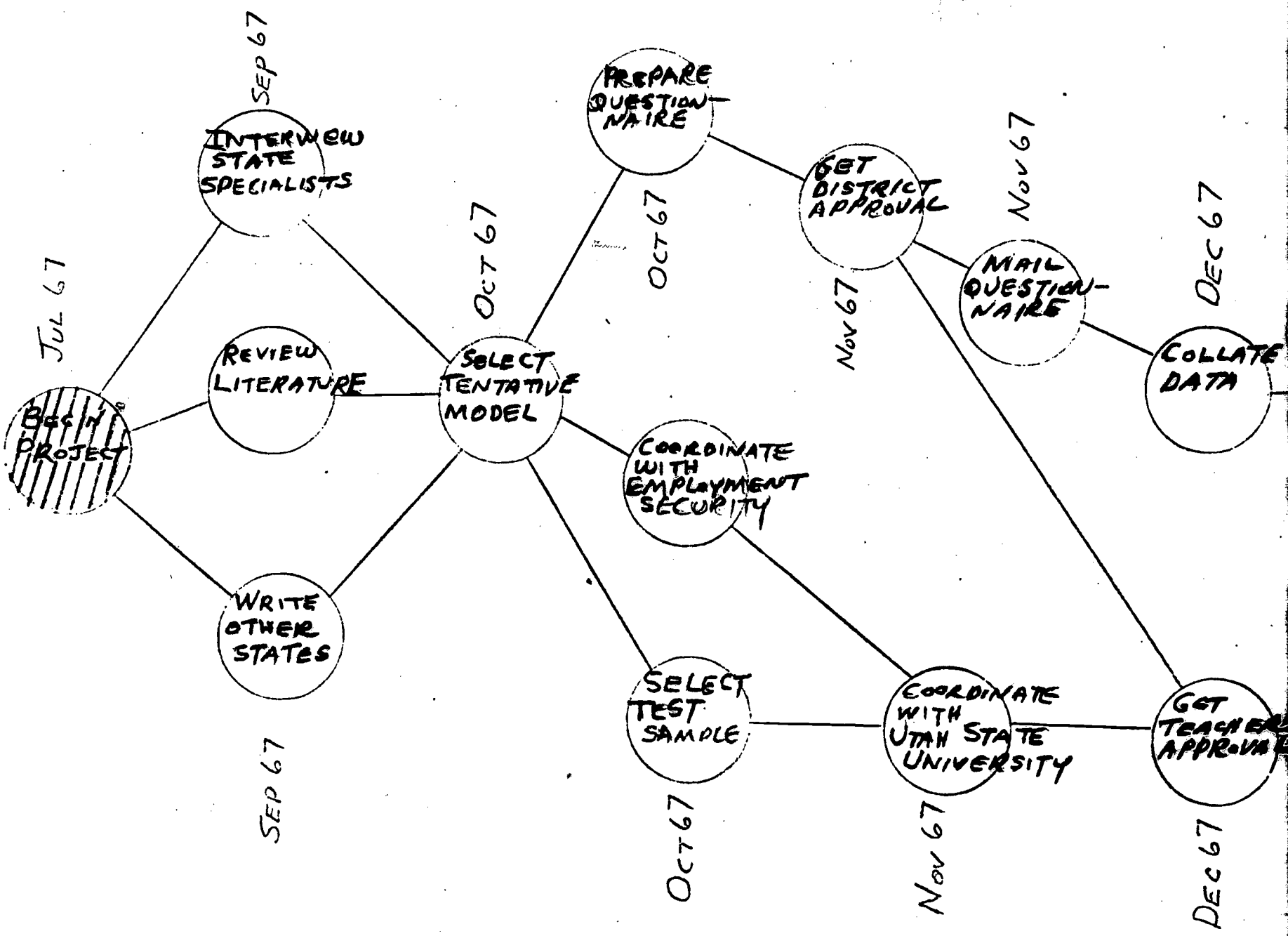
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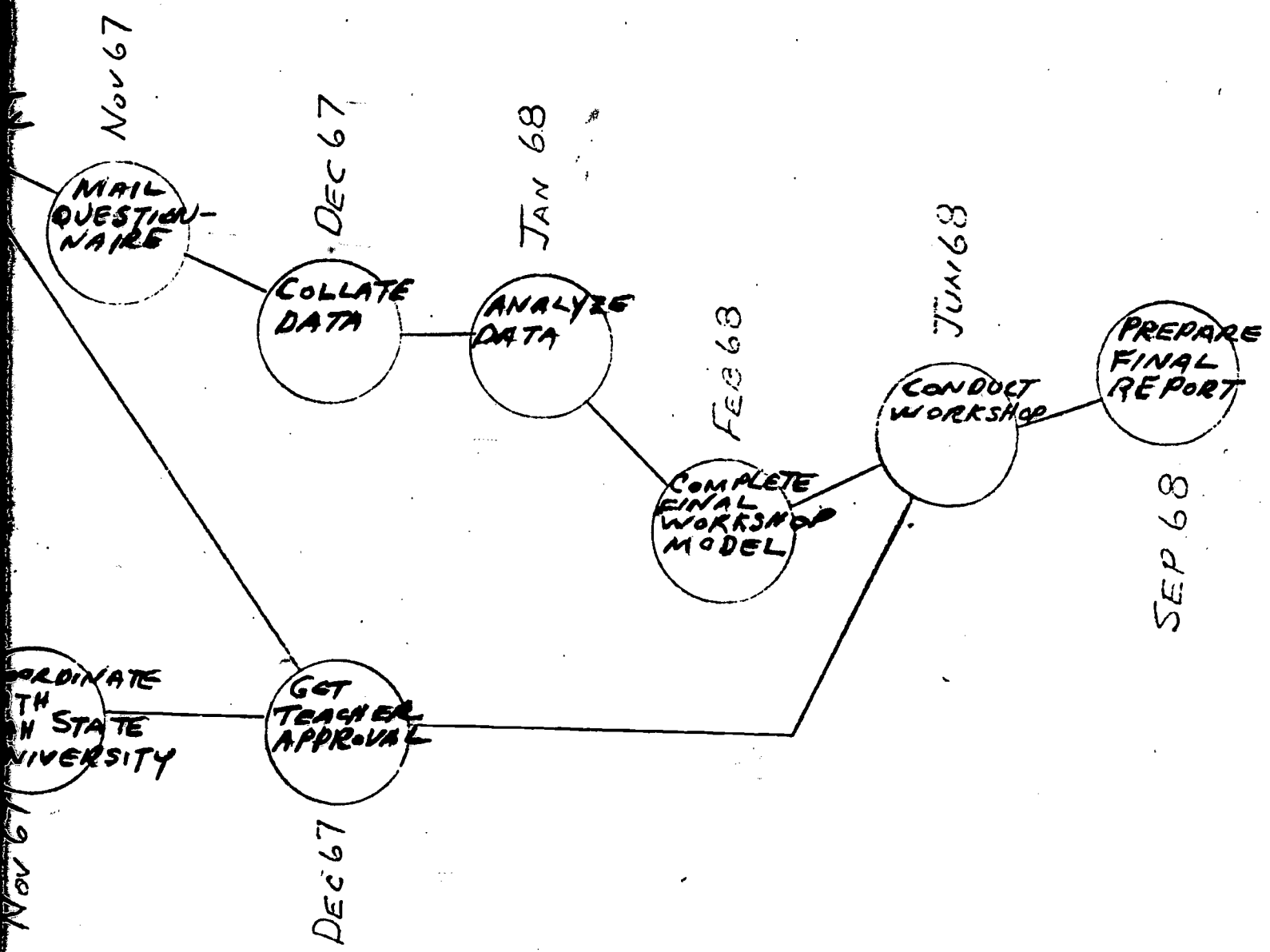


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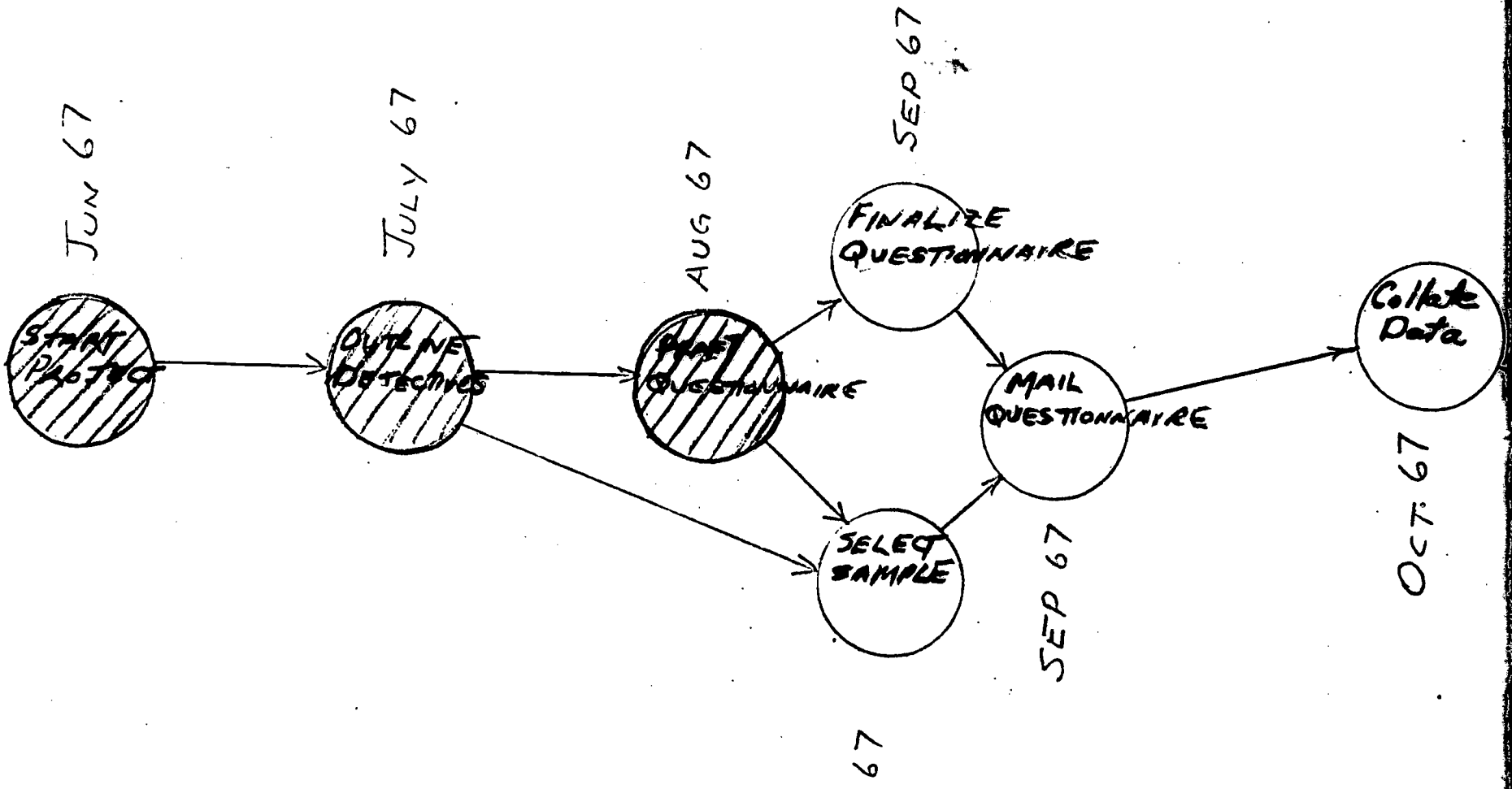


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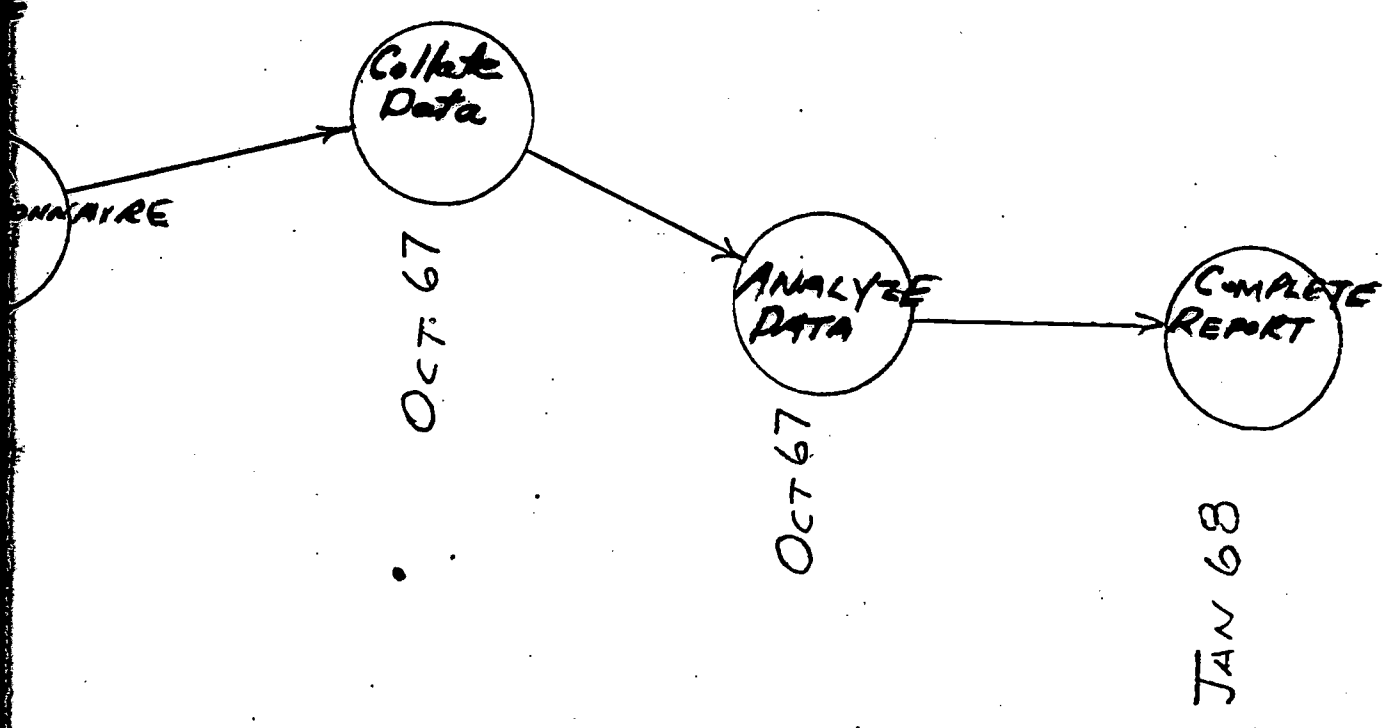
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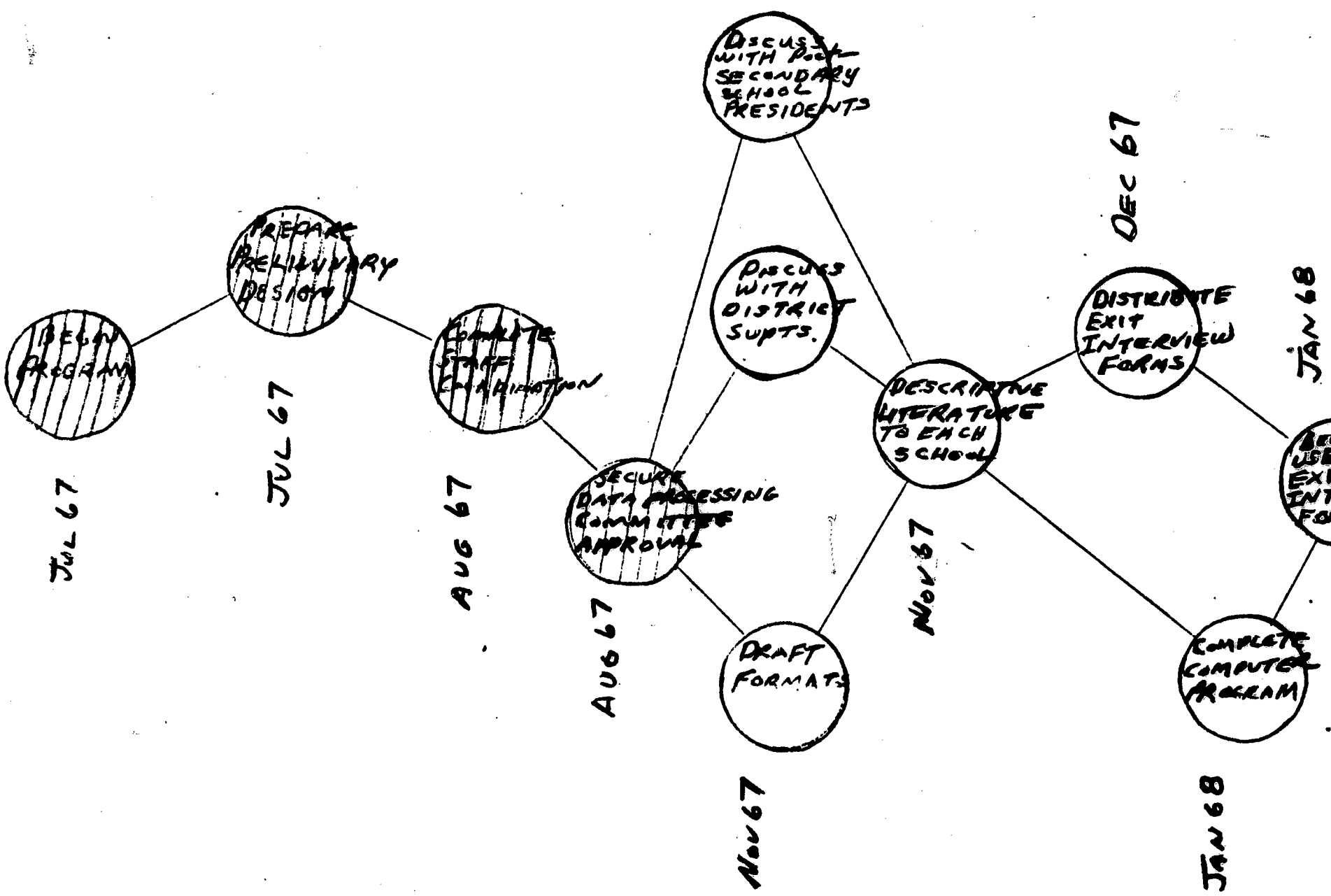
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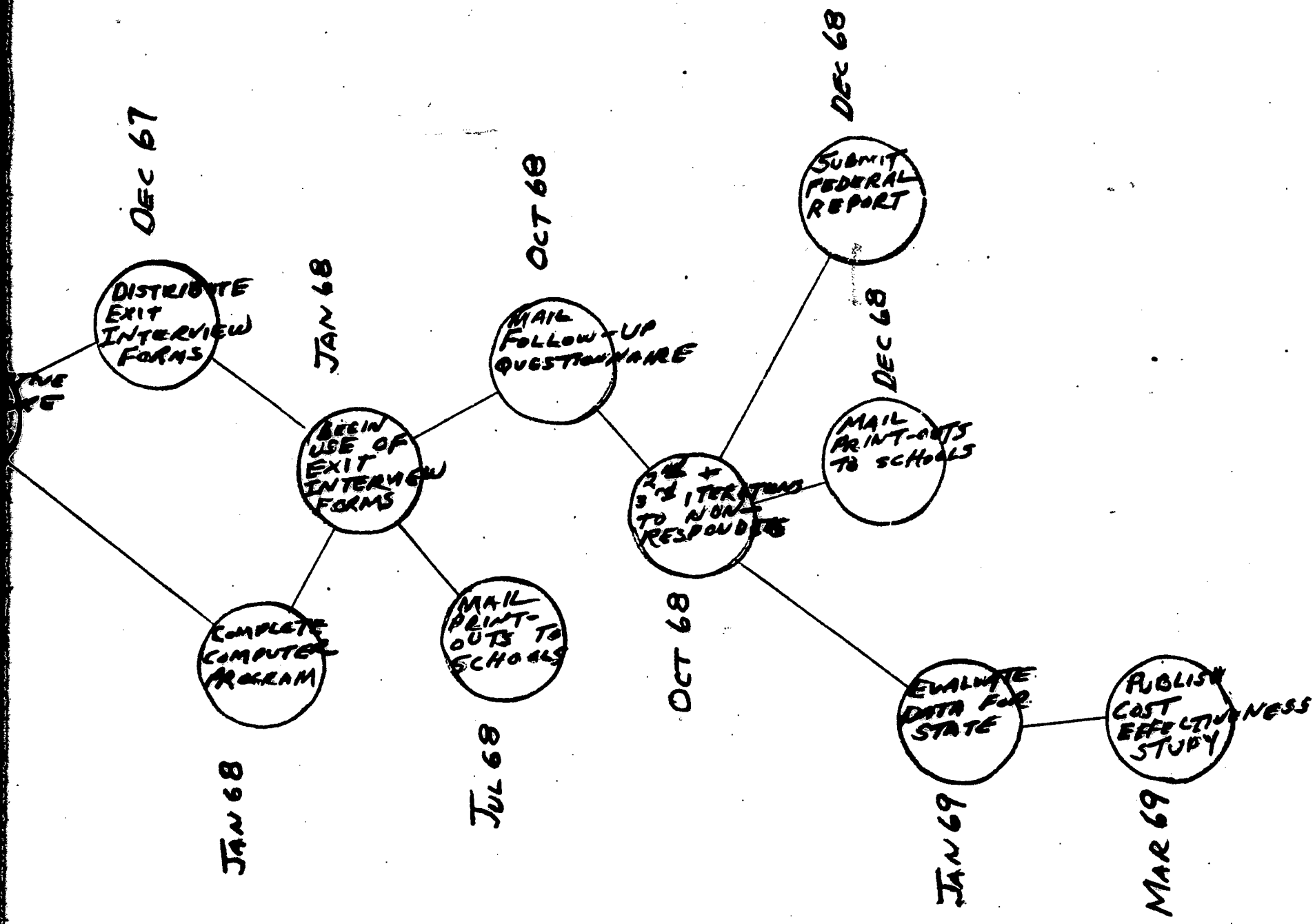
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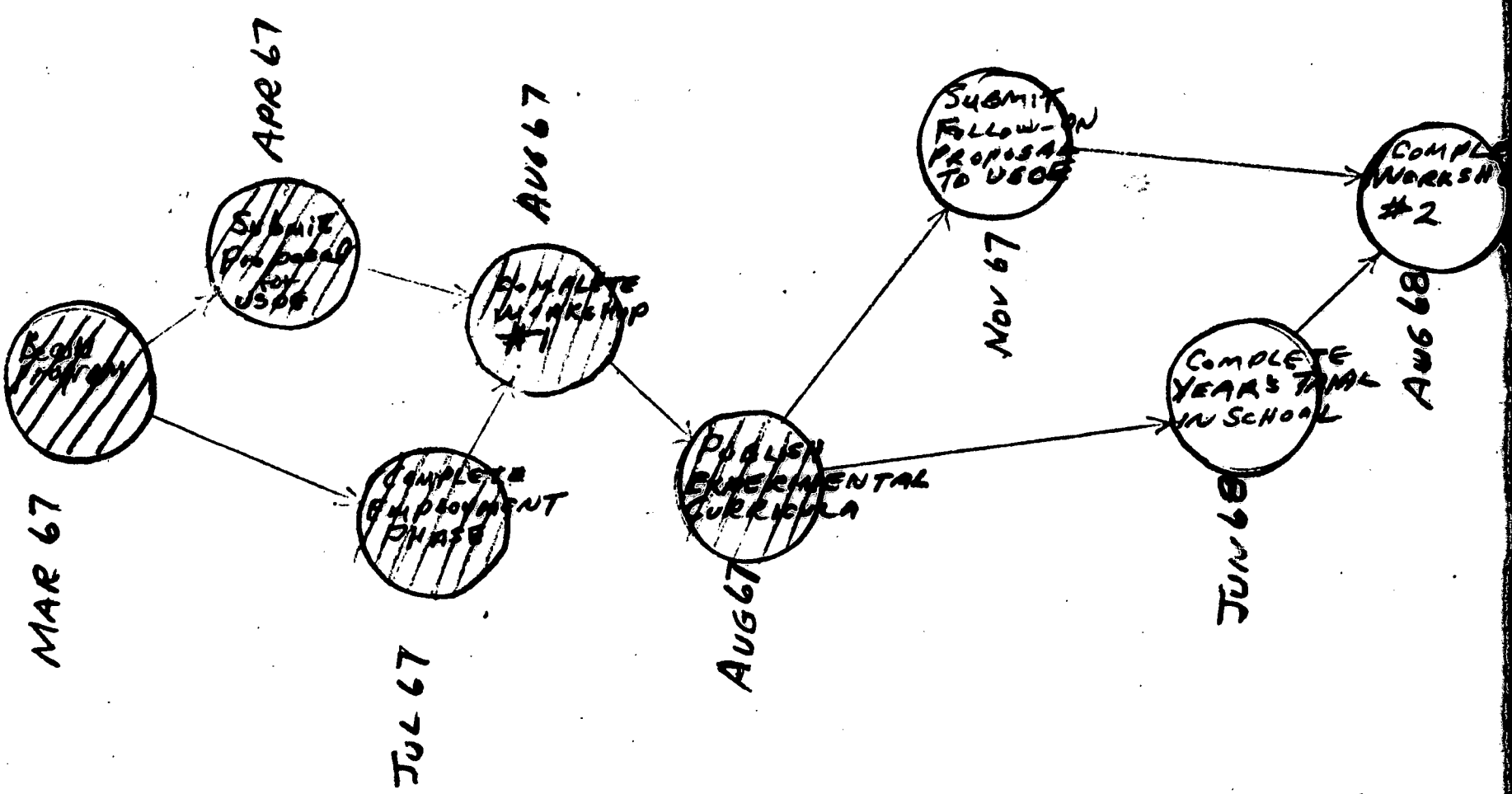


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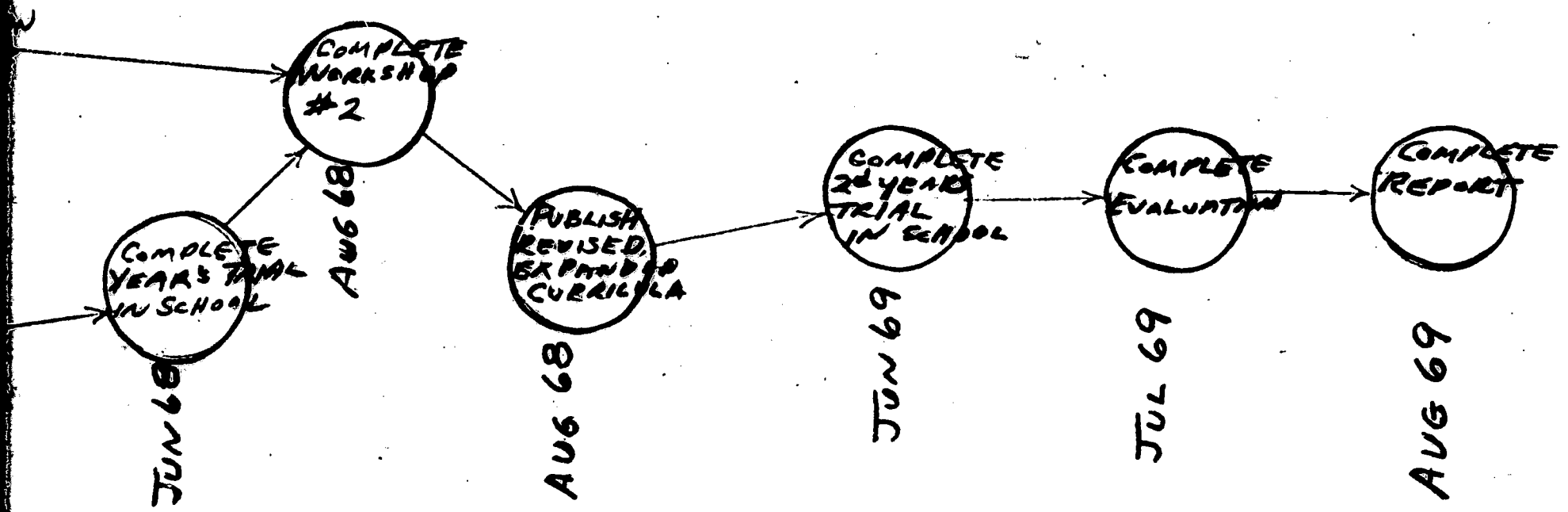
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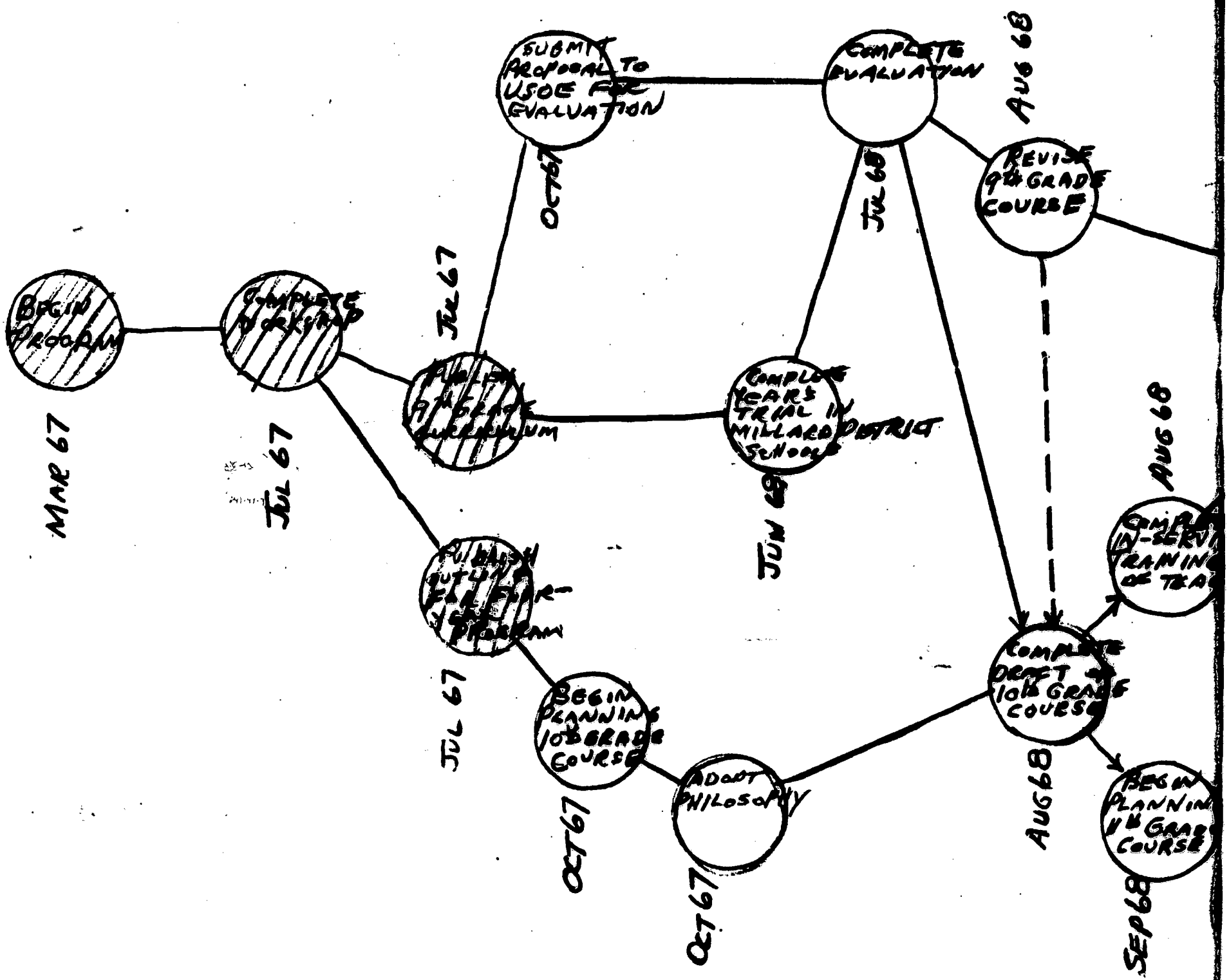
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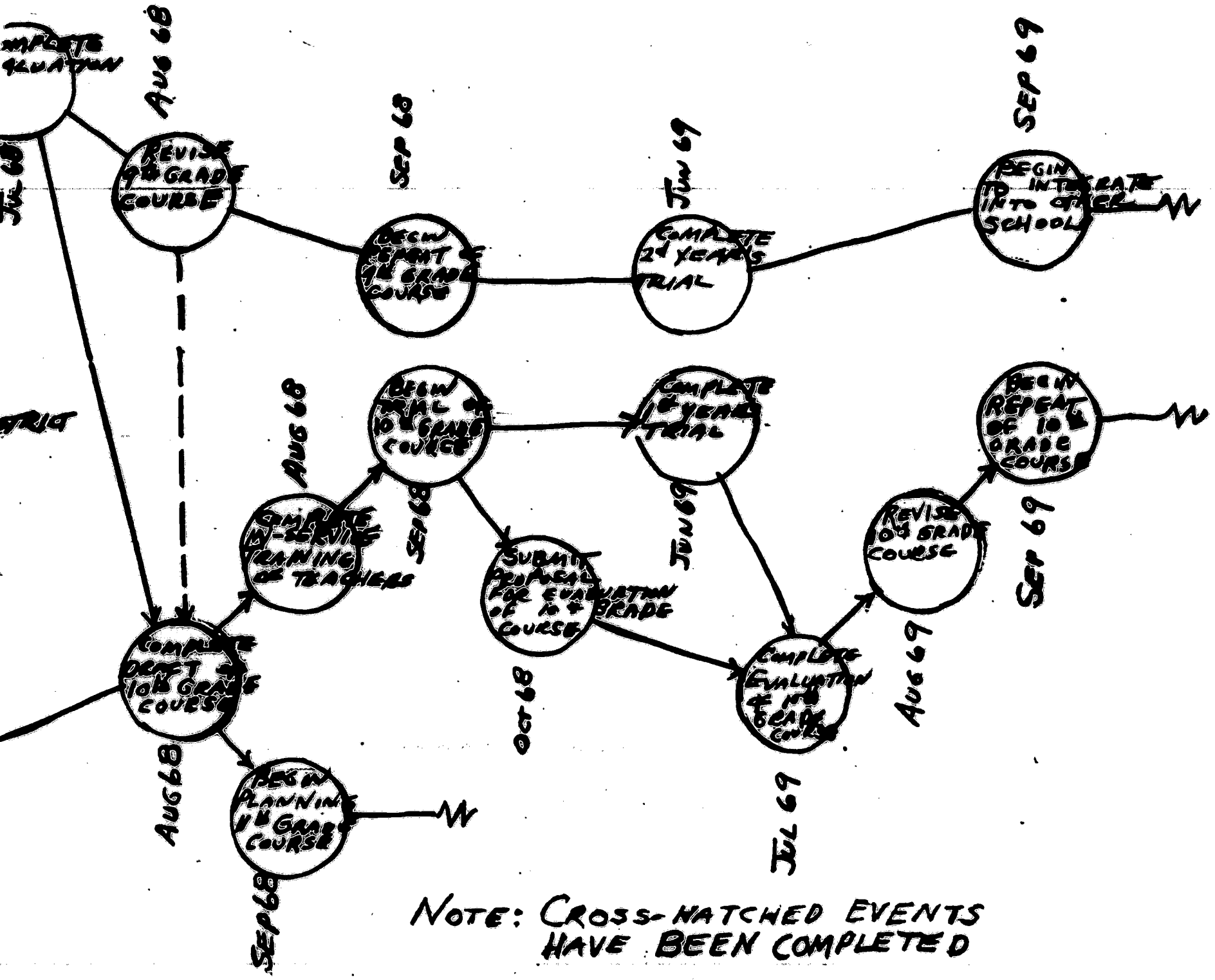


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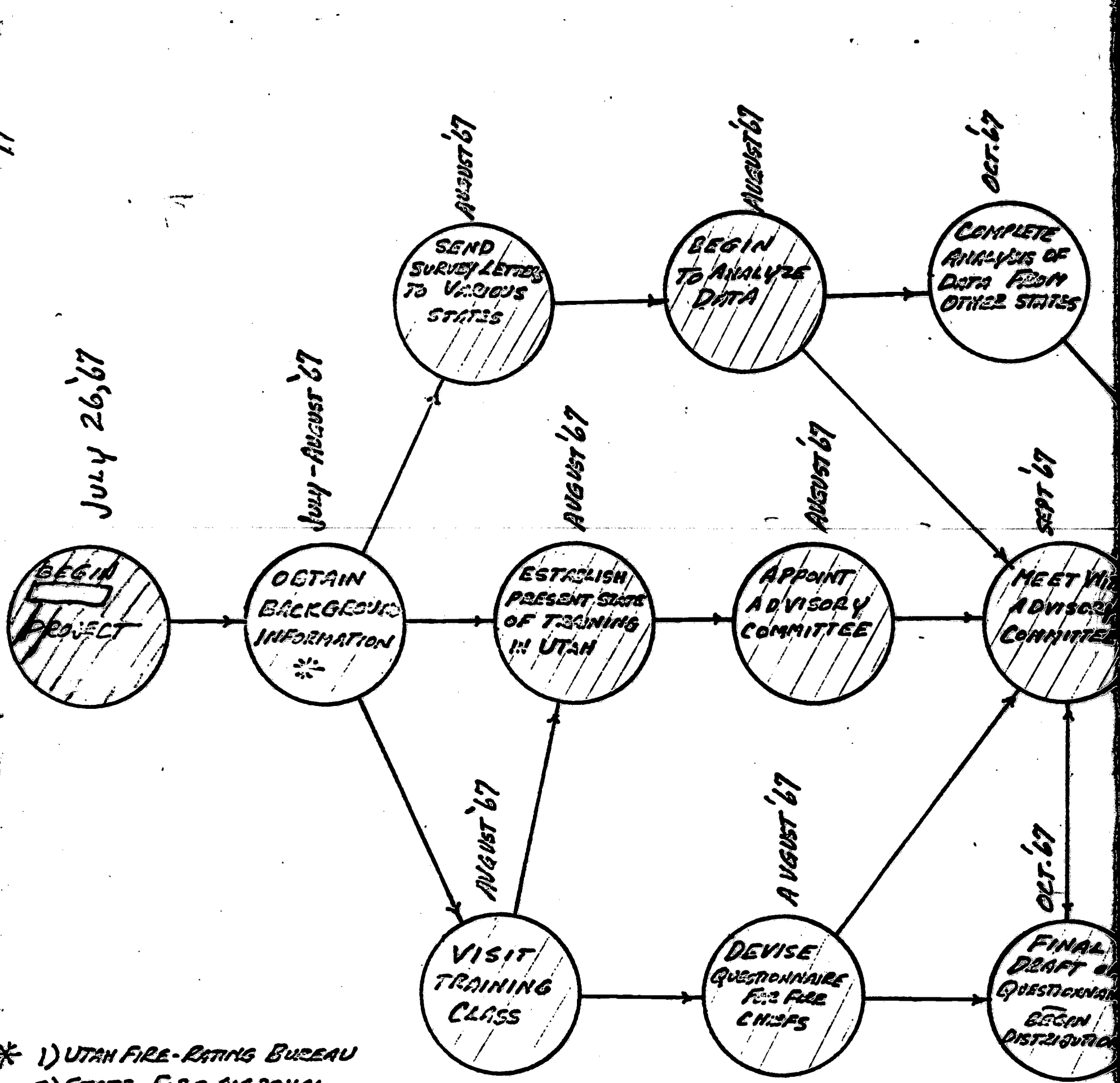
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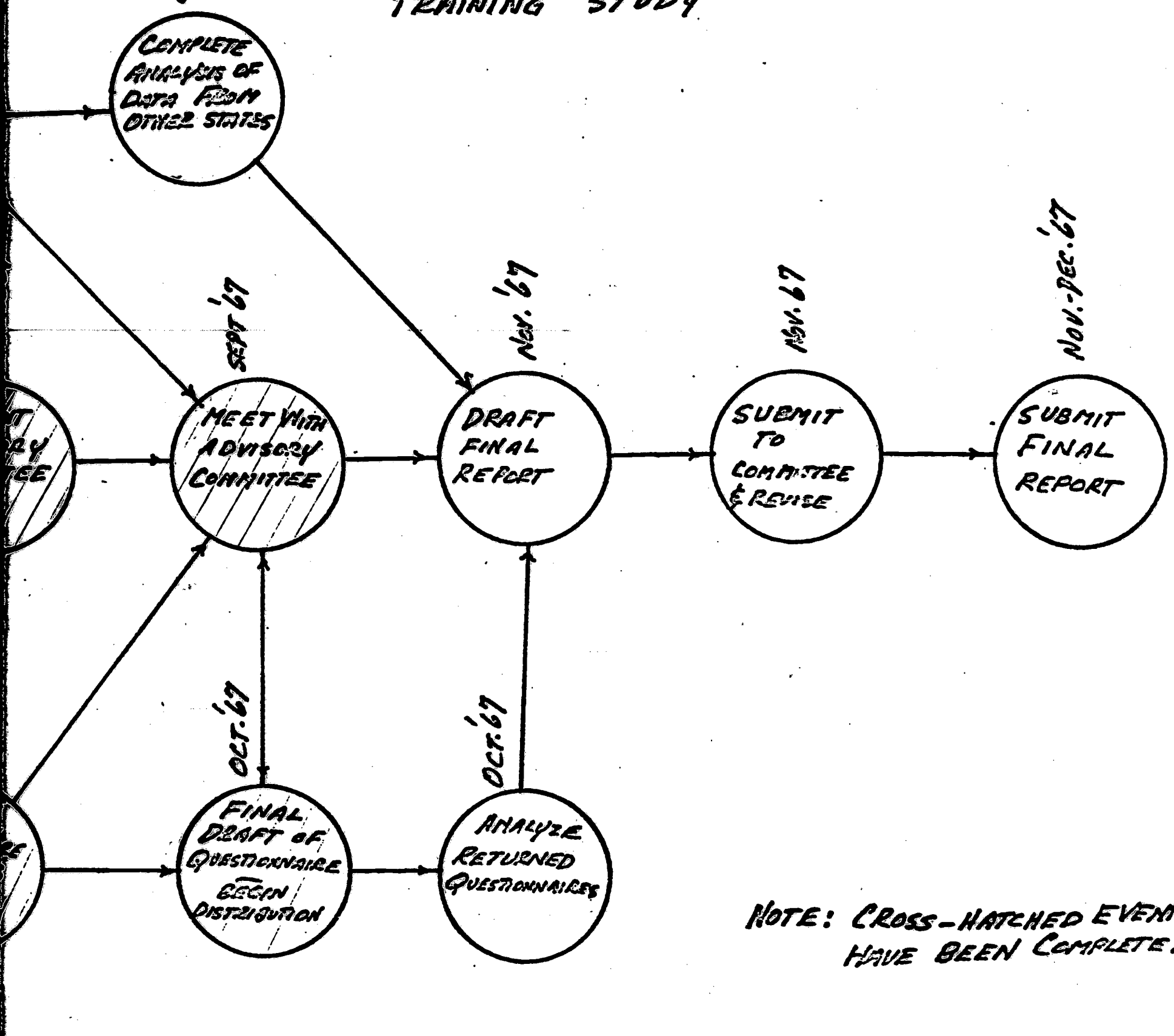
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2) STATE FIRE MARSHAL
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4) LIBRARY MATERIALS

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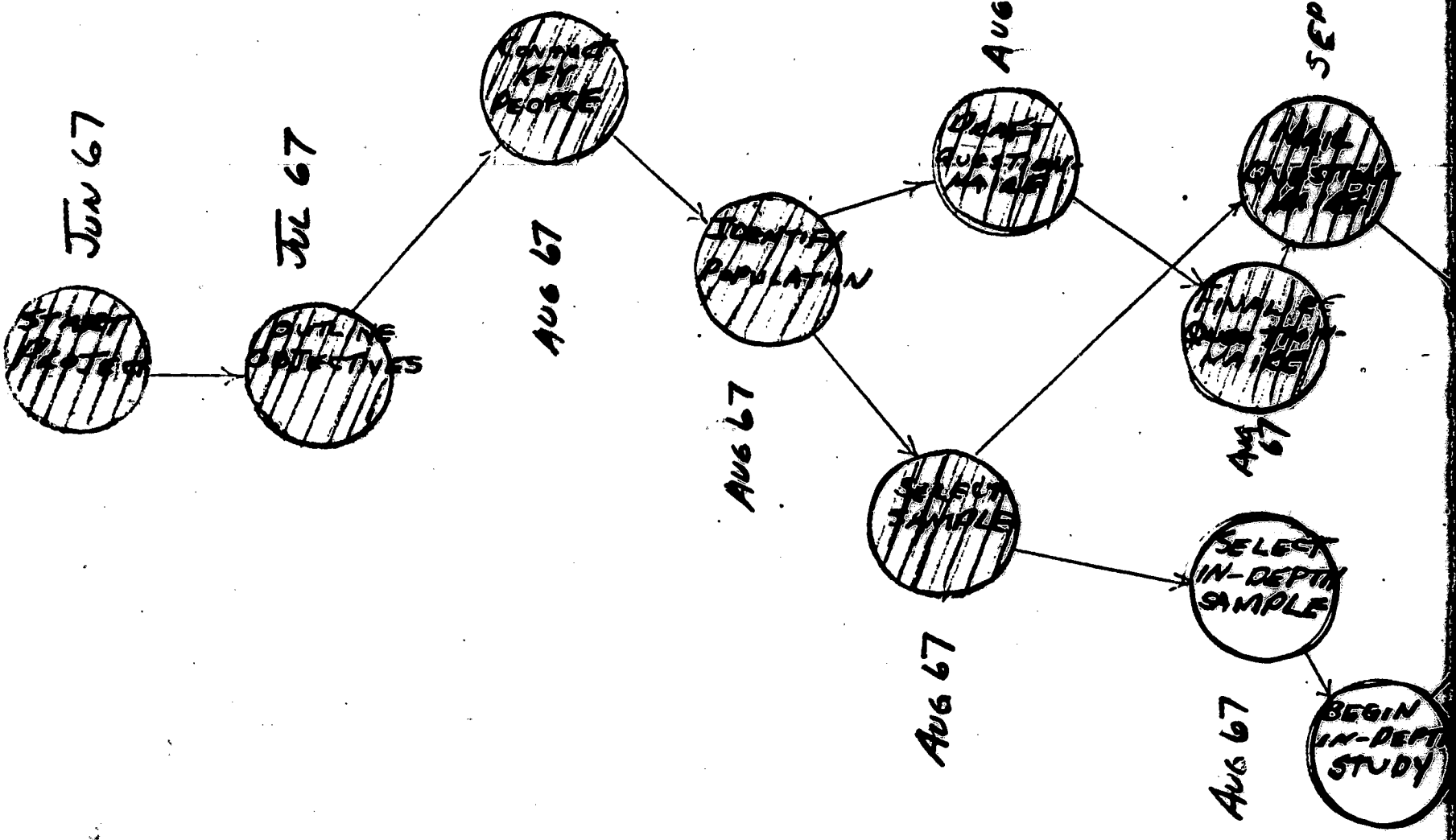


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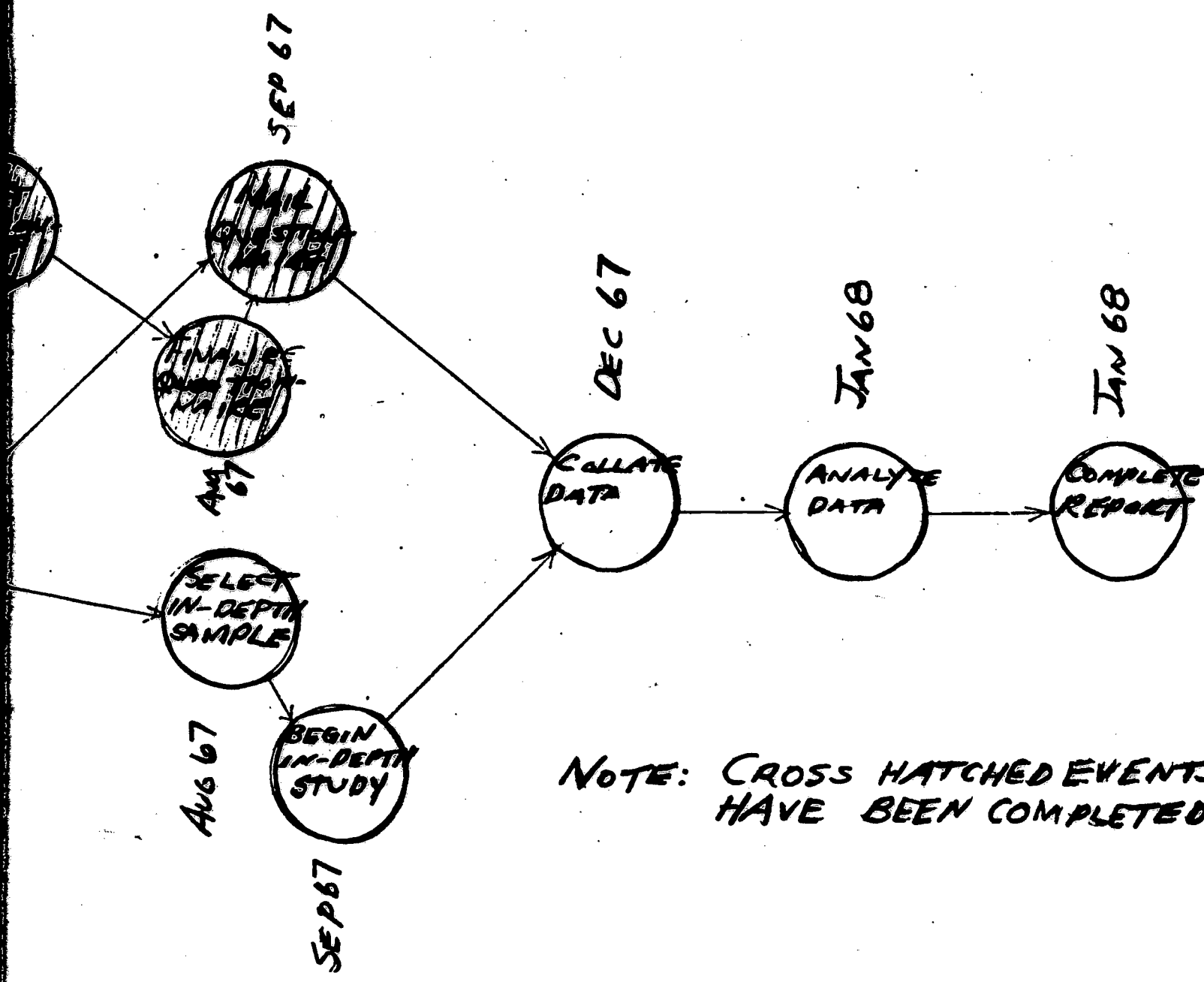
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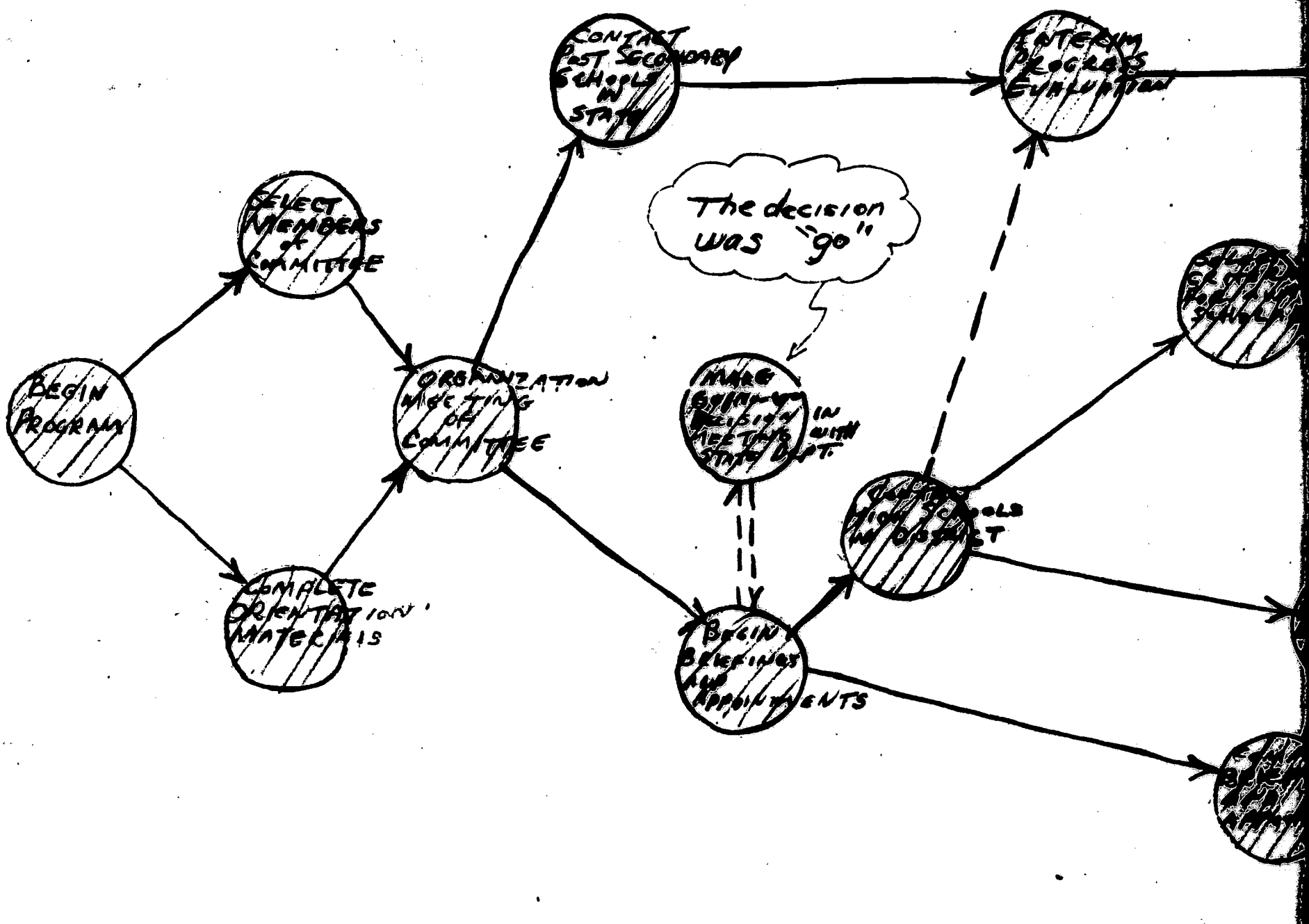


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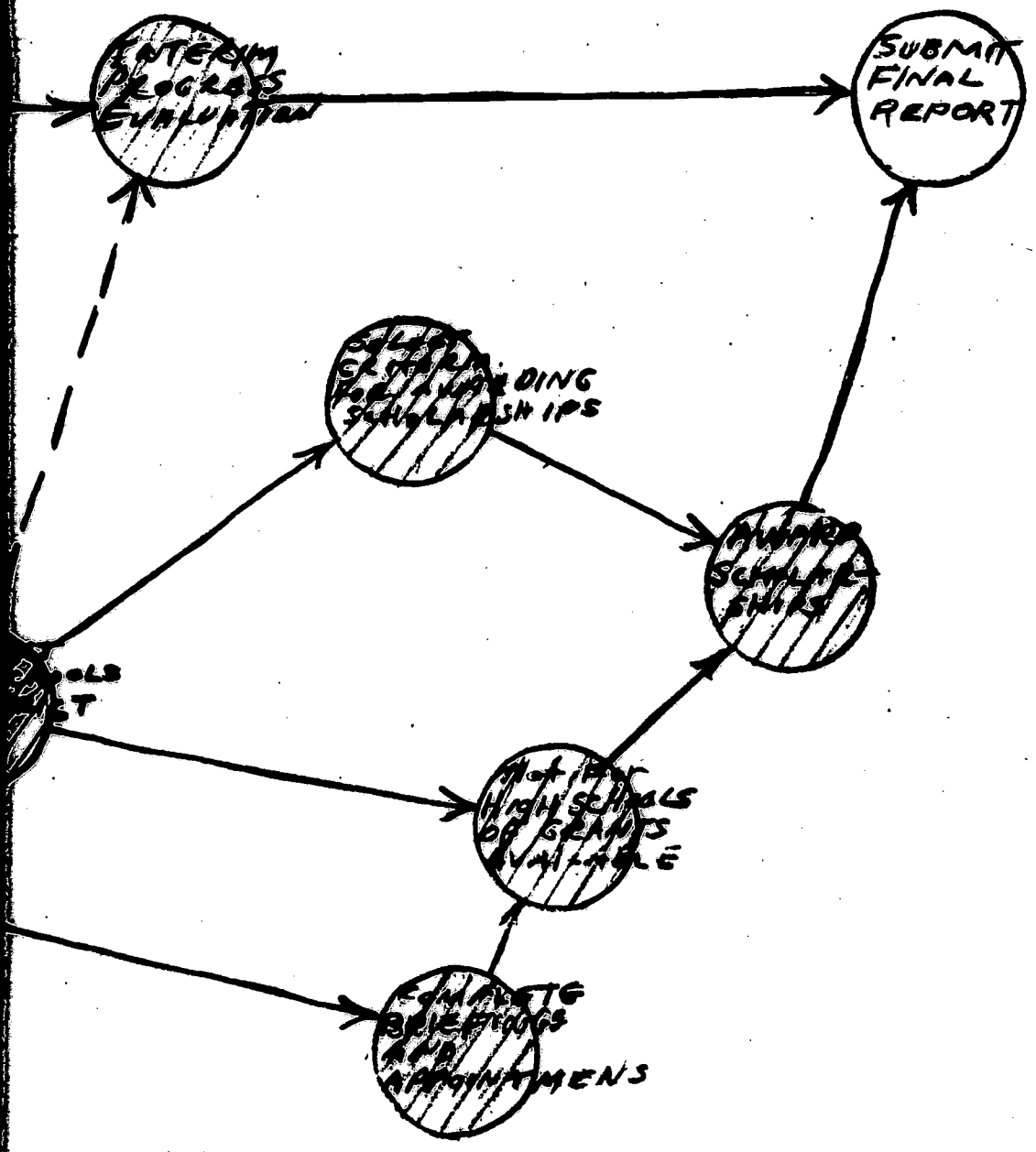
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UTAH RCU
TIME OR EFFORT REPORT

	1966 Dec	1967 Jan	1967 Feb	1967 Mar	1967 Apr	1967 May	1967 Jun	1967 Jul	1967 Aug	1967 Sep	1967 Oct	1967 Nov	1967 Dec
Director John F. Stephens	1	1	1	1	1 1	1	1	1	1				
Associate Director Dr. Austin G. Loveless	½	½	½	½	½	½	½	½	½				
Research Assistants													
Fleet Irvine	½	½	½	½	½	½							
Patsy Pehrson		½	½	½	½	½							
George Chournas		½	½	½	½	½							
Ronald Egan		½	½	½	½	½							
Warren Gaddis	½	½	½	½	½	½	½						
Fred Johnson	½	½	½	½	½	½							
Terry Thatcher	½												
Peter Knoll		½	½	½	½	½	½	½	½				
John Cox				½	½	½	½	½	½				
Dennis Dirksen								½	½				
Niel Edmunds								½	½				
Bob Pommerville								1/6	½				

Enclosure 14

RCU EXPENDITURES

1 Dec 66 - 31 August 67

Direct Costs	Federal	State
Personnel		
Salaries	$19,792.19	$10,331.50
Benefits	1,488.74	581.99
Consultants	-	-
Travel	1,583.22	-
Supplies, Services, Rents, etc.	3,556.09	490.00
Total Direct Costs	26,420.24	11,403.49
Indirect Costs		
Overhead	1,607.41	-
Total Indirect Costs	1,607.41	-
TOTAL COSTS	$28,027.65	$11,403.49

Enclosure 15

OE 5141 (6/64)

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R466
APPROVAL EXPIRES 6/30/66

QUARTERLY ESTIMATED REQUIREMENTS FOR FEDERAL CASH

INSTRUCTIONS: Please complete and submit **one copy** *of this report 30 days prior to the beginning of each quarter.*

REPORT PERIOD FOR QUARTER ENDING:
30 August, 1967

NAME OF PROGRAM
Utah Coordinating Unit for Research in Vocational and Technical Education

CONTRACT OR GRANT NUMBER
OEG-4-7-063046-1621

NAME AND ADDRESS OF CONTRACTOR OR GRANTEE	DATE ESTIMATED CASH IS NEEDED *(Give month, day and year)*	ESTIMATED AMOUNT REQUIRED
Utah State Board of Education 1400 University Club Building Salt Lake City, Utah 84111	1 September 1967	$ 11,100.00
	TOTAL →	$ 11,100.00

Remarks:

SUBMITTED BY *(Type name and title)*
John F. Stephens, Director, Utah Research Coordinating Unit

SIGNATURE OF REQUESTING OFFICIAL

DATE
1 October 19

Enclosure 16

VT 004 270
Illinois Agricultural Education Curriculum Research Project. Interim Report No. 1.

Illinois State Board of Vocational Education and Rehabilitation, Springfield
Illinois Univ., Urbana. Agricultural Education Div.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Jun65 21p.

*VOCATIONAL AGRICULTURE; *PILOT PROJECTS; COURSE ORGANIZATION; SUPERVISED FARM PRACTICE; COOPERATIVE EDUCATION; ADULT FARMER EDUCATION; OCCUPATIONAL SURVEYS; ADVISORY COMMITTEES; *PROGRAM DEVELOPMENT; HIGH SCHOOLS; PROGRAM DESCRIPTIONS; *CURRICULUM
CISSNA PARK; OLNEY; ST. ELMO; WOODSTOCK; ILLINOIS

The purpose of the Project was to develop and try out innovations to improve agricultural education for present and prospective farmers and to provide educational programs for occupations other than farming which require agricultural knowledge and skills. Pilot projects were set up in four school districts in Illinois to test the feasibility of new curriculum patterns in realistic settings. At Cissna Park the program consisted of a high school level 4-year core of instruction with separate, specialized courses at the upper levels for farming and other agricultural occupations. At Olney, a dual-track program was initiated with separation of students based upon background and interest. New facilities and an agricultural business course were added at St. Elmo. The Woodstock school system initiated an agricultural business course and added a teacher. Each pilot program included a repatterning of supervised experience and adult education. Findings based on pilot school experiences showed the need for surveys before placement employment courses are started, businessman involvement in planning and developing placement-employment courses, operating advisory councils before a change in courses is initiated, and step-by-step procedures for developing experience programs. The final report is available as VT 000 434. (JM)

VT 004 270

ED027441

CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION
980 KINNEAR ROAD
COLUMBUS, OHIO, 43212

Illinois Agricultural Education Curriculum Research Project

Interim Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Pilot Programs in Agricultural Education

June, 1965

by
Lloyd J. Phipps
Paul Hemp
Robert Warmbrod
Gerald Fuller

Agricultural Education Division
Vocational and Technical Education Department
College of Education
University of Illinois
Urbana

VT004270

ILLINOIS AGRICULTURAL EDUCATION CURRICULUM RESEARCH PROJECT

INTERIM REPORT NO. 1
JUNE, 1965

UNIVERSITY OF ILLINOIS RESEARCH STAFF

Lloyd J. Phipps, Professor, Project Director
Alfred H. Krebs, Professor
Paul Hemp, Associate Professor
Robert Warmbrod, Assistant Professor
Gerald R. Fuller, Assistant Professor
Robert Daniel, Graduate Assistant
Keith Fiscus, Graduate Assistant
Virgil Byron Gregg, Graduate Assistant
Martin McMillion, Graduate Assistant
Norman Rodney Wetzel, Graduate Assistant

PROJECT SPONSORS

State of Illinois
Board of Vocational Education and Rehabilitation

and

Agricultural Education Division
Vocational and Technical Education Department
College of Education
University of Illinois

ACKNOWLEDGMENTS

The staff members in agricultural education express appreciation to the Illinois State Board of Vocational Education and Rehabilitation, for the funds provided to implement the Illinois Agricultural Education Curriculum Research Project. Special acknowledgment is due Mr. J. E. Hill, Director of Vocational and Technical Education in Illinois; Mr. V. E. Burgener, Chief of Research for the Illinois State Board of Vocational Education and Rehabilitation; and Mr. Ralph Guthrie, Chief of Agricultural Education for the Illinois State Board of Vocational Education and Rehabilitation for their interest and support of the project.

The supervisors of agricultural education for the pilot schools, Mr. Orval Floyd, Mr. Howard Strubinger and Mr. Allen Utech, the entire joint staff in agricultural education in Illinois, and the teachers and other personnel in the pilot centers deserve special recognition for their efforts in promoting the project.

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Olney	6
St. Elmo	8
Woodstock	12
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INTRODUCTION

The Illinois Agricultural Education Curriculum Research Project originated in the joint staff in agricultural education; supervisors and teacher educators in agriculture from the University of Illinois, Southern Illinois University and Illinois State University at Normal, and representatives of the Illinois Association of Vocational Agriculture Teachers. This group was concerned whether or not the traditional curriculum in vocational agriculture was adequate to meet the increasing need to prepare persons for gainful employment in the many occupations requiring knowledge and skill in agricultural subjects.

The joint staff recognized that the agricultural industry was changing rapidly, that occupations were emerging or becoming of increasing importance that required knowledge and skill in agriculture. Some of these occupations were related to farming and some had no relationship to farming. The joint staff recognized further that many rural youth and some nonrural youth were interested in preparing for the many occupations requiring knowledge and skill in agriculture, whether or not they were related to farming.

To crystalize the concerns and ideas of the joint staff, the late Herbert R. Damisch appointed a committee composed of:

Herbert R. Damisch,
Chairman
Lloyd J. Phipps
John Matthews
Ralph Benton
Kenneth James

This committee recommended the development of the Illinois Agricultural Education Curriculum Research Project. The committee envisioned a curriculum research project involving pilot schools which would be established to try out curriculum innovations with the assistance of an outside research group. This outside research group would serve as instruction analyst consultants, data collectors and evaluators.

Under the leadership of Mr. Herbert R. Damisch the committee developed Guidelines for curriculum innovations in agricultural education. Mr. Damisch obtained the support of Mr. J. E. Hill, Director of Vocational and Technical Education, Illinois State Board of Vocational Education and Rehabilitation, for the establishment of the Illinois Agricultural Education Curriculum Research Project, including pilot schools.

Mr. Herbert R. Damisch was in the process of obtaining pilot centers at the time of his death. Mr. J. E. Hill at that time requested Lloyd J. Phipps to take charge of the project until a new chief of agricultural education could be appointed and could become acquainted with the operation of the project.

During 1963-64, under the direction of Professor Phipps and later under the direction of the new Chief of Agricultural Education, Ralph Guthrie, four pilot centers were approved.

Prospective pilot centers were asked to submit an application for approval of a pilot program in the Illinois Agricultural Education Curriculum Research Project. The major headings of this application form were as follows:

I. Provide descriptive data regarding school
II. Describe what you propose to do
III. Describe why you desire to do what is being proposed
IV. Describe how you plan to conduct the program proposed
    A. Plans for supervised agriculture experience programs
    B. Time plan for classes
    C. Enrollment requirements
    D. Teacher time to be provided
    E. Outline of content of courses
    F. Data to be collected

The Agricultural Education Division, Vocational and Technical Education Department, College of Education, University of Illinois, following the approval of four pilot centers, submitted a formal proposal to the Chief of Research, Mr. V. E. Burgener, Illinois State Board of Vocational Education and Rehabilitation, for support to study the progress, developments and outcomes in the four pilot centers. This proposal was accepted and during 1964-65 staff members in the Agricultural Education Division at the University of Illinois have served as consultants, instructional analysts and evaluators in the pilot centers. Data of the following types were collected each month in each pilot center by staff members of the Agricultural Education Division, University of Illinois.

1. Content taught during month
    A. Materials used
    B. Teaching plans
2. Changes in content taught from that planned
3. Content successfully taught, from instructor's viewpoint
4. Problems of instructors, pupils and others
5. Changes in plans during month
6. Supervised agriculture experience activities and problems
    A. Visits
    B. Training stations
    C. Agreements
7. Advisory council and committee activities and problems
8. Adult education activities and problems
9. Youth organization activities and problems
10. Evaluation activities and problems
    A. Instruments used
    B. Tests
    C. Surveys
    D. Records
11. Assistance desired

At the beginning of the project, data of the following types were collected regarding the past history of the pilot centers.

1. Enrollments in past years--high school
   A. Beginning of year by classes
   B. End of year by classes
   C. Standardized test records of enrollees and dropouts
2. High school courses taught in previous years
3. Course outlines for courses taught in previous years.
4. Changes in courses offered and in course outlines in recent years
5. Agricultural education policies
6. Changes in policies in recent years
7. Advisory council and committees, history of
   A. Charter, by-laws
   B. Minutes of meetings
8. Award and contest program participation
   A. Number of pupils participating
   B. Winnings
9. Supervised farming programs
   A. Summary of production projects
   B. Summary of improvement projects and supplementary practices
10. FFA programs of work
11. Young farmer programs
    A. Courses taught
    B. Attendance
    C. Course outlines
12. Miscellaneous agricultural education activities conducted
13. Miscellaneous promotional, community service, and school service activities of teacher

The objective of the Illinois Agricultural Education Curriculum Research Project in the beginning and at the present time was to develop and try out innovations in agricultural education that would (1) improve agricultural education for farmers and prospective farmers and (2) provide agricultural education programs for occupations other than farming in which knowledge and skill in agricultural subjects are necessary for successful employment. The pilot programs were not developed as demonstration centers and are not considered demonstration centers. Their purpose is to provide a realistic setting for discovering both successful and unsuccessful curriculum practices. A future possible development in the Illinois Agricultural Education Curriculum Research Project might be the establishment of centers to demonstrate successful curriculum practices developed in the pilot centers.

DESCRIPTION OF PILOT PROGRAMS

Cissna Park High School, Cissna Park, Illinois

Setting. Cissna Park High School, a part of the Community Unit Number 6 school district, is located in the village of Cissna Park, Illinois. The village of Cissna Park, with a population of approximately 800, is situated in the center of a rich farming area in the southern part of Iroquois County. The village is approximately twenty miles from cities of

5,000 to 10,000 population and forty miles from a city of over 40,000 population.

Agriculture is the major industry in the Cissna Park school district. The village of Cissna Park is primarily a retail sales and service center for farmers and rural families in the surrounding area. Nearly all the businesses in Cissna Park are oriented toward agriculture in one way or another.

Enrollment in the Cissna Park High School totals slightly more than 200 pupils. Nearly 70 percent of the pupils come from farm homes or rural residences. The remaining pupils are acquainted with agriculture through the environment of a rural community.

The curriculum of the Cissna Park High School presently includes the traditional college-preparatory offerings plus physical education, driver education, business education, home economics education, and agricultural education (vocational agriculture). Vocational courses in diversified occupations and in distributive education were once offered but have been discontinued.

The Cissna Park High School has a professional staff of nearly fifteen. The Cissna Park High School staff involved in this project are:

Mr. Charles Watson, Superintendent of Schools and High School Principal
Mr. Roland Meyer, Teacher of Agriculture
Mr. Donald Whitten, Teacher of Agriculture

Vocational Agriculture Program Prior to 1964-65. Prior to 1964-65, the vocational agriculture program at Cissna Park High School was conducted by two teachers of agriculture and offered at the high school level the traditional production agriculture courses designed to educate future farmers. Four high school courses were offered each year with an average enrollment of 50 pupils:

Agriculture I (9th grade)--included instruction in livestock production and farm carpentry.
Agriculture II (10th grade)--included instruction in crop production and welding.
Agriculture III (11th grade)--included instruction in conservation, farm machinery and farm electrification.
Agriculture IV (12th grade)--included instruction in farm management and farm power.

Courses were also offered for young and adult farmers. There was no agricultural advisory council in existence in the Cissna Park school district.

Vocational Agriculture Program for 1964-65

The pilot program in agricultural education initiated July 1, 1964, consisted at the high school level of a four-year core of instruction in

agriculture with separate, specialized courses at the junior-senior level for pupils desiring to prepare for farming or for occupations in industry requiring knowledges and skills in agriculture. The purpose of this core vocational agriculture program, with specialized courses for farming and nonfarm agricultural occupations, was to provide boys and girls of high school age with an opportunity to receive education that would supplement their rich rural backgrounds and prepare them for gainful employment or post-secondary education leading to employment in occupations which require knowledges and skills in agriculture, including farming. The core of instruction offered was as follows:

Basic Agriculture (9th grade)--included instruction in livestock production for consumer demands, conservation of natural resources, and mechanics in agriculture.
Agricultural Science (10th grade)--included instruction in crop production for consumer demands, agriculture mechanics, forestry products and their use, and leadership skills in agriculture.
Agricultural Mechanics I (11th grade)--included instruction in drawing, agricultural blueprints, planning projects, using hand tools and using power equipment.
Agricultural Mechanics II (12th grade)--included instruction in agricultural plumbing, farm power, farm electrification, surveying, and farm machinery.

The specialized courses were as follows:

Farm Operations (11th grade)--included instruction in farm business analysis and planning, farm law, agricultural mechanics.
Agricultural Occupations (12th grade)--included instruction in the functions of agricultural firms, agricultural skills required in nonfarm agriculturally oriented jobs, and selected skills in the operation of agricultural firms.
Agricultural Mechanics III (12th grade)--Provided as an extension of Agricultural Mechanics II making it, in effect, a double period course for most of the pupils enrolled.

Junior and senior pupils were allowed to enroll in one or two courses depending upon their interest and whether their schedule would permit. Enrollment of high school pupils for the 1964-65 school year was as follows:

Course	Number of Pupils
Basic Agriculture	19
Agricultural Science	16
Agricultural Mechanics I	11
Agricultural Mechanics II	10
Farm Operations	13
Agricultural Business	7
Agricultural Mechanics III	2
Total	69

Each class met 55 minutes per day, five days per week for a total contact time of 275 minutes. Each teacher had two, 55-minute periods per day for pupil-teacher conferences, visitations or class preparation.

Supervised Agricultural Experience Programs. In 1964-65, the ninth- and tenth-grade courses (Basic Agriculture and Agricultural Science) required each pupil to conduct a supervised agricultural experience program with plants and animals. The advanced courses (Agricultural Mechanics I, II, and III, Farm Operations and Agricultural Occupations) required each pupil to conduct a supervised agricultural experience program in an agricultural firm, in farming, or in both. Agricultural experience programs in nonfarm agriculturally oriented businesses were operated in accordance with the "noncooperative" time requirement rather than the time requirement for cooperative work programs, which necessitates released school time. All pupils enrolled in the Agricultural Occupations course gained experiences relating to the operation of an agricultural firm, either as part of a placement-employment situation or through experiences which supplemented their farming programs.

Adult Education. In 1964-65 one adult course was offered during the spring with both teachers sharing in the instruction. The title of the course was soils and fertilizers. An average attendance of approximately twenty-three farmers and agricultural businessmen was maintained.

Community Survey. A survey of the community was conducted in 1964-65 to obtain information regarding the (1) location of agricultural businesses in the community, (2) number of people employed and their job titles, (3) location of possible training centers and (4) the functions of the businesses. It was found that a need existed for preparing pupils for employment in agricultural servicing and retailing occupations. Furthermore, it was ascertained that agriculture was a concern of most businesses in Cissna Park.

Agricultural Advisory Council. An agricultural advisory council was organized during 1964-65. The council consists of nine farmers and three agricultural businessmen. An additional three agricultural businessmen were appointed to serve as a part of a subcommittee that will study the problems relating to preparing pupils for employment in agricultural occupations in off-farm industries.

East Richland High School, Olney, Illinois

Setting. East Richland High School is located in Olney (Richland County), Illinois. Olney has a population of slightly less than 9,000. The East Richland Community Unit District includes about two-thirds of the geographical area of the county. Enrollment at East Richland High School is approximately 1,000 pupils. In addition to the traditional college-preparatory program offered in the school, courses in business education (including cooperative distributive education), industrial arts, home economics, and vocational agriculture are provided.

The curriculum of the district's community college includes primarily college-transfer courses. Enrollment in their community college is approximately 500 full-time student equivalents, most of whom are part-time students.

Little industry exists in the Olney area. The average family income in the county is slightly less than $3,000. The farms are usually small and are general farms, however, some farmers specialize in dairying and in supplying milk for the local milk-processing plant.

Staff. Staff members of the East Richland Community Unit district who have been involved in the project are:

Mr. Leslie Pur : Superintendent
Mr. Lee Shafer, . stant Superintendent
Mr. Gail Lathrop, incipal
Mr. Bob Whittington, Teacher of Agriculture
Mr. William Washburn, Teacher of Agriculture

The Vocational Agriculture Program Prior to 1964-65. Prior to 1964-65, the vocational agriculture program at East Richland High School consisted of a conventional offering of productive agriculture and farm management courses for high school boys and young and adult farmers. Four years of vocational agriculture was offered for high school boys with enrollment each year ranging from 100 to 110 pupils. From 45 to 50 young and adult farmers were served each year through organized courses. Two teachers of agriculture were employed in the school.

The Vocational Agriculture Program for 1964-65. A dual-track program in agricultural education was initiated at the high school level. The pupils were grouped on the basis of background (supervised farming program potential) and, secondly, on the basis of occupational interest (farming and nonfarm occupations involving knowledges and skills in agricultural subjects). A survey of the businesses of the community in the fall of 1963 indicated employment needs and opportunities in nonfarm agricultural occupations.

Ninth-grade (Agriculture I) and tenth-grade (Agriculture II) courses in production agriculture were offered. Two sections of each course were offered-- one section for pupils with good potential for desirable farming programs and one section for pupils with limited potential for farming programs. The content of Agriculture I included: livestock selection and breeds; introductory crops, soils, and fertilizers; basic agricultural mechanics involving carpentry, welding, and metal work. Agriculture II included primarily livestock production units involving feeding, breeding, and diseases. Problem areas concerning harvesting, storing, and marketing crops were also taught in Agriculture II. Project work in agriculture mechanics was also included in the course.

Pupils enrolled in eleventh- and twelfth-grade agriculture courses were grouped according to occupational interest. Pupils primarily interested in farming and pupils planning collegiate study in agriculture were enrolled in Agriculture III and Agriculture IV. The content of

Agriculture III was primarily farm management and farm operations. Agriculture IV was primarily mechanics with additional units on insurance and taxes. A new course, Agricultural Occupations, was offered for juniors and seniors interested in nonfarm occupations involving knowledges and skills in agricultural subjects.

Enrollment of high school pupils for the 1964-65 school year was as follows:

Courses	Number of Pupils
Agriculture I	32
Agriculture II	36
Agriculture III	13
Agriculture IV	18
Agriculture Occupations	12
Total	111

Supervised Agricultural Experience Programs. In 1964-65 pupils enrolled in the basic production agriculture courses (Agriculture I and II) conducted supervised agricultural experience programs with growing plants and animals. Pupils enrolled in Agriculture III and IV continued their farming programs. Pupils enrolled in the Agricultural Occupations course were required to participate in supervised agricultural experience programs in agriculturally oriented businesses. The "noncooperative" type of supervised agricultural experience program was followed. Several pupils enrolled in the Agricultural Occupations course continued their farming programs. All pupils enrolled in the Agricultural Occupations course had been enrolled previously in the regular courses of vocational agriculture offered in the school.

Adult Education. In 1964-65 two courses in welding and one course in soils and fertilizers were offered.

Advisory Council. A citizens' agriculture advisory council was organized during 1964-65. The council has a membership of twelve--seven farmers and five agricultural businessmen and professional agriculturists.

St. Elmo High School, St. Elmo, Illinois

Setting. St. Elmo is a town of 1,500 persons in south central Illinois, located about halfway between Vandalia and Effingham, Illinois. Approximately 250 pupils are enrolled in the St. Elmo High School, grades 9-12. Courses in business education, industrial arts, home economics, and agriculture are offered at the St. Elmo High School in addition to the general education and college-preparatory courses offered in most Illinois high schools.

Staff. High school staff members who were involved in the pilot program at St. Elmo are as follows:

Mr. Eugene Brubaker, Superintendent
Mr. John Griffin, Principal
Mr. Jack Fowler, Guidance Counselor
Mr. Richard Lowe, Teacher of Agriculture

The Vocational Agriculture Program Prior to 1964-65. Prior to 1964-65, the vocational agriculture program at St. Elmo High School consisted of four courses for high school pupils and one or more courses for adult farmers. The instructional program was oriented toward preparation for farming. Agricultural mechanics had not beem emphasized prior to 1964-65 because shop facilities were definitely limited.

In 1962-63 the enrollment in the four high school courses in vocational agriculture was 33. In 1963-64, the high school enrollment increased to 45 students.

The Vocational Agriculture Program for 1964-65. New facilities for agricultural education consisting of an agricultural mechanics laboratory, classroom, and office were constructed at St. Elmo in 1963-64. For 1964-65, the program in agricultural education at the high school level was reorganized to include a course in agricultural business as well as courses oriented toward production agriculture. Considerable emphasis was placed on agricultural mechanics in all high school vocational agriculture courses in an effort to compensate for the lack of instruction in the area during previous years. The specific courses scheduled and the enrollments in each were as follows:

Course	Number of Pupils
Agriculture I--Production Agriculture	10
Agriculture II--Production Agriculture	12
Agriculture III--Production Agriculture	14
Agriculture IV--Cooperative Agricultural Business	7
Total	43

The content of the production agriculture courses (Agriculture I, II, and III) consisted largely of problem areas involved in the production and marketing of farm crops and livestock plus units of instruction in agricultural mechanics, supervised farming programs, FFA, and guidance.

The content planned for the Cooperative Agriculture Business course included the following enterprises and units:

Enterprise I	The present vocational agriculture situation.
Unit A	Opportunities for careers in agricultural business.
Unit B	Opportunities this year.

Enterprise II	Agricultural experience programs.
Unit A	Placement in agricultural businesses for career study.
Unit B	Agricultural business experience records.
Unit C	Evaluation of and revision of the agricultural experience program.
Unit D	Supervised farming programs.
Unit E	Evaluating and expanding supervised productive projects.
Unit F	Evaluating and expanding improvement projects.
Enterprise III	Agricultural businesses.
Unit A	Development of salesmanship in agriculture.
Unit B	Development of skills needed in agriculture.
Unit C	Development of sound employee-employer relationships in an agriculturally oriented business.
Unit D	Ways of doing business in agriculture.
Unit E	Emergency procedures and safety precautions in agriculturally oriented businesses
Unit F	Work laws affecting agricultural occupations.
Enterprise IV	Agricultural mechanics (Pupils had not had agricultural mechanics before).
Unit A	Welding with an electric arc welder.
Unit B	Welding and cutting with an oxyacetylene welder.
Enterprise V	Individual study of problems associated with agriculturally oriented businesses
Enterprise VI	Evaluation of accomplishments.
Unit A	Decisions regarding establishment in a gainful occupation.
Unit B	Comparison of net worth at the beginning and the end of year.
Unit C	Evaluation of work experiences.
Unit D	Evaluation of agricultural knowledges and skills developed and improved.

Pupils enrolling in the Cooperative Agricultural Business course were required to have as prerequisites two years of vocational agriculture, a broad farming program in progress or plans for employment in an agricultural business. A pupil with less than two years of agriculture who had the approval of the guidance counselor and high school principal was also eligible for enrollment.

A community survey of the local agricultural businesses was conducted by the vocational agriculture instructor, with the help of the guidance counselor. This task was completed during the summer months of 1964, using forms furnished by the Agricultural Education Division, University of Illinois.

Supervised Agricultural Experience Programs. Agricultural experience programs for freshmen, sophomores, and juniors were planned as production programs on farms. These programs were similar to the supervised farming programs conducted in the past, except that attempts were to be made to incorporate more mechanical experiences.

The agricultural experience program for seniors enrolled in the Cooperative Agricultural Business course was planned to fit the requirments of the "Cooperative Program." Each student was placed in an agricultural business for at least 15 hours per week with no less than half of this time scheduled during school hours. In addition to the required placement-employment program, seniors were encouraged to continue their supervised farming programs.

Six of the seven senior pupils were placed by October, 1964. The seventh pupil was never placed in a business because of transportation and personal problems. During the spring semester, an additional six pupils (juniors) were placed. The pupils placed for supervised agricultural experience received $1 or $1.25 per hour. Five juniors were placed on farms for experience.

The occupational objectives of the senior pupils and the training stations where they were placed were as follows:

Pupil	Occupational Objectives	Training Station
No. 1	Elevator manager and agricultural sales	Elevator, feed and fertilizer business
No. 2	Elevator management	Elevator, feed and fertilizer business
No. 3	Agricultural construction	Lumber and construction business
No. 4	Farming, heavy machinery, and carpentry work	Lumber and construction business
No. 5	Mechanic, tile laying, or farming	Farm tile factory
No. 6	Farming, agricultural mechanics, farm income tax consultant	Farm [illegible] and farm tax service
No. 7	Mill operation, feed sales, farming	High school

The major steps followed in establishing pupils in agricultural experience programs at St. Elmo were as follows:

1. Teacher and guidance counselor surveyed the agricultural businesses in the community to determine employment opportunities and placement opportunities.

2. Pupils completed the "pupil application" form and "pupil agreement" form.
3. Teacher surveyed those businesses interested in employing student learners to identify knowledge and skills in agriculture needed by workers.
4. Pupils studied information collected and made final choices of businesses where they wished to apply for employment.
5. Employers interviewed pupils.
6. Teacher met with each employer and planned the responsibilities the pupils were to assume.
7. Pupils, parents, employers, and teacher signed placement agreement in pupils' record books.
8. Pupils were required to purchase "24-hour" school insurance policies and to have $10,000-$20,000 public liability insurance if they planned to drive cars to and from work.
9. All employers, except parents, were required to have workmen's compensation or liability insurance on pupils employed.

Adult Education. Two courses for adults were taught at St. Elmo during the 1964-65 school year. The titles of these courses were "Corn and Soybean Production" and "Agricultural Welding."

Advisory Council. The size of the advisory council was enlarged during 1964-65 from seven to ten members. Seven members are farmers, and three are agricultural businessmen. The membership of the advisory council consists of the following persons:

1. Assistant manager of a grain elevator.
2. Director of a local grain elevator.
3. President of a bank.
4. Two part-time farmers.
5. Five full-time farmers.

Some of the new activities and responsibilities of the advisory council were as follows:

1. Changing adult courses so that they would meet the needs of farmers plus certain other workers in nonfarm agriculturally oriented businesses.
2. Advising regarding pilot program.

Woodstock High School, Woodstock, Illinois

Setting. Woodstock High School, Community High District 152, is located in northern Illinois, McHenry County. Woodstock, with a population of approximately 9,000, is in a rich farming area which supports many agriculturally oriented businesses. Its population is increasing and it is gradually becoming a part of the greater Chicago metropolitan area. Woodstock has received the "All American City" award which is an indication of its progressive orientation. Farming and agricultural businesses

serving farming are very important and will continue to be important in the economy of the Woodstock community.

Enrollment in the high school is approximately 1,200. Approximately one hundred of these pupils live on farms, but many additional pupils in the school come from homes where the family heads are employed in occupations requiring knowledges and skills in agricultural subjects.

The curriculum in the Woodstock High School has been oriented toward academic subjects, but recent emphasis has been on broadening the curriculum to include increasing opportunities in practical arts and vocational subjects. Programs in agriculture, home economics, industrial arts, business, and diversified occupations are provided.

The Woodstock High School has a professional staff of fifty-two. The staff actively involved in the project were:

Mr. T. C. Shoberg, Superintendent
Mr. A. C. Drummond, Assistant Superintendent
Mr. W. C. Goodwin, Principal
Mr. W. E. Maxwell, Head Vocational Guidance Counselor
Mr. George Forgey, Teacher of Agriculture
Mr. William Pictor, Teacher of Agriculture

Vocational Agriculture Program Prior to 1964-65. Prior to 1964-65, the vocational agriculture program was conducted by one teacher of agriculture and all the courses were oriented toward production agriculture and designed for present and prospective farmers. The courses emphasized agricultural mechanics, livestock, and crops. In recent years, emphasis on vegetable production has been increased. Until 1961, three high school courses in vocational agriculture were offered each year. After 1961, four courses in vocational agriculture were offered. They were Vocational Agriculture I, Vocational Agriculture II, Vocational Agriculture III, and Vocational Agriculture IV. The enrollment fluctuated in recent years from 40 to 45 high school pupils.

In addition to the high school vocational agriculture courses, a course for adult farmers has been offered each year for several years.

Vocational Agriculture Program for 1964-65. In 1964-65, five vocational agriculture courses were offered at the high school level instead of four. These five courses and their enrollments follow:

Courses	Number of Pupils
Vocational Agriculture I	16
Vocational Agriculture II	18
Vocational Agriculture III	7
Vocational Agriculture IV	8
Agriculture Business	18
Total	67

A second vocational agriculture teacher was employed in the summer of 1964. Vocational Agriculture I through IV were designed in 1964-65 to provide (1) knowledge and skill with plants and animals and (2) knowledge and skill in agricultural mechanics. The supervised agricultural experience programs of the pupils enrolled in these four courses involved plant and animal projects and agricultural mechanics projects.

The Agriculture Business course was designed for pupils preparing for employment in occupations, other than farming, requiring knowledge and skill in agriculture subjects. Both boys and girls were enrolled in the course. Their supervised agriculture experience programs involved placement for work experience in an agriculturally oriented business. The "noncooperative" time-requirement plan was used for the placement experiences of the pupils. Thus, the pupils obtained their work experiences, requiring knowledge and skill in agriculture, after school, on Saturdays and in the summer. Most of the pupils in the Agriculture Business course continued their farming programs as parts of their total supervised agriculture experience programs.

Woodstock High School plans to offer the following courses in agriculture in 1965-66 if sufficient enrollment is obtained:

Course Title	Grade Level
Basic Agriculture	9th
Advanced Agriculture	10th
Agricultural Power and Machinery	11th and 12th
Agriculture Construction and Conservation	11th and 12th
Applied Animal and Plant Science	11th
Farm Operations	11th and 12th
Agriculture Business	12th

Adult Education. Woodstock High School has offered adult courses for farmers for many years. In 1964-65 courses in corn production and dairy production were offered.

Community Survey. In the summer of 1964 and in the early months of the first semester of 1964-65, a survey of the community was conducted to obtain information regarding the (1) location of the agricultural businesses in the community, (2) number of people employed in these businesses and their job titles, (3) location of possible training centers and (4) functions of the businesses. Several agriculturally oriented businesses were identified that employed persons who must have knowledge and skill in agricultural subjects. The survey was essential in locating and developing training centers for the pupils in the Agriculture Business course.

Agricultural Advisory Council. Woodstock has had a nine-member agricultural advisory council for many years. In 1964-65 this advisory council was enlarged to twelve. The three persons added were businessmen in agriculturally oriented businesses. These three members also serve as a subcommittee to advise regarding the operation of the Agriculture Business course.

What HAS BEEN LEARNED

1. A community survey of nonfarm agriculturally oriented businesses needs to be completed before a course involving placement-employment is started.

2. Businessmen in the community must be involved in planning and developing a course involving placement-employment.

3. An agricultural advisory council including members from nonfarm agriculturally oriented businesses needs to be in operation before a change in courses is initiated.

4. A step-by-step procedure is needed in developing agricultural experience programs involving placement.

5. Classroom instruction concerning agricultural businesses and industries must be accompanied by related activities in agricultural experience programs, if it is to be most effective.

6. Classroom instruction in nonfarm oriented courses in agriculture must emphasize the knowledges and skills in agriculture which the pupils placed in agricultural business need to perform and to understand their work.

7. Teachers and others need to develop lesson planning guides and reference material guides related to agricultural businesses and industries.

8. Pupils who enroll in agricultural occupations courses or agricultural business courses need a background of basic instruction in agriculture.

9. A good community-wide public relations program is needed with as much "face-to-face" contact as possible.

10. Teacher enthusiasm and advance planning are essential ingredients in the success of new programs.

11. Teachers must assume responsibility for developing pupil agricultural experience programs in agricultural firms by:

    a. knowing the opportunities
    b. knowing the pupils
    c. contacting potential employers and placing pupils
    d. helping develop training program outlines
    e. helping develop training agreements
    f. coordinating and evaluating experience programs

12. Agricultural mechanics courses should emphasize the applied aspects of mechanics, including both theory and practice, and should be adapted to the needs of both present and prospective farmers and present and prospective workers in agriculturally oriented businesses.

13. Time, a difficult thing to find in a teacher's busy day, is essential in the operation of vocational agriculture programs designed to serve both production agriculture workers and workers in nonfarm agriculture businesses.

14. Traditional teacher activities need to be evaluated and nonessential activities eliminated.

15. Resource persons can be used effectively in teaching about agricultural occupations.

16. Well-planned field trips can be used effectively in teaching about agricultural occupations.

17. Pupils in an agricultural business course should obtain experiences in agricultural firms through the study of the firms, observation of work performed, and placement for experience.

18. A substantial core of instruction regarding technical agriculture needs to be included in courses designed to prepare pupils for employment in agriculturally oriented businesses and services.

19. A unit of instruction regarding agricultural occupations needs to be included in agricultural business courses.

20. On-the-job instruction and supervision need to be emphasized. It is a highly important ingredient of a successful agricultural business course.

21. The summer work of teachers is extremely important when placement-employment programs are conducted.

22. A core of experiences in both agriculture and the operation of agricultural firms needs to be included in an agricultural business course.

23. Guidance counselors need much instruction relating to the broadened objectives of vocational agriculture.

24. Systematic efforts must be initiated to change the production agriculture image of vocational agriculture. These efforts need to be focused on the faculty, all elementary and high school pupils, parents, businessmen, and the total community.

25. Businessmen and others providing placement-training stations need systematic instruction regarding their responsibilities in the program.

26. Detailed placement-training programs need to be developed for each pupil placed. These programs should be developed cooperatively by the employer, pupil, parents and teacher of agriculture.

Periodic evaluations should be conducted to determine whether or not the placement-training program is being followed. Revisions in a placement-training program are often necessary after such evaluations.

27. Placement-training programs need to be "education through work oriented" and not just "work oriented."

28. Titles of agriculture courses often need to be changed to capture the attention of prospective pupils and the public, and to alter the production-centered image of vocational agriculture.

29. Teachers of agriculture providing placement-training programs must learn the legal regulations involved.

30. Teachers of agriculture placing pupils for training must accept responsibility for placing pupils in jobs. They cannot delegate this responsibility to the pupils.

31. Teachers of agriculture have the competence in technical agriculture, or can acquire it with little difficulty, for offering instruction designed to prepare persons for nonfarm occupations requiring knowledge and skill in agricultural subjects.

32. Teachers of agriculture who attempt to prepare persons for gainful employment in agriculturally oriented businesses often need to learn more about the operation of these businesses, employer-employee relationships, and salesmanship. However, since they have had basic education at the university level in psychology, economics, accounting, and human relations, they can often develop competence in these areas by self-directed study of the agriculturally oriented businesses in their communities.

33. Records, both teacher and pupil, need to be emphasized in placement training programs.

34. Opportunities for jobs requiring knowledge and skill in agriculture exist and girls can be placed in training stations in jobs that are agriculturally oriented.

35. Good, enthusiastic teaching is all important in new programs designed to implement the broadening objectives of vocational agriculture resulting from the Vocational Education Act of 1963. The teaching must be systematic and carefully planned. The content must be solid. Pupils in a new course in agriculture such as agricultural business want to be taught in a systematic manner the technical agriculture they need in their placement-training programs, plus the other technical agriculture they will need for gainful employment in occupations requiring knowledge and skill in agriculture. If they do not receive instruction of this type, they soon start advising younger pupils to avoid enrollment in the course in following years.

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Flanegan, Catherine P.; Ridley, Agnes Fenster
Annotated Bibliography on Gainful Employment in Home Economics, 1959-67.

Florida State Univ., Tallahassee. Dept. of Home Economics Education
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*ANNOTATED BIBLIOGRAPHIES; *OCCUPATIONAL HOME ECONOMICS; RESOURCE MATERIALS; PERIODICALS

Sixty-one annotated articles from the "American Vocational Journal," "Illinois Teacher of Home Economics," and the "Journal of Home Economics," published between 1959-1967, concern (1) relevant federal legislation, (2) the world of work, (3) operational considerations of the home economics gainful employment program such as facilities, curriculum, work-study, on-the-job training, teacher preparation, and visual aids, and (4) occupational preparation programs for child care, food service, fabric sales, and housekeeping jobs. (FP)

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THE FLORIDA STATE UNIVERSITY
SCHOOL OF HOME ECONOMICS
DEPARTMENT OF HOME ECONOMICS EDUCATION

Annotated Bibliography on Gainful Employment in Home Economics* 1959-67

Catherine P. Flanegan and Agnes Fenster Ridley

*This bibliography was limited to sources that are available to most high school teachers. It was developed as a part of a research grant from the Florida State Department of Education. Mrs. Catherine P. Flanegan is a graduate student at The Florida State University. Dr. Agnes F. Ridley is an Associate Professor of Home Economics Education, The Florida State University and the principal investigator of the research on gainful employment.

Amidon, Edna P. "Home Economics in Vocational Education 1965," American Vocational Journal, Vol. 40 (May, 1965), pp. 18-20.

Miss Amidon discusses the Vocational Act of 1963, the effect on home economics, and how we can achieve these new vocational goals through curriculum development, adult education, and home economics youth organizations.

Anderson, Gladys. "Applied Homemaking at Fort Collins, Colorado," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 177-178.

During the year, the students in this course receive training in three or four different occupations with cooperative evaluation by the student, teacher, and employer at the end of the year. A course outline and objectives for the course are provided.

Ash, Wilda. "An Exploration in Employment Education in the Rural School," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 110-115.

Students at Wenona High School in Illinois were placed in summer jobs related to home economics. They used their regular home economics class for on-the-job training and were visited twice by a student teacher. At the end of their work experience,

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they were evaluated by their employer. As a result of this experiment a survey of the traits which presented problems in employee effectiveness was made and the results are presented in this article.

Bentley, Alma. "Fact Finding Needed for Program Planning in Training for Occupations Related to Home Economics," Illinois Teacher of Home Economics, Vol. 8 (1965), pp. 323-333.

Dr. Bentley presents the methods used in studying the needs of pupils and the community for home economics related to wage earning classes. She includes the questionaires used and some suggested learning experiences for these classes.

Blackburn, Marion. "Girls Prepare for Dual Role of Homemaker and Wage Earner," American Vocational Journal, Vol. 39 (October, 1964), p. 27.

The home economics program at Middleton High School in Idaho includes a unit on how to get and hold a job. The author discusses the course content of a one-year program in home economics for senior girls. The course is not designed to prepare the students for any particular job, but to give them an insight into the dual role of women as homemakers and wage earners.

Booher, Jo Anne. "Pilot Programs in Housekeeping Technology," Illinois Teacher of Home Economics, Vol. 9 (1965), pp. 22-31.

This article discusses how a housekeeping technology course was organized at Sikeston High School in Missouri. It presents criteria for student participation in the program, how the program was carried out, objectives for the course, and evaluation forms completed by the students and the homemaker by whom they were employed.

Brinkley, Jeanne. "Food Service Training Makes Its Debut in Orange County," American Vocational Journal, Vol. 41 (December, 1966), pp. 33-34.

The major objective of this program reported is to acquaint students with the opportunities in the food service industry. No attempt is made to produce professional personnel; rather an attempt is made to teach basic learning experiences.

Brown, Helen I., Lemmon, Louise, and Lippeatt, Selma. "The Changing Roles of Women," Illinois Teacher of Home Economics, Vol. 10 (1966), pp. 24-38.

This article presents a brief history of the role of women in society, present day statistics of women in the labor force, and ways in which home economics and related areas can be identified as service occupations.

Buchanan, Elsie. "Education for Gainful Employment in Occupations Related to Home Economics," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 97-106.

What Illinois is doing in its gainful employment classes is the major idea of this article. Buchanan discusses the unemployment situation in the United States and how home economics related employment training can help alleviate this problem.

Capps, Gertrude S. "Home Economics Oriented World of Work Programs - The Current Detroit Scene," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 179-186.

The author discusses the various specialized programs in home economics in the Detroit schools which include commercial foods, trade tailoring, cosmetology, food preparation, clothing alteration, service and tailoring. Course outlines for programs in commercial foods and hospital service are included at the end of this article.

Champoux, Ellen M. "Emphases on Wage Earning in Home Economics Classes in Kansas," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 187-203.

Dr. Champoux discusses wage earning classes in five Kansas cities. Charts, letters, evaluation forms, learning experiences, student record forms, and course outlines are presented by the various teachers to describe the programs in each of these schools.

Clayton, Nanalee. "Junior High School Job Training Program--Houston Independent School District," Illinois Teacher of Home Economics, Vol. 8 (1965), p. 348.

This article describes pilot programs in Houston to provide job training at the junior high level for over-aged potential dropouts.

Conafay, Katherine R. "A High School Program in Child Care," American Vocational Journal, Vol. 41 (April, 1966), pp. 33-34.

A child care program was begun at Wakefield High School in Arlington, Virginia over ten years ago. This article traces the development of this class into a wage earning program after the Vocational Act of 1963.

Corneluis, Ethelwyne, and Snyder, Jean. "Pilot Program in Preparation for Employment in the Home Economics Program -- Ithaca High School," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 204-222.

A pilot program in Home Economics Employment Preparation in Food Service was started in Ithaca High School in New York. The authors discuss how the program was started and the reactions to the program by parents, students, and employers. An extensive course outline is included in this article.

Dennis, Catherine T. "Re-examination of the Purposes of Home Economics at the Secondary Level," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 3-12.

This article discusses why home economics related gainful employment was not considered necessary until 1963 and why it is important today. It cites Bureau of Labor Statistics and sociological studies which further show the importance of women in the labor force.

Dewar, Peggy. "How May Home Economics Teachers and Teacher Educators Contribute to the Total OccupationalEEducation Emphasis?" Illinois Teacher of Home Economics, Vol. 10 (1966), pp. 39-44.

Suggested ways in which home economics teachers at all levels may contribute toward occupational preparation in home economics are presented in this article.

Eichelberger, Lila Jeanne. "A Unit of Study on Orientation to the World of Work," Illinois Teacher of Home Economics, Vol. 9 (1965), pp. 20-47. Bonus Issue.

This unit of study was developed to be taught at the sophomore level. The four-week unit consists of the following subjects each to be taught for approximately one week: an overview of employment and women in the

labor force; job opportunities related to home economics and considerations for choosing occupations; locating a job; and success on the job.

Frederick, Marilyn; Ostrom, Carol; and Karnes, Merle B., (eds.). "The Slow Learner -- A Challenge and Responsibility," Illinois Teacher of Home Economics, Vol. 7 (1963), pp. 1-43.

In the fall of 1962, a research project was initiated on slow learners with supporting funds from the Federal Office of Vocational Rehabilitation. This entire issue of the journal is devoted to those findings. Such topics as the following are discussed: the slow learner-a challenge and responsibility; the slow learner as a critical problem today; the slow learner--who he is; the slow learner in the classroom; curriculum for the slow learner; methods used with the slow learner; adaptions of regular methods; the teaching of processes of thinking to the slow learner, work experience program; sample unit plans; and the evaluation progress of the slow learner.

Funderburk, Kathleen W. "Home Economics Moves Out to Meet the Challenge of Social Change," American Vocational Journal, Vol. 42 (September, 1967), pp. 31-32.

The author discusses the vast transition that home economics has undergone since the turn of the century. She suggests that with the emerging emphasis on courses in gainful employment the scope of home economics outside the home must be expanded.

Garrett, Pauline G. "Spiralling Curricula and Instruction in Home Economics," American Vocational Journal, Vol. 41 (September, 1966), pp. 30-31.

This article discusses the development of curricula and instruction around a nucleus, namely the child, the family, the home, at leisure or at work, as an aspect of spiralling.

Glenn, Hortense M. "Attitudes of Women Regarding Gainful Employment of Married Women," Journal of Home Economics, Vol. 51 (1959), pp. 247-252.

Dr. Glenn's research for the degree of doctor of philosophy is the basis of this article. The study attempted to extend present knowledge regarding the attitudes of women in a small southern community to the gainful employment of married women.

Greenwald, Shirley E., and Greenwald, William I. "Historic Bases for Female Labor Force Participation," Journal of Home Economics, Vol. 55 (1963), pp. 348-352.

The typical pattern of employment of women is discussed in relation to changes that have taken place in their legal status, political rights, and education. National catastrophies and social changes are cited as influential in changing the picture of the employment of women.

Hackett, Bessie, (ed.). "Forms for Use in an Employment Program," Illinois Teacher of Home Economics, Vol. 10 (1966), pp. 94-98.

Fourteen forms developed by various teachers are presented in this article. These forms may be used in the coordination and development of an employment education program at the high school level.

Hall, Guin. "A New Look at Women & Vocations," American Vocational Journal, Vol. 39 (April, 1964), p. 25.

The idea was presented that we are living in a fast changing world and that many of these changes affect women. Possible alterations in curriculum due to these changes are discussed and guidelines for opening the doors to job opportunities for women are suggested.

Hannah, John A. "Education for the Jet Age," Journal of Home Economics, Vol. 55 (1963), pp. 745-750.

Hannah discusses the trends and changes that must take place in education to make it appropriate in the jet age. Needs and changes in vocational education are some of the topics discussed.

Huff, Marie Davis. "States Implement National Program of Work for Home Economics," American Vocational Journal, Vol. 39 (September, 1964), pp. 28-30.

As a result of the 1963 American Vocational Association Convention, a two-year program of work was outlined to achieve three major goals. Each of these goals was stated in this article and examples of how various states are reaching these goals was given.

Kafka, Janie, "Employment Education in Home Economics Program at Lincoln, Illinois," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 354-356.

A unit of study on "Orientation to the World of Work" was included in a family living course for seniors. The objective of the author is to present a unit which would serve as a starting point in developing a home economics employment program in the school.

King, Charlyce R. "Visiting Homemaker Services: Oklahoma Project," American Vocational Journal, Vol. 40 (April, 1965), pp. 27-28.

A project in Oklahoma in homemaker services was designed primarily to help families maintain household routine and normal living during times of crisis and emergency. Over one hundred communities participated in this project which lasted for four years. The procedure and the findings of this project are presented in this article.

Kopan, Alice O. "A Cooperative Distributive Education -- Home Economics Program at Farragut High School in Chicago, Illinois," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 334-345.

A course outline for retail merchandising which was to be taught by home economics and distributive education teachers in this school is presented in this article. A student guide sheet, case studies in obtaining and holding jobs, suggestions for job interviews, and the use of application forms in obtaining a job are also discussed.

Kupsinel, Penelope E., and Schultz, Lucile A. "Teaching Marketable Skills in Food Service," Journal of Home Economics, Vol. 58 (1966), pp. 289-291.

The authors describe in this article a workshop offered by the Indiana State University in 1965 on teaching marketable skills in food service. A highlight of the workshop was the use of direct observation in food service establishments.

Kusner, Cora E. "A New Approach to Employee Training," Journal of Home Economics, Vol. 53 (1961), pp. 89-91.

The author discusses four of the twelve competencies which are considered fundamental to effective living and working. These are: establishing values and goals which give meaning to living; achieving good inter-personal

relationships; establishing long-range goals for financial security and work toward their achievement, and developing mutual understanding and appreciation of different cultures and ways of life.

Lee, Ata. "Home Economics Learning Center," American Vocational Journal, Vol. 41 (January, 1966), pp. 23-25.

Miss Lee gives a description of learning space which could be used to prepare students for occupations. Preparation of learning spaces for employment at different levels in food service, care of children, clothing services, and homemaker services is considered in this article.

"Long Beach City College Content Outlines for Courses in Home Economics Related Occupations," Illinois Teacher of Home Economics, Vol. 9 (1965), pp. 199-224.

The course outlines contained in this article include: culinary occupations (apprentice cooks, fry cooks, dinner cooks, pastry chefs, hotel and restaurant institutional cooks, kitchen helpers, pantrymen, meat cutters) and industrial sewing. Each outline lists objectives to be met each year when the courses are taught.

Miller, Jeanne. "Don't Forget the Girls," American Vocational Journal, Vol. 35 (May, 1960), pp. 9-11.

Miller refers to Eli Ginzberg's book, Human Resources: The Wealth of a Nation, in which he urges the wise use of all our human resources and refers to startling labor statistics concerning women in the labor force. The author explains that our county needs more women in the labor force and investigates some of the fields women should be encouraged to consider.

Miller, Mae Josephine, and Evans, Helen J. "Pre-Employment Education by Home Economics Teachers," Illinois Teacher of Home Economics, Vol. 5 (1962), pp. 289-336.

Many questions concerning the bases for establishing an employment emphasis in the secondary home economics curriculum are answered in this issue of the journal. Areas such as the following are explored: today's employment picture; woman power; the unskilled; trends in education; fields of employment in which growth is probable; trends in part-time employment; occupational planning for women; facts concerning material employment; drop-outs; and recommendations for change.

_____. Pre-Employment Education by Home Economics Teachers, Part II," Illinois Teacher of Home Economics, Vol. 5 (1962), pp. 385-432.

This issue was prepared as a follow-up for issue number seven of this volume. Some of the possibilities for including an employment emphasis in the secondary home economics curriculum are explored. The pilot program at Chicago's Flower Vocational High School is discussed and serves as a frame of reference for organization of work experience programs in home economics related jobs.

Midjaas, Ruth E. "From Research to Curriculum in Child Care," American Vocational Journal, Vol. 41 (April, 1966), pp. 38-39.

The research in this article was conducted to obtain items of knowledge and skills in child development and guidance needed by mothers and employees in three occupations related to child care. These areas are day-care foster mothers, day-care center directors, and child-care assistants.

Paxton, Kay. "They Care," American Vocational Journal, Vol. 42 (April, 1967), pp. 38-40.

The family health assistant program in Arizona is a short-term occupational program for women involving both home economics and health education. Classes stress food and nutrition, child care, care of the aging, supportive health care, and human relations. This article discusses how this program was organized and presents a follow-up study of the graduates in this program.

Reichert, Anita. "The Homemaker as Employed Worker," Journal of Home Economics, Vol. 53 (1961), pp. 18-22.

Increasingly, women are carrying out the dual role of homemaker and employed worker. This article discusses the trends of women in the labor force, the kinds of work they are doing, the number of these women who are married, the amount of part time employment, and the effects the mother's working on the child.

Sandison, Norma. "Secondary School Dropouts Concern Home Economist," Journal of Home Economics, Vol. 58 (1966), pp. 476-477.

This study, seeking the causes and methods to prevent dropouts, is an unique attempt to evaluate its application in both the high school where the survey was made and in other schools in the United States.

Schnell, Dorothy M., and Mills, Jane Y. "Education for Gainful Employment Occupations Related to Home Economics in California," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 156-172.

Two major topics of activity were discussed in this article: programs in progress and in-service activities. The authors discuss briefly the teacher workshops that have been conducted in California on gainful employment to date. The second half of the article is devoted to the various programs being carried out in this state as a source of ideas upon which to improve, experiment, build, and create other ideas.

Sellers, Beulah E., and Liggett, Margaret. "Slow Learners," Journal of Home Economics, Vol. 54 (1962), pp. 23-25.

The authors conducted a survey to answer such questions as: do home economics classes have larger numbers of slow learners enrolled; can these students best be taught in separate or in regular classes; do home economics teachers feel successful in teaching slow learners; and are there special problems in working with slow learners. The slow learning student was defined as one who falls in to IQ range of 50 to 75 and is considered as educable mentally retarded.

Shanahan, Louise. "Occupational Training for Slow Learners--Harlingen, Texas," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 349-353.

Objectives were set forth by an advisory committee for establishing home economics related employment courses for the slow learner. As a result, a four-year program was developed which included on the job training. The author explains the program and gives a progress report on the two years the program has been in effect.

Simpson, Elizabeth J. "A Case for Homemaking Education as Vocational Education," Illinois Teacher of Home Economics. Vol. 9 (1965), pp. 171-191.

Several prominent citizens were asked to answer whether they felt home economics was a vocation and if so, what education should be provided for this vocation. Their answers are presented in this article in support of home economics as a vocation. It also contains charts on the money value of a woman's services as a homemaker.

_____. "Conference on Contemporary Issues in Home Economics Education," Journal of Home Economics, Vol. 57 (1965), pp. 701-704.

The information presented in this article is an abstracted form of a report given at the American Home Economics Associations 56th annual meeting on the Conference on Contemporary Issues in Home Economics Education by Elizabeth Simpson.

_____. "Projections in Home Economics Education," American Vocational Journal, Vol. 40 (November, 1965), pp. 41-43.

What will the home economics program at the secondary level be like in approximately ten years? The author believes that the purposes of home economics in ten years will be that of an expanded program in: home and family life education; development in the area of employment education in home economics; new provisions for academically talented students; and research. Suggestions are made for course content for the homemaking aspect of the program, the employment aspect, and a "roles of women" core.

_____. "Selected Issues and Problems in Secondary Education--How They Are Being Met," Journal of Home Economics, Vol. 55 (1963), pp. 0-15.

This article scratches the surface of the issues and problems of concern in secondary education today which are related to home economics education. The issues discussed are: preparation for college; development of ability to think; vocationalism, preparation for roles; question of content; and the needs of the school population.

_____. "The Present Challenge in Curriculum Development in Home Economics," Illinois Teacher of Home Economics, Vol. 9 (1965), pp. 1-21.

The need for curriculum revision is emphasized by the acceptance of new vocational purposes and the emerging employment education programs. The author suggests that curriculum development is a continuous process and should meet the needs of such special groups as the disadvantaged and academically talented.

_____. "The Vocational Purposes of Home Economics Education--With Focus on Education for Employment," Illinois Teacher of Home Economics, Vol. 8 (1965), pp. 87-93.

This article discusses the purpose of preparation for employment and lists five reasons why it has become

necessary to include it in the home economics classroom. The author states that home economics has been preparing girls for half of the dual role that they will assume and now it must prepare them for the other half of this role.

Starck, Helen. "Implications for the Education of Fabric Sales Clerks," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 147-151.

Tests were given to fabric sales clerks to determine in which areas they seemed to need assistance. These weak points were stressed in a home economics training course. Also a survey was made of customers of fabric stores to determine what knowledge they expect a fabric sales clerk to possess.

Stovall, Ruth, and Brown, Carolyn. "Visual Aids for the New Diminsion in Home Economics," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 358-370.

The new dimension in home economics, occupational education, calls for "visual voices" and "helping hands" of learning to convey its message. The authors present in this article how and when to use chalkboards, bulletin boards, flannel boards, posters, pictures, slides, filmstrips, movies, television, transparencies, models, actual objects, mobiles, cartoons, comic strips, visual symbols, duplicated materials, exhibits, and color to convey the message of home economics in employment.

Strum, Mary Mark, and Walsh, Letitia. "Let's Find Satisfaction in Our Slow Learners," Illinois Teacher of Home Economics, Vol. 3 (1960), pp. 363-370.

The authors discuss some of the possible causes of slow learning and some ways to help slow learners improve. They also include hints for teaching the slow learner in the home economics class.

Swope, Mary Ruth, "A Survey of Occupations Utilizing Understanding and Abilities Related to Home Economics," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 107-109.

On the basis of one sample Dr. Swope suggests that the most likely increase in jobs related to homemaking for trained persons were: regular and special house cleaning; child care; laundry, and ironing.

It was also found that teenage girls would be hired for these jobs and that the pay rate would be highest for house cleaning and laundry work.

True, Marcia R., and Downs, Helen. "Work-Study Home Economics Program at Auburn, Maine," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 223-226.

This report explains how the idea of education for wage earning in home economics was interpreted at Edward Little High School and the procedures used to establish such a course at this school. A job opportunities check sheet is provided for student use.

Van Camp, Donna M. "Commonalities in Vocational Education," Illinois Teacher of Home Economics, Vol. 8 (1964, pp. 23-32.

This outline attemps to bring together the topics which concern all vocational educators. These topics include concerns related to local school districts, employment overviews, guidance for job entry, the securing of job leads, credentials and regulations, job applications, job interviews, earnings, contracts, job success, the changing of jobs, and special problems.

Van Horn, Rua. "Home Economics Education for Wage Earners," American Vocational Journal, Vol. 39 (April, 1964), pp. 23-24.

Miss Van Horn presents policies governing vocational education and explains the rationale for an employment emphasis in home economics education. She discusses briefly curriculum guides that have been prepared to train workers in nine areas related to home economics: child-day-care center workers; management aides; supervised food service workers; wardrobe maintenance specialists; companions to the elderly; family dinner service specialists; and homemaker's assistants. She also explains how programs for wage earning differ from those which prepare for homemaking.

Walters, Doris. "An Experimental Home Economics Course Taught in Cooperation with Distributive Education," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 173-177.

This article explains that home economics classes and distributive education classes were scheduled at the same time to permit team teaching and/or joint meeting when the subject matter would be of interest to both groups. It also includes suggested course content, learning experiences and resource persons for classes in: child care; food preparation; and service; waitress training, consumer economics; care of the sick; and marriage and a career.

Westlake, Helen. "The Occupational Aspect of the Home Economics Program at East Leyden High School, Franklin Park, Illinois," Illinois Teacher of Home Economics, Vol. 3 (1964), pp. 116-146.

Mrs. Westlake describes the cooperative career program at East Leyden High School and how it was started. Each student in this program was provided with in-class instruction and on-the-job training. Samples of the course outline, contract of employment, evaluation form, student workbook, audio visual aids, and a course bibliography are provided for teacher use.

Whitmarsh, Ruth. "Attitudes of Beginning Home Economics Education Students Toward an Employment Emphasis in High School Home Economics," Illinois Teacher of Home Economics, Vol. 9 (1965), pp. 1-11. Bonus Issue

The main purpose of this study was to determine the attitudes of beginning home economics education students at the University of Illinois toward incorporating employment emphasis in high school curricula.

Whitmarsh, Ruth. "Opinions of City of Home Economics Supervisors on the Employment Emphasis in Home Economics Education at the Secondary Level," Illinois Teacher of Home Economics, Vol. 7 (1963), pp. 58-66.

The findings of this study indicate an increasing interest and concern on the part of supervisors throughout the nation for the employment emphasis in the home economics curriculum. In order to prepare the teachers for this program workshops were planned.

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Woller, Patricia. "Exploration in Employment Education in Home Economics at Finley Park, Illinois," Illinois Teacher of Home Economics, Vol. 8 (1964), pp. 346-347.

The author planned a unit of study entitled "Management for Housekeeping Services" to be taught at the sophomore level. In this article she presents the objectives of the course and the conclusions drawn about the course after it had been taught.

VT 004 363
Altman, James W.
A Behavioral View of Vocational-Technical Education.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - Nov67 25p.; Paper delivered at the Commonwealth of Massachusetts Advisory Council on Education, "Symposium on Vocational-Technical Education: Prospectus for Change" (Boston, November 28-29, 1967).

*INSTRUCTIONAL DESIGN; EDUCATIONAL INNOVATION; *PROGRAM DEVELOPMENT; *VOCATIONAL EDUCATION; TECHNICAL EDUCATION; EDUCATIONAL CHANGE; EDUCATIONAL OBJECTIVES; EDUCATIONAL PHILOSOPHY; BEHAVIORAL OBJECTIVES

It has been stated that the central focus for change in educational practice during the past decade has been the curriculum. Consequently, the issue of change in vocational-technical education is approached from the perspective of how one might go about developing a new educational program, with emphasis on instructional content. The major steps in developing educational programs are to (1) identify milieu forces, (2) identify resources such as money and manpower, constraints such as political and policy, and contexts such as organizational and demographic, (3) delimit the region of concern, (4) define an ideological base, (5) define the criteria of success, (6) structure a region of criterion behavior or subject matter, (7) establish a basis for sampling behavior, (8) analyze behavior by describing and analyzing tasks, (9) organize and sequence objectives, (10) develop performance measures, (11) define instructional media, (12) develop instructional materials and procedures, (13) conduct preliminary tryouts, (14) implement use of materials, and (15) evaluate the program. Although the implications for the contribution of vocational-technical education to the individual student are not clear, the technology of education and training development permits accomodation to the inter-individual differences that characterize all age and grade levels so that the student may advance at his own speed and can be qualified across a different profile of jobs, and permits more efficient specific job training, more integrated and flexible molding of vocational and non-vocational educational experiences, and more realistic information about the value of sound educational decisions. (PS)

VT 004 363

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A BEHAVIORAL VIEW OF VOCATIONAL-TECHNICAL EDUCATION[1]

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Introduction

Vocational-technical education has a rich history, having been surveyed and studied by many (Altman & Morrison, 1966; Barlow, 1965; Borow, 1964; Eninger, 1965; Quirk & Sheehan, 1967; United States Department of Health, Education, and Welfare, 1957; Venn, 1964). I do not propose, however, to look at vocational-technical education in historic perspective or even from a review of its current status. Rather, I shall simply assume that change will be occurring at an accelerating rate and that attention to the specific processes by which we endeavor to guide this change is worthwhile. These assumptions are based on two facts:

1. The total body of scientifically based knowledge is changing at a rate which invites obsolescence during the very act of being whisked into the school. Price (1963, pp. 2-3) has defined the immediacy of scientific knowledge in graphic terms:

> ". . . any young scientist, starting now and looking back at the end of his career upon a normal life span, will find that 80 to 90 percent of all scientific work achieved by the end of the period will have taken place before his eyes, and that only 10 to 20 percent will antedate his experience."

2. The concentration of resources involved in curriculum revisions and their impact on education are assuming proportions worthy of serious consideration (Sizer, 1965).

[1] Prepared for the Commonwealth of Massachusetts Advisory Council on Education, Symposium on Vocational-Technical Education: Prospectus for Change, 28 and 29 November 1967, Sheraton-Boston Hotel.

VT004363

Gagné (1966) recently stated, "The central focus for change in educational practice during the past decade has been the curriculum." I can see no reason why this focus is likely to change in the near future. Consequently, I would like to approach the issue of change in vocational-technical education largely from the perspective of how one might go about developing a new educational program, with emphasis on instructional content.

Like it or not, deciding what to teach is no longer casual or obvious. It is becoming an increasingly expensive and complex process, albeit one which is still largely implicit and lacking a generally accepted technological base. The purpose of this paper is to explicate some of the imperatives for such a technology of educational development. Precisely because they have received the least attention from behavioral scientists and educational researchers, and because they are most lacking in technical base, I shall concentrate on the very early stages of development. My coverage of the later stages will be relatively traditional, sketchy, and intended primarily to insure that we have a comprehensive developmental framework--not to provide substantive detail.

Following the suggestion of a developmental framework, I will attempt to derive some of its implications for the potential long-range contributions vocational-technical education can make to individuals at the secondary and post-secondary levels. Finally, I shall try to identify some of the directions which might be implied by such a developmental framework.

Developmental Methodology

Perhaps at the outset of discussing developmental methodology we should try to clarify the specificity-generality or training versus education issue. Glaser and Glanzer (1958) have defined this issue as follows:

> " 'Training' is usually defined as the teaching of specific skills; 'education,' on the other hand, usually refers to a broader type of teaching. The objectives of education are the providing of a basis for learning of specific skills at some later date either through experience or training. An issue frequently met concerns whether it is more worthwhile to train individuals for a high proficiency level in a particular phase of a job or more worthwhile

> to provide more general training within the time available. Specific training gets people on the job faster and usually at a relatively high level of competence. More general training (assuming equal time periods for both kinds of training) usually means that men may be more adaptable to fluctuations in job procedure and new equipment, but require an additional period of specific on-the-job training. Each kind of training has its place and often a compromise between the objectives of specificity and breadth must be made and appropriate training for specific skills or training of behaviors which are more generalizable must be implemented (p. 9)."

Accepting the position of Glaser and Glanzer, it seems clear that we must seek a methodology which will cover the full spectrum of education-training. There seems to be no sharp line of demarcation. However, a methodology which is comprehensive enough for such a broad spectrum will inherently be overly elaborate for many specific developmental problems--especially those involving only highly specific job training. Consequently, I would suggest a simplified approach such as the one described by Butler (1967) for situations in which training for only one of a few closely related jobs is involved. The principal difference between the approach outlined in this paper and one such as described by Butler is that the decision to limit one's efforts to specific job training obviates much of the agony inherent to that part of early educational development which is involved in assuming an appropriate strategic posture. To be specific, the decision to limit one's efforts to specific job training largely eliminates the need for the first seven major steps in development as outlined below.

In Figure 1, these steps are presented in schematic overview.

Identify Milieu Forces

Woodring (1964) has stated that most recent reforms in education have been due not to new psychological discoveries but to social and political pressures and to widespread discontent with our educational system. Shaw (1966) has more recently reaffirmed this position and added economic, demographic, advances in technology, pressure group, and "knowledge explosion" factors as taking precedence over psychological findings or advances in curriculum theory. However, I would not be so inclined to discount the fad value of innovations such as team teaching, ungraded classes, tracking, teaching machines, programmed instruction, individualized instruction,

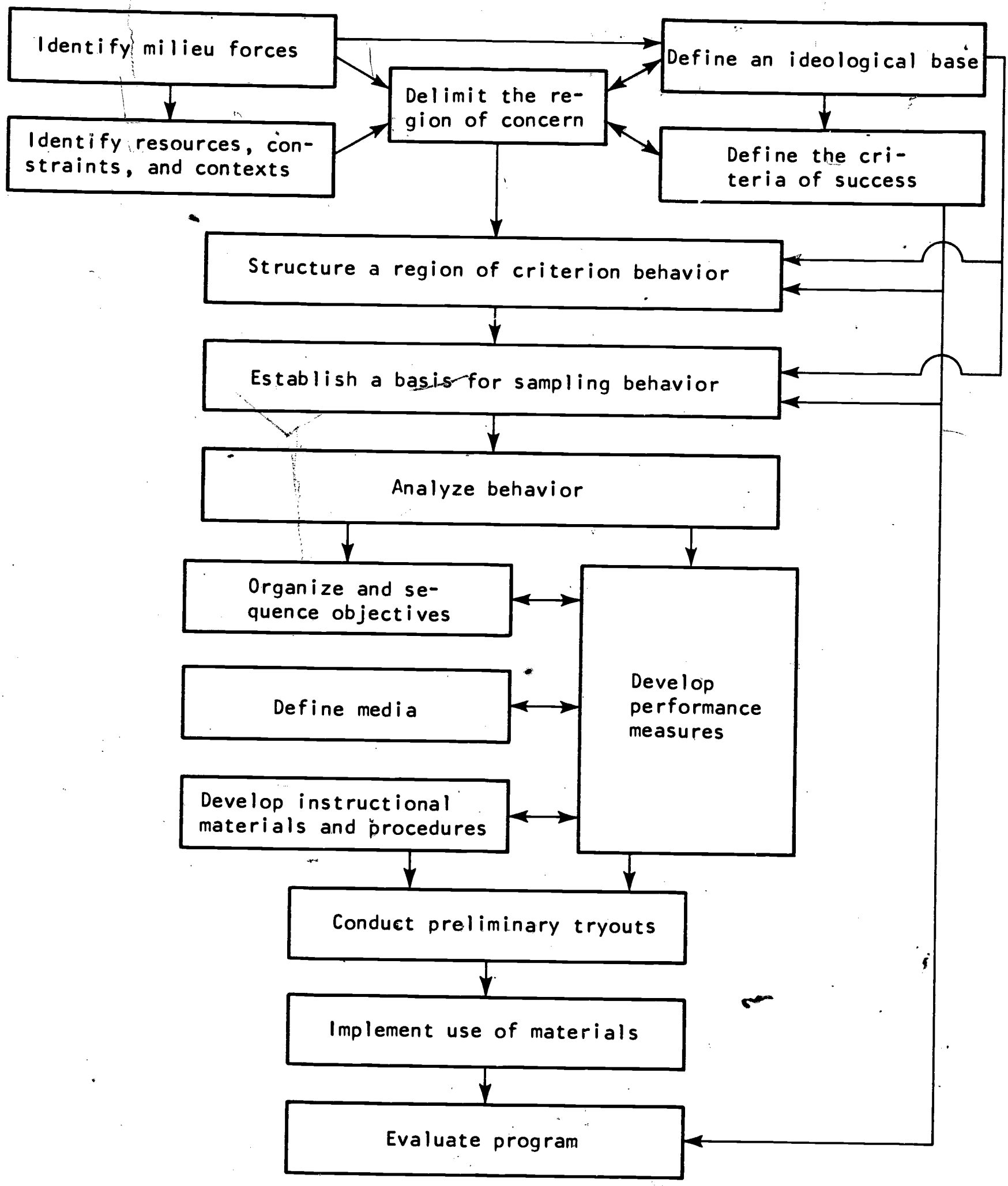


Figure 1. A Schematic Overview of Steps in Educational Program Development

computer-based instruction and guidance, flexible scheduling (Bush & Allen, 1964), "the systems approach," and "program planning and review techniques" as a source of pressure for educational change.

Regardless of the sources, it seems to me that being as explicit and honest as possible about the basal motivations out of which a developmental effort grows can be most cathartic for the entire complex of communication required throughout the developmental process. Indeed, I would almost be willing to enter the following as serious propositions:

1. The degree of self-delusion and misapprehension is a monotonic increasing function of the degree of grandiloquence with which purpose is stated or implied.

2. The difficulty of achieving coherence of developmental action is a monotonic increasing function of the degree of self-delusion and misapprehension with which purposes of the effort are understood.

3. The merit of an educational developmental effort is a monotonic <u>decreasing</u> function of self-delusion and misapprehension rampant among a developmental team.

Identify Resources,[2] Constraints,[2] and Contexts

No educational development effort has unlimited resources of manpower, money, materials, facilities, or time. Each has additional political, technological, instructional staff, policy, and administrative limits. No educational development has operational meaning outside of the organizational and demographic contexts in which it will be applied. Thus, these factors should be identified and defined early in the developmental process--otherwise the developmental program may be incompatible with the realities that influence its success or failure.

I do not mean to imply that limits, once identified, are forever fixed. Tradeoffs can sometimes be made. Ongoing development may suggest that

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[2]Whether an element is considered a resource or a constraint is largely dependent upon one's point of view. The limits on any resource can be conceived as a constraint and the region within any constraint can be conceived as a resource.

resources once thought adequate will no longer suffice, that constraints once thought acceptable are intolerable, or contexts once thought ideal are only second best. It seems important, though, that flexibility not be confused with either indifference to reality or with vagueness in defining one's situation.

Delimit the Region of Concern

I have chosen to approach the issue of how one might go about deciding what to teach from the viewpoint of defining educational objectives. Let us agree to mean by objective a statement or understanding of what it is we want to achieve with the educational process. Although there are many legitimate goals for the educational establishment (Gardner, 1960), the quintessence of my concern will be with behavioral objectives. By a behavioral objective I mean any statement or understanding of what it is we want the learner to be able to do at the end of an educational experience.

By choosing behavioral objectives as the principal vehicle for defining what it is we want to be taught, I do not mean to imply that other approaches to selection of educational content are not valid. It does seem to me, however, that behavioral objectives for education do have a peculiar relevance and facility for supporting the choice of what is to be taught.

I approach the derivation of objectives with considerable humility, both because it is an area in which a number of persons whose work I greatly admire have labored many years and because it is inherently a difficult one. Nevertheless, it is of such crucial importance to the educational development enterprise that I feel we must be alert to any reasonable prospects for advancing the state-of-the-art and implementing such technique improvements in developmental programs. I cannot help but feel there are reasonable prospects for improvements in methods of deriving educational objectives which are sufficiently close to warrant consideration.

I am led to this conclusion by more than simple faith. Our own efforts to expand the definition of systematic derivation of objectives in the development of the Quincy, Massachusetts vocational-technical curriculum (American Institutes for Research, 1965a, 1965b), in deriving vocational measures for the national assessment program (Rosenfeld, Kowal, & Seiler,

1965), in studies for the Ford Foundation of ways in which vocational capabilities might be described (Altman, 1966d), and in defining directions for the integration of vocational education to the American Vocational Association (Altman, 1965) all suggest the possibility of greater freedom from tradition and more opportunity for rigorous methodology than do approaches which have been more generally enunciated.

Perhaps we can agree without detailed argument to the following four general propositions:

1. Processes of both analysis and synthesis can serve derivation of objectives. Analysis or deduction can serve to break highly abstract general domains or areas of activity into more specific and useful pieces. Synthesis or induction, on the other hand, can help to clarify ways in which sample behaviors might represent the plethora of possible behaviors implied by any broad area of human activity.

2. There is a role for both content specialists and behavior analysts in the derivation of educational objectives. This is not to say that these roles cannot be more fully and differently defined than in the past. Neither is it to imply prior prejudice as to the domain of experience which leads to the greatest content expertise. Certainly it admits of the possibility that content relevance may come from outside the educational establishment.

3. A hierarchy or taxonomy of behavioral processes is one crucial aspect of any serious effort to establish a significant educational enterprise. Bloom (1956) and Krathwohl, Bloom, and Masia (1964) have provided the classic demonstration that different behavioral levels have their own unique evaluation and measurement aspects. Gagné (1965a) has detailed the different conditions required for effective learning of different levels of behavior. Elsewhere, I have detailed the types of errors (Altman, 1966a) and critical variables in generalization of learning (Altman, 1966b) associated with different levels of behavior. All

of this suggests that attention to the complexity level of behaviors implied by objectives can have important educational implications.

4. No practical educational experience can be devoid of content or context. All behavior has finite stimulus and response boundaries. Further, it is practicable to think of simultaneous analysis of educational objectives in terms of content and behavioral process levels (Altman, 1966c).

Granting agreement on the above four points, does this necessarily lead us to a conclusion that we are ready to go beyond techniques implied by behavior analysts such as Tyler (1934), Gagné (1965b), and Mager (1962)? I think not. The above four points and the demand for being specific about behavior implied by objectives do not lead us beyond the current state-of-the-art. What then is the critically needed factor to insure more cogent educational objectives than those to which we have been led in the past? I would suggest that it is simply this: explicit derivation of objectives from a behavioral domain other than existing courses or disciplines.

Where, other than existing disciplines and courses, can one find an appropriate domain of behaviors? Obviously, in the arena of behaviors associated with being an effective student, of concurrent behaviors outside the role of student, of education and training performance after leaving the educational experience being developed, and of other post-graduation behavior. It's a complex arena. No wonder we tend to shrink from confronting it and repeatedly take refuge in the tidier arena of existing disciplines. Even the most tangible part of the broader arena, vocations, includes thousands of jobs--and it is only recently that we have learned to make relatively precise training derivations from the more prescribed jobs.

I would contend that we will make significant future progress only when we quit hoping that reshuffling existing disciplines and salting them with the easy captures of obvious new trends in the external (outside school) world will somehow get us out of the curriculum box we are in. This, I fear, is all too analogous to hoping that faster rotation of an eccentric wheel will get us to the moon.

If we are to make a frontal attack on that awesome arena for which we are already purporting to educate, how might we grapple with it in such a way that there will be at least a fighting chance of bending it to our will? It seems to me that the most critical point is to select the region of referent behavior where we expect the educational experiences under development to pay off. There are at least three major aspects of any region of interest which require delineation. They are:

1. The population and subpopulations of concern. Delineation includes assumed input characteristics, bases for specific exclusion from the region of concern, durations of exposure to the educational process under development, known implications of different subgroups for the educational system.

2. The time frame. This includes a definition of the period of time over which the criterion behaviors are expected to occur. In particular, it is aimed at delineating the nominal period of greatest relevance for the description of criterion behaviors (e.g., is it intended to be a description of what graduates now do or a description of what graduates are forecast to be doing ten years in the future?) and probable trends around the period of maximum relevance for the description.

3. The boundaries of behavior to be considered within and outside the region of concern. For example, is behavior as a resident outside the United States to be included or excluded from explicit consideration? Are we concerned only with behavior on the job or are we also concerned with behavior in the family, in the community?

Define an Ideological Base

I have found no easy, or even satisfactory, way to classify educational ideologies (a unified and consistent set of values concerning the objectives of education). Indeed, recent writers such as Alberty and Alberty (1962, Ch. 2) decline to attempt any real integration even though they document a number of efforts by others to do so. My own suspicion is that educational

ideology is inherently multidimensional but classification schemes have been able to reflect only a small number of variables. In any event, it seems clear that educational ideologies have varied in their commitment along at least the following dimensions:

1. Time orientation. Some philosophers have emphasized that only systems of knowledge that have stood the test of time are worthy of being taught. Others have contended that education has value only insofar as it prepares students for their future.

2. Individualism. Some philosophers have emphasized development of individual potential as the chief goal of education. Others have stressed the need for education to serve the established values of the society. Of course, many have endeavored to achieve rapprochement. John Gardner (1961, 1963) has made notable efforts along these lines.

3. Individualization. It is easy to confuse the issue of individual orientation versus social orientation (individualism) with the issue of valuing diversity versus conformity (individualization). Yet, they are different. It is possible to value individual development above all else in education, but to have a single model of idealized man toward which the development of each individual is to be bent. Conversely, it is possible to have a pluralistic model for society which demands diversity of education to meet its needs.

4. Achievement orientation. Some would contend that educational experiences can be justified only on the basis of definite and observable changes on the part of the learner. Others would contend that there are experiences in youth having merit in their own right, not dependent upon external criteria of learning.

5. Political commitment. In American education, democratic processes in the school and preparation for a role in democratic society have been highly valued by philosophers (although authoritarian teaching of democratic principles has

perhaps characterized most practice). There are others who feel that democracy represents too restricted a framework to serve as the sole focus of education. It is interesting to note, perhaps, that most of the debate has not centered around this issue but rather around the identification of appropriate democratic values and the methods by which they can best be taught.

6. Cultural spread. Regardless of one's ultimate commitment to democratic values, it is possible to debate the value of teaching from a narrow versus a broad base of extant or extinct cultures. Of course, this issue is not limited to national definitions, as illustrated by the current debate concerning the teaching of middle-class values in deprived urban areas.

7. Morality. There is in American education a great deal of ambiguity concerning the appropriateness of the institution accepting and transmitting guidelines for individual and social action. Whether such guidelines should be taught at all, the level of detail appropriate--from the cardinal principles to folkways, and the extent of absolutism versus situational relativism are all moot.

8. Utility. American society has frequently been criticized for its emphasis on economic values. American education, particularly vocational education, has often shared this preoccupation. Yet, it is neither irrelevant nor impertinent to suggest that aesthetic values may have a useful role in determining what should be taught in vocational curricula (Macdonald, 1966).

9. Generalization. The nature and extent of learning transferred from one situation to another is largely an empirical-psychological question, even though most of the definitive work remains yet to be done (Altman, 1966b; Dallett, 1965; Houston, 1964; Martin, 1965; Wimer, 1964). Even if all of the empirical questions concerning the characteristics of transfer were answered, there would still remain important

questions concerning the extent to which direct and specific transfer from a learning situation to an arena of application should be sought.

10. Commitment. Educators vary widely on the degree to which they are committed to any particular set of values. Some hold consistent values across time and situation. Others quite successfully accept conflicting values within a given educational context, leaving it to human adaptability to reconcile dissonance. Indeed, the degree of commitment or eclecticism is not clear in most educational practice.

I would contend that a proper general procedure for defining educational objectives is one which can accommodate a wide variety of choice across all of the above dimensions. However, any given educational program development can be seen as requiring, or at least being facilitated by, some ideological commitment.

Define Criteria of Success

There is another aspect of educational philosophy which bears an important relationship to the definition of educational objectives. This aspect is the vigorous new trend (Wheeler, 1967) toward philosophical analysis of educational problems and processes. I would see the need for formally developed educational programs to meet the criteria of:

1. Existentialism, in providing for experiences which will square with the subjective impact of those referent situations of which they are intended to be samples or analogs.

2. Logical (essentially linguistic) analysis, in being at least internally compatible and not demonstrably false on the face of internal evidence.

3. Science, in being compatible with the weight of evidence external to the objectives and their derivation process, and especially in squaring with the law of parsimony.

4. Pragmatism, in being relevant to and serving the purposes which motivated a search for the answer to "what should we teach."

Thus, we can see educational philosophy as impacting on the derivation of objectives in two ways--in defining the values which will guide selection priorities and in providing a basis for criticism of the products of our creative efforts. A set of epistemological issues remains for discussion in the next section.

Structure a Region of Criterion Behavior

Phenix (1964a) has pointed out that the principles and practice of ordering knowledge into systematic categories provide ". . . a valuable resource for curriculum-makers. How that resource is used is another question (p. 45)." I am fully in agreement with that view. Elsewhere (Phenix, 1964b), he has suggested in detail how realms of meaning can imply scope, content, organization, and sequence for curriculum. Here, I must demur. During the same conference in which Phenix outlined his realms of meaning, Tykociner (1964) described quite a different structuring of areas of knowledge. I can see no reason why a curriculum developer is compelled to accept one structure to the exclusion of another. In addition, Bellack (1964), in summarizing this conference, has pointed out that a school's responsibilities often extend beyond teaching organized fields.

Organized structures of knowledge can greatly facilitate decisions concerning what to teach, particularly since learning may be facilitated by organization and structuring of the instruction. It is imperative that the individual seeking an answer to what to teach have a more satisfactory method than simply reaching for the nearest wooden horse because it happens to be near, even if it does come in the form of the latest structuring of the disciplines.

If we can agree, then, that available structures of knowledge (primarily those current with practitioners and only coincidentally those used in education) can serve as useful handmaidens to educational development, perhaps it will be possible to describe a useful role for the disciplines in structuring regions of criterion behavior without becoming ensnared into the traditional teaching of disciplines.

Structuring the region of interest is critical both to insure that coverage is comprehensive and that specifics are not generated out of proportion

to the importance of a given subregion. The structuring process involves the following six steps, each of which will probably require some degree of iteration:

1. Identify and delimit major non-overlapping areas of criterion behavior. We should note that non-overlapping here means not involving the same social context. It does not necessarily imply that the behaviors to be found in these different contexts may not be closely related or even identical. Some of the areas at the most gross level might be differentiated by factors such as in-school or out-of-school; prior to graduation or after graduation (or dropout); vocational, citizenship, or self-actualization behavior; etc.

2. Identify the best sources of analytic capability and data relating to each area. This process will interact dynamically with evolving structure of the region of interest. As increasing resolution of the structure is accomplished, it will become possible to evaluate sources of information in greater detail. Some of the general kinds of sources for structuring (and later analyzing) each major area include:

   a. Competent practitioners, observers, and commentators.

   b. Documentation used by practitioners in the field.

   c. Descriptive models, relevant research, and other literature (such as formal knowledge structures) relating to the area.

3. Identify and define the principal dimensions serving to structure each area.

4. Define a structure for each area. Begin with a preliminary structure, trying it out against specific examples of relevant performance and expert judgment. Continue expanding and modifying the structure until it will handle all relevant specific examples with facility. This is not

the place to derive an exhaustive listing of all relevant performances, but only to obtain reasonable assurance that the structure would have decent skeletal homomorphism with the total body of performances should they ever be exhaustively described.

Establish a Basis for Sampling Behavior

There is almost no significant educational development having a region of referent criterion behavior which can practicably be described in exhaustive specific detail. Thus, one must either accept abstraction and sampling or entirely abandon the attempt to derive educational content from a presumed region of application. The difficulty with developments in the past is not that they abstracted or sampled, but rather, that the referent is either so general as to be vague or left unstated. The major plea here is to be explicit about the method and results of abstracting and sampling. By abstracting, I mean a kind of shorthand which implies clearly the essential characteristics of criterion performance without describing it in precise detail. By sampling, I mean selecting from a larger set of possible criterion performances (and it may be almost infinite) some smaller set for description and analysis.

This is hardly the place to review the extensive and accessible body of knowledge concerning sampling theory and practice (Kish, 1965). There are, however, three points which have unique relevance:

1. The structure framework discussed in the previous section should serve as a direct contributor to the definition of a sampling frame.

2. The sampling bases and weights for choosing from among different hierarchical levels (e.g., tasks versus specific behaviors) may be quite different.

3. The notion of sampling on bases other than frequency of occurrence in the population of behaviors in the presumed region of application is entirely valid.

4. Random sampling in this context implies enumerating at the outset all of the behavioral units from which sampling is to take place. Since avoidance of the exhaustive work involved in making such an enumeration is a primary motive, a kind of quota sampling seems much more appropriate for the more detailed behavioral levels.

Analyze Behavior

Given the delineation of referent activities and sampling frame implied above, it should now be possible to proceed with a relatively straightforward task description and analysis. We will not try to summarize these procedures, since they are already described in detail elsewhere (Altman, 1966d; Miller, 1962). Suffice it here merely to identify the principal steps implied in this process:

1. Identify the obvious clusters of activities which might be performed by any one individual or team of individuals.
2. For each cluster or conglomerate of activities:
   a. Define the characteristics of the population likely to engage in them.
   b. Identify the principal purpose(s) and modes of accomplishment.
   c. Organize by time-sequence.
   d. Organize by functional relationship.
   e. Identify contingencies in and contexts of performance.
3. Enumerate tasks, eliminating obviously inappropriate and redundant items.
4. Describe tasks, including:
   a. Objects acted upon.
   b. Information guiding action.
   c. Tasks.

d. Actions, including sequence, stimulus, processing, and response aspects.

e. Indications of completion of action.

Organize and Sequence Objectives

Up to this point, we have been talking essentially about behavior outside of the school, except insofar as we might use some later phase of education or training as a referent context for designing an earlier phase. Now, however, we must come to grips with the problem of bringing behavior within the confines of pedagogical considerations. The referent behaviors identified in the previous steps are the starting point for the derivation, organization, and sequencing of educational objectives.

Tyler (1964) has suggested that one of the persistent problems in defining educational objectives is a tendency to confuse clarity with a high degree of specificity. What is essential is clarity of the behavior desired of the student, not maximum specificity.

Briggs (1967) very recently completed an exhaustive review of available knowledge concerning the sequencing of instruction in relation to hierarchies of competence. He uncovered a great deal of useful information, many obvious holes in our data and understanding, and no operational routines that would guarantee optimum organization or sequencing. However, there are some steps that seem clearly to be useful, if not essential to rational development:

1. Translate behaviors representative of the criterion situation into terminal objectives--that is, statements of task performance judged suitable for the student upon successful completion of the educational experience under development. Thus, many of the specifics of the criterion context will need to be made less specific and complex.

2. Derive the subordinate capabilities (interim objectives) by working backwards from terminal objectives (Gagné, 1966). The prerequisites of given unit of content are that set of capabilities which, if previously acquired, would permit the learning of the given unit under a single set of learning conditions (Gagné, 1965a).

3. Continue the analysis of terminal task components until a level of simplicity is reached where it can be assumed that the capabilities are possessed by the student.

4. Group the behavioral hierarchies from the above according to:

   a. Stimulus similarity.
   b. Response similarity.
   c. Homogeneity of psychological processes (Altman, 1966d).
   d. Presumed optimum affective (motivational) impact.
   e. Administrative convenience.[3]
   f. Aesthetic preferences.

Develop Performance Measures

There is a well-developed technology which would be gratuitous to attempt to summarize here. Probably Glaser and Klaus (1962) have provided the most relevant summary. Horst (1966) recently completed an overview of the entire psychological measurement field, much of it relevant to the design and evaluation of proficiency measures.

Define Media

Briggs, Campeau, Gagné, and May (1967) recently summarized findings relative to different types of instructional media and presented a set of procedures that dovetail with the general outline of educational development suggested here. I shall not attempt to abstract their extensive work but recommend reference to it to anyone selecting media of instruction from a set of educational objectives. It is perhaps worth underscoring here the need to take into account both individual differences (Gagné, 1967) and the developmental stage of the target population (Bloom, 1964).

[3] Interacts with and is largely dependent upon the choice of media.

Develop Instructional Materials and Procedures

Here, too, is a well-developed technology which I shall not attempt to summarize. The essential features of this design process are probably most accessible from the area of programmed instruction (Glaser, 1965).

Conduct Preliminary Tryouts - Evaluate Program

Lumsdaine (1965) has provided a detailed overview of the considerations and procedures involved in the assessment of instructional programs. Perhaps the most refreshing aspect of the programmed instruction approach to tryout and evaluation is the onus put on the development team to demonstrate educational value and the acceptance of empirical results as a basis for repeated revision, until satisfactory learning is achieved by the target audience. Markle (1967), in multimedia program development, has made empirical tryout an integral part of virtually the entire design process. Campbell and Stanley (1963) have provided perhaps the most cogent treatment of experimental and quasi-experimental designs to aid evaluation.

The methods and purposes of preliminary tryout and final program evaluation are overlapping and sometimes indistinguishable. However, preliminary tryout tends to be more directed at program modification during the design process, whereas final evaluation of the program is more suggestive of the appropriate scope of operational implementation and provides a legacy of basic information that can be useful in the initiation of new developmental efforts.

Implement Use of Materials

There is a slowly accumulating body of evidence concerning the conditions under which educational innovations are accepted by instructional personnel and the community. It would clearly be premature to claim, however, that there is a technology for gaining acceptance. The one factor that does stand out, though, is the need to give the intended instructional personnel adequate opportunity to gain a feeling of participation, to be oriented and trained in the requirements of the innovation, to have their questions fully answered, and to ventilate their feelings, both positive and negative.

The Contribution of Vocational-Technical Education

What has all the foregoing to do with the contribution vocational-technical education can make to the individual student, either at the secondary or post-secondary level? Over the long haul, obviously a great deal. As educational development becomes increasingly analytic, coherent, and explicit, it may become meaningful to think in terms of optimizing functions such as making educational experiences maximally relevant to probable later-life requirements. In terms of the immediate implications for the contribution of vocational-technical education, the picture is much less clear. I would suggest, though, that the technology of education and training development permits:

1. Accommodation to the inter-individual differences that characterize all age and grade levels. This means that vocational-technical education at both secondary and post-secondary levels can break out of the mold of skill achievement being tied to time spent. For equal expenditure of time, students can be at quite different skill levels--with different implications for their entry level on the career ladder.

2. Accommodation to intra-individual differences such that each individual can be qualified across a different profile of jobs.

3. Truly specific job training to be much more efficient than was once the case.

4. A much more integrated and flexible melding of vocational and non-vocational educational experiences, combined with a more precise knowledge of the student about himself and his probabilities of success in future courses of action (Cooley & Lohnes, 1966, Ch. 11).

5. Much more realistic information about the degree of irrevocability and/or cost when various educational decisions are made.

6. An opportunity to move from secondary to post-secondary vocational-technical education with maximum positive transfer and minimum waste.

New Efforts

If these additional capabilities to contribute to individual welfare are to be exploited, the following efforts will be required:

1. The formation and support of development teams including genuine expertise in the relevant behavioral technology.
2. Explication and commitment to the values out of which educational objectives and the supporting materials can be derived.
3. Certification of products of the new educational experiences according to what they have demonstrated they can do, in terms meaningful to the vocations they will enter.
4. A degree of specificity and accessibility of cost records, which has not characterized most school systems, that will support cost-effectiveness analyses for specific educational programs and units of instruction.
5. Willingness to accept performance measurement as an inherent part of the quality control process, not just for students but also for the instructional system.
6. A new level of allocating resources to analysis, evaluation, and planning as contrasted to operation and maintenance of the instructional system.

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34. Garry, John C. — 9 credits — 1951

An Annotated Bibliography of Consumer Materials.

35. Gould, Helen M. — 9 credits — 1951

Consumer Courses in State Teachers Colleges.

36. Grovom, Evelyn L. — 9 credits — 1951

Place of Basic Business in Common Learnings.

37. Hakel, Ernest A. — 6 credits — 1951

Desirable Facilities for Classroom Projection.

38. Hanlon, Mae M. — 9 credits — 1951

An Occupational Survey of Independence, Iowa

39. Jacobsen, Robert F. — 9 credits — 1951

A Handbook for On-the-Job Trainers of Cooperative Part-Time Students.

40. McPartland, Howard F. — 9 credits — 1951

An Occupational Survey of Waseca, Minnesota.

41. Marconett, Bert J.
Perry, Laurence V.
Simmer, Charles J.
Wilson, Bruce G. — 9 credits — 1951

What Problems of Distributive Occupations Should Be Treated in Occupational Relations Classes in the Part-Time Training Program.

42. Murphy, Harry C. — 9 credits — 1951

Some Personality Components Pertinent To The Selection of Ward Attendants.

43. Lund, Gertrude S. — 9 credits — 1951

Clerical Practice

44. Price, Wilmoth C. — 9 credits — 1951

An Occupational Study of Stenography -- Twin Cities Area.

45. Woebke, John H. — 9 credits — 1951

A Study of Bookkeeping I in Minnesota Public High Schools.

46. Brueberg, Andrew C. — 9 credits — 1952

A Short Textbook For Student Trainees in the Occupational Relations Course.

47. Gurnoe, Donald G. — 9 credits — 1952

The Status of Administrative On-the-Job Training Within Selected Units of the United States Air Force.

48. Hakel, Ernest A. — 3 credits — 1952

What Should a Consumer Know About Organized Labor?

49. Heimerl, Ramon P. — Ph.D Thesis — 1952

The Status of Business Education in the Public Secondary Schools of Minnesota.

50. Knapp, Charles W. — 9 credits — 1952

A Test to Determine Certain Consumer Knowledges and Concepts Possessed by College Students at Macalaster College.

51. Larson, Harvey A. — 9 credits — 1952

An Occupational Survey of Glendive, Montana.

52. Maack, Vernon R. — 9 credits — 1952

A Survey of Occupational Opportunities in Alexandria.

53. Martin, Donald A. — 9 credits — 1952

A Comparison of the Philosophy and Objectives of Distributive Education and Consumer Education in the Senior High Schools.

54. Nelson, Stanley L. — 9 credits — 1952

An Experiment in Speed vs. Accuracy in the Teaching of Typewriting.

55. Scheidler, Ona M. — 1952

The Use of Audio-Visual Aids in Business Education.

56. Warmke, Roman F. — 9 credits — 1952

A Guide For the Use of the Coordinator and the Employer for Determining Suitable Schedules or Experiences for Student Trainees in the Cooperative Part-Time Distributive Education Program.

57. Beaumont, John A. — 9 credits — 1953

A Study of the Activities of Distributive Education Cooperative Part-Time Coordinators.

58. Bergstrom, Ruth E. — 9 credits — 1953

Suggested Procedures for Teaching a One-Semester Personal-Use Typing Course.

59. Day, Lyle H. — 9 credits — 1953

A Survey of Bookkeeping Systems and Practices in Selected Establishments in St. Cloud, Minnesota.

60. Flood, Hazel A. — Ph.D. Thesis — 1953

Some Factors Involved in Learning Shorthand -- Analysis of the Learning Load of Two Systems of Shorthand.

61. Grimstad, Melvin M. — 9 credits — 1953

A Follow-Up Study of the Graduates of Central High School, Minneapolis, Minnesota, for the Years 1950-1952.

62. Guthrie, Mearl R. — Ph.D. Thesis — 1953

The Measurement of Personal Factors Related to Success of Office Workers.

63. Hutchens, Warren H. — 9 credits — 1953

A Study of What is Being Taught in Pre-Employment Training Courses in Distributive Education Programs.

64. Johnson, Melvyn R. — 9 credits — 1953

A Follow-Up Study of the Graduates of Central High School, Minneapolis, Minnesota, for the Years 1950-1952.

65. Johnson, Verna Mae — 9 credits — 1953

A Course of Study in Office Practice for a Medium-Sized High School.

66. Kingsley, Thomas H. — 9 credits — 1953

Public Supervision in Dairy Products and Its Relation to Consumer Protection.

67. Lekvold, Floyd W. — 9 credits — 1953

Protection of the Consumer in Minnesota State Agencies.

68. Magajna, William E. — 9 credits — 1953

Bookkeeping Practices of Selected Business Firms in Baudette, Minnesota.

69. Markkula, Julia — 9 credits — 1953

Teaching Specific Reading Skills in the Extended Reading Program by Means of a Consumer Education Unit.

70. Nelson, Edwin L. — 9 credits — 1953

Present Practices in Teaching Merchandise Display and Merchandise Display Manual for Distributive Education Students.

71. Ness, Edward H. — 9 credits — 1953

The Teaching of Consumer Education in Norman and Polk County Public Schools.

72. Olson, Theodore R. — 9 credits — 1953

Selection of Students for the Cooperative Part-Time Program in Minnesota Public Schools.

73. Price, Wilmoth C. — Ph.D. Thesis — 1953

The Status of Consumer Education Courses in College and Universities.

74. Stanley, Ruth C. — 9 credits — 1953

A Survey of Company Training Programs of the Members of the Minneapolis-St. Paul Chapter of the National Office Management Association.

75. Sundberg, John C. — 9 credits — 1953

A Survey of Business in Fairmont, Minnesota.

76. Vivian, Neal — 9 credits — 1953

A Comparison of the Aptitudes and Interests of High School Freshmen.

77. Zachor, Delford — 9 credits — 1953

A Critical Evaluation of the Course of Study in Retail Training at Ottawa, Illinois, Township High School.

78. Anthony, Arthur L. — 9 credits — 1954

An Outline for a Course of Study in Advanced Basic Business or Business Principles.

79. Behmler, Edward John — 1954

A Survey of Mound Consolidated School Dist. #85 High School Graduates of 1947, 1949, 1951.

80. Carlson, Marie E. — 9 credits — 1954

The Work-Experience Program in Office Practice at Faribault High School.

81. Ewen, Ramona (Sister) — 9 credits — 1954

An Evaluation of the Business Department of Duluth Cathedral High School.

82. Marsolek, Jerome R. — 9 credits — 1954

Teaching of Farm Record Keeping in a Bookkeeping Course.

83. Neuerburg, Lawrence P. — 9 credits — 1954

A Follow-Up Study of Wadena High School Graduates in the Even-Numbered Years 1940 through 1952.

84. Poor, Frederick A. — 1954

Establishing a Course of Study in Clerical Office Practice

85. Reich, Warren A. — 9 credits — 1954

Methods of Teaching the Basic Skills in Beginning Typewriting at the High School Level.

86. Rothamel, John — 9 credits — 1954

A Practice Set for Retail Hardware Stores.

87. Stove, Milner I. — 9 credits — 1954

The Guidance Role of the Business Teacher in a Small High School.

88. Wickstrom, Lester I. — 9 credits — 1954

An Analysis of Instructional Materials Used in High School Occupational Relations Classes in the State of Minnesota.

89. Bothel, Marjorie M. — 9 credits — 1955

Contributions of Business Teachers to Student Personnel Work.

90. Cosgrove, James A. — 9 credits — 1955

An Analysis of the Consumer Materials Found in Current Ninth Grade General Mathematics Books.

91. Farmer, Geraldine Mary — 9 credits — 1955

An Occupational Study of Stenography in the Cities of Calgary, Edmonton, and Lethrbridge.

92. Haines, Peter G. — Ph.D. Thesis — 1955

An Analysis of Selected Factors in the Socio-Economic and Occupational Experience Backgrounds of Distributive Personnel in Limited-Line Stores.

93. Jones, Ellis John — 9 credits — 1955

An Annotated Bibliography on the Teaching of Shorthand and Transcription.

94. Kamnetz, Harvey — 9 credits — 1955

The Relative Importance of Emphasis on Speed and Accuracy in Beginning Typewriting.

95. Lebeda, Agnes — Ph.D. Thesis — 1955

An Analysis and Comparison of Consumer-Economic Education Practices Among Subject Areas in the Iowa Public Secondary Schools.

96. Metzen, Edward J. — 9 credits — 1955

Consumer Information of Sixth Grade Students.

97. Miller, Roman — 9 credits — 1955

Individual Instruction Practices in Co-operative Part-Time Distributive Education Programs.

98. Nelson, Florence Margaret — 9 credits — 1955

A Compilation of Teaching Techniques for Shorthand and Transcription.

99. O'Neill, Robert E. — 9 credits — 1955

A Survey of Business in Luverne, Minnesota.

100. Sivinski, Joan M. — 9 credits — 1955

A Course of Study for the Small and Medium Size High Schools in Minnesota Incorporating Office Practice Skills and Knowledges in Second Year Shorthand.

101. Soholt, Alf M. — 9 credits — 1955

A Follow-Up Study and Evaluation with Recommendations of Clerical Office Practice at Columbia Heights High School.

102. Toupin, Harold O. — 9 credits — 1955

A Job Study Guide for Service Station Salesmen Based on a Survey of Oil Company Training Directors.

103. Weese, Sylvia — 9 credits — 1955

The Development of the Business Education Department in the Mankato High School.

104. White, Helen Isabelle — 9 credits — 1955

Analysis of Consumer Articles in Selected Magazines.

				No. of Pages:
105.	Finell, Anthony	9 credits	1956	77

The Historical Development and Present Status of Internal Accounting and Auditing for High Schools.

106.	Hedish, Norman David	9 credits	1956	143

The Relationship of On-The-Job Training and Classroom Instruction in Cooperative Part-Time Office and Distributive Education Classes.

107.	Knaak, William C.	9 credits	1956	123

A Manual of Successful Devices for Teaching Salesmanship.

108.	Maistrovich, John A.	9 credits	1956	91

A Study ofUtilization of Personal-Use Typewriting Skill Through a Follow-Up Study of Students Taking the Course at Nokomis Junior High School, Minneapolis, Minnesota

109.	Marmas, James G.	9 credits	1956	148

Resource Units in the Teaching of General Business.

110.	Robeck, Shirley A.	9 credits	1956	67

A Procedure for Evaluating Minnesota Diversified Vocations Clubs (MDVC).

111.	Samson, Harland E.	9 credits	1956	121

The Cooperative Part-Time Trainee's Job in the Retail Drug Store and Selected Job Study Guides.

112.	Severson, L. C.	9 credits	1956	

Urgent Problems of Distributive Education and Diversified Occupation Teacher-Coordinators.

113.	Shickell, Janet Larson	9 credits	1956	103

A Study of the Business Department and Its Graduates of International Falls High School, Minnesota.

114.	Talle, Reuben J.	9 credits	1956	36

A Survey of Consumer Opinions Regarding Certain Repair Service Trades.

115.	Wessman, LaVonne	9 credits	1956	59

The Effect of Varying Time Lapses on Accuracy of Short-hand Transcripts.

				No. of Pages:
116.	Bauer, Richard C.	9 credits	1957	99

An Annoted Bibliography of Materials for Consumer Education Classes: A Selection of Books and Pamphlets to be Used in Secondary Schools.

117.	Bikkie, James Andrew	9 credits	1957	73

The Service Shopping Report.

118.	Boerger, Roger	9 credits	1957	58

An Evaluation of a Questionnaire for Community Surveys.

119.	Figge, James J.	9 credits	1957	75

A Filing System for Vocational Teacher-Coordinators.

120.	Halverson, H. M.	9 credits	1957	148

A Business Survey of Glenwood, Minnesota.

121.	Johnson, Mildred E.	9 credits	1957	91

A Study of the Revolutionary Changes in the Modern Educational Systems in Egypt.

122.	Jorgenson, Julius	9 credits	1957	91

The Effect of Varying Speed and Accuracy Intervals in Beginning Typewriting.

123.	Larsen, Tora	Ph.D. Study		374

A Study of Student Personnel Records at East Carolina College as Relates to Prediction in Elementary Accounting.

124.	Lorenz, Ladale A. and Charles J. Christensen	9 credits	1957	

Seven Sales Filmstrips for Use in Training Retail Store Salespeople.

125.	Marr, Melvin L.	9 credits	1957	89

An Evaluation of Occupational Information Monographs in Distributive Occupations.

126.	Olson, Harry Jr.	9 credits	1957	77

Some Present Practices in Teaching Advertising and Psychology of Advertising Cartoons with Accompanying Scripts for Distributive Education Students.

				No. of Pages:
127.	Poston, Charles S., Jr.	9 credits	1957	105
	Using Sixteen-Millimeter Films in Business Education -- A Bibliography.			
128.	Rosenberg, Arvie A.	9 credits	1957	61
	Learning Units in Bookkeeping.			
129.	Rosenwinkel, Howard C.	9 credits	1957	81
	Employer-Employee and Co-Worker Relations Problems of Cooperative Part-Time Trainees.			
130.	Saxon, Marjorie J.	9 credits	1957	114
	Office Practice -- A Survey of Current Literature.			
131.	Shipka, Emil	9 credits	1957	132
	A Survey of State Supervision of Distributive Education in the United States and Territories.			
132.	Smith, Robert Gall	9 credits	1957	104
	A Show Card Writing Teaching Unit for Secondary Distributive Education Students.			
133.	White, Richard Earl	9 credits	1957	73
	Distributive Education in Junior Colleges.			
134.	Woods, Helen	9 credits	1957	250
	Evaluative Bibliography of Articles on Teaching of Typewriting.			
135.	Becker, William L.	9 credits	1958	81
	Analytical Study of Adult Distributive Education Courses in Cities of 200,000 and Over.			
136.	Curtin, Rita	9 credits	1958	31
	The Relationship Between Selected Factors and Difficulty of Dictated Material.			
137.	Fairchild, H. Carter	9 credits	1958	
	Trends in Distribution and the Implications for Vocational Distributive Education on the Secondary School Level.			
138.	Hammer, Marcella			124
	A Curriculum Guide in Office Skills for the Minneapolis Public Schools.			

				No. of Pages:
139.	Hovelsrud, Richard A.	9 credits	1958	75

A Survey of Consumer Education at Minneapolis South High School.

140.	Johnson, Robert	9 credits	1958	

Job Adjustment Problems of Beginning Workers as Seen by Trainees in the Cooperative Part-Time Work Experience Program.

141.	Keenan, Mary Patrick (Sister)	9 credits	1958	140

Relationship of Business Education to General Education.

142.	King, Herbert Eugene	9 credits	1958	90

An Integrated Program for the Instruction of Business Machines and Filing with Shorthand II, Together with a Follow-Up Study of this Program.

143.	McAfee, Alfred C.	9 credits	1958	77

Public Relations Relating to Parents (A Survey of the Public Relations Practices of Minnesota Teacher-Coordinators Relating to Parents and a Manual of Information and Techniques Relating to this Problem).

144.	Madsen, Russell D.	9 credits	1958	85

A Survey of the Students Attending the Private Business Schools of Minnesota.

145.	Peterson, Kathryn L.	9 credits	1958	51

An Occupational Survey in Chaska, Minnesota

146.	White, Charles R.	9 credits	1958	103

The Cooperative Part-Time Trainees Job in Women's Ready-to-Wear and Selected Job Study Guides.

147.	Wiklund, Clifford H.	9 credits	1958	135

Job Adjustment Problems of Beginning Workers as Seen by Employers and On-the-Job Trainers of Cooperative Part-Time Trainees.

148.	Wirth, James J.	9 credits	1958	108

A Description and Evaluation of Free and Inexpensive Materials for Basic Business Classes in Minnesota.

149. Arnold, Richard A. — 9 credits — 1959 — No. of Pages: 128

An Annotated Bibliography on Distributive Education (Review of Literature in Selected Business Education Periodicals, 1947 through 1958).

150. Davitt, John J. — 9 credits — 1959 — 67

A Study of the Business Department and its Graduates of Alexander Ramsey High School.

151. Durand, Richard F. — 9 credits — 1959 — 122

A Follow-Up Study of the Class of 1951 South High School Minneapolis, Minnesota

152. Fuerst, Dale R. — 9 credits — 1959 — 97

The Cooperative Part-Time Trainees Job in Retailing Paint and Wallpaper and Selected Job-Study Guides.

153. Gardner, Harold Joseph — 9 credits — 1959 — 118

The Objectives, Course Content, and Teaching Methods for Elementary Bookkeeping in the Secondary School.

154. Hanson, Edward L. — 9 credits — 1959 — 78

An Analytical Study of the Techniques and Systems of Evaluating Students Work in Typewriting, Taking Individual Differences and other factors into consideration.

155. Harris, E. Edward — 9 credits — 1959 — 261

Course Content and Textbook Evaluation in Distributive Education.

156. Kieffer, Richard J. — 9 credits — 1959 — 89

The Case Method in Teaching Human Relations to Distributive Education Students.

157. Lee, Russell A. — 9 credits — 1959 — 89

A Follow-Up Study of Former Students, Garden City High School, Garden City, Michigan.

158. Pearson, Ralph E. — 9 credits — 1959 — 63

An introduction to Bookkeeping with Complete-Cycle Problems and Units.

159. Raeker, Wilfred B. — 9 credits — 1959

An Analysis of State Courses of Study in Distributive Education.

				No. of Pages:
160.	Schmidt, Norman B.	9 credits	1959	46
	A Description of a Method of Teaching the Keyboard Using Audio-Visual Aids and the Word-Sentence Approach.			
161.	Thompson, Bernard L.	9 credits	1959	
	A Follow-Up Study of the Graduates of Mora High School for the Years 1953, 1954, 1955, 1956, & 1957.			
162.	Veranth, Dorothy	9 credits	1959	219
	An Evaluation of a Community Survey Applied to the Three Major Industries in Cloquet, Minnesota.			
163.	Zellers, Eudora M.	9 credits	1959	178
	Visual Aids Used in Teaching Basic Business			
164.	Campbell, David C.	9 credits	1960	109
	Bookkeeping -- A Survey of Current Literature.			
165.	Clark, Marvin A.	Masters Thesis	1960	73
	Economic Understandings of Tenth Grade Students.			
166.	Eckert, Sidney W.	9 credits	1960	47
	A Comparison of Intelligence and Reading Ability with Speed and Accuracy in Typewriting.			
167.	Hillestad, Mildred	Ph.D. Thesis	1960	291
	Factors Which Contribute to the Difficulty of Dictation Material			
168.	Outwin, Ellsworth	9 credits	1960	115
	A Follow-Up Study of Bemidji, Minnesota High School Graduates, 1947-1954.			
169.	Rawland, Perry G.	Ph.D. Thesis,	1960	347
	Mutual Fund Investing With Implications for General Education.			
170.	Swenson, Curtis L.	9 credits	1960	81
	Students' Attitudes Toward Retail and Sales Occupations and Factors in Career Selection.			
171.	Thompson, Evelyn C.	9 credits	1960	131
	The Business Machines Course in College.			

172. Wallace, Harold R. — 9 credits — 1960 — No. of Pages:

The Relationship Between Creative Thinking and Sales Productivity of Experienced Female Salespeople.

173. Warmke, Roman — Ph.D. Thesis — 1960 — 262

Distributive Education Issues in 1959.

174. Akenson, Howard — 9 credits — 1961 — 78

Senior High School Student's Attitudes Toward Careers in Retail Stores, Sales Occupations, and Factors in Selecting a Career.

175. Anderson, Erma L. — 9 credits — 1961 — 97

A Study of Selected Office Workers in Anoka and Minneapolis.

176. Ashmun, Richard D. — 9 credits — 1961 — 124

The use of Business Decision Games in Distributive Education.

177. Flannery, James D. — 9 credits — 1961 — 59

A Study of Salesmanship Unit Content as Taught in Cooperative Part-Time Programs in Illinois, Iowa, Minnesota and Nebraska.

178. Hire, Walter — 9 credits — 1961 — 55

A Study Comparing the Techniques used in Building Typewriting Speed & Accuracy

179. Moldridge, Earl P. — 3 credits — 1961 — 20

A Curriculum Survey of Business Education in the Suburban Schools of Minneapolis and St. Paul.

180. Jaeger, Richard L. — 9 credits — 1961 — 128

A Research Unit on Investment.

181. Larson, Roger A. — 9 credits — 1961 — 87

A Survey of Research in Distributive Education.

182. Levendowski, J. C. — 9 credits — 1961 — 89

How Senior High School Students View Retailing, Sales Occupations, and Factors that Influence Their Career Selections -- Hayward, California.

183. Lis, Anthony S. — Ph.D. Thesis — 1961 — 285

Attitudes and Practices of Executives and Secretaries Concerning Disputable Items of English Usage in Secretarial Handbooks.

184. Lorence, Robert A. Jr. — 9 credits — 1961 — 64

Occupational Relations Course Content in Minnesota Cooperative Office Education Programs.

185. Nelson, Doris — 9 credits — 1961 — 54

A Survey of Student's Opinions Regarding Typewriting Courses in College.

186. Seibel, Robert A. — 9 credits — 1961 — 74

A Survey of Foundations and Organizations Providing Materials for use in Business and Economic Education.

187. Wheeler, Lloyd R. — 9 credits — 1961 — Filmstrips

Three Filmstrips: Suggested Methods of Solving Three Human Relations Problems of Cooperative Part-Time Trainees.

188. Flis, James R. — 9 credits — 1962 — 127

Suggested Procedures for Initiating Secondary School Cooperative Part-Time Programs -- A Manual for Installing Cooperative Part-Time Programs in Minnesota.

189. Gardner, Lois Kathryn Fritz — 1962 — 65

Job Comparison Study on Former Office Skills and Stenographic Skills Students of Roosevelt High School.

190. Larson, Harvey Albert — Ph.D. Thesis — 1962 — 188

An Evaluation of Laboratory Teaching Methods for a Beginning College Course in Principles of Accounting.

191. Little, Wayne G. — 9 credits — 1962 — 218

Checker-Cashiers Training Course Content (Evaluation of the Manual for Distributive Education Instructors)

192. Mendel, Louis George — 1962 — 124

A Survey of Current Literature on Business Law

				No. of Pages
193.	Ousidigian, Theodore O.		1962	82
	A Comparison of Students' Knowledges of Fundamental Economic Concepts Before and After a Course in Basic Business.			
194.	Peterson, Joanne	9 credits	1962	105
	Teaching - Learning Guides for Adding and Calculating Machines.			
195.	Sheely, Harlan	9 credits	1962	85
	Philosophy and Methods of Evaluation in Business Education			
196.	Beattie, A. Donald	Ph.D. Thesis	1962	
	Relationships Between High School Pupils Information and Attitudes Toward Personal Finance.			
197.	Carlson, Jean	9 credits	1963	93
	The Status of Business Education in the Public Secondary Schools of Minnesota.			
198.	Crewdson, Norma	9 credits	1963	43
	A Comparison of the Effect of Accuracy in Transcription from Outlines or Context.			
199.	Duxstad, Robert S.	9 credits	1963	
	Use of Trade Magazines in Teaching Post High School Distributive Education Students.			
200.	Hansen, Marilyn	9 credits	1963	47
	Gains in Economic Understandings and Typewriting Speed as a Result of Using Typewriting Copy Containing Economic Content.			
201.	Hendrickson, Rosanne C.	9 credits	1963	37
	The Differential Aptitude Tests for Verbal Reasoning Numerical Ability, Abstract Reasoning, Space Relations, Mechanical Reasoning, and Clerical Speed and Accuracy as Predictors of Success in Shorthand.			
202.	Hinsverk, John K.	9 credits	1963	104
	Role Playing as a Method of Teaching Employer-Employee and Co-Worker Relations to Distributive Education Students.			
203.	Kohns, Donald P.	9 credits	1963	150
	The Improvement of Coit's Lettering Instruction Through the Use of Teaching Machines.			

				No. of Pages
204.	Miller, James	9 credits	1963	101
	Economic Understandings of Ninth Grade Students.			
205.	Mrachek, Ronald C.	9 credits	1963	42
	Status and Achievement in One-Year Shorthand Classes in the State of Wisconsin.			
206.	Schneider, Donald	9 credits	1963	75
	A Description, Evaluation, and Use of Free and Inexpensive Materials for Economic Education.			
207.	Smith, Robert A.	9 credits	1963	121
	Units of Study in an Integrated Shorthand and Office Practice Course.			
208.	Melby, Naomi E.		1963	74
	Shorthand Employment Testing in Selected Twin Cities Firms.			
209.	Temple, Pat	9 credits	1963	115
	The Use of Repetition in Building Typewriting Speed and Accuracy.			
210.	Wilson, Esther E.	9 credits	1963	183
	Improving the Instruction of Cooperative Part-Time Distributive Education Students at South Sioux City, Nebraska.			
211.	Gerald J. Springer	9 credits	1963	87
	Typewriting Tests for Purposes of Employment in the Twin Cities Area.			
212.	Alyce M. Gross	9 credits	1963	91
	An Evaluation of the Occupational Training Program in Nine Minneapolis Comprehensive High Schools.			
213.	Wanda Alexander Blockhus	Ph.D.	1963	146
	Creativity and Money Management Understandings.			
214.	Norman Sverre Loveid	9 credits	1963	62
	A Study of the Vocational Departments and Graduates of Cromwell High School.			
215.	Harry William Baggett, Jr.	Ph.D.	1964	91
	The Validity of a Measure of the Difficulty of Gregg Shorthand Dictation Materials.			

				No. of Pages
216.	Clifford A. Gilbertson	9 credits	1964	65

A Comparison of the Results of Three-and-Five-Minute Timed Drills in Typewriting.

217.	Helen Marie Allenson	9 credits	1964	107

A Unit Including a Selected, Annotated Bibliography of Occupational Information Relating to Business.

218.	Fred. R. Hagen	9 credits	1964	59

Survey of Business Education Day Offerings in Minnesota Area Vocational-Technical Schools and Junior Colleges.

219.	James Albert Shults	9 credits	1964	124

Analysis of the Accounting and Office Procedures University of Minnesota Hospitals Bookkeeping Department.

220.	Bernice, Folz	9 credits	1964	42

Self-Instructional Material Versus Traditional Class Instruction in Business Mathematics.

221.	Harold Wallace	Ph.D.	1964	

Creative Thinking: A Factor in the Performance of Industrial Salesmen.

222.	Harland Samson	Ph.D.	1964	

Critical Requirements for Distributive Education Teacher Coordinators.

223.	Bicanich, William F.		1964	82

Distributive Education Students' Reactions to the Cooperative Part-Time Distributive Education Programs in Minnesota.

224.	Crawford, Lucy C.		1964	94

Review of Research and Literature of the Competency Approach to Curriculum Construction or Revision for Distributive Teacher Education.

225.	Walter R. Kranz		1964	89

The Effect of 9th-Grade Typing on Student Achievement in Typing During Grade 10.

226.	Darel John Leipold		1964	104

The Training Needs of Advertising Personnel in Wausau, Wisconsin, and Instructional Activities for Teaching Advertising.

				No. of Pages
226.	Cannon, Harold L.	Ph.D.	1965	128
	Personality Characteristics and Other Factors as Predictors of Achievement in College Elementary Accounting			
227.	Synnes, Earl	M.A.	1965	117
	Instructional Time Devoted to Various Topics in the Office Practice Course in Selected Minnesota High Schools			
228.	Peters, Robert	Ph.D.	1965	130
	Some Factors Related to Achievement of Personal-Business Knowledges and Understandings of High School Students			
229.	Gudahl, Gladys	M.A.	1965	
	A Correspondence Study Guide in Typewriting			
230.	Kost, Irwin	M.A.	1965	89
	Consumer and Economic Education for all High School Students			
231.	Carr, Ted D.	M.A.	1965	166
	The Development of a Bookkeeping Machine's Operation Manual			
232.	Henkel, Othmar B.	M.A.	1965	102
	A Subjective Evaluation of the Two-Year Post-High School Marketing Curriculum in Wisconsin			
233.	Brunner, William D.	M.A.	1965	67
	An Occupational Survey of Wood County, Wisconsin.			
234.	Goodenough, Leroy J.	M.A.	1965	97
	The Development and Experimental Trial of Auto-Instructional Material in Teaching Business Mathematics			
235.	Klaurens, Mary K.	M.A.	1965	88
	An Evaluation of Experimental Materials in Economics for Minnesota Part-Time Occupational Training Programs and Recommendations for Revisions			
236.	Embertson, Hubert M.	M.A.	1965	87
	A Linear Auto-Instructional Program in Money Handling and the Use of the Cash Register for the Distributive Education Student			

237. Vomhof, James P. M.A. 1965 72

Readings in Business Ethics

238. Uthe, Elaine F. Ph.D. 1966 234

An Evaluation of the Difficulty Level of Shorthand Dictation Material

239. Vivian, Neal Ph.D. 1966 123

Economic Understandings of Distributive Education Students

240. Hopkins, Charles M.A. 1966 58

A Feasibility Study of a Cooperative Office Education Work Experience at Mounds View High School

241. Olson, Norma J. M.A. 1966 46

A Followup Study of the Women Graduates of 1955 through 1965 in Business Education of the University of Minnesota

242. Thatcher, Richard M.A. 1966 84

Economic Understandings of Twelfth Grade Students

243. Rapp, Marvin M.A. 1966 120

An Office Style Practice Set Incorporating the Transaction of One Wholesaler and Three Retailers with Multiple Journals.

244. Nelson, Keith M.A. 1966 82

Students Attitudes on Selected Personal Finance Topics

245. Cottrell, Richard G. M.A. 1966 126

Factors Influencing Student Participation in Minnesota Distributive Education Clubs

246. Meisner, Wayne A. M.A. 1966 64

The Effect of Distributive Education Teachers Preparation in Economics on the Learning of Economic Understanding

247. Mills, Kenneth M.A. 1966 208

A Feasibility Study of Post-Secondary Horticultural Education at Kenosha Technical Institute

248. Callister, Gary R. M.A. 1966 87

Measuring Student Achievement in a Unit on Sales Promotion

249. Ashmun, Richard D. Ph.D. 1966 189

The Effectiveness of a Non-Computer Business Game in Teaching Post-High School Business Problems Classes

250. Peterson, Charles A. Ph.D. 1966 136

The Prediction of Students' Success in College Accounting

251. Poor, Frederick A. Ph.D. 1962 144

The Similarities and Differences in the Successful and Unsuccessful Second-Semester Accounting Students at Norhtern Illinois University.

252. Anderson, Roland M.A. 1966 45

The Use of Transparencies in Presenting Economic Concepts in the Upper Elementary Level.

253. Kroll, Patrick M.A. 1966 45

A Comparison of Basic Business Course Objectives.

254. Kopp, William M.A. 1966

An Evaluation of High School Bookkeeping by the Business Community.

255. Nordling, Marjorie M.A. 1966 134

The Job Set System in the Teaching of First-year Typewriting, A Plan for Individual Differences.

256. Anderson, Darlene M.A. 1966 65

The Effect of Setting Typewriter Speed Goals on Speed Achievement as Measured by Straight Copy Timed Writings.

257. Cleveland, Glenn M.A. 1966

Problem Solving Applied to Basic Business.

257a. Olson, Ronald M.A. 1966 98

Information for Teaching Safety to Coop Student-Trainees in Hopkins, Minnesota.

258. Hahn, David G. M.A. 1967 24

Value of Business Skills for the College Student.

259. Jenson, Eugene H. M.A. 1967 101

A Description and Evaluation of Free and Inexpensive Materials for Use in Business Edcuation Classes.

260. Hansen, Ethel D. Ph.D. 1967 220

A Comparison of the Teaching Behaviors of Creative and Less Creative Basic Business Teachers.

261. Sloan, Rita A. Ph.D. 1967 190

An Application of the Micromolar Behavior Theory to the Instruction of Beginning Shorthand.

262.	Cram, Yetta K.	M.A.	1967	44

Studying Economics Through the Use of the Newspaper.

263.	Gimmestad, Richard A.	M.A.	1967	55

A Follow-up Study of the Business Education Graduates of Stillwater, Minnesota, Senior High School, From the Years 1965 and 1966.

264.	Delorey, Ruth W.	M.A.	1967	43

Trends in Office Occupations With Implications for Business Education.

265.	Reha, Rose K.	M.A.	1967	74

Business Teacher Education Programs in Canada.

266.	Shanus, Rosemary T.	M.A.	1967	131

A Flexible Guide for the Development of an Introductory Clerical, Arithmetic, and Business Machines Unit.

267.	Zigneigo, Anthony P.	M.A.	1967	35

An Office Procedures Project -- The Model Office.

268.	Olson, Harry Jr.	Ph.D.	1967	234

Relationships between Certain Personality Characteristics of Distributive Education Teacher-Coordinators and Job Satisfaction.

269.	Christianson, Don J.	M.A.	1967	74

A Survey of the Occupational Educational Backgrounds of Marketing Executives.

270.	Johnstone, Ronald A.	M.A.	1967	74

How Modular, Flexible Scheduling Affects Distributive Education in the Public Secondary School.

271.	Peterburs, Loren	M.A.	1967	69

Worker Characteristics of Retail Salespersons.

272.	Sheffer, Mary Lou	M.A.	1967	72

Internal School Public Relations for the Part-time Occupational Training Program.

273.	Skare, Orlan G.	M.A.	1967	117

Case Problems in Agricultural Supplies and Machinery Retailing.

274.	Timpany, Gordon A.	M.A.	1967	80

Survey of Distributive Occupations in Manitowoc, Wisconsin.

VT 004 409

Research and Development of Materials for Secretarial Training Courses in the Specialized Fields of Legal, Medical, Technical.

San Mateo Coll., Calif. Business Div.
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Aug67 72p.

*CURRICULUM GUIDES; *BUSINESS EDUCATION; *SECRETARIES; POST SECONDARY EDUCATION; MATERIAL DEVELOPMENT; SURVEYS; EDUCATIONAL NEEDS; EMPLOYER ATTITUDES; QUESTIONNAIRES

Based on information from questionnaires returned by 217 members of the San Mateo County Medical Society, 166 members of the San Mateo County Bar Association and 43 members of the Western Electronic Manufacturers Assocation, and on guidelines provided by advisory committees, course curriculum guides and units of study were developed by college instructors for the legal, medical, and technical secretarial programs at the college level. Prerequisties, aims, objective, scope, methods of instruction, text, facilities, evaluation, and catalog descriptions are included in the curriculum guide for each of the courses: (1) Legal Shorthand Dictation and Transcription, (2) Legal Secretarial Procedures and Office Administration, (3) Medical Dictation and Transcription, (4) Medical Office Procedures, (5) Technical Dictation and Transcription, (6) Technical Typewriting, and (7) Technical Secretarial Procedures and Office Administration. Units within each course contain class hours, objectives, content, and suggested teaching materials and evaluation techniques. A proposed modular time schedule which requires 10 hours a week for all three areas, 4 for dictation and transcription and 6 for office procedures, is presented. (PS)

VT 004 409

ED027441

RESEARCH AND DEVELOPMENT OF MATERIALS FOR SECRETARIAL TRAINING COURSES IN THE SPECIALIZED FIELDS OF LEGAL, MEDICAL, TECHNICAL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CALIFORNIA STATE DEPARTMENT OF EDUCATION
VOCATIONAL EDUCATION PROJECT
UNDER THE
VOCATIONAL ACT OF 1963
P. L. 88-210

PROJECT NO. 6-0846 (July 1, 1965)

Sponsored by: Business Division
College of San Mateo
1700 West Hillsdale Boulevard
San Mateo, California 94403

Submitted: August 1967

4409

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SUMMARY REPORT OF PROJECT

NO. 6-0846

TITLE: Medical, Legal, Technical Secretary

DURATION: July 1, 1965 - June 30, 1966

PURPOSE: The purpose of this project was to research specialized secretarial employment areas (legal, medical, technical); to interpret the research findings as a basis of curriculum development; to plan curricula and instructional materials for training programs in the legal, medical, and technical secretarial fields.

PROCEDURE: Our secretarial training courses at the College of San Mateo have been confined to basic skill courses in shorthand, typing, and office procedures. Requests were frequently heard for courses in legal, medical, or technical secretarial training. In 1962 we developed a combined course in which students (by means of an audio-lab) could have dictation in any one of these three areas. This provided for only one type of training: dictation and transcription. Lecture and discussion were not possible in this type of classroom organization.

Though our students asked for additional training, it was necessary for us to determine whether or not the community (lawyers, doctors, and technical firms) would be interested in our offering these types of programs. We developed a questionnaire asking three questions basically:

1. Do you think we should offer this specialized training?
2. What do you think should be included?
3. Would you serve in an advisory capacity if such a program were approved?

This questionnaire, adjusted to fit the particular speciality, was mailed to all members of the San Mateo County Medical Society, San Mateo County Bar Association, and members of Western Electronic Manufacturers Association with an office staff of twelve or more persons.

We felt the following response indicated an affirmative signal:

	Legal	Medical	Technical
Responses received	166	217	43
In favor of training	144	195	34
Not in favor of training	12	9	3
Undecided about training	10	13	6

(Note: The time element required to develop questionnaires, tabulate responses, plan follow-ups, inform respondents of results, and implement the materials indicated, was such that we finished and summarized the program after the completion date stated in the project.)

Advisory committees were selected and, during the summer of 1966, met to provide guidelines for the development of the curriculum. Basically, the groups felt that our overall business curriculum was excellent and that if we followed our usual pattern of vocational counseling for secretarial students and added courses in specialized office procedures and dictation/transcription, the need would be met most adequately. With this directive from the advisory committees, we proposed the following courses:

Area	Course	No.	Units
Legal	Office Procedures	100L	3
	Dictation/Transcription	90L	2
Medical	Office Procedures	100M	3
	Dictation/Transcription	90M	2
Technical	Office Procedures	100T	3
	Dictation/Transcription	90T	2
	Typing	92T	3
All three	Internship	108S	3

Curriculum Guides were developed for each course and these were then expanded to Units of Study (detailed teaching guides). Syllabi to correlate with published text material and local requirements have been worked out.

A modular time schedule and team teaching approach have been planned so that these specialized courses can be presented in blocked periods of time with maximum utilization of the staff: professional, supporting, and

resource personnel. Such a schedule provides for flexibility in terms of grouping, programs, facilities, and equipment so that the specified objectives of the courses can be realized even though there is a minimal student enrollment.

PERSONNEL: Three instructors were selected to study one area each prior to submitting questionnaires to the community. Each instructor investigated existing surveys, educational manuals, and research findings relating to the field; gathered information about existing programs in other junior colleges and private institutions.

After the results of the questionnaire indicated a need for specialized courses, and after advisory committees had proposed guidelines, each instructor examined current practices and specific duties by interviews and consultation with administrative and secretarial personnel and by observations of on-the-job activities to note firsthand quantity and quality of work performed, specific duties, standards demanded, equipment used, and resources called upon. From these investigations and observations, and governed by the Curriculum Guides and Units of Study (previously mentioned), each instructor prepared syllabi to correlate text and materials.

Instructors who participated in this project were selected on the basis of interest in a particular field and general overall demonstrated competence in the secretarial teaching area. Since the areas being investigated and observed were so diverse, it was necessary to have one instructor for each area, with one person to coordinate all findings:

Legal.	Miss Winifred Stetson
Medical.	Mrs. Marcia Davidson
Technical.	Miss MaryEllen Mulhall
Coordinator.	Miss Winifred Stetson
Supervision.	Mr. Louis Yaeger, Chairman Business Division

ATTACHMENTS: To supplement this summary report, the following are appended as a part of the report:

(1) Covering letters

a. accompanying original questionnaire

b. accompanying report of questionnaire results

(2) Questionnaires for Legal, Medical, Technical

(3) Questionnaire Results for Legal, Medical, Technical

(4) Curriculum Guides

a. Legal: 90L, 100L

b. Medical: 90M, 100M

c. Technical: 90T, 92T, 100T

d. Internship: 108S

(5) Units of Study

a. Legal: 90L, 100L

b. Medical: 90M, 100M

c. Technical: 90T, 92T, 100T

(6) Modular Time Schedule Proposal

(7) Listing of Advisory Committees for 1966-67

Note: Copies of interim reports, curricular developments, correspondence originals of questionnaire returns and summaries; and complete project No. 6-0846, dated June 1965, are on file in the Business Division.

COLLEGE OF SAN MATEO

1700 W. HILLSDALE BLVD.
SAN MATEO, CALIFORNIA

JULIO L. BORTOLAZZO
PRESIDENT AND SUPERINTENDENT
SAN MATEO JUNIOR COLLEGE DISTRICT

WILLIAM A. GOSS
VICE PRESIDENT
ASSISTANT SUPERINTENDENT

January 7, 1966

For many years the College of San Mateo has offered through the Business Division a well-rounded curriculum in the secretarial field. Increasingly we have had requests for training in specialized segments of this field--specifically in the legal, technical, and medical areas.

As a community college we feel that our prime purpose for existence is to serve the needs of our community. If requests from students reflect the demands of the community, then we wish to develop curriculum and training along these lines.

With this thought in mind, we have prepared a brief questionnaire to serve as a basis for curriculum research. Although we realize there are numerous demands on your time, may we ask you to take a few minutes to answer these questions--a task which may have great significance in the improvement of our course offerings.

Sincerely yours,

Winifred Stetson

Chairman, Special Curriculum Project
Business Division
COLLEGE OF SAN MATEO

WS:bjb

Enclosures

COLLEGE OF SAN MATEO

1700 W. HILLSDALE BLVD.
SAN MATEO, CALIFORNIA

JULIO L. BORTOLAZZO
PRESIDENT AND SUPERINTENDENT
SAN MATEO JUNIOR COLLEGE DISTRICT

WILLIAM A. GOSS
VICE PRESIDENT
ASSISTANT SUPERINTENDENT

February 18, 1966

Thank you for your promptness in replying to our recent questionnaire and for the enthusiasm and constructive comments evidenced in your response. Such cooperation is most gratifying and leads us to believe that our college can serve the needs of the community by seeking assistance from those who are such an integral part of the community.

Shortly, our committee will contact those who have indicated a willingness to help in an advisory capacity. The committee will also arrange with those who have agreed to allow office visitation for this activity.

Again our sincere thanks for your time and cooperation in responding so promptly and so helpfully.

Sincerely yours,

Winifred Stetson

Chairman, Special Curriculum Project
Business Division
COLLEGE OF SAN MATEO

Committee:

Mr. Louis Yaeger, Division Chairman	(Ex. 313)
Mrs. Marcia Davidson--Medical	(Ex. 369)
Miss MaryEllen Mulhall--Technical	(Ex. 370)
Miss Winifred Stetson--Legal	(Ex. 377)

Enclosure: Questionnaire Results

CURRICULUM PROJECT RESEARCH COLLEGE OF SAN MATEO

1. In your opinion, do you feel there is a need for specialized training on the college level for secretarial candidates in the legal field? Yes___ No___

2. If your answer is Yes, please indicate by a check mark in the space provided your opinion as to the relative importance of the following secretarial training.

Training	Importance			Comments
	Slight	Moderate	Very	
Practice in legal dictation				
Development of legal vocabulary				
Methods of address and title				
Grammar, spelling, English usage				
Office hostess duties				
General office duties				
How to cite cases and statutes				
How to prepare litigation papers				

3. Which, if any, of the following fields should be stressed in training a legal secretary? Should she just know about them or should she have fairly intensive training in them?

Field	Knowledge only	Intensive	Comments
Real Estate			
Corporations and taxation			
Wills and Estates			
Civil litigation, negligence cases			
Criminal law			
Patent law			
Labor law			
Bankruptcy			
Admiralty			

4. What other duties and/or "fringe" activities and qualities do you feel should be in a training program? Please comment wherever you feel comment would clarify.

5. Would you be interested in serving in an advisory capacity if a legal secretarial program develops? Yes___ No___

6. Would you be willing to allow a member of our staff to visit your office to discuss the details of our research? Yes___ No___

7. Are you interested in the findings developed as a result of this questionnaire? Yes___ No___

Please add here any comments that might aid us in our endeavors. Thank you.

Signed:_____

Address:_____

Date:_____

COLLEGE OF SAN MATEO

SPECIAL CURRICULUM RESEARCH PROJECT

1. In your opinion, do you feel there is a need for specialized training on the college level for MEDICAL secretaries? Yes___

2. If your answer is Yes, please indicate your opinion as to relative importance of the following training. (Sl.--slight; Mod.--moderate; Con.--considerable)

Training	Importance: Sl.	Mod.	Con.	Comments
Practice in medical dictation				
Development of medical vocabulary/terminology				
Use of medical reference materials				
Professional behavior				
General Office Duties				
Special training in "patient" attitude				
Billing and Insurance training				
Which, if any of the following fields should be stressed in training? Should she "just know" about them or have intensive training?				
General practice				
Internal Medicine				
Cardiology				
Dermatology				
Gynecology/Obstetrics				
Neurology				
Otology/Rhinology/Larynyology				
Pediatrics				
Psychiatry				
Radiology				
Urology				
Medical Research				

3. What other duties and activities do you feel should be included in a training program? Please comment wherever you feel clarification would help.

4. Would you be interested in serving in an advisory capacity if a medical secretarial program develops? Yes____ No

5. Would you be willing to allow a member of our staff to visit your office to discuss the details of our research? Yes____ No

6. Are you interested in the findings developed as a result of this questionnaire? Yes____ No

Please add here any comments that might aid us in our endeavors. Thank you.

Signed: _____

Address: _____

Date: _____

COLLEGE OF SAN MATEO

SPECIAL CURRICULUM RESEARCH PROJECT

1. In your opinion, do you feel there is a need for specialized training for TECHNICAL secretaries? Yes____ No____

2. If your answer is Yes, please complete the following, checking the opinion column as to the importance of the secretarial training. Sl--slight; mod--moderate; con--considerable.

Training	Importance Sl.	Mod	Con.	Comments
Practice in technical dictation				
Development of technical vocabulary				
Use of technical reference materials				
Professional behavior				
General office duties				
Security procedures				
Special technical typing techniques				
Which of the following branches of technical industries should be stressed?				
Electronics/electrical engineering				
Computer electronics				
Microwave/radar electronics				
Mathematics/physics				
Chemistry/chemical engineering				
Aeronautics, missiles, aerospace				
Mechanical/civil engineering				
Nuclear physics and chemistry				

3. What other duties and/or activities and qualities do you feel should be included in a training program. Please comment wherever you feel clarification would help.

4. Would you be interested in serving in an advisory capacity if a technical secretarial program develops? Yes____ No____

5. Would you be willing to allow a member of our staff to visit your office to discuss the details of our research? Yes____ No____

6. Are you interested in the findings developed as a result of this questionnaire? Yes____ No____

Please add here any comments that might aid us in our endeavors. Thank you.

Firm Name_____

Firm Address_____

Signed_____

Title_____

COLLEGE OF SAN MATEO
1700 West Hillsdale Boulevard
San Mateo, California

Questionnaire Results--(Legal Secretary)

The following data are the results of the survey, initiated by the College, to determine whether or not there is a need for specialized training for LEGAL secretaries in this community.

The data are not particularlized but listed as numerical responses since it is felt that such information has value as informal figures rather than as statistical percentages.

- - - - - - - - - - -

365 questionnaires were mailed to members of the San Mateo County Bar Association during the month of December.

166 answers were received by February 1, at which time a tally of the questionnaires was made. Though we would have liked to have included later answers in this poll, it was not feasible to delay this compilation beyond the start of the Spring 1966 semester.

- - - - - - - - - - -

Answers to the four basic questions were as follows:

In your opinion, do you feel there is a need for specialized training on the college level for LEGAL secretaries?

144 indicated there is a need for specific training.

10 indicated a dichotomous answer--possibly "yes" or possibly "no"--not sure at this time.

12 indicated such training was not necessary.

82 members of the legal profession agreed to serve in an advisory capacity if a legal secretarial program develops. The majority who were unable to serve indicated that time and legal demands prevented their participating in this activity.

143 were willing to allow a member of the staff to visit their offices to discuss details of this research.

122 responded that they would like to have a copy of the results of the questionnaire.

- - - - - - - - - - -

In order to delineate the areas in which the college might be able to offer training, each respondent answering affirmatively that such specialized training should be offered was asked to indicate the relative importance of eight fundamental areas by checking whether he felt such training was of slight, moderate, or considerable importance.

The responses are as follows:

Area of Training	Slight	Moderate	Considerable
Practice in legal dictation	15	50	83
Development of legal vocabulary	5	41	102
Methods of address and title	29	64	55
Grammar, spelling, English usage	2	13	139
Office hostess duties	71	54	25
General office duties	23	103	41
How to cite cases and statutes	41	56	55
How to prepare litigation papers	13	36	99

Nine areas of legal practice were listed, and each respondent was asked to check in which of these fields he felt training should be stressed; and whether a student should have intensive training in, or "just know" about, them. The majority of the respondents indicated that a legal secretary should just know about these areas and that any intensive training should come "on the job" when the secretary is regularly employed, since a lawyer would prefer his secretary to be more knowledgable in his field than in another with which her work might be only slightly concerned.

Respondents indicated the following:

Field of Specialization	Know Only	Intensive Training
Real Estate	101	29
Corporations and taxation	95	35
Wills and Estates	67	67
Civil litigation, negligence cases	81	62
Criminal law	104	8
Patent law	95	1
Labor law	97	5
Bankruptcy	99	15
Admiralty	92	1

Note: Since our questionnaire had been prepared by non-legal professionals, several important areas were overlooked. Apologies are in order, but the added remarks on these specialities were appreciated and will be included in any curriculum planning.

A most valuable source to educators was the comment column in which suggestions were so generously given. Many barristers stressed the following segments of training--specifically noting that they should be seriously considered in the program:

Spelling, grammar, English background
Telephone techniques and manners
Accounting, filing, appointment systems
Dictaphone and other transcribing machines
Public relations and human relations

- - - - - - - - - - - -

Space precludes our adding the many helpful, constructive suggestions, though each will be considered as a program is developed. However, one important fundamental theme ran through the majority of reports:

> A secretary per se is not the person a lawyer is looking for; but a young lady, skilled in general secretarial areas, endowed with a professional attitude, resourceful, cheerful, patient, exceptionally loyal, honest, and flexible (preferably with some on-the-job training or actual experience)--a top-notch "Girl Friday"--was the person for which the Legal profession has a genuine, continuing need.

February 18, 1966

COLLEGE OF SAN MATEO
1700 W. Hillsdale Boulevard
San Mateo, California

Questionnaire Results--(Medical Secretary)

The following data are the results of the survey, initiated by the College, to determine whether or not there is a need for specialized training for MEDICAL secretaries in this community.

The data are not particularlized but listed as numerical responses since it is felt that such information has value as informal figures rather than as statistical percentages.

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558 questionnaires were mailed to members of the San Mateo County Medical Association during the month of December.

217 answers were received by February 1, at which time a tally of them was made. Though we would have liked to have included later answers in the poll, it was not feasible to delay this compilation beyond the start of the Spring 1966 semester.

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Answers to the four basic questions were as follows:

In your opinion, do you feel there is a need for specialized training on the college level for MEDICAL secretaries?

195 indicated there is a need for specific training at the college level.

13 indicated a dichotomous answer--not sure at this time.

9 indicated such training was not necessary.

69 doctors agreed to serve in an advisory capacity if a medical secretarial program developed. The majority who were unable to serve indicated that time and emergency demands prevented their participating at this time.

172 were willing to allow a member of the staff to visit their offices to discuss details of this research.

143 responded that they would like to have a copy of the results of the quesionnaire.

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In order to delineate the areas in which the college might be able to offer training, each respondent answering in the affirmative that such specialized training should be offered was asked to indicate the relative importance of seven basic areas by checking whether he felt such training was of slight, moderate, or considerable importance.

The responses are as follows:

Area of Training	Slight	Moderate	Considerable
Practice in medical dictation	24	62	116
Development of medical vocabulary/ terminology	2	44	152
Use of medical reference materials	78	72	46
Professional behavior	16	49	142
General office duties	23	63	119
Special training in "patient" attitude	23	60	118
Billing and insurance training	13	37	153

- - - - - - - - - - - -

Twelve areas of medical practice were listed, and each respondent was asked to check in which of these fields he felt training should be stressed--and whether such stress should be slight, moderate, or considerable--and whether a student should be given intensive training in, or "just know" about, them. The majority of the respondents indicated that a medical secretary should "just know" about these areas and that any intensive training should come on the job when the secretary is employed by a doctor, since a specialist would want his secretary to be more knowledgable in his field than in another field with which her work might be only slightly concerned.

Respondents who did check the degree of training indicated the following:

Area of Specialization	Slight	Moderate	Considerable
General practice	13	27	67
Internal Medicine	16	32	49
Cardiology	37	30	4
Dermatology	46	21	4
Gynecology/Obstetrics	25	42	17
Otology/Rhinology/Larynyology	34	33	5
Neurology	42	26	7
Pediatrics	25	40	21
Psychiatry	42	24	11
Radiology	37	23	18
Urology	41	22	6
Medical Research	51	20	3

Note: Since our questionnaire had been prepared by non-medical professionals, several important areas were overlooked. Apologies are in order, but the added remarks on these specialities were appreciated and will be included in any curriculum planning in this program:

Ophthamology
Orthopedics
Pathology
Surgery

A most valuable source to educators was the comment column in which suggestions were so generously given. Many doctors stressed the following segments of training--specifically noting that they should be seriously considered in the program:

Medico-Legal activities, Socialized Medicine data
Filing, Collection procedures, Welfare reports
Machine transcription (stressed over and over)
Billing duties, Business machines operations
Spelling, grammar, English usage
Awareness of emergency calls and symptoms
Legibility of handwriting
Telephone techniques and manners
Appointments, scheduling hospital reservations
Basic first aid, simple laboratory duties

Space precluded our adding the many helpful, constructive suggestions, though each will be considered as a program is developed. However, one important fundamental theme ran through the majority of reports:

> A secretary per se is not the person a doctor is looking for; but an assistant, trained to help with minor medical duties, skilled in the general secretarial areas, endowed with a professional attitude, resourceful, cheerful, patient, loyal, and honest--a top-notch "Girl Friday"--was the person for which the Medical profession had a genuine, continuing need.

February 18, 1966

COLLEGE OF SAN MATEO
1700 West Hillsdale Boulevard
San Mateo, California

Questionnaire Results--(Technical Secretary)

The following data are the results of the survey, initiated by the College, to determine whether or not there is a need for specialized training for TECHNICAL secretaries in this community.

The data are not particularlized but listed as numerical responses since it is felt that such information has value as informal figures rather than as statistical percentages.

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97 questionnaires were mailed to selected members of the Western Electronic Manufacturers' Association (WEMA) during December. (Selected meant that these firms were located in the immediate area of College of San Mateo.)

43 answers were received by February 1, at which time a tally of the answers was made. Though we would have liked to have included later answers in this poll, it was not feasible to delay this compilation beyond the start of the Spring 1966 semester.

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Answers to the four basic questions were as follows:

In your opinion, do you feel there is a need for specialized training on the college level for TECHNICAL secretaries?

34 indicated there is a need for specialized training.

2 indicated they have their own special training programs.

3 indicated indecision--a "yes" and "no."

3 indicated such training was not necessary.

5 indicated a willingness to serve in an advisory capacity if a technical secretarial program developed.

1 mentioned several top-flight secretaries who would serve in an advisory-type panel.

1 indicated a willingness to serve if time permitted.

35 firms were willing to allow a member of College of San Mateo's staff to visit their offices to discuss details of the research.

32 responded that they would like to have a copy of the results of the questionnaire.

- - - - - - - - - - -

In order to delineate the areas in which the college might be able to offer training, each respondent answering affirmatively that such specialized training should be offered was asked to indicate the relative importance of seven fundamental areas by checking whether he felt such training was of slight, moderate, or considerable importance. Each respondent had a different set of circumstances governing his answer--circumstances relating to firm size, product, training, etc., so it is difficult to evaluate these answers in specific terms other than to list the figures.

Area of training	Slight	Moderate	Considerable
Practice in technical dictation	2	16	15
Development of technical vocabulary	1	16	17
Use of technical reference materials	13	4	7
Professional behavior	5	10	18
General office duties	5	15	12
Security procedures	12	11	11
Special technical typing procedures	6	8	20

All firms responding are members of WEMA. Even though this was our source for a technical mailing list, we asked whether other technical fields should be included in training and what degree of emphasis should be placed on these areas. Responses are as follows:

Area of Technical Industry	Slight	Moderate	Considerable
Electronics/electrial engineering	0	8	25
Computer electronics	10	6	9
Microwave/radar electronics	7	8	10
Mathematics/physics	4	12	11
Chemistry/chemical engineering	12	6	5
Aeronautics, missiles, aerospace	4	11	11
Mechanical/civil engineering	7	14	4
Nuclear physics and chemistry	12	9	3

A most valuable source to educators was the comment column in which suggestions were so generously given. Many firms stressed generalized segments of training which will be given serious consideration in the program.

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Space precludes our adding the many helpful, constructive suggestions, though each will be considered carefully as the cirriculum develops. However, one important fundamental theme ran through the majority of reports:

> A technical secretary is a special person endowed with professional attitude, flexibility; a person of initiative and exceptional loyalty, resourcefulness, and honesty; a person with a degree of on-the-job training, and a person adaptable to specialized duties once she is employed in a particular industry.

February 18, 1966

CURRICULUM GUIDE . . . . . .BUSINESS 90L

A. TITLE: Legal Shorthand and Transcription
2 units (4 hours)

Prerequisites: Completion of Bus. 92B, 90C, completion of or enrollment in English A. Concurrent enrollment in Bus. 100L.

B. AIMS:

1. To develop skill in reading and writing shorthand outlines for legal terminology.

2. To develop speed in new matter legal dictation.

3. To develop transcription proficiency in legal documents and routine law correspondence.

C. IMMEDIATE OBJECTIVE:

To provide intensive dictation and transcription training to develop competency in legal secretarial correspondence and reports.

D. SCOPE OF THE COURSE:

1. Development of shorthand outlines for legal terminology.

2. Intensive speed development.

3. Introduction to court reporting.

4. Transcription of legal reports and correspondence.

E. METHODS OF INSTRUCTION:

1. Lecture and dictation.

2. Demonstration, recitation, laboratory practice.

3. Audio visual: tapes and records.

F. TEXT: Instructor-prepared syllabus correlated with Leslie & Coffin HANDBOOK FOR THE LEGAL SECRETARY, Gregg Division of McGraw-Hill, New York, 1958.

Blanchard & Zoubek MOST-USED CONGRESSIONAL RECORD TERMS, second edition, Gregg Division of McGraw-Hill, New York, 1952.

G. FACILITIES: (25 to 30 students)

Chairs, tables, electric typewriters, audio-laboratory, file, bookcase, chalkboard, bulletin board, stop watch, timer.

II. EVALUATION:

Tests: Terminology, theory, analysis of concepts
Production: transcripts of dictated material
transcripts of recorded material
Laboratory listening time (in library, or lab, if avialable.)
Preparation of Terminology Guide
Final Examination

CATALOG DESCRIPTION

90L LEGAL SHORTHAND AND TRANSCRIPTION (2)

Four hours per week

Prerequisite: Completion of Bus. 92B, 90C, completion of or enrollment in English A. Concurrent enrollment in Bus. 100L.

Intensive dictation and transcription of legal correspondence, records, and documents. Emphasis on shorthand speed, transcription accuracy, and development of legal terminology commonly used in law offices.

CURRICULUM GUIDE . . . . . BUSINESS 100L

A. TITLE: Legal Secretarial Procedures and Office Administration
3 units (5 hours)

Prerequisites: Proficiency in related secretarial skills as follows:

English: Completion of or enrollment in English A
Typing: Completion of Bus. 92B or its equivalent
Shorthand: Completion of Bus. 90C and Bus 100A or equivalent.
Completion of or enrollment in Bus. 90L.

B. AIMS:

1. To emphasize an awareness of the attributes, ideals, principles, and knowledge desirable for legal secretaries.

2. To coordinate fundamental secretarial skills into specialized competencies for legal secretarial field.

3. To develop correct techniques and skill in preparing legal forms and documents.

4. To develop skill in current secretarial procedures and routines in law offices in California.

C. IMMEDIATE OBJECTIVE:

To prepare students for entry positions in the legal secretarial field, with major emphasis on California law offices, by developing skills requisite for such employment as well as developing an understanding of what a law office is and how it functions.

D. SCOPE OF THE COURSE:

1. Review of American legal system.

2. Introduction to law office routines.

3. Explanation of, and practice in, general secretarial procedures in a law office.

4. Content and preparation of legal documents.

5. Practice in legal transcription.

E. METHODS OF INSTRUCTION:

1. Lecture - demonstration - laboratory practice.

2. Audio-visual: records, tapes, film strips, slides.

3. Library: exploration of references and publications.

4. Guest speakers.

5. Field trips to court and legal firms.

F. TEXT: Instructor-prepared syllabus to coordinate with. . . . . .

Miller, THE COMPLETE SECRETARY'S HANDBOOK, Prentice-Hall, New York, 1963.
and
MANUAL FOR THE LEGAL SECRETARIAL PROFESSION (plus STUDY GUIDE WORKBOOK) edited Krogfoss and Polley, West Publishing, Minnesota, 1965.

G. FACILITIES: (25 to 30 students)

Chairs, tables, electric typewriters, transcribing machines, audio laboratory, bookcase, file, duplicating equipment, telephone instruction set, stop watch, timer, chalkboard, bulletin board.

H. EVALUATION:

Tests: Terminology, spelling, punctuation, grammar, filing, duplicating, analysis of concepts.
Production: Court and non-court legal documents; legal correspondence.
Completion of Student Guide Study Workbook.
Preparation of Form File.
Final Examination.

CATALOG DESCRIPTION:

100L LEGAL SECRETARIAL PROCEDURES AND OFFICE ADMINISTRATION (3)

Five hours per week

Prerequisites: Proficiency in related secretarial skills as follows:

English: Completion of or enrollment in English A.
Typing: Completion of Bus. 92B or its equivalent.
Shorthand: Completion of Bus. 90C and Bus. 100A or equivalent.
Completion of or enrollment in 90L.

An intensive course in specialized procedures applicable to secretarial duties in law offices. General reference is made to legal duties per se; specific instruction in legal secretarial routines and documents operative in California.

CURRICULUM GUIDE . . . . . .BUSINESS 90M

A. TITLE: Medical Dictation and Transcription
2 units (4 hours)

Prerequisites: Bus. 57, completion of Bus 92B with a "B" or Bus. 92C with a "C," completion of or enrollment in English A.

B. AIMS:

1. To review pronunciation, definition, and spelling of medical terminology.

2. To develop the ability to write with ease outlines applicable to the medical field.

3. To familiarize the student with various medical records, forms, and references.

4. To develop proficiency in medical dictation and transcription.

5. To develop further an awareness of employment requirements and opportunities.

C. IMMEDIATE OBJECTIVE:

To provide an opportunity to attain vocational competency in medical transcription.

D. SCOPE OF THE COURSE:

1. Terminology review

2. Dictation and transcription

3. References and forms

4. Employment requirements and opportunities

E. METHOD OF INSTRUCTION:

Demonstration, dictation, tapes, films, speakers, field trips.

Texts: Root and Byers, The Medical Secretary, third edition, Gregg Division of McGraw-Hill Publishing Company.
Tapes correlated with text.
Blakistan's Illustrated Pocket Medical Dictionary, latest edition, Blakistan Division, McGraw-Hill Book Company, New York.

F. FACILITIES:

Chairs, tables, electric typewriters, listening laboratory, chalkboard, bulletin board, stop watch, timer, file, bookcase.

G. EVALUATION:

Theory, vocabulary, spelling tests, transcription production, notebook, homework, final examination.

CATALOG DESCRIPTION

90M MEDICAL DICTATION AND TRANSCRIPTION (2)

Four hours per week

Prerequisites: Bus. 57, completion of Bus. 92B with a "B" or 92C with a "C," completion of or enrollment in English A.

Dictation and transcription of medical case histories,

correspondence, and reports.

CURRICULUM GUIDE . . . . . .BUSINESS 100M

A. TITLE: Medical Office Procedures
3 units (6 hours)

Prerequisites: Bus. 57, 59, 100a, and enrollment in or completion of English A.

B. AIMS:

1. To provide an opportunity for practical application of basic skills and knowledge to specific medical office procedures.

2. To further develop knowledge, skills and attitudes necessary for successful employment.

3. To develop the ability to formulate and administer a plan of organization in the care of the medical office.

4. To further develop understanding of medico-legal principles and medical ethics.

C. IMMEDIATE OBJECTIVE:

To provide practical training in preparing the student for employment in the medical field.

D. SCOPE OF THE COURSE:

1. Office Organization and Maintenance

2. Medical Secretarial Procedures

3. Machine Transcription

4. Insurance and Recordkeeping

5. Medical Law and Ethics

6. Professional and Personal Growth

E. METHODS OF INSTRUCTION:

1. Lecture, demonstration, laboratory.

2. Films, slides, transparencies, tapes

3. Library references

4. Speakers

5. Field trips

F. TEXT: Bredow, Miriam, Medical Secretarial Procedures, latest edition, McGraw-Hill Book Company, New York

Workbook correlated with the text.

Instructor-prepared syllabus.

G. FACILITIES:

Chairs, tables, electric typewriters, transcribing machines, bookcase, file, chalkboard, bulletin board, timer, stop watch, telephone instruction equipment

H. EVALUATION:

1. Major tests on the six units with frequent quizzes on subtopics.

2. Production
   a. Correspondence
   b. Reports and records

3. Notebook covering the six major areas.

4. Final Examination

CATALOG DESCRIPTION

100M MEDICAL OFFICE PROCEDURES (3)

Six hours per week

Prerequisites: Bus. 57, 59, 100a, and enrollment in or completion of English A.

Application of secretarial knowledge, skills, and procedures to the medical office.

CURRICULUM GUIDE . . . . . BUSINESS 90T

A. TITLE: Technical Dictation and Transcription
2 units (4 hours)

Prerequisites: English: Completion of or enrollment in English A
Typing: Completion of or current enrollment in Bus. 92T, 100T
Shorthand: Completion of 90C with a grade of "C" or better.

B. AIMS:

1. To develop skill in taking techno-scientific dictation
2. To develop speed in writing shorthand outlines for technical terms.
3. To familiarize the student with transcription of technical reports, letters, and other correspondence.

C. IMMEDIATE OBJECTIVE:

To prepare the student for techno-scientific dictation and transcription competencies in this specialized secretarial field.

D. SCOPE OF THE COURSE:

1. Development of shorthand outlines for technical abbreviations, numbers, symbols.
2. Speed development in dictation and transcription.
3. Skill development in proofreading.
4. Familiarity with transcription set-ups of technical reports, articles, press releases, letters, and other technical correspondence.

E. METHODS OF INSTRUCTION:

1. Lecture, dictation.
2. Demonstration, recitation, laboratory practice.
3. Audio-visual: tapes and records; video-sound demonstrations of dictation in techno-scientific environment.

F. TEXT: Instructor-prepared syllabus correlated with selections from current techno-scientific publications and periodicals.

Adams, THE TECHNICAL SECRETARY: TERMINOLOGY AND TRANSCRIPTION, Gregg Division of McGraw-Hill, New York, 1967.

REFERENCE

Stafford & Culpepper, THE SCIENCE-ENGINEERING SECRETARY; Prentice-Hall, New Jersey, 1963.

G. FACILITIES: (25 to 30 students)

Chairs, tables, electirc typewriters, audio-laboratory, file, bookcase, chalkboard, bulletin board, stop watch, timer.

H. EVALUATION:

Tests: Terminology, theory, general functions of the techno-scientific disciplines

Production: mailable transcripts of dictated and recorded material.

Laboratory listening time (library, or lab, if available)

Preparation of Terminology Guide

Final Examination

CATALOG DESCRIPTION

90T TECHNICAL DICTATION AND TRANSCRIPTION (2)

Four hours per week

Prerequisites: Completion of or enrollment in English A, Completion of or current enrollment in Bus. 92T, 100T, completion of Bus. 90C with a grade of "C" or better.

Techno-scientific dictation and transcription related to the following areas: Study of shorthand outlines for common technical terms. Speed development and skill application in shorthand and transcription.

CURRICULUM GUIDE . . . . . .BUSINESS 92T

A. TITLE: Technical Typewriting
3 units (6 hours)

Prerequisites: Completion of Bus. 92B with a grade of "B" or better; or completion of Bus. 92C with grade of "C" or better.

B. AIMS:

1. To develop proficiency in typing technical reports, projects, equations, and tabulated material.

2. To develop an understanding of the supplies and equipment used in the preparation of techno-scientific reports in manuscript and tabular form.

3. To develop attitudes, understandings, and skills for employment in the technical and scientific clerical area.

C. IMMEDIATE OBJECTIVE:

To provide comprehensive and intensive training in typing techno-scientific reports and in the preparing of layouts, tabulated data, equations, and other projects correlated with industry specifications.

D. SCOPE OF THE COURSE:

1. Thorough review of general typewriting practices to provide base for developing specialized technical typing procedures.

2. Presentation of special equipment used in technical typing field with emphasis on mathematical, chemical, and engineering keyboards.

3. Comprehensive training and practice in the principles of technical typewriting, including instruction in the use of essential tools and materials peculiar to specified scientific areas.

4. Variety of production problems to develop skill in correction and reduction techniques, mathematical equations, and scientific data field.

E. METHODS OF INSTRUCTION:

1. Lecture, demonstration, recitation.

2. Laboratory practice.

3. Tapes, slides, film strips, overhead projections.

4. Field trips, speakers.

F. TEXT: Culpepper, Billie J. and Alison R. Stafford, THE SCIENCE-ENGINEERING SECRETARY: A GUIDE TO PROCEDURES, USAGE, AND STYLE, Prentice-Hall, 1963.

Instructor-developed syllabus correlated with industry-prepared guidebooks, scientific journals, and research annuals.

Dunford, Nelson J., A HANDBOOK FOR TECHNICAL TYPISTS, Gordon & Breach Publishers, New York, 1964.

G. FACILITIES: (25 to 30 students)

Chairs, tables, electric typewriters (some with special keyboards), file, bookcase, chalkboard, bulletin board, typits, changeable type bars and type heads, timer, t-square, triangles, artype, protractors, work table.

H. EVALUATION:

Tests: Typing speed tests; general quizzes to measure an understanding of supplies, equipment, and procedures.

Project: Development of Presentation Portfolio fo student work.

Final Examination.

CATALOG DESCRIPTION

92T TECHNICAL TYPEWRITING (3)

Six hours per week

Prerequisites: Completion of Bus. 92B with a grade of "B" or better, or completion of Bus. 92C with grade of "C" or better.

Comprehensive and intensive training and practice in typing techno-scientific reports and in preparing layouts, tabulated data, equations, and other correlated reports.

CURRICULUM GUIDE . . . . . BUSINESS 100T

A. TITLE: Technical Secretarial Office Procedures
3 units (5 hours)

Prerequisites: Completion of or enrollment in English A.
completion of or enrollment in Bus. 92T,
completion of Bus. 100A

B. AIMS:

1. To develop an understanding of secretarial duties performed in the techno-scientific office.

2. To develop skill in the organization, production, and assembly of technical communications.

3. To develop an understanding of the qualities of loyalty, integrity, and dependability expected of the technical secretary.

C. IMMEDIATE OBJECTIVE:

To prepare students for entry positions in the technical secretarial field.

D. SCOPE OF THE COURSE:

1. The techno-scientific office, services, procedures, and equipment.

2. Ways of organizing and executing oral and written communications.

3. Duplicating and record keeping on specialized office forms.

4. Handling technical reports.

5. Records management systems--centralized and unit; data processing practices.

6. Machine transcription.

7. Human relations applied to the technical team member.

E. METHODS OF INSTRUCTION:

1. Lecture, demonstration, laboratory practice.

2. Audio-visual: slides, overhead projector, field trips, speakers, tapes.

3. Library: introduction to specialized references, publications.

F. TEXT: Instructor-prepared syllabus to coordinate with . . . . .

Stafford & Culpepper, THE SCIENCE-ENGINEERING SECRETARY; Prentice-hall, New Jersey, 1963.

G. FACILITIES: (25 to 30 students)

Chairs, tables, electric typewriters, transcribing machines, audio equipment, bookcase, file, duplicating equipment, access to Bruning copier and offset press, teletrainer, timer, stop watch, chalkboard, bulletin board, typits, changeable type bars and heads, t-squares, drawing table, artype. Work tables

H. EVALUATION:

Tests: Punctuation, grammar, spelling, reference checking, preparation of work for production; report of technical office visit to examine procedures.

Production: Technical reports, documents, correspondence. Spiral-bound work samples.

CATALOG DESCRIPTION

100T TECHNICAL SECRETARIAL PROCEDURES AND OFFICE ADMINISTRATION (3)

Five hours per week

Prerequisites: Completion of or enrollment in English A, completion of or enrollment in Bus. 92T, completion of Bus. 100A.

Specialized techno-scientific office routines; production and assembly of technical communications; security and records management.

CURRICULUM GUIDE . . . . . .BUSINESS 108S

A. TITLE: Office Internship for Specialized Secretaries
3 units (2-hour weekly seminar; 8-hour weekly office practicum)

Prerequisites: Completion of 100L-M-or T

B. AIMS:

1. Actual on-the-job experience and training for students to become legal, medical, or technical secretaries.

2. Intensive speed dictation practice with minimal transcription.

3. Seminar setting for discussion of activities related to employment areas in the field of legal, medical, or technical secretarial work.

C. IMMEDIATE OBJECTIVE:

To provide on-the-job training for students who have completed the required preparatory courses in the legal, medical, or technical curriculum.

D. SCOPE OF THE COURSE:

Each student registered in this course would be placed as a paid trainee in an office with the stated aim being to provide her with experience in the field for which she has been trained in the classroom. Once a week, the students would meet in a two-hour seminar, the first 30 minutes of which would be devoted to intensive dictation and the balance of the time to a discussion and evaluation of the activities, ideas, and problems related to each student's employment assignment.

E. METHODS OF INSTRUCTION:

1. Lecture - discussion.

2. Dictation.

3. Guest speakers - Field trips.

4. On-the-job training.

5. Audio-visual: Tapes, film strips, slides, movies.

F. TEXT: Material distributed in form of pass-out sheets. No text.

G. FACILITIES: (25 to 30 students)

Chairs, tables, stop watch, timer, chalkboard, bulletin board, audio-visual facilities.

H. EVALUATION:

Case studies and analysis of same.

Evaluatory reports by employer.

Written self-growth and evaluation (by student).

Development of practical Reference Notebook.

CATALOG DESCRIPTION:

108S OFFICE INTERNSHIP FOR SPECIALIZED SECRETARIES (3)
3 units (2-hour seminar; 8-hour office practicum)

Prerequisites: Completion of Bus. 100L, M, or T.

On-the-job training for students who have completed the required preparatory courses in the Specialized Secretarial Curriculum--includes a two-hour weekly seminar and 8 hours per week employment in an office (legal, medical, or technical).

UNITS OF STUDY
BUS. 90L: LEGAL SHORTHAND DICTATION AND TRANSCRIPTION

Units: 2 (4 hours)

Objective: To provide intensive dictation and transcription training to develop competency in legal secretarial correspondence and reports.

I. Terminology

(Legal dictation contains Latin and French words and phrases. A legal secretary should be familiar with these terms to understand the material dictated.)

A. Latin words and phrases.
B. French words and phrases.
C. Law definitions in general use.

1. Development of a reference dictionary of the above terms.
2. Explanation of their use in a legal office.
3. Development of shorthand outlines for each term.
4. Practical exercises in applying specialized terminology to provide student with an understanding of their use and emphasis.

II. Dictation

(An analysis of the duties of legal secretaries indicated that a legal secretary customarily is required to take dictation through shorthand notes, voice recording machines, and directly to the typewriter. This course will utilize the three methods, but primary emphasis will be on dictation via shorthand notes.)

A. Supplies, equipment, and organization of materials.

1. Types of notebooks, organization, method of dating, filing.
2. Preparation for dictation.
3. Principles of dictation verbatim.

B. Speed development in legal material.

III. Transcription

(Explanation of the principles of effective transcription. This is a concurrent unit with the Dictation Unit, though transcription is not necessarily sequential to dictation.)

A. Basic principles.

1. Form and placement.
2. Carbon copies and carbon packs.
3. Types and qualities of papers and forms.
4. Lawyer's instructions and principles of "take-in."
5. Erasures, corrections, proofreading.

B. Reference aids.

1. Unabridged dictionary.
2. Lawyer's manual.

3. Standard book of legal terms.
4. Student's reference manual on terminology.
5. Indispensable references
   a. Hyler's ten-volume set.
   b. Owen's two-volume set.
   c. National Association of Legal Secretaries Handbook.
   d. Reference for California forms.

IV. Correlation of Dictation and Transcription

A. Shorthand Notes.

1. Domestic Relations matter (divorce)
   a. Instructions for preparing legal papers relative to divorce proceeding.
   b. Preparation of preliminary papers, court papers, final judgment, and final decree.
   c. Typical correspondence relative to a divorce case.

2. Probate matter
   a. Instructions for preparing legal papers relative to probate case.
   b. Preparation of a will, petition for probate of will and letters testamentary.
   c. Typical correspondence relative to a probate case.

3. Testimony of person under oath (attorney questions, witness response, opposing counsel interpolations).

4. Speed development
   a. Practice in writing legal terms speedily and accurately.
   b. Intensive practice in verbatim dictation at varying speeds and for differing periods of time.

B. Voice recording machine (IBM Executary).

1. Conference of law partners in relation to corporation proposal.

2. Speech prepared in connection with oil lease venture.

3. Interview as recorded by law office partners and initial meeting with client seeking aid in personal injury case.

4. Telephone conversation as recorded between lawyer and client in regard to either a patent case or an automobile accident case.

C. Directly to the typewriter.

1. Short memorandum.

2. Fill-in on lease form.

TEACHING MATERIALS

V. Textbook

A. Teacher-prepared syllabus for shorthand homework assignments.

B. Leslie and Coffin, HANDBOOK FOR THE LEGAL SECRETARY, Gregg Publishing Division, McGraw-Hill Book Company, New York, 1958. (paperback edition)

VI. References

A. Blanchard and Zoubek, MOST-USED CONGRESSIONAL RECORD TERMS, 2nd edition, Gregg Division, McGraw-Hill Book Company, New York, 1952.

B. Miller, Bessie May, THE LEGAL SECRETARY'S HANDBOOK, Prentice-Hall, New Jersey, 1963.

C. Audio-visual materials as they are developed.

1. Charts of shorthand outlines for legal terms for use with overhead projector.
2. Examples of legal forms used in this course--for projection on view-graph.
3. Speed development tapes utilizing legal terminology.
4. Actual legal materials as dictated by members of the Legal Secretarial Advisory Committee.
5. Dictation Disc Set No. 50 (80 to 120 wpm) -- 4 records.

D. Bulletin Boards

1. Accuracy in a law office.
2. Grooming as applied to legal secretaries.
3. Dictation equipment used in typical law offices.
4. Typical forms, stationery, reference materials used in legal secretarial field.

VII. Evaluation

A. Weekly tests encompassing

1. Terminology.
2. Vocabulary.
3. Spelling.
4. Shorthand theory. (10 tests)

B. Quarterly tests to determine understanding of concepts presented. (4 tests)

C. Production Reports

1. Transcripts of dictated material. (5)
2. Transcripts of recorded material. (5)
   a. Class material from tapes. (4)
   b. Dictation Disc #50 Transcribed. (1)

D. Preparation of Terminology Guide and Glossary. (Out-of-class assignment)

E. Final Examination consisting of

1.	Dictation for verbatim transcription of a legal document and related correspondence.....	50
2.	Speed dictation of ungraded material to determine dictation rate.....	25
3.	Objective questions to determine conceptual understanding of course presentations.....	25
		100

Note:

It is envisioned that the dictation and transcription will be correlated with the other objectives of terminology, vocabulary, spelling, to provide over-all training in a logical pattern. The scope of the course demands a student with fully developed secretarial skill and precludes and room for remedial training in these skills. The nature of the course is intensive, any class activities and out-of-class assignments are designed to develop the feeling of intensified, concentrated work.

UNITS OF STUDY

BUS. 100L: LEGAL SECRETARIAL PROCEDURES AND OFFICE ADMINISTRATION

Units: 3 (6 hours)

Objective: To prepare students for entry positions in the legal secretarial field, with major emphasis on California law offices, by developing skills requisite for such employment as well as developing an understanding of what a law office is and how it functions.

I. Review of American Legal System

(Legal secretaries do not practice law, but they are required to be familiar with the legal systems under which their employers practice.)

A. Requirements for admission to the Bar
B. Law degrees
C. Specialization in the law field
D. Canons of Professional Ethics of the American Bar Association
E. Distinctive attributes of law as a profession
F. Professional services performed by the attorney
G. Law defined

1. Classification of law
2. History of American legal system
3. Sources of law

a. Constitution
b. Statutes
c. Common law

4. Court systems

a. United States
b. State (California)
c. County (San Mateo)

H. Code of Ethics of National Association of Legal Secretaries

I. The Legal Secretary Profession

1. Education
2. Experience
3. Personal Attributes

a. Attorney-secretary relationship
b. Client-secretary relationship
c. Relations with legal secretaries in other offices
d. Relationships with Professional Associations

II. Introduction of Law Office Routines

(In many law offices, service responsibilities are assigned to the secretary. It is essential that a prospective secretary understand her role in relation to these facets of a law office.)

A. Organization and personnel of a typical law office

1. layout
2. furniture, decoration, equipment
3. stationery supplies

B. Employment conditions
C. Employment opportunities

III. General Secretarial Procedures

(A secretarial position in a law office requires adjustment to routine and repetition, but absolute accuracy.)

A. Dictation
B. Typewriting
C. Mail handling
D. Written communications
E. Filing
F. Accounting
G. Office Machines
H. Miscellaneous duties

1. Payroll records
2. Insurance records
3. Investment records
4. Bank records

I. Reminder/tickler systems
J. Law library and how to use it

1. Statutes and codes
2. Reports of decided cases
3. Books that classify the law
4. American Digest
5. Shepard's Digest (Citations)
6. Corpus Juris Secundum System
7. Form books and reference facilities

K. Register of Actions
L. Costs of Court and fees of Attorneys
M. Court jurisdiction
N. Spelling, titles, Latin terminology

IV. Legal Documents

(The documents a secretary will have to type will depend upon the law office's particular specialization. However, the National Association of Legal Secretaries suggests the following documents should be covered in a course for prospective legal secretaries.)

A. Domestic Relation Matters

1. Summons
2. Complaint
3. Certificate of Assignment and Transfer
4. Verification forms
5. Instructions for summons
6. Order to show cause
7. Property settlement agreement
8. Default setting and request for entry of default
9. Military affidavit
10. Interlocutory judgment of divorce
11. Application for final judgment of divorce
12. Final decree of divorce

B. Personal Injury

1. Summons and complaint
2. Demurrer to complaint
3. Notice of overruling of demurrer
4. Answer to complaint
5. Memorandum to set for trial
6. Discussion regarding pre-trial set up
7. Pre-trial statement and order reference procedure
8. Notice of trial
9. Subpoenas
10. Findings of fact and conclusion of law
11. Judgment
12. Memorandum of costs and disbursements

C. Municipal Court

1. Summons
2. Complaint
3. Cross complaint
4. Answer to complaint
5. Demurrer to answer

D. Probate Court Proceedings

1. Will
2. Petition for probate of will and letters testamentary

3. Notice of hearing of petition

    a. publication
    b. mailing of notice of hearing

4. Certificate of assignment and transfer
5. Order admitting will to probate
6. Letters testamentary
7. Discussion of bond for executor
8. Publication of notice to creditors
9. Creditors claim
10. Inventory and appraisement
11. Inheritance tax
12. Closing estate

E. Business

1. Partnership agreement
2. Certificate of business under fictitious name
3. Bill of sale
4. Dissolution of partnership

F. Corporation

1. Reservation of name
2. Articles of incorporation
3. Waiver and first minutes of corporation
4. By-laws
5. Permit to issue stock
6. How to fill in stock certificates

G. Adoptions

1. Independent adoption

    a. Petition for adoption
    b. Decree of adoption

H. Real Property

1. Lease
2. Termination of tenancy notice
3. Deeds

    a. Quitclaim deed
    b. Creating life estate
    c. Executor's deed
    d. Grant deed
    e. Joint tenancy grant deed
    f. Trust deed
    g. Notes with and without interest

V. Legal Transcription

(A series of letters typical of activities in a law office, correlated with the legal documents to be presented in this course will be dictated by means of voice recording machines. In addition, work will be given (2 letters each) to illustrate typical correspondence in the following areas.)

A. Criminal law
B. Patent law
C. Labor law
D. Bankruptcy
E. Admiralty

TEACHING MATERIALS

VI. Textbooks

A. Miller THE COMPLETE LEGAL SECRETARY'S HANDBOOK, Prentice-Hall, New York, 1963.

B. NALS MANUAL FOR THE LEGAL SECRETARIAL PROFESSION, edited by Krogfoss and Polley, West Publishing, Minnesota, 1965.

C. STUDY GUIDE WORKBOOK FOR MANUAL FOR THE LEGAL SECRETARIAL PROFESSION, edited by Krogfoss and Polley, West Publishing, Minnesota, 1965.

D. Instructor-prepared Syllabus

VII. Other Aids

A. Bulletin Board Displays

1. General office layout
2. Code of Ethics and Canons of Professional Ethics of ABA
3. References
4. Forms and instruction charts (as applicable)

B. Overhead Projector

1. Transparencies for each of the documents typed
2. Transparencies for each of the forms to be filled in, with overlays to show steps in filling them in

C. Tapes and Belts

1. Dictation materials as listed in this guide to be prepared by instructor and members of The Advisory Committee

D. Speakers

1. Panel of legal secretaries to discuss the advantages/disadvantages of the legal secretarial profession; the general duties; the expectations; the qualifications
2. Members of the Advisory Committee to speak (either in person or via video tape) on:

   a. Legal organization within San Mateo County; relation of law firms to municipal and superior courts
   b. Probate field
   c. Personal injury field
   d. Employment trends and opportunities in the field (for secretaries)

E. Miscellaneous

1. Actual display of reference books
2. Slides to elucidate grooming, behavior, and specific techniques
3. Slides or video tape of activities in local law offices

VIII. Evaluations

A. Weekly (12)

Brief quizzes on
1. Terminology
2. Spelling
3. Punctuation
4. Grammar
5. Filing
6. Duplicating

B. Bi-Weekly (6)

Submission of production work and collation into Form File and Production Notebook

C. Bi-Semester (2)

Completion of Study Guide Workbook of NALS

D. Final Examination consisting of

1. 100 Multiple Choice Questions	100
2. 10 Analysis of concepts presented during the semester	50
3. Production work from transcribing machine	
a. Legal document	50
b. Typical letter to accompany document	25
	225

Note:

Emphasis is placed on covering the basic fundamentals and in developing concepts that a prospective legal secretary should understand; it is not assumed that completion of this course can, in any sense, replace actual work experience in a legal office.

UNITS OF STUDY
BUS. 90M: MEDICAL DICTATION AND TRANSCRIPTION

Units: 2 (4 hours)

Objective: To provide an opportunity to attain vocational competency in medical transcription.

I. Terminology Review

The student will have taken a course in medical terminology and will constantly review these terms as she learns to write their shorthand counterparts. The medical secretary must understand the terminology if she is to transcribe medical records accurately.

A. Medical Specialties
B. Roots, prefixes, and suffixes
C. Shorthand outlines
D. Spelling, pronunciation, and definition
E. Abbreviations commonly used

II. Dictation and Transcription

The medical secretary who utilizes her shorthand skill in the medical office becomes an invaluable asset. The ability to write quickly the shorthand outlines for medical terms will increase her efficiency.

A. Dictation

1. Correspondence
2. Reports
   a. Histories
   b. Surgical
   c. Discharge
   d. Consultation
3. Records
   a. Admission
   b. Laboratory

B. Transcription
1. Basic principles
   a. Arrangement of materials
   b. Proofreading
   c. Corrections
2. Format

III. References and Forms

The medical secretary will encounter many forms; she must be acquainted with these forms and where to get information not dictated. She will also need to use references efficiently.

A. References

1. Physician's Desk Reference
2. Terminology
   a. Harned's Medical Terminology Made Easy
   b. American Medical Association, Current Medical Terminology
3. Instrument catalogs

B. Forms

1. Hospital
   a. Admission
   b. Obstetrical records
   c. Newborn records
   d. Discharge

2. Office
   a. Case histories
   b. Physicals
   c. Progress
   d. Consultation

3. Laboratory
   a. Pathology
   b. X-ray

IV. Employment Requirements and Opportunities

Explanation of general requirements, with emphasis on the local scene.

A. Hospital
B. Physician's Office
C. Clinic
D. Public Health Department
E. Insurance Companies

TEACHING MATERIALS

V. Textbook

A. Instructor-prepared syllabus
B. Root and Byers, The Medical Secretary, Terminology and Transcription, Second Edition, Gregg Publishing Division, McGraw-Hill Book Company, New York: 1960.
C. Blakistan, Illustrated Pocket Medical Dictionary, latest edition, Blakistan Division, McGraw-Hill Book Company, New York.

VI. References

A. Miller, Besse May, Medical Secretary's & Assitant's Handbook, Prentice-Hall, New Jersey: 1960.

B. Harned, Medical Terminology Made Easy, Physicians' Record Company, Illinois: 1964.

C. Young, Clara Gene, Instructor's Manual for Medical Terminology, Arizona: 1964.

D. Smith, Genevieve and Dean Phyllis E. Davis, Medical Terminology: A Programmed Text, John Wiley & Sons, New York: 1963.

VII. Audio-Visual

A. Transparencies
   1. Forms
   2. Reports

B. Tapes
   1. Correlated with text
   2. Dictated by local physicians

VIII. Evaluation

A. Quizzes
   1. Shorthand theory
   2. Terminology
      a. Spelling
      b. Definition

B. Production
   1. Dictated by instructor
   2. Dictated on tape

C. Notebook
   1. Terminology
   2. Examples
      a. Correspondence
      b. Reports and records

UNITS OF STUDY
BUS. 100M: MEDICAL OFFICE PROCEDURES

Units: 3 (6 hours)

Objective: To provide practical training in preparing the student for employment in the medical field.

I. Office Organization and Maintenance

(The health services field offers a variety of opportunities. An awareness of these opportunities and their requirements is necessary for a satisfying and successful career choice.)

A. Organization, Personnel, Opportunities

1. Individual Physician's Office
2. Clinics
3. Partnership
4. Public Health Department
5. Hospital
6. Foundations and Institutions
7. Insurance Companies
8. Pharmaceutical Firms
9. Publishers

B. Administrative Planning

1. Office Simplification and Layout
2. Procedure Manual
3. Coordinating office staff
4. Efficiency--relieve employer of detail

C. Housekeeping and Maintenance

1. Reception and treatment rooms
2. Desks (employer and employee)
3. Equipment
4. Efficiency--relieve employer of detail
5. Supplies
6. Furniture

II. Medical Secretarial Procedures

(The medical secretary will apply basic fundamentals to her own unique office. She must be familiar with the systems, equipment, supplies, and procedures designed for the medical profession.)

A. Oral Communication

1. Appointments
2. Reception techniques
3. Telephone

B. Written Communications

1. Original written communications
2. Typing reports and forms

C. Filing

D. Travel

E. Meetings and Conferences

F. References and Sources of Information

1. Handbooks
2. Periodicals
3. Specialized dictionaries
4. Directories

III. Medical Transcription

(Transcription in the medical office is usually from machine rather than from shorthand notes. The medical secretary will apply her knowledge of medical terminology and basic transcription skill to develop efficiency in transcribing the following typical items.)

A. Correspondence

1. Doctor-patient
2. Doctor-doctor
3. Doctor-insurance company

B. Reports and records

1. Case histories
2. Physicals
3. Progress Notes
4. Surgery
5. Laboratory
6. Discharge Summaries

IV. Insurance and Recordkeeping

(Insurance programs and record keeping procedures are changing. The medical secretary must keep abreast of these changes, be flexible, and have an accepting attitude in adopting new procedures. The ultimate standardization of much of the paper work involved in insurance handling and recordkeeping should be viewed as a timesaver rather than a "time taker.")

A. Types of Insurance Programs

1. Health and Accident Insurance
   a. Blue Cross

b. CPS
c. Private
d. Industrial, Union
e. Workmen's Compensation

2. Government Programs

a. Medicare
b. CMAP
c. Veteran's Programs

B. Handling Claims

1. Forms
2. Assignment of payment

C. Recordkeeping

1. Basic accounting principles reviewed
2. Banking
3. Taxes
4. Credit and Collection
   a. Information
   b. Billing procedures
   c. Collection procedures
5. Medical records
6. Non-medical Records
   a. Employer's insurance register
   b. Payables and receivables
   c. Payroll register
   d. Narcotic records
   e. Inventories

V. Medical Law and Ethics

A. Medical Practice Acts
   1. Licensing
   2. Revocation

B. Legal Relationship of Physician and Patient
   1. Contractual
   2. Secretary as agent

C. Professional Liability
   1. Malpractice
   2. Breach of contract
   3. Professional Liability insurance

D. Physician's Public Duties and Liabilities

1. Reports and Services
   a. Vital statistics and records
   b. Communicable diseases
   c. Venereal diseases
   d. Commitment of mental patients

e. Reports to police
f. Narcotic legislature

2. Physician as a witness
3. Criminal liabilities

E. Medical Ethics

1. Principles
2. Hippocratic Oath
3. Medical Secretary's Obligation

VI. Professional and Personal Growth

(The successful medical secretary will continue to learn about her chosen field through association with other professional people; reading current publications; and continuous self-appraisal.)

A. Membership in professional groups

1. AAMA
2. NSA
3. Other

B. Public Relations

C. Professional and Personal Conduct

1. Physical qualifications
2. Attitude toward employer, patient and other employees
3. Confidences and limitations

TEACHING MATERIALS

VII. References

A. Bredow, Miriam, Handbook for the Medical Secretary, latest edition, McGraw-Hill Book Company, Inc., New York: 1959.

B. Blakestan's Illustrated Pocket Medical Dictionary, latest edition, Blakestan Division, McGraw-Hill Book Company, New York.

C. Miller, Besse May, Medical Secretary's & Assistant's Handbook, Prentice-Hall, Inc., New Jersey: 1960.

D. Instructor-prepared Syllabus

VIII. Other Aids

A. Bulletin Boards

B. Speakers

1. Medical secretaries representing various segments
   a. Public health department
   b. Hospital (medical records)
   c. Clinic

d. One-girl office
2. Physician to discuss medical ethics
3. Physician and/or attorney to discuss legal implications
4. Insurance specialist

C. Slides (to present organization, layout, equipment, grooming)
1. Clinic atmosphere
2. Hospital Medical Records Department
3. Private offices

D. Transparencies of medical forms

E. Machine transcription belts

F. Display of reference books, periodicals, catalogs.

IX. Evaluation

A. Major tests on the six units with frequent quizzes

B. Production
1. Correspondence
2. Reports and records

C. Notebook covering the six major areas

D. Final Examination

UNITS OF STUDY
BUS. 90T: TECHNICAL DICTATION AND TRASNCRIPTION

Units: 2 (4 hours)

Objective: To prepare the student for techno-scientific dictation and transcription competencies in this specialized secretarial field.

I. The Technical Age

The tec-secretary should be familiar with research milestones which form the framework of this scientific age.

A. Function of Federal Commissions

1. Atomic Energy Commission

a. Dictation
b. Transcription
c. Proofreading
d. Mode of finished presentation

2. National Aeronautics & Space Administration

a. Dictation
b. Transcription
c. Proofreading
d. Mode of finished presentation.

B. Specialized Nomenclature

1. Terminology

a. Prefixes, suffixes
b. Shorthand outlines
c. Generic reference: Special dictionairies

2. Greek alphabet
3. Mathematical symbols
4. Notebook project

a. Terms
b. Definitions
c. Shorthand outlines

II. Techno-Scientific Disciplines

The tec-sec should possess interchangeable stenographic skills--easy adaptation to vocabulary differences, acquaintanceship with machine transcribers, and with formats of communications.

A. Electronics & Electrical Engineering

1. Dictation
2. Transcription

3. Proofreading
4. Type of Presentation

    a. Letter
    b. Memorandum
    c. Article
    d. Press Release
    e. Operations Manual
    f. Report

B. Mathematics and Physics
C. Chemistry and Chemical Engineering
D. Aeronautics, Missiles, Aerospace
E. Mechanical & Civil Engineering
F. Nuclear Physics and Chemistry

TEXT Instructor-prepared syllabus correlated with

Stafford, Culpepper THE SCIENCE-ENGINEERING SECRETARY; Prentice-Hall, New Jersey, 1963.

Various scientific magazines, journals.
Selected communications from technical industries.
Technical employee instructional manuals

EVALUATION Tests: Terminology, shorthand theory, punctuation, spelling.
Mailable transcripts of dictated and/or machine-transcribed material.
Terminology notebook.

AUDIO-VISUAL Field trip
Speakers
Use of audio equipment for instructions, other learnings; film, closed circuit, as developed.

UNITS OF STUDY
BUS. 92T: TECHNICAL TYPEWRITING

Units: 3 (6 hours)

Objective: To provide comprehensive and intensive training in typing techno-scientific reports and in the preparing of layouts, tabulated data, equations, and other projects correlated with industry specifications.

I. Typewriter Equipment for Tec/Typist

Each field of science has its special symbols. Tec/typists should be familiar with commonly used symbols.

A. Special Keyboards

1. Mathematical
2. Chemical
3. Engineering

B. Changing Symbols

1. Removable head
2. Changeable bar
3. Universal element
4. Typits
5. Rub-ons
6. Techniplates
7. Half-space ratchet

C. Interchangeable Keys

1. Unit spacing differences
2. Techniques:

a. Asterisk
b. Degree sign
c. Figure 1
d. Parallel lines
e. Plus/minus
f. Times sign
g. Zero

D. Proportional-spaced typewriter

1. Unit values
2. Centering
3. Margin justification

a. Grommet
b. Ruler
c. Backspacing

4. Machine parts, care

E. Selectric (single element) typewriter

1. Elements
2. Universal guide
3. Machine parts, care

II. Correction Techniques

The tec/typist should be proficient in selection and application of special correction techniques; accurate proofreadings; and in an understanding of the special papers used in technical work.

A. Bond Paper

1. Weights
2. Correction
3. Uses

a. Snopake
b. Strip-in
c. Paste-up
d. Overlay

B. Vellum

1. Use
2. 555 Mylar ribbon
3. Yellow/orange reverse carbon
4. Correction

a. Soft & ink eraser
b. Electric eraser
c. Strip-in
d. Cut-out
e. Snopake

C. Spirit Process

1. Specific use
2. Correction

a. X-acto knife (cut-out)
b. Strip-in
c. Pencil

D. Plate Papers

1. Presentation of types

a. Multilith
b. Colitho
c. Other

2. Correction

a. Multi-lith eraser
b. Paste-up
c. Overlay

E. Reproduction Processes

1. Bruning
2. Xerox
3. Offset

a. Multilith
b. A. B. Dick
c. Other

III. Principles and Techniques of Typing Tables

Tabular typewriting is an integral skill for the tec/typist, since such techno-scientific reports convey meaning graphically.

A. Introduction

1. Purpose
2. Types:

a. open format
b. closed
c. formal
d. informal
e. text
f. multi-columned tables:

1. broadside or twist
2. foldout

3. Reduction calculations

B. Illustrations

1. Line:

a. black/white graphs
b. diagrams
c. maps
d. schematics

2. Half-tone:

a. photographs
b. airbrush drawings

IV. Principles and Techniques of Typing Equations

Symbols provide a concise and unique method for presenting certain concepts. Mathematical equations, chemical formulas, spectroscopic terms, and mathematical derivations are typical examples of such usage.

A. Introduction

B. Symbols and Notations

1. Combinations:

a. regular keys
b. special keys
c. symbols requiring extra practice

2. Abbreviations
3. Greek alphabet

a. sub-, superscript

4. Line symmetry
5. Rules, borders, related designs

C. Spacing within Equations
D. Display of equations:

1. Single-line
2. Stacked right-hand member
3. Stacked left-hand "
4. Stacked right-hand & left-hand members
5. Equations with both members more than half a line but less than a full line

E. Mathematical Manuscript

1. Techniques:

a. Equipment and Materials
b. Preparation
c. Signs

1. Integral
2. Summation
3. Exponential

F. Chemistry

1. Notations

a. Sub-, superscript
b. Familiar symbols
c. Extended use--plus/minus

2. Elements
3. Abbreviations
4. Typewriting Techniques

a. Reaction equation
b. Dot, line bonds
c. Ring formula
d. Chain formula

G. Letter symbols

1. Electronics
2. Astronomy

a. Constellations
b. Stars

3. Geology

a. Time divisions
b. Rock, mineral names

4. Medicine

a. Special symbols
b. Apothecary signs

1. fluid measure
2. weights

c. Common terms

V. Technical Layout and Paste-Up

The tec-typist should possess proficiency in calculating space layout; in scaling copy for reduction; in using specified drawing instruments; assembling and pasting up copy as required; and in drawing on multilith plates, stencils, vellums, bond paper, and similar materials.

A. Reduction rules

B. Vellum overlays

1. Typing
2. Tracing

C. Fold-out figures

D. Table insertions

E. Kodalith prints

F. Procedures

1. Aligning
2. Adjusting
3. Embossing
4. Pagination
5. Referring to group leader
6. Symmetry
7. Accent-mark keys
8. Editorial marks
9. Correction choices
10. Tissue overlays

TEXT Intructor-prepared syllabus correlated with:

Schenkman, Roger A REPRODUCTION TYPIST'S HANDBOOK: Repro Handbook, Santa Monica

**Stafford & Culpepper SCIENCE-ENGINEERING SECRETARY; Prentice-Hall, Englewood Cliffs, N. J., 1963.

REFERENCES Hoch & Harris OFFSET DUPLICATOR TECHNIQUES; third edition, 1965.

Kimberly Clark Paper Company Series of Booklets on Printing, Papers:

1. Fundamentals of Printing
2. Type and Its Relation to Paper
3. Paper and the Graphic Arts
4. Heat-set Web Offset
5. Trouble Shooting for Printers
6. The New Art of Color Printing

IBM Corporation Changeable Type Keys for the IBM Executive Typewriter

**National Aeronautics and Space Administration; Taylor, Proctor P., Jr.

NASA SP-7007: Preparing Contractor Reports for NASA: REPRO TYPING and LAYOUT

NASA SP-7008: Preparing Contractor Reports for NASA: TECHNICAL ILLUSTRATING

AUDIO-VISUAL

Pages for bulletin board from Lockheed Missle & Space Corp.
STYLE MANUAL (LMSD-5000 1 December 1958) (out-of-print)
and
HANDBOOK FOR TECHNICAL TYPISTS (LMSD) 1964.

IBM Selectric keyboard chart for Universal element
IBM Changeable Type Keys

GRADE EVALUATION

Timed production typewriting problems.
Compilation of reference materials and production for student notebook.
Quality and quantity of work.
Fulfillment of reading assignments and summaries as requested.

UNITS OF STUDY

BUS. 100T: TECHNICAL SECRETARIAL PROCEDURES & OFFICE ADMINISTRATION

Units: 3 (6 hours)

Objective: To prepare students for entry positions in the technical secretarial field.

The tec-sec must understand interralationships existing between government agencies, educational institutions, public and private foundations, and the technical industries.

She must be cognizant of employer-supervisor-employee relationships: Scientist/secretary; technical writer/secretary; lead typist/typist. She must understand organizational structure and job duty manuals.

Since administrative personnel cannot always be spared for full-time office supervision, the tec-sec must help with office administration and follow through with production of technical communications and reports.

I. THE TECHNICAL ENVIRONMENT

A. Overview of Science and Engineering

1. Fields
2. Research and Development
3. Research Facilities

   a. Universities
   b. Industrial Corporations
   c. Non-profit foundations
   d. Government laboratories

4. Federal Government role

   a. Department of Defense
   b. Atomic Energy Commission
   c. National Aeronautics & Space Administration
   d. National Science Foundation

B. The Technical Secretary

1. Attitude

   a. Impression created
   b. Ethics

2. The New Job
3. Employee relationships

   a. Employer
   b. Fellow Employees

4. Work Skills to Master

C. Security Procedures

1. Cognizant-security office
2. Degrees of classification
3. Responsibilities

D. Technical References

1. Basic books, publications
2. Sources of general information
3. Sources of technical information
4. Using reference sources
5. Technical library

E. Records Management

1. Organization

a. Name
b. Subject
c. Numeric-Geographic
d. Follow-up systems
e. Soundex

2. Maintenance

a. Records retention
b. Equipment, supplies

II. THE TECHNICAL COMMUNICATIONS

A. Oral Communications

1. Travel Arrangements, Services

a. Preliminary planning
b. Accommodations, arrangements
c. Duties, employer's absence

B. Written Communications

1. The Technical-Style Letter

a. Parts
b. Mechanical details
c. Stationery
d. Symbols for numbers

2. Abbreviations, technical

3. Types of Technical Reports

   a. Blank form fill-in
   b. Letter reports
   c. Memorandum reports
   d. Progress reports
   e. Laboratory reports
   f. Formal, semiformal types
   g. Non-classified type

4. Elements in the Technical Report

   a. Covering memorandum
   b. Title page
   c. Table of contents
   d. Headings'

      1) Value
      2) Forms for rankings
      3) General suggestions

   e. Summaries and abstracts
   f. Introduction
   g. Conclusion, recommendations
   h. Appendix

5. Proposals

   a. Major

      1) Introduction
      2) Body content
      3) Organization
      4) Final comment

   b. Minor: Arrangement

6. Special Types of Letters

   a. Letter giving instructions
   b. Inquiries, answers
   c. Form letters

III. Techniques of Layout

A. Printers' marks

1. Interpretation
2. Proofreading symbols

B. Type faces

1. Identification--measurement
2. Leaders

a. Borders
b. Punctuation
c. Spacing
d. Justification

3. Camera Copy

a. Scaling
b. Enlarging
c. Reduction
d. Retrouching
e. Picture choice

4. Materials, Equipment

a. Organization
b. Safety practices

C. Preparation of Offset Masters

1. Steps

a. Direct imaging
b. Cold type
c. Headlines
d. Paste-ups
e. Enlarging, reduction

2. Paper

a. Job relationship
b. Stock

1) Color
2) Finish
3) Substance

3. Review, Reproduction Processes

IV. Planning & Reproducing the Tec Report

A. Selection of style

B. Organization

1. Dummy
2. Placements

a. Tables
b. Illustrations

3. Copy arrangement
4. Cover design

a. Artypes, screens; cover stock

5. Assembly, binding

V. The Technical Team Member

A. Undertstanding the Organization

1. Type of firm
2. Product significance
3. Types of research

B. Origin of Orders

1. Line or staff
2. Functional

C. The Secretary

1. Job duty manual
2. How to organize: Review, technique
3. Technical office forms

a. Requests:

1) Printing
2) Supplies
3) Service
4) Payment
5) Travel expense

b. Vouchers:

1) Petty cash
2) Cash advance

c. Requisitions

1) Inventory
2) Supply
3) Travel

4. Meetings, conferences

a. Arrangements: Reporting Minutes
b. Procedures
c. Authorizations

1) Overtime
2) Exempt extra time

d. Passes

1) Security
2) Property

5. Advancement

a. Qualities
b. Preparations for promotion

Instructor-prepared syllabus to coordinate with

Culpepper, Billie J. & Alison R. Stafford THE SCIENCE-ENGINEERING SECRETARY: A Guide to Procedures, Usage, and Style; Prentice-Hall, N. J., 1963.

Company manuals

REFERENCES

Hoch and Harris OFFSET-DUPLICATOR TECHNIQUES; Hoch Associates, N. Y., third edition, 1965.

Huffman, Mulkerne, Russon OFFICE PROCEDURES & ADMINISTRATION; College course; Gregg Division, McGraw-Hill, N. Y., 1965.

Sherman, Theodore MODERN TECHNICAL WRITING, second edition; Prentice-Hall, N. J., 1966.

EVALUATION
Reference checking
Preparation of work for Reproduction
Evaluation of actual technical reports (observation and comparison)
Report on Technical Office visit (examination of procedure)
Production:

Bound notebook of work completed
Artwork applied

Tests:

Equipment use
Correction materials
Papers

MODULAR TIME SCHEDULE PROPOSAL

The specialized secretarial curriculum is made up of subparts (which are termed "modular units") which originate from units of time, units of class size, and units of course structure.

Units of time: 10 hours a week for all three areas--4 for dictation and transcription, 6 for office procedures.

Units of Class Size: Estimated 30 maximum, with 10 in each area.

Units of Course Structure:

Legal Dictation/Transcription (90L)	2 units
Legal Office Procedures (100L)	3 units
Medical Dictation/Transcription (90M)	2 units
Medical Office Procedures (100M)	3 units
Technical Dictation/Transcription (100T)	2 units
Technical Office Procedures (100T)	3 units

Note: For purposes of modular scheduling, the Technical Typing course (92T) remains a course separate from this "package," as does the Internship (108S) which will be integrated with other secretarial internship programs.

The facilities required are a laboratory room equipped with machines for office procedures and with tape listening equipment, and a lecture room. A typing room, reserved as a laboratory for independent study, would enhance the program.

The time schedule must be in two-hour blocks, five days a week. It could be the same hour each day or could vary during the week. As an example: the two-hour block could be from 8-10 MWF and from 11-1 TTh; or 9-11 daily; or 9-11 MWF, 1-3 TTh; or any time combination which will fit into the Business Division Course of Study schedule.

Within the two-hour block, sub-modules could be established as the core of instructors for these courses develop teaching materials that fit into specific time blocks--i.e., a lecture by an employment counselor would be of value to the entire group, so all three areas could be brought together

into one large lecture room. The divisions within each module would remain flexible, offering a wide variety of structures to adjust to individual assignments, independent study phases, and teacher-discussion-planning sessions.

The following arrangements are presented as ideas for modular schedules within the total scheduling area. Several different structures could be planned without encroaching on the schedule time for any of the specialized subjects. These arrangements are submitted on the premise that it is educationally desirable to permit different time allocations for the varied activities contained within the two types of courses in each of the three areas.

No. 1

Monday		Tuesday		Wednesday		Thursday		Friday
Med.	Leg.	Open	Md.	Tech.	Leg.	Med.	Tech.	Lecture
Dic.	OP	Dic.	OP	Dic.	OP	Dic.	Dic	
OP	Dic.	OP	Dic.	OP	Dic	Op	OP	Ins./Tr.

No. 2

Monday		Tuesday		Wednesday		Thursday		Friday
Med.	Leg.	Leg.	Tech.	Tech.			Med.	Lecture
Dic	Ins. OP	Dic	Inst	Dic	Lab		OP	
Ins.	Lab	Ins.	Lab	Ins.	Lab		Lab	Lab.

No. 3

Med.	Leg.	Leg.	Tech.	Tech.	Med.	Med.	Leg.	Tech	
Dic	OP	Dic	OP	Dic.	Dic.	OP	Dic.	Dic.	
								Lec.	

ADVISORY COMMITTEES

Legal Secretarial

Mr. Michael Aaronson, Attorney

The Honorable Marcel P. Biscay
Judge of Municipal Court

Mr. Thomas F. Casey, Jr.,
Attorney

Mr. Raymond J. Daba, Attorney

Mr. Robert J. Dell'Ergo,
Attorney

Mrs. Peg Harris, Legal Secretary

Mr. Dennis Hession, Attorney

Mr. Albert Horn, Attorney

Mr. Robert F. Kane, Attorney

Mr. William F. Lanam, Attorney

Mr. Eugene J. Majeski, Attorney

Mrs. Shirley Masters, Legal
Secretary

Mr. Cyrus J. McMillan, Attorney

The Honorable Frank Rose
Judge of Superior Court

Mr. Ildo L. Rosellini, Attorney

Mrs. Barbara Stookey, Legal
Secretary

Medical Secretarial

Mrs. Beverly Camozzi
Medical Assistants Association

Mr. John P. Dunbar,
Clinic Administrator

Dr. Walter Gaines, Radiologist

Mr. Frederich W. Hageboeck
Clinic Manager

Dr. Walter J. Hamilton

Technical Secretarial

Mr. Len Bernier, Business Manager
Research Laboratory

Mr. Robert M. Clarke, Manager
Administrative Services

Miss Betty Busse, Head
Composing Reports Section

Mrs. Pat Dixon
Reproduction Supervisor

Mr. Carl A. Doak, Jr., Manager
Technical Publications

Mr. R. A. Fisher, Supervisor
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Johnson, Hildegarde, And Others
Our Educational Beliefs.

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*HOME ECONOMICS EDUCATION; HOME ECONOMICS TEACHERS; *EDUCATIONAL PHILOSOPHY; *BELIEFS
NORTH CAROLINA

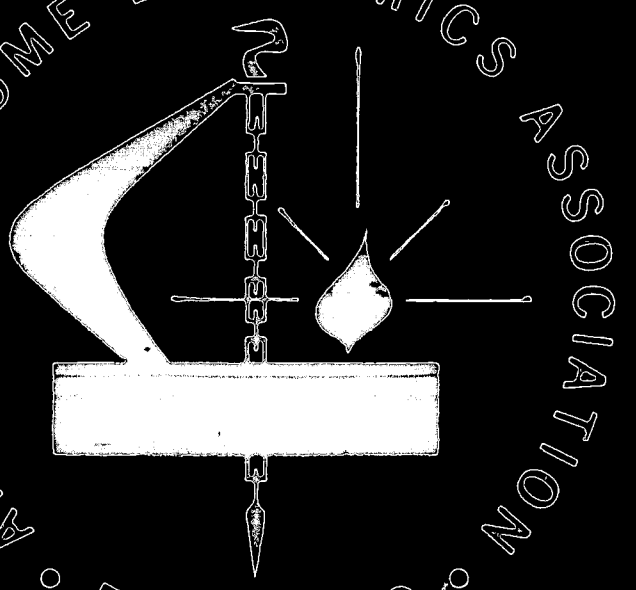
As the first step to discover discrepancies between educational beliefs and practice among secondary home economics teachers in North Carolina, this study determined which educational beliefs authorities in home economics education accept as important. Thirty-seven educational beliefs were determined by a review of the literature and consultation with leaders in the field. Seventy-six state supervisors and heads of teacher training departments rated each belief as very important, less important, or not true. Of the 37 beliefs, 20 were considered very important by 90 percent of the educators. Thirty which were considered very important by 75 percent of the respondents were arranged in tabular form according to implications for (1) teacher objectives and course content, (2) methods of teaching, (3) evaluation of school program, (4) pupil participation in total home economics program, (5) extra class responsibilities of teachers, and (6) physical facilities of the home economics department. The results indicated that authorities in home economics education generally agree on this body of educational theory. The classroom teacher lag in implementing these theories is attributed to her incomplete understanding of the theory and to her lack of skill. How to improve teacher understanding and skill and where to concentrate teacher educator efforts need to be studied. (FP)

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How can educational beliefs and theories be recognized as important and how can they be more quickly incorporated into the philosophy and activities of teachers? This study shows how beliefs can be recognized and organized as a starting point for effort to bring them into effective action.

Our Educational Beliefs

Hildegarde Johnson, Louise Lowe, Rebecca Smith, and Vergie Lee Stringer

Dr. Johnson is head of the home economics education area in the School of Home Economics at the Woman's College of the University of North Carolina, where Miss Lowe, Mrs. Smith, and Miss Stringer are members of the same staff.

THE lag of practice behind educational theory and belief has been of much concern to educators. This lag is probably not a result of rejection of the theories or beliefs by students of education; it is, rather, a result of incomplete or partial understanding and of honest inability to put into practice what professors have tried to teach. Undoubtedly there are many educational theories which home economics teachers would like to apply more consistently or with greater success. What are these theories or beliefs? What are the areas of recognized discrepancy between beliefs of home economics teachers and what the teachers do?

Purpose and Plan of the Study

To discover discrepancies between educational beliefs and practice which are recognized by secondary home economics teachers in North Carolina, a study was initiated at Woman's College of the University of North Carolina in the fall of 1959. The study is financed by a grant from the Woman's College research fund. As a first step, it was necessary to determine which educational beliefs authorities in home economics education accept as important. This step was completed in the school year 1959-60, and the findings are reported in the present article.

The statement of educational beliefs followed the reviewing of many recent publications, the group work of seven members of the home economics education staff at Woman's College, and consultation by mail with a few leaders in the field. Thirty-seven beliefs were listed on a questionnaire and respondents were asked to check whether each one was very important, of lesser importance, or that she did not consider the belief to be true.

The sample. There were 180 names on the current lists of state supervisors and heads of teacher training departments compiled by the Home Economics Education Branch of the Office of Education, Department of Health, Education, and Welfare. A sample was drawn of 76 of these 180 educators. All but three of the sample members returned the questionnaires which were sent to them. Since the proportion of non-respondents was negligible and since sampling procedures were designed to minimize bias, the proportions of sample members responding that each belief was very important, of lesser importance, or not true may be accepted as good estimates of the proportion of the entire list of 180 educators who would have responded in this way.

Findings. Beliefs in the questionnaire were rearranged and listed in approximate order of their importance to educators in the field of home economics. Twenty of the 37 beliefs were considered very important by more than 90 per cent

of the home economists. All but seven were considered very important by at least 75 per cent of the home economics educators. Comments written on the questionnaires indicated that a number of the beliefs checked as "of lesser importance" or with which respondents disagreed were stated a little too strongly. Many of the home economics educators had reservations about this particular statement rather than about the belief which the researchers had in mind. An example of this is the belief at the bottom of the list: "skills, facts and basic principles should be used only in connection with solving immediate problems of pupils" (see item 19, table 1). Fourteen respondents objected

TABLE 1

Number of educators responding at each level to items which were dropped

ITEM NUMBER	BELIEF	RESPONSE LEVELS			
		Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
16	Homemaking teaching should emphasize benefits derived from labor-saving materials and methods	51	20		2
26	Classroom instruction in homemaking should be available to boys as well as girls	52	18	1	2
9	FHA should be an integral part of the homemaking program	48	21	2	2
17	Homemaking teachers should emphasize how the additional leisure time available in our present culture should be used in better personal, family, and community development	45	21	4	3
3	Parents of present and parents of former homemaking pupils should participate in planning the homemaking program	37	34	2	
10	Adult homemaking education should be available in each community in which there are high school homemaking classes	40	25	7	1
19	Skills, facts, and basic principles should be used only in connection with solving immediate problems of pupils	23	11	34	5

to the use of the word "only" in the statement, and nine wished to include future as well as immediate problems of pupils. The seven beliefs checked as very important by fewer than 75 per cent of the educators in the sample were discarded. These beliefs, listed in table 1, were questioned by 18 or more of the 73 educators. It is reasonable to estimate that they would have been questioned by 45 of the 180 educators in the population from which the sample was drawn. Although there was some evidence that restatement would result in

TABLE 2

Number of educators responding at each level to beliefs which have implications for teacher objectives and content of home economics courses at the high school level

ITEM NUMBER	BELIEF	RESPONSE LEVELS			
		Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
13	Classroom activities should be provided which can carry over into the pupil's personal and home experiences	73			
37	Teaching methods should be selected on the basis of their effectiveness in bringing about desired pupil development	73			
15	The homemaking program should deal with attitudes, interests, habits, understandings, and appreciations as well as abilities	72			1
14	Discussions and other learning experiences in homemaking classes should help pupils to better understand their own behavior and the behavior of other people	72	1		
35	The homemaking teacher should attempt to guide each pupil in such a way that his progress is satisfactory in relation to his initial skill and ability	71	2		
1	Since homemaking is made up of many and varied kinds of activities and responsibilities, the high school homemaking program should include vital experiences in all areas of family living	70	2	1	
27	The homemaking curriculum at any grade level should start with present needs and interests of the pupils but must anticipate expected change to new needs	70	1	2	
22	Pupils should be taught to make the best use of resources in their own homes	66	5		2
12	The homemaking program should focus attention upon the individual in relation to the entire family	69	2	1	1
28	The homemaking curriculum at any grade level should help pupils to make a better contribution toward living in their parental family and should help them in their personal growth toward maturity	68	4		1
21	Important, broad areas of home responsibility, such as relationships, safety, management, and art, should be integrated into all units of work	66	6	1	
18	In homemaking teaching, the national background and cultural level of each parent should be accepted where it is and its customs dignified	63	9		1

their general approval, it was not possible to secure reactions to revised statements.

Educational beliefs grouped so that implications for teaching may be observed. The 30 statements of educational beliefs, or items in the questionnaire, which were considered very important by most of the educators may be grouped in the following categories of beliefs or theories which have implications for (1) teacher objectives, and for content of home economics courses at the high school level, (2) methods of teaching high school classes, (3) evaluation in the high school program, (4) pupil participation in all that goes on in the home economics program, and (5) extra-class responsibilities of the teacher and the physical facilities of the home economics department. Some beliefs or items belong in more than one of these categories. Each of the groups of items is discussed separately, and items are mentioned in their order of importance to respondents in the sample.

Educational beliefs which have implications for teacher objectives and for content of home economics courses at the high school level are listed in table 2. It may be noted that these items suggest considerable extension beyond the skills and factual content emphasized in the early days of home economics to the area of affective learnings, such as attitudes, interests, and appreciations. The increasing breadth of content may be noted as well as the need for selection of content on the basis of present needs and interests of students and the resources in the homes of students. The need for integration of areas of learning is implied. The teacher who successfully applies theories in this category has not only specific objectives for each of her classes but objectives for individual pupils as well. She considers, when guiding a class to decide which learning experiences to include, the potential contribution of certain experiences to the achievement of goals for individual pupils and goals for the class.

A second group of educational beliefs has implications for methods of teaching in the home economics classroom, table 3. Specific methods are not suggested but rather the need for variety and the need, regardless of the method used, of stimulating pupils to think, to generalize their learning, and to apply the learning to new situations.

Beliefs which have implications for evaluation in the high school program were placed in the third group, table 4. The importance is emphasized

TABLE 3

Number of educators responding at each level to beliefs which have implications for methods of teaching high school classes

ITEM NUMBER	BELIEF	RESPONSE LEVELS			
		Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
37	Teaching methods should be selected on the basis of their effectiveness in bringing about desired pupil development	73			
25	Democratic procedures should be used in the homemaking classroom	71	2		
29	In all areas of the homemaking program, pupils should be stimulated to independent thinking	68	3		2
34	Pupils should be encouraged to apply these generalizations to new situations	65	7		1
36	A variety of teaching methods should be used	65	8		
33	Pupils should be helped to integrate or synthesize their learning to come to an understanding of the generalizations involved and to state these generalizations	62	11		
20	Pupils should both use the problem solving method and verbalize the steps involved in using the method	61	9	2	1

TABLE 4

Beliefs which have implications for evaluation in the high school program

ITEM NUMBER	BELIEF	RESPONSE LEVELS			
		Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
5	Pupils should be guided to evaluate their own progress toward personal goals	72			1
4	A class should evaluate from time to time its progress toward group goals	72	1		
7	A teacher should continuously evaluate her own progress as a person and as a teacher	72	1		
30	In all areas of the homemaking program pupils should be given opportunities to make individual and group decisions and to evaluate these decisions in terms of their values and goals	70	1	2	
2	Pupils should participate in planning unit goals, experiences which will help them to reach these goals, and methods of evaluating their progress	68	5		
6	Grades of pupils should be based on measures of achievement of objectives which were set up at the beginning of the unit	62	8	1	2

of pupil participation in the evaluation process, of evaluating group as well as individual progress, and, above all, the importance of evaluating in terms of progress toward goals which had previously been stated. The need for the teacher to evaluate her own progress as well as the progress of pupils is also recognized, and of course these two kinds of progress are related.

Beliefs in group four have implications for pupil participation in the entire home economics program, table 5. Skill in applying these beliefs is largely dependent upon a practical knowledge of how to use group-work techniques in the classroom.

TABLE 5

Number of educators responding at each level to beliefs which have implications for pupil participation in the entire home economics program

ITEM NUMBER	BELIEF	RESPONSE LEVELS: Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
4	A class should evaluate from time to time its progress toward group goals	72	1		
25	Democratic procedures should be used in the homemaking classroom	71	2		
30	In all areas of the homemaking program pupils should be given opportunities to make individual and group decisions and to evaluate these decisions in terms of their values and goals	70	1	2	
2	Pupils should participate in planning unit goals, experiences which will help them to reach these goals, and methods of evaluating their progress	68	5		
23	Pupils should learn in homemaking class to make good use of such resources of the school as: class time, equipment, money, and special abilities of group members	65	8		

The last group of educational beliefs has implications for the teacher's responsibilities outside of the classroom and for the appearance of the home economics department, table 6. Responsibilities included are: the guiding of home experiences, conferences with pupils, home visits, and interpreting the home economics program to members of the community. Responsibility for a chapter of Future Homemakers of America and an adult program would undoubtedly have been included if statements 9 and 10 had said "in most communities" rather than implying that they are "musts" in every community, see table 1.

TABLE 6

Number of educators responding at each level to beliefs which have implications for extra-class responsibilities of the teacher and the physical facilities of the home economics department

ITEM NUMBER	BELIEF	RESPONSE LEVELS: Very Important	Of Lesser Importance	I Do Not Believe This To Be True	No Response
24	The homemaking department should be attractive and as homelike as possible while still being effective for use by groups	67	6		
8	Home experiences should be an integral part of the homemaking program	63	8	1	1
32	The homemaking teacher should plan for conferences with pupils	62	10	1	
31	In addition to applying what they believe about home economics to their daily living, homemaking teachers and pupils should interpret the program to the community in a variety of other ways	60	13		
11	Visits should be made to the homes of as many pupils as possible	60	11	1	1

Recommendations for Further Research

The reader will be aware of the fact that many additional educational beliefs might have been included. Those in this study represent the group thinking and written statements of a number of leaders in home economics education. Sample estimates indicate that a large majority of all state supervisors and heads of teacher training departments believe that 30 of the 37 beliefs are very important. This finding indicates general agreement of authorities in home economics education on this body of educational theory. The real problem lies in finding ways to guide future teachers and teachers on the job to understand the beliefs to the point where they can and will apply them in teaching. Both an intellectual grasp of the implications of the theories and skill in using them in the classroom are needed. Continuing study of how to achieve this and of where teacher educators should concentrate their efforts is needed.

VT 004 492
Schrader, Gene
Quarterly Progress Report of the Research Coordinating Unit in Wyoming, May 1, 1967-October 1, 1967.

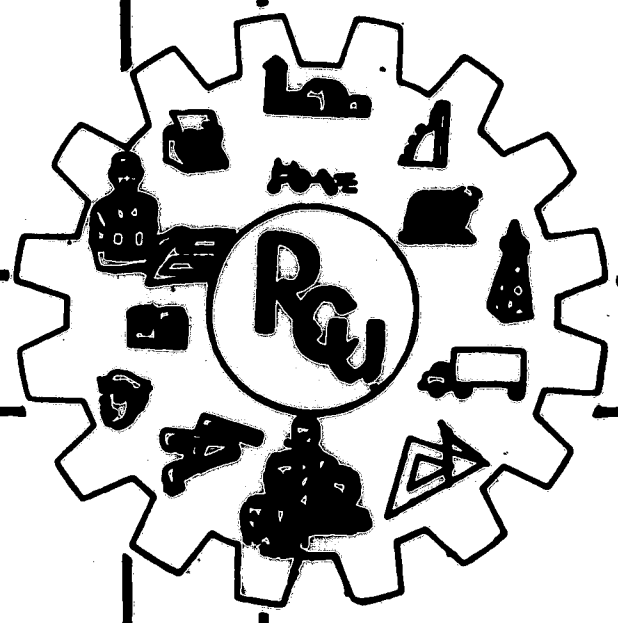
Wyoming Research Coordinating Unit in Vocational-Technical Education, Cheyenne
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Oct67 17p.

*RESEARCH COORDINATING UNITS; *VOCATIONAL EDUCATION; *EDUCATIONAL RESEARCH; *PROGRAM DESCRIPTIONS; *STATE PROGRAMS
WYOMING

Unit activities for the period May 1 to October 31, 1967, are presented. Completed projects included "Selected Techniques for Formulating the Questionnaire, Mechanics and Related Materials of a Follow-up Procedure Dealing with Post-Secondary Vocational Graduates," (2) "A Survey of Vocational-Technical Education Needs in Goshen County," (3) "Occupational Needs of the Socio-Economic Disadvantaged and Other Handicapped Youth of Laramie County School District," (4) "Fremont County Survey of Vocational-Technical Education Needs in Business and Industry," (5) "A Study of the Educational Needs of Adults in Wyoming," and (6) a vocational-technical workshop to inform selected vocational educators, guidance counselors, and administrators of the present concept and approach to research in vocational education. Projects underway included (1) the Governor's Vocational Conference, (2) a study, "Are Wyoming's Secondary School Vocational Programs Geared to Wyoming Industries," (3) a study to determine why practical nursing students are discontinuing their training at the Laramie MDTA Vocational School of Practical Nursing, (4) a study of the correlation between the American College Test and the Iowa Silent Reading Test and the effect of the results on remedial students, and (5) a study, "Followup Procedure for Post-Secondary Vocational Technical Graduates." Sixteen proposed projects are being evaluated. The monograph, "Program Evaluation and Review Technique for Education Research Project Development and Control" was published. (MM)

VT 004 492

ED027441



wyoming

RESEARCH ACTIVITIES

OF THE

RESEARCH COORDINATING UNIT

State Department of Education

Vocational-Technical Education Division

October 1967

Mr. Harry Roberts
State Superintendent of Public Instruction

Mr. Charles A. Kline
State Director of Vocational-Technical Education Division

VT004492

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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QUARTERLY PROGRESS REPORT

OF THE

RESEARCH COORDINATING UNIT

IN

WYOMING

Gene Schrader, Director

Period

May 1, 1967 - October 31, 1967

Published by: Research Coordinating Unit
State Department of Education
Capitol Building
Cheyenne, Wyoming 82001

INTRODUCTION

This publication is revised quarterly as an integral part of the Wyoming Research Coordinating Unit's quarterly report to the United States Office of Education.

Information concerning the projects and publications contained herein is not meant to be complete. It is provided to give an idea and a brief description of the projects and publications in which the Research Coordinating Unit is or has been participating.

Questions concerning any publication or projects should be directed to the Research Coordinating Unit

Project number is 6-2729. Grant Number is OEG-4-6-062729-2083.

Revised Quarterly

by the

Research Coordinating Unit

Gene Schrader, Director

State Department of Education
Capitol Building
Cheyenne, Wyoming 82001

FOREWORD

This is the fifth quarterly report prepared and submitted by the Research Coordinating Unit in Wyoming.

Information included herein pertains to the varied activities of the Research Coordinating Unit in Wyoming. Information as to projects funded, pending and completed, upcoming projects, publications, and activities of the personnel are included in this report.

COMPLETED PROJECTS

Follow-Up Study

A publication entitled, "Selected Techniques for Formulating the Questionnaire, Mechanics and Related Materials of a Follow-Up Procedure Dealing with Post-Secondary Vocational-Technical Graduates" was compiled by Maurice L. Goff, Graduate Assistant for Wyoming Research Coordinating Unit, and Dr. Glenn S. Jensen, Head of the Department of Adult Education and Instructional Services at the University of Wyoming. The composition of this booklet was completed on November 15, 1966 and subsequently disseminated. The title explains what the study encompasses.

Goshen County Survey

A research project entitled, "A Survey of Vocational-Technical Education Needs in Goshen County", of Eastern Wyoming College, Torrington, Wyoming completed in August, 1967 by Mr. Larry Dodge.

In April, 1967, Eastern Wyoming College became interested in a thorough study of Goshen County to determine the vocational needs of students, adults, and the business community. President Albert C. Conger contacted the Research Coordinating Unit of the Division of Vocational-Technical Education, State Department of Education, to inquire about financial aid for such a study. The project was officially approved May 29th by the Division of Vocational-Technical Education and a contract was signed.

The general goals of this study were twofold. First, the needs of Goshen County residents in the area of Vocational-

Technical Education were determined. Secondly, conclusions were drawn from the data and recommendations made for implementing the information.

Much information has been learned in this project about the educational needs of Goshen County. Other suspected facts have been substantiated. The future of vocational-technical education at Eastern Wyoming College, however, cannot be settled on the basis of this project alone. The goals of students may change and the needs of business and industry may change. Once the recommendations included in this report have been acted upon, it is hoped that vocational-technical education will play a larger role in Goshen County's educational picture.

Laramie County Occupational Needs Survey

The study, "Occupational Needs of the Socio-Economic, Disadvantaged, and Other Handicapped Youth of Laramie County School District Number One, Phase One", was directed by Dr. Wilma E. Hirst, Research Director for School District Number One, Laramie County, Cheyenne, Wyoming; and was completed on April 8, 1967.

This study was created to determine to what extent jobs exist for socio-economic, disadvantaged youth of Laramie County and to determine what types of training shoulc be given to prepare these students to enter into these jobs and others in today's complex society.

Fremont County Survey

The "Fremont County Survey of Vocational-Technical Education Needs in Business and Industry" was conducted by the

staff of the Wyoming Research Coordinating Unit. It was designed to achieve the following objectives:

1. Study the projected employment trends for the county's business and industry as viewed by the owners and managers of the business and industry.
2. Reveal the occupational categories in the county in which there is now, or is likely to be in the future, either a shortage or a surplus of workers.
3. Determine employer desired course content for different occupational categories.
4. Determine the educational requirements for those occupational categories and specific job titles in which there is difficulty in hiring.
5. Aid in the design of courses and curricula which meet the educational needs of potential employees in the Fremont County area.

This study was completed for dissemination in February of 1967.

Study of Adult Educational Needs

"A Study of the Educational Needs of Adults in Wyoming" is a survey of post-high school educational programs and needs in Wyoming by Dr. Earl Douglas O'Dell and Dr. John T. Thompson, both of the University of Wyoming.

On January 6, 1965, a statewide technical assistance committee, a group made up of persons from all the major interests in the state, instructed the Adult Education Division to initiate a study of the needs for education of adults in Wyoming. Negotiations were entered into with the Office of Economic Opportunity

and a grant of $25,000.00 was received to conduct a study of overall adult educational needs in Wyoming.

The purpose of the study was twofold: (1) to point up possible improvements in current educational programs in Wyoming and (2) to provide a design for intelligent planning to meet future needs.

Vocational-Technical Workshop

The purpose of this workshop was to inform a selected group of Wyoming vocational educators, guidance counselors, and administrators of the present concept and approach to research in vocational education. Participants were brought up-to-date or given a "refresher course" in research design, method, funding, resources, and other aspects which contribute to their knowledge so as to provide them with a tangible, meaningful course of action upon returning them to their positions this fall.

The workshop was scheduled at the University of Wyoming in Laramie, Wyoming as a Graduate Level Education Class. Two semester hours of graduate credit were granted upon successful completion of the two-week workshop, which included daily sessions from 1:00PM to 4:30PM beginning July 31, 1967 and ending August 11, 1967.

Mr. Bruce C. Perryman, Director of the Wyoming Research Coordinating Unit at that time, prepared the workshop and Dr. James Zancanella, Head of the Vocational Education Division of the University of Wyoming, directed the work and services for the workshop.

PROJECTS UNDERWAY

Governor's Vocational Conference

The RCU Director, Gene Schrader, is the professional staff member on the World of Work Sub-Committee for the Governor's Conference on Vocational-Technical Education. The complete conference has held General Sessions on three different occasions: April 22nd, June 27th and October 6th. Sub-committee meetings were held at this time also. In addition, the World of Work Sub-Committee held a meeting on the morning of Saturday, June 17th.

At the October 6th meeting, recommendations for improving the Vocational-Technical Education program in the state of Wyoming were proposed and are, at present, being reviewed and edited by the members of each sub-committee who attended this last meeting.

Secondary Schools Vocational Programs

This project ("Are Wyoming's Secondary School Vocational Programs Geared to Wyoming Industries?") was initially proposed by Dr. James Zancanella, Head of the Vocational Division of the University of Wyoming, and originated by Mr. Fred P. Black, Jr., RCU Graduate Assistant at the University of Wyoming. The work on the project is being performed by Mr. Robert Wright and is just beginning. The project has been funded for $989.50 from RCU funds.

Practical Nursing Study

The purpose of this project is to determine reasons for practical nursing students discontinuing their training at the Laramie MDTA Vocational School of Practical Nursing. It has been funded for $996.00 from RCU funds. Dr. Glenn S. Jensen, Head of the Department of Adult Education and Instructional Services at the University of Wyoming, submitted the proposal and Mr. Maurice L. Goff, RCU Graduate Assistant, is the originator.

On September 18, 1967, an advance "Grant in Aid" payment in the amount of $254.79 was made to Mr. Robert Foree for expenses incurred which demanded payment at once. This project was delayed one month due to delay in selecting principal investigator, but is near completion now.

Casper College Project

The purpose of this project is stated in the title: "A study of the correlation between the American College Test and the Iowa Silent Reading Test and the effect of the results on remedial students". It has been funded for $300.00 from RCU funds, which was paid upon the signing of the agreement on March 15, 1967. Mr. Floyd Michael and Mrs. Charlene Nightwine, Instructors at Casper College, initiated the project and Dr. Tilghman Aley, President of Casper College, submitted it.

1968 CAMPS Plan

The Research Coordinating Unit of Wyoming is an active participant in the "Cooperative Area Manpower Planning System" program.

Follow-Up Procedure

A study entitled "Follow-Up Procedure for Post Secondary Vocational-Technical Graduates" was compiled by Maurice L. Goff, Graduate Assistant for Wyoming Research Coordinating Unit and published by the State Department of Education, Harry Roberts, Superintendent of Public Instruction; and Vocational-Technical Education Division, Charles A. Kline, Director. It is presently in the final stages of completion.

PROPOSED PROJECTS

1. The new Assistant Director of the Wyoming Research Coordinating Unit, Mrs. Pat Korp, is working on publications concerning the RCU and the Division of Vocational-Technical Education. Among these is a Policy and Procedures Manual for the Division of Vocational-Technical Education. This manual will enable a school administrator to develop a vocational program in each community in the state.
2. The Director is developing data collection instruments for use during the 1968-69 school year to facilitate data collection in the Vocational-Technical Education Division. The unit is in the process of analyzing data taken from the foundation reports of the secondary schools in Wyoming.
3. The Director is presently working with the Department of Vocational Education, College of Education, University of Wyoming, in the preparation of a proposal for a workshop to be held for teachers and administrators of Vocational Education comparable to the successful workshop held during the 1966-67 school year.
4. Several proposals have been received by the unit and are in the process of evaluation. Many of these hold promise and the Research Coordinating Unit expects to be able to fund some of these soon. These are:
   - "A Study to Determine the Skills and Training Needed for Distributive Occupations in Wyoming" by James Deaver, Distributive Education Supervisor of Laramie High School, Laramie, Wyoming.
   - "A Study of the Needs and Desirability of an Adult Homemaking Program in Crook County, Wyoming" by Nancy Hower, Home Economics Instructor, Hulett High School, Hulett, Wyoming.

- "A Survey to Determine if there is Enough Interest and Desire to Offer a High School Course in Basic Aeronautics" by Patrick J. Freiberg, Dean Morgan Junior High School, Casper, Wyoming.
- "A Feasibility and Program Determination Study of the Schools of Carbon County to Determine the Necessity for, Desirability of, and Best Program for an Area Vocational School to be Located in School District #3, Carbon County, Rawlins, Wyoming" by Albert B. Schultz, Superintendent of Schools, Carbon County School District #3, Rawlins, Wyoming.
- "A Study to Determine Functional Vocational Areas that Resident Indians can Exercise within the Wind River Reservation" by Robert T. Nash, Counselor for School District No. 14, Ethete, Wyoming.
- "A Feasibility Study to Determine the Incorporation of Related Areas into the Agriculture Curriculum to Prepare Students for Work in OFF-FARM Occupations" by A. L. Albert, Superintendent of Schools, Newcastle, Wyoming.
- "A Study to Determine the Feasibility of the Installation of Data Processing Equipment in the Powell Public Schools in Powell, Wyoming" by Margaret Olson, Instructor at Powell High School, Powell, Wyoming.
- "A Study to Determine if the Curriculum of Evanston Senior High Meets the Needs of the Graduates for the Past Five Years in Their Present Employment" by Harry W. MaGee, Business Education Teacher, Evanston High School, Evanston, Wyoming.
- "A Study of the Effectiveness of Adult Education Classes in Securing Employment After Completing Courses" by Richard D. Clabaugh, Northwest Community College, Powell, Wyoming.

- "A Proposal to Study the Feasibility of Starting a Program in Vocational Adult Education in the Area of Farm and Ranch Management for the Farmers of the Powell Community" by R. R. Robertson, Assistant Superintendent of Schools, Powell, Wyoming.
- "Reactions of Graduates to Business Education Programs in Big Horn Basin High Schools" by Helen Stevens, Instructor at Byron High School in Byron, Wyoming.
- "A Survey of Per Pupil Costs for Vocational Education Classes in School District #6, Park County, Wyoming" by Glen V. Mangus, Administration Assistant, Cody, Wyoming.
- "A Survey of Dropouts in Campbell County High School" by Robert Tolson, Distributive Education Coordinator, Campbell County High School, Gillette, Wyoming.
- "An Investigation and Feasibility Study with Prospects of Developing a Food Service Training Program at the High School Level in Washakie County" by Dorothy L. Hoese, Instructor at Worland High School, Worland, Wyoming.
- "An Investigation of the Needs and Interests of Lovell High School Girls in Order to Change the Home Economics Curriculum" by Jane Miller, Instructor at Lovell Senior High School, Lovell, Wyoming.
- "A Feasibility Study to Determine if a Workshop in Vocational Agriculture will Assist in Orientating New Teachers to the State Program of Works" by Robert G. Bramlet, Instructor at Lusk Senior High School, Lusk, Wyoming.

5. Phase Two of the study being conducted by Dr. Wilma E. Hirst, "Occupational Needs of the Socio-Economic, Disadvantaged, and Other Handicapped Youth of Laramie County School District Number One", is planned to do the following with additional study, if financially possible:

   a. Expand the investigation to cover the rest of the population, both school youth and adults who have needs that can be met by an area vocational school.

   b. Supplement present studies being conducted in other parts of the state.

   c. Include the recommendations made by the committee of the State Department of Education.

PUBLICATIONS

PERT

The purpose of this monograph entitled "Program Evaluation and Review Technique for Education Research Project Development and Control" is to disseminate to Wyoming's educational community the basic concepts and principles of a recently developed project management information system entitled Program Evaluation and Review Technique - or PERT. It is anticipated that creating awareness of the technique's existence will lead to its adoption as a project planning and control tool for research and development activities.

The Wyoming Research Coordinating Unit is indebted to Desmond L. Cook, Ohio State University, for his blessing upon this monograph and for his Program Evaluation and Review Technique Applications in Education, from which the greatest part of this monograph was excerpted.

This was organized by Mr. William H. Nightwine, and completed for dissemination in February, 1967.

QUARTERLY REPORT

Projects completed include: "Selected Techniques for Formulating the Questionnaire, Mechanics and Related Materials of a Follow-Up Procedure Dealing with Post-Secondary Vocational-Technical Graduates" by Mr. Maurice L. Goff; "A Survey of Vocational-Technical Education Needs in Goshen County" by Mr. Larry Dodge; "Occupational Needs of the Socio-Economic, Disadvantaged, and Other Handicapped Youth of Laramie County School District Number One, Phase One" by Dr. Wilma E. Hirst; and "A Study of the Educational Needs of Adults in Wyoming" by Dr. Earl Douglas O'Dell and Dr. John T. Thompson; and "Fremont County Survey of Vocational-Technical Education Needs in Business and Industry" by the Wyoming Research Coordinating Unit staff.

One publication has been completed by the Unit's staff. It is entitled, "Program Evaluation and Review Technique for Educational Research Project Development and Control". Information concerning these publications can be found in the Appendix.

Meetings

Mr. Bruce C. Perryman attended a CAMPS meeting in Casper representing the Research Coordinating Unit as an active participant in the program. He also attended the W.V.A. Conference at Sheridan College, which was from June 4 through June 8, 1967.

Mr. Perryman, Mr. William H. Nightwine, and Mrs. Donna M. Wells went to Casper on June 26th to attend the June 27th General Session of the Governor's Conference on Vocational-Technical Education. However, since there were only two members of the World of Work Sub-Committee present in Casper at that time, other than the professional

staff members, no minutes were taken. The General Session, on the whole, was a success.

Staff

Various staff changes have occurred during this reporting period. Mr. Bruce C. Perryman and Mr. William H. Nightwine have resigned, both effective August 31, 1967. Mr. Perryman has taken the position of Instructor of Marketing at Adams State College in Alamosa, Colorado and also plans to begin work on his doctoral program. Mr. Nightwine has assumed the directorship of the Montana Research Coordinating Unit in Helena, Montana.

Mr. Gene Schrader, the new director of the Wyoming Research Coordinating Unit, began in September, 1967. He was director of the New Mexico Research Coordinating Unit, and director of the Bureau of Research and Statistics here in the Wyoming State Department of Education prior to his present job.

VT 004 604
Quarterly Technical Progress Report of the Occupational Research Coordinating Unit of Delaware, Fourth Quarter, First Year (Extended), April 1, 1967-September 30, 1967.

Delaware State Dept. of Public Instruction, Dover
MF AVAILABLE IN VT-ERIC SET.
Pub Date - 67 25p.

*RESEARCH COORDINATING UNITS; *VOCATIONAL EDUCATION; INFORMATION DISSEMINATION; *PROGRAM DESCRIPTIONS; *STATE PROGRAMS; *EDUCATIONAL RESEARCH; PROGRAM DEVELOPMENT

The overall purpose of the Delaware Occupational Research Coordinating Unit is to encourage throughout the state the initiation of occupational research and development activities, provide resource material on current developments in the field, and to assist in designing research and developmental programs in vocational-technical education and related areas. The Unit's first-year activities are reported in relation to the six components of its overall objective. Representative of the activities are (1) preparing a synthesis of occupational data to provide guidance to the advisory committee of a projected vocational-technical high school, (2) establishing occupational materials mailing lists and distributing original and recopy material on occupations to local teachers and State supervisors, (3) distributing special information packets to state and national agencies and institutions, (4) expediting 10 proposals designed to serve persons with special needs, (5) establishing a library of occupational resources material suitable for guidance personnel, and (6) publishing a newsletter, "Here's An Idea," for broadcasting innovative, inexpensive and applicable new ideas. The Unit's staff of four persons works directly with the local school districts, the area vocational-technical schools, the new technical and community college, and the vocational departments of the University of Delaware. (HC)

VT 004 604

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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QUARTERLY TECHNICAL PROGRESS REPORT

of the

Occupational Research Coordinating Unit

of

Delaware

Fourth Quarter

First Year - (Extended)

April 1, 1967 - September 30, 1967

State Board for Vocational-Technical Education
Department of Public Instruction
P. O. Box 697
Dover, Delaware 19901

VT004604

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INTRODUCTION

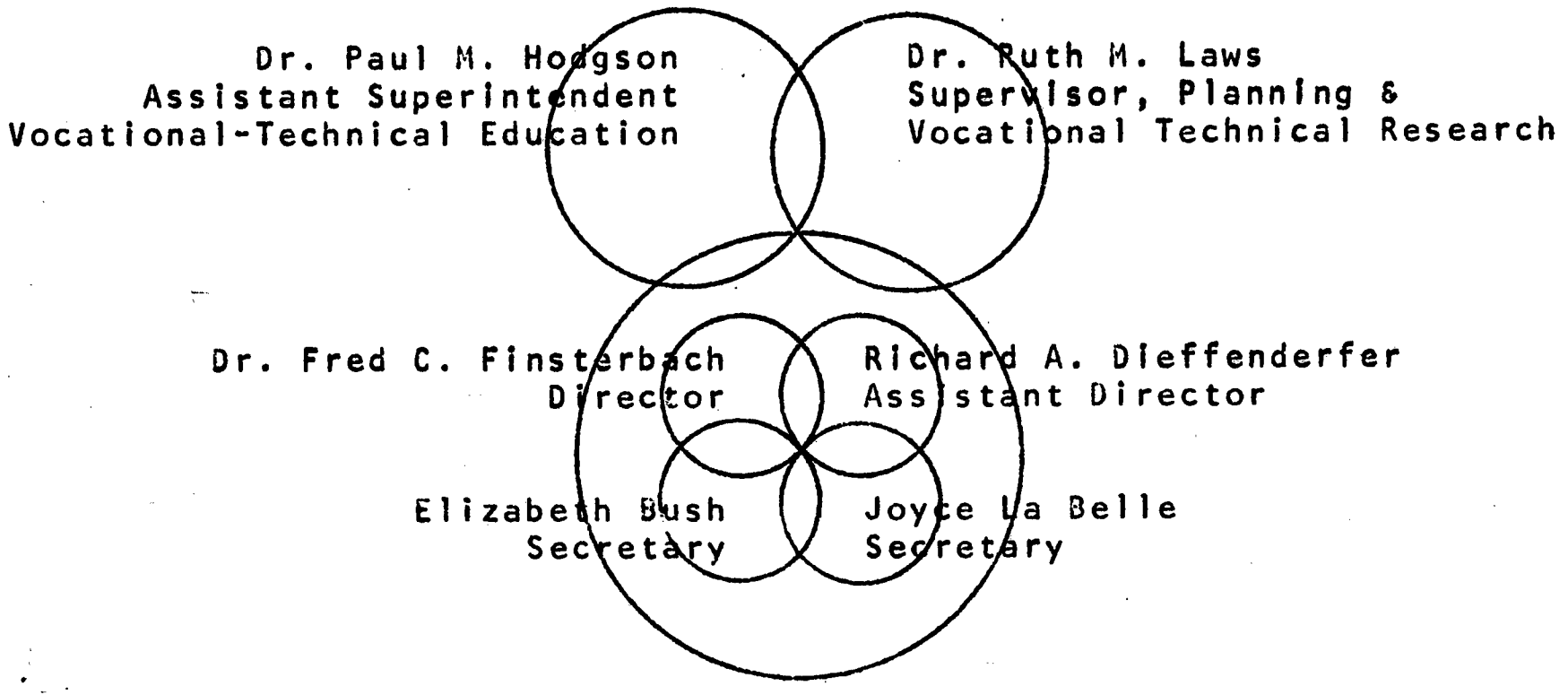
This is a summary report of the first year's time, effort and accomplishment in the course of "Establishing a State Coordinating Unit for Occupational Research Development" under the provisions of Section 4(c) of the Vocational Act of 1963.

The overall purpose of the Delaware Occupational Research Coordinating Unit is to encourage throughout the State the initiation of occupational research and development activities; to provide resource material on current developments in the field, and to assist in the design of research and developmental programs in Vocational-Technical Education and related areas.

The specific organizational setup and separate functions of the personnel involved are shown on the accompanying chart.

The details of this report are, as far as possible, set up in accordance with the six components of the overall purpose.

FUNCTIONAL ORGANIZATION CHART
DELAWARE OCCUPATIONAL RESEARCH COORDINATING UNIT



OBJECTIVES:

1. To identify and coordinate research and development activities and projects with agencies, public and private, concerned with occupational education in Delaware.

2. To stimulate interest in research and development activities that will improve the image and yield results productive to the state-wide program of vocational education.

3. To provide assistance to State and local staffs responsible for vocational education research and development.

4. To assist in developing programs that will expand occupational education offerings for persons with special needs.

5. To disseminate information on the progress and application of the results of occupational education research and development.

6. To identify and maintain a reference file of available occupational research and development resources in the light of anticipated needs and programs within the State.

Frederic C. Finsterbach, Ed.D.

Director of Occupational Research Coordinating Unit

Function:

To give leadership and direction to the Unit comprised of four members: One professional associate, Richard A. Dieffenderfer, M. A., and two secretarial assistants, Mrs. Elizabeth Bush and Mrs. Joyce La Belle.

Authority derived jointly from Dr. Paul M. Hodgson, Assistant State Superintendent, Vocational-Technical Education and Extended Services, and Dr. Ruth M. Laws, Supervisor of Planning and Vocational-Technical Research, under terms established in a direct Grant from the U. S. Office of Education, PL 88-210, Sec. 4(c). Duration of the Grant: June 27, 1966 to September 30, 1969. Amount: $160,000.

Richard A. Dieffenderfer, M. A.

Assistant Director of Occupational Research Coordinating Unit

Function:

Assists in providing leadership and direction to Unit. Develops research data on occupational education into appropriate media for presentation and dissemination to schools. Provides guidance to school personnel in the preparation of research proposals in Occupational Education. In charge of occupational research reference library and microfilmed material.

METHOD

The Delaware Occupational Research Coordinating Unit is located on the Capitol Mall, Dover, Delaware in the Colonel John Haslet State Armory offices. The Director of the Unit reports jointly to the Assistant State Superintendent in charge of Vocational-Technical Education and to the State Supervisor of Planning and Vocational Technical Research.

The Occupational Research Coordinating Unit staff includes the Director, an Assistant Director and two secretarial assistants.

The professional staff works directly with the area Vocational-Technical Schools, the new Technical and Community College and with the Vocational Departments of the University of Delaware, as well as with the local school districts. The Unit has also established a working relationship with the Employment Security Commission and with other social agencies in the State. Encouragement was given to local schools to develop pilot programs and research proposals having local, state and national significance. The majority of the proposals submitted concerned local problems and several were financed from the State 4(a) Ancillary Funds.

The research staff also conducted several in-service workshops and meetings to acquaint supervisors, guidance directors and teachers with the services of the Unit.

Two committees serve the Unit collectively. Individual vocational division supervisors, as members of the Steering Committee, provided excellent cooperation during the year. The other committee (Advisory) has met as a group once during the year to aid in the establishment of general policy.

The Occupational Research Coordinating Unit works with the staff of the Research and Publications office in the Administrative Services branch of the State Department of Public Instruction and has made an arrangement for printouts of microfiche research reports on their reader-printer machine. This arrangement effects an economic use of the basic machine and eliminates the need for duplication of identical equipment.

The ERIC files of the office of Research and Publications and those of the Occupational Research Coordinating Unit are both available to teachers, administrators and others interested in research findings.

RESULTS

Reporting of results and the evaluation of time and effort expended should be in terms of both the processes in which the Unit is involved and the aims, purposes or objectives toward which these processes are directed. This part of the report will cast a highlight on the accomplishments in relation to the major objectives of the Unit.

OBJECTIVE 1

To identify and coordinate research and development activities and projects with agencies, public and private, concerned with occupational education in Delaware.

- During the first month of our staffed activity (September, 1966), our Unit surveyed occupational data developed by twelve state agencies and prepared a synthesis of these data to provide guidance to the Advisory Committee for the projected Vocational-Technical High School to be built in New Castle County. The data was prepared in transparency form and presented before the committee and a wide representation of interested citizens. These data help in the decisions being made in regard to curricula, facilities and equipment.

- The second month (October, 1966) was devoted largely to the establishment of office routines and procedures and to the development of *A Guide for the Preparation of Proposals*.

- During the third month (November, 1966), communication was established with four centers in the State and Research Seminars were held in Wilmington, Kent County, Sussex County and Newark to acquaint teachers, administrators and guidance counselors with the potentialities of the Unit. A form (Declaration of Intention) was used to give us an indication of interest in research and, as a result of the seminars, twenty-nine (29) "Declarations of Intent" were filed. Nineteen (19) of these were subsequently developed into full fledged proposals of which seven (7) were funded out of State Ancillary 4(a) funds. Seven (7) were submitted to Washington. Of these, five were disapproved, one was referred for rewrite and the other is still pending.

- A presentation of the objectives of the Unit was also made at the annual state meeting of the Association of School Administrators held at Camp Tockwogh, Maryland.

- In the fourth month (December, 1966), the Director attended the American Vocational Association Convention in Denver, Colorado where he was instrumental in the formation of the American Vocational Education Research Association as a component of the A. V. A. During this month, we unfortunately lost our Assistant Director, Mr. Lewis Capaldi, who left to head up a Vocational-Technical High School in Pennsylvania. This handicapped us for a while until we were able to recruit and induct our present Assistant Director, Mr. Richard A. Dieffenderfer, in February, 1967.

However, the mechanics of setting up the office, equipping it, establishing contacts and procedures consumed most of the available time in December.

- In January, 1967, at the request of Mr. E. Hall Downes, Chairman of the Board of Trustees for the projected Delaware Technical and Community Colleges, we solicited and gathered from seventy-five (75) sources booklets and guidance information relating to occupations at the post-high school level. Several conferences were held at local schools and in the office to assist in formulation of research proposals.

- The Unit also embarked on the preparation of research and information related to occupations for distribution to local schools and agencies. This entailed preparation of original material and re-copy of material deemed useful to local teachers and State Supervisors. Some of the titles are as follows:

  Deal Me No Discards -- original by the Director, a plea for acceptance of disadvantaged youth into Industrial Arts and Vocational Education courses for occupational training.

  Good Jobs Waiting for Boys Who Learn a Trade -- report from Kiplinger letter with some localized data added.

  Role of Advisory Committees in Vocational-Technical Education -- an adaptation of material gathered from several sources, A. V. A. particularly, and condensed for local use.

OBJECTIVE 2

To stimulate interest in research and development activities that will improve the image and yield results productive to the statewide program of Vocational-Technical Education.

- February, 1967, was a month of internal activity devoted to the preparation and distribution of special information packets for the following agencies and institutions:

  State Board of Education

  U. S. Office of Education Meeting in New York

  National Research Project

  Delaware Vocational Education Association

  Delaware Industrial Arts Association

  Delaware ORCU Advisory Committee

- Later, in March, April and May of 1967, with the same objectives in mind, additional informational packets were prepared for and distributed to:

  The Leadership Development Seminar, University of Maryland, at which our Assistant Director was a participant.

  Program Planning, Budgeting Seminar, University of Maryland.

  Delaware Vocational Agricultural Teachers.

  Adult Education Seminar, State of New Jersey.

  Wayne State University, Detroit, Michigan, for an in-service teacher education course.

- During this same time, four transparency presentations relating to Vocational-Technical Education were prepared by the ORCU and given by division personnel to the:

  Governor's Joint Committee for Education.

  Department of Public Instruction (all divisions).

  Delaware League of Women Voters.

  1967 "Welcome Educators" - a program arranged jointly by industries, the Y. M. C. A. and the Wilmington Board of Education.

- The Unit also assisted in preparation of the graphics and statistics for the Vocational Division's Annual Budget Request to the State Board of Education.

- Assistance was also given in the preparation of a report on the Basic Data for Vocational-Technical Education in Delaware.

OBJECTIVE 3

To provide assistance to state and local staffs responsible for vocational research and development.

- During the months of March through June, 1967, the Unit prepared and distributed to state and local news media a series of weekly releases written around the curriculum and other features of the proposed Delaware Technical and Community College to be opened in September, 1967. A sample program and a series of spot announcements about the college program for radio broadcast were also prepared.

- The Director of the Unit, because of his background in teacher education and in industry, prepared a series of courses and a 20-day program for the vestibule training of the teaching and supervisory personnel in the new Technical and Community College. These courses involved elements of:

  Analysis Techniques for Course Organization

  Concept Formation

  Counseling and Coaching

  Methods of Teaching Vocational and Technical Students

  Creative Problem Solving

  Human Relations on the Job

The Teacher Training Program for the Technical and Community College will be a continuing part of the Director's effort, insofar as time permits, toward the development of Vocational-Technical Education in the State.

OBJECTIVE 4

To assist in developing programs that will expand occupational education offerings for persons with special needs.

- Part of the Unit's time during the first year and particularly during June to August, 1967, was devoted to encouragement of proposals designed for service to persons with special needs. Accordingly, the following intentions to file proposals were

received and are in various stages of progress for approval or rejection in Washington and/or funding from State Ancillary 4(a) monies:

RESEARCH PROPOSALS RELATING TO SPECIAL NEEDS

Local No.	Originator	Title
66-1.1 11/29/66 Rej. DCVER Washington	Frank Spitzer Middle School Middletown School District No. 80	"A pilot program to involve academically alienated youth of 7th and 8th grade levels in applied Vocational, Biological and Physical Science.
66-1.6 11/29/66 (funded with 4(a) monies)	Neal F. Warrington Agricultural Education Department University of Del.	"A Pilot project to develop a small engine trouble shooting and repair instructional 'kit' for use by Extension Service, in-school and adult personnel."
66-2 12/1/66 (for follow up)	Willard H. Fisher Laurel Special School District	"Agriculture related training to prepare educationally mentally retarded students for Ornamental Horticulture."
66-5 12/13/66 Rej. DCVER (funded 4(a) State Ancil.)	George F. Haney Brandywine Springs Junior High School Marshallton School District No. 77	"Elimination or reduction of drop-outs by providing a curriculum involving a cooperative work study and an exploratory work study program to fit the needs of the non-academic students."
67-3 1/12/67 (for follow up)	Leon F. Osinski H. Fletcher Brown Technical H. S. Wilmington Public Schools	"To develop a 9th grade curriculum for occupational, skilled and technical courses."
67-4 1/12/67 (ref. for revision & possible support under Title I or III)	Abner Hollingsworth H. Fletcher Brown Technical H. S.	"To restructure the present vocational programs (grades 10 through 12) to include occupational programs starting with grade 9 through 12 and to develop a curriculum for occupational courses."

Local No.	Originator	Title
67-8 2/27/67 Cond. Appd. DCVER (part. fund. with 4(a) monies)	Mary L. Steffenberg Brandywine Springs Junior High School Marshallton School District No. 77	"A program in the vocational development of educable mentally retarded children at the Junior High School in the areas of food and laundry services."
67-10 3/20/67 (ref. for rework. & budget rev.)	Frederick B. Kutz Newark Senior H. S. Newark Special School District	"A work experience program for the potential drop-out."
67-13 4/20/67 (ref. for rework. of draft)	Dr. L. M. Christophe Howard High School Wilmington Public Schools	"The development of patterns for the modification of vocational educational instruction according to the economic, social, personal and educational needs of students."
67-17 9/6/67 (for follow up)	Mrs. Ruth Goodman Adult Education & Extended Services Wilmington Public Schools	"A study of the effects of a combined "Learn-By-Doing" senior achievement program and bibliotherapy on some attitudes of the functionally illiterate adult."

- The Unit prepared and distributed a packet of informational material to teachers of educable and retrainable students throughout the State.

- The cover of a brochure entitled *Resource Papers on the Disadvantaged* was designed by the Assistant Director of the Unit who also wrote the foreword, edited the material and followed up on the printing and distribution.

OBJECTIVE 5

To disseminate information on the progress and application of the results of occupational education research and development.

- The Unit established several mailing lists for the dissemination of material. These were geared for general, periodic and special distribution with logistics worked out for appropriate quantities. Prominent among these lists are the following:

MAILING LISTS

Advisory Committee, Delaware Occupational Research Coordinating Unit

Other State Research Coordinating Units

The DCVER office in Washington

Secondary Chief School Officers

Area Vocational High School Principals

Home Economics Teachers Association

Vocational Agriculture Teachers

Industrial Arts Teachers

Trade and Industrial Education Teachers

State Advisory Board for Vocational-Technical Education

Dr. Lee G. Burchinal, ERIC Central (as of October, 1967)

State Employment Security Commission

The ERIC Retrieval Center, Ohio State University

A-B-C-D lists of inter-departmental State Supervisors

Guidance Counselors

Distributive Education Coordinators

Elementary School Principals

University of Delaware

Delaware State College

State Directors of Vocational-Technical Education in other states

Friends, former associates and others not covered in previous categories

OBJECTIVE 6

To identify and maintain a reference material file of available occupational resources in the light of anticipated needs and programs within the State.

- In the furtherance of this objective, the Unit has acquired two microfiche readers and has arranged for the use of the reader-printer in the general Research and Publications branch. One reader will be retained in the ORCU office for internal use and the other made available for group or individual use in the schools.

- The Unit has also started a microfiche library of selected research in occupational education and published Volume I of an index. In addition, the Unit has subscribed to the automatic distribution system set up by the ERIC Clearinghouse, Center for Research and Leadership Development, Ohio State University. This will furnish us with microfiche copy of Instructional Material, as well as Research as fast as it is published.

- *Occupational Research Projects*, a publication prepared by this Unit, has been distributed to the field.

- The Unit has established a "library" of occupational resource material suitable for guidance personnel. This material is set

up for browsing or for limited loan and is mentioned periodically in our Newsletter. A new service, *Here's An Idea*, for the broadcasting of innovative and inexpensive new things that might be readily applied in the local schools has been started. The first two issues are now being distributed.

- Through participation in a workshop in New Jersey and some previous contact, both the Director and Assistant Director have gathered much material on the "Introduction to Vocations" pilot programs as they are operating in New Jersey and North Carolina. This material is being readied for distribution to encourage interest in similar projects for Delaware.

- An innovative project, originating in the Middle West and called "American Industry", is being watched with interest and as results are achieved the Unit is disseminating information, particularly to the Industrial Arts teachers and supervisors.

- In July, 1967, this Unit, because of its delayed start in 1966, asked for and received an extension of the period of Grant from June 27, 1966, to September 30, 1969. At the same time, a proposal to utilize funds for four in-house projects was approved. These projects, listed below, are in the process of development, and they will engage a part of the Unit's attention during the coming year.

  Project #1: Development of a program of public relations, instruction and guidance to improve the image of vocational education.

  Project #2: Development of a program to increase the understanding of school personnel about the cultural values and the special needs of disadvantaged persons in order to improve the effectiveness of education efforts.

  Project #3: Make statewide surveys of various types in terms of occupational needs, expanding staffing needs, placement follow up and cost benefit.

  Project #4: Provide small grants in aid to local school districts for innovative pilot programs in occupational education.

- The portable T. V. audio-video tape equipment of Project #1 has already been used in the Kent County Vocational area to

record a program called "Milestones to Maturity". This program consists of ten talks by resource speakers, followed by panel discussions. Since the time of the resource persons is limited, their talks were taped and the tapes serve to kick-off subsequent panel discussions with smaller groups.

The Unit intends to make interview tapes in on-the-job situations for use in guidance programs. Also, special events relating to Vocational-Technical Education will be recorded and prepared for dissemination to local schools and interested groups.

- The quarterly Newsletter instituted during the first year of activiity has been very well received both locally and by other Research Coordinating Units. It is our intention to continue this publication to report our activity to the local school administrators, teachers, and other institutions or groups that should increasingly be made aware of Vocational-Technical Education progress in the State.

CONCLUSIONS AND IMPLICATIONS

A review of the time and effort expended during the first year brings a certain glow of satisfaction to the four persons involved in the ORCU activity. While there exists a degree of disappointment because none of our sponsored proposals was approved for funding in Washington, the reasons are understandable and will serve to make us try harder in the time to come. However, the five other objectives will keep us plenty busy in the arena of positive achievement as we look forward to another year of activity.

We wish to express, at this time, our thanks to Messrs. Richard Andrews, Verne Burgener and Lawrence Braaten of the Washington office, Division of Comprehensive and Vocational Education Research, for their sympathetic understanding, patience, support and encouragement.

At the local level, our general thanks goes to so many individuals that a list would be quite extensive. To Drs. Paul Hodgson and Ruth Laws, we owe a particular debt of gratitude for their encouragement and the free hand they have extended to us in our operation. The members of our two advisory groups have given unstintingly of their time whenever we called upon them. We thank also the personnel in the duplicating room of the State Department of Public Instruction without whose help much of what we report here would have been impossible. We also acknowledge

the budgetary guidance given to the Unit by William J. Rementer, Coordinator, State and Federal Fiscal Programs, which has been very helpful.

In summary, we believe that as an Occupational Research Coordinating Unit we have made a contribution to the whole field of Vocational-Technical Education, locally and even nationally, and we look forward with keen anticipation to the year ahead.

MASTER LIST OF PUBLICATIONS

GUIDE FOR THE PREPARATION OF PROPOSALS (Booklet)

DECLARATION OF INTENTION (Form)

COMPLETED SAMPLE OF A BUDGET (Sample Form)

SOME SELECTED TITLES OF RESEARCH PROPOSALS FUNDED IN OTHER STATES (Report)

RESEARCH PROPOSAL PROCESS FLOW CHART

SUGGESTED OCCUPATIONAL CLUSTERS, JOB TITLES WITH D.O.T. NUMBERS SELECTED FOR EDUCATION AND TRAINING NEW CASTLE COUNTY VOCATIONAL-TECHNICAL HIGH SCHOOL (Presentation)

DELAWARE EMPLOYMENT MARCH 1966 (Report)

ORGANIZATIONAL FORMS FOR IN-PLANT TRAINING (Booklet)

THE CHALLENGE OF BUSINESS AND INDUSTRY FOR THE HIGH SCHOOL GRADUATE (Speech)

REMARKS TO A GRADUATING CLASS OF TEACHERS (Speech)

QUALITY EDUCATION IN VOCATIONAL-TECHNICAL SCHOOLS (Speech)

DEAL ME NO DISCARDS (Article)

THE PRESS CONFERENCE - A METHOD OF INFORMING THE PUBLIC ABOUT OUR SCHOOLS (Article)

GOOD JOBS WAITING FOR BOYS WHO LEARN A TRADE (Booklet)

A NEW LOOK AT THE DEWEY DECIMAL SYSTEM (Article)

SUGGESTED CURRICULA FOR A SEGMENT AT THE PARA-PROFESSIONAL LEVEL (Chart)

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AUTHENTIC TEACHERS (Article)

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OCCUPATIONAL TEACHER COMPETENCIES (Chart)

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SCHEDULING CARD FOR VOC-TECH TEACHER TRAINING (Device)

LIST OF PROPOSALS (Report)

TEN PRESS RELEASES: DELAWARE TECHNICAL & COMMUNITY COLLEGE

THE ROLE OF ADVISORY COMMITTEES IN VOCATIONAL-TECHNICAL EDUCATION (Booklet)

DELAWARE TECHNICAL & COMMUNITY COLLEGE STAFF DEVELOPMENT PROGRAM - TOPICAL OUTLINE

TEACHER TRAINING PROGRAM:

COMMUNICATIONS COURSE MATERIAL (4 Program Aids)

CREATIVE PROBLEM SOLVING (66 Program Aids)

HUMAN RELATIONS: SUPERVISOR'S CASE STUDY MATERIAL (19 Selected Topics)

ANALYSIS TECHNIQUES FOR COURSE PLANNING (11 Program Aids)

COUNSELING AND COACHING (24 Program Aids)

CONCEPT FORMATION (9 Program Aids)

SO YOU WANT TO BE A SECRETARY (Article)

HERE'S AN IDEA: SINGLE CONCEPT INDUSTRIAL ARTS MOVIES (Report)

HERE'S AN IDEA: PRACTICAL EXPERIENCE FOR TEACHERS (PET) PROGRAM (Report)

BIBLIOGRAPHY OF SELECTED RESEARCH IN THE FIELD OF OCCUPATIONAL EDUCATION (Booklet)

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A TOTAL PROGRAM OF EDUCATION (Flow Chart)

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VT 004 608
DeBlassie, Richard R.; Jones, William P.
Pre-Vocational Orientation in Vocational Education for Junior High School Students in New Mexico.

New Mexico State Univ., Las Cruces
New Mexico Occupational Research and Development Coordinating Unit, Santa Fe
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*RESOURCE UNITS; *OCCUPATIONAL GUIDANCE; *OCCUPATIONAL INFORMATION; JUNIOR HIGH SCHOOLS; BIBLIOGRAPHIES; *PREVOCATIONAL EDUCATION; EVALUATION CRITERIA

The purposes of this project were to compile sources of occupational information relevant to opportunities in vocational education which were appropriate for junior high students and to establish some guidelines for evaluating and integrating these materials into the curriculum. Project activities included reviewing the literature, consulting with specialists and company representatives, surveying current school practices, and examining the characteristics of junior high students. Evaluation criteria established for occupational materials were publication date, relevancy, qualifications of the author, purpose, and manner of presentation including style and format, reading level, and technical quality. Occupational information may be used in the classroom in group projects, in the unit approach, or in the occupations class. Activities which can be used with either the class or unit method are making career notebooks, giving special reports, participating in group discussions, case studies, and supplemental reading programs, making community job surveys, holding career days and conferences, and making field trips. Examples of general and specific units are presented. An extensive bibliography lists occupational pamphlets, books, films, and filmstrips. Sources of materials, trade and technical schools, and apprenticeships are also listed, and a sample evaluation is included. (EM)

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PRE-VOCATIONAL ORIENTATION in VOCATIONAL EDUCATION for JUNIOR HIGH SCHOOL students in NEW MEXICO

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FOR

JUNIOR HIGH SCHOOL STUDENTS IN NEW MEXICO

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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by

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PREFACE

As more and more opportunities in vocational education become available, the need for information dissemination about these opportunities becomes of increasing importance. Junior high school students who are in the process of vocational exploration must be aware of opportunities in vocational education as they explore occupational possibilities. Recognizing these needs, this project represents an attempt to bring together under one cover a model for the optimal use of such information in the junior high school.

The investigators wish to express their appreciation to the various publishing companies who offered suggestions as to available materials and to the consultants for their suggestions as to the integration of materials into the curriculum. Appreciation is also expressed to Dr. W. C. Cross, Professor of Educational Psychology, New Mexico State University, for his support and advice; to Dr. M. G. Hunt, Director of New Mexico State Division of Vocational Education, for his financial support of the project; to Mr. Gene Schrader, Director of Research Coordinating Unit, New Mexico State Division of Vocational Education, for his consistent support and suggestions; and to Dr. Robert Swanson and Mr. William Kelsay of the New Mexico State Division of Guidance for their suggestions and financial support. A special note of appreciation is expressed to Debbie Richards who served as secretary and typist for the duration of the project.

R. R. DeBlassie
W. P. Jones

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CHAPTER I

INTRODUCTION AND PROCEDURES

A. THE PROBLEM

The purpose of this study was to compile a source of occupational information materials relevant to opportunities in vocational education which are appropriate for use with junior high school students in New Mexico. An additional purpose of the study was to establish and suggest some guidelines through which these materials may be evaluated and integrated into the junior high school curriculum.

Better usage of occupational information in making career selection is a necessity if optimal value from vocational education is to be achieved. Vocational education must be concerned with providing the necessary types of training for vocations, but if students are not able to utilize this training in the best manner, the provision of it will be of little avail. Particularly in a state like New Mexico with its multi-cultural background and sparcity of population, it becomes of extreme importance that optimal use is made of the vocational education available.

Students need to be aware of what types of vocational education will best meet their needs and, also, what types of vocational education are available. In order for junior high school students to best receive and use this information, it should be available in a unified and organized manner to those in charge of providing the information.

B. DESCRIPTION

The need for occupational information oriented toward the interests and problems of junior high school youth has been brought to the attention of the Department of

Labor repeatedly during the past several years (Wood, 1960). In spite of the recognized need for occupational information geared to the junior high school student most occupational publications have been designed primarily for use in guidance of senior high school and post-high school students.

The junior high school age is not a time for refined occupational decisions, but a time for exploratory, tentative and a few important decisions. These latter decisions deal with which general curricula to pursue in high school, e.g., college preparatory versus technical training, etc. Even though these decisions are not occupationally specific, they can have major limiting effects on later occupational possibilities. The role of occupational information is primarily one of encouraging the exploratory process to as wide a range of opportunities as is feasible within the limits of each individual's self-concept. Occupational information, in its various forms, (Fletcher, 1960) can be significant in this process, but the nature of the material, timing of its presentation, and appropriateness to individual needs are crucial factors in determining effectiveness. To be suitable for the junior high school age group, occupational materials must answer the questions of the age group and conform to appropriate reading levels. The scope of occupational information must meet the complete range of individual needs and values as related to the future realistic demands of the labor market.

Occupational information is not just a group of pamphlets and books in the library or in the counselor's office. Rather, it is integration of all available appropriate materials into all aspects of the curriculum and total part of the school. Such integration demands that guidance counselors not limit their activities and influence to the counseling office. Counselors must cooperate with teachers and persuade them to incorporate occupational information in their courses and other school activities.

With proper ingenuity and careful planning such incorporating may be done without detriment to curricular content. Such integration would seem of crucial importance to the small school which in most cases cannot provide organized guidance services.

Arbuckle (1960) suggests that the curriculum, while fluid, is already established so that it would not be unreasonable to suggest that any new occupational materials that are planned for the junior high school are prepared with some understanding of the junior high school curriculum and just where they might be used in the curriculum.

This project attempted to organize occupational materials in vocational education in such a way as to be meaningful to the person or persons having the responsibility for providing the service. The junior high school curriculum is certainly a full one, and if the material is to be effectively used, provisions must be made for its best use.

While federal funds have certainly eased the strain of providing occupational materials, money is still somewhat a factor. Application of evaluation standards (Hill, 1960) can certainly improve the use of limited budget monies for purchasing occupational material. One study dealing with the readability of occupational information (Ruth, 1962) indicates that much of the occupational material studied was too far above the average reading level to have much usefulness. It would be of great benefit in the usage of the materials if one source of readable materials was available to the person in charge of their use.

In the use of the materials, group techniques have proven to be of value. Bell (1964) indicates that group procedures can be effectively stimulating to the students. In a study by Gribbons (1960) the use of group techniques seems to have been helpful in aiding pupils to make accurate appraisals of their abilities, values, and interests

and in providing information about occupational opportunities. Group guidance can be effectively utilized within the framework of the classroom situation.

A study by Hanson (1965) indicates that specific areas differ in their specific needs for occupational information. While occupational information in the junior high school is not geared to an early specific choice of a career, the limitations of geographic information certainly influence the choice of a career. Caplan (1963) emphasizes the need for the students to develop a realistic self-concept in order to make adequate decisions. A realistic self-concept must include the limitations of the geographic area. This then, would seem to indicate that students in New Mexico would probably have needs in the area of occupational information specific to their area. Hunter (1959) says that in rural areas direct contacts with some types of occupations is an impossibility so the importance of indirect contact through occupational information becomes even more obvious.

Foster and Dungan (1960) conducted a survey of the states to see how occupational information was being used. They asked state officials to indicate the extent to which occupational information was being included in the curriculum of the State schools. In New Mexico, the high schools were conducting units on the nature of career opportunities, but no mention was made of any organized procedure in the junior high schools. While this does not indicate that no provision was being made in the junior high schools, it is possibly indicative that no organized plan for the dissemination of occupational information was in use.

A survey was conducted in conjunction with this project to determine what steps had been taken in the various states to provide for dissemination of occupational information about vocational education in the junior high school. The results of the survey indicated that few states have taken specific steps to insure adequate

information dissemination in this area, although several are planning projects in the area.

Maze (1964) indicates the value that occupational information can have for vocational education. He indicates that occupational information in junior high schools can be a valuable aid in helping students make decisions about future specialization in vocational education.

Although occupational information for junior high school students is available from present sources, a review of the literature indicates that no present source includes criteria for evaluation, examples of appropriate information, and most important, methods for its best dissemination to the student. This development project emphasized not only the possible sources, but also practical suggestions for the integration of the material into the curriculum. These suggestions will be helpful to schools with an organized guidance program as well as those schools in New Mexico not large enough to employ a full-time guidance counselor.

Arbuckle (1960) gives an example of how a teacher can utilize occupational information. This teacher had planned an exploratory unit to introduce students to various occupations. A snow storm disrupted many services in the community and made it possible to discuss what jobs were created by the storm, and which ones were hindered by the storm. The students surveyed jobs in the community, collected materials, used the D. O. T., made bulletin boards, and made individual reports. Field trips were also used. As a result of the unit, the students became much more aware of the world of work in the community.

This development project emphasized the fact that occupational information which is not effectively used in helping students make vocational decisions is of little or no value. Specific objectives to be attained in the project are included in the next section.

C. OBJECTIVES

The objectives of the study were to:

1. Set up criteria for evaluating the appropriateness of various occupational materials related to vocational education such as leaflets, books, film-strips, cartoons, etc., for use in the junior high school.
2. Compile an annotated list of occupational materials appropriate for use in the junior high school.
3. Prepare guidelines such as teaching units and aids through which these occupational materials may be incorporated into curricular content.
4. Suggest various community resources which can be used locally so that students can become fully informed about occupations and job opportunities in their own communities.
5. Suggest guidelines for utilizing occupational information effectively in group sessions.

D. ADMINISTRATION

The principal investigators for the project were Dr. Richard DeBlassie and Mr. William P. Jones of New Mexico State University. Consultants for the project included Dr. William C. Cross, Head, Department of Guidance and Psychological Services, NMSU; Dr. Robert Swanson and Mr. Bill Kelsay, Division of Guidance and Special Education, New Mexico State Department of Education, Santa Fe.

E. PROCEDURES

Information and data used in this project were obtained by means of the following procedures:

1. A review of the literature was made in terms of:
   (a) Generalized descriptions of the junior high school student, particularly the 12 to 14 year old developing in the modal particularly with regard to personal-social and vocational development.
   (b) Criteria which occupational materials such as leaflets, books, filmstrips, etc., should meet in terms of their appropriateness for the junior high school level.
   (c) Guidelines for the classroom teacher as aids for understanding the place of occupational materials in the curriculum in the junior high school.
   (d) Guidelines for utilizing occupational information effectively in group sessions in the junior high school.
2. Consultation with specialists in instruction, curriculum, guidance, reading, etc., in order to determine guidelines for integrating occupational materials into the curriculum as well as setting up criteria for evaluating the appropriatene of such material for the junior high school student.
3. Consultation with various representatives from companies producing occupational materials.
4. Contacts with schools, locally and statewide to determine just what has been done in the public schools in regard to the use of occupational materials in the junior high school.

5. Review and present an annotated representative list of books, films, pamphlets, etc., based on pre-determined criteria for appropriateness at the junior high school level.

F. OCCUPATIONAL INFORMATION IN NEW MEXICO

Purpose of the study. The purpose of this study was to determine relevant information concerning the availability and use of occupational information in the public junior high schools of New Mexico.

Procedures. In order to achieve the stated purpose, the questionnaire-survey method was utilized. While certain limitations are obviously present when utilizing this method, it was decided that the questionnaire would be the most appropriate instrument for this study.

A questionnaire dealing with seven relevant questions was prepared. These questions were concerned with (1) whether occupational information was available, (2) the extent of use by professional staff, (3) extent of use by students, (4) source of the major proportion of the material, (5) percentage of materials relevant for vocational education, (6) appropriateness of reading level, and (7) factors which may be limiting the use of occupational materials.

The questionnaire was mailed to 141 schools and returned by 123. This constitutes an 87% return certainly large enough for at least tentative conclusions to be drawn.

Results

Question 1: Do you have a file of occupational information available in your school?

_____yes _____no N=123 yes=105 87%

no= 18 13%

Question 2: Estimate the extent to which the material is utilized by the professional staff. _____often _____occasionally _____seldom

N=105

often=10	9%
occasionally=65	62%
seldom=29	28%
no answer= 1	1%

Question 3: Estimate the extent to which the material is utilized by the students.

_____often _____occasionally _____seldom

N=105

often=34	33%
occasionally=60	57%
seldom=10	9%
no answer= 1	1%

Question 4: Indicate the source of the major proportion of the material. Published Kits (i. e. SRA, Chronicle, etc.)_____ Free Materials _____Other (please specify)

Published Kits	28	27%
Free Materials	18	17%
Other	1	1%
Published Kits and Free Materials	45	43%
Published Kits and Other	4	4%
Free Materials and Other	5	5%
Published Kits, Free Materials and Other	3	2%
No Answer	1	1%
	N=105	

Question 5: Estimate the percentage of the material dealing with occupations not requiring a college degree. _____%

Estimated Percentage	X	%
0-24%	10	10
25-49%	22	22
50%	34	35
51-75%	27	28
76-100%	5	5
	98 (no answer =7)	

Question 6: Is the reading level of most of the materials appropriate for junior high school students? _____yes _____no

N=105	yes=86	82%
	no=15	14%
	no answer= 4	4%

Question 7: Indicate factors which may be limiting the use of the materials. Materials are not easily accessible _____ Materials are not appropriate for the grade level _____ Lack of integration of materials into curriculum _____ other _____

Materials are not easily accessible	4	3%
Materials are not appropriate	2	2%
Lack of integration of Materials	41	40%
Other	12	11%
No limiting factors	3	3%
Not accessible; not appropriate	2	2%
Not accessible and lack of integration	8	7%

Not appropriate and lack of integration	6	6%
Not appropriate and other	3	3%
Lack of integration and other	3	3%
Not accessible; not appropriate and lack of integration	5	5%
Not accessible; lack of integration and other	3	3%
No answer	11	10%

Discussion.

It is interesting to observe that at least 87% of the reporting schools do have an available file of occupational information.

The results of the questions on the use of the materials indicate that 90% of the students use the materials at least occasionally while only 71% of the faculty make use of the materials to that extent. It is probably reasonable to assume that if the faculty perceived a need for using the materials, their use of the information would increase and this might well lead to even further usage by the students. A possible solution then is to convince the faculty of the need for relating the subject matter to occupational exploration. Another possible reason for lack of faculty usage might be the limitations of the file itself. This also should be investigated.

The major proportion of materials seems to come from published kits supplemented by free materials. Some sources listed under the category of other include: government publications, library books, pamphlets and briefs directly purchased, and collections of materials from miscellaneous sources.

The largest single category in the estimation of percentage of materials related to vocational education was 50%. Ten percent of the schools estimated that less than 1/4 of the materials were related to occupations not requiring a college degree,

and five percent of the schools reported that over 3/4 of the material was related to such occupations. Even a 50% ratio of college-noncollege materials is probably not adequate in light of the number of students who will actually complete college.

The fact that 82% of the reporting schools felt that the reading level of the materials was appropriate for junior high school students is quite interesting in light of published research reported elsewhere in this paper indicating that many if not most of the materials do not have an appropriate reading level. (Ruth, 1962) Another factor to consider was the report that 90% of the students do at least occasionally use the material. If the published research is actually indicative of reading level, it is difficult to see how students can make this much use of the material without a great deal of help. This question needs further investigation.

In terms of factors limiting the use of the materials, a total of sixty-six schools (70% of those who reported a limiting factor) considered a lack of integration of materials into the curriculum as at least one of the limiting factors. Factors listed under the category of other included: students lack of time, lack of materials, faculty lack of time, lack of knowledge about use, lack of staff interest, and just beginning program.

In conclusion, it should be noted that the limitations of the questionnaire-survey method make it difficult to ascertain whether the reports are actually descriptive of the status of occupational information in the junior high schools. However, it should be noted that regardless of the actual validity of the reports, they do represent how school officials presently perceive the situation. This perception is certainly a factor to consider, since if officials are satisfied with the present situation, little will be done to change it. Perhaps it would be wise to follow this study with a rigorous examination of the usage of materials in a selected sample of schools to

determine the amount, if any, of discrepancy between how officials feel the material is being used and how it actually is being used.

G. SUMMARY

It is hoped that this document will aid the classroom teacher as well as the counselor in incorporating and effectively using occupational materials in the curriculum. This is particularly important for the small schools in New Mexico which are without the services of a guidance counselor. As stated previously, better usage of occupational information in exploring tentative decisions at the junior high school level is a necessity if optimal value from vocational education is to be achieved. Such a document becomes even more important at the junior high school level since most occupational materials have been designed for use in guidance and vocational planning of senior high school and post-high school students.

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CHAPTER II

CHARACTERISTICS OF THE JUNIOR HIGH SCHOOL STUDENT

The period known as preadolescence or early adolescence is one of the most difficult to describe because of the wide variations found in this group. Thompson (1960) notes that it is practically impossible to characterize the typical junior high school student because of rapid change and wide variation in the rate of growth. He adds that the junior high school student may range from the accelerated ten or eleven year old to the retarded sixteen or seventeen year old student. This chapter will be concerned with a description of the modal or typical junior high school student which would generally encompass the age range of twelve to fourteen years of age. The focus will be on personal-social and vocational aspects of this age group.

One of the more effective ways of describing a group is in terms of developmental tasks. These are the varieties of learning essential for satisfactory growth and adjustment at successive stages in development (Bennett, 1955). The two major classifications of developmental tasks are Erikson's eight stages of man and the developmental tasks as presented by Havighurst.

In terms of Erikson's classification (Erikson, 1950), the junior high school student is at the stage of developing a sense of identity or a sense of accomplishment. This is the fourth stage in the eight stages of man. It begins at about six years of age and extends over five or six years. The chief danger of this period according to Erikson is the presence of conditions which may lead to feelings of inadequacy and inferiority. Erikson says that both curriculum and methods of teaching should be realistically planned so that every child will enjoy the feeling of successful accomplishment. The child must strengthen the skills he already has and acquire new ones, or school will be an experience of rejection and failure rather than an experience which stabilizes his personali

The next stage in the eight stages of man is in the sense of identity. During adolescence the individual is precariously balanced between being a child and being an adult, and he vacillates between one role and the other seeking to identify himself. The adolescent's sense of identity is as much oriented to the conception his peers have of who or what he is as it is to his own evaluation of himself.

Havighurst (1953) conceptualizes the growth process in terms of tasks which are appropriate for various age levels. Some developmental tasks and behavioral implications for junior high school students are noted below (*):

1. Achieving appropriate dependence-independence pattern.	1. The junior high school student is beginning to establish his independence from adults in all areas of behavior.
2. Achieving an appropriate giving-receiving pattern.	2. The junior high school student is learning to accept himself as a worthwhile person. His giving-receiving patterns extend beyond family to teachers and peers.
3. Relating to social groups.	3. The junior high school student behaves according to a shifting peer code and experiences a need to belong.
4. Further development of the conscience.	4. The junior high school student is attempting to understand and internalize the mores of an adult society
5. Learning one's psycho-socio-biological sex role.	5. The junior high school student while strongly identifying with his own sex is attempting to learn his role in hetero-sexual relationships.
6. Developing an appropriate symbol system and conceptual abilities.	6. The junior high school student is in the process of moving from the ability to deal with only the concrete to the ability to deal with complex abstract concepts.

(*) Adapted from Havighurst (1953) and Bossing & Cramer (1965)

Other personal-social characteristics of the junior high students are noted by Britton and Winans (1958). They say that with this age group, teamwork is now readily understood and practiced. Students can work together effectively on projects and enjoy games involving detailed organization. Both friendships and quarrels are becoming more intense though neither is likely to survive for a long period of time. They emphasize the changing nature of this type of student. One day he is acting the role of an adult, and the next he is a child again. The junior high school student may have reached a point where he looks to some adult other than a parent for help in understanding the complexities of life. This adult must respect his independence, make him feel that he is being treated as a peer and be willing to listen at length as well as to talk.

The uncertainties and insecurities of the junior high student make it difficult for him to accept criticism. Both boisterous and nervous behavior indicate that the junior high student is experimenting with new feelings. Students may become less responsible and less obedient than at a previous age.

In terms of vocational development Thompson (1960) notes several characteristics of the junior high school student. The typical student exhibits a wide range of vocational development. The modal stage is characterized by thinking about and planning for high school careers. Vocational problems are broad in nature and still somewhat remote. Students are not thinking primarily in terms of specific jobs of occupations, and are more concerned with self realization through challenging or exploratory experiences than with planned reality testing of occupational goals. Junior high students tend to have more information about requirements for jobs than about duties, conditions of work, or opportunities.

Lewin (1960) adds that levels of reality and irreality are becoming differentiated during this period. That which is dreamed of or wished for (level of irreality in the future) is becoming separated from what is expected (level of reality in the future). Vague ideas are being replaced by more or less definite decisions in regard to preparation for future occupations. Lewin notes an interesting paradox in that adults praise the hero who has realized what seemed to be impossible and at the same time preach the moral of "standing with both feet on the ground."

Super et. al. (1960) believe that vocational choice is essentially a developmental process and place the junior high school student in the growth stage. Junior high students are typically in the interest and capacity phase of this growth stage. In the interest phase, student's likes are the major determinants of aspirations and activities while in the capacity phase the student begins to perceive the importance of his abilities and the requirements of various jobs are considered.

Several important aspects of career choice are noted by Super (1953). He says that the nature of a career pattern is determined by the individual's parental socio-economic level, mental ability, personality, and opportunities. Development is guided by the maturation of ability, interest, reality testing, and the self-concept. The process of vocational development is essentially that of developing and implementing a self-concept. It is a compromise process in which the self-concept is a product of the interaction of inherited aptitudes, neural and endocrine make-up, opportunity to play various roles, and evaluation of the extent to which results of role playing meet with approval of superiors and peers.

In another publication, Super (1960) stresses that ninth graders tend to be ready for vocational exploration, rather than for vocational choice. This exploration involves a commitment to find out about oneself and about some aspect or segment of the world of work. Research has indicated that aptitudes, interests, self knowledge, and attitudes of ninth graders are still changing and developing. Thus, they tend not to be ready for a final vocational choice.

Ginzberg et. al. (1951) also utilize a developmental approach to vocational choice. They place the junior high student in the period of tentative choice. There are four stages of development in this tentative choice, interest, capacity, value and transition. The junior high school period typically includes the first two stages. First choices are made primarily in relation to interests, and later the capacity of the individual is considered with more realistic vocational choices becoming evident.

Fletcher (1960) agrees that the junior high school age is not a time for refined occupational decision but is a time for exploratory tentative decisions. However, in the typical junior high school situation, decisions must be made as to the type of high school curricula to follow, and these decisions can have a major limiting effect on the later occupational possibilities. Because these choices do have a limiting effect, Super (1960) says that educational organization should facilitate exploration. In the junior high school, it may be reasonable to require commitment as to level (i.e., college or non-college), but it is not reasonable to require a commitment to a specific occupational field.

SUMMARY

In summary, it can be said that the junior high school period is one of exploration, both in personal-social and vocational characteristics. In terms of personal-social characteristics the junior high school student is in an intermediate stage between the child and adult and is attempting to find his place in the adult world. Wide inter-individual and intra-individual behavioral variations will be the typical situation in a junior high school. The adult working in the junior high school setting would do well to become familiar with the developmental tasks as presented by Havighurst and to use them in interpreting the behavior of the junior high school student.

In terms of vocational characteristics, the junior high school student should be encouraged to learn more about himself and about the world of work. Super (1960) notes that the interests, aptitudes, etc. of this age group are not stable enough for the student to make a positive vocational commitment. Junior high students are in the process of exploring the world of work in order to make an occupational commitment. They should be given access to many kinds of vocational information, so this process will not be severely limited by the individual's lack of knowledge about various occupational opportunities.

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CHAPTER III

CRITERIA FOR EVALUATION

Because the sources and types of occupational information are so numerous, determining adequate and usable criteria for evaluation of occupational information becomes very important. Evaluation criteria which are adequate, but are so time consuming as to limit their use, are of little value in the public school situation. In this chapter, both the adequacy and usability of criteria will be considered. The format essentially is that appropriateness of occupational information is best determined through the answering of the following questions: when, where, who, why, and how.

A. WHEN

This is one of the most important questions and is one of the most difficult to ascertain. Hoppock (1957) suggests that this should be the first question because if the answer to this question is negative, it is probably not necessary to ask the other questions. Shertzer and Stone (1966) note that determining whether or not material is up to date may present a difficult problem.

First, there is a publication lag (usually two-five years) in commercial materials. Another factor is that labor trends are complex and require considerable effort to incorporate into usable information. Despite these problems some effort to answer the question must be done. Hoppock (1957) says that one factor to consider is the copyright date. The first copyright date is the important one as later dates may indicate only minor changes in the material. The person making the evaluation will have to make a decision as to whether the material is up to date considering both the publication date and the changes in this occupation during the time since the publication da

Changes in the occupation would seem to be most important in occupational information for vocational education. Automation and its possible effects must be carefully considered in determining if occupational information for vocational education is still applicable.

Another confounding factor is that material for use in the junior high school must take account of future trends. Occupational information relevant only for the present will be of little value in use with junior high school students.

The revised standards for occupational literature (NVGA, 1964) note that the material should indicate when the material was gathered, as well as when it was published. If there is a large discrepancy between the gathering of the material and the copyright date, this may also indicate material which is out of date.

B. WHERE

The second question to be asked is whether the occupational information is pertinent to the area in which it will be utilized. Baer and Roeber (1958) say that occupational information should be present in a social and economic setting both local and national in scope rather than as an isolated phenomenon. While the mobility of today's society makes it unnecessary to completely limit the scope of occupational materials to a specific geographic area, there are of course, limitations in scope. The occupational material should clearly note whether the information presented is applicable to all areas of the nation or is specific to a single area.

The evaluator again must make a judgement as to whether the vocational opportunities described in the material are appropriate for the group with whom he is working. However, it must be emphasized that students in the junior high school

may well be living in a different area by the time the specific vocational decision is made. This would seem to allow the evaluator somewhat more leeway in determining whether the material is describing opportunities in an appropriate region.

C. WHO

The revised standards for occupational information (NVGA, 1964) say that the material should state specifically what organization, group, or individual sponsored it. The material should state who gathered the material and give information about the qualifications of the author such as his title, occupation, training, and experience.

Hoppock (1957) adds that the complexity of analyzing occupational trends makes it difficult for any but the full time occupational researcher to do an adequate job of describing an occupation. Norris, Zeran and Hatch (1960) note that the evaluator must make an effort to determine if the authorship is professionally sound.

Part of the reason for the emphasis on the qualifications of the author deals also with why the material was written. This aspect will be considered in the next section. It is sufficient to say at this point that the qualifications of the author or authors will be a significant factor in determining why the material was written.

D. WHY

The question of why the material was written may present a complex problem for the evaluator. Hoppock (1957) says that the evaluator should determine whether the material is written for recruitment, for information, or for entertainment with preference given to material which is written for information.

The revised standards for occupational literature (NVGA, 1964) say that the description of an occupation should be an accurate and balanced appraisal of the

opportunities in an occupation. Materials should not be unduly influenced by recruiting, advertising, or other special interests.

The answer to this question become difficult in that recruitment, information, and entertainment may be interrelated rather than isolated entities. Another confounding factor is that while the material prepared for information purposes is possibly of greatest value, materials written for recruitment are often free. It is not sensible to completely disregard information which may be helpful in career exploration simply because the material was designed to recruit future employees. The evaluator will again have to make a judgement as to the degree to which statements in the information truly reflect the actual job situation and the extent to which they are merely attempting to paint a rosy picture.

E. HOW

If the other questions have been answered satisfactorily, the final aspect to be considered is how the material is presented. This section will deal with the two major media for presenting occupational literature, printed material, and films.

Printed Material

The revised standards for occupational literature (NVGA, 1964) list a number of criteria to be utilized in evaluating occupational literature. They divide these into two categories, guidelines for content and criteria for style and format.

Guidelines for content. A definition of the occupation should be included. This definition may come from the Dictionary of Occupational Titles or from the U. S. Employment Service.

The history and development of the occupation should be included as well as the specific nature of the work such as duties performed, possible work settings, etc. Requirement for entrance should be included as well as special requirements such as licensure or certification.

Another important aspect is in the description of usual lines for advancement or possibilities of transfer to related occupations. Earnings, both beginning and average wage or salary, should be included with other significant factors such as commissions, tips, etc.

Employment outlook should be included, and conditions of work, including social and psychological factors such as work satisfaction, and patterns of relationship with supervisors, should be noted.

Of particular value for junior high school students would be opportunities for experience and exploration through summer and part-time employment, work study programs, youth organizations, and community services.

Criteria for style and format. The standards note that the intended use of the material will be a critical factor in the consideration of style and format. The style of the material should be clear, concise, and interesting to the readers for whom the material is intended. The total format of the material should be of the quality to enhance the effectiveness of the material. All charts, graphs, etc. should be properly titled and interpreted. Sources of the data should be given.

Industrial brochures. Of particular value in vocational education is the guide for preparing industrial career brochures prepared by the National Vocational Guidance Association (1964). The authors stress that the presentation of information

should consider the individuals for whom the material is presented. They note that some job seekers tend to think of job opportunities in terms of occupational classifications such as sales, transportation, repair and maintenance, etc., while others (particularly the junior high school student) will think in terms of school subjects such as mathematics, bookkeeping, language, or woodworking.

The writing style and vocabulary should be defined. A suggested outline for industrial brochures includes the following categories:

I. Introduction

   A. Purpose and uses of brochure
      1. Sponsoring organization
      2. Audience for brochure

   B. Scope of information
      1. National or local data
      2. Geographic distribution of jobs

   C. Sources of information

   D. Date of data collection

   E. Publication date

II. Industry characteristics and trends

   A. Description of products or services

   B. Role of the industry in the economy

   C. Size of the industry
      1. Number of employees
      2. Volume of products or services
      3. Physical plant

   D. Employment outlook
      1. Past trends and current situation
      2. Seasonal or cyclical factors
      3. Forecast

III. Occupations in the industry

A. General occupational groups

B. Individual occupations
   1. Entry jobs
      a. Opportunities: scholarships, summer jobs, apprenticeships
      b. Requirements: education, experience, licensing, equipment personal traits
   2. Promotional opportunities
      a. Channels
      b. Steps
   3. Earnings
      a. Entry salaries
      b. Median after 5, 10 years
      c. Top ranges
   4. Fringe benefits
      a. Sick leave
      b. Vacation
      c. Insurance
      d. Retirement
   5. Working conditions
      a. Plant environment
      b. Locations
      c. Hours
      d. Employee facilities

IV. Unions and professional organizations

Reading level. One of the major concerns in evaluating printed material is the readability of the material. At least one writer (Ruth, 1962) indicates that the reading level of some occupational materials is much too difficult for many high school students. Since this project deals with junior high school students who in general are not college bound, the reading level becomes of even more importance. A typical practice in the dissemination of occupational materials is to place the material in situations where the student can pick it up and read it at his convenience. Libraries and the foyers of counseling offices are often chosen. This practice becomes of questionable value if the materials are above the reading level of the students.

Determining the reading level of materials is often a difficult process. While several types of procedures are available, some are quite difficult to utilize. One method deals with the specific words utilized in the material. An example of this method is given in Botel (1962). This method will not be explained in detail, because it is felt that the method is so time consuming as to limit its practicality.

Another technique for determining readability utilizes a ratio of the number of one syllable words and the length of sentences. An example of this method is the Farr-Jenkins-Patterson simplification of the Flesch procedures (Farr, et. al., 1951). This method is relatively easy to use and is perhaps the most practical technique to utilize in the typical school situation, because it takes only a short period of time. The procedures for using this technique are listed below:

1. Randomly choose at least three 100 word samples from the material. Each sample should start with the beginning of a paragraph. The sample should terminate with the end of the sentence coming closest to the completion of 100 words. Thus, if the end of a sentence is the 98th word in the sample, and the end of the next sentence is the 103rd word, the sample should stop with the 98th word.

2. The next step is to determine the average sentence length. This is done by counting the total number of words in the three samples and dividing by the total number of sentences in the sample.

3. The third step is to determine the number of one syllable words per 100 words. This is done by counting the total number of one syllable words in the three samples and dividing this total by three.

4. Using the numbers found in steps 2 and 3, enter the table on the next page to find the Reading Ease Index:

FLESCH READING EASE INDEX TABLE (Farr, et.al., 1951)

Average Sentence Length	Number of One Syllable Words Per Hundred Words																						
	84	82	80	78	76	74	72	70	68	66	64	62	60	58	56	54	52	50	48	46	44	42	40
9	94	90	87	84	81	78	74	72	68	65	61	58	56	52	49	45	42	40	36	33	29	27	23
10	93	89	86	83	80	77	73	71	67	64	60	57	55	51	48	44	41	39	35	32	28	26	22
11	92	88	85	82	79	76	72	70	66	63	59	56	54	50	47	43	40	38	34	31	27	25	21
12	91	87	84	81	78	75	71	69	65	62	58	55	53	49	46	42	39	37	33	30	26	24	20
13	90	86	83	80	77	74	70	68	64	61	57	54	52	48	45	41	38	35	32	29	25	23	19
14	89	85	82	79	76	72	69	67	63	60	56	53	50	47	44	40	37	34	31	28	24	22	18
15	88	84	81	78	75	71	68	66	62	59	55	52	49	46	43	39	36	33	30	27	23	21	17
16	87	83	80	77	74	70	67	65	61	58	54	51	48	45	42	38	35	32	29	26	22	20	16
17	86	82	79	76	73	69	66	54	60	57	53	50	47	44	41	37	34	31	28	25	21	19	15
18	85	81	78	75	72	68	65	63	59	56	52	49	46	43	40	36	33	30	27	24	20	18	14
19	83	80	77	74	71	67	64	61	58	55	51	48	45	42	39	35	32	29	26	23	19	17	13
20	82	79	76	73	70	66	63	60	57	54	50	47	44	41	38	34	31	28	25	22	18	16	12
21	81	78	75	72	69	65	62	59	56	53	49	46	43	40	37	33	30	27	24	21	17	15	11
22	80	77	74	71	68	64	61	58	55	52	48	45	42	39	36	32	29	26	23	20	16	14	10
23	79	76	73	70	67	63	60	57	54	51	47	44	41	38	35	31	28	25	22	19	15	13	9
24	78	75	72	69	66	62	59	56	53	50	46	43	40	37	34	30	27	24	21	18	14	12	8
25	77	74	71	68	65	61	58	55	52	49	45	42	39	36	33	29	26	23	20	17	13	11	7
26	76	73	70	67	64	60	57	54	51	48	44	41	38	35	32	28	25	22	19	16	12	10	6
27	75	72	69	66	63	59	56	53	50	47	43	40	37	34	31	27	24	21	18	15	11	9	5
28	74	71	68	65	62	58	55	52	49	46	42	39	36	33	30	26	23	20	17	13	10	8	4
29	73	70	67	64	61	57	54	51	48	45	41	38	35	32	29	25	22	19	16	12	9	7	3
30	72	69	66	63	60	56	53	50	47	44	40	37	34	31	27	24	21	18	15	11	8	6	2
31	71	68	65	62	59	55	52	49	46	43	39	36	33	30	26	23	20	17	14	10	7	5	1
32	70	67	64	61	58	54	51	48	45	42	38	35	32	29	25	22	19	16	13	9	6	4	
33	69	66	63	59	57	53	50	47	44	41	37	34	31	28	24	21	18	15	12	8	5	3	
34	68	65	61	58	56	52	49	46	43	40	36	33	30	27	23	20	17	14	11	7	4	2	
35	67	64	60	57	55	51	48	45	42	38	35	32	29	26	22	19	16	13	10	6	3	1	
36	66	63	59	56	54	50	47	44	41	37	34	31	28	25	21	18	15	12	9	5	2		
37	65	62	58	55	53	49	46	43	40	36	33	30	27	24	20	17	14	11	8	4	1		
38	64	61	57	54	52	48	45	42	39	35	32	29	26	23	19	16	13	10	7	3			

5. Interpret the reading ease index with the following table (*):

Reading Ease Index	Grade Level
0-29	college graduate
30-49	13-16
50-59	10-12
60-69	8- 9
70-79	7
80-89	6
90-99	5

In interpreting the reading level of the materials, the evaluator should realize that reading level should determine who should use the material rather than whether or not it should be used. Materials can be quite useful to teachers and still be too difficult for use by students without supervision.

*Adapted from Flesch (1951)

Films

The National Vocational Guidance Association (1966) has prepared excellent guidelines for the evaluation of occupational films. The general classifications for evaluation are content, style and format, technical quality, and teacher's guide.

Content. Several characteristics should be noted by the evaluator. The interdependence of related occupations should be noted. Occupations should not be presented in isolation, but rather in terms of how various occupations are related.

The activities of the worker should be noted. The film should show whether the person needs to be a leader or a follower, the significance of human relations,

the initiative and imagination required, and whether the worker tends to work in relative independence or usually works in a group.

The film should indicate the surroundings in which the work is performed. All possible work settings should be realistically portrayed. Having representatives of the occupation preview the film is one method to test its authenticity.

There should be a section dealing with the amount of preparation required for the occupation. Both the extent and the type of preparation should be included as well as the necessity for excellence in workmanship. The authors note that the motion picture film has great potential for dramatizing the benefits of quality workmanship.

Opportunities in the occupation should be realistically portrayed. Possibilities for advancement within the occupation and personal rewards of the occupation should be included.

Organization related to the occupation should be described. A distinction should be made between organizations to which the worker is required to belong and those to which he may belong if he so chooses.

Inclusion should also be made of factors affecting the growth of the occupation Significant trends in occupations can be vividly shown through the media of the film.

Style and format. The evaluator should be concerned with the length of the film, implications for motivation, implications for social and ethnic groups, basic information, and credits.

A film of fifteen to twenty minutes in length will probably be more useful than a more lengthy film. After the presentation of the film, there should be time for a class discussion.

The film should encourage the student to make career plans consistent with his abilities. An occupational film should invite the viewer to see himself in the roles portrayed. Because of this identification with the characters in the film, it is helpful if more than one ethnic or social group is shown.

Of particular importance for material to be used in the junior high school is the necessity for films to de-emphasize fashion, situations, etc. which may change within a short period of time. Most occupations possess some enduring and basic characteristics.

Acknowledgements are due to any group which provides a film resource. However, the advertising or promotional themes should be limited to a brief credit at the beginning and close of the film.

Technical quality. The photography, art work, sound, and acting determine the technical quality of the film. The evaluator must determine if the technical quality is such to interest the group for which the film is being presented.

Teacher's guide. Especially helpful for use in the public school is the inclusion of a teacher's guide to the film. This should include:

1. date of publication
2. time length
3. definition of purpose
4. subject field and grade level of intended audience
5. brief synopsis of content
6. suggested topics for discussion
7. sources of information
8. glossary of technical terms
9. bibliography of reference materials

Other criteria. Higgins and Brown (1964) indicate that films can be judged in terms of four questions. The first is whether the film is relevant. Factors to consider in answering this question are the language of the film and the motivation and interest level in the film. These factors must be considered in terms of the specific group for whom the film will be used.

The second question is whether the film furnished information and background for discussion and appraisal of jobs. Of major interest here is the type of work done in the job, salary, working conditions, and personal qualities needed for success in the occupation.

The third question is whether bias is present in the film. The example given is that some jobs are carried on in noisy surroundings which may be rather unfavorable. These features should not be deleted from the film.

The final question is whether the film will do a more effective job of presenting the information than other means available. It may be that a film strip, a tape recording, or printed material will be more effective in presenting the material.

F. SUMMARY

It should be noted that evaluation of occupational materials must begin with a consideration of the characteristics of the group with whom the material is to be used. In this context the group will be junior high school students who may be interested in vocational education. It is very important that the evaluation be made with the characteristics of this group clearly in mind.

The first question to be asked is when the material was written. Out of date material will be of little value.

The second question is where the information is relevant. Material dealing with occupations or vocational education opportunities in areas out of reach for the students is also of little value.

The third question is who compiled the material. Preference should be given for material which was written by full time occupational research workers. In any case, the qualifications of the author or authors should be included.

The fourth question is why the material was written. The evaluator must make a judgement as to whether material written for the purpose of recruitment is so biased as to make it of questionable value.

If the other three questions have received satisfactory responses, the final question to be asked is how the material is presented. Specific criteria were given for evaluating printed material and films, including a technique for determining the reading level of the printed material. It should be emphasized that the criteria listed should be used as general guidelines for the evaluation rather than hard and fast rules.

One resource in the evaluation of occupational materials is the Vocational Guidance Quarterly. A listing of current occupational material which has been evaluated according to the standards of the National Vocational Guidance Association is included in each issue. The material is classified as highly recommended, recommended or useful (Norris, Zeran, & Hatch, 1960).

While this classification will be helpful, it cannot substitute for individual evaluation of the materials. In the final analysis each evaluator must determine the appropriateness of the material in his own school system for the particular student group with whom he is working.

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CHAPTER IV

OCCUPATIONAL INFORMATION IN THE CLASSROOM

It is, of course, obvious that if occupational information is to be of value, it must be used by the students. To merely have the material does not assure its proper use. A survey of New Mexico junior high schools indicated that one of the major reasons for lack of use of occupational information in the schools was a lack of integration of materials into the curriculum.

This chapter will deal with the use of occupational information in the classroom with particular emphasis on orientation for vocational education. It will begin with an overview of the use of occupational information in the junior high school, including the need for occupational information with this age group, some basic points in the use of the information, optimal characteristics of the teacher in occupational instruction, and procedures to be followed in integrating the materials into the curriculum. The second section will deal with group processes in general, with an emphasis on the group as a vehicle for occupational orientation. The third section will be concerned with the use of materials in the curricular framework already established, the unit approach. Occupations classes will then be discussed including the possibility of using the homeroom for the dissemination of occupational materials. The fifth section will deal with activities and resources which can be used in vocational orientation, and the final section includes examples of units which can be used.

A. OVERVIEW

Need for occupational information. Isaacson (1966) says that during the junior high school period, as the awareness of self is becoming more pronounced, the student inevitably moves toward a view of himself as seen against a background of the world of work. Career information activities must be involved with the transitional phase and provide the student with an opportunity to try out his self concept. This exploration emphasis is one of the traditional functions of the junior high school.

While students are typically several years away from making a firm occupational choice, most of the students are becoming concerned with the occupational world as they move toward it. A large portion of youth have had at least casual work experiences, such as baby sitting and newspaper routes, and hopefully these contacts lead to increasing awareness of the importance of wise vocational planning.

In the case of the early and the potential drop-out, there is an even greater responsibility to help the student see the relationship between academics and occupations. Since these students will be entering the labor market with more limited educational background and with fewer skills than most other workers, they will certainly need to capitalize upon whatever assets they have. The junior high school teacher may be the last school person who can help them accomplish this task.

In his recommendations about the junior high school, Conant (Shertzer & Greenburg, 1962) emphasizes the need for vocational and occupational planning at this level. He says that in schools with a high drop-out rate, this planning becomes even more essential. Conant doubts if present methods are proving adequate.

Basic points in the use of information. Arbuckle (1960) lists several points which should be noted in the use of occupational information in the curriculum:

1. The junior high school student is not going out into the world of work immediately. Most students will remain in school for at least a few more years.

2. Because of this, the problem is to help the student to develop the attitudes, understandings, and skills that will help him make the decision when he must.

3. The junior high school student is in an evolutionary, developmental process. His vocational, educational, and social maturity shows in the clarity and realism of his thinking and planning about future choices.

4. The junior high school contains a heterogenous population, and the problem that what is good for one student may not be good for all students must be faced.

5. Vocational information like all other information presented does not have value in and of itself. The skill and creativity in the presentation of the information may be remembered long after the information itself is forgotten.

Arbuckle notes that the problem consists of a population of junior high school students who are interested in, but unrealistic about the vocational future, a teaching staff which is sometimes uninterested and may be equally unrealistic about the vocational future of the students, and a curriculum which has tended to present a narrow and unrealistic picture about the world of work. Particularly in regard to occupational information about vocational education, an attempt must be made to reduce the negative feelings which many students and some teachers have about non-professional occupations.

Norris, Zeran and Hatch (1960) feel that different levels of information should be presented at different levels in the school system. At the junior high school level they list five goals or purposes of occupational information:

1. To learn about broad fields of work, for example, the skilled, the professional, the sales, and the clerical fields.

2. To see the relationship of these fields to curricular choices. The student is approaching a time when major educational decisions will have to be made. The student should be made aware of the possible vocational implications of his educational decisions.

3. To secure information about specific job employment. While most junior high school age children are still in school, they are rapidly nearing the age at which some leave school. In addition, many are at the age when part-time work may be needed in order to explore varied occupations or even to remain in school.

4. To understand the means for attaining accurate and up-to-date information about the occupational world. How to use annotated bibliographies about occupations, how to seek information in occupational files, and how to gather facts from workers themselves should be explained and the practice encouraged.

5. To understand the significance and scope of vocational planning. By this time, the student should begin to see that choice of an occupation is actually the choice of a way of life.

Important teacher attitudes and characteristics. Some of the things which teachers can do in regard to occupational information have been noted by Norris (1963). One of the major accomplishments of teachers could be in counteracting the view that certain types of vocations are much less important to society than others. In occupational information for vocational education this can be particularly important. Teachers can indicate that the world needs many different kinds of workers and can show that each occupation contributes in some way to the well being of society. One thing a teacher can do to accomplish this is to ask the student to imagine what the world would be like without that particular occupation. It should be obvious that in order for this procedure to be successful, the teacher must also have this feeling.

Teachers can be very helpful in assisting students to anticipate changes in the world of work. To make students aware of some of the vast changes now going on as well as those likely to occur in the future should help the student realize that changing goals and ideas are a part of growing up. Teachers who are in communities that have programs to retrain workers who are unemployed because of obsolete job skills can use these programs to illustrate the situation.

Norris emphasizes the importance of teacher attitudes toward the world of work. Various studies have indicated that teachers are usually middle class in orientation and may tend to reflect so called white collar attitudes. Most teachers are more familiar with professional, clerical, and sales work than with skilled or semi-skilled work.

A study by Lifton (1960) indicates that the distribution of teachers' knowledge about jobs was almost the exact reverse of the actual distribution of jobs as listed by 1950 census data. Obviously the teacher must become aware of vocational opportunities in all areas of the world of work if his influence on students is to be of value.

Baer and Roeber (1964) note that occupational exploration that takes the form of courses, units, or special curricular activities can be no more effective than the teachers who direct them. They feel that the two greatest handicaps are that many teachers perceive final occupational choice as the primary goal of students and that teachers are not convinced of the importance of this part of the curriculum. Particularly in the junior high school it must be emphasized that a final vocational choice is not the primary goal of occupational exploration. The goal rather is to provide the experiences which will aid the student in making choices whenever the time comes.

Baer and Roeber list a number of qualifications for teachers in an occupations curriculum. They note that personal traits probably determine a person's chance for ultimate success. While it is difficult to determine exactly what traits are necessary, they suggest a guidance point of view, a respect for democratic processes, an interest

in all occupational and educational roles, the ability to meet and work with others, and a satisfactory personal adjustment. Of particular interest in this paper is their feeling that a teacher should realize that every student cannot enter a profession or skilled trade, nor can everyone attend college. The teacher should not promote any particular occupation or group of occupations but should have a wholesome attitude toward all occupations and all forms of education and training.

Baer and Roeber suggest that the teacher should have experience in industry and business. They believe that a teacher whose experience has been confined to classroom teaching is poorly equipped to discuss the world of work with students and will not always be aware of such factors as apprenticeships, unions, labor-management relations, and the effect of socioeconomic conditions on occupations. While this is perhaps optimal, it is not realistic to insist that all classroom teachers will also have had a great deal of industrial experience. It would seem more realistic to insist that teachers whose work experience has been limited to the classroom take steps to become aware of the realities of the world of work.

Another suggestion is that teachers need professional experience and special preparation for teaching about occupations. Demonstrated ability in working with students is necessary and courses in occupational information will be of value.

Important procedures to be followed. Arbuckle (1960) notes several procedures to be followed in establishing the integration of occupational information in the curriculum. He says that there must be leadership, and it would seem that major professional responsibility for this leadership would fall on the shoulders of the guidance counselor or the guidance director. He notes that the success of the program depends entirely on the enthusiasm and willingness of the teachers in the junior high school to become

involved. The guidance director should gather information regarding the needs for occupational information dissemination and should present this evidence to the faculty members in an effort to promote this involvement.

Since some schools in New Mexico serving grades seven through nine do not have a guidance counselor, someone else will have to take the responsibility for leadership in the information program. The principal of course does have ultimate responsibility for programs in his school. However, if he does not have the time, interest, or the skill to supervise the program, he should choose a faculty member with an interest in the problem to supervise the information program.

Arbuckle says the next step should be a series of meetings between the leadership and small groups of teachers, possibly those representing one department or a particular area of study. Perhaps only the social studies teacher or only in the area of social studies would there be a planned attempt at integration of information into the curriculum.

A product of these meetings could be a workbook which would indicate the most logical and effective places in the social studies curriculum for the material to be included. This should include not only where the materials would be used, but also what specific materials could be used.

The curriculum while fluid is already established. Arbuckle suggests that it would not be unreasonable to suggest that any new materials that are planned for the junior high school are prepared with an understanding of the junior high school curriculum.

A fifth step according to Arbuckle is to make contact with other schools, locally and throughout the country to see what has been done. Frequently this sharing of information can be beneficial both to the giver and the receiver.

B. GROUP PROCESSES

The goals of group processes according to Norris, Zeran and Hatch (1960) are as follows:

1. To use the values of group situations to help students make better adjustments through the mastery of information and the exploration of common problems.

2. To introduce students to the variety of life activities and to the requirements, conditions, and rewards of specific activities.

3. To provide both students and teachers with information about students which will be of value to both.

4. To help students make wise educational, occupational, and personal-social choices and adjustments.

5. To orient students to new school situations.

6. To help students develop standards, values, attitudes, and habits appropriate to the life activities in which they are engaging.

7. To develop rapport between students and the teacher.

8. To give students an opportunity to share their attitudes, experiences, and problems with other students and to practice and test behavior in interpersonal relations.

9. To discover students in need of counseling and other guidance services.

Isaacson (1960) notes that traditionally the teacher works in and through the group setting. He spends most of his time in the classroom in direct contact with groups of students. Because of this, early guidance activities were typically in a group setting. Problems arose in attempting to utilize this framework perhaps because of lack of understanding of guidance, limited training of counselors and overly ambitious expectations. This resulted in a decrease in group activities, and an increase in individual counseling.

The pendulum seems to be swinging back toward group work, and this is reasonable since one can expect both teachers and counselor to be involved with groups, both in the formal structured situation of the classroom and outside the classroom where the groups may be either formal or relatively unstructured.

The place of group activities in the process of vocational exploration is noted in that most of the purposes listed for group guidance techniques (Bennett, 1955) are relevant to vocational exploration. These purposes are:

1. To provide opportunities for learning essential for self direction with respect to educational, vocational, and personal-social aspects of life through:

   a. Assistance in orientation in new school situations and in the best use of school opportunities.

   b. Group study of problems of interpersonal relationships and assistance in choice of group experiences in the school life that may modify both individual and group behavior in socially acceptable ways.

   c. Group study of problems of growing up, establishing adult adjustments, and applying mental hygiene in living.

   d. Group study and application of sound methods of self appraisal of attitudes, interests, abilities, personality and character trends and traits, and personal-social adjustments.

   e. Group study and application of efficiency methods in learning.

   f. Group study about occupational life and problems of occupational adjustment and progress.

   g. Assistance through groups in learning how to project suitable long range vocational plans.

h. Assistance through groups in learning how to project suitable long range educational plans.

i. Assistance in the development of discerning standards of value for making choices of experiences in various areas of living, and the developing of a growing philosophy of life.

2. To provide opportunity for the therapeutic effects of group procedures through:

a. The perspectives gained from the study of common human problems.

b. The release of emotional tensions, increased insight into personality dynamics, and creative redirection of energy through group study of these common human problems in a permissive atmosphere.

3. To achieve some of the objectives of guidance more economically and some more effectively than would be possible in a completely individualized approach.

4. To implement individual counseling and render it more effective through background study of common aspects of problems and the reduction or elimination of many emotional barriers to the discussion of unique aspects of common human problems.

According to Isaacson (1966) if one accepts a developmental view of the individual, it is reasonable to assume that many students will become involved in certain stages or phases of growth and maturity at approximately the same time. Group procedures then can enable the school to work with many of the students collectively on certain aspects of their development. The commonality of the problem may make it easier for many students to become involved with members of their peer group in seeking information. The group may prove that understanding will help students resolve their problems. Junior high school students will frequently feel more free to discuss problems with peers than with adults, and as was noted in the chapter on the adolescent, the approval of the peer group may well be more important to the student than the

approval of adults. The recognition that others of their peers face similar problems may help the student to achieve a different perspective on his own problems. Of course, in addition to these factors, there is an inevitable sharing of knowledge and information that leads to a broader foundation for ultimate decision making.

There are certain disadvantages and factors which may limit the effectiveness of group procedures. It is possible that one individual in the group may be ahead of the others in personally acquiring the information that the group is seeking. The group then may slow the progress that he as an individual could be making. It is also possible for specific individual problems to be overlooked while the group focuses on a broader or more general concern. The individual then doesn't acquire what he hoped to gain, or the rest of the group must mark time while attention is given to the individual. Finally, there is always a possible loss of status by an individual, since it may be difficult to develop a totally accepting group.

In order to derive maximal benefit from group practices, several things should be considered. Strang (1951) notes several points to consider if maximal benefit is to be achieved:

1. The goals should be clearly defined for the group. The goals should reflect the needs of the group and should be goals to which the group attaches enough importance to warrant some effort to achieve.

2. Each member of the group should be aware of his place in relation to the entire group. Each member should understand what kinds of behavior will tend to enhance the aims of the group and what behaviors are primarily related to individual needs. Some awareness should be developed as to the role the individual assumes with respect to the group.

3. The adult leader should attempt to maintain an atmosphere in which students are encouraged to take leadership responsibility and are encouraged to make a maximum contribution to the group.

4. Full participation by all members is essential to good group activity. This involves development of skills of each individual, of making room for the opinions of others and of recognizing the worth of each individual's contribution.

5. Efficient handling of external mechanical details contributes to constructive group activity. This includes a comfortable meeting place, realistic timing of meetings, regulating the composition of the group with respect to size and to balancing the skills of the members.

6. Since development of insight is a major goal of student group activities, the group should be encouraged to evaluate its own behavior from time to time. Evaluation should be drawn from the group members rather than imposed by the faculty leader, but the adult leader can make a valuable contribution by providing guidance and by framing questions for the consideration of the group which will open up new areas for analysis and self inquiry.

Bennett (1955) notes several characteristics of the adult leader of the group which will lead to meaningful group results. The leader should have some facility in the techniques of group work so he can prevent the group from being taken over by a few dominant members at the expense of successful participation by all of the members. He should guide the group purposefully forward, rather than allowing the group to squander its efforts aimlessly. However, he must be sure that he is guiding and not propelling.

If the group activity is focused around a specific skill or interest, the adult leader should be prepared to serve in some measure as an expert. He should be familiar with

the background in the field and know what the resources are for students who wish to pursue an interest more intensively.

The leader must be prepared to function as a moderator between the conflicting interests and conflicting personalities which almost inevitably will be found in a group.

The personal qualities of the leader cannot be completely dissociated from his performance. It is obvious that he must have the personal qualities which inspire and stimulate students, he must be patient and understanding, and he must have integrity and humility. At the same time, he cannot rely on these qualifications alone. The classroom teacher is in a leadership position and should attempt to learn as much as possible about group dynamics in an effort to improve leadership qualities.

It will be the position of this paper that the group is the most effective media to use in the vocational orientation of junior high school students, particularly in the dissemination of occupational materials. Many schools in New Mexico do not have the services of a guidance counselor for grades seven through nine, so group work in the classroom is a necessity. However, this does not indicate settling for second best. Group procedures have proven to be an effective means for the dissemination of occupational materials even in schools in which individual counseling is available. It is often noted that the utilization of group procedures makes individual counseling more effective when it is used.

Throughout this chapter, the focus then will be on materials and techniques which can be used by the classroom teacher in a group setting. Teachers should become familiar with the techniques of group guidance as well as the background of vocational and occupational information which is available. Neither knowledge nor technique is adequate alone. They are complementary and the teacher must have both knowledge

about the world of work and knowledge of group procedures if effective orientation is to take place.

C. THE UNIT APPROACH

As has been noted, presentation of occupational information in the junior high school is a necessity. A decision must then be made as to whether to utilize the integration and unit method or the occupations class as the basic media for presenting the information. It may well be that both methods will need to be utilized, but they will be discussed separately.

One of the best presentations of occupational units is given by Norris, Zeran, and Hatch (1960). They note that all subjects offer opportunity for exploring the world of work. As has been discussed previously, one of the major limitations in utilizing this integrative approach has been the teacher's lack of knowledge about occupational fields. Another factor which is also mentioned by Arbuckle (1960) is the fact that the curriculum is quite full and finding the time for additional units may present a problem. Norris et. al. say that there are two major classifications of the integrative approach, the general unit approach and special unit approach.

General unit approach. The general approach is quite similar to the occupations class which will be discussed in a later section. The major difference is in the amount of time devoted to the project. The general approach unit will usually last from two to nine weeks, and thus cannot be as inclusive as can the occupations class.

Basic areas of information which typically appear in outlines for the general approach unit are: (1) self understanding and appraisal; (2) vocational planning; and (3) educational planning. In terms of orientation for vocational education all three areas are very pertinent.

Norris et. al. note that if occupational information is to be meaningful, it needs to be related to the individual and to his environment. Thus, the first step in the unit would logically be a study of the interests, aptitudes, etc. of the students. Test scores can be used as a springboard for the discussion, and in fact, this could well be the most logical place to interpret test scores to the student. If test results are not easily accessible, or if the teacher does not possess the measurement competency to utilize standardized testing results, other methods are also available. Questionnaires and checklists developed by the teacher could be utilized either in addition to or in place of standardized testing results. The goal of the procedure is for the student to begin appraising his own vocational aspirations in light of his aptitudes, interests, etc. Since vocational choice is not the present concern, it should be emphasized that the most important aspect is for the student to become aware of his strengths and limitations, rather than for the teacher to become aware of these aspects. One possible technique to achieve this would be for the student to write an objective description perhaps in the third person of himself and his future aspirations. This should be preceeded by the dissemination of the information which the teacher is to provide.

It should be emphasized again that the unit is to serve the purpose of orientation, rather than leading to specific choice. The teacher should be very careful in presenting standardized test information to not mislead the student into the belief that any occupation is an absolute impossibility. As noted before, if there is doubt about competency in interpreting test results, they probably should not be utilized.

The second phase of the unit is in vocational planning. After the students have had the opportunity to assess their strengths and weaknesses as related to abilities, interests, and physical characteristics, they are ready to explore the world of work. At the junior

high school level, the emphasis should be on general fields rather than specific occupations. This phase would probably begin with a brief overview of the world of work with possible emphasis on areas in which students have shown the most interest or occupations which follow-up studies indicate are entered by many students after graduation.

It is in this area that the teacher will find his greatest challenge. Choices must be made as to the type of media to utilize and the extent to which any particular occupation will be emphasized. Perhaps the major caution should be in regard to the danger of misinformation. Students may be receiving their first exposure to some occupational groups, so hearsay and/or unbiased opinions have no place in this orientation. Planning must be done as to how to utilize the occupational information which is available, and this planning may be the key to the success of this phase of the unit.

Before the introduction of the unit, the teacher will have become familiar with all of the material available in the school and will have made an attempt to evaluate it. As noted in another part of this paper, the reading level of much of the material makes it unrealistic to assume that all students will be able to make good use of it without supervision. Some of the materials may have to be read to the students or discussed in group sessions, rather than left for individual perusal.

One question which will have to be answered is whether to take each student through a general study of all occupations or allow the student to make careful study of only that material relating to the occupation he is presently interested in. As with most questions of this type, the best answer probably lies between these two extremes. In a general approach unit at the junior high school level, it would seem best to have all students learn something about each occupational group. This, of course, does not negate the value of individual study as this individual research in areas of specific interest is one of the goals of the program. However, the position of this paper is that this should be in addition to rather than in place of the general study of all occupations.

It is very important for the teacher to present a realistic and balanced approach to occupational groups. A good starting point would be the Occupational Outlook Handbook published by the Department of Labor. This publication includes not only valuable information about specific fields, but also information about trends in labor distribution.

In the context of this paper, the teacher must become familiar with vocational opportunities associated with vocational education. While obviously the teacher will have had more experience with professional and managerial types of occupations, this group of occupations will not be entered by most of the students in most classrooms.

The federal government defines vocational education in terms of jobs not requiring a baccalaureate degree for admission. The teacher must make an effort to gain more than a cursory knowledge of opportunities in these fields. This knowledge need not come from first hand experience although this would probably be helpful. Both the Occupational Outlook Handbook and the occupational information available in the school should be carefully studied. A survey reported elsewhere in this paper notes that 87% of the reporting junior high schools in New Mexico do have at least some occupational materials available. The majority of the schools reported that approximately 50% of the occupational information available in their school dealt with occupations not requiring a college degree. The Occupational Outlook Handbook is distributed in New Mexico by the State Division of Guidance and should be available in all of the secondary schools in New Mexico.

One of the desired outcomes of the teacher's study of occupations will be a real understanding of the nature of the world of work and the importance of each occupation to the well being of society. This deep felt conviction is important because the attitudes of the teacher toward the occupational groups will be detected by the students whether or not the teacher is aware of it.

The final phase of this type of unit is in educational planning. While occupational decisions may not be imminent for the junior high school student, educational decisions are being made which somewhat affect occupational choice. In regard to orientation for vocational education this phase is of utmost importance. During this phase the teacher should help the students learn about opportunities in vocational education particularly those in New Mexico. An obvious first step is for the teacher to become aware of vocational education opportunities. Elsewhere in this paper, a partial listing of vocational education resources both in New Mexico and in other parts of the nation will be found. This list will be a good starting point for the teacher's planning, but the list will need to be constantly revised as new resources become available.

It is of importance to utilize these resources for the entire group rather than for a specific group of low achievers for whom the teacher feels that college is impractical. The focus is on orientation, and it is certainly as important for the college-bound student to learn about vocational education as it is for the non-college-bound to learn about the educational requirements for professional occupations.

As students learn about training possibilities in vocational education, perhaps the student who chooses this route will no longer feel that he has somehow become a second class citizen. Inclusion of these materials into the regular school curriculum should indicate that vocational education is considered as desirable by the academic community.

Special unit approach. The second type of unit approach can be called the special unit approach (Norris, et. al., 1960). In this type of approach, the teacher uses occupational information for occupational groups directly related to his own subject area.

It should be emphasized that all subjects in the junior high school curriculum do have some relation to vocational choice. While industrial arts and homemaking classes do have an obvious relevance, it must be emphasized that these are not the only classes which can be used. English teachers can effectively point out that practically all types of occupational groups require the ability to communicate effectively and shouldn't emphasize the importance of junior high school English only in terms of college success. Mathematics teachers can show how vocational and/or technical education programs necessitate certain mathematical skills for success. The increased student motivation will be more than worth the time required to plan the useful integration of the materials.

A possible weakness in this approach is that it may lead to a somewhat haphazard approach to vocational study. As semesters come to a close, and some part of the planned program has to be abandoned, it will be a temptation to leave out the sections involving occupational orientation. However, as pointed out by Arbuckle (1960), this problem can be dealt with by carefully planning the extent and type of curricular integration.

Some advantages of the special approach unit are in teaching techniques and student motivation. The teacher who emphasizes life activities related to his course will be far more realistic in selecting course content and in choosing methods. An obvious advantage as mentioned previously is that if students can gain a knowledge of the relationship between the course and future activities, much stronger motivation will be evidenced.

Burnside (1962) discusses more specifically how the information activities can be included in the regular curriculum. The first step is for the teacher to do some research to discover the best sources of occupational information as related to the subject he teaches.

The second step is for the teacher to attempt to arouse the interest of the students in learning about occupations. The third step is to point out the relationship between the subject matter and various occupational groups.

Burnside suggests that the teacher take advantage of panel discussions, movies, filmstrips, etc. in the study of occupations. He notes that the Kuder Preference Record can be used as a springboard for discussions of occupational groups.

In terms of his suggestions, it would seem that one of the most difficult tasks would be to arouse the interest of the students in studying about occupations and in the importance of utilizing all available information in making choices. Burnside discusses an interesting technique for arousing the interests of the students. This is an adaptation of the "guess who" technique sometimes used for personality assessment. The format of the adaptation is relatively simple. The teacher begins by presenting a fictitious name to the class and asking what occupational group this person is suited for. The class, of course, responds that it is impossible to even guess a possible occupation with such limited information. The teacher continues giving further information about this fictitious person until the class is able to give some tentative hypotheses about possible occupational choices. The outcome of this technique is that students will become aware of the need for a great deal of information from a number of different sources before making any kind of occupational decision.

Guidelines for unit development. An example of the steps to take in developing a unit are listed in Norris (1963). These steps are as follows:

I. Selection of a Unit - from group experiences, pupil ideas, teacher resource guides, course of study

II. Preplanning by the Teacher

A. Purposes

1. Concepts

2. Attitudes

3. Skills and Special Abilities

4. Subject Matter Outcomes

B. Possible Resources

1. Books and References for Pupils

2. Books and References for Teacher

3. Audio-Visual Aids Available

4. Resource Persons

5. Community Resources

C. Approach - Possible Motivating Devices

1. Discussion

2. Conversation

3. Exhibits

4. Magazines

5. Pictures

6. Stories

7. Newspapers

8. Books

9. Television, Radio

10. Films

11. Field Trips

12. Special Needs or Experiences of the Group

D. Content

1. List Major Problems

2. List Major Topics Around Which a Unit May Be Organized

3. List Stimulating Questions

4. Identify the Unit with What Preceeded and What Will Follow

5. Provide for Correlation

6. List Possible Culminating Activities

E. Evaluating

1. Observation

2. Anecdotal Records

3. Rating Scales

4. Samples of Work

5. Planned Tests

6. Group and Individual Activities

7. Discussion

8. Conferences

III. Developing the Unit Together - pupil participation is very important even if group planning takes a somewhat different avenue than was planned by the teacher

A. Planning with Students

1. Help students set up their purposes for the unit which are often stated as broad questions to be answered by the unit

2. Determine how the questions are to be answered

3. Individual and group activities planned with definite responsibilities determined

4. Plan culminating activities

5. Work periods

   a. research (finding)

   b. recording information (finding and doing)

   c. presentation of materials (doing)

B. Evaluating with Students

1. Have we reached our objectives?

2. What have we learned?

3. How can we improve?

D. THE OCCUPATIONS CLASS

The other basic means for presenting occupational information is through the guidance course. This course can go by several different names, careers, personal development, occupations, etc. (Norris et. al., 1960) While a useful means for presenting occupational information, the occupations class presents some difficulties particularly in the smaller school.

There are several advantages in the use of the occupations class. Students can see that the faculty feels that studies of this type are necessary in that full class status is given to the study of occupations. Through the use of such a class, information is perhaps more likely to be planned carefully rather than included as an afterthought. Also in a specific class, a teacher with demonstrated interest and competence in vocational study can be utilized.

There are probably two major disadvantages in the use of the occupations class. One is that it tends to defeat the purpose of showing how vocational study is interrelated

to all aspects of the curriculum. A second major disadvantage particularly in smaller schools is the difficulty in fitting the class into an already crowded curriculum. Junior high schools are ideally designed around exploratory as well as required activities and making the occupations class a required course will further limit the number of electives available to the student. If the course is an elective, the class may be so small as to make its inclusion in the curriculum financially unfeasible. Small school administrators are familiar with the difficulties of providing elective experiences with small numbers of students. In larger junior high schools, this would not create such a problem, but in many schools in New Mexico it would create some difficulty.

A possible solution to this elective-requirement dilemma could be an adaptation of a program which has been used in at least one junior high school in New Mexico. This consists of what could be called a required elective course. In this particular junior high school a program was planned so that all eighth grade students would have experience with several electives in the high school. The school utilized a six-period day with each eighth grade student required to take English, reading, mathematics, science, and social studies. The sixth period was the elective period in which each student took six weeks each of physical education, music, art, home economics, industrial arts, and Spanish. It would be possible to substitute a six-week course in occupations for one of the electives and thus at least six weeks of occupational study would be possible.

Duncan (1966) describes the results of an occupations course in the junior high schools of North Carolina. Special legislation provided the funds for the course which was taught in the ninth grade. The course was planned around six units: (1) Relating One's Characteristics, Interests, Aptitudes, and Abilities to Occupations; (2) Relating Our Socioeconomic System to Occupations and to Us; (3) Exploring Manual and

Mechanical Occupations; (4) Exploring Clerical, Sales, and Service Occupations; (5) Exploring Professional, Technical and Managerial Occupations; and (6) Evaluating and Planning Ahead.

Teachers utilized many types of materials for instruction including resource persons, film strips, films, etc. The course is an elective and while originally designed for students who would go into technical programs in high school, it seems to have been of value for students in other areas as well.

Research studies in the program indicate that teachers and administrators favor its inclusion in the school curriculum, and that students who have taken it look at it as a worthwhile and valuable experience.

The problem of training personnel to teach in the classes seems to have been solved by providing training workshops at North Carolina State University. The workshops are attended by beginning and experienced teachers in the program.

Objectives of the occupations course have been identified by Wright (1956). Four of these objectives are:

1. To help students appraise their own interests, abilities, aptitudes, and personality characteristics with respect to the needs of occupations.

2. To acquaint students with sources of occupational information and to educate them in the skills required to find, use, and organize such materials.

3. To help students develop wholesome attitudes toward work and other workers.

4. To create a desire in each student to be of service to society by filling a useful place in the world of work.

Another possible course framework for occupations is in the homeroom period. The results of a study of New Mexico junior high schools by Clem (1964) indicated

that the majority of junior high schools in the state do make some provision for a homeroom type period. Further indication of the possibilities of using the homeroom as a framework for information dissemination is noted in the findings about what is presently emphasized in the homeroom. Fifteen percent of the reporting junior high schools indicated that a deliberate emphasis was put on vocational guidance, and forty-one percent put no emphasis on vocational guidance in the homeroom period.

One of the leaders in the development of the homeroom organization (McKown, 1946) says that the setting of the homeroom offers an opportunity for the supplementation of the formal activities of the classroom. His position is that the homeroom should not be used in place of other activities in vocational guidance, but as a supplement to some other activities. He notes that the rather unstructured atmosphere of the homeroom may well lead to personal involvement in the study of self and occupation, and this involvement should be emphasized.

Two reasons why the homeroom cannot be relied upon solely are the lack of time and the qualifications of the homeroom sponsor. If the homeroom period is utilized for the major proportion of announcements, meetings, etc., there will be little time for other activities. McKown also emphasizes that great care should be taken to insure that the homeroom supervisor does not assume and is not assigned a highly specialized task for which he doesn't have the qualifications.

However, despite these disadvantages, the homeroom sponsor does have direct contacts with the students and learns to know them personally, and these experiences can be capitalized upon for the members of his room.

McKown concludes that the most logical place for vocational guidance is probably in a more or less regularly organized program in the curriculum. The homeroom then serves as a supplemental resource.

Norris, Zeran, and Hatch (1960) say that there is little difference between a homeroom and a guidance course or unit. Similar materials are presented in both, although the latter usually involves credit.

However, they note that the homeroom is not the most adequate place for providing information to groups. Reasons for this are the activities are an added responsibility for the teacher; effective co-ordination of the program becomes difficult; homerooms usually meet at the same hour which multiplies the number of materials needed; the range of staff interests automatically eliminates a number of teachers from having a desire to implement a successful program; the homeroom is primarily an administrative unit which competes with service activities for time and attention.

To summarize these ideas, it would seem safe to say that the homeroom period should not be relied on as the major place for the use of occupational materials. However, there is certainly great potential in terms of supplementing the information program. Schools wishing to use the homeroom for vocational orientation should first determine the purposes for which the homeroom is now being used and see if occupational orientation could be substituted for some of these activities. Careful planning of homeroom period time could result in an important addition to the total program of information dissemination.

E. ACTIVITIES AND RESOURCES

This section will deal with some activities and resources which may be of value in both the unit and class approach. The listing and discussion is not meant to be all inclusive but should give some background as to activities and resources which are available.

Norris, Zeran, and Hatch (1960) list several activities which can be used in vocational orientation. They note that a career notebook or educational plan booklet is a commonly used device in the study of occupations. This notebook includes information about one individual along with an analysis of occupational and educational information pertinent to that individual. Occupational information becomes meaningful when it is related to a student's interests, abilities, and aptitudes, and the utilization of career notebooks tends to overcome the impersonal nature of the study of occupations.

Special reports can be used with each individual responsible for making a careful study of prepared questions about an occupation and reporting his findings to the group. Norris et. al. note that caution must be employed with this technique as students may well feel that this assignment is "too textbookish."

Small group discussions can be utilized which focus on a single occupational field or group with reports given to the entire class. Written or taped summaries of the highlights of each small group session can be utilized.

The case problem method can be used as a technique for discussing occupational information. This method involves presenting a problem situation to a group with the group then analyzing the problem, collecting facts that have bearing on the problem suggesting solutions, and evaluating the solutions. In terms of orientation to vocational education, the problem presented could be a student who wishes to be an auto mechanic and doesn't know where to learn the skills involved in this occupation.

Dramatizations and role playing can be helpful in occupational orientation. Through these methods the student may become quite involved in the study of various occupational groups. Plays involving careers are available from several sources.

A good starting point for the study of occupations is the community job survey. A class could make a survey of the occupations found in their own or a neighboring community. This survey could then be followed up by a study of the type of education and training required for the occupations and where educational programs for the occupations can be obtained.

The survey could also include live interviews with men in various occupations in the community. For junior high school students the interviews would need to be rather highly structured, but could well lead to meaningful learning experiences. Of possible value in this aspect could be a series of records produced by McGraw-Hill Book Company called A Man's Work. These consist of 100 actual interviews with men talking about their jobs as they work. The jobs are those which are within the scope of vocational education. They could be of particular value in isolated communities where students have little contact with many occupational groups.

Another aspect which should be considered in terms of vocational orientation is in the supplemental reading program. Books like the Rochester Occupational Reading Series produced by Science Research Associates which include stories about occupations written on several different reading levels could be quite helpful. The reading level could become very important in that some students in the junior high school who are considering vocational education may have difficulty with the reading level of many occupational materials.

Isaacson (1966) discusses the values of career days and career conferences in occupational orientation. This typically involves a day in which representatives from several occupations come to the school and discuss their own occupation. While the career day may be more appropriate in the high school than in the junior high school, the junior high school teacher should always be aware of the possibilities of using guest speakers in occupational units.

Field trips can be very helpful in the study of occupations and should be utilized when possible. If the school is somewhat isolated from many occupational groups, the field trip could be planned as an all day visit to a larger area in which students could view several different occupations.

As noted in the beginning of this section, this is by no means an all inclusive list of activities or resources. The teacher should certainly be aware of the possibilities of using various community resources such as service clubs, labor unions, governmental agencies, social agencies, libraries, churches, etc. in the study of occupations. It is obvious that occupational study will require a great deal of time and planning if it is to be done effectively. However, if the result is a clearer understanding of the world of work, the efforts are certainly worthwhile.

F. EXAMPLES OF UNITS

General approach units. One example of a general unit is given by Munson (1957). Major topics and suggested teaching time are as follows:

I. Self Understanding and Appraisal

A. Understanding Others	4-5 days
B. Understanding Yourself	2-4 days
C. Your Interests	5-6 days
D. Your Abilities	5-6 days
E. Your Personality	5-6 days
F. Your Health	2-3 days
G. Your Family	2-3 days
H. Building a Philosophy of Life	3-4 days
I. Summary	2-3 days

II. Educational and Vocational Planning

A. Know Yourself (review)	2-3 days
B. Looking to the Future	2-3 days
C. Out Changing World of Work	3-4 days
D. Sources of Occupational Information	3-4 days
E. Surveying the Occupational Areas	4-6 days
F. Studying Particular Occupations	7-9 days
G. Opportunities for Further Education	4-6 days

III. Planning for High School

A. What Good is High School	2-4 days
B. High School and the Future	2-4 days
C. A Look at the High School Program	3-5 days
D. You and Your Interests	5-6 days
E. You and Your Abilities	5-6 days
F. Charting the High School Course	3-5 days

Two excellent examples of general occupational units are Career Planning: An Outline for the Ninth Grade Unit and Your Future and An Outline for the Ninth Grade Career Planning Unit. Both of these publications are available from the Minnesota Department of Education.

Special approach unit. An example of a special approach unit is the following:

UNIT ON NON-COLLEGE OCCUPATIONS IN MEDICAL SCIENCE

FOR JUNIOR HIGH SCHOOLS

This unit is designed to serve as a guide to the exploration of the topic. It perhaps could be correlated with a course in general science. The design

should be flexible enough to meet the needs of different curricula. It is purposefully short, but could be expanded by including other occupations.

I. General Purposes

To acquaint students with two of the existing non-college occupations in medical science.

II. Specific Purposes

To present information about the following two occupations: medical technologist, x-ray technologist.

III. Introduction to the Unit

A. Teacher presentation correlated with group discussion

1. Type of information to be gained

2. Need for this information

B. Teacher-pupil planning of methods for investigation

IV. Occupations to be Presented

A. Medical Technologist

1. Teacher presentation - general description of occupation including nature of work, qualifications, preparation, entrance and advancement, job outlook, earnings.

2. Pupil presentation - panel discussion following intensive research in specific areas of interest.

3. Resource person - x-ray technician from local hospital.

V. Evaluation

A. Formal Test

B. Individual Notebook

VI. Possible Activities

A. Field trip to laboratory in local hospital

B. Investigation of training programs in the occupations

C. Panel Discussion

D. Individual Reports

E. Group Projects

VII. Selected Resource Materials

A. Medical Technologist

1. What is a Medical Technologist? The Upjohn Co. Employment Office, Kalamazoo, Michigan.

2. Careers in the Medical Laboratory. Registry of Medical Technologists, Box 44, Muncie, Indiana.

3. Girl in the White Coat by Helen Wells. Messner Co., 1953. Fiction $2.95.

B. X-ray Technician

1. Hints for Recruitment. American Society of Radiologic Technologists, 537 S. Main, Fond du lac, Wisconsin.

2. Approved Schools for X-ray Technicians. Council on Medical Education and Hospitals of the American Association. 535 N Dearborn, Chicago, Illinois.

3. Occupational Outlook Handbook

G. SUMMARY

If one key concept were to be used to summarize the key to successful integration of materials into the curriculum, that concept would be planning. Whether the unit approach, the class approach or some variation of the two is used as the vehicle for the vocational orientation, planning on the part of the teacher will lead to most effective results.

Particularly in terms of orientation, the teacher must be sure that he is well versed in the materials being presented. As noted in the chapter, the attitudes of the teacher toward various occupations will be detected by the students. It is probably safe to assume that if the teacher has made a careful study of the world of work, he is more likely to exhibit a positive attitude toward all of the occupational groups.

Many types of resources were included in the chapter. Creativity and ingenuity will probably be the only limiting factors in the resources utilized. The units listed were only examples of the multiplicity of different units which could be utilized.

As was mentioned on several occasions, the emphasis in the junior high school should be on exploration. By definition then, occupational study should include a wide variety of occupational groups.

Certainly, the type of program discussed in this chapter will not be any easy one to implement. However, if one can accept the objective of helping students make wiser educational and vocational decisions, the time will be well spent.

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CHAPTER V

RESOURCES

This chapter will provide listings of resource materials which will be helpful in vocational exploration in the junior high school. Emphasis has been placed on materials related to vocational education. The chapter includes annotated listings of occupational pamphlets, films, and film strips, as well as some general sources. A list of publishers of occupational materials is included as is the Directory of the National Association of Trade and Technical Schools. This directory is presented with the permission of the national association. A listing of available apprenticeships in New Mexico is included. Of particular interest may be the annotated listing of fiction and biographical books dealing with non-college occupations.

For illustration purposes, the evaluation procedures discussed in a previous chapter will be applied to one of the occupational pamphlets listed in the annotated bibliography, So You Want To Be An Auto Service Technician. This pamphlet is reproduced with the permission of the Ford Motor Company.

This chapter should not be construed as a complete listing of all available materials or a recommendation for the materials listed. Its purpose is to serve as a base for the teacher and/or counselor in planning vocational orientation programs for junior high school students.

A. OCCUPATIONAL PAMPHLETS

The following pamphlets are examples of materials related to vocational education:

Air Conditioning

Your Future in the Air Conditioning and Refrigeration Industry - This booklet presents basic information on the air conditioning and refrigeration industry. It tells what jobs are available and what education and training is required. Single copies are free; additional copies are 10¢ each. Air conditioning and Refrigeration Institute. 1815 North Fort Meyer Drive, Arlington, Virginia 22009.

Airline Personnel Training

Career Opportunities with the Airlines - This leaflet presents a listing and a brief description of some of the more important jobs in the airlines. They are classified in six groups: flight, operations, communications maintenance office and sales, professional and miscellaneous. Air Transport Association of America. 1000 Connecticut Avenue, N. W., Washington, D. C. 20036.

Appliance Repair

Appliance Serviceman - Occupational guide describing nature of work, location of jobs, working conditions, employment outlook, earnings, requirements for entry, disadvantages and advantages. 24 pp. 25¢, 1963. Michigan Employment Security Commission. 7310 Woodward Avenue, Detroit, Michigan.

Architectural Engineering Technology

Architectural Technologist - History and importance, nature of work, qualifications, working conditions, preparation, renumeration related occupations and how to get started. The Guidance Center. Ontario College of Education University of Toronto. 371 Bloor Street, Toronto 5, Ontario, Canada.

Art

Art as a Career - Describes type of work in sculpture, graphic arts and painting and drawing. Includes training, typical courses of study, qualifications, salaries, related positions, attractive and unattractive features. Chart shows number of established artists in each state classified according to muralists, painters, portrait painters, sculptors, and miniature and water color artists. 24 pp. $1.00. Institute for Research. 537 S. Dearborn Street, Chicago, Illinois.

Automotive Mechanics

So You Want To Be - This is a career guidance series which provides insight into specific activities performed at Ford Motor Co. Booklets currently offered

include: automobile salesman, auto service technician, stenographer, and stylist. For grades 7-12. Available free to teachers and counselors in single sets. Ford Motor Co. The American Road, Dearborn, Michigan 48121.

Automobile Mechanic - Duties, working conditions, wages, hours, preparation, promotion, and employment prospects. California State Department of Employment. 800 Capitol Avenue, Sacramento, California. 3 pp. Single copy free.

Broadcasting

Radio and Television Announcers - Career brief describing duties, working conditions, training requirements, personal qualifications, employment prospects, advantages, disadvantages, earnings, advancement prospects, how to enter, measuring one's interest and ability, and suggested high school program. 1962. 8 pp. 25¢ Careers. P. O. Box 135, Largo, Florida.

Broadcasting Occupations - Information concerning programming and engineering in radio and television broadcasting. Includes nature of work, location of jobs, working conditions, employment outlook, earnings, qualifications for entry, advantages and disadvantages. 20 pp. 25¢ Michigan Employment Security Commission. 7310 Woodward Avenue, Detroit, Michigan.

Building Maintenance

Building Service Workers - Occupational brief describing duties, requirements, personal qualifications, earnings, advantages, disadvantages, and future outlook. Describes the work of maintenance workers, school custodians, elevator operators, and building superintendents. 1961, 4 pp. 35¢ Science Research Associates. 259 E. Erie Street, Chicago, Illinois.

Business and Management Technology

Careers in Business - Includes a list of 47 careers and the nature of work in each. Bibliography. 4 pp. Free. St. Francis College, Guidance Center. 35 Butter Street, Brooklyn, New York.

Business Machines

Office Machine Operators - Occupational brief summarizing work performed, working conditions, hows, earnings, personal qualifications, training requirements and opportunities, and employment outlook. 1963, 4 pp. 35¢ Chronicle Guidance Publications, Moravia, New York.

Office Machine Serviceman - Introduction, nature of work, location of jobs, working conditions, employment outlook, earnings, requirements for entry, disadvantages, advantages. 16 pp. 25¢ Michigan Employment Security Commission. 7310 Woodward Avenue, Detroit, Michigan.

Your Career as a Secretary - This pamphlet explains the requirements, duties, opportunities and rewards of secretaryship as a career field and describes the various types of secretarial positions for which students may prepare. 22 pp. Free. United Business Schools Association. 1101 Seventeenth Street, N.W., Washington, D. C. 20036.

Office Style Typing - The work of the beginning typist is about the same in every office; this leaflet gives a fair sample of what the beginner may expect. It covers form letters, envelopes, labels, telegrams, centering, manuscript rough draft, tabulation, billing, and pick up work. Limit of 50 copies, free. Ditto Division, Bell and Howell Co. 6800 North McCormick Road, Chicago, Illinois.

Camera Repair

Camera Repairman - Career summary for desk-top file. Duties, qualifications, and outlook. 1963, 2pp.. 15¢ Careers. P. O. Box 135, Largo, Florida.

Civil Engineering Technology

Civil Engineering Technician - Description of work, working conditions, opportunities, advantages, and methods of entering. 2 pp. 5¢ National Council of Technical Schools. 1507 M Street, N.W., Washington, D. C.

Commercial Art

Commercial Art as a Career - Recruiting booklet describing opportunities, working conditions, qualifications, and training. Discussion of work in lettering, typography, fashion illustration, package design, interior design, and as art director in an advertising agency. 12 pp. Free. Boston University, Director of Admissions. 705 Commonwealth Avenue, Boston, Massachusetts.

Data Processing

Data Processing Machine Serviceman - Occupational brief describing nature of work, training, qualifications, opportunities and outlook. Selected references. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Data Processing Equipment Technician - Job duties, working conditions, wages, hours, entrance requirements, line of promotion, training and employment outlook. 3 pp. Free. California State Department of Employment. 800 Capitol Avenue, Sacramento, California.

Careers in Electronic Data Processing - Description of the work and stories of some people who are working with computers. 1962. 16 pp. Free. Project on Information Processing . National Science Teacher's Association. Box 201, Montclair State College, Upper Montclair, New Jersey.

Electronic Computer Operating Personnel - Career brief describing nature of work, duties of various operators, qualifications, training requirements, training opportunities, outlook, earnings and advancement possibilities. 8 pp. 25¢ 1963. Careers. P. O. Box 135, Largo, Florida.

Should You Go Into Electronic Computer Programming? - Description of nature of work, duties, qualifications, training, rewards, and satisfactions. 1963, 10 pp. Free. New York Life Insurance Company, Career Information Service. Box 51, Madison Square Station, New York, New York.

Dental Assisting

This Could Be You: A Trained Dental Assistant - This leaflet briefly discusses the qualifications necessary for and the satisfactions derived from a career as a dental assistant. Free. American Dental Assistants Association. 410 First National Bank Building. La Porte, Indiana 46350.

Something New In White - Illustrated brochure stating that today a fascinating career opportunity is opening up for the trained dental assistant. Describes nature of work, job satisfactions, advantages, training, and getting a job. 1961. 6 pp. Free. Public Health Service, U. S. Department of Health, Education and Welfare. Washington, D. C.

Diesel Mechanics

Diesel Mechanic - Occupational guide summarizing duties, working conditions, employment prospects, earnings, preparation, and suggestions for locating a job. 1963. 2 pp. Single Copy Free. California State Department of Employment. 800 Capitol Avenue, Sacramento, California.

Diesel Mechanics - Occupational brief describing nature of work, requirements, training, methods of entering, earnings, advantages, disadvantages and future outlook. 1961. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Drafting

Can I Be A Draftsman? Discussion of requirements, opportunities and earnings. 1961. 16 pp. Free. General Motors Corporation, Public Relations Staff. General Motors Building, Detroit, Michigan.

Careers in Graphic Reproductions - Brief statement of duties and required skills. 1963. 8 pp. Free. American Institute for Design and Drafting. 18465 James Couzens, Detroit, Michigan.

Dry Cleaning

Education at NID - School catalog describing resident and correspondence courses offered by the institute. Entrance requirements are also explained. 31 pp. Free. National Institute of Dry Cleaning. Silver Spring, Maryland.

Opportunity and a Future in the Dry Cleaning Industry - Duties, requirements, and educational courses that are helpful for each of the jobs in the industry. Includes sales, office work, marking, cleaning, spotting, repairing, wet cleaning finishing, inspection, assembling, bagging and specialties. 16 pp. Free. National Institute of Dry Cleaning. Silver Spring, Maryland.

Electricity

Electrical - Household - Appliance - Serviceman - Career brief describing duties, working conditions, personal qualifications, training, related careers, and outlook. 1959. 7 pp. 25¢ Careers. P. O. Box 135, Largo, Florida.

Electrician - Occupational abstract - Nature of work, qualifications, preparation, earnings, number of workers, related occupations, advantages, disadvantages, and prospects. 1961. 6 pp. 50¢; 25¢ to students. Personnel Services. P. O. Box 306, Jaffrey, New Hampshire.

Electronics

Career Guidance in Electronics - Photographs and reprints showing current activities in television, radio, automation, space and missle electronics, industrial controls, communications, computers, and radar. 1962. 64 pp. Free. Devry Technical Institute. 4141 Belmont Avenue, Chicago, Illinois.

Food Service Management

Soft Drink Industry Workers - Occupational brief describing nature of work, opportunities, advantages, disadvantages and future outlook. 1961. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Food Retailing Career Opportunities - Describes type of food stores, opportunities, and kinds of work. Includes store organization chart and description of positions. 1962. 15 pp. 50¢ Free to Counselors. National Association of Retail Grocers. 360 N. Michigan, Chicago, Illinois.

Cooks and Chefs in Fine Restaurants - Occupational guide summarizing duties, working conditions, employment prospects, earnings, training, requirements for entry, and suggestions for locating a job. 1961. 5 pp. Single Copy Free. California State Department of Employment. 800 Capitol Avenue, Sacramento, California.

Heating

Your Future in Plumbing and Heating - There are so many different careers among which to choose, it is very important to have as much information about them as possible so that you can plan carefully and choose wisely. This booklet about opportunities for young men in the plumbing and heating industry answers 14 questions about opportunity, money, security, employment, nature of work, etc. Single Copies Free. National Association of Plumbing - Heating - Cooling Contractors. 1016 20th Street, N.W., Washington, D. C. 20036.

Lineman (Light, Heat and Power) - Occupational brief summarizing work performed, working conditions, hours, earnings, personal qualifications, training requirements and opportunities, employment outlook and entry into the job. 1960 4 pp. 35¢ Chronical Guidance Publications. Moravia, New York.

Heavy Equipment Mechanics

Industrial Machinery Repairman - Career brief describing duties, working conditions, training, personal qualifications, where employed, earnings, and outlook. 1962. 8 pp. 25¢ Careers. P. O. Box 135, Largo, Florida.

Heavy Equipment Operation

Finding Out About Power Truck Operators - Junior occupational brief containing brief facts about the job. 1963. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Hotel - Motel Training

Hotel Managers - Occupational brief describing nature of work, training qualifications, opportunities, and outlook. 1964. 4 pp. Free. Science Research Associates. 259 E. Erie, Chicago, Illinois.

Hotel - Motel Education Kit - A number of helpful career pamphlets about this work. 1962. 6 leaflets. Free. American Hotel Association. 840 N. Lake Shore Drive, Chicago, Illinois.

Industrial Management

Industrial Engineering Technician - Description of work, fields of activity, preparation, opportunities ahead and advantages. 1959. 2 pp. 5¢ National Council of Technical Schools. 1507 M Street, Washington, D. C.

Instrumentation

Aeronautical Engineering Technician - Career summary for desk-top files. Duties, qualifications, and outlook. 1960. 2 pp. 15¢ Careers. P. O. Box 135, Largo, Florida.

Interior Design

Careers in Interior Decoration - Discussion of jobs in interior decoration qualifications, and opportunities. List of 15 questions which may be used as an interest inventory in the field. Job charts. Illustrated. 1960. 32 pp. Free. Rochester Institute of Technology. Dept. of Public Relations. 65 S. Plymouth Avenue, Rochester, New York.

Interior Decorator - Occupational brief containing definition, history, work performed, working conditions, personal requirements, training requirements, training opportunities, advantages and disadvantages, related jobs, outlook, where employed, methods of entry and suggested activities. 1963. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Jewelry - Diamond Setting, Store Management

Jeweler - Occupational brief containing definitions, work performed, working conditions, personal requirements, determination of aptitudes and interests, training requirements, training opportunities, outlook, where employed, and suggested activities. 1962. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Jeweler - Career brief describing duties, working conditions, personal requirements, training, earnings, and outlook. 1964. 8 pp. 25¢ Careers. P. O. Box 135, Largo, Florida.

Jewelers - Occupational brief describing the jewelry trades, requirements, training, getting started and advancing, advantages, disadvantages, and future outlook. Selected references. 1961. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Machine Shop

Highlights - Pictures of the highlights one would see on a tour through the plant. Gives an idea of the massive machinery and modern machine tools used. 1960. 32 pp. Free. Allis-Chalmers Manufacturing Company. Public Relations Division, Box 512, Milwaukee, Wisconsin.

Machinist - Occupational abstract. Nature of work, qualifications, training, earnings, number and distribution of workers, and employment prospects. 1962. 6 pp. 50¢ (25¢ to students) Personnel Services. P. O. Box 306, Jaffrey, New Hampshire.

Manufacturing Engineering Technology

Technicians - Occupational brief summarizing work performed in a variety of classifications, working conditions, training, qualifications, earnings, opportunities, and outlook. 1962. 8 pp. 50¢ Chronicle Guidance Publications. Moravia, New York.

Meat Cutting

Butchers - Occupational brief describing nature of work, requirements, preparation, working conditions, earnings and future outlook. 1963. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Butcher - Definition, history and importance, nature of work, working conditions, qualifications, preparation, employment and advancement, renumeration, advantages, disadvantages, how to get started, and related occupations. Further readings. 1961. 20¢ The Guidance Centre, Ontario College of Education. University of Toronto, 371 Bloor Street, W., Toronto 5, Ontario, Canada.

Medical Technology

What is a Medical Technologist - This brochure discusses the possibilities of a career as a medical technologist. It tells what training is required, what sort of work is involved, and the satisfactions derived from such a career. The Upjohn Company Employment Office. Kalamazoo, Michigan 49001.

Are You Dreaming of a Career in Medical Science - Be a Medical Technologist - Folder containing career information. 1963. 8 leaflets. Free to counselors and librarians. American Society of Medical Technologists. Suite 25, Hermann Professional Building, Houston, Texas.

Careers in the Medical Laboratory - A fact sheet describing the work of the pathologist, medical technologist, cytotechnologist, and laboratory assistant. Also contains an explanation of the difference between its requirements and ortification and those of several registries which are not under medical auspices. 1964. 4 pp. Free. Registry of Medical Technologists of the American Society of Clinical Pathologists. Box 44, Muncie, Indiana.

Medical Secretary

Medical Secretary - Occupational brief summarizing work performed, working conditions, qualifications, determination of aptitudes and interests, training, opportunities, employment, and methods of entry. 1961. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Metallurgy

Metallurgy - Example of a recruiting leaflet describing work, qualifications, earnings and employment opportunities. 1963. 2 pp. Free. Michigan College of Mining and Technology. Department of College Relations, Houghton, Michigan.

Motion Picture Production

Motion Picture Producers and Directors - Occupational brief describing nature of work, training, qualifications, opportunities, advantages, disadvantages and future outlook. Selection references. 1961. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Nurses Aide

Nursing Assistant - Definition, history and importance, nature of work, working conditions, qualifications necessary for entry, preparation, employment, renumeration, advantages, disadvantages, how to get started toward the occupation, and related occupations. 1961. 4 pp. 20¢ The Guidance Centre, Ontario College of Education. University of Toronto, 371 Bloor Street, Toronto 5, Ontario, Canada.

Nurses Aide - Career Summary for Desk-Top File - Duties, qualifications, and outlook. 1960. 2 pp. 15¢ Careers. P. O. Box 135, Largo, Florida.

Orderly

Hospital Attendants - Occupational brief describing nature of work, requirements for getting started, earnings, advantages, disadvantages, and future outlook. 1963. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Photography

Careers in Photography - Includes a description of the various kinds of photography such as advertising, industrial, portrait, newspaper, documentary, and motion picture; information on the manufacture and sale of photographic equipment and materials; photofinishing; applied photography, and preparation for a career. Job charts. 1960. 28 pp. Free. Rochester Institute of Technology; Department of Public Relations. 65 S. Plymouth Avenue, Rochester, New York.

Photography as a Career - Description of the various kinds of photography, preparation, professional background needed, and list of schools offering instruction in photography. 1959. 4 pp. Free. Professional Photographers of America. 152 W. Wisconsin Avenue, Milwaukee, Wisconsin.

Plastics

Engineering Education in Plastics - Description of specialized training desirable for an engineering career in the plastics industry, including two introductory courses to supply broad coverage of the field and four more highly specialized courses. 1961. 10 pp. Free. Society of Plastic Engineers. 65 Prospect Street, Stamford, Connecticut.

Plastics Industry Workers - Occupational brief describing kinds of work, requirements, training, getting started, earnings, advantages, disadvantages, and future outlook. 1961. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Plumbing

Plumber - Occupational brief containing definition, history, work performed, working conditions, personal requirements, training requirements, training opportunities, outlook, where employed, methods of entry, related jobs, and suggested activities. 1962. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Careers in Plumbing and Plumbing Contracting - History and development, personal qualifications, opportunities, earnings, apprenticeship, union training, and training in the non-union field. Includes work of journeymen and contractor. 1961. 24 pp. $1.00 Institute for Research. 537 S. Dearborn Street, Chicago, Illinois.

Refrigeration

Finding Out About Refrigeration and Air Conditioning Mechanics - Junior occupational brief containing some concise facts about the job and listed ways of finding out about the nature of the work. Includes suggestions for reading and the titles of other occupational briefs on related subjects. 1964. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Electric Refrigerator Servicemen - Occupational brief summarizing work performed, training, qualifications, opportunities, and outlook. 1963. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Technical Secretary

Technical Secretary - Career summary for desk-top file. Duties, qualifications, and outlook. 1964. 2 pp. 15¢ Careers. P. O. Box 135, Largo, Florida.

Time Study

Time-and-Motion Study Man - Career brief describing duties, working conditions, training, personal qualifications, earnings, advancement prospects, and outlook. 1962. 8 pp. 25¢ Careers. P. O. Box 135, Largo, Florida.

Tool and Die

Finding Out About Tool and Die Makers - Junior occupational brief containing some facts about the job and listing ways of finding out about the nature of the work. Includes suggestions for reading and titles of other occupational briefs on related topics. 1964. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Transportation Management

Travel Agency Workers - Occupational brief describing nature of work, requirements, getting started and advancing, earnings and hours, advantages, disadvantages, and future outlook. 1960. 4 pp. 35¢ Science Research Associates. 259 E. Erie, Chicago, Illinois.

Truck Driving

Opportunities in the Trucking Industry - Here is a brief outline of the principal occupations in the trucking business, pointing out the kind of work you would be doing each day. Designed for use in grades 9-12, but certainly useful for gifted students in grades somewhat lower. Free. Available in classroom quantities. American Trucking Associations, Public Relations Department. 1616 P Street, N. W. Washington, D. C. 20036.

Upholstery

Upholsterer - Occupational brief summarizing work performed, training, working conditions, wages, personal requirements, and outlook. 1961. 4 pp. 35¢ Chronicle Guidance Publications. Moravia, New York.

Watchmaking and Repair

Careers in Watch Repairing - Description of work, qualifications, earnings, and outlook. List of 40 schools for training for watchmaking. 8 pp. Free. American Watchmakers Institute. 18465 James Couzens, Detroit, Michigan.

Your Future and Our School - Illustrated recruiting bulletin describing careers and courses in watchmaking and repairing. 1963. 16 pp. Free. Bowman Technical School. Lancaster, Pennsylvania.

Welding

Opportunities in the Welding Industry - Not only does this booklet describe the numerous opportunities open in the welding industry from a practical "on the job" viewpoint, but it pays particular attention to the planning ahead attitude emphasizing the importance of a good education. 23 pp. Free. Available in classroom quantities. American Welding Society, United Engineering Center. 345 E. 47th Street, New York, New York 10017.

Woodworking

Furniture Manufacturing Workers - Occupational brief describing nature of work, requirements, earnings, job prospects, advantages, disadvantages and future outlook. 1961. 4 pp. Science Research Associates. 259 E. Erie, Chicago, Illinois.

X-Ray

Hints for Recruitment - This is a complete kit of information on x-ray technology as a career. It includes leaflets, pamphlets, and charts. Desirable for use by junior high and senior high counselors. American Society of Radiologic Technologists. 537 South Main Street, Fond du Lac, Wisconsin.

Approved Schools for X-Ray Technicians - Tabulated information concerning 680 approved schools. 1964. 15 pp. Free. Council on Medical Education and Hospitals of the American Medical Association. 535 N. Dearborn Street, Chicago, Illinois.

B. FILMS

The following films may be helpful in vocational orientation. They are available without cost from the indicated source.

ALL AMERICAN HORSE, THE (1965) 16mm Sound 15 min.

This film, in full color, is a beautiful film about beautiful horses. It includes 4-H Horse Club activities and points out the whole new filed of job opportunities open to young garm boys because of the phenomenal increase in interest in horses. (Not cleared for TV)

VENARD ORGANIZATION, THE
113 North Madison Avenue
Peoria, Illinois 61602

AMERICAN FARMER 16mm Sound 28 min.

This film, in full color, tells the story of a modern farmer and the change occurring in his life because of mechanization and scientific farming. (Available from the Lincoln office only. (Not cleared for TV)

SOIL CONSERVATION SERVICE
Regional Technical Service Center
134 South Twelfth Street
Lincoln, Nebraska 68508

ASK ANY OWNER (1965) 15mm Sound 16 min.

This film, in full color, shows that in the future, farmers will have all the tools that science is now developing to aid them in their work. Farms may one day be under huge glass domes, or under the surface of the sea, and computers may tell the farmer the best time to send his livestock to market.

NEW HOLLAND MACHINE COMPANY
Motion Picture-Photography Section
New Holland, Pennsylvania 17557

BEFORE THE ALARM 16mm Sound 10 min.

This film tells the story of fire prevention engineers at work in a typical American community. It shows how public officials and fire prevention experts cooperate to build a safer nation and to safeguard life and property from fire. A fire alarm headquarters is also shown in action, as well as the routine action in a fire house when a fire alarm comes in.

NATIONAL BOARD OF FIRE UNDERWRITERS, Film Library
Association Films
1621 Dragon Street
Dallas, Texas

CAMERAS AND CAREERS 16mm Sound 28 min.

This film, in full color, is directed at young people thinking about a career in photography. These people usually think only of the most obvious and well-known occupation; portrait photographer. This film gives the young man or woman a larger view, a glimpse at some of the hundreds of other photographic careers in business, science, and industry.

EASTMAN KODAK COMPANY
Audio-Visual Service
343 State Street
Rochester, New York 14650

CAREER: MEDICAL TECHNOLOGIST 16mm Sound 24 min.

This film, in full color, was made to interest more young people in the profession of medical technology. It conveys the requirements, the compensations, and the appeal of this type of work. The key techniques and routines are demonstrated, with explanations as to why they are needed and what they accomplish. (Cleared for TV)

AMERICAN CANCER SOCIETY
NATIONAL COMMITTEE FOR CAREERS IN MEDICAL TECHNOLOGY
State and Local Units of the American Cancer Society

CATTLEMAN, THE 16mm Sound 15 min.

This film shows life and work on the great cattle ranches of the western part of the United States. It shows ranch scenes such as herding, branding, and marketing of cattle and the annual roundup. (Available from the Portland office only.

SOIL CONSERVATION SERVICE
Movie Film Library
507 Federal Building
701 Northwest Glisan
Portland, Oregon 97209

CITY ROOM (1958) 16mm Sound 20 min.

This film, in full color, recognizes specific obligations to educators in the fields of Journalism and Printing, and captures the realness, the speed, and the excitement of a modern newspaper city room. (Also available with Spanish narration.) (Cleared for TV)

COPLEY PRODUCTIONS
434 Downer Place
Aurora, Illinois 60506

CLAY AND CRAFTSMANSHIP (1965) 16mm Sound 20 min.

This film, in full color, dramatically shows how the bricklayers, with precision and speed, have built the great empires of the world, from Babylon, Rome,

and the Great Wall of China, to London and Colonial America. (Cleared for TV.)
STRUCTURAL CLAY PRODUCTS INSTITUTE
Marketing Promotion Department
1520 Eighteenth Street, Northwest
Washington, D. C. 20036

CREATIVE EYE, THE (1961) 16mm Sound 13 min.

This film, in full color, shows professional photography as a career, with the training necessary for success in the profession. It was designed for high school vocational counseling. (Cleared for TV)
BROOKS INSTITUTE OF PHOTOGRAPHY
2190 Alston Road
Santa Barbara, California 93103

DESIGNER, THE (1962) 16mm Sound 11 min.

This film, in full color, is the story of how fashion designers are trained and how this training, this talent, and his ideas are translated into clothing. (Cleared for TV)
NATIONAL COTTON COUNCIL OF AMERICA
Audio Visual Services
P. O. Box 12285
Memphis, Tennessee 38112

FARMING'S FABULOUS FUTURE (1965) 16mm Sound 17 min.

This film, in full color, traces the development of agriculture to the present time and points out that in the future farmers will have all the tools that science is now developing to aid them in their work. It shows that farms may one day be under huge glass domes-- or under the surface of the sea and that computers may tell a farmer the best time to send his livestock to market. (Not cleared for TV)
NEW HOLLAND MACHINE COMPANY
Motion Picture-Photography Section
New Holland, Pennsylvania 17557

FOUR SEASONS WEST (1960) 16mm Sound 30 min.

This film, in full color, was filmed in South Dakota, and tells a true story of people in the business of raising cattle, from the days of the buffalo to the herds of today. (Cleared for TV)
SOUTH DAKOTA STOCKGROWERS ASSOCIATION
426 St. Joe
Rapid City, South Dakota

GENERAL WITH THE COCKEYED ID, THE (1965) 16mm Sound 19 min.

This film, in full color, tells the story of construction people who are changing the appearance of this country, and the "General" himself--the General Contractor--who directs and coordinates an army of skilled men who complete these projects on time and within a budget. (Cleared for TV)

STERLING-MOVIES U.S.A., INCORPORATED
43 West 61st Street
New York, New York 10023

GRAIN MERCHANTS (1966) 16mm Sound 28 min.

This film, in full color, tells the story of the men and organizations who handle the distribution of America's abundant grain crops. (Distribution is restricted to Arkansas, Illinois, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and Wisconsin.) (Cleared for TV)

STERLING-MOVIES U.S.A., INCORPORATED
43 West 61st Street
New York, New York 10023

HER CITY (1962) 16mm Sound 19 min.

This film describes the work of today's telephone operator, an occupation with unique traditions and high standards. Her switchboard's activity goes up and down with a siren in the night, a fire, a train wreck, the ending of a ball game, people beginning the day's work, a change in weather. Mechanization has removed the routine, but left the interesting and challenging. (Not cleared for TV)

BELL SYSTEM TELEPHONE OFFICES
Local Bell System Business Office

HOW A COMMERCIAL ARTIST WORKS 16mm Sound 14 min.

This film shows how a professional artist works with an advertising agency on a particular advertisement, from the rough layout through the finish. It also includes an analysis of the types of material best suited for commercial art uses. (Available to grades seven through twelve only.) (Art Instruction, Inc.)

MODERN TALKING PICTURE SERVICE
3 East 54th Street
New York, New York 10022

HOW TO GET WHERE YOU WANT TO GO (1962) 16mm Sound 25 min.

This film, in full color, was designed as a guidance film. It presents the opportunities there are in the selling of transportation--automobiles and trucks. Men who have made their careers in this field point to the personal rewards. Fred MacMurray is the narrator. (Not cleared for TV)

JAM HANDY ORGANIZATION
Film Distribution Department
2821 East Grand Boulevard
Detroit , Michigan 48211

INDUSTRIAL EDUCATION IN YOUR FUTURE (1956) 16mm Sound 21 min.

This film, in full color, shows how high school students may be directed toward a college career in industrial education or industrial technology. It depicts the technical, academic, and recreational facilities available at Stout State University. (Not cleared for TV)

STOUT STATE UNIVERSITY
Dr. John A. Jarvis, Dean of Information
Menomonie, Wisconsin 54751

INVISIBLE DIPLOMATS (1965) 16mm Sound 20 min.

This film, in full color, emphasizes the importance of a PBX operator to her company. It features proper PBX practices, manual dexterity, vocal personality, quick thinking, and cultivated judgement. It also shows the assistance that can be obtained from the telephone company for the training of PBX operators. (Not cleared for TV)

BELL SYSTEM TELEPHONE OFFICES
Local Bell System Telephone Office

JACKSON'S TREE (1962) 16mm Sound 15 min.

This film, in full color, was produced to attract young men to the food industry for a rewarding career. It tells the story of a father who is disappointed in his son's decision to work in a supermarket. After digging up facts he finds that they point to a rewarding career and father changes his mind. (Not cleared for TV)

GENERAL MILLS, INCORPORATED
Film Library
9200 Wayzata Boulevard
Minneapolis, Minnesota 55440

MANOUANE RIVER LUMBERJACKS 16mm Sound 28 min.

This film shows the rugged life of the lumberjacks--cutting, hauling, and piling cords of wood to be transformed into newsprint. (Distribution is restricted to Illinois, Indiana, Iowa, Kansas, Kentucky, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.)

CONSULATE GENERAL OF CANADA
Film Library
310 South Michigan Avenue
Chicago, Illinois 60604

MIRACLES FROM AGRICULTURE 16mm Sound 13 min.

This film, in full color, reports on today's farming and ranching, marketing, processing, storing, transporting and merchandising of food and other agricultural services from farm to market to home. (Available from the Fort Worth and Lincoln offices only. (Cleared for TV)

SOIL CONSERVATION SERVICE
Motion Picture Library
P. O. Box 11222
Fort Worth, Texas 76110

SOIL CONSERVATION SERVICE
Regional Technical Service Center
134 South Twelfth Street
Lincoln, Nebraska 68508

OCCUPATION--AUTO MECHANIC 16mm Sound 13 min.

This film, in full color, shows potential young job seekers how to get started and what opportunities exist for a boy beginning a career in the automotive field. The experiences of a youth as he interviews for and begins his new job as an auto mechanic are realistically portrayed. (Available to ninth grade level and above.)

MODERN TALKING PICTURE SERVICE
3 East 54th Street
New York, New York 10022

PRECISION TOOL MAKING AND MACHINING 16mm Sound 25 min.

This film, in full color, tells the story of the industry behind industry, the industry where craftsmanship reaches its peak--tool and die making and machining. (Cleared for TV)

MODERN TALKING PICTURE SERVICE
3 East 54th Street
New York, New York 10022

RETAIL ADVERTISING (1963) 16mm Sound 10 min.

This film, in full color, shows what it is like working in the retail advertising department of a daily newspaper. It will help to make students familiar with retailing--its problems, its concepts, its "language" and shows how newspaper retail advertising departments operate. (Also available with narration in Spanish.) (Cleared for TV)

COPLEY PRODUCTIONS
434 Downer Place
Aurora, Illinois 60506

SHEEPMAN U.S.A. (1964) 16mm Sound 27 min.

This film, in full color, tells the story of the sheep industry in the United States. It stresses the fact that modern sheepmen must be good business men as well as ranchers or farmers. It was filmed in nine states. (Cleared for TV)

STEP AHEAD, A (1963) 16mm Sound 12 min.

This film, in full color, presents Chet Huntley, who reports to farm youth on new careers in agriculture and agribusiness. He suggests that they are a step ahead in qualifying for exciting new jobs because of their farm background and experience.

NEW HOLLAND MACHINE COMPANY
Motion Picture-Photography Section
New Holland, Pennsylvania 17557

THINKING OF YOU 16mm Sound 15 min.

This film, in full color, shows the development of a greeting card from the moment the idea is conceived by an artist, until it becomes a card in a retail store. It is of special interest to business education, art, and career guidance classes. (Available to ninth grade level and above.)

MODERN TALKING PICTURE SERVICE
3 East 54th Street
New York, New York 10022

THIS IS THE DAIRY INDUSTRY 16mm Sound 24 min.

This film shows the career opportunities open to young people in the dairy industry today.

MODERN TALKING PICTURE SERVICE
3 East 54th Street
New York, New York 10022

TOMMY LOOKS AT CAREERS--TRUCKING (1964) 16mm Sound 20 min.

This film, in full color, tells the story of Tommy, who preparing for a high school "Career Fair," learns about the excellent career opportunities in one of America's greatest commercial fields--the trucking industry. (Cleared for TV)

FARM FILM FOUNDATION
1425 H Street, Northwest
Washington, D. C. 20005

GOODRICH COMPANY, THE B. F.
Public Relations Department
Akron, Ohio 44318

YOUR CAREER IN AGRICULTURE (1960) 16mm Sound 25 min.

This film, in full color, shows that there are literally hundreds of careers in agriculture besides farming or ranching, open to young people coming out of agriculture schools. The film includes five of these careers--the Forest Ranger, the Teacher, the Home Demonstration Agent, the Agricultural Engineer, and the TV Farm Program Director. (Cleared for TV)

TEXACO INC.
P. O. Box 6171
Dallas, Texas 75222

YOUR FUTURE IN ELECTRONICS (1964) 16mm Sound 21 min.

This film, in full color, is designed to familiarize high school students and others with the role of the technician in the electronics industry, and will be of special interest to high school juniors and seniors interested in an electronics career. The film illustrates some of the many opportunities for electronics engineers, including broadcasting, communications, servicing, computers and guided missiles. (Not cleared for TV).

RCA INSTITUTES, INCORPORATED
Mr. E. F. Dooley, Registrar
350 West 4th Street
New York, New York 10014

C. FILMSTRIPS

The following filmstrips may be helpful in vocational orientation. They are available without cost from the indicated source.

ARCHITECTURE AND YOUR LIFE (1963) Silent

This filmstrip, in full color, with teacher's text, deals with the fundamentals of architecture as it influences the daily lives of its users and passers-by. The purpose is to impart an understanding of the function of architecture. (This filmstrip may be retained permanently by educators who request copies on school letterheads.) 48 frames

AMERICAN INSTITUTE OF ARCHITECTS, THE
Director, Information Services
1735 New York Avenue, Northwest
Washington, D. C. 20006

CAREER THAT COUNTS (1960) Sound

This filmstrip, in full color and with accompanying sound, is not only educational, but contains good vocational guidance material as well. It tells the complete story of Comptometer in an interesting and factual manner. It also illustrates and describes in detail the work of Comptometer operators, showing them performing their daily tasks in various kinds of offices. The filmstrip has been carefully edited by public school educators and has received approval for its use, especially in the field of business education and vocational guidance courses. Running time 15 mintues.

VICTOR COMPTOMETER CORPORATION
Business Machines Group
Attention: Comptometer Schools
3900 North Rockwell Street
Chicago, Illinois 60618

SERVICE REPRESENTATIVE, THE (1964) Sound

This filmstrip, in full color, describes the Service Representative's job in the telephone industry. It points out that the job offers both challenge and variety, and adds that it requires a girl to be accurate, efficient, friendly and helpful. 93 frames

BELL SYSTEM TELEPHONE OFFICES
Local Bell System Business Office

D. VOCATIONAL FICTION AND BIOGRAPHY

The following books may be of particular value in vocational exploration.

AIR STEWARDESS

Hill, Margaret. Hostess in the Sky. Little, 1955. 241 p. $3. (Fiction) A warm interest in people compensates Beth for troubles with problem passengers and air fright as she learns to keep air travelers happy under any circumstance.

AIR CRAFT WORKER

Neal, Harry E. Skyblazers: Your Career in Aviation. Messner, 1958. 192 p. $3.50. This informative survey of the aeronautics field conveys the excitement and challenge of modern aviation.

ARTIST (CARTOONIST)

Miller, Diane (Disney). Story of Walt Disney. Holt, 1957. 247 p. $3.95. Walt, who grew up in poverty, didn't think he had a chance when he arrived in Hollywood, but he developed his artistic talent, weathered conspiracies to stop him, and became a genius in the animated-cartoon industry.

ARTIST (ILLUSTRATOR)

Rockwell, Norman. Norman Rockwell: My Adventure as an Illustrator. Doubleday, 1960. 436 p. $4.95. Norman Rockwell's early talent led him to notice the smallest details and to realize the necessity of drawing from the object itself rather than from memory.

CATERER

Edell, Celeste. Lynn Pamet: Caterer. Messner, 1960. 192 p. $2.95. (Fiction) In a talented family Lynn's only skill was cooking and she wanted to make a career in that field glamorous and exciting, but she had to wash vegetables and work from the bottom up before she was able to do so.

COSMETICIAN

Ayer, Margaret H., and Taves, Isabella. Three Lives of Harrient Hubbard Ayer. Lippincott, 1957. 284 p. $3.95. A shy, unattractive child developed into a famous society beauty and learned how to become a fantastically sucessful business woman in the cosmetics industry.

DAIRYMAN

Corey, Paul. Milk Flood. Abelard-Schuman, 1956. 189 p. $2.50. A boy who wants above all else to have his own cows and his own farm works on a dairy farm and helps a group of small farmers to form their own co-operative.

DEPARTMENT STORE WORKER

Harriman, Margaret (Case.) And the Price Is Right. World, 1958. 318 p. $4. A seafaring Quaker named Rowland Macy didn't dream in 1858 that he was building a store to become the size of a city, nor did he realize the number of employees that would be needed to serve the public in the many departments of Macy's in New York City.

FARMER

Carroll, Gladys (Hasty). As the Earth Turns. Macmillan, 1954. 339 p. $3.50. (Fiction) Jen, the central figure in a New England family dependent on the soil, moves from task to task, through good fortune and bad, with a deep content in the land.

FASHION DESIGNER

Ballard, Bettina (Hill). In My Fashion. McKay, 1960. 312 p. $4.50.
A key editor on the magazine Vogue tells of the people who have helped influence the fashion world and of the great couturiers and designers who create high fashion both here and abroad.

FIREMEN

Felton, Harold W. Fire-fightin' Mose. Knopf, 1955. 172 p. $3. (Fiction) A great fire fighter learns to defy danger day and night in a city where buildings are growing taller day by day.

INDUSTRIALIST

Paradis, Adrian A. Americans at Work. McKay, 1958. 211 p. $3.50.
In this book are to be found men and women at work in skyscrapers, factories, stores, and offices--people who not only are successful but also have a sense of social responsibility.

INTERIOR DECORATOR

Freer, Marjorie (Mueller). Roberta: Interior Decorator. Messner, 1947. 209 p. $2.95. (Fiction) Details of the profession are given in this story of Roberta's struggle to be a successful interior decorator. She gets what experience she can at home, works part time while she attends decorating school, and finally becomes an assistant decorator at a smart shop.

LABORATORY TECHNICIAN

Wells, Helen (Weinstock). Girl in the White Coat. Messner, 1953. 184 p. $2.95. (Fiction) When Eve graduated from high school with honors in science, she decided to continue science in college so that she could learn medical technology and use her knowledge to help doctors in their diagnoses.

LUMBERMAN

Rush, William M. Lumberman's Dog. Longmans, 1955. 244 p. $3.25. (Fiction) Ken wants to grow trees as a crop and thinks a sawmill may be successful, but he meets with stiff opposition before he accomplishes his dream.

MECHANIC

Meader, Stephen W. Bulldozer. Harcourt, 1951. 239 p. $2.95 (Fiction) Two boys salvage a bulldozer, recondition it, and set up a contracting business.

MERCHANT

Mahoney, Tom. Great Merchants: The Stories of Twenty Famous Retail Operations and the People Who Made Them Great. Harper, 1955. 340 p. $5. It took people with daring to pioneer in the enterprises described, but they also had to be adaptable to change. Merchants included are: Hudson's Bay Company; Brooks Brothers; Tiffany's; Singer Sewing Machine Company; Filene's; Marshall Field and Company; Brentano's; Macy's, New York; The Great A & P; Rich's; J. L. Hudson Company; Sears, Roebuck and Company; Lane Bryant; J. C. Penny Company; Bullock's and I. Magnin; Neiman-Marcus; L. L. Bean, Inc.; Ohrbach's, Inc.; Webb's City.

MOTION PICTURE PRODUCER

Croy, Homer. Star Maker: The Story of D. W. Griffith. Duell, 1959. 210 p. $3.95. The farm boy who grew up to be one of the most creative and enduring figures of the motion-picture world spent most of his life helping others to stardom, celebrity, and success.

NURSES AIDE

Hyndman, Jane (Lee). Candy Stripers, by Lee Wyndham, pseud. Messner, 1959. 191 p. $2.95. (Fiction) A "candy striper" in a pink-striped uniform has to do the hard work in a hospital and gets involved in other people's problems as she performs the many tasks that save trained nurses countless steps and many precious hours.

PRINTER

Galt, Thomas F. Peter Zenger: Fighter for Freedom. Crowell, 1951. 242 p. $3.50. A young eighteenth-century New York printer, through his intelligence, wit, and stubborn fight for what he believed right, did much to bring about freedom of the press in America.

RANCHER

Van Der Veer, Judy. My Valley in the Sky. Messner, 1959. 256 p. $3.50. The author makes all the animals on her ranch come alive and tells how she loves the routine chores as well as the beauties of nature and the quiet countryside.

RESORT MANAGER

Graham, Janette S. Venture at Lake Tahogan. Longmans, 1956. 174 p. $2.75. (Fiction) Repairs are needed everywhere in the rundown old guest camp, food doesn't arrive on time, and the electricity is shut off, but Grant's hard work and initiative finally make it pay off.

RESTAURANT OPERATOR

Markikian, George M. Song of America. McGraw-Hill, 1956. 312 p. $4.50. An Armenian immigrant developed a genuine love for his adopted country and the opportunities it offered, and though he had to begin as a dishwasher, he now owns a fabulous restaurant in San Francisco.

SECRETARY

Hager, Alice (Rogers). Washington Secretary. Messner, 1958. 192 p. $2.95. (Fiction) Though Carolyn majored in political science and was proficient at shorthand and typing, she didn't realize that being a government secretary involved such long working hours under nerve-fraying pressure.

STORE KEEPER

Baker, Nina (Brown). Big Catalogue: The Life of Aaron Montgomery Ward. Harcourt, 1956. 115 p. $2.75. Monty left school at 14 to work as clerk in a store where farmers bartered for supplies. He won the farmers' confidence and started a gigantic mail-order business.

TELEVISION STATION WORKER

Milne, Ruth E. TV Girl Friday. Little, 1957. 248 p. $3. (Fiction) Success in the television world is not so easy as Susan dreams it would be, but she discovers a new world of opportunity behind the scenes and learns to cope with unusual situations.

WINDOW TRIMMER

Freer, Marjorie M. Showcase for Diane. Messner, 1951. 176 p. $2.95. (Fiction) A graduate of a retailing school combines a career in creative display work with marriage to a ship-model designer. Several fields of display and modern crafts are described.

ADDRESS OF PUBLISHERS

Abelard-Schuman, Ltd., 6 W. 57th Street, New York, New York.

Thomas Y. Crowell Co., 201 Park Avenue S., New York, New York.

Doubleday and Co., 277 Park Avenue, New York, New York.

Duell, Sloan, and Pearce, Inc., 60 E. 42nd Street, New York, New York.

Harcourt, Brace and World, 757 Third Avenue, New York, New York.

Harper and Row, Publishers, 49 E. 33rd Street, New York, New York.

Holt, Rinehart and Winston, Inc., 383 Madison Avenue, New York, New York.

Alfred A. Knopf, Inc., 501 Madison Avenue, New York, New York.

J. B. Lippincott Co., E. Washington Square, Philadelphia, Pennsylvania.

Little, Brown and Co., 34 Beacon Street, Boston, Massachusetts.

Longmans, Green and Co., Order from David McKay Co., 119 W. 40th Street, N. Y., N. Y.

McGraw-Hill Book Co., 330 W. 42nd Street, New York, New York.

David McKay Co., 750 Third Avenue, New York, New York.

MacMillan Co., 60 Fifth Avenue, New York, New York.

Julian Messner, Inc., 8 W. 40th Street, New York, New York.

E. ILLUSTRATION OF EVALUATION

In this section, the evaluative criteria discussed in a previous chapter will be illustrated through an evaluation of one of the annotated occupational pamphlets. The investigators wish to express their appreciation to the Educational Affairs Department of the Ford Motor Company for their permission to reproduce the following material.

So You Want To Be An Auto Service Technician
Ford Career Guidance Number 4
Ford Motor Company
Educational Affairs Department
The American Road
Dearborn, Michigan

Are you starting to think about your future? If so, there are interesting and good paying careers in automotive service. Every car and truck registered in the United States needs the services of a skilled service technician from time to time. In addition, today there is an increasing demand for specialists to service improved equipment in cars such as automatic transmissions, power steering, air conditioning, and many other special developments.

It has been conservatively estimated that one service technician is needed for every 90 cars on the road.

Experts predict that the population of the country will continue to grow. And, they predict that the number of cars and trucks will grow with the population.

More and more families are moving to the suburbs of the big cities. This means more and more travel by car, more and more two car families. This means more and more skilled people are required to maintain the vehicles in condition for dependable driving.

The automobile is here to stay. And that means a present and future need for automotive service people.

Rewards and Satisfactions

You can have a rewarding and interesting career as an auto service technician. There is opportunity for advancement in pay and positions of responsibility.

Pay scales vary from town to town depending upon the cost of living in the community and the skill and training needed to do the job. Also, pay for positions varies with the responsibility attached to the job.

In most dealerships there are three types of basic pay plans for service personnel: hourly, salary and a percentage arrangement.

1. The hourly wage means you will get so much money for each week in which you work the regular number of hours, usually 40 or 45. Under this plan, your earnings can be increased by overtime and holiday work, for which you may be paid at a rate higher than your regular hourly wage.
2. The salary plan is usually found among service managers and service salesmen, who have a great deal of responsibility. With a fixed salary, you receive a set amount of money per pay period, even though your hours may vary.
3. The percentage pay arrangement is usually found in large metropolitan dealerships with a high volume of repair service work. In general, this pay plan is limited to technicians who handle repairs ordered by customers. Instead of an hourly wage, or fixed salary, the technician receives a percentage of the labor charge on the repair order bill. The percentage

the technician receives varies from 40% to 60% of the customer paid labor charge, with the balance going to the dealership. Under this plan, an efficient and highly skilled technician can earn a great deal of money. Most dealers who offer this plan also offer the technician a guaranteed minimum salary to work against, in order to assure the technician a basic income.

An auto service technician who wants to live in his home town can usually find a starting job in or near his home. On the other hand, he can move to any part of the country and find a need for his services. Opportunities are even available to him to go to foreign countries to service vehicles. Wherever an auto service technician goes, whether it is as a civilian or in the Armed Forces, there is a demand for his skilled services.

Modern garages and dealerships have good working conditions. Usually, the newest tools and equipment are available to make service work easier, cleaner, faster and more accurate. Each technician usually is required to own a complete set of hand tools. Up to date tools and equipment make the job of auto servicemen more interesting and less strenuous.

In large service shops, service personnel are given the opportunity to specialize and be highly skilled in one or more areas of mechanical care and repair. In smaller repair centers, one person may be called upon to perform a number of functions and thereby increase his skill and knowledge. Experience and a proper attitude are usually the foundations for expanding your skill and knowledge.

Examples of departments in a service shop are: front end alignment; engine; transmission and differential; lubrication; pre-delivery unit; tune-up; electrical and brake service; while-you-wait services such as washing, minor exterior repairs, and replacement of parts.

After you gain an extensive familiarity with the above areas, there are administrative and supervisory positions available. You may advance to such positions as: new unit pre-delivery foreman; shop foreman; service salesman; dispatcher; assistant service manager; and service manager.

Most dealers are anxious to have young men in their employ who are interested in advancing and gaining more knowledge. The dealers pay for some members of their staff to go to the Ford Motor Company operated Service Training Schools. There are thirty-seven of these schools around the country available to dealer personnel who want to receive further instruction in all phases of mechanical repair and care. Time and money is invested to see that you get the right kind of instruction to do quality work. Dealers and other repair shops are interested in seeing that you like your work and do a good job. If you make a success of your job, you are helping to make the business a success.

You can be certain that you will obtain a great deal of personal satisfaction as an auto service technician. You can accomplish and complete jobs with your hands as well as tasks that challenge the mind. You can develop the reputation of knowing your business and doing good work.

Related Jobs

If you wish, there are opportunities to branch out into other jobs related to the automotive industry with auto service technical training. Some of the opportunities available are:

Fleet Service Technicians - many large automotive fleets service their own vehicles and need skilled technicians to keep their maintenance costs low and their vehicles operating efficiently. The same opportunities for advancement and administrative responsibility are available to the fleet technician as to the dealership technician.

Auto Salesman - if you are interested in selling automobiles, service training will help you know the product you will be selling.

Gasoline and Service Station Owners - automotive service training can be used to advantage in making an independent gasoline and service station a success.

Auto Supply Companies - suppliers often look for men with auto technician training to work for th ı in dealing with automotive companies.

Teaching - the public schools and factory service schools need teachers to instruct in the field of auto repair. This position requires education beyond the high school level.

Insurance Adjusters and Claim Examiners - automotive service training could help you obtain a job with insurance companies on jobs requiring knowledge of automobiles.

Automobile Dealerships - many automobile dealers got their start in the community as auto service technicians.

How Do I Prepare for a Career as an Auto Service Technician?

As in most careers, there is no magic formula to determine that automotive service is the best vocation for you. However, a student should talk to his guidance counselor, teachers, parents, and men in the auto service field.

As teachers and counselors may know, there is a forever expanding need in the auto service field. For the non-college bound student, who has determination and the proper attitude of hard work and interest in learning, there is a great future both in money earning ability and personal satisfaction.

While in high school, if possible, concentrate on such courses as practical physics, chemistry, auto mechanics and report writing. Some high schools participate in the Ford Trainee Technician Program, established by Ford dealers, that offers more detailed instruction about specific areas of automotive maintenance. Some high schools offer special courses in auto mechanics.

You can enroll in a trade school after high school graduation or in a community college. While in high school or after graduation you can enroll in a home study course in auto mechanics. Your most valuable asset is the determination and desire to get into the automotive service field.

Jobs vary in requirements in automotive service. School training should aim to provide a broad background to you rather than a narrow specialized training. The broader your background, the better prepared you are to move up to other more responsibile jobs.

THE DECISION TO BECOME AN AUTO SERVICE TECHNICIAN IS IN YOUR HANDS.

IT MUST BE MADE BY YOU.

EVALUATION

The first question to be answered is when the material was written. No copyright date is given in the material. However, in terms of the purpose of the question, the material is not dated and does seem appropriate for the present situation. The answer to the first question would be positive.

The second question is whether the information would be pertinent for use in New Mexico. The information presented does not seem limited to a specific geographic area, so the answer would again be positive.

The questions of who and why will be considered together. The material was developed by an automobile manufacturing firm and thus could be classified as recruiting material. Because of the purpose of the material, disadvantages of the occupation are not given. This should be considered when using the material in the classroom. However the material does present a relatively unbiased view of the advantages, and so with the limitations noted, the questions of who and why do receive satisfactory answers.

The final question is how the material is presented. Duties, possible work settings, and lines of advancement are discussed. The presentation of earnings is well done, as the inclusion of specific salaries would have limited the applicability of the material for different geographic regions. Only the positive aspects of work setting are discussed. Disadvantages are not given. Of particular value was the section dealing with appropriate high school courses and opportunities for training. A description of employment and outlook is included.

In terms of the style and format, the overall effect was more than adequate. The large type-face used contributed to the effectiveness of the material.

The Farr-Jenkins-Patterson method was used to determine the reading level of the material. The average sentence length is nine words, and the average number of one syllable words per 100 words is sixty-three. This gives a reading ease of 63 which is the eighth-ninth grade level.

In summary the material is appropriate for use in the junior high school. For optimal value the teacher should point out that disadvantages are not given in the material. If this limitation is noted, this material should be very useful.

F. GENERAL SOURCES

Adams, C. and Kimball, S. Career facts: 1966-1967. Reading, Massachusetts: Addison-Wesley Publishing Co., 1966.

Adams, C. and Kimball, S. Job facts: 1966-1967. Reading, Massachusetts: Addison-Wesley Publishing Co., 1966.

Department of Labor. Occupational outlook handbook. Washington, D. C.: U. S. Government Printing Office, 1966-67.

Educators guide to free guidance materials. Randolph, Wisconsin: Educators Progress Service, 1966.

Forrester, G. Occupational literature - an annotated bibliography. New York: H. W. Wilson, 1964.

Harris, K. Vocations in biography and fiction. Chicago: American Library Association, 1962.

Hopke, W. E. The encyclopedia of careers and vocational guidance. Garden City, New York: Doubleday and Co., 1967.

New Mexico State Apprenticeship Council. Counselors information guide to the apprenticeable occupations. Albuquerque, New Mexico: New Mexico State Apprenticeship Council, 1967.

New Mexico State Division of Guidance Services. New Mexico guidance resources. Santa Fe, New Mexico: State Department of Education, 1967.

New Mexico State Division of Vocational Education. Vocational-technical education in New Mexico. Santa Fe, New Mexico: Research Co-ordinating Unit, 1966.

G. DIRECTORY OF TRADE AND TECHNICAL SCHOOLS

The investigators wish to express their appreciation to the National Association of Trade and Technical Schools for the permission to reproduce their directory. This directory is found in the appendix.

H. NEW MEXICO APPRENTICESHIPS

NEW MEXICO STATE APPRENTICESHIP COUNCIL *

1010 National Building
505 Marquette NW
Albuquerque, New Mexico
842-3233

Resource Personnel:

Mr. Wendell L. Boswell, Director

Mr. W. T. Sampson, State Supervisor
Bureau of Apprenticeship and Training
U. S. Department of Labor
303 Federal Building
421 Gold SW
Albuquerque, New Mexico

Mr. H. B. Lamkin, Field Representative
Bureau of Apprenticeship and Training
U. S. Department of Labor
413 North Virginia Avenue
Roswell, New Mexico

Services:

The resource personnel listed above can provide information on requirements for entrance into an apprenticeship, related school subjects, descriptions of apprenticeship programs, and opportunities for employment in the trade concerned.

Procedure for Requesting Service:

Contact the listed resource personnel, or the local employment service, who can provide information about apprenticeship programs in the immediate area.

Trade, Program, and Contact	Area Served
BRICKMASONS (3-year apprentice program) Alva Coates 1615 University NE P. O. Box 426 Albuquerque, New Mexico	Bernalillo, Catron, Colfax, Harding Los Alamos, Mora, McKinley, Rio Arriba, Sandoval, San Juan, San Miguel, Socorro, Santa Fe, Taos Torrance, Union, Valencia

Trade, Program, and Contact	Area Served
CARPENTERS (4-year apprentice program)	
Vernon Beckwith, Coordinator Carpenter's Training Fund 1615 University NE Albuquerque, New Mexico	State of New Mexico
CEMENT FINISHERS AND PLASTERERS (3-year apprentice program for Cement Finishers; 4-year program for Plasterers)	
Edward Saiz 602 Third SW Albuquerque, New Mexico	Bernalillo, Catron, Guadalupe, McKinley, Sandoval, Socorro, Torrance, Valencia
Raymond L. Barris P. O. Box 952 148 Park Drive Clovis, New Mexico	Clovis area
ELECTRICIANS (4-year apprentice program)	
Mrs. Ella Haralson, Secretary Electrical Joint Apprenticeship Committee 105 Texas SE Albuquerque, New Mexico	All New Mexico counties except Chaves, Curry, Dona Ana, Eddy, Lea, Lincoln, Otero, Roosevelt
Eddie Randack 305 West Mesa Street Gallup, New Mexico	Gallup
Buddy Adams 911 East Second Street Roswell, New Mexico	Chaves, Curry, Lincoln, Roosevelt
Neal Gonzales 606 North Main Street Carlsbad, New Mexico	Potash mines only
ELECTRICAL LINEMEN (4-year apprentice program)	
Southwest Area Line Constructors Apprenticeship Committee 105 Texas SE Albuquerque, New Mexico	All New Mexico counties except Otero, Dona Ana, Eddy, Lea

Trade, Program, and Contact	Area Served
State Employment Service	Otero, Dona Ana, Eddy, Lea
GLAZIERS (3-year apprentice program)	
John Leroy 4606 9th Street NW Albuquerque, New Mexico	State of New Mexico
GRAPHIC ARTS (Printer, Pressman, etc.)	
Local newspaper offices or commercial printing establishments	State of New Mexico
IRONWORKERS (3-year apprentice program)	
Danny Sanchez Ironworkers Joint Apprenticeship Committee 205 Wellesley Drive SE Albuquerque, New Mexico	All New Mexico counties except Chaves, Curry, Eddy, Grant, Harding, Hidalgo, Lea, Luna, Otero, Roosevelt, Quay, Sierra, Union
Floyd Bowers 1501 Yandell Drive El Paso, Texas	Chaves, Eddy, Grant, Hidalgo, Luna, Otero, Sierra
F. M. Hall 1903 West 7th Street P. O. Box 1798 Amarillo, Texas	Curry, Harding, Lea, Quay, Roosevelt, Union
LATHERS (3-year apprentice program)	
Bill Carroll, Chairman 920 First NW Albuquerque, New Mexico	State of New Mexico
MACHINISTS	
Director of Apprenticeship 1010 National Building 505 Marquette NW Albuquerque, New Mexico	State of New Mexico

Trade, Program, and Contact	Area Served
PAINTERS (3-year apprenticeship program)	
George Suddarth 205 Wellesley SE Albuquerque, New Mexico	Bernalillo, Catron, Guadalupe, McKinley, San Juan, Socorro, Torrance, Valencia, west and south of Highway 44 in Sandoval, San Juan-Chama Diversion Project
Victor Muskopf 624 East Orange Street Roswell, New Mexico	Roswell area
Joe E. Romero 492 West Water Street Santa Fe, New Mexico	Colfax, Los Alamos, Mora, San Miguel, Santa Fe, Taos, Union, north of Highway 44 in Sandoval
PLUMBERS AND PIPE FITTERS (5-year apprentice program)	
Gerald Kuhn 411 Arizona SE Albuquerque, New Mexico	State of New Mexico
RESILIENT FLOOR COVERS (3-year apprentice program)	
C. C. Rounds 8531 Rio Grande Boulevard NW Albuquerque, New Mexico	State of New Mexico
ROOFERS (3-year apprentice program)	
W. L. Dopson 604 Third SW Albuquerque, New Mexico	State of New Mexico
SHEET METAL WORKERS)4-year apprentice program)	
W. L. Dopson 604 Third SW Albuquerque, New Mexico	All New Mexico counties except Dona Ana, Eddy, Grant, Hidalgo, Lea, Luna, Otero, Sierra
Lee Carney 2900 East Yandell El Paso, Texas	Dona Ana, Eddy, Grant, Hidalgo, Lea Luna, Otero, Sierra

Trade, Program, and Contact	Area Served
TILESETTERS (3-year apprentice program) J. O. Glendenning 2924 Morningside Drive NE Albuquerque, New Mexico	Bernalillo, Catron, Colfax, Harding Los Alamos, McKinley, Mora, Rio Arriba, Sandoval, San Juan, San Miguel, Santa Fe, Socorro, Taos, Torrance, Union, Valencia

COMPANIES SPONSORING VARIOUS APPRENTICESHIP PROGRAMS

Company and Contact	Apprenticeship Programs
ACF Industries, Inc. Leo Goebel, Apprenticeship Co-ordinator 336 Woodward Road SW P. O. Box 1666 Albuquerque, New Mexico	Electrical Maintenance, Electronic Technician, Machinist
Kennecott Copper Corporation Den Thorne Chino Mines Division Mine Industrial Relations Department Santa Rita, New Mexico	Blacksmith, Boilermaker, Carpenter, Electrician, Painter, Pipefitter, Lineman (electrical), Sheet Metal Worker
Eberline Instrument Corporation Industrial Relations Department P. O. Box 279 Albuquerque, New Mexico	Electronic Technician Machinist, Painter, Sheet Metal Worker
Public Service Company of New Mexico Mr. Kendall Wolf P. O. Box 2267 Albuquerque, New Mexico	Control Instrument Man, Electrical Maintenance, Electronic Technician, Lineman, Meterman, Pipefitter, Power Plant Operator, Power Plant Mechanic
Sandia Corporation Frank Dausses Apprenticeship Coordinator Sandia Base Albuquerque, New Mexico	Electronic Technician, Machinist
Town of Farmington - Utility System Raymond Barlow Farmington, New Mexico	Lineman, Maintenance, Electrician, Meter Repairman, Power Plant Operator

Other Programs

Director of Apprenticeship
1010 National Building
505 Marquette NW
Albuquerque, New Mexico

Appliance Repairman, Automotive Mechanic, Body and Fender Mechanic, Dental Technician, Machinist, Upholsterer

Bureau of Apprenticeship and Training
U. S. Department of Labor
303 Federal Building, 421 Gold SW
Albuquerque, New Mexico

* This material is included with permission of the New Mexico State Division of Guidance, Santa Fe, New Mexico.

I. PUBLISHERS OF OCCUPATIONAL INFORMATION

1. Books, Pamphlets, Monographs, etc.

Governmental Publishers

United States:

U. S. Department of Agriculture, Washington 25, D. C.
U. S. Department of Defense, Washington 25, D. C.
- U. S. Air Force
- U. S. Army
- U. S. Navy
- U. S. Marine Corps
- U. S. Coast Guard

U. S. Civil Service Commission, Washington 25, D. C.
U. S. Department of Commerce, Bureau of the Census, Washington 25, D. C.
U. S. Department of Health, Education, and Welfare, Washington 25, D. C.
- Public Health Service
- Office of Education, Guidance, and Student Personnel Section

U. S. Department of Labor, Washington 25, D. C.
- Bureau of Apprenticeship
- Bureau of Labor Statistics
- U. S. Employment Service
- Women's Bureau

Veteran's Administration, Washington 25, D. C.

Canada:

Department of Labor, Economics and Research Branch, Montreal

Private Publishers

Publishers of Subscription Services

Careers, Largo, Florida
Chronicle Guidance Service, Inc., Moravia, N. Y.
Science Research Associates, 259 E. Erie Street, Chicago 10, Ill.
The Guidance Centre, University of Toronto, Ontario College of Education, 371 Bloor Street West, Toronto 5, Ontario

Others

Bellman Publishing Co., P. O. Box 172, Cambridge 38, Mass.
B'nai B'rith Vocational Service, 1640 Rhode Island Ave., N. W., Washington 6, D. C.
Children's Press, Jackson Blvd. and Racine Ave., Chicago 7, Ill.
David McKay and Co., 55 Fifth Ave., New York 3, N. Y.
Dodd, Mead and Co., 432 Fourth Ave., New York 16, N. Y.
E. P. Dutton and Co., 300 Fourth Ave., New York 10, N. Y.
The Institute for Research, 537 S. Dearborn Street, Chicago 5, Ill.
J. P. Lippincott, 227 S. Sixth Street, Philadelphia 5, Penn.

National Vocational Guidance Association, 1605 New Hampshire Ave., N. W., Washington 9, D. C.
Occu-Press, 489 Fifth Ave., New York 17, N. Y.
Personnel Services, Inc., P. O. Box 306, Jeffrey, N. H.
Research Publishing Co., P. O. Box 245, Boston 1, Mass.
Vocational Guidance Manuals, 1011 E. Tremont Ave., New York 60, N. Y.
World Trade Academy Press, 11 W. 42nd Street, New York 36, N. Y.

2. Professional and Trade Associations

Occupation	Organization and Address
Accountants	American Institute of Certified Public Accountants, 270 Madison Ave., New York 16, N. Y.
Actors and Artists	Associated Actors and Artists of America, 45 W. 47th Street, New York 19, N. Y.
Actuaries	Society of Actuaries, 208 S. LaSalle, St., Chicago 4, Ill.
Advertising Workers	Advertising Federation of America, 250 W. 57th St., New York 19, N. Y.
Aircraft Industries	Aircraft Industries Association, 15th and H St., N. W., Washington, D. C.
Airline Workers	Public Relations, Air Transport Association, 1107 16th St., N. W., Washington, D. C.
Architects	American Institute of Architects, 1735 New York Ave., N. W., Washington 6, D. C.
Architects, Landscape	American Association of Landscape Architects, 9 Park St., Boston 8, Mass.
Astronomers	American Astronomical Society, Washburn Observatory, Madison 6, Wis.
Auctioneers	American Society of Auctioneers, 818 Olive St., St. Louis 1, Mo.
Bakers	American Bakers Association, 20 N. Wacker Dr., Chicago 6, Ill.
Bankers	American Bankers Association, 12 E. 36th St., New York 16, N. Y.
Barbers and Beauty Operators	Association Master Barbers and Beauticians of America, 537 S. Dearborn St., Chicago 5, Ill.
Bricklayers	Structural Clay Products Institute, 1520 18th St., N. W., Washington 6, D. C.
Broadcasters	National Association of Radio and Television Broadcasters, 1771 N St., N. W., Washington 6, D. C.
Building Trades	A. F. L. & C. I. O., Building & Construction Trades Dept., 815 16th St., N. W., Washington, D. C.
Cartoonists	Cartoonists Society, 247 W. 43rd St., New York 18, N. Y.
Chemists	American Chemical Society, 1155 16th St., N. W., Washington 10, D. C.

Chiropodists or Podiatrists	National Association of Chiropodists, 3301 16th St., N.W., Washington 10, D. C.
Chiropractors	National Chiropractic Association, National Bldg., Webster City, Ia.
Coal Mining	Educational Director, National Coal Association, Southern Bldg., Washington 5, D. C.
Compositors	Printing Industry of America, Inc., 5728 Connecticut Ave., N.W., Washington 15, D. C.
Decorators	American Institute of Decorators, 41 E. 57th St., New York 22, N.Y.
Dental Hygienists	American Dental Hygienists' Association, 100 E. Ohio St., Chicago 11, Ill.
Dental Technicians	National Association, Dental Laboratories, Inc., 16th St. and Pennsylvania Ave., Washington 6, D. C
Dentists	American Dental Association, 222 E. Superior St., Chicago 11, Ill.
Dieticians	American Dietetic Association, 620 N. Michigan Ave., Chicago 11, Ill.
Electrical Workers	International Brotherhood of Electrical Workers, 1200 15th St., N.W., Washington 5, D. C.
Engineers, Aeronautical	Institute of the Aeronautical Sciences, 2 E 64th St., New York 21, N.Y.
Engineers, Agricultural	American Society of Agricultural Engineers, St. Joseph, Mich.
Engineers, Ceramic	American Ceramic Society, 4055 N. High St., Columbu 14, Ohio
Engineers, Chemical	American Institute of Chemical Engineers, 25 W. 45th St., New York 36, N.Y.
Engineers, Civil	American Society of Civil Engineers, 33 W. 39th St., New York 18, N.Y.
Engineers, Electrical	American Institute of Electrical Engineers, 33 W. 39th St., New York 18, N.Y.
Engineers, Industrial	American Institute of Industrial Engineers, 145 N. High St., Columbus 15, Ohio
Engineers, Mechanical	American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y.
Engineers, Mining, Metallurgical and Petroleum	American Institute of Mining, Metallurgical and Petroleum Engineers, 29 W. 39th St., New York 18, N. Y.
Engineers, Radio	Institute of Radio Engineers, 1 E. 79th St., New York, N. Y.
Farmers	U. S. Department of Agriculture, Washington 25, D. C.
Florists	Society of American Florists, 600 S. Michigan Ave., Chicago 5, Ill.
Foresters	Society of American Foresters, 17th and Pennsylvania Ave., N.W., Washington 6, D. C.
Forge Shop Workers	Drop Forge Association, 419 W. Walnut Street, Lansing 33, Mich.

Funeral Directors and Embalmers	National Funeral Directors Association, 135 W. Wells St., Milwaukee 3, Wis.
Geographers	Association of American Geographers, Division of Maps, Library of Congress, Washington 25, D. C.
Geologists	American Geological Institute, 2101 Constitution Ave., Washington 5, D. C.
Hairdressers and Cosmetologists	National Association of Hairdressers & Cosmetologists, 175 Fifth Ave., New York 10, N. Y.
Home Economists	American Home Economics Association, 1600 20th St., N.W., Washington 9, D. C.
Hotel Workers	American Hotel Association, 221 W. 57th St., New York 19, N. Y.
Insurance Agents	National Association of Insurance Agents, 96 Fulton St., New York 21, N.Y.
Jewelers and Jewelry Repairmen	Retail Jewelers of America, 551 Fifth Ave., New York 17, N. Y.
Laundry Workers	National Institute of Cleaning and Dyeing, Silver Springs, Md.
Lawyers	American Bar Association, 1155 E. 60th St., Chicago 37, Ill.
Librarians	American Library Association, 50 E. Huron St., Chicago 11, Ill.
Machinists, All-round	International Association of Machinists, 1300 Connecticut Ave., Washington 6, D. C.
Masseurs	American Association of Masseurs and Masseuses, 102 Caledonia St., Sausalito, Cal.
Mathematicians	Mathematical Association of America, University of Buffalo, Buffalo 14, N. Y.
Mechanics, Refrigeration and Air-Conditioning	United Association of Journeymen, Apprentices, of Plumbing and Pipe Fitting Industries, 901 Massachusetts Ave., Washington 1, D. C.
Medical Laboratory Technicians	Registry of Medical Technologists, American Society of Chemical Pathologists, P. O. Box 44, Muncie, Ind.
Medical Record Librarians	American Association of Medical Record Librarians, 510 N. Dearborn St., Chicago 10, Ill.
Medical X-Ray Technicians	American Registry, X-Ray Technicians, Metropolitan Bldg., Minneapolis 1, Minn.
Meteorologists	American Meteorological Society, 3 Joy St., Boston 8, Mass.
Microbiologists or Bacteriologists	Society of American Bacteriologists, Mt. Royal and Guilford Aves., Baltimore 2, Md.
Musicians	American Federation of Musicians, 570 Lexington Ave., New York 22, N. Y.
Nurses, Practical	National Association for Practical Nurse Education, 654 Madison Ave., New York 21, N.Y.
Nurses, Registered	Committee on Careers, National League for Nursing, Inc., 2 Park Ave., New York 16, N. Y.

Occupational Therapists	American Occupational Therapy Association, 250 W. 57th St., New York 19, N. Y.
Opticians	Guild of Prescription, Opticians of American, Inc., 110 E. 23rd St., New York 10, N. Y.
Osteopathic Physicians	American Osteopathic Association, 212 Ohio St., Chicago 11, Ill.
Painters and Paperhangers	Brotherhood of Painters, Decorators, and Paperhangers of America, 217-219 N. 6th St., Lafayette, Ind.
Petroleum Workers	American Petroleum Institute, 50 W. 50th St., New York 20, N. Y.
Pharmacists	American Pharmaceutical Association, 2215 Constitution Ave., Washington 7, D. C.
Photographers	Photographic Society of America, 1815 Spruce St., Philadelphia 3, Penn.
Physical Therapists	American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.
Physicians	American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.
Physicists	American Institute of Physics, 335 E. 45th St., New York 17, N. Y.
Plastics Workers	Society of Plastics Industry, 250 Park Ave., New York, N. Y.
Plumbers and Pipe Fitters	United Association of Journeymen, Apprentices, of Plumbing and Pipe Fitting Industries, 901 Massachusetts Ave., Washington 1. D. C.
Psychologists	American Psychological Association, 1333 16th St., N. W., Washington 6, D. C.
Railroad Workers	Association of American Railroads, Transportation Bldg., Washington 6, D. C.
Real Estate Salesmen	National Association of Real Estate Boards, 36 S. Wabash Ave., Chicago 3, Ill.
Recreation Workers	National Recreation Association, 8 W. 8th St., New York 11, N. Y.
Restaurant Workers	National Restaurant Association, 1530 N. Lake Shore Dr., Chicago 10, Ill.
Retail Grocers	National Association of Retail Grocers, 360 N. Michigan Ave., Chicago 1, Ill.
Secretaries, Stenographers, and Typists	United Business Education Association, 1201 16th St., N.W., Washington 6, D. C.
Social Workers	National Association of Social Workers, Inc., 95 Madison Ave., New York 10, N. Y.
Speech Therapists	American Speech and Hearing Association, 1001 Connecticut Ave., Washington 6, D. C.
Teachers, College and University	National Education Association, 1201 16th St., N. W., Washington 6, D. C.
Teachers, Secondary Schools	National Education Association, 1201 16th St., N. W., Washington 6, D. C.

Teachers, Elementary Schools	National Education Association, 1201 16th St., N.W., Washington 6, D. C.
Tool and Die Makers	National Tool and Die Manufacturers Association, 907 Public Square Bldg., Cleveland, Ohio
Truckers	American Trucking Association, Inc., 1424 16th St., N.W., Washington 6, D. C.
Veterinarians	American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.
Welders	American Welding Society, 33 W. 39th St., New York 18, N. Y.

3. Business and Industrial Firms and Agencies

Allis-Chalmers Manufacturing Co., Public Relations Division, P. O. Box 512, Milwaukee 1, Wis.
American Institute of Management, 125 E. 38th St., New York 16, N. Y.
American Iron and Steel Institute, 150 E. 42nd St., New York 17, N. Y.
American Petroleum Institute, 50 W. 50th St., New York 20, N. Y.
Arabian-American Oil Co., 505 Park Ave., New York, N. Y.
The Automobile Manufacturers Association, 320 New Center Bldg., Detroit 2, Mich.
Chamber of Commerce of the United States, 1615 H St., Washington 6, D. C.
E. I. du Pont de Nemours and Co., Wilmington 98, Del.
The Thomas Alva Edison Foundation, Inc., West Orange, N. J.
General Motors, Education Department, Mound Road and 13 Mile, Detroit, Mich.
Metropolitan Life Insurance Co., 1 Madison Ave., New York 10, N. Y.
National Association of Manufacturers, 2 E. 48th St., New York 22, N. Y.
National Industrial Conference Board, 460 Park Ave., New York, N. Y.
National Paint, Varnish and Lacquer Association, 1500 Rhode Island Ave., N.W., Washington, D. C.
New York Life Insurance Co., Career Information Service, 51 Madison Ave., New York 10, N. Y.
Shell Oil Co., 50 W. 50th St., New York, N. Y.
Standard Oil Co. (N.J.), 30 Rockefeller Plaza, New York 20, N. Y.

4. Audio-Visual Aids

Films and Filmstrips

American Council on Education, 1785 Massachusetts Ave., Washington 6, D. C.
Association Films, 347 Madison Ave., New York, N. Y.
Church Screen Productions, P. O. Box 5036, Nashville, Tenn.
Coronet Films, Coronet Bldg., Chicago 1, Ill.
Encyclopaedia Britannica Films, Inc., 1150 Wilmette Ave., Wilmette, Ill.
Frith Films, 1816 N. Highland Ave., Hollywood, Cal.
Harmon Foundations, Inc., Division of Visual Experiment, 140 Nassau St., New York 3, N. Y.

Jam Handy Organization, Inc., 2821 E. Grand Blvd., Detroit, Mich.
Long Filmslide Service, 7505 Fairmount Ave., El Cerrito 8, Cal.
McGraw-Hill Book Co., Text-Film Dept. 330 W. 42nd St., New York 36, N. Y.
National Film Board of Canada for the Economics and Research Branch, Dept. of Labor, Ottawa.
National Forum, Inc., 407 S. Dearborn St., Chicago 5, Ill.
Science Research Associates, 259 E. Erie St., Chicago 10, Ill.
Society for Visual Education, Inc., 1345 Diversey Pkwy., Chicago 14, Ill.
Young America Film, Inc., 18 E. 41st St., New York, N. Y.

Charts and Posters

B'nai B'rith Vocational Service, 1640 Rhode Island Ave., N. W., Washington 6, D. C.
Bureau of Labor Statistics, U. S. Department of Labor, Washington, D. C.
Champaign Senior High School, Champaign, Ill.
Chronicle Guidance Publications, Moravia, N. Y.
Conde Nast Publications, Inc., Glamour, 420 Lexington Ave., N. Y.
The Guidance Centre, Ontario College of Education, University of Toronto, Toronto
National Forum, Inc., 407 S. Dearborn St., Chicago, Ill.
National Industrial Conference Board, 460 Park Ave., New York 22, N. Y.
Science Research Associates, 259 E. Erie St., Chicago 10, Ill.

Recordings

American Council on Education, 1785 Massachusetts Ave., N. W., Washington 6, D. C.
Indiana University, Bloomington, Ind.
National Child Labor Committee, 419 Fourth Ave., New York 16, N. Y.
Recordings Division, New York University Film Library, Washington Square, New York 3, N. Y.

Periodicals

Popular Magazines

Charm, 575 Madison Ave., New York 22, N. Y.
Glamour, 420 Lexington Ave., New York 17, N. Y.
Mademoiselle, 575 Madison Ave., New York 22, N. Y.
Seventeen, 488 Madison Ave., New York 22, N. Y.

Professional Journals

Journal of College Placement, published quarterly by College Placement Publications Council, 35 E. Elizabeth Ave., Bethlehem, Penn.
Vocational Guidance Quarterly, published by N. V. G. A., 1605 New Hampshire Ave., Washington 9, D. C.

Personnel and Guidance Journal, published by A. P. G. A. (10 times yearly), 1605 New Hamshire Ave., Washington 9, D. C.
Rehabilitation Literature, published monthly by the National Society for Crippled Children and Adults, 11 S. LaSalle St., Chicago 3, Ill.

Others

Career News, B'nai B'rith Vocational Service, 1640 Rhode Island Ave., N. W., Washington 6, D. C.
Horizons, Horizon House, Inc., 160 Warren St., Boston 19, Mass.

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APPENDIX

a listing of member schools NATTS

Listed here are the member schools of the National Association of Trade and Technical Schools and the courses being offered.

Schools are listed alphabetically under their respective STATE heading. To the right of each listing, are the "weeks to complete" columns which give the time in weeks normally required to complete each course on a *full-time* or *part-time* basis; Should time in weeks be flexible pending student progress, minimum and maximum course times are given . . . "8/12" means 8 to 12 weeks.

Also, after each school name, the reader is given the full address, name of school official, telephone number, date of founding, special approvals and usage of the school by public and governmental agencies. Abbreviations for these offices:

VA.....Veterans Administration
VR.....Office of Vocational Rehabilitation
INS.....Immigration and Naturalization Service for Foreign Students
BIA.....Bureau of Indian Affairs

State	Length in Weeks	Full Time	Part Time
CALIFORNIA			
Bay City College of Dental-Medical Assistants, 661 Geary Street, San Francisco 94102			
Sarah A. Davis, President (415), PR 6-1667, 1959, VA, VR, INS, BIA			
Nurses' Aide		8	—
Male Orderly		8	—
Dental Assistant		18	—
Medical Assistant		28	—
Crown and Bridge (Dental Lab.)		26	—
Brooks Institute of Photography, 2190 Alston Road, Santa Barbara 93103			
Ernest H. Brooks, President (805), 969-2291 1945, VA, VR, INS			
Professional Photography		105	—
Control Data Institute, 5630 Arbor Vitae Street, Los Angeles 90045			
Paul V. Fahey, Director (213), 776-3680, 1964, VA, VR, INS			
Computer Technology		40	—
Programming Technology		20	—
Electro/Mechanical Drafting		20	—
Introduction to Digital Computers		—	10
Basic Programming		—	10
FORTRAN		—	10
COBOL		—	10
Analysis and Documentation		—	10
Advanced Programming Languages		—	8
Assembly Language Programming		—	10
Theory and Design of Assemblers and Compilers		—	10
Systems Analysis		—	8
PERT		—	10
Business and Industrial Computer Applications		—	10
Applications of Digital Computers in Education		—	7
ITC Technical College, 160 So. Van Ness Avenue, San Francisco 94103			
Alexander E. Sims, President (415), 626-6757, 1962, VA, VR, INS, BIA			
Basic Drafting (Junior Draftsman)		—	45
Intermediate Drafting		36	104
Advance Drafting		64	—
Electrical Design and Drafting		52	—
Engineering Aide (Civil Engineering)		40	—
Electrical Engineering Technology		104	—
Electronic Technician		52	—
Television Technician		52	—
Television Radio Repair		—	52
Konkol Technical Schools, 1110 South Claudina Place, Anaheim 92805			
Edward L. Konkol, Director (714), 772-7856, 1951, VA VR, INS, BIA			
Electronic Technician		52	104
Color Television Technician		31	62
Electronics Technician		16	32
Electro-Mechanical Drafting		18	36
Electronic Assembler		3	—
Module Resistance Welding		4	—
Los Angeles College of Medical and Dental Assistants, 400 So. Western Avenue, Los Angeles 90005			
Ronald Panet, Director (213), DU 1-6011, 1962, VA, VR, INS, BIA			
Medical Assistant		—	28
Dental Assistant		—	16
National Technical Schools, 4000 South Figueroa Street, Los Angeles 90037			
L. J. Rosenkranz, President (213), 234-9061, 1905, VA, VR, INS, BIA			
Associate in Science Degree in Electronics Technology		69	—
Electronics Technology		60	—
Radio, Hi-Fi & Television Servicing		39	—
Automotive Technology		48	78
Automotive Technology and Diesel Engines		60	—
General Machine Shop		21	—
Air Conditioning & Refrigeration		13	—
Industrial Drafting		17	26
Electronics		—	104
Color Television & Hi-Fi Servicing		—	78
Diesel Mechanics		—	69
Machine Shop		—	26
Refrigeration & Air Conditioning Servicing		—	26
New York Technical Institute, 737 Sixteenth Street, Oakland 94612			
Smith R. Webb, Director (415), 444-3411, 1961, VA, VR, BIA			
General Automotive Mechanics		25/34	50/67
Auto Body and Fender Repair		25/34	50/67
Welding		50	—
Solar Electronic Schools, 426 West Duarte Road, Monrovia 91016			
C. R. Corliss, President (213), 358-6150, 1953, VA, VR, INS			
Electronic Technician		51	—
Elecronics Television		34	95
Electronic Assembly & Wiring		4	13
Electronic Resistance Module Welding		4	18
Advanced Electronics-Computer		17	51
Electro-Mechanical Drafting		13	32
COLORADO			
Denver Automotive Institute, Inc., 1278 Lincoln Street, Denver 80203			
Mel Jones, Business Manager (303), 266-1651, 1963, VA, VR, INS, BIA			
Master Mechanic's		24	48
Body-Fender & Paint		24	48
Diesel		36	72

State	Length in Weeks	Full Time	Part Time
Electronic Technical Institute, 1070 Bannock Street, Denver 80204			
Mrs. Mary R. Roland, President (303), 222-2503, 1960, VA, VR, INS, BIA			
Communications Technician Course		24	48
Television Technician Course		48	96
Electronics Technician Course		48	96
Electronic Technologist Course		72	144
Advanced Electronics Technician		72	144
National Electronics Institute, 1849 Emerson Street, Denver 80218			
Bill J. Brown, General Manager (303), 222-3539, 1953, VA, VR, BIA			
Radio-Television Servicing		—	52
Senior Electronics Technician		—	63
General Electronics Technician		52	104
Electronic Engineering Technician		62	124
Electronic Drafting		46	92
Practical Drafting		30	60
General Drafting		24	48
Refrigeration Servicing		—	48
CONNECTICUT			
Connecticut School of Electronics, 586 Boulevard, New Haven 06519			
Kenneth A. Titus, President (203), 624-7057, 1947, VA, VR, INS			
Electronic Technology		102	148
Hartford Airline Personnel School, 99 Pratt Street, Hartford 06103			
Robert W. Harriman, President (203), 527-7251, 1956, INS			
Airline Personnel Training		16	—
DISTRICT OF COLUMBIA			
Career Academy, 2233 Wisconsin Avenue, N.W., Washington 20007			
W. D. Pavalon, President (202), 965-5100, 1964, VR			
Medical Assistant		15	25
Dental Assistant		15	25
Dental Technology		48	78
Medical Technician		48	—
Radio & TV Broadcasting		15	25
Lewis Hotel-Motel School, 2301 Pennsylvania Avenue, N.W., Washington 20037			
Mary Bourke, President (202), FE3-4692, 1920, VA, VR, INS			
Lewis Hotel-Motel Training Course		17	22
Lincoln Technical Institute, 901 New Jersey Avenue, S.E., Washington 20003			
Donald C. Finch, Managing Director (202), 547-8600, 1960, VA, VR, INS			
Master Mechanics		48	91
Auto Mechanics—Basic		32	51
Scientific Engine Tune-Up		15	25½
Automatic Transmissions		10	25
Automotive Air Conditioning		6	15
Washington Drafting School, Inc., 1404 New York Avenue, N.W., Washington 20005			
Charles P. Janssen, Director (202), ST3-6988 1948, VA, VR, INS			
Engineering Drafting		54	108
Mechanical Drafting		30	60
Architectural Drafting		30	60

State	Length in Weeks	Full Time	Part Time
FLORIDA			
Florida College of Medical Technology, 2100 W. Flagler Street, Miami 33135			
Irving Goldstein, President (305), 377-9367, 1952, VA, VR, INS			
Front Office Medical Assisting		16	—
Medical Assisting		34	—
Medical Laboratory Technology		60	120
Medical Secretarial Science		34	—
Medical Technical Secretarial		60	—
Massey Technical Institute of Jacksonville, 148 East 7th Street, Jacksonville 32206			
C. A. Barringer, President (904), 356-8402, 1955, VA, VR, INS			
Electronic Technology		36	72
Electronic Engineering Technology		84	168
Drafting Technology		36	72
Technical Illustration		72	144
Tampa Technical Institute, 209 North Franklin Street, Tampa 33602			
Emilio Begue, President (813), 223-1637, 1948, VA, VR			
Computer Engineering Technology		104	208
Electronics Engineering Technology		78	156
Architectural Drafting Technology		78	156
Mechanical Drafting Technology		78	156
Structural Drafting Technology		78	156
GEORGIA			
National Professional Truck Driver Training, 1655 Peachtree Rd., N.E., 1005 Mony Building, Atlanta 30309			
Gilbert S. Shaw, President (404), 873-6979, 1963, VA, VR			
Professional Tractor-Trailer Driver Training		3	8
HAWAII			
New York Technical Institute (Honolulu Branch), 1375 Dillingham Blvd., Honolulu			
Jack Wyatt, Principal (808), 815-827, 1962, VA, VR, INS			
Electronic Engineering Technology		107	223
Data Processing Automation Accounting		63	130
Mechanical and/or Architectural Drafting		60	125
General Mechanics		50	100
Heavy Equipment Maintenance Preparation and Theory of Earth Moving		50	100
ILLINOIS			
Allied Institute of Technology, 1338 S. Michigan Avenue, Chicago 60605			
Harry Lebeson, President (312), HA7-3915, 1929, VA, VR, INS, BIA			
Mechanical Drafting		39	65
Tool and Die Making		52	87
Precision Machinist		39	65
Air Conditioning, Heating and Refrigeration		52	87
Automotive Mechanics		52	87
Engineering Drafting Technology		52	87
Tool & Die Design Technology		104	173
Industrial Tool Engineering		130	217
Air Conditioning, Heating and Refrigeration Engineering Technology		104	173
Automotive Engineering Technology		104	173
American Academy of Medical Technology, 189 West Madison Street, Chicago 60602			
Arthur N. Davis, President (312), RA6-5009, 1957, VA, VR, INS			
Combination Medical and X-Ray Technology		49	98

State	Length in Weeks	Full Time	Part Time
American Institute of Engineering and Technology, 1135 West Fullerton Avenue, Chicago 60614			
M. Goldstein, Dean (312), 935-2520, 1934, VA, VR, INS			
Electronic Engineering Technology		144	288
Electronic Technician		72	144
Electronics, Radio & TV Servicing		39	78
Basic Radio & TV		—	39
Basic Drafting		—	48
Engineering—Industrial Drafting		48	96
Mechanical Drafting		36	72
Combined Draftsman & Machinist		66	132
Mechanical Engineering Technology		144	288
Tool and Die Design		36	72
Tool Engineering		72	144
Machine Design		36	72
Combined Drafting Machine Design		72	144
Machinist		36	72
Basic Machine Shop		—	48
Welding Fundamentals		—	26
Industrial Welding		26	52
Welding Technician		36	72
Woodworking Technology		36	72
Air Cond. Refrigeration and Heating Service		—	39
Air Cond. Refrigeration and Heating Technology		36	72
Air Cond. Heating Refrigeration and Appliance Technology		48	96
Basic Scientific Motor Tune-Up		9	18
Scientific Motor Tune-Up and Service St. Technician		24	48
Auto Body and Fender Repair Mechanic		48	96
Basic Auto Body and Fender Repair		—	26
Career Academy, 203 North Wabash Avenue, Chicago 60601			
W. D. Pavalon, President (312), 782-2723, 1962, VA, VR			
Medical Assistant		15	25
Dental Assistant		15	25
Chicago School of Dental Nursing, 121 South Wabash Avenue, Chicago 60603			
Herbert L. Kellner, President (312), DE2-0757, 1947, VR, BIA			
Dental Assisting		22	22
Coyne Electronics Institute, 1501 West Congress Parkway, Chicago 60607			
Bennett W. Cooke, Jr., President (312), SE3-7722, 1899, VA, VR, INS, BIA			
Electronics Engineering Tech. Program		104	—
Master Electrical-TV-Radio-Refrig. Electronic Technicians		88	132
Electronics-TV-Radio Technician		48	60
Electronics-TV-Radio Technician (Including Refrig. Air Cond. & Appl. Repair)		56	72
Electrical-Electronics Technician		40	72
Electrical-Electronics Technician (including Refrig. Air Cond. & Appl. Repair)		48	84
Electrical Maintenance		32	36
Refrigeration, Air Conditioning & Appliance Repair		24	24
DeVry Institute of Technology, 4141 West Belmont Avenue, Chicago 60641			
O. I. Thompson, President (312), KI5-2700, 1931, VA, VR, INS, BIA			
Electronics Technician Program		60	—
Electronics Engineering Technology		108	—
Television & Radio (Including Color Television)		—	72
Electronic Controls for Automation		—	72
Communications		—	90
Television, Communications, Controls for Automation		—	120

State	Length in Weeks	Full Time	Part Time
Electronics Technical Institute, 608 S. Dearborn Street, Chicago 60605			
Harold M. Rabin, President (312), 922-6363, 1950, VA, VR			
TV-Radio, Electronics and Color TV		12	30
Electronics Technology		36	90
Electronics & Electrical Drafting		16	40
Air Conditioning—Refrigeration & Automatic Heating		16	40
Wiring & Soldering		—	8
Gem City College—School of Horology, 700 State Street, Quincy 62301			
Floyd W. Marshall, President (217), 222-0391, 1888, VA, VR, INS			
Clock Repairing		4	—
Engraving		12	—
Finishing		12	—
Watchmaking & Repairing		52	—
Jewelry—Diamond Setting		12	—
Advanced Jewelry		12	—
Jewelry Store Management		104	—
Greer Technical Institute, Inc., 2230 South Michigan Avenue, Chicago 60616			
K. M. Hutchison, President (312), 842-2300, 1902, VA, VR, INS, BIA			
Body and Fender Repairs		16 4/5	20
Diesel Mechanics		20	24
Engineering Drawing		12	—
Blueprint Reading		2	—
Combination Machine Shop		36	43 1/5
Primary Machine Shop		18	21 3/5
Advanced Machine Shop		18	21 3/5
Combination Refrigeration & Air Conditioning		15 4/5	19
Refrigeration		10 4/5	13
Air Conditioning		5	6
Combination Welding		16	19 1/5
Gas Welding		5 1/5	5
Primary Arc Welding		4 1/5	5
Advanced Arc Welding		4 1/5	5
High Pressure Arc Welding		4 1/5	5
Heliarc Welding		1 4/5	2
Automotive Mechanics		20	24
Automatic Transmissions		10	9 3/5
Automotile Tune Up		8	—
Heavy Equipment Operators Course 1		5	—
Heavy Equipment Operators Course 2		5	—
Heavy Equipment Operators Course 3		9	—
Crane Operators Course 4		5	—
Advance Crane Operation Course 5		10	—
Construction Equipment Mechanics Course 6		13½	—
Combination Operators & Mechanics Course 7		32½	—
Harrington Institute of Interior Design, 410 S. Michigan Ave., Chicago 60605			
Robert C. Marks, Director (312), 939-4975, 1931, VA			
Interior Design		117/156	117
Industrial Engineering College, 205 W. Wacker Drive, Chicago 60606			
Godfrey H. Kurtz, President (312), 782-6731, 1938, VA, VR, INS			
Industrial Engineering		56	233
Timestudy & Standard Data		10	56
Methods Engineering and Methods Time Measurement		9	36
Wage Incentives		4	16
Wage and Salary Evaluation and Administration		6	25
Industrial Management		2	8
Quality Control		6	25
Standard Costs, Estimating and Budgetary Control		4	17
Production Planning and Control		4	17
Layout Planning and Material Handling		3	14
Executive Development		4	16

State	Length in Weeks	Full Time	Part Time
Midway Technical Institute, Inc., 6107 So. Cottage Grove Avenue, Chicago 60637			
L. T. Allison, President (312), 684-1240, 1945			
	Electrical Appliance Repair	41	—
	Porter, General Maintenance	30	—
	Clerk, General	30	—
	Mail Clerk	21	—
	Upholsterer	24	—
	Stock Clerk	20	—
	Basic Literacy and Pre-Vocational Ed.	20	—
	Chassis Assembler	11	—
	Calculating Machine Operator	11	—
	Sewing Machine Operator	11	—
	Assembler, Small Products	14	—
	Electronic Technician	36	—
	Podiatry Assistant	26	—
	Dentist Assistant	26	—
	Retail Trainees	26	—
	Machine Operators	26	—
	Welding	26	—
	Physician Assistant	26	—
	Punch Press Operator	36	—
	Woodworking Occupations	48	—
	Coil Winding	10	—
	Auto Mechanics	48	—
	Typewriter Repair	24	—
	Painter, Sprayer	24	—
	Cabinet Makers	48	—
	Refrigeration	16	—
	Air-Conditioning	16	—
	Heating	16	—
The Quincy Technical Schools, 501 North Third Street, Quincy 62301			
W. G. Dubuque, President (217), 224-0600, 1963, VA, VR			
	Diesel & Automotive Mechanics	37	51
	Air Conditioning, Refrigeration, & Heating	37	51
	Body & Fender Repair	37	—
	Professional Welding & Heliarc	21	33
	Drafting Technology	51	—
	Drafting & Blueprint Reading	—	33
	Electronics Technician	51	117
Rockford School of Business & Engineering 319 W. Jefferson Street, Rockford 61101			
Darlene H. Heller, Director (815), 964-9459, 1961, VA, VR, INS			
	Sales Engineering	96	—
	Production Management	90	—
	Basic Drafting	48	—
	Mechanical Drafting	84	—
	Architectural Drafting	84	—
	Basic Electronics	48	—
	Advanced Electronics	84	—
INDIANA			
Acme Institute of Technology, 504 West Calvert Street, South Bend 46613			
Stanley R. Cope, President (219), 287-6344, 1935, VA, VR, INS			
	Tool Designing	48	96/144
	Die Designing	48	96/144
	Plastics Mold Designing	24	48/72
	Die-Casting Die Designing	24	48/72
	Mechanical Drawing	4	8/12
	Industrial Mathematics	4	8/12
Elkhart Institute of Technology, 324 S. Main Street, Elkhart 46514			
H. B. Elliott, President (219), 522-6222, 1882, VA, VR, INS			
	Medical Laboratory Technician	72	—
	Medical Secretary	60	—
	Doctor's Assistant	36	—
	Medical Typist	24	—
	X-Ray Technician	24	—
	Dental Laboratory Technician	72	—
	Dental Nurse	28	—

State	Length in Weeks	Full Time	Part Time
Lincoln Technical Institute, 319 N. Capitol Avenue, Indianapolis 46204			
Eugene M. Lyle, Managing Director (317), 639-4401, 1961, VA, VR			
	Master Mechanics	32	48
	Auto Mechanics	32	25½/51
	Scientific Engine Tune-Up	15	13½/25½
	Automatic Transmissions	10	12½/25
	Automotive Air Conditioning	6	15
Midwestern College Industrial Arts and Science, 1232 Maumee Avenue, Fort Wayne 46803			
Martin F. Pane, Director (219), 743-4110, 1956, VA, VR, INS			
	Math, Mech. Drwg., Tool & Die Design, Calculus, Technical Writing	120	—
	Tool and Die Design, Calculus and Technical Writing	108	—
	Math, Mechanical Drwg., Tool & Die Design	108	—
	Tool and Die Design	96	—
	Electronic Drafting	26	—
	Engineering Drawing	26	—
Sams Technical Institute, Inc. (Evansville Center), 11 S. Lincoln Park Drive, Evansville 47714			
Charles J. Carey, Director (812), 477-1537, 1959, VA, VR, BIA			
	Electronic Engineering Technology	100	—
	Electronic Technician	50	50
	Color TV	—	5
	Hi-Fidelity & Tape Recorders	—	5
	Industrial Electronics	—	40
	2nd Class License—Radio Telephone	—	30
	Broadcast (1st-class License)	—	20
Sams Technical Institute, Inc., 1720 East 38th Street, Indianapolis 46218			
William D. Renner, Director (317), 545-2231, 1963, VA, VR, INS			
	Architectural Engineering Technology	100	200
	Industrial Engineering Technology	100	200
	Tool Engineering Technology	100	200
	Electronics Engineering Technology	100	200
	Electronic Technician	50	50
IOWA			
College of Automation, 3001 Grand Avenue, Des Moines 50312			
G. M. Luscombe, President (515), 243-8696, 1934, VA, VR, INS			
	Key Punch	4	—
	IBM Data Processing Computer Programming	36	—
	Electronics Technician	96	—
	Secretarial	48	—
KANSAS			
Topeka Technical and Business College, Inc., 420 East 29th Street, Topeka 66609			
Richard M. Preston, Director (913), CE2-0538, 1959, VA, VR			
	Typing, Business Letters & Forms	12	24
	Basic Business Machines	12	24
	Advanced Business Automation Machines	12	24
	IBM Key Punch (Typing test 50 wpm)	8	16
	Tab & Wiring	20	40
	IBM Key Punch & Speed Typing	16	32
	Tab & Wiring & Computer Programming	32	64
	Drafting	—	64
KENTUCKY			
United Electronics Institute, 3947 Park Drive, Louisville 20216			
Stuart P. Jay, President (502), 368-3305, 1946, VA, VR, INS, BIA			
	Industrial Electronics	95	—

State	Length in Weeks	Full Time	Part Time
MARYLAND			
Lincoln Technical Institute, 135 West North Avenue, Baltimore 21201			
Ralph W. Crews, Director (301), 837-3880, 1961, VA, VR, INS			
Master Mechanics		48	—
Auto Mechanics—Basic		32	25½/51
Scientific Engine Tune-Up		51	25½
Automatic Transmissions		10	25½
Automotive Air Conditioning		6	15
National Institute of Drycleaning, 909 Burlington Avenue, Silver Spring 20910			
Benjamin I. LaFlare, Director of Education (301), 589-2334, 1927, VA, VR, INS			
General Course		10	—
Management Course		4	—
MASSACHUSETTS			
Automation Training Schools, Inc., 52 Chauncy Street, Boston 02111			
Lawrence Coyne, Director (617), 542-0518, 1962, VA, VR			
Keypunch Specialist		12	16/20
Keypunch Specialist and Machine Operator		16	20/24
Tab Wiring & Data Processing		36	48/52
Advanced Computer Programming		30	40/48
Combined Tab Wiring & Advanced Comp. Prog.		66	88/100
Carnegie Institute, Inc., 65 Anderson Street, Boston 02114			
William R. Keany, Administrative Dean (617), 742-3648, 1955, INS			
Dental Assisting		36	—
Medical Assisting		44	—
Medical Secretarial		44	—
Massachusetts Trades Shops School, 155-163 High Street, Boston 02110			
Julian B. Gouse, Director (617), 482-1412, 1936, VA, VR, INS			
Basic Machine Shop		30	—
Advanced Machine Shop		30	—
Mechanical Drafting		30	—
Machine & Tool Design		30	—
Electro-Mechanical Drafting		30	—
Radio Technician		30	—
Television Technician		30	—
Automatic Transmission		15	40
Automotive Mechanic		30	—
Domestic Oil Burner Technician		4	—
Television Servicing		—	80
Machine Shop Practice		—	80
Advanced Machine Shop Practice		—	80
Mechanical Draftsman		—	80
Machine & Tool Designer		—	80
Electro-Mechanical Draftsman		—	80
Architectural Draftsman		—	80
Electronics Technician		—	40
Oil Burner Servicing		—	40
Automotive Technician (Engine Tune-Up)		—	40
New England Appliance Service School, Inc., 1018 Commonwealth Ave., Boston 02215			
Richard J. Gainor, Director (617), 232-2669, 1964, VA, VR			
Major Appliance Servicing		15	40
R.E.T.S. Electronic Schools, 965 Commonwealth Avenue, Boston 02215			
John P. Rynard, Director (617), 783-1197, 1958, VA, VR, INS			
Electronics Technician		72	—
Industrial Electronics		36	75
Radio-T.V. Servicing		24	50

State	Length in Weeks	Full Time	Part Time
MICHIGAN			
Acme School of Die Design Engineering, 755 Butterworth St., S.W., Grand Rapids 49504			
James L. Kemp, Director (616), 459-5767, 1956, VA, VR			
Industrial Mathematics		—	8
Mechanical Drawing		—	8
Tool Design		—	96
Die Design		—	96
Carnegie Institute of Detroit, 200 Park Avenue Bldg., Detroit 48226			
James F. McEachern, Vice-President and Administrative Director (313), 963-2774, 1947, VA, VR, INS			
Medical Assistant		48	—
Medical Secretary		48	—
Medical Laboratory Assistant		—	48
Detroit College of Applied Science, 4801 Allen Road, Allen Park 48101			
Oscar B. Jones, President (313), 383-4600 1926, VA, VR, INS, BIA			
Drafting Technology		20	24/125
Tool Design Technology		40	48/250
Die & Machine Design Technology		60	72/375
Tool Engineering Technology		80	96/500
Manufacturing Engineering Technology		100	120/625
Detroit Engineering Institute, 2030 Grand River Avenue, Detroit 48226			
Robert E. Nauth, President (313), 961-7540, 1910, VA, VR, INS			
Mechanical Engineering Technology		108	216
Detroit Time Study School, Inc., 2469 Grand River Avenue, Detroit 48201			
Richard E. La Duke, President (313), 962-4484, 1938, VA, VR, INS			
Time Study Engineering		16	36
Math. Drafting & Tool or Die Design		80	40
Math. & Blueprint Reading (Industrial)		—	20
Machine Tool Making		21	40
Precision Layout and Inspection		—	20
Building Trades—Math. & Blueprint Reading—Carpentry, Plumbing & Pipe Fitting, Electrical		—	20
Hallmark Business Machines Institute, 10225 W. McNichols, Detroit 48221			
Richard D. McCulla, Administrator (313), UN3-3490, 1963, VA, VR			
IBM Key Punch		23	—
IBM Computer Programming		40	—
Institute of Computer Management, Inc., 8505 West Warren, Dearborn 48216			
Dean M. Griffith, President (313), 931-5650, 1964, VA, VR, INS			
Computer Programming		40	—
Computer Programming		25	25
Key Punch		9	9
Secretarial		40	—
International Data Processing Institute, 1253 Griswold, Detroit 48226			
J. T. Belliotti, Administrator (313), 693-0609, 1958, VA, VR, INS			
Key Punch		4	6/20
Basic Machine Operations & Wiring		—	20
Computer Programming		—	17
Machine Operations, Wiring & Computer Programming		18	30/45
Key Punch and Computer Programming		18	35

State	Length in Weeks	Full Time	Part Time
MINNESOTA			
Brown Institute of Broadcasting and Electronics, 3123 East Lake Street, Minneapolis 55406			
Richard C. Brown, Director (612), 721-1639, 1946, VA, VR, INS, BIA			
Broadcasting Techniques		33	44
Radio-Television Communications & Broadcasting		43	57
Industrial Electronics		72	96/144
Computer Programming		25	50
Computer Technology		97	194
Control Data Institute, 3255 Hennepin Avenue, South, Minneapolis 55408			
E. Mark Sheldon, Director (612), 827-4715, 1963, VA, VR, INS			
Computer Technology		40	—
Programming Technology		20	—
Electro-Mechanical Drafting		20	—
Introduction to Digital Computers		—	10
Basic Programming		—	10
FORTRAN		—	10
COBDL		—	10
Analysis & Documentation		—	10
Advanced Programming Languages		—	8
Assembly Language Programming		—	10
Theory & Design of Assemblers & Compilers		—	10
Systems Analysis		—	8
PERT		—	10
Business & Industrial Computer Applications		—	10
Applications of Digital Computers in Education		—	7
Humboldt Institute, Inc., 2201 Blaisdell Avenue, S., Minneapolis 55404			
A. L. Rubinger, President (612), 339-9287, 1895, VA, VR, INS			
International Travel and Secretarial Training		36	—
Transportation and Traffic Management		36	—
McConnell Airline School, Inc., 1030 Nicollet Avenue, Minneapolis 55403			
William McKay, President (612), 335-4238, 1937, VA, VR, INS			
McConnell "18"		34	—
McConnell "20"		12	—
Northwest Institute of Medical Laboratory Technique, 3408 E. Lake St., Minneapolis 55406			
Sidney Kaufman, Administrator (612), 721-2428, 1918, VA, VR, INS, BIA			
Medical Laboratory Technique		60	—
X-Ray plus Electrocardiography		12	—
Medical Laboratory Techniques Plus X-Ray		60	—
Northwestern Electronics Institute, 3800 Minnehaha Avenue, Minneapolis 55406			
C. L. Larson, President (612), 721-2469, 1930, VA, VR, INS, BIA			
Electronics Technology		96	192
Business Machine Technology		72	144
Radio-Television Technician		72	144
Industrial Technician		60	120
Communications Electronics		36	72
Transistors		24	—
Basic Electronics		—	48
Computer Technician		—	96
Industry Oriented Transistor Course		—	13
Computer Programming		—	52
MISSOURI			
Atlantic School, 2020 Grand Avenue Kansas City 64108			
Robert W. Harriman, President (816), HA1-3558, 1962, VA			
Airline Personnel Training		16	—
Automation Training, Inc., 5701 Waterman, St. Louis 63112			
C. R. Johnson, President (314), 727-7212, 1959, VR			
Keypunch		2	7
Tab & Wiring		6	17
Computer Programming		12	34
Bailey Technical School, 1645 S. Grand Avenue, St. Louis 63110			
C. Wm. Bailey, President (314), PR6-7860, 1936, VA, VR, INS, BIA			
Auto-Diesel Master Mechanic		49	—
Basic Institute of Technology, 1930 S. Vandeventer Avenue, St. Louis 63110			
Anthony J. Zoeller, President (314), PR1-4307, 1936, VA, VR, INS			
Electronics with Electives		60	90
Air Conditioning, Refrigeration and Heating Technician		40	60
TV Radio Electronics		50	75
Drafting with Electives		50	100
Basic Electricity		16	24
Missouri School for Doctors' Assistants, 950 Francis Place (Medical West Bldg.), Clayton 63105			
Samuel L. Gilberg, President and Director of Education (314), PA6-0525, 1963, VA, VR			
Doctors' Office Assistant (Med/Dent)		12	20
Medical Office Laboratory Techniques		12	20
Medical Laboratory Technology		50	170
Dental Laboratory Technology		50	83
Tissue Technician		50	83
Combined Doctors' Office and Laboratory		24	40
Stevinson Auto & Electrical School, 2008 Main Street, Kansas City 64108			
C. H. Stevinson, President (816), GR1-1827, 1922, VA, VR, INS, BIA			
Auto Mechanics		36	72
Automotive Body & Fender Repair		36	—
Refrigeration, Air Conditioning and Electrical Appliance Repair		39	78
Commercial Refrigeration & Air Conditioning		36	72
Welding		14	21
NEBRASKA			
Personnel Training Institute, 2055 Harney Street, Omaha 68102			
W. B. Weddington, Director (402), 346-3990, 1938, VA, VR			
Communications & Reservations		26	—
Radio Engineering Institute, 2610 Leavenworth Street, Omaha 68105			
W. B. Weddington, Director (402), 345-8186, 1945, VA, VR, INS, BIA			
Electronic Technician		78	95
Universal Trades School, Inc., 902 Capitol Avenue, Omaha 68102			
George Abdouch, President (402), 345-2422, 1946, VA, VR, INS, BIA			
Refrigeration and Air Conditioning		36	—
Air Conditioning-Cooling and Heating		16	—
Auto Body and Fender Repair		36	—
Automotive Mechanics		36	—
NEW JERSEY			
Central School for Medical Assistants, Medical Secretaries and Dental Assistants, 237 Washington Street, Newark 07102			
H. Edward Tym, Director (201), 642-3334, 1962, VA, VR, INS			
Medical Secretary I		21	—
Medical Secretary II		30	—
Medical Assistant		21	39
Dental Assistant		21	39
Medical Terminology		—	5

State	Length in Weeks	Full Time	Part Time
Electronics Training Center, 7300 Crescent Blvd., Pennsauken 08110			
M. Michael Freedland, President (609), 665-3010, 1959, VA, VR, INS			
	Electronics Technology	83	166
	Drafting Technology	52	104
	Electronics Specialist	—	75
General Technical Institute, Inc., 1118 Baltimore Avenue, Linden 07036			
Gregory G. Sytch, Jr., President (201), 486-0150, 1953, VA, VR, INS			
	Electric Welding Pipe	10	24
	Electric Welding Plate	9	22
	Electric Welding Maint.	4	10
	Electric Welding Mechanic	2	5
	Acetylene Welding Maint.	4	10
	Acetylene Welding Mechanic	2	5
	Heli Arc Welding	1½/3½	2½/8½
	Sigma Automatic Mig	½	1½
J-C Technical Institute, 201 Market Street, Paterson 07505			
Robert Fairless, Director (201), MU4-2113, 1947, VA, VR, INS			
	Electronics Technology	80	160
	Drafting Technology	40	80
	Electrician	20	40
Lincoln Technical Institute, 472 Market Street, Newark 0710[illegible]			
J. Warren Davies, President (201), MI2-5432, 1946, VA, VR, INS			
	Master Refrigeration, Air Conditioning and Heating Technician	55	137½
	Master Refrigeration and Air Conditioning Technician	45	112½
	Oil Heat Servicing	20	50
	Oil Heat Servicing (Accelerated)	10	25
	Master Auto Mechanics	49	—
	Auto Mechanics	30	75
	Engine Tune-Up	15	37½
	Automatic Transmissions	10	25
	Automotive Air Conditioning	5	12½
	Diesel Engines	15	37½
	Heavy Oil Burner	—	21
Newark Industrial Technical Institute, 127 Mulberry Street, Newark 07102			
Edmund J. Feeney, Director (201), 623-3267, 1947, VA, VR, INS			
	Mechanical Drafting	52	91
	Architectural Drafting	52	91
	Electrical Drafting	52	91
	Electronical Drafting	52	91
	Machine Design	37	65
Passaic School of Drafting, Inc., 297-303 Monroe Street, Passaic 07055			
Oscar J. Adamoff, Director (201), 777-4909, 1959, VA, VR, INS			
	Electro-Mechanical Drafting	40	150
	Blue-Print Reading	30	30
	Basic Machine Design	—	43
	Introductory Graphics	6	—
Teterboro School of Aeronautics, Inc., 401 Industrial Avenue, Teterboro 07608			
Anthony Di Stefano, Director (201), 288-1880, 1947, VA, VR, INS			
	Airframe and Powerplant Mechanic	89	—
Trenton Technical Institute, 640 E. State Street, Trenton 08609			
John A. Freund, Director (609), 392-7136, 1947, VA, VR			
	Electronics Technology	68	204
	Mechanical Technology	80	168
	Electronic Data Processing and Computer Technology	72	—
	Data Processing Machines	6	20
	Computer	—	17
	IBM Keypunch	3	7
Union Technical Institute, 2000 Morris Avenue, Union 07083			
Paul J. Barotta, President (201), 687-6220, 1954, VA, VR			
	Electronics Technology	96	—
	Comprehensive Electronics	—	156
	Mechanical Drafting	40	80
	Blueprint Reading	—	12½
	Radio-TV	—	75
United Radio-Television Institute, Inc., 256 Washington Street, Newark 07102			
Daniel H. Scheffen, Director (201), MA3-8663, 1939, VA, VR, INS			
	Comprehensive Electronics	95	190
	Advanced Television	28⅓	56⅔
	Basic Radio and Television Fundamentals	28⅓	56⅔
	Special Television Servicing	9	18
	Color Television	8⅓	16⅔
	Television Installation	2½	5
	Production Wiring	10	—
	Solid State Fundamentals	10	—
NEW MEXICO			
North American Technical Institute, 1606 Central Avenue, S.E., Albuquerque 87106			
Walter L. Johnston, President (505), CH2-9036, 1959, VA, VR, INS, BIA			
	Electronics Technology	40	80/100
	Electronics Engineering Technology	80	160/200
NEW YORK			
Apex Technical School, 52 East 19th Street, New York 10003			
John Cann, President (212), GR7-2155, 1961, VA, VR, INS			
	Air Conditioning and Refrigeration	20	66
	Stationary Engineer License Preparation	—	30
	Refrigeration License Preparation	—	24
	Oil Burner Permit	—	6
	Custodian Engineer	—	24
	Radio and Television Servicing	—	75
Eastern School for Physicians' Aides, 85 Fifth Avenue, New York 10003			
Henry Young, Director (212), 242-2330, 1936, VA, VR, INS			
	Medical Assistant	48	—
	Medical Laboratory Technology	48	96
	Medical Secretary	48	—
	Medical Stenography	—	43
	Medical Receptionist	—	20
	Electronic Transcriber (with special emphasis on medical)	—	24
Germain School of Photography, 225 Broadway, New York 10007			
Milton W. Willenson, Administrative Director (212), WO4-4550, 1947, VA, VR, INS			
	Commercial Photography	12	24
	Portrait Photography	6	12
	Color Photography	12	24
	General Combination Course	26	52
	Ektacolor Printing	6	12
	Dye Transfer Printing	8	20
	Advanced Workshops in Color Printing	—	20
	Photo Journalism	—	15
	Cover Photography	—	15
	Motion Picture Production	20	40
	Negative Retouching	7	17
	Airbrush Technique	—	20
	Color Transparency Retouching	—	30
	Oil Coloring	—	13
	Camera Repair and Mechanics	12	43

State / Length in Weeks	Full Time	Part Time
Island Drafting School, 128 Broadway, Amityville 11701		
Joseph R. DiLiberto, President (516), MY1-8733, 1957, VA, VR, INS		
Mechanical Drafting	34	72
Architectural Drafting	34	72
Electronic Drafting	34	72
Refresher Mathematics	15	36
Electronic Wiring, Assembly and Testing	9	20
Basic Electronics	12	30
Blueprint Reading	3	9
Kerpel School of Dental Technology, 127 Columbus Avenue, New York 10023		
Julius A. Kerpel, President (212), EN2-4702, 1930, VA, VR, INS		
General Course Dental Technology	104	142
Advanced Courses in Orthodontic Regulators and Construction of Dental Appliances and Precision Attachments	52	71
Gold Course	54	74
Denture Course	21	30
Acrylic Course	34	47
Ceramic Course	45	62
Advanced Orthodontic Course	32	44
Advanced Precision Attachment Course	20	27
Mandl School for Medical and Dental Assistants, 175 Fulton Ave., Hempstead 11550		
Belle Edelson, Director (516), IV1-2774, 1963, VA, VR, INS.		
Medical Assistant	40	—
Dental Assistant	11	16
Medical Secretary	40	—
Laboratory Techniques	—	40
Mandl School for Medical and Dental Assistants, 254 W. 54th St., New York 10019		
Leo Kogan, President (212), CI7-3434, 1924, VA, VR, INS		
Dental Assistant	17	24
Laboratory Techniques	43	43
Medical Assistant	43	—
Medical Secretary	43	—
Medical Stenography	—	43
Manhattan Medical and Dental Assistants' School, Inc., 1780 Broadway, New York 10019		
Rosetta V. Wortzel, Director (212), PL7-8275, 1931, VA, VR, INS		
Medical Technology Course	48	—
Medical Assistant Course	44	—
Medical Secretarial Course	—	44
Medical Laboratory Technician	24	40
Histology and Cytology Course	—	20
Dental Assistants Course	12	20
Infant and Geriatric Care Course	7	10
Manhattan Technical Institute, 154 West 14th Street, New York 10011		
Herbert K. Swarte, Director (212), 989-2662, 1938, VA, VR, INS		
Mechanical Drafting	25/40	83/50
Machine Design	21/34	71/42
Industrial Production Methods	25/40	83/50
Architectural Drafting	25/40	83/50
Advanced Architectural Drafting	21/34	71/42
Basic Mathematics	17	35/21
Blueprint Reading (General Construction)	6	13
Building Estimating (General Construction)	10	21
Electrical-Electronic Drafting	25/40	83/50
Structural Drafting	25/40	83/50
Blueprint Reading-Machine Trades	6	13
Technical Illustration	25/40	83/50
New York Institute of Dietetics, 116 West 14th Street, New York 10011		
Helen S. Doneger, Director (212), OR5-6655, 1935, VA, VR, INS		
Dietetics	48	72
Food Supervision	16	32
Dietetics and Food Service Management	48	—

State / Length in Weeks	* Full Time	Part Time
New York School of Mechanical Dentistry, 205-209 West 19th St., New York 10011		
D. Chasman, Director (212), OR5-7272, 1920, VA, VR, INS		
Dental Laboratory Technology	40	50/72
Dental Steel Technology	40	50/72
NORTH CAROLINA		
National School of Heavy Equipment Operation, Inc., P.O. Box 8529, Charlotte 28208		
Gilbert S. Shaw, President (704), 392-1359, 1955, VA, VR, INS, BIA		
Crawler Tractor and Bulldozer Self-Propelled Scraper	3	—
Motor Grader	3	—
Crane, Gradall	6	—
Construction Field Mechanic	6	—
Master Operator/Mechanic	18	—
Master Operator	12	—
Operator/Mechanic	12	—
Advanced Operator	6	—
Operator/Mechanic	9	—
N. C. School of Automation, Inc., 618 W. Gaston Street, Greensboro 27405		
DeMar H. Boyles, President (919), 275-1590, 1963, VA, VR.		
Business Automation Data Processing and Computer Programming	26/28	54/56
NORTH DAKOTA		
Hanson Mechanical Trade School, 65 N. Third Street, Fargo 58102		
J. V. Arzdorf, Superintendent (701), 235-5563, 1918, VA, VR, INS, BIA		
Auto and Diesel Mechanics	34	—
Auto Mechanics	30	—
Tune-Up	24	—
Auto Body Repair and Painting	24	—
Lathe Operation	4	—
Arc and Acetylene Welding	6	—
Complete Mechanics	53	—
OHIO		
Acme Institute of Technology, Inc., 133 E. Third Street, Dayton 45402		
W. D. Renner, Vice President and Director (513), 222-6301, 1935, VA, VR, INS		
Tool and Die Design Technology	108	225
Tool Design Technology	—	125
Die Design Technology	—	125
Architectural Engineering Technology	100	—
Acme Technical Institute, Inc., United Office Building, 2012 West 25th St., Cleveland 44113		
Gisbert L. Bossard, President and Director (216), 241-4007, 1946, VA, VR, INS, BIA		
Die Design	30/48	75/100
Tool Design	30/48	75/100
Machine Design	30/48	75/100
Drafting	30/48	75/100
Mechanicl Drawing	2½/4	6¼/8¼
Industrial Math	2½/4	6¼/8¼
American Technical Institute, 26 N. Main Street, Akron 44308		
F. A. Flannery, President (216), 535-2633, 1947, VA, VR, INS, BIA		
Mechanical Engineering Technology	56	116
Electronic Engineering Technology	56	116
Architectural-Structural Technology	56	116
Tool and Die Design (follows Mechanics)	25	52
A.T.S.E. Technical School, 314 Youngstown-Warren Road, Niles, 44446		
M. E. Riley, President (216), 652-9919, 1954, VA, VR		
Electronic Technology	—	100
Electronic Engineering Technology	80	—
Engineering Drafting-Machine Design	—	100
Mechanical Engineering Technology	80	—
Radio and TV Servicing	—	100
Industrial Mathematics	—	10
Color Television	—	25
Digital Computers	—	25

State / Length in Weeks	Full Time	Part Time
Columbus Drafting College, 415 E. Broad Street, Columbus 43215		
H. Glenn Allen, Director (614), 224-3297, 1960, VA, VR		
Drafting Technician	52	104
Galion Welding School, 825 Edwards Street, Galion 44833		
J. P. Riblet, Director (419), 468-2466, 1957, VR		
Electric Arc Welding	2½	5
Heliarc	—	2
MIG Semi-Automatic Welding	—	2
Oxy Acetylene Welding, Brazing, and Burning	1½	3
Griswold Institute, Inc., 2031 Euclid Avenue, Cleveland 44115		
Charles H. Feistkorn, President (215), 781-7200, 1924, VA, VR, INS, BIA		
Industrial and Communications Electronics Technology	72	144
AM-FM Circuit	12	24
Analog and Digital Computers	12	24
Basic and Applied Math/Physics	12	24
FCC/License Preparation	12	24
Industrial Applications	12	24
Transistors and Semi-Conductors	12	24
Video Communications (incl. color)	12	24
MATA College of Automation, 415 East Broad Street, Columbus 43215		
H. Glenn Allen, Director (614), 224-8263, 1960, VA, VR		
IBM Key Punch	12	14
IBM Key Punch and Machine Operation	14	16
Machine Accounting, I	14	16
Machine Accounting, II	16	18
IBM Data Processing	52	104
National School of Meat Cutting, Inc., 514 Summit Street, Toledo 43604		
Albert T. Grasley, Vice President and General Manager (419), 242-2281, 1923, VA, VR, INS, BIA		
Meat Cutting, Meat Merchandising and Self-Service Meats	8	—
New York Technical Institute, 217 E. Eighth Street, Cincinnati 45202		
Raleigh G. Dougherty, President (513), 421-1850, 1947, VA, VR, INS		
Master Automotive Mechanics	50	100
Radio-Television-Communications	82	164
Northern Technical Institute, 128-130 Main Street, Toledo 43605		
Gustave H. Wassenhove, President (419), 691-6971, 1959, VA, VR, INS		
Tool Designing	48	96/144
Die Designing	48	96/144
Mechanical Drafting	4	8/ 12
Industrial Mathematics	4	8/ 12
OKLAHOMA		
Oklahoma Technical Institute, 413 N. Broadway, Oklahoma City 73102		
D. John Tillery, Director (405), CE5-8495, 1957, VA, VR, INS		
Drafting	52	78
Electronics Technology	52/65	78/104
Plumbing	—	52
Radio and TV Repair Technology	40	40
Southwest Automotive School, 1520 S. Central, Oklahoma City 73125		
Noel E. Adams, President (405), ME2-7785, 1963, VA, VR		
Complete Automotive Repair	52	—
Engine Overhaul	8	—
Brake and Front-end Alignment	8	—
Transmissions	24	—
Engine Tune-up	8	—
Paint and Body Repair	32	—
Machinist	48	—

State / Length in Weeks	Full Time	Part Time
Spartan School of Aeronautics, P.O. Box 51239, Dawson Station, Tulsa 74151		
J. O. Payne, Vice President—Education (918), TE5-4491, 1928, VA, VR, INS, BIA		
Master Instrument Technician	60	—
Electronic Technician	34	—
Electronic Engineering Technology	86	—
Tulsa Technical College, 623 Detroit Avenue, Tulsa 74120		
Buford B. Wiley, Director (918), LU4-7261, 1953, VA, VR, INS, BIA		
Business Machine Automation Dperator	48	96
Technical Secretary	48	96
General Secretary	48	96
Automation Executive Secretary	96	192
Automatic Data Processing Equipment Dperator	48	96
College Accounting I, T & P	48	96
College Accounting II, T & P	96	192
Automation Accounting	96	192
General Drafting	48	96
Commercial Drafting	96	192
Industrial Electronic Technician	48	96
Electronic Technician	96	192
OREGON		
North Pacific Dental & Medical College, Inc., 729 S.W. Alder Street, Portland 97205		
Donald L. McCauley, President (503), 223-4746, 1954, VA, VR, INS		
Dental Technicians Course (Complete)	52	70
Dental Technicians Course (Limited)	35	55
Crown and Bridge	22	32
Ceramics and Porcelain	5	7
Drthodontia	4	6
Combination Dental Assisting and Secretary, plus Crown and Bridge	30	42
Dental Assisting and Secretarial	13	20
Medical Secretary and Assisting	21	32
PENNSYLVANIA		
Art Institute of Pittsburgh, 635 Smithfield Street, Pittsburgh 15222		
Earl Wheeler, President (412), 471-3969, 1921, VA, VR, INS		
Commercial Art	96	—
Fashion Illustration	72	—
Interior Design	72	—
Educational Institute of Pittsburgh, 212 Ninth Street, Pittsburgh 15222		
Peter J. Bercik, President (412), 471-3942, 1960, VA, VR, INS		
Design and Engineering Drafting	72	144
Metallurgical Technology	104	—
Plastics Technology	72	—
Business and Management Technology	104	—
Industrial Management Technology	72	—
Electronic Institutes, 1678 South Cameron Street, Harrisburg 17104		
Lester Bowen, Director (717), 236-5422, 1959, VA VR		
Electronic Technology	64	—
Electronic Technician	—	100
Electronic Institutes, 1402 Penn Avenue, Pittsburgh 15222		
Philip Chosky, Director (412), 471-3962, 1955, VA, VR, INS		
Electronic Technology	64	—
Drafting and Design Technology	64	—
Electro-Mechanical Drafting	32	—
Electronic Technician	—	100

State	Length in Weeks	Full Time	Part Time
Electronics Training Center, 4575 Tilghman Street, Allentown 18104			
Robert W. Riedy, Director (215), 395-5891, 1949, VA, VR, INS			
Electronics Technology		83	166
Electronics Communications Technician		—	75
Radio and Television Servicing		52	104
Electronics Communications		—	30
Electronics Training Center, D Street South of Erie Avenue, Philadelphia 19134			
M. Michael Freedland, President (215), GA6-5500, 1941, VA, VR, INS			
Electronics Technology		80	—
Electronics Specialist		—	75
Electronics Servicing		64	—
Fayette Institute of Commerce & Technology, Inc., 45 W. Kerr Street, Uniontown 15401			
D. L. Rich, Director (412), 438-4568, 1947, VA, VR			
Arc and Oxyacetylene Welding		52	—
Arc and Oxyacetylene Welding (short course)		—	13
Inert-Gas-Shielded Arc Welding		5	8.3
Maintenance Electricity		66	132
Mechanical Drafting		79	164
Architectural Drafting		76	158
Structural Drafting		75	156
Gateway Technical Institute, Inc., 100 Seventh Street, Pittsburgh 15222			
Warren R. Smith, Director (412), 281-4111, 1907, VA, VR, INS			
Air Conditioning and Refrigeration Technology		60	150
Electronics		72	180
Technical Drafting		72	180
Industrial Management Institutes of Reading, Inc., Y.M.C.A. Building, Reed and Washington Streets, Reading 19601			
William P. MacDonald, President (215), 375-4355, 1948, VA, VR, INS			
Industrial Management		96	—
Mechanical Drafting		96	—
Architectural Drafting		96	—
Electronic Drafting		94	—
Tool Design		96	—
Die Design		96	—
Institute of Computer Management of Philadelphia, Inc., 2204 Walnut Street, Philadelphia 19103			
F. J. Sarracino, Director (215), LO9-3220, 1963, VA, VR, INS			
Computer Programmer		40	—
Computer Management		64	—
Computer Programmer (Basic)		10	—
Data Processing Assistant		30	—
Data Processing Librarian		6	—
Institute of Computer Management, Inc., 542 Penn Avenue, Pittsburgh 15222			
Julius Oleinick & Jerome Solomon, Co-Directors (412), 261-2647, 1964, VA, VR, INS			
Applied Computer Programming, Systems and Procedures		40	63½
Data Processing Secretary		6	—
Fundamentals of Data Processing		10	25
Lincoln Technical Institute, 4201 Wissahicken Ave., Philadelphia 19129			
J. Warren Davies, President (215), BA3-3040 1962, VA, VR, INS			
Master Mechanics		32/48	—
Auto Mechanics		32	25½/51
Scientific Engine Tune-up		15	12¾/25½
Automatic Transmissions		10	12½/25
Automotive Air Conditioning		6	15

State	Length in Weeks	Full Time	Part Time
New Castle School of Trades, R.D. No. 1, Pulaski 18641			
Joseph A. Clavelli, Director, (412), 964-3844, 1947, VA, VR, INS			
Automotive Technician		78	156
Automotive Repair		52	104
Interior Electric Wiring		65	132
Industrial Wiring		26	52
Electric Motor Wiring		65	132
Electric Arc and Acetylene Welding		34	69
Heli-Arc and Sigma Welding		4	8
Small Gas Engine Repair		52	104
Appliance Repair		65	132
Institutional Aide		60	—
Automotive Assistant		60	—
Welder's Assistant		36	—
Building Maintenance		60	—
Auto Body and Fender Repair		78	156
Penn Technical Institute, 5440 Penn Avenue, Pittsburgh 15206			
Louis A. Dimasi, Director (412), 441-9000, 1947, VA, VR, INS			
Electronics and Instrumentation Technology		91	138
Pennsylvania Institute of Technology, 414 Sansom Street, Upper Darby 19082			
John L. Biehl, Director (215), FL2-7100, 1953, VA, VR, INS			
Aerospace Engineering Technology		84	168
Architectural Engineering Technology		84	168
Drafting Design Technology		84	168
Industrial Electronics Engineering Technology		84	168
Mechanical Engineering Technology		84	168
Tool Design Technology		84	168
Industrial Structural Engineering Technology		84	168
Industrial Electronics Engineering Design Technology		84	168
Philadelphia Wireless Technical Institute, 1533 Pine Street, Philadelphia 19102			
Harry A. Raske, President & Director (215), KI6-0745, 1908, VA, VR, INS			
Practical Radio Engineering (Electronics)		96	132
Radar and Microwave Techniques		16	—
Oil Heating, Air Conditioning and Refrigeration		48	—
Microwave Techniques		—	22
Radar Fundamentals and Maintenance		—	22
Analogue and Digital Computer Theory		—	22
Transistors and Transistor Circuits		—	22
Pulse and Digital Techniques		—	22
Oil Burner Service		—	40
Air Conditioning and Refrigeration Service		—	40
Triangle School of Drafting, 4 Smithfield Street, Pittsburgh 15222			
Paul F. Carney, Director (412), 281-2013, 1944, VA, VR			
Architectural Drafting and Construction		65	156
Mechanical Drafting and Design		65	156
Structural Drafting		65	156
Advanced Piping Drafting		—	25
Advanced Machine Design and Drafting		—	40
Advanced Industrial Design and Drafting		—	50
Time Study and Cost Estimating		—	40
Blueprint Reading		—	13
Perspective Drawing		—	13
Vale Technical Institute, Vale Tech Center, Blairsville 15717			
Eugene C. Vale, President (412), 459-9500, 1947, VA, VR, INS			
Automotive Technics and Management		60	—
Estimatics		4	—
Estimatics One Week Refresher		1	—
Western Pennsylvania Institute of Technology, Inc., 339 Blvd. of Allies, Pittsburgh 15222			
John R. Dean, President and Director (412), 471-0100, 1947, VA, VR, INS			
Mechanical Drafting		68	135
Structural Drafting		68	135
Architectural Drafting		68	135
Electrical Drafting and Technology		68	135

State / Length in Weeks	Full Time	Part Time
Tool and Die Design	102	200
Small Electrical Appliance Repair	50	—
Heavy Electrical Appliance Repair	50	—
House Wiring	50	100
Industrial Electricity	50	100
Electric Motor Repairing	40	80
RHODE ISLAND		
Rhode Island Radio and Electronics School, 14 Third Street, Providence 02906		
M. R. Reynolds, President (401), 861-9688, 1919, VA, VR, INS		
Electronics Technician	100	150
Radio and Television Servicing	—	83
Rhode Island Trades Shops School, Inc. 68-72 Weil Street, Providence 02901		
Jason H. Rubin, Director (401), DE1-3010, 1963, VA, VR		
Automatic Transmissions	40	—
Automotive Engine Tune-up	40	—
Automotive Mechanics	32	—
TENNESSEE		
Nashville Auto Diesel College, 308 YMCA Building, Nashville 37219		
H. O. Balls, President (615), 256-2101, 1918, VA, VR, INS		
Automotive Mechanics Course	17	—
Combined Automobile and Diesel	28	36
Combined Arc and Acetylene Welding	10	13
Auto Body and Fender Repair Work	—	33
Auto Body Repairman	—	46
Combined Auto-Diesel Welding	38	49
Tennessee Institute of Electronics, 4711 Old Kingston Pike, Knoxville 37919		
Charles F. James, President (615), 584-2941, 1947, VA, VR, INS		
Electronics Specialist	68	91
TEXAS		
Elkins Institute of Radio and Electronics, 2603 Inwood Road, Dallas 75235		
Bill Elkins, President (214), FL7-4001, 1952, VA, VR, INS, BIA		
Radio Operator Licensing Course	6	—
Broadcasting Course	12	—
Radio-Television Repair Course	16	32
Electronics Technician Course	48	96
Great Southwest Industrial College, 1836 S. Central Expressway, Dallas 75222		
J. B. Ruebsahm, President (214), HA8-2879, 1962, VR		
General Machinist	36	72
Engineering Drafting	36	72
Great Southwest Industrial College of Houston, 1040 Yale Street, Houston 77008		
J. B. Ruebsahm, President (713), UN9-6156, 1964, VR		
Machinist	36	36
Welding Trade School, Inc., 430 South Industrial Blvd., Dallas 75207		
M. L. Johnson, President (214), RI7-9677, 1958, VA, VR, BIA		
Welding Technician	52	104
Master Plate and Pipe Welding	26	52
Master Welding	16	32
Pipe Welding	10	20
Complete Arc Welding	10	20
Blueprint Reading and Layout	16	32
Basic Welding Metallurgy	10	20
VIRGINIA		
Control Data Institute, 3717 Columbia Pike, Arlington 22204		
Swen A. Larsen, Director (703), 521-3700, 1963, VA, VR, INS		
Computer Technology	40	—
Programming Technology	20	—
Introduction to Digital Computers	—	10
Basic Programming	—	10
FORTRAN	—	10
COBOL	—	10
Analysis and Documentation	—	10
Advanced Programming Languages	—	8
Assembly Language Programming	—	10
Theory and Design of Assemblers and Compilers	—	10
Systems Analysis	—	8
PERT	—	10
Business and Industrial Computer Applications	—	10
Applications of Digital Computers in Education	—	7
WASHINGTON		
Washington Technical Institute, 601 Aurora Avenue, North, Seattle 98109		
B. R. MacDonald, President (206), AT3-4644, 1914, VA, VR, INS		
Radio and TV Servicing	48	—
Radio Communications	36	—
Industrial Electronics (Electronics Technician)	72	—
Senior Communication Technician	48	—
WISCONSIN		
Acme Institute of Technology, 904A South Eighth Street, Manitowoc 54220		
William W. Warren, Director (414), 682-5615, 1955, VA, VR		
Die Design	48	72/144
Tool Design	48	72/144
Mechanical Drawing	5	6/ 12
Industrial Mathematics	5	6/ 12
Career Academy, 825 North Jefferson Street, Milwaukee 53202		
W. D. Pavalon, President (414), 272-4822, 1959, VA, VR, INS, BIA		
Medical Assistant	15	25
Dental Assistant	15	25
Dental Technology	48	78
Radio and TV Broadcasting	15	25
Commercial Trades Institute, Semi Driver Training Division, 6870 South 13th Street Oak Creek, 53154 Administrative Offices: 1400 W. Greenleaf Ave. Chicago, 60626		
William B. Callahan, President (312), 274-8400, 1960, VA, VR, BIA		
Semi-Trailer Truck Driving	3	20
United Technical Institute, 740 North 2nd Street, Milwaukee 53203		
Irving Fels, Director (414), 276-7142, 1955, VA, VR, INS, BIA		
Electronic Technology	50	78
Drafting	16	26
Air Conditioning/Refrigeration	—	26
Radio-Television Servicing	—	26

associate members

Chilton-Motor Age
Delmar Publishers, Inc.
Funds for Education, Inc.
The Goodheart-Willcox Company
Hayden Book Company, Inc.
The Kaplan Agency, Inc.
Popular Science Publishing Company
Prentice-Hall, Inc.
Shaffer Enterprises, Inc.
South-Western Publishing Company
Ziff-Davis Publishing Company

subject index

Air Conditioning

Calif.: National Technical Schools, Los Angeles
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Coyne Electronics Institute, Chicago
Electronics Technical Institute, Chicago
Greer Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Midway Technical Institute, Inc., Chicago
Mo.: Basic Institute of Technology, St. Louis
Stevinson Auto and Electrical School, Kansas City
Neb.: Universal Trades School, Inc., Omaha
N.J.: Lincoln Technical Institute, Newark
N.Y.: Apex Technical School, New York
Penna.: Gateway Technical Institute, Inc., Pittsburgh
Philadelphia Wireless Technical Institute, Philadelphia
Wis.: United Technical Institute, Milwaukee

Airframe and Power Plant Mechanics

N.J.: Teterboro School of Aeronautics, Inc., Teterboro

Airline Personnel Training

Conn.: Hartford Airline Personnel School, Hartford
Minn.: Humboldt Institute, Inc., Minneapolis
McConnell Airline School, Inc., Minneapolis
Mo.: Atlantic School, Kansas City
Neb.: Personnel Training Institute, Omaha

Appliance Repair

Ill.: American Institute of Engineering and Technology, Chicago
Coyne Electronics Institute, Chicago
Midway Technical Institute, Inc., Chicago
Mass.: New England Appliance Service School, Inc., Boston
Mo.: Stevinson Auto and Electrical School, Kansas City
Penna.: New Castle School of Trades, Pulaski
Western Pennsylvania Institute of Technology, Inc., Pittsburgh

Architectural Engineering Technology

Ind.: Sams Technical Institute, Indianapolis
Ohio: Acme Institute of Technology, Inc., Dayton
American Technical Institute, Akron

Art

Penna.: Art Institute of Pittsburgh, Pittsburgh

Automatic Transmissions (see Automotive Mechanics)

Automotive Mechanics

Calif.: National Technical Schools, Los Angeles
New York Technical Institute, Oakland
Colo.: Denver Automotive Institute, Denver
D.C.: Lincoln Technical Institute, Washington
Hawaii: New York Technical Institute, Honolulu
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Greer Technical Institute, Inc., Chicago
Midway Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Ind.: Lincoln Technical Institute, Indianapolis
Md.: Lincoln Technical Institute, Baltimore
Mass.: Massachusetts Trades Shops School, Boston
Mo.: Bailey Technical Institute, St. Louis
Stevinson Auto and Electrical School, Kansas City
Neb.: Universal Trades School, Inc., Omaha
N.J.: Lincoln Technical Institute, Newark
N.D.: Hanson Mechanical Trade School, Fargo
Ohio: New York Technical Institute, Cincinnati
Okla: Southwest Automotive School, Oklahoma City
Penna.: Lincoln Technical Institute, Philadelphia
New Castle School of Trades, Pulaski
Vale Technical Institute, Blairsville
R.I.: Rhode Island Trades Shops Schools, Inc., Providence
Tenn.: Nashville Auto Diesel College, Nashville

Blueprint Reading

Ill.: Greer Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Mich.: Detroit Time Study School, Inc., Detroit
N.J.: Passaic School of Drafting, Inc., Passaic
Union Technical Institute, Union
N.Y.: Island Drafting School, Amityville
Manhattan Technical Institute, New York
Penna.: Triangle School of Drafting, Pittsburgh
Texas: Welding Trade School, Inc., Dallas

Body and Fender Repair (see Automotive Mechanics)

Broadcasting

D.C.: Career Academy, Washington
Minn.: Brown Institute of Broadcasting and Electronics, Minneapolis
Texas: Elkins Institute of Radio and Electronics, Dallas
Wis.: Career Academy, Milwaukee

Building Maintenance

Ill.: Midway Technical Institute, Inc., Chicago
N.Y.: Apex Technical School, New York
Penna.: New Castle School of Trades, Pulaski

Business and Management Technology

Ill.: Industrial Engineering College, Chicago
Penna.: Educational Institute of Pittsburgh, Pittsburgh

Business Machine Technology (see Electronics)

Business Machines

Kan.: Topeka Technical and Business College, Inc., Topeka
Minn.: Northwestern Electronics Institute, Minneapolis
Okla.: Tulsa Technical College, Tulsa

Camera Repair

N.Y.: Germain School of Photography, New York

Civil Engineering Technology

Calif.: I.T.C. Technical College, San Francisco

Clock Repairing

Ill.: Gem City College, Quincy

COBOL (see Data Processing)

Commercial Art (see Art)

Commercial Photography (see Photography)

Communications (see Electronics)

Computer Programming (see Data Processing)

Computer Technology (see Data Processing)

Construction Equipment Mechanics (see Heavy Equipment Mechanics)

Cooking (see Food Service Management)

Custodian (see Building Maintenance)

Data Processing

Calif.: Control Data Institute, Los Angeles
Hawaii: New York Technical Institute, Honolulu
Iowa: College of Automation, Des Moines
Kan.: Topeka Technical and Business College, Inc., Topeka
Mass.: Automation Training Schools, Inc., Boston
Mich.: Hallmark Business Machines Institute, Detroit
Institute of Computer Management, Inc., Dearborn
International Data Processing Institute, Detroit
Minn.: Brown Institute of Broadcasting and Electronics, Minneapolis
Control Data Institute, Minneapolis
Northwestern Electronics Institute, Minneapolis
Mo.: Automation Training, Inc., St. Louis
N.J.: Trenton Technical Institute, Trenton
N.C.: N.C. School of Automation, Inc., Greensboro
Ohio: MATA College of Automation, Columbus
Okla.: Tulsa Technical College, Tulsa
Penna.: Institute of Computer Management of Philadelphia, Inc., Philadelphia
Institute of Computer Management, Inc., Pittsburgh
Va.: Control Data Institute, Arlington

Dental Assisting

Calif.: Bay City College of Dental-Medical Assistants, San Francisco
Los Angeles College of Medical and Dental Assistants, Los Angeles
D.C.: Career Academy, Washington
Ill.: Career Academy, Chicago
Chicago School of Dental Nursing, Chicago
Midway Technical Institute, Inc., Chicago
Ind.: Elkhart Institute of Technology, Elkhart
Mass.: Carnegie Institute, Inc., Boston
Miss.: Missouri School for Doctors' Assistants, Clayton
N.J.: Central School for Medical Assts., Medical Secretaries, and Dental Assistants, Newark
N.Y.: Mandl School for Medical and Dental Assistants, Hempstead
Mandl School for Medical and Dental Assistants, New York
Manhattan Medical and Dental Assistants School, Inc., New York
Ore.: North Pacific Dental and Medical College, Inc., Portland
Wis.: Career Academy, Milwaukee

Dental Laboratory Technology

Calif.: Bay City College of Dental-Medical Assistants, San Francisco
D.C.: Career Academy, Washington
Ind.: Elkhart Institute of Technology, Elkhart
Mo.: Missouri School for Doctors' Assistants, Clayton
N.Y.: Kerpel School of Dental Technology, New York
Mandl School for Medical and Dental Assistants, Hempstead
Mandl School for Medical and Dental Assistants, New York
N.Y. School of Mechanical Dentistry, New York
Ore.: North Pacific Dental and Medical College, Inc., Portland
Wis.: Career Academy, Milwaukee

Dental Nursing (see Dental Assisting)

Die Design (see Tool and Die)

Diesel Mechanics

Calif.: National Technical Schools, Los Angeles
Colo.: Denver Automotive Institute, Denver
Ill.: Greer Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Mo.: Bailey Technical School, St. Louis
N.J.: Lincoln Technical Institute, Newark
Tenn.: Nashville Auto Diesel College, Nashville

Dietetics (see Food Service Management)

Doctor's Assistant (see Medical Assisting)

Drafting

Calif.: Control Data Institute, Los Angeles
I.T.C. Technical College, San Francisco
Konkol Technical Schools, Anaheim
National Technical Schools, Los Angeles
Solar Electronics Schools, Monrovia
Colo.: National Electronics Institute, Denver
D.C.: Washington Drafting School, Inc., Washington
Fla.: Massey Technical Institute, Jacksonville
Tampa Technical Institute, Tampa
Hawaii: New York Technical Institute, Honolulu
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Greer Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Rockford School of Business and Engineering, Rockford
Ind.: Acme Institute of Technology, South Bend
Midwestern College Industrial Arts and Science, Ft. Wayne
Kan.: Topeka Technical and Business College, Inc., Topeka
Mass.: Massachusetts Trades Shops Schools, Boston
Mich.: Acme School of Die Design Engineering, Grand Rapids
Detroit College of Applied Science, Allen Park
Detroit Time Study School, Inc., Detroit
Minn.: Control Data Institute, Minneapolis
Mo.: Basic Institute of Technology, St. Louis
N.J.: Electronics Training Center, Pennsauken
J-C Technical Institute, Paterson
Newark Industrial Technical Institute, Newark
Passaic School of Drafting, Inc., Passaic
Union Technical Institute, Union
N.Y.: Island Drafting School, Amityville
Manhattan Technical Institute, New York
Ohio: Acme Technical Institute, Inc., Cleveland
ATES Technical School, Niles
Columbus Drafting College, Columbus
Northern Technical Institute, Toledo
Okla.: Oklahoma Technical Institute, Oklahoma City
Tulsa Technical College, Tulsa
Penna.: Educational Institute of Pittsburgh, Pittsburgh
Electronics Institutes, Pittsburgh
Fayette Institute of Commerce and Technology, Uniontown
Gateway Technical Institute, Inc., Pittsburgh
Industrial Management Institute of Reading, Inc., Reading
Pennsylvania Institute of Technology, Upper Darby
Triangle School of Drafting, Pittsburgh
Western Pennsylvania Institute of Technology, Inc., Pittsburgh
Texas: Great Southwest Industrial College, Dallas
Wis.: Acme Institute of Technology, Manitowoc
United Technical Institute, Milwaukee

Drycleaning

Md.: National Institute of Drycleaning, Silver Spring

Electricity

Calif.: I.T.C. Technical College, San Francisco
Ill.: Coyne Electronics Institute, Chicago
Mich.: Detroit Time Study School, Inc., Detroit
Mo.: Basic Institute of Technology, St. Louis
N.J.: J-C Technical Institute, Paterson
Penna.: Fayette Institute of Commerce and Technology, Inc., Uniontown
New Castle School of Trades, Pulaski
Western Pennsylvania Institute of Technology, Inc., Pittsburgh

Electronics

Calif.: I.T.C. Technical College, San Francisco
Konkol Technical Schools, Anaheim
National Technical Schools, Los Angeles
Solar Electronics School, Monrovia
Colo.: Electronic Technical Institute, Denver
National Electronics Institute, Denver
Conn.: Connecticut School of Electronics, New Haven
Fla.: Massey Technical Institute, Jacksonville
Tampa Technical Institute, Tampa
Hawaii: New York Technical Institute, Honolulu
Ill.: American Institute of Engineering and Technology, Chicago
Coyne Electronics Institute, Chicago
DeVry Institute of Technology, Chicago
Electronics Technical Institute, Chicago
Midway Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Rockford School of Business & Engineering, Rockford
Ind.: Sams Technical Institute, Inc., Evansville
Sams Technical Institute, Inc., Indianapolis
Iowa: College of Automation, Des Moines
Ky.: United Electronics Institute, Louisville
Mass.: Massachusetts Trades Shops School, Boston
RETS Electronic School, Boston
Minn.: Brown Institute of Broadcasting and Electronics, Minneapolis
Northwestern Electronics Institute, Minneapolis
Mo.: Basic Institute of Technology, St. Louis
Neb.: Radio Engineering Institute, Omaha
N.J.: Electronics Training Center, Pennsauken
J-C Technical Institute, Paterson
Trenton Technical Institute, Trenton
Union Technical Institute, Union
United Radio-Television Institute, Inc., Newark
N.M.: North American Technical Institute, Albuquerque
N.Y.: Apex Technical School, New York
Island Drafting School, Amityville
Ohio: American Technical Institute, Akron
ATES Technical School, Niles
Griswold Institute, Inc., Cleveland
New York Technical Institute, Cincinnati
Okla: Oklahoma Technical Institute, Oklahoma City
Spartan School of Aeronautics, Tulsa
Tulsa Technical College, Tulsa
Penna.: Electronic Institutes, Harrisburg
Electronic Institutes, Pittsburgh
Electronics Training Center, Allentown
Electronics Training Center, Philadelphia
Gateway Technical Institutes, Inc., Pittsburgh
Penn Technical Institute, Pittsburgh
Pennsylvania Institute of Technology, Upper Darby
Philadelphia Wireless Technical Institute, Philadelphia
R.I.: Rhode Island Radio and Electronics School, Providence
Tenn.: Tennessee Institute of Electronics, Knoxville
Texas: Elkins Institute of Radio and Electronics, Dallas
Wash.: Washington Technical Institute, Seattle
Wis.: United Technical Institute, Milwaukee

Electronics Engineering Technology (see Electronics)

Engine Repair

Penna.: New Castle School of Trades, Pulaski

Engineering Aide (see Specific Field of Technology)

Engineering Drawing (see Drafting)

Engraving

Ill.: Gem City College, Quincy

Estimating, Auto Repairs

Penna.: Vale Technical Institute, Blairsville

Estimating, Building

N.Y.: Manhattan Technical Institute, New York

FCC License (see Electronics)

Fashion Illustration

Penna.: Art Institute of Pittsburgh, Pittsburgh

Food Service Management

D.C.: Lewis Hotel-Motel School, Washington
N.Y.: New York Institute of Dietetics, New York

Fortran (see Data Processing)

Heating

Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Electronics Technical Institute, Chicago
The Quincy Technical Schools, Quincy
Midway Technical Institute, Inc., Chicago
Mass.: Massachusetts Trades Shops School, Boston
Mo.: Basic Institute of Technology, St. Louis
Neb.: Universal Trades School, Inc., Omaha
N.J.: Lincoln Technical Institute, Newark
N.Y.: Apex Technical School, New York
Penna.: Philadelphia Wireless Technical Institute, Philadelphia

Heavy Equipment Mechanics

Hawaii: New York Technical Institute, Honolulu
Ill.: Greer Technical Institute, Inc., Chicago
N.C.: National School of Heavy Equipment Operation, Charlotte

Heavy Equipment Operation

Ill.: Greer Technical Institute, Inc., Chicago
N.C.: National School of Heavy Equipment Operation, Charlotte

Hi-Fi Servicing (see Electronics)

Hotel-Motel Training

D.C.: Lewis Hotel-Motel School, Washington

Industrial Electronics (see Electronics)

Industrial Engineering (see Industrial Management)

Industrial Management

Ill.: Industrial Engineering College, Chicago
Rockford School of Business and Engineering, Rockford
Ind.: Sams Technical Institute, Inc., Indianapolis
Penna.: Educational Institute of Pittsburgh, Pittsburgh
Industrial Management Institute of Reading, Inc., Reading
Pennsylvania Institute of Technology, Upper Darby

Industrial Mathematics (see Mathematics)

Instrumentation

Okla.: Spartan School of Aeronautics, Tulsa

Interior Design

Ill.: Harrington Institute of Interior Design, Chicago
Penna.: Art Institute of Pittsburgh, Pittsburgh

Jewelry—Diamond Setting

Ill.: Gem City College, Quincy

Jewelry Store Management

Ill.: Gem City College, Quincy

Journalist, Photo (see Photography)

Keypunch (see Data Processing)

Machine Design (see Drafting or Tool and Die)

Machine Shop

Calif.: National Technical Schools, Los Angeles
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Greer Technical Institute, Inc., Chicago
Midway Technical Institute, Inc., Chicago
Mass.: Massachusetts Trades Shops Schools, Boston
N.Y.: Manhattan Technical Institute, New York
N.D.: Hanson Mechanical Trade School, Fargo
Okla.: Southwest Automotive School, Oklahoma City
Texas: Great Southwest Industrial College, Dallas
Great Southwest Industrial College, Houston

Machinist (see Machine Shop)

Manufacturing Engineering Technology

Mich.: Detroit College of Applied Science, Allen Park

Material Handling (see Industrial Management)

Mathematics

Ind.: Acme Institute of Technology, South Bend
Mich.: Acme School of Die Design Engineering, Grand Rapids
Detroit Time Study School, Inc., Detroit
N.Y.: Manhattan Technical Institute, New York
Ohio: Acme Technical Institute, Inc., Cleveland
ATES Technical School, Niles
Northern Technical Institute, Toledo
Wis.: Acme Institute of Technology, Manitowoc

Meat Cutting

Ohio: National School of Meat Cutting, Toledo

Mechanical Drawing (see Drafting)

Mechanical Engineering Technology

Ill.: American Institute of Engineering and Technology, Chicago
Mich.: Detroit Engineering Institute, Detroit
N.J.: Trenton Technical Institute, Trenton
Ohio: American Technical Institute, Akron
ATES Technical School, Niles
Penna.: Pennsylvania Institute of Technology, Upper Darby

Medical Assisting and Technology

Calif.: Bay City College of Dental-Medical Assistants
Los Angeles College of Medical and Dental Assistants, Los Angeles
D.C.: Career Academy, Washington
Fla.: Florida College of Medical Technology, Miami
Ill.: American Academy of Medical Technology, Chicago
Career Academy, Chicago
Midway Technical Institute, Inc., Chicago
Ind.: Elkhart Institute of Technology, Elkhart
Mass.: Carnegie Institute, Inc., Boston
Mich.: Carnegie Institute of Detroit, Detroit
Minn.: Northwest Institute of Medical Laboratory Technique, Minneapolis
Mo.: Missouri School for Doctors' Assistants, Clayton
N.J.: Central School for Medical Assts., Medical Secretaries, and Dental Assistants, Newark
N.Y.: Eastern School for Physicians' Aides, New York
Mandl School for Medical and Dental Assistants, Hempstead
Mandl School for Medical and Dental Assistants, New York
Manhattan Medical and Dental Assistants School, Inc., New York
Ore.: North Pacific Dental and Medical College, Inc., Portland
Wis.: Career Academy, Milwaukee

Medical Secretarial

Fla.: Florida College of Medical Technology, Miami
Ind.: Elkhart Institute of Technology, Elkhart
Mass.: Carnegie Institute, Inc., Boston
Mich.: Carnegie Institute of Detroit, Detroit
N.J.: Central School for Medical Assts., Medical Secretaries, and Dental Assistants, Newark
N.Y.: Eastern School for Physicians' Aides, New York
Mandl School for Medical and Dental Assistants, Hempstead
Mandl School for Medical and Dental Assistants, New York
Manhattan Medical and Dental Assistants School, Inc., New York
Ore.: North Pacific Dental and Medical College, Inc., Portland

Metallurgy

Penna.: Educational Institute of Pittsburgh, Pittsburgh
Texas: Welding Trade School, Inc., Dallas

Motel Operation (see Hotel-Motel Training)

Motion Picture Production

Calif.: Brooks Institute of Photography, Santa Barbara
N.Y.: Germain School of Photography, New York

Nurses Aide

Calif.: Bay City College of Dental-Medical Assistants, San Francisco

Oil Burner Service (see Heating)

Orderly
Calif.: Bay City College of Dental-Medical Assistants, San Francisco
Penna.: New Castle School of Trades, Pulaski

Orthodontics (see Dental Laboratory Technology)

Photography
Calif.: Brooks Institute, Santa Barbara
N.Y.: Germain School of Photography, New York

Plastics
Ind.: Acme Institute of Technology, South Bend
Penna.: Educational Institute of Pittsburgh, Pittsburgh

Plumbing
Mich.: Detroit Time Study School, Inc., Detroit
Okla.: Oklahoma Technical Institute, Oklahoma City

Production (see Industrial Management)

Production Planning (see Industrial Management)

Radio Broadcasting (see Broadcasting)

Radio-Television (see Electronics)

Refrigeration
Calif.: National Technical Schools, Los Angeles
Colo.: National Electronics Institute, Denver
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Coyne Electronics Institute, Chicago
Electronics Technical Institute, Chicago
Greer Technical Institute, Inc., Chicago
Midway Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Mo.: Basic Institute of Technology, St. Louis
Stevinson Auto and Electrical School, Kansas City
Neb.: Universal Trades School, Inc., Omaha
N.J.: Lincoln Technical Institute, Newark
N.Y.: Apex Technical School, New York
Penna.: Gateway Technical Institute, Inc., Pittsburgh
Philadelphia Wireless Technical Institute, Philadelphia
Wis.: United Technical Institute, Milwaukee

Stationary Engineer (see Building Maintenance)

Tabulating and Wiring (see Data Processing)

Technical Illustration (see Drafting)

Technical Secretary
Iowa: College of Automation, Des Moines
Mich.: Institute of Computer Management, Inc., Dearborn
Okla.: Tulsa Technical College, Tulsa

Television (see Electronics)

Television Broadcasting (see Broadcasting)

Time Study
Ill.: Industrial Engineering College, Chicago
Mich.: Detroit Time Study School, Inc., Detroit
Penna.: Triangle School of Drafting, Pittsburgh

Tool and Die
Ill.: Allied Institute of Technology, Chicago
American Institute of Engineering and Technology, Chicago
Ind.: Acme Institute of Technology, South Bend
Midwestern College Industrial Arts and Science, Ft. Wayne
Sams Technical Institute, Inc., Indianapolis
Mass.: Massachusetts Trades Shops School, Boston
Mich.: Acme School of Die Design Engineering, Grand Rapids
Detroit College of Applied Science, Allen Park
Detroit Time Study School, Inc., Detroit
N.J.: Newark Industrial Technical Institute, Newark
Passaic School of Drafting, Inc., Passaic
N.Y.: Manhattan Technical Institute, New York
Ohio: Acme Institute of Technology, Inc., Dayton
Acme Technical Institute, Inc., Cleveland
American Technical Institute, Akron
ATES Technical School, Niles
Northern Technical Institute, Toledo
Penna.: Industrial Management Institute of Reading, Inc., Reading
Pennsylvania Institute of Technology, Upper Darby
Western Pennsylvania Institute of Technology, Inc., Pittsburgh
Wis.: Acme Institute of Technology, Manitowoc

Tool Engineering (see Tool and Die)

Traffic (see Transportation Management)

Transportation Management
Minn: Humboldt Institute, Inc., Minneapolis

Travel (see Transportation Management)

Truck Driving
Ga.: National Professional Truck Driver Training, Atlanta
Wis.: Commercial Trades Institute, Oak Creek

Upholstery
Ill.: Midway Technical Institute, Inc., Chicago

Watchmaking and Repair
Ill.: Gem City College, Quincy

Welding
Calif.: New York Technical Institute, Oakland
Ill.: American Institute of Engineering and Technology, Chicago
Greer Technical Institute, Inc., Chicago
Midway Technical Institute, Inc., Chicago
The Quincy Technical Schools, Quincy
Mo.: Stevinson Auto and Electronics School, Kansas City
N.J.: General Technical Institute, Inc., Linden
N.D.: Hanson Mechanical Trade School, Fargo
Ohio: Galion Welding School, Galion
Penna.: Fayette Institute of Commerce and Technology, Inc., Uniontown
New Castle School of Trades, Pulaski
Tenn.: Nashville Auto Diesel College, Nashville
Texas: Welding Trade School, Inc., Dallas

Wiring and Soldering
Calif.: Konkol Technical Schools, Anaheim
Ill.: Electronics Technical Institute, Chicago
Midway Technical Institute, Chicago
N.J.: United Radio-Television Institute, Newark
N.Y.: Island Drafting School, Amityville

Woodworking
Ill.: American Institute of Engineering and Technology, Chicago
Midway Technical Institute, Inc., Chicago
Mich.: Detroit Time Study School, Inc., Detroit

X-Ray
Ill.: American Academy of Medical Technology, Chicago
Ind.: Elkhart Institute of Technology, Elkhart
Minn.: Northwest Institute of Medical Laboratory Technique, Minneapolis

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Department of Agricultural Education. Annual Report.

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Ohio State Dept. of Education, Columbus. Div. of Vocational Education
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OHIO STATE UNIVERSITY

The 1966-67 Department report specifying its operations and accomplishments, is prepared by the staff for the purpose of making further improvements. The undergraduate program had 183 majors, offered 25 courses, qualified 58 teachers, recruited students, counseled majors, made curricular improvements, conducted a field experience program in vocational agriculture and cooperative extension for 49 students in 21 school and 17 county training centers, sponsored the Agricultural Education Society with 75 members, and placed 58 graduates. In the graduate program, 155 students were enrolled, and 10 doctoral dissertations, 16 masters' theses and problems were completed and 28 other studies were in progress. One staff study was completed, and seven were in progress. The Center for Vocational and Technical Education employed four research associates and was engaged in four major activities in agricultural education. Inservice education for 46 new and returning teachers and others included workshops, visits, evaluations, and a conference. The staff was involved in projects in India and Brazil, and the department enrolled 20 foreign students. A curriculum materials laboratory produced 10 publications, have 11 in process, and made others available to teachers. The department had 34 full- and part-time staff members, eight graduate associates, and 10 full-time clerical workers. (JM)

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ANNUAL REPORT

DEPARTMENT OF AGRICULTURAL EDUCATION

1966 - 1967

Issued by

Department of Agricultural Education
College of Agriculture and Home Economics
The Ohio State University

in cooperation with

Division of Vocational Education
Ohio Department of Education

September, 1967

VT004614

F O R E W O R D

This is the annual report of the Department of Agricultural Education for 1966-1967. The information reported herein serves somewhat as a history and as a basis for an evaluation. It is prepared by the staff for the purpose of making further improvement in the Department.

Members of the agricultural education staff recognize the significant contribution of other individuals and groups, particularly the supervisors of vocational agriculture and other personnel of the State Department of Education, the administration and faculty of the College of Agriculture and Home Economics, and personnel of the Cooperative Extension Service and the Ohio Agricultural Research and Development Center.

Ralph E. Bender, Chairman

A N N U A L R E P O R T

1966-1967

Undergraduate Program

The number of declared majors in the Department of Agricultural Education has been on the increase as indicated in Table 1. It may be noticed that there were 21 more majors in the spring quarter 1967 than there were in 1966 and that the enrollment for the winter and spring quarters 1967 was the highest for any quarter during the five year period. It may be logical to conclude that with the more rigid departmental standards for admission to the professional program which now require a 2.25 compared to the former 2.0, the enrollment would decrease; however, this has not taken place so it is obvious that other factors are influencing students to enroll in agricultural education to overcome the negative factor of higher admission if this is a negative factor. According to the interest shown by the undeclared majors in the College, it is likely that the number of majors for 1967-68 may be slightly above that of the past year.

TABLE 1

NUMBER OF DECLARED MAJORS IN AGRICULTURAL EDUCATION

Quarter	1962-63	1963-64	1964-65	1965-66	1966-67
Autumn	116	116	141	165	159
Winter	109	121	152	167	183
Spring	108	126	168	162	183

In Table 2 it may be observed that enrollments in 456 and 501 were slightly below that of 1965-66 but considerably above those enrollments of the other three years. This decrease in enrollment in the face of an increased number of majors may reflect a trend in the make-up of enrollees in these two classes. During the past year, the enrollees in 456 have been primarily sophomores, juniors and seniors indicating that students are delaying enrollment in agricultural education until later on in their college career. Previously the enrollment in 456 was predominantly majors in their second and third quarter of the freshman year. As may be noticed, the enrollment in 550 is slightly above that of the preceding year and larger than any of the previous years. With the number of hours required for graduation being reduced from 210 to 196, it is very likely that elective courses such as Agricultural Edu-

cation 526, 611 703, and 705 may have reduced enrollments of undergraduates in the years ahead. Another factor which may influence enrollment in courses in agricultural education is the departmental requirement of Psychology 407. This reduced the number of hours required in the department from 30 to 25.

TABLE 2

ENROLLMENT IN AGRICULTURAL EDUCATION COURSES

Course Number	Number Enrolled				
	1962-63	1963-64	1964-65	1965-66	1966-67
456	87	80	95	136	123
501	35	55	51	70	67
504	23	42	49	44	49
505	23	42	49	44	49
506	23	42	49	44	49
526	15	20	10	15	11
550	26	36	42	49	61
611	35	48	41	51	49
701	83	113	91	129	125
703	27	37	30	45	42
705	20	13	10	3	27
707	13	27	14	19	19
708	0	0	8	12	0
709	0	21	14	16	7
712	17	24	12	38	11
715	8	17	13	23	10
797	9	15	19	25	21
799	61	35	46	27	84
801	0	6	33	30	16
804	18	19	19	25	20
806	0	6	0	15	15
810	51	43	45	62	80
835	2	4	2	0	0
850	23	14	25	26	22
950	39	44	45	51	54

TABLE 3

NUMBER QUALIFYING
TO TEACH VOCATIONAL AGRICULTURE

Item	1962-1963	1963-1964	1964-1965	1965-1966	1966-1967
Graduates	33	32	35	48	54
Post-graduates	1	5	5	8	4
TOTAL	34	37	40	56	58

The enrollment of 49 in student teaching (504, 505, 506) is similar to that of 1964-65 but above the other three years. It is very likely that with the increased number of majors in the sophomore and junior years the number of students enrolled in 456 and 501 and in student teaching will be as large or larger for 1967-68 than what they were in 1966-67. Furthermore, there may be a tendency for majors to delay enrolling in student teaching until late in their college career. Giving up jobs, apartments, and campus activities can most easily be done the quarter before graduation.

Recruitment

A vigorous and continuing program of recruitment which has involved the efforts of teachers, extension agents and staff has been underway for the past year. In spite of these efforts, there was a shortage of about 10 teachers this year.

A study shows that about 75 per cent of the graduates of the department had vocational agriculture in high school, suggesting the importance of vocational agriculture teachers as recruiters. There was a marked increase in the number of departments having majors in agricultural education. A total of 127 of Ohio's 300 departments had at least one major in agricultural education. This was an increase of 43 over the previous year. Of these 127 departments, 110 had one student, 15 had two students, and 7 had three or more students majoring in agricultural education.

In January, each teacher received a special mailing containing materials from our department for teaching career selection and recruitment. Included in the kit was a 20-page guide for teaching this limited work.

A recruitment luncheon at the State FFA Convention was sponsored by the Agricultural Education Society in cooperation with the Teachers' Association and the Ohio FFA Association. This was attended by 68 Ohio high school students interested in becoming agriculture teachers.

The scholarship fund in agricultural education continued to increase and has reached a total of approximately $12,300. Income from the fund was used to provide four $200 scholarships to upper division agricultural education majors.

The departmental recruitment effort has been closely coordinated with that of the College of Agriculture and Home Economics and strongly supported by the Ohio Vocational Agriculture Teachers' Association and the Cooperative Extension Service. Career Day, sponsored by the College during the past year, attracted approximately 700 prospective students and parents. About 110 agriculture teachers and 50 extension agents brought students to the campus for these Career Days.

One member of the staff served as Chairman of the AVA Committee on Recruitment for agricultural education. This committee has aided each of the states in developing recruitment commissions made up largely of teachers. During the year the committee provided three mailings to the teachers, developed a new brochure for national distribution, and is currently developing a set of slides for teachers.

The Ohio Recruitment Commission is made up of eight teachers, three staff members, one representative from the College of Agriculture and Home Economics. One meeting was held last year and as a result exhibits on recruitment were made at the State FFA Convention and the State Fair. Sixty teachers were also recognized as "Teacher of Teachers" in the new project sponsored by the NVATA. The Ohio Commission has also purchased a supply of the new brochure for use in the state.

Guidance and Counseling

The staff members in the Department of Agricultural Education continue to give high priority to the task of guidance and counseling and give liberally of their time to help students. The number of advisees per adviser ranges from 10 to 60. The members of the staff advising students are Drs. Bender, Boucher, Cunningham, Guiler, Starling, Wilson, Wolf and Woodin. Two of the advisers also serve as orientation leaders and freshmen counselors. The procedure followed in the department is probably not too unlike that followed by the other departments in the College of Agriculture and Home Economics. Students interested in declaring a major seek an appointment with the Department Coordinating Adviser, who reviews with the student the requirements, the opportunities and the procedures followed in the department. Students are carefully screened throughout their undergraduate program. This is done to increase the incidence of success in the work of the teaching profession. As for the requirements, the students are apprised of the fact that it requires a 2.25 point hour in all work undertaken to enter student teaching, satisfactory competence in communication, previous experience in farming or other agricultural occupations, and personality requirements that are necessary for success in working with people. Each student is notified by letter concerning his admission to the professional program to his enrollment in student teaching. In addition, counselors are to provide for their students each quarter such help as is needed for them to make wise decisions in order for them to succeed in teaching or to help them to find more appropriate vocational goals.

Undergraduate Curriculum

During the year the staff in agricultural education continued its emphasis of providing more specialization for prospective teachers and extension agents. Students have the opportunity to elect 30 hours of the 61 hours that are required in technical courses in agriculture. These hours, as well as free electives, may be used in a department or two in order to become more specialized in some agricultural area. This program seems to be working best in horticulture where the students pursue a program of approximately 40-50 hours of specialized work.

Another development during the year was the approval of a program in agricultural journalism that will be available to students beginning the autumn quarter 1967. The Department of Agricultural Education will adjust the program of a major in order to meet the requirements of the College in this curriculum.

Revision of all of the courses in the department including some new titles as well as descriptions was completed. This was a part of a University-wide program of renumbering and revising courses.

Field Experience Program

The field experience program involves placement with vocational agriculture centers during the month of September of most trainees who are enrolling for student teaching experience during the year. Subsequently, during the quarter of student teaching enrollment, trainees spend approximately four weeks under the direction of Cooperative Extension agents. Thus, trainees are now being provided approximately fifteen weeks of field experience under the supervision of a teacher of vocational agriculture and an extension agent with coordination by personnel from the department.

Forty-nine students were enrolled for student teaching during the year. They received field experience in 21 vocational agriculture training centers and 17 county extension centers.

TABLE 4

COOPERATING COUNTIES AND THE QUARTERS THEY HAD TRAINEES STUDENT TEACHING AND AGRICULTURAL EDUCATION 550

County	Number of Trainees, Student Teaching		
	Autumn	Winter	Spring
Allen	2		
Brown	2		
Clinton			2
Erie		1	
Fayette	2		
Greene	2		
Guernsey	2		
Logan	2	1	2
Madison	2	1	
Marion	2	2	
Medina	2		
Miami	1		1
Muskingum	2		
Pickaway	2	2	2
Ross	1		2
Union	2		2
Wayne		2	
Total	28	9*	11

*One student did not engage in extension experience because of a need for replacement of a teacher.

TABLE 5

COOPERATING SCHOOLS AND THE QUARTERS THEY HAD TRAINEES
STUDENT TEACHING AND AGRICULTURAL EDUCATION 550

School	Number of Students						
	Agricultural Education 550				Student Teaching		
	Summer	Autumn	Winter	Spring	Autumn	Winter	Spring
Anna		3			2	1	
Ansonia		2					
Big Walnut		3			1		
Buckeye Valley		2			2	2	
Canal Winchester		1			1		1
Cloverleaf		2			2		
Colonel Crawford		3			1	1	
Elgin		2			1		2
Fairlawn		3			2		
Garaway		2			2		
Lancaster						1	1
Loudonville		3			2	2	
Madison South		3			2	1	
Manchester							1
Miami Trace		1					
Milton-Union		3			2		
Pleasant View		1			1		1
Scioto Darby		2			1		2
Urbana		3	1		1		2
Washington Rural		2			2		
Watkins Memorial		3			1		
Westerville		3			1	2	1
Wynford		2			1		
Other*	5	2	3	1			
Total	5	51	4	1	28	10	11

*Field experience enrollments other than those with a regular training center.

TABLE 6

HONORARIUM FOR COOPERATING TEACHERS

Number of Trainees	Amount
A. Student Teaching	
One per quarter	$100
Two or more per quarter	$150
B. Field Experience (Agricultural Education 550)	
Each trainee	$ 25

TABLE 7

SUMMARY OF STUDENT TEACHER TRAVEL
IN VOCATIONAL AGRICULTURE AND EXTENSION BY QUARTERS AND YEARS

Period	Vocational Agriculture			Extension		
	Total Miles Driven	Mileage Cost	Average Cost Per Trainee	Total Miles Driven	Mileage Cost	Average Cost Per Trainee
Autumn 1966						
28 trainees	10,659	$ 959.31	$34.26	-----[1]	-------	------
Winter, 1967						
10 trainees[2]	3,239	291.51	29.15	2,855	$256.59	$28.51
Spring, 1967						
11 trainees	3,677	330.93	30.08	2,983	295.33	26.85
Entire Year 1966-67						
49 trainees	17,575	1,581.75	31.16	5,838	551.92	27.24
Entire Year 1965-66						
38 trainees[3]	17,669	1,582.85	41.65	7,759	698.31	29.10
Entire Year 1964-65						
47 trainees	20,650	1,859.04	39.55			
Entire Year 1963-64						
40 trainees[4]	14,971	1,347.34	33.68			
Entire Year 1962-63						
23 trainees	10 232	920.88	40.04			
Entire Year 1961-62						
28 trainees[5]	9,833.5	855.01	32.75			

[1] Data not available.
[2] One trainee needed for substitute teaching so he did not have mileage or engage in Extension participation.
[3] Five trainees were paid by local board of education and one trainee did not submit a travel report.
[4] Mileage for one trainee was paid by the local board of education.
[5] One trainee did not drive.

Additional Experience in Agricultural Education

During the year sixty-one undergraduates secured additional participation experience by enrolling in Agricultural Education 550. Most students were juniors and seniors. For the most part these students were enrolling under provisions of the new field experience policy. Some few were enrolling for a special field experience program not completed in connection with their student teaching enrollment.

TABLE 8

TYPES OF ADDITIONAL EXPERIENCES RECEIVED IN AGRICULTURAL EDUCATION 550

Period	Number of Students			
	Vocational Agriculture	Cooperative Extension	Other	Total
Summer Quarter, 1966	0	0	5	5
Autumn Quarter, 1966	49	0	2	51
Winter Quarter, 1967	1	0	3	4
Spring Quarter, 1967	0	0	1	1
Entire Year 1966-67	50	0	11	61

Agricultural Education Society

The Agricultural Education Society is sponsored by the Department of Agricultural Education. It has an active membership of approximately 75 students. The program of the society emphasizes activities that provide learning experiences needed by prospective teachers in vocational agriculture that they are not likely to secure in courses or in extracurricular activities. Some of these activities provide such experiences as presiding at meetings, conducting committee meetings, participating in forums and symposiums, planning social and educational meetings, planning talks, preparing exhibits, and participating in parliamentary procedure.

Some of the major activities of the society for the 1966-67 year were the steak fry, the faculty-student get acquainted party, the Christmas Party, the annual banquet, the election of officers, the society leadership camp, and the exchange visit with the members of a similar organization at the University of Kentucky. The society prepared a recruitment exhibit for the Ohio State Fair, the Farm Science Review and Welcome Week at the Ohio Union. They served a luncheon at the Annual FFA Judging Contest and served the coffee and refreshments at the annual teachers conference.

The society's program is planned by the committee at the spring leadership camp and when accepted by the members, it is printed and made available to all members at the beginning of the autumn quarter. The

member's of the society also prepare a quarterly publication entitled The Educator. It highlights the activities of the organization and provides opportunities for members to express their views. Articles are prepared by authorities in the field and members are kept informed of the activities of others who are involved in the many campus activities. Personal items including engagements, marriages, and births are also included. The society participates in the IFYE program, State FFA Convention, the State Fair, Exploratory Meetings of the freshmen in Agricultural Education and Agricultural Education Scholarship drives.

The organization meets regularly on the second and fourth Tuesdays of each month in the Agricultural Administration Building and the Executive Committee meets on the first and third Tuesdays of each month. The organization operates on a budget of approximately $1,000. Income is received from membership dues of $1, from the luncheon stand at the judging contest, and the coffee break at the conference.

Placement

During the year 54 students were regularly trained and certified to teach vocational agriculture. In addition there were 4 college graduates who enrolled in course work to be certified. Of the total number certified, 35 were placed as teachers of vocational agriculture and 7 as teachers of other subjects; 5 with the Extension Service; 4 continued in graduate education; and the remainder accepted positions in other related fields in education and agriculture or were inducted into the service.

TABLE 9

NUMBER OF GRADUATES TRAINED AND PLACED
IN VARIOUS OCCUPATIONS FOR A SELECT NUMBER OF YEARS

Year	Number of Men Trained	Number Placed			Other, Inc. Armed Services
		Vocational Agriculture	Extension	Graduate School	
1966-67	58	35	5	4	14
1965-66	56	36	1	3	16
1964-65	40	33	1	2	5
1963-64	37	24	1	1	8
1962-63	34	21	2	2	9
1961-62	44	22	3	5	14
1960-61	54	24	11	4	15
1959-60	46	20	6	2	18
1958-59	69	35	4	10	20
1957-58	55	30	9	4	12
1956-57	54	25	4	5	20
1955-56	42	32	5	2	3
1954-55	29	20	1	0	8
1953-54	29	15	3	1	10
1952-53	32	18	2	3	9
1951-52	46	35	2	2	7

Graduate Program

During the year 92 teachers of vocational agriculture, 14 Extension personnel, and 49 others majoring in agricultural education were engaged in programs beyond the Bachelor of Science degree. This is a total of 155 which is eleven less than the previous year. The number of enrollments in graduate courses has remained about the same as shown in Table 2. There was a decided increase in 799 (workshops) due primarily to the special offerings that were made during the month of June. The 13-day workshops, which were available to teachers on both a credit and non-credit basis, were quite attractive because they were primarily for the purpose of improving teachers in new programs such as Farm Business Planning and Analysis, Agricultural Business, Horticulture, and Disadvantaged Youth and also each teacher was remunerated $110 in payment for some of the expenditures involved in the program. These funds were provided through the U. S. Office of Education and the State Department of Education.

TABLE 10

ENROLLMENT OF OHIO TEACHERS OF VOCATIONAL AGRICULTURE AND OTHERS MAJORING IN AGRICULTURAL EDUCATION IN PROGRAM BEYOND B. SC. DEGREE

	Enrollment			
Year	Ohio Teachers	Extension Personnel	Others	Total
1966-67	92	14	49	155
1965-66	99	29	38	166
1964-65	101	28	36	165
1963-64	107	34	40	181
1962-63	91	38	39	168
1961-62	96	37	36	169
1960-61	102	40	28	170
1959-60	101	45	26	172
1958-59	100	0	88	188
1957-58	102	0	70	172
1956-57	101	0	34	135
1955-56	121	0	27	148
1954-55	93	0	34	127
1953-54	114	0	27	141
1952-53	93	0	27	120
1951-52	80	0	29	109
1950-51	76	0	30	106
1949-50	88	0	14	102
1948-49	76	0	16	92
1947-48	58	0	11	69

Twenty-four Master's degrees and 10 Ph. D.'s were earned by majors in the department during the year 1966-67. Nineteen of the Master's degree candidates followed the Option B program without a thesis. The graduate students in the department represented 19 states and 4 foreign countries.

During the academic year the department offerings on the campus included Agricultural Education 715 and 804 the autumn quarter; 703, 801, and 850 the winter quarter; and 611, 712, and 797 the spring quarter. Each of the quarters included a Seminar in Agricultural Education, Special Problems and Research. In 804 and 810, separate sections were conducted for Extension personnel. An interdepartmental seminar for graduate students from all of the vocational services was staffed by the Center for Vocational and Technical Education and offered during the spring quarter.

The off-campus offerings of the department included Agricultural Education 705 and 715 during the autumn quarter and 709 and 797 during the spring quarter. A special problem course emphasizing the teaching of horticulture was also provided during the spring quarter. In addition to the agricultural education offerings, a special problem course in agricultural engineering with emphasis upon agricultural mechanics was offered during the winter quarter.

The summer program included Agricultural Education 703 (Methods in Teaching), 707 (Curriculum in Vocational Agriculture), 709 (Methods in Teaching Farm Business Planning), 806 (Teacher Education for Vocational Agriculture), and 850 (Research Methods in Agricultural Education) in addition to individual problems and research.

The workshop in program planning was conducted during the winter quarter for Extension personnel. Workshops were offered during the summer term, which gave emphasis to Methods of Teaching Farm Business, Agricultural Business and Service, Multiple Teacher Departments, Tractor Operation, Teaching Electricity, and Cooperating Teachers. A total of 106 teachers of vocational agriculture were enrolled in these workshops.

Research

A long-range plan for research in the department was presented by a special committee and was approved by the staff in agricultural education. This program identified some 32 studies, and categorized them in terms of immediate, intermediate, and long-range priorities. It is expected that this research program will result in a more coordinated effort and that participation in it will involve all members of the staff.

Two major studies completed during the year related to long-range projects and were supported by earlier studies. One dealt with the use of economic principles in teaching high school students in vocational agriculture, and the other with the development of a state-wide post-high school program for preparing technicians in ornamental horticulture.

Several research publications were developed and circulated during the year. Six additions to the research series in agricultural education were prepared and distributed widely. An up-to-date list of studies completed in the department was published as well as a list of all recipients of degrees in agricultural education.

Two small grant projects were approved during the year. They were "Development and Evaluation of Instructional Units for Teaching Profit-Maximizing Principles in Vocational Agriculture" and "Communication Concepts in Adult Education in Agriculture." In addition, the U. S. Office of Education was requested to support three requests for training proposals relating to research in agricultural education. These proposals were for one week training programs in young farmer education, in vocational agriculture for area schools, and in vocational agriculture programs for urban areas.

Two members of the faculty hold nominal (no salary) appointments with the Ohio Agricultural Research and Development Center. Three faculty members held appointments and were largely budgeted in the Center for Vocational and Technical Education. During the year, the Assistant Director of the Research Coordinating Unit left the position to become Director of the Research Unit in Arkansas.

In addition to staff research efforts, all members of the department were engaged in supervising the research efforts of Ph.D. and Master's candidates. The studies are listed below.

Studies Completed

Ph.D. Dissertations

Bouchard, Andre, "The Educational Needs of County Agricultural Extension Agents in Quebec."

Christensen, Howard, "Education for Off-Farm Agricultural Occupations in Nevada."

Groves, Ramsey M., "Vocational Education Programs for Students with Special Needs."

Hamilton, James B., "Youth with Special Needs in Non-Metropolitan Ohio High Schools."

Mathis, Gilbert, "Managerial Perception and Success in Farming."

Mathur, Shyam L., "The Role of Cooperative Extension Personnel and Advisory Committees in the Adoption of Program Innovations."

McGhee, Oliver C., "Professional and Technical Needs of Teachers of Vocational Agriculture in West Virginia."

Norris, Virginia, "Educational Methods Used in Presenting Consumer Information to Homemakers Living in Low Income Urban Areas."

Rolloff, John A., "The Development of a Model Design to Assess Instruction in Farm Management in Terms of Economic Returns and the Understanding of Economic Principles."

White, Robert H., "The Education of Ornamental Horticulture Technicians in Ohio."

Master's Theses and Problems

Archer, Clyde, "The Occupational Status of Agricultural Graduates from the College of Agriculture and Home Economics at The Ohio State University."

Crunkilton, John R., "Enlisted Men Separating from the Military Service as a Potential Source of Teachers for Vocational and Technical Schools."

Davis, John C., "A Handbook for Vocational Agriculture Students at Edgewood High School."

Emerson, Roy, "Occupational Opportunities in Ornamental Horticulture in Lake County, Ohio."

Grimes, Gayle G., "Motion Pictures and Film Strips Recommended for Teaching Vocational Horticulture."

Hahn, Donald, "A Series of Slides for Teaching the Identification of Ornamental Evergreens."

Kranz, Edwin, "A Career Guidance Program for Ninth Grade Students in the Northeastern Clark County High School."

Lifer, Charles W., "The Role of the Area Extension Agent, 4-H, as Perceived by County 4-H Advisory Committee Members."

Lovely, Corbett, "A Plastic Covered Greenhouse for Vocational Agriculture Students."

Lucal, Karle, "A Plan and Commentary for a Joint Vocational School Horticulture Complex."

Nirode, Bernard, "Experience Programs Conducted in Vocational Horticulture Programs in Ohio High Schools in 1966."

Oen, Urban T., "Procedures Employed by Teachers in Conducting Off-Farm Cooperative Work Experience Programs."

Penquite, Wilson, "Plans for a Land Laboratory for the Blanchester Schools."

Phillips, William B., "Subject Matter Needs of Mahoning County Commercial Firm Personnel Concerned with Turf Grass Installation and Maintenance."

Steward, Marjorie, "Trends in Curriculum Development in Agricultural Education."

Valentine, Ivan, "Procedures for Evaluating Staff Conferences in Vocational Education."

Non-Thesis Studies

Bender, Ralph E., "Occupations of Recent Graduates of Vocational Agriculture."

Studies in Progress

Ph.D. Dissertations

Amberson, Max, "The Need for Vocational Education in Small Isolated Schools in Mountain States."

Andrew, Neal D., "An Analysis of Present and Potential Interstate Cooperation in Vocational Education."

Barker, Richard L., "The Use of Profit Maximizing Principles in Teaching Agriculture."

Becker, William, "Evaluation of Post-High School Technical Programs in Agriculture."

Cobb, Nimrod, "Guidance Activities in Post-High School Programs of Agriculture."

Cross, Irving, "Scholastic Achievement of Vocational Agriculture Students Enrolled at Colorado State University."

Herring, Don, "Knowledge of and Factors Influencing Vocational Choices of Senior Vocational Agriculture Students in Ohio."

Kerwood, Robert, "A Mechanism for Self-Initiated Evaluation of State Teacher Education Programs in Vocational Education."

Lattimer, Everett C., "Guidelines for Developing a State-wide System of Area Schools."

Mehta, R. C., "Measures of Leader Behavior and Their Relation to Innovativeness of County Extension Agents."

Noland, Warren, "Migration Patterns of Ohio Vocational Agriculture Graduates."

Stitt, Thomas R., "Understandings and Abilities Needed for Selected Job Titles of Farm Equipment Dealerships in Ohio."

Master's Theses and Problems

Beckley, James R., "Public Relations Activities of Ohio Teachers of Vocational Agriculture."

Bogle, Roy, "Knowledge of High School Students Concerning Understanding and Skills Required for Success in Agricultural Careers."

Brum, Keith E., "An Evaluation of Advanced Teacher Certification Standards for Vocational Agriculture Teachers."

Brumbaugh, Dale, "Knowledge and Skills Needed by Teachers to High School Students in the Area of Farm Electrification."

Groves, Robert, "Advisor's Perceptions of 4-H Club Work."

Parker, Kenneth, "Greenhouse Facilities for Teaching Vocational Horticulture."

Ross, Berman, "The Development of an Extension Agronomy Program for Warren County, Ohio."

Steva, John, "Guidelines for Agriculture Missionary Services."

Tangeman, Jerry L., "Improving the Organization and Instruction of the Ft. Loramie, Ohio, Adult Farmers Class."

Non-Thesis Studies

Bender, Ralph E., "Continuing Study of Occupational Status of Recent Graduates of Vocational Agriculture in Ohio."

Guiler, Gilbert S., "Role Analysis of the Perceptions of Beginning Vocational Agriculture Teachers and Their Professional Difficulties in Role Performance."

Guiler, Gilbert S., "Needed Adjustments in the Vocational Agriculture Curriculum to Provide Vocational Experience in Agricultural Occupations as Seen by School Administrators."

McCormick, Robert W., "Communication Concepts for Developing Increased Competency Among Cooperative Extension and Vocational Agriculture Educators."

Wolf, Willard H., "Vocational Preferences of Beginning Students in Agricultural Education."

Wolf, Willard H., "A Nine Year Comparison of Grade Performance of Agricultural Education Majors with Students in the College of Agriculture and Home Economics and the Entire University."

Woodin, Ralph J., "The Supply and Demand for Teachers of Vocational Agriculture in the United States, 1966-1969."

The Center for Vocational and Technical Education

The Center for Vocational and Technical Education has continued to grow in staff and scope of research activity. The staff represents a wide range of backgrounds and specializations. Currently there are eleven specialists, which include the areas of Occupational Sociology, Occupational Psychology, Research Management, Research Design, Agricultural Education, Business and Office Education, Home Economics Education, Distributive Education, Trade and Industrial Education, Technical Education, and International Education. These specialists are backed up by a force of thirty-eight research associates who assist in conducting the project research.

Research Associates in agriculture at the Center during the 1966-67 fiscal year included:

Cecil Johnson, former State Supervisor, South Carolina. Responsibilities as associate to the Specialist in Agriculture and coordinator of the study of the supply and demand for teachers in vocational and technical education.

Joel Magisos, former Teacher Educator and State Supervisor, Washington State University. Served as an abstractor for agricultural education materials in the Information Retrieval section of the Center (ERIC).

Tom Stitt, former Vocational Agriculture Teacher from Oklahoma and Research Assistant in the Agricultural Education Department, The Ohio State University. Coordinated the Center project concerning individualizing instructional materials in off-farm agricultural occupations.

John Crunkilton, formerly Teacher of Vocational Agriculture in Ohio. Conducted a research study of the military service as a source for vocational teachers.

The major projects in agricultural education at the Center during the 1966-67 school year included:

1. Evaluation of the instructional materials produced by the Center as a part of the project in off-farm agricultural occupations.

2. Developing the basic framework for individualizing instructional materials for high school agriculture students interested in ornamental horticulture. The instructional modules in ornamental horticulture were used as the basis for the development of the materials. This project is to be continued and expanded during the coming year.

3. Probably the most significant research publication in agricultural education produced by the Center last year was the "Review and Synthesis of Research in Agricultural Education" by Dr. Warmbrod and Dr. Phipps. These men worked with the Center and reviewed over 400 research studies to develop the publication.

4. The Vocational and Technical Education Clearinghouse for the Educational Research Information Center (ERIC) is located at the Center. This segment of the Center operation has grown and will soon be in a position to serve teachers and researchers in locating resource material in agricultural education.

Staff members of the Center continue to travel across the nation to assist in coordinating research activities in vocational and technical education. National seminars and conferences sponsored by the Center also occupied much of the time of the specialists at the Center during the past year.

The Research Coordinating Unit

The Ohio Occupational Research and Development Coordinating Unit, which was funded June 1, 1965, is an integral part of the Department of Agricultural Education. The organization is directed by C. O. Tower, State Department of Education, Division of Vocational Education. He has been aided with the agricultural phase of the Unit by Assistant Director, John A. Rolloff (now RCU Director in Arkansas), and by graduate assistants, James B. Hamilton and Richard L. Barker.

The Unit's tasks are to (1) stimulate, (2) coordinate, (3) facilitate, and (4) disseminate occupational education research and development efforts in Ohio. Financial arrangements are handled through the department under a subcontract between the Ohio Department of Education and The Ohio State University.

Accomplishments of the Research Coordinating Unit have been diversified to encompass all areas of vocational education. The staff located in the Department of Agricultural Education have, however, been able to somewhat emphasize programs of vocational agriculture. Considerable time has been expended on the formation of joint vocational schools, promotion and review of research proposals, and the determination of vocational education needs in Ohio. Data processing of administrative data of Ohio vocational education programs has been a major thrust of the Unit. Two studies were completed through the Unit in agricultural education. Both of them dealt with farm management instruction; one at the adult level and the other with high school students. A third study researched the characteristics of youth with special needs in Ohio high schools and the availability of vocational courses for them.

In-Service Program for New and Returning Teachers

The total number (46) of new and returning teachers employed in Ohio high schools during the 1966-67 school year was slightly lower as compared with previous years, as may be noted in Table 11.

The in-service education program for new and returning teachers of vocational agriculture in Ohio is designed to develop the competencies needed to plan, organize, conduct, and evaluate total programs of vocational agriculture in local communities. In order to accomplish this end, six seminars were held throughout the year.

TABLE 11

NUMBER AND STATUS OF NEW AND RETURNING TEACHERS OF VOCATIONAL AGRICULTURE EMPLOYED IN OHIO HIGH SCHOOLS 1966 - 1967 SCHOOL YEAR

Status	September 1, 1965	September 1, 1966
New Ohio Teachers Employed	27	33
Returning Ohio Teachers	4	4
Out-of-State Teachers	8	1
Ohio Trainees on Special Placement	9	0
New Ohio Teachers Employed After September 1, 1966	7	8
TOTAL	55	46

A three-day workshop/seminar was held in August to assist new teachers plan the instructional program for their high school students. During the months of September, November, February, and April small group seminars were held in strategic areas of the state. Themes for these seminars were: Continuing Education, Agricultural Mechanics, Youth Organization, Program Evaluation, and Planning the Summer Program.

A mid-year two-day workshop/seminar was conducted for all new and returning teachers at The Ohio State University in the Agricultural Administration Auditorium. The purpose of this workshop was to evaluate progress, improve plans for curriculum, identify problems and share experiences.

In addition, each new and returning teacher was observed an average of three times during the school year by teacher trainers and supervisors.

A role perception-expectation study was initiated in 1965 and 1966 involving all new and returning teachers to help the Department of Agricultural Education assess the relative effectiveness of the internship program afforded teachers during their first year of employment. The results of this study should provide additional insights into the further structuring of internship programs.

A mid-year evaluation of new and returning teachers of vocational agriculture is made by school administrators each year. Table 12 indicates the evaluation of new and returning teachers of vocational agriculture in ten areas of competency by their school administrators.

TABLE 12

FINAL EVALUATION OF ALL NEW AND RETURNING TEACHERS OF VOCATIONAL AGRICULTURE IN TEN AREAS OF COMPETENCY BY THEIR SCHOOL ADMINISTRATORS

Major Areas of Competency	Mean Rating
Relationship with School, Faculty, and Administration	4.52
Public Relations and Communication Activities	4.21
Youth Organization Activities	4.02
Developing Occupational Experience Programs	4.02
Planning and Developing Total Programs of Vocational Agriculture	4.02
Classroom Teaching	3.94
Use of Physical Facilities	3.84
Teaching Agricultural Mechanics	3.70
Young Farmer Program Activities	3.41
Adult Farmer Program Activities	3.40

Rating Scale: 5 Excellent; 4 Good; 3 Average; 2 Fair; and 1 Poor.

In-Service Education for All Teachers of Vocational Agriculture

The teacher education and supervisory staff formulate and conduct a comprehensive in-service education program for Ohio teachers. This program is designed to further develop competency in teaching vocational agriculture.

This phase of the program has continued to expand as is indicated by the degree of participation and acceptance by the teachers of vocational agriculture.

During the summer of 1966, eighty-six teachers of vocational agriculture participated in a special three-day, non-credit in-service training program at Camp Muskingum. The areas of technical agriculture presented and the number of teachers enrolled in this special workshop were as follows: New Recommendations in Agronomy, 57; Weed Identification and Control, 22; Animal Reproduction, 22; Making Quality Concrete, 42; Size Selection of Farm Machines, 54; Forestry and Conservation, 20; and Farm Business Planning and Analysis, 21.

Other non-credit workshops and enrollments include: Dairy Cattle Breeding and Management sponsored by the Central Ohio Breeding Association, 37; Vocational Agriculture Teachers' Day at the Ohio Agricultural Research and Development Center, 96; and a Preview of the Farm Science Review, 67 teachers.

During the month of June 1967, 106 teachers participated in special thirteen-day workshops conducted at Ohio State University. The following workshops were conducted: Agricultural Business and Service, 33; Organization of Multiple Teacher Departments, 16; Tractor Operation and Maintenance, 20; Teaching Electricity, 11; and Cooperating Instructors Workshop, 10.

The annual three-day conference conducted by the State Department of Education for teachers of vocational agriculture was devoted to the theme, "A Climate of Excellence." Much emphasis was given to the need for quality in a broadened program of vocational agriculture which includes: Production Agriculture, Farm Business Planning and Analysis, Horticulture, Programs for Youth with Special Needs, Agricultural Mechanics and Agricultural Business and Service.

During the year teacher education staff members assisted in planning and conducting the Vocational Agriculture Teacher's Conference, the State Young Farmer Conference, the Ohio Future Farmers of America Convention, the Annual Vocational Agriculture Judging Contest, and Future Farmer Leadership Training Camp, the Ohio State Junior Fair Program, and the Ohio In-Service Training Program at Camp Muskingum.

International Education

The department continued to participate cooperatively with the College of Education under the contract of The Ohio State University-India Education Project. Leon Boucher returned August 1, 1966 after serving two years as an Agricultural Education Consultant in the Regional College of Education, Bhubaneswar, Orissa, India. The Regional College Project under the direction of The National Council of Educational Research and Training, Government of India, cooperating with The Ohio State University, has established four centers for the training of teachers. The primary effort was in the development of teacher education programs for instructors of vocational agriculture in the multipurpose high schools of India. Wayne E. Schroeder has continued to serve as Chief of Party for the College of Education AID Mission. Daryl Sharp, teacher of vocational agriculture at Minster, joined the project in January of 1966 and is continuing to serve in the Regional College at Mysore, India. Lowell Hedges, teacher of vocational agriculture at Elgin School, Marion County, joined the team in July 1966 at the Ajmer, Regional College. Both men have had considerable experience as cooperating instructors for this department and will complete a two year assignment with the project.

The Chairman of the Department of Agricultural Education spent 5 weeks in studying the possibilities for the establishment of a teacher education program in the Superior School of Agriculture at Piracicaba, Brazil. This was a part of the College and Agency for International Development contract. While in Brazil, conferencers were held with personnel in the Ministry of Education and Secretary of Education in addition to key personnel of the College and the AID team. Clair Young, a former agricultural education graduate and Extension state staff member in Ohio, had made many preliminary findings for this study during his three-year period with the AID team. As yet no decision has been made concerning the further developments of this program. The department, however, has expressed a willingness to cooperate in any way possible to promote programs of teacher education and vocational agriculture in the Sao Paulo state of Brazil.

Twenty foreign national students enrolled in classes of this department during the past year. They were from the following countries with the number of enrollees designated: Africa - 10; India - 5; Pakistan - 2; Canada - 2; Philippines - 1. Shyam L. Mathur from India and Andre J. Bouchard of Canada completed their doctoral programs this year.

Nine other foreign visitors who were present for brief periods of observation and consultation represented India, Ghana, Nigeria, and Pakistan. These visits vary in nature from office consultation to trips within the state showing agricultural education in action.

Curriculum Materials Service

The Ohio Vocational Agriculture Curriculum Materials Service is a cooperative venture with the Agricultural Education Service of the State Department of Education and the Department of Agricultural Education, The Ohio State University working together. The activities of the Service are under the direction of a coordinator of curriculum materials.

The purpose of the Curriculum Materials Service is to assist teachers in the improvement of their instruction. This is accomplished through assisting teachers in developing adequate local department curriculum materials centers, which suggest the curriculum of the local department.

The curriculum materials needs of teachers are based upon the educational objective of the curriculum of the major program areas which are as follows: Agricultural Production, Agricultural Supplies, Agricultural Mechanics, Ornamental Horticulture, Agricultural Resources, and Forestry. The curriculum are undergoing constant change to keep pace with technological and educational progress. The director of the Curriculum Materials Service served as the coordinator and the editor for the development of curriculum guides in the above named program areas. These guides will assist in the identification of curriculum materials needs of teachers conducting programs in the various areas.

An advisory group composed of teachers of vocational agriculture and representatives of the supervisory and teacher education staffs serve to review the activities of the Service and to recommend policy changes. At times College of Agriculture staff members, Cooperative Extension Service members, and Research and Development staff members meet with the committee to assist in the development of cooperative programs with the Curriculum Materials Service.

The first step in providing curriculum materials for local programs is to search for existing materials that will provide suitable educational experiences for students. The sources of these materials are as follows: Vocational Curriculum Materials Services in other states, The Cooperative Extension Services in the various states, The U. S. Department of Agriculture, Foundation programs, Center for Vocational and Technical Education, and commercial sources. A catalog listing approximately 900 printed and audio-visual items from about 50 different sources was prepared for distribution to Ohio teachers of vocational agriculture. About 53,000 separate items were distributed to Ohio departments of vocational agriculture by this system.

When materials are not available to support the curriculum, steps are taken by the Curriculum Materials Service to prepare the needed materials. A catalog listing the materials produced by the Service is prepared and distributed to Ohio teachers of vocational agriculture and agricultural education services in other states. The materials prepared by the Service during 1966-67 are as follows:

Manuals--

- Livestock Marketing including a packet of reference materials
- Fundamentals of Plant Identification
- Mowers
- Facts on Farming
- Agricultural Production Curriculum Guide
- Reference Books for a Department of Vocational Agriculture

Slide Series and Script--

- What Is Horticulture?
- Floriculture Crops
- Greenhouses and Related Structures
- Know Your Land

The following materials are under development--

- Plows and Plowing
- Identification of Ornamental Trees
- Identification of Ornamental Shrubs
- Plant Growth and Nutrition
- Livestock Feeding
- Livestock Breeding
- Plant Diseases
- Beef Grading from Feeder to Carcass
- Balers and Baling
- Corn Pickers
- Curriculum Guides for Turf Management

Periodicals--(The following periodicals have been made available to Ohio teachers of vocational agriculture)

Announcements and Notes on Instructional Materials- Vocational Agriculture Curriculum Materials Service
Ohio Agricultural Education News - Department of Agricultural Education and Division of Vocational Agriculture, bi-monthly
Soil Conservation District News - Soil Conservation Services
Ohio Herd Improvement Observer - Department of Dairy Science, OSU
Insect Aids and Alerts - Department of Zoology and Entomology, OSU
The Ohio Future Farmer - Ohio FFA Association
The Ohio Young Farmer News - Ohio Vocational Agriculture Service
Safety and Emergency Preparedness - College of Agriculture and Home Economics, OSU
Modern Milk Marketer - College of Agriculture and Home Economics, OSU-
Fish and Wildlife Service Report - USDA
College of Agriculture Placement Office Newsletter
Agricultural Education News
Agronomic Tips
Ohio Report on Research and Development, Ohio Agricultural Research and Development Center

Extension Publications (OSU)--

A total of 37 Cooperative Extension Service publications were made available to the Curriculum Materials Service for distribution to Ohio teachers.

Ohio Agricultural Research and Development Center--

One copy each of the 1966-67 publication of the OARDC was distributed to each teacher of vocational agriculture through the Center's mailing room.

Guidance Materials (OSU and Department of Agricultural Education) distributed to teachers--

Here's a Poster for Your Bulletin Board
Opportunities for You in Vocational Agriculture
Recruiting the Future Farmers for Vocational Agriculture Careers
Is There a Job in Agriculture for You?
Career Opportunities in the Nursery Industry
Be an Influential American
Rewarding Careers in a Dynamic Industry
Teaching Units for "Planning Your Career in Agriculture"
Careers in Plant Pathology

Commercial Materials--

A total of eleven pieces of commercial materials were distributed to teachers.

Public Relations

All staff members assisted in implementing a new plan of public relations for vocational agriculture and agricultural education which had been developed by a joint staff committee. The committee also assisted selected teachers of vocational agriculture in publicizing events in their communities and gave special aid to teachers in publicizing events at the State Fair, the FFA Convention, the Young Farmer Convention and the Teachers' Conference. All members of the staff were engaged in working with specific assignments with various state organizations. One member, for example, served as membership secretary of the Ohio Vocational Association.

Four issues of the Ohio Agricultural Education News were published during the year. This newsletter was edited by a member of the staff. All staff members made the contributions to this publication. Other publications which carried contributions from staff members included the American Vocational Journal, the Agricultural Education Magazine, and the National Future Farmer.

Facilities

The department is housed in the Agricultural Administration Building and includes 13 offices for the staff. In addition there are five secretarial stations with four of the stations accommodating one secretary and one accommodating two secretaries. The facilities also include a conference room, a teaching aids lab, and two rooms to accommodate 25 graduate students. The expanding program of the department particularly in the area of instructional materials and in the number of graduate and undergraduate students make space allocation a concern. Storage facilities are taxed to the limit and provisions are to be made to utilize the small room on the south wing of the building between the classrooms to accommodate the overflow. If this is insufficient, then requests will be made for shelving in the office occupied by the teaching aids specialist.

During the year the following new equipment was provided:

2 Overhead projectors
1 Portable projection screen
1 Slide projector with remote control
1 Portable tape recorder
5 Four-drawer letter size file cabinets
2 Two-drawer letter size file cabinets
2 Sectional bookcases
1 Stenographer's chair
1 Spirit duplicator
2 Adler typewriters
1 Roneo mimeograph
1 Victor automatic calculator
1 Postal scale 10#
1 Platform scale 60#

THE STAFF IN AGRICULTURAL EDUCATION, 1966-67

Name and Title	Sources for Salary: Teach. Educ.	Supvn. in Vo-Ag	Coop. Ext.	Other	Notes
Professors					
Bender, Ralph E.	X		X		Chairman of Department
Brunner, Henry S.				Center for Voc.-Tech. Ed.	
Kirby, Edwin L.			X		Associate Director of Extension
McCormick, Robert W.	X		X	Associate with Vice President Mount	Associate in Continuing Education, October 16, 1966
Ritchie, Austin E.				College of Agr. Admin.	Assistant Dean
Robinson, D. B.			X		On leave in India, Extension
Stewart, Wilbur F.					Teach. Ed. Em., deceased 2-18-67
Taylor, Robert E.				Center for Voc.-Tech. Ed.	Director of Center
Wolf, Willard H.	X				
Wood, Wilbur B.			X		On leave in India, Extension
Woodin, Ralph J.	X				
Johnson, Carlton E.				Dept. of Agr. Engr.	In charge of agr. mechanics
Associate Professors					
Bolender, Elbert O.					Emeritus, Sup. Voc. Agr.
Christensen, Virgil E.	X			Center for Voc.-Tech. Ed.	Began Oct. 1, 1966 on Teach. Ed.
Guiler, Gilbert S.	X				
Hensel, James W.				Center for Voc.-Tech. Ed.	
Wilson, Richard H.	X				
Worrall, Robert P.				College of Agr. Admin.	Assistant to Dean, advanced to Assoc. Prof. July 1, 1966
Assistant Professors					
Boucher, Leon W.	X				Returned from India Aug. 1, 1966
Cunningham, Clarence	X		X		Leader, Prof. Improvement, Ext.
Fidler, Lloyd B.					Sup. Voc. Agr. Em., deceased 2-17-67
McCormick, Floyd G.	X				Terminated Mar. 31, 1967 to Arizona
Robinson, Ted R.				University Administration	Asst. Director of Admissions
Ruble, Floyd J.		X			

THE STAFF IN AGRICULTURAL EDUCATION (CONTINUED)

Name and Title	Sources for Salary: Teach. Educ.	Supvn. in Vo-Ag	Coop. Ext.	Other	Notes
Instructors					
Pulse, Paul F.		X			
Waliser, Don				College of Agr. Admin.	Counselor
Younkman, Charles				College of Agr. Admin.	Assist., Farm Science Review
Consultants					
Dougan, James E.		X			
Parks Darrell L.		X			
Ridenour, Harlan E.		X			Coordinator, Instructional Materials
Rolloff, John A.				Research Coordinating Unit	Asst. Dir., Terminated Dec. 31, 1966
Starling, John T.		X			
Tower, Cecil O.				Research Coordinating Unit	Dir., Terminated April 30, 1967
Weiler, Warren G.		X			Supervisor of Vocational Agriculture
Associates					
Barker, Richard L.				Research Coordinating Unit and U. S. Office Project	Economic Principles, Su,A,W,S
Becker, William J.	X				Eval. of Tech. Educ., Su,A,W,S
Hamilton, James				Research Coordinating Unit	Disadvantaged Youth, Su,A,W,S
Herring, Don R.	X				Teaching Assistant, A,W,S.
Noland, Warren G.	X				Occupational Mobility, Su,A,W,S.
Oliver, Craig S.	X				Instr. Materials & Hort., A,W,S.
Assistants					
Ropp, George E.	X				(Substitute for teachers preparing agri-business inst. materials April 1 to May 31, 1967)
Tommas, Don A.	X				

Regular Clerical Staff - Helen V. Killworth (Terminated Mar. 2, 1967), Connie Rummel, Beth Brenner, Martha C. Ervin, Louise C. Goodall, Kathy S. Grogan, Jo Hudson, Florence S. McCarley, Barbara Satchell, and Marian Schiefer.

Part-time Clerical Staff - Anne G. Amspoker, Joanie Lyle, Alvyra Duncan, Elsie Martin, Christine Moorhead, Cheryl Spray, Susan Ann Engel, David A. Garner, Opal Ridenour, Mary Ann Donalds, Evelyn Roediger, Wendell Shaffer, Nancy Hackney, Rebecca Ridenour, Sharon Horn, Ruth M. Bell, Nan Shawber, Ruth Wilson, and Clara Goldslager.

VT 004 649
Dillon, Roy D.; Cain, Paul S.
Employment Opportunities and Usable Agricultural Skills in Non-Farm Agricultural Occupations in Appalachia. Popular Report.

Morehead State Univ., Ky. School of Applied Sciences and Technology
MF AVAILABLE IN VT-ERIC SET.
Pub Date - Nov66 3p.

*OFF FARM AGRICULTURAL OCCUPATIONS; *EMPLOYMENT OPPORTUNITIES; *VOCATIONAL AGRICULTURE; OCCUPATIONAL SURVEYS; *EDUCATIONAL NEEDS; *AGRICULTURAL SKILLS; OCCUPATIONAL CLUSTERS; HIGH SCHOOLS
KENTUCKY; OHIO

The purposes of the study were to determine employment opportunities for present and emerging non-farm agricultural occupations in 28 eastern Kentucky and 10 southern Ohio counties, clusters of competencies required for a selected number of jobs, and post-high school educational programs needed to prepare workers to enter or progress in agricultural technician level occupations. Data obtained from a sample of 284 business firms showed 736 positions of which 306 were defined as agriculturally oriented and represented 126 different agricultural job titles. Some findings were: (1) 40 percent of all workers employed in non-farm agricultural businesses need some knowledge and skill in agriculture, (2) 16 percent of all workers employed in non-agricultural businesses that may employ agricultural workers need some knowledges and skills in agriculture, (3) Employers expected a 40 percent increase in the number of employees needing technical competencies in agriculture in the next 5 years, and (4) It was possible to determine general competency areas for entry and advancement by workers. The complete report is available as ED 010 496. (WB)

VT 004 649

EMPLOYMENT OPPORTUNITIES AND USABLE AGRICULTURAL SKILLS IN NON-FARM AGRICULTURAL OCCUPATIONS IN APPALACHIA

POPULAR REPORT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NOVEMBER, 1966

by

Roy D. Dillon
Paul S. Cain

SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY
MOREHEAD STATE UNIVERSITY
MOREHEAD, KENTUCKY

EMPLOYMENT OPPORTUNITIES AND USABLE AGRICULTURAL SKILLS IN NON-FARM AGRICULTURAL OCCUPATIONS IN APPALACHIA

This condensed report has been prepared to provide news-media, legislators, laymen, teachers, and educational administrators with the results of the 19 month staff study in agricultural technology at Morehead State University. The study was funded under Section 4(a) of the National Vocational Education Act of 1963, United States Office of Education.

The purpose of the study was:

1. To identify and determine employment opportunities for present and emerging non-farm agricultural occupations in twenty-eight eastern Kentucky and ten southern Ohio counties.

2. To determine clusters of competencies required for a selected number of these jobs.

3. To determine needed post-high school educational programs to prepare workers to enter or progress in agricultural-technician level occupations.

To obtain data in order to accomplish these objectives, a sample of 284 business firms that employ workers who use agricultural knowledge and skills was selected from all the firms in the 38 county area. A research-assistant team made personal contacts with each firm to obtain data concerning:

1. The functions of each firm, the kinds and numbers of workers in present and anticipated job titles in the firm.

2. The specific activities in which workers engage.

3. The knowledges workers use in their jobs.

Data were obtained on a total of 736 job positions, 306 of which were defined as agriculturally-oriented jobs. These 306 positions represented 126 different agricultural job titles. The results of the study showed that:

1. Forty per cent of all workers employed in non-farm agricultural businesses need some knowledge and skills in agriculture.

2. Sixteen per cent of all workers employed in non-agricultural businesses that may employ agricultural workers need some knowledges and skills in agriculture.

3. Of every 10 potential job opportunities for agricultural workers, 6 were in the Kentucky and 4 were in the Ohio region of study.

4. Two and one-half times more agricultural workers with high school vocational level training will be needed than agricultural technicians with post-high school training to take entry-level positions in the next five years.

5. Most of the business firms interviewed were multi-functional, and workers in job titles in the smaller firms tended to hold jobs that were multi-functional in nature.

6. The rate of turnover was highest in businesses having the most part-time workers.

7. Employers reported an expected forty per cent increase in the number of employees needing technical competencies in agriculture in the next five years.

8. Employers had been willing to hire untrained persons under 20 years of age and train these people in technical skills on-the-job, but indicated they would rather hire and pay a higher wage to trained technical workers if available.

9. It was possible to determine the general competency areas for entry and advancement by workers in jobs needing agricultural knowledges and skills, and to group these worker activities and knowledges into clusters so that general competency areas could be identified.

10. It was possible to determine "clusters" or "families" of agricultural-technical and agricultural-vocational job titles, based upon the workers' responses concerning activities and knowledges used in their jobs.

More detailed information will be needed before the units of instruction can be planned. The in-school instructional programs at the high school vocational level and post-high school technical level should provide the broad theoretical base for the learning of applied principles and details in on-the-job experience programs as a part of the course of study.

Roy D. Dillon
Project Director

VT 004 650
Gray, Robert K., And Others
An Illinois Inventory of Research and Studies in Vocational Education.

Illinois State Board of Vocational Education and Rehabilitation, Springfield. Div. of Vocational and Tech. Ed.
Illinois Research and Development Coordinating Unit, Springfield.
MF AVAILABLE IN VT-ERIC SET. OEC-5-85-126
IRDCU-Misc-Pub-401
Pub Date - Dec67 35p.

RESEARCH PROJECTS; *ANNOTATED BIBLIOGRAPHIES; *VOCATIONAL EDUCATION; EDUCATIONAL RESEARCH
ILLINOIS

This bibliography containing 284 items represents a large portion of the vocational educational research effort in the State from January 1965 through July 1967. Both completed and in-progress research is included. Many items are annotated but the bibliographic citations are not complete. The entries are categorized under (1) Agriculture and Related, (2) Business Education, (3) Cooperative Education, (4) Culturally Deprived, Socially Maladjusted, and Potential Dropouts, (5) Guidance and Placement, (6) Health Occupations, (7) Home Economics Education, (8) Industrial and Related, and (9) Junior College-Post-Secondary. In the index, each subject heading is followed by a series of numbers referring to the specific citations in that category. (EM)

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AN RCU OF RESEARCH AND STUDIES IN VOCATIONAL EDUCATION

RCU

ED 046 556

The Illinois Occupational Research and Development Coordinating Unit was established by Project No. OE 5-85-126, U. S. Office of Education, Bureau of Research on June 12, 1965. It was extended by Grant No. OEG-3-7-063030-2687 on March 1, 1967. Both projects were funded under the provisions of Section 4(c) PL 88-210.

STATE OF ILLINOIS

RESEARCH COORDINATING UNIT

BOARD OF VOCATIONAL EDUCATION AND REHABILITATION

VOCATIONAL AND TECHNICAL EDUCATION DIVISION

405 CENTENNIAL BUILDING

SPRINGFIELD 62706

AN ILLINOIS INVENTORY OF RESEARCH AND STUDIES IN VOCATIONAL EDUCATION

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OFFICE OF EDUCATION

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BOARD OF VOCATIONAL EDUCATION AND REHABILITATION
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JOHN A. BEAUMONT, DIRECTOR

ILLINOIS RESEARCH COORDINATING UNIT
V. E. BURGENER, COORDINATOR

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Introduction

This bibliography was prepared for the Research Coordinating Unit, Division of Vocational and Technical Education, State Board of Vocational Education and Rehabilitation by Richard Haley and Richard Nelson, Research Associates. It is intended to be helpful to vocational educators in Illinois, as well as institutions which are seeking research and study in the field as a basis for further research or for solutions to present problems in vocational and technical education. A Bibliography of Published and Unpublished Vocational and Technical Education Literature which is more comprehensive covering the total nation was prepared for the Research Coordinating Unit in 1966 by Corplan Associates. The new RCU listing is meant to be more of an inventory of what is being done in vocational education research in Illinois and who is doing it. It becomes a catalog, although incomplete, of the existing vocational education research effort in Illinois.

METHODOLOGY

Citations were obtained from personal interviews, theses and dissertation abstracts, and research project lists. It should be noted that both completed and in-progress research is included and that the availability of some materials are probably restricted. The period covered by this search is from January, 1965 to July, 1967 inclusive.

This bibliography is not complete and no claim of this nature is intended. There are approximately 280 references included. Some difficulty was experienced in listing all of the pertinent studies because this was a first effort in coordinating and inventoring the total research activity of vocational education in Illinois. Some institutions and groups may be omitted in the inventory, but all universities concerned with educational research were contacted.

INDEXING

A subject index with partial cross-indexing is provided. Each subject heading is followed by a series of numbers referring to the specific citations in that category. The index titles were chosen to correspond with current terminology and the Corplan study.

ACKNOWLEDGMENTS

The Research Coordinating Unit acknowledges the assistance of the colleges and universities, the many educators, school administrators, and other officials who contributed reference materials. It is hoped that this can become a recurring listing of current research to be made available periodically. A publication of this nature may help to provide direction for future research in the state of Illinois in the area of technical and vocational education.

The Research Coordinating Unit assumes no responsibility for the dissemination of information concerning any projects cataloged other than those listed with a RCU number. Many of the reports are available through university libraries, the ERIC clearinghouse, or other dissemination centers. Information from others may be completely unavailable even from the principal investigator.

Robert K. Gray
Research Consultant
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ILLINOIS INVENTORY OF RESEARCH

001. Abner, George and Wright, C. R. Project for Slow Learning Boys in Alton Senior High School. Alton. RCU 00037-C7.

A continuing full day core program for slow learners under one teacher-coordinator including common learnings instruction, and job experience in service type occupations.

002. Adams, Charlotte G. Working with Low Income Families in New Madrid County, Missouri. Southern Illinois University.

In progress.

003. Ameter, Sue Lynn. An Analysis of Errors Made on the Selectric by First Year Typewriting Students. Eastern Illinois University. 1966.

The purpose of this study was to determine the most frequently occurring errors made by first year typewriting students using I.B.M. Selectric Typewriters.

004. Amos, Blanche Janell. A Study to Determine the Factors Contributing Significantly to the Success of a Chapter of Future Business Leaders of America. Southern Illinois University, Edwardsville. 1966.

005. Anderson, Audrey Ann. A Study of the Two-Year Secretarial Program at Northern Illinois University, 1961-1963. Northern Illinois University. July, 1965.

This study revealed the fact that a low percentage of students completed the course of study; the incoming students generally ranked below other incoming freshmen; and that very few students eventually entered a four year program.

006. Anderson, Ernest Francis. Differential Costs of Curricula in Comprehensive Junior Colleges. University of Illinois. 1966. RCU 23-A7.

The purpose of this study is to find the relationship of the costs of special vocational and technical curricula of less than four years in length to the costs of general or liberal arts curricula leading to programs of study requiring four or more years of college study. The anlaysis will ferret out the cost of each course offered in the college. The unit cost of each course included in a curriculum will be aggregated to determine the total cost of educating a student in that curriculum. The cost of each specialized vocational and technical curriculum will be compared to the average cost of educating a student in the liberal arts curricula to see if there is a consistent relationship across the sample institutions included in this study. This empirical analysis of practice in a selected group of institutions will then be used as a basis for preparing a design for analysis that may be applicable for further advancement of knowledge.

007. Andrushka, Nadia and Broadwell, Lucile. Program in Health Occupational Education. Chicago Board of Education. Chicago. RCU 00024-C7.

A two-pronged project in the Health Occupations; one to provide short term instruction, primarily for adults, for cooks and food service workers and for health aides in the field of long term patient care; and second, to develop profiles of health occupations and to prepare curriculum for certain of these occupations.

008. Arends, Ralph. Feasibility Study of Junior College Needs in McLean County and Adjacent Areas. McLean County Schools. Bloomington. RCU 19-A6.

A study to demonstrate the purpose of a comprehensive junior college program in (a) pre-college instruction, (b) terminal programs in general, occupational, semi-technical, or technical education, and (c) adult education.

009. Ash, Clarence. Cost Analysis for Multiple Institution Education Programs. University of Illinois.

In progress.

010. Barlow, Barbara A. A Survey of the Preparedness evidenced by Counselors in Providing Occupational Guidance to Modern Foreign Language Students at Selected High Schools. Northern Illinois University. August, 1966.

A survey which showed that 79.8% of the students discontinued foreign language study after two years. Conclusions drawn include the limited adequacy of counselors to guide in the modern foreign language area.

011. Barrett, Burdette E. A Follow-up Study of the 1959-1962 Business Graduates of Lyons Township High School, LaGrange, Illinois. Northern Illinois University. August, 1966.

012. Bauman, Merlin Herbert. The Business Experience of Business Teachers in the Northern Twenty-one Counties of Illinois (Excluding the City of Chicago.) August, 1965.

This thesis substantiates the premise that business teachers should have recent business experience. The study also suggests the need of a further study in this area to determine the teaching effectiveness of business teachers before and after obtaining business experience.

013. Behling, Roger Lee. A Survey of Selected Business Firms to Determine the Kinds of Positions Available and Qualifications Needed by High School Graduates in the Field of Bookkeeping in Chicago Heights, Illinois. Northern Illinois University. August, 1966.

014. Belville, Lewis. Follow-up of Fulton County Graduates of Selected Classes to Determine Implications for Vocational Guidance and Business and Office Education. Lewistown High School. Lewistown. RCU 20-A6.

The objective of this investigation was to determine the probable training needs of students in office occupations with implications for guidance service and curriculum revision and development.

016. Black, Arthur A. and Kuhn, George. Specific Program to Motivate Vocationally Oriented Students to Complete their High School Education. Carbondale Community High School. Carbondale. RCU 00068-A7.

017. Bertolaet, Frederick. Regional Conferences on Education, Training and Employment. The Research Council of the Great Cities Program for School Improvement. Chicago.

018. Blair, Clarence. Labor Market Survey. County Superintendent of Schools. Belleville. RCU 33-A7.

This survey was undertaken in order to assess whether the present curricula of St. Clair and Madison County Schools meet the needs of modern industry, thus maximizing the opportunity for employment of graduating students.

019. Bleem, Janet R. Values of Home Economic Teachers in Relation to Students of Economically Depressed or Culturally Deprived Backgrounds. Southern Illinois University. 1966.

Instrument to study social sensitivity of H. E. teachers and their reactions to cultural conflicts in the values of middle class and culturally and economically deprived students.

020. Blum, Alan F. Family Structure, Peer Culture, and the Learning of Political History: The Impact of Sex-Role Identification upon the Learning Experience of Adolescents. University of Chicago. 1965.

021. Bober, Gerald. An Investigation of Certain Factors Concerning the Salaries of Female Office Workers in Selected Chicago Area Businesses. Northern Illinois University. June, 1965.

022. Bowman, Mary Jean. A Theoretical and Empirical Analysis of Vocational Preparation in Japan. University of Chicago.

023. Boyle, James P. A Study of the Dropouts from the Classes of 1964 and 1965 from Mundelein High School District 120. Northern Illinois University. June, 1965.

States that only 30% of the youths who dropped out of high school were enrolled in programs of vocational education.

024. Bradley, William T. [illegible] Analysis of the Acceptability of Alternative Methods of Financing Agricultural Expansion to Southern Illinois Farmers. Southern Illinois University. [illegible]

Acceptability of alternative methods of financing agricultural expansion to Southern Illinois farmers.

025. Brake, Oral Wayne. A Programmed Learning Approach to Teaching Dimensioning in Mechanical Drawing as compared to the Conventional Method Teaching. Northern Illinois University. May, 1966.

Study concludes that there is no significant difference in learning retention between conventional and programmed units in dimensioning.

026. Brannan, Gerry O'Dell. Transcribing Machine Operators in Bloomington and Normal Illinois. Northern Illinois University. 1966.

027. Braun, R. H. and Anderson, W. G. Special Vocational Orientation Program for Slow Learners. University of Illinois. Urbana. RCU 53-A7.

Special orientation in common learnings for slow learners in J.H.S. (grades 7-8-9) along with controlled environment using mass production techniques for developing vocational awareness, job skills, and attitudinal competencies.

028. Bretzlaff, Erlene. Home Safety. Southern Illinois University. 1967.

To determine the needs in high school of homemakers.

029. Bryan, Thomas C. Occupational Orientation Program for Potential Dropouts. Woodland High School. Streator. RCU 00071-A7.

A continuing one-half day program in basic subject matter subjects in an occupational orientation program for potential school leavers. Reading, science and mathematics emphasized in relation to occupations.

030. Bryan, Thomas C. Summer Occupational Curriculum Planning Workshop. Woodland High School. Streator. RCU 22-A7.

031. Broadwell, Lucile. Demonstration Program in Health Occupations. Chicago Public Schools. Chicago. RCU 00024-D8.

A two-pronged project in the Health Occupations; one to provide short term instruction, primarily for adults, for cooks and food service workers and for health aides in the field of long term patient care; and second, to develop profiles of health occupations and to prepare curriculum for certain of these occupations.

032. Brooke, Ralphe E. A Follow-up of the 1962 and 1964 Graduates and Non-Graduates of McHenry Community High School. Northern Illinois University. January, 1965.

The results of this study indicate that this high school does a better job of preparing students for continuing their education than for going to work immediately upon leaving school.

033. Bushanan, Phyllis. A Study to Determine Family Living Areas that could Enrich Elementary Education if Integrated into the Present Curriculum. Southern Illinois University. 1966.

034. Burgener, V. E. and Staff. Illinois RCU Final Report. Board of Vocational Education and Rehabilitation. Springfield. Contract No. OE 5-85-126.

Final report of the first eighteen months of operation of the Illinois Occupational Research and Development Coordinating Unit.

035. Campbell, Robert A. Experimental Program to Prepare Vocational-Technical Teachers for Laboratory Classes Designed for Dropout-Prone Youth. University of Illinois. RCU 00065-A7.

Summer workshop (1966) for teachers of dropout prone youth involving a shop class in operation as a teaching laboratory and curriculum development to be tried by group using television video tape and closed circuit for observation and evaluation.

037. Campbell, Warren J. Pupil Reports. Southern Illinois University, Edwardsville. 1965.

038. Carlionari, Joseph. Intelligence Tests as Predictive Instruments for Academic Achievement among Culturally Deprived Children. Northern Illinois University. August, 1966.

039. Carrell, Lawrence, Jr. The Design, Development and Manufacture of a Tool Grinding Fixture. Eastern Illinois University. 1967.

In progress.

040. Carrell, Robert A. A Survey of Comparative Costs of Selected Junior College Vocational Laboratories for Vocational Curriculum Planning Puposes in the Proposed East Central Illinois Junior College. Eastern Illinois University. 1966.

Comparative cost of equipping various voc-tec laboratories and the per-pupil cost of equipping the laboratories.

041. Carpenter, Wm. G. and Michael, Lloyd. Experimental Program in Electronic Data Processing. Evanston Township High School. Evanston. RCU 00063-A6.

An experimental program in data processing preparatory to entrance into unit equipment operator jobs or into advanced post high school training of a more sophisticated nature.

042. Carter, Mary Lou. The Possibility of Using Tenth-Grade English Grades, School and College Ability Verbal Test Scores, Differential Aptitude Verbal Test Scores, and IQ Ratings as Predictors of Success or Failture in Beginning Shorthand. Eastern Illinois University. 1965.

043. Chapman, David F. A Descriptive Analysis of the Acceptability of Alternative Methods of Financing Agriculture Expansion in Southern Illinois. Southern Illinois University. 1967.

044. Choice, Mathie Berniece. A Study of the Need for Teaching Reading Skills at the Secondary Level in Wheaton, Illinois and a Proposed Program using the Results of the Study. Northern Illinois University. January, 1965.

045. Clendenin, Melba Jean. Comparison of the Effect of Wear and Insect Damage on Mothproofed Fabrics. Southern Illinois University. 1965.

046. Collier, Warren and Gilbert, E. H. Work Orientation Program in High School District No. 214, A. Township High School. Mt. Prospect. RCU 00058-B7.

A project for under-achievers and potential drop-outs to involve special occupational orientation in regular subjects, a related class in occupational-technical curricula and remedial communication skill development, special counseling with students and parents, and vocational instruction in technical processes and manufacturing.

047. Corplan Associates. Survey of Information on Vocational and Technical Education in the State of Illinois. Technology Center. Chicago. Q-6024.

This survey funded by the RCU, identifies and gathers information helpful in planning and developing vocational and technical education in the state. The two major subobjectives are to identify present and emerging occupations and develop recommendations on how existing information gaps can be eliminated through subsequent research.

048. Corrall, Clara. Business Graduates of Chillicothe High School. Northern Illinois University. 1966.

A survey to identify and gather information helpful in planning and developing vocational and technical education in the state of Illinois.

049. Cote, Patricia. Visual Communications Program for Slow Learners-Potential Dropouts. Carl Sandburg High School. Orland Park. RCU 00066-A7.

A visual communication center involving business education, home economics, and industrial education in the broad context of the graphic arts for slow learners and potential dropouts.

050. Cozed, Darrell L. Employment Procedures Used by Business Firms in the Hiring of Beginning Stenographic and Clerical Office Personnel in the Alton-Wood River, Illinois Area. Southern Illinois University. 1966.

051. Crabtree, Kenneth L. A Study to Determine the Value of a Course in Beginning Bookkeeping as a Medium for Raising the Level or Proficiency in Arithmetical Computations. Southern Illinois University, Edwardsville. 1965.

052. Craig, John. Experimental Program in Cooperative Work Training. Chicago Public Schools. Chicago, Illinois. 00023-C7.

Continuing an occupational experience program for selected youth who have been identified as over-age under-achievers in elementary or high school and under-achievers in high school who have not been successful in conventional programs to provide in-school vocational classes or cooperative on-the-job experiences. Program is offered at Andersen Education and Vocational Guidance Center, Creiger Vocational H.S., Drake Education and Vocational Guidance Center, Flower Vocational H.S., King Education and Vocational Guidance Center, Magellen Education and Vocational Guidance Center, Phillips H.S., James A. Sexton Education and Vocational Guidance Center, and Waller H.S.

054. Crouse, Joyce. Testing the Effectiveness of a Home Economics Course in Family Welfare Services. Southern Illinois University. 1966.

To evaluate the improvement of family services to low income families by social workers after a job-related home economic course.

055. Cummings, John W. The Effect of Commercial Jet Aircraft upon Vocational Mechanical Training Schools. Illinois Teachers College-Chicago (South). Chicago. April, 1965.

Describes need for added technical vocational training.

060. Demos, Spinos G. A Survey of the Relationship of Creative Thinking Abilities, Factors of the Differential Aptitude Test and Students Achievement in Drafting. Illinois Teachers College-Chicago (South). Chicago. June, 1966.

061. Diekoff, Arnold Harry. High School Dropouts: Causes-Effects. Illinois Institute of Technology. Chicago. 1965.

062. Dillavou, George. The Life Cycle of an Adult Education Enterprise-The Swarthmore Chautauqua. University of Chicago. Chicago.

063. Disque, William R. The Manpower Development and Training Act and a Public School. Eastern Illinois University. 1965.

To expose school administration and the teacher to a new concept in vocational education.

064. Dobrovolny, Jerry S. Curriculum Development in Engineering Technology. University of Illinois. RCU 02-B6.

065. Dobrovolny, Jerry S. An Evaluation and Follow-up Study of Participants in Summer Institutes, 1961-1965. University of Illinois.

In progress.

066. Dobrovolny, Jerry S. Curriculum Development in Engineering Technology. University of Illinois.

A continued study to develop, revise, and implement a two-year, six quarter engineering technology program.

067. Dobrovolny, Jerry S. Digest of Education-Industry Conference on Manpower Training and Development for the Electrical Power Technology. University of Illinois. 1966.

068. Dobrovolny, Jerry S. Electronic Technology, Six-Quarter Program #3. University of Illinois. 1967.

A two year post-high school curriculum project.

069. Dobrovolny, Jerry S. Electronic Technology, Series #2. University of Illinois. 1964.

A suggested two year post-high school program and curriculum for electronics.

070. Dodson, Hoyt. The Effect of Homework in Guided Study on the Grades of Students. Southern Illinois University, Edwardsville.

071. Dudley, Ronald. The Effects of Class Size upon Typewriting Performance in a Beginning Course. Southern Illinois University, Edwardsville. 1965.

072. Duff, Grace. Alexander County Adult Education Experimental Counseling and Guidance Program for the Disadvantaged - Progress Report. Alexander County Public Schools. Cairo. RCU 00062-B7.

An adult guidance program for screening, testing, and counseling vocational school entrants combined with adult cooperative supervised work experience.

073. Dyer, Marylin Hulsey. Popular Concepts about Love: A Study of Ideas held by Selected Groups of Females. Southern Illinois University. 1967.

This study will be a survey of ideas held by the high school and university females tested. It will attempt to discover patterns of acceptance of selected ideas on love; and resulting confusion about them.

074. Eaglin, Bonnie Clinton. Relationship between Certain Personality Traits and Clothing Preferences. Southern Illinois University. 1967.

A group of eighty undergraduate female students were tested using the California Psychological Inventory and a clothing preference questionnaire to determine the relationship between the two testing instruments.

075. Ehresman, Norman D. and Phipps, Lloyd J. Instructional Materials Evaluation in Vocational Agriculture. University of Illinois. 1966.

A study of the effectiveness of a source unit on Agriculture Cooperatives.

076. Ehresman, Norman D. An Experimental Study to Evaluate the Effectiveness of Certain Structured Teaching Materials. University of Illinois. 1966.

077. Eirich, Wayne Melvin. A Survey of Mathematical Abilities and Knowledges Required of High School Business Graduates in Automated Data Processing. Southern Illinois University, Edwardsville.

078. Enwright, Marilyn House. Selection and Maintenance of Snythetic and Wool Carpets with Emphasis on Prevention of Insect Damage. Southern Illinois University. 1966.

The first part of the research consists of testing eight commonly marketed carpet samples by the standard method set up by the A.A.T.C.C.; the remainder of the study consists of a review of selected and maintenance of carpets facts after an exploration of information available.

079. Ernest, Barbara Ann. Investigation and Evaluation of Flameproofed Disposable Paper Dresses. Southern Illinois University. 1967.

Research in service wear and laboratory testing of flameproofed disposable paper dresses.

080. Ervin, Markes Floyd. A Status Study of the Building Trades Programs in the State of Illinois. Eastern Illinois University. 1966.

To ascertain the status of building trades programs in the state of Illinois by examining the populous and geographic locations of programs, qualification of the instructors, the number of students enrolled in the programs and curriculum offered in the program.

081. Evans, Rupert N. Seminars for the Training of Researchers in Vocational Education. University of Illinois. Contract No. OE-5-85-002.

082. Fealey, James F. An Assessment of the Interests of Educable Mentally Handicapped Children in Handicraft in the Chicago Public Schools. Illinois Teachers College-Chicago (South). Chicago. 1965.

083. Fines, Jerry. An Analysis and Comparison of Article II of the Uniform Commercial Code and the Uniform Sales Act. Eastern Illinois University. 1967.

084. Fink, George. Objectives and Instructional Content for a Pre-Vocational and Pre-Professional Course in Industrial Arts Electronics. Northern Illinois University. June, 1965.

085. Foss, Paul. A Pilot Program Designed to Identify and Provide Educational Plans for the Potential Drop-out in the Elementary Plans for the Potential Drop-out in the Elementary Schools of Benton Harbor, Michigan. Northern Illinois University. August, 1966.

086. Freund, Lucy Douglass. Psychological Changes Following Brief Educational-Vocational Counseling. University of Chicago. 1965.

087. Fuller, Gerald R. and Phipps, Lloyd J. Education Regarding Credit for Agricultural Production. University of Illinois. 1966.

Partial listing of references and teaching aids being used by Illinois teachers of agriculture.

088. Fuller, Gerald R. Technical Education in and for Rural Areas Study Preliminary Report #3. University of Illinois. May, 1965.

Agricultural supply curriculum. Post-secondary level.

089. Fults, Anna Carol. Workshop for the Preparation of Home Economics Teachers to Teach Wage Earning Programs in Food Service. Southern Illinois University. Contract No. OE-5-85-136.

090. Gady, Richard. Factors Affecting Bank Loans to Farmers in Southern Illinois. Southern Illinois University. 1966.

091. Gallagher, James. An Evaluation Model for Vocational Education Curriculum. University of Illinois.

In progress.

092. Gallington, Ralph O. Identification and Follow-up of Special Students of District No. 5, Alexander County, Illinois - Interim Report. Southern Illinois University. RCU 06-A5.

A study to determine if certain hypothetical remedial practices in vocational education retain potential high school drop-outs.

093. Gallington, Ralph O. Experimental and Demonstration Project - Vocational Education - An Interim Report. Southern Illinois University. RCU 6-B6.

A pilot work experience program for 16 year old and older. A comparison of those who "will have had" and those who "will not have had" work experience.

094. Gallington, Ralph O. Experimental and Demonstration Project - Vocational Education - A Second Interim Report. Southern Illinois University. RCU 6-C7.

A continued study on work experience and prospective dropouts.

095. Gallington, Ralph O. Evaluation and Report Writing on Pilot Supervised Job Training Programs - Robinson, Des Plaines, and Park Ridge High Schools, and Drake Vocational Guidance and Educational Center, Chicago, Illinois. Southern Illinois University. RCU 09-A5.

A study to evaluate objectives and goals of the Job Training Centers at Robinson, Des Plaines, Park Ridge, and the Drake Vocational Guidance and Education Center, Chicago and to make summaries, conclusions, and recommendations.

096. Gallington, Ralph O. High School Dropouts Fate-Future-Identification. Southern Illinois University.

097. Gass, Carolyn D. Selected Homemakers Knowledge and Practices when Laundering Permanent Press/Durable Press. Southern Illinois University. 1967.

Survey of homemakers in extension groups knowledge and practices when laundering permanent press/durable press items.

098. Gates, Donald Lee. An Instrument to Measure the Creative Ability of Interior Design Student. Southern Illinois University. 1967.

Experimental research using S.I.U. students.

099. Gibson, Winifred L. Effects of Music upon the Attitudes of Male Pupils as Applied to a Unit in Home Mechanics. Illinois Teachers College-Chicago (South). 1965.

100. Gillespie, Irene Katherine. Patterns in the Use of Time for Selected Physically Disabled and Non-Disabled Women Students at Southern Illinois University. Southern Illinois University. 1966.

Comparison of time management of selected physically disabled and non-disabled women students at S.I.U.

101. Goetsch, Patricia. Significance of Self Evaluation in Developing Creative Ability with Interior Design. Southern Illinois University. 1966.

A pre-test and a post-test of creativity will be used to determine the significance of self evaluation in developing creative ability in interior design.

102. Gooch, Billy. The Relationship between Reading Ability and Achievement within the Industrial Arts Areas of Drawing, Electricity, Metalworking, Woodworking. Illinois Teachers College-Chicago (South). 1965.

103. Graham, Robert J. A Survey to Determine the Future Technical Manpower Requirements of American Airlines in Chicago, Illinois. Illinois Teachers College-Chicago (South). December, 1966.

104. Graul, Ernest R. A Study of the Relationship of the Differential Aptitude and Metropolitan Tests to the Creative Factors of Originality, Adaptive Flexibility, Uniqueness and Quantity of Ideas, and Industrial Arts Wood Shop and Achievement. Illinois Teachers College-Chicago (South). 1965.

105. Gray, Bennett G. Measuring the Functional Level in Reading of Culturally Disadvantaged Students. University of Chicago. 1965.

106. Grede, John F. Development of the Public Service Program for Careers in the Public Agencies at all Levels of Government. Chicago City College. RCU 26-A7.

The development of a Public Service Program at the Loop Campus of the Chicago City College to prepare young people for careers in the public agencies at all levels of government.

107. Grizzard, Grace Williams. A Comparison of Business Education Curriculums in Illinois Community Colleges with those in Selected Community Colleges of California, Florida, New York, and Texas. Northern Illinois University. January, 1965.

The range of subjects offered in the Illinois schools is not unlike the curricula of schools in other states.

108. Grede, John F. Public Information to Assist in Recruitment for Occupational Programs. Chicago City College. RCU 28-A8.

The evaluation of an effort to make the opportunities for occupational education known to the general public through the media of mass communication.

109. Grubl, Beau G. A Follow-up Study of the Business Graduates of Lake Forest High School. Northern Illinois University.

A survey that has drawn conclusions in the following areas:
1. % of graduates in the business areas is decreasing.
2. Individual agressiveness is the most important factor when seeking employment.
3. In Lake Forest there is a noticeable weakness in the area of guidance and job placement.

110. Hadfield, Phyllis Arlene. An Exploratory Investigation of Homemaking-Interest and Intelligence of Secondary Students who Choose or Reject the Study of Homemaking. Southern Illinois University. 1966.

The development of a homemaking-interest rating scale and the testing of the relation to intelligence and the number of years of homemaking study.

111. Hall, Ruel. Feasibility Study for a Junior College in the Kankakee Area. Kankakee County Schools. Kankakee. RCU 15-A6.

A study to determine the vocational and technical education desires of parents and students, student capabilities in educational programs, and local industry needs for individuals having varying degrees of education, skills, and experience.

112. Hallam, Stephen Francis. An Analysis of the Educational Needs of the Bloomington-Normal Area in the Field of Data Processing. Northern Illinois University. 1965.

113. Hafer, William John. An Analysis of Business Education Teachers Vocational Responsibility of Guidance. Northern Illinois University. June, 1965.

114. Hansen, Robert E. A Follow-up Study of Masters Graduates and Withdrawals at Chicago Teachers College in Industrial and Vocational Education. Illinois Teachers College-Chicago (South). Chicago. December, 1965.

115. Hardwick, B. Diane. A Follow-up Study of the Rock Island High School Cadet Teaching Graduates from 1950-1960. Northern Illinois University. January, 1965.

116. Harper, Mary E. Vocational Aspirations of a Selected Group of High School Students. Southern Illinois University. 1965.

Survey of Junior and Senior girls in County.

117. Harris, Jo Ann. Computerization of Vocational Information for Guidance Use. Willowbrook High School. Villa Park. RCU 31-B7.

The adaptation of present computer technology to effectively present current vocational information.

118. Harshbarger, E. M. School Survey of Champaign, Ford, Douglas, and Piatt Counties for a Comprehensive Junior College. Champaign County Schools. Urbana. RCU 07-A5.

A survey to evaluate current programs and projected needs in vocational areas in the counties involved.

119. Hayes, Homer Miller III. An Examination of the Certification Requirements for Secondary School Teachers of Business Education in the United States. Northern Illinois University. August, 1965.

120. Hayes, Glenn. The Relationship of Socio-economic Status of Pupils to Their Comprehension of Reference Materials written at Different Levels of Readability. University of Illinois. 1966.

121. Heinkel, Roland J. An Investigational Study of the Period of Adolescence in Relationship to High School Drop-outs and Potential High School Drop-outs. Northern Illinois University. January, 1965.

122. Helgager, David B. and Kregor, Edward R. Learning Center Program - A Vocational Program for Slow Learners-Potential Dropouts, Progressive Report. Aurora East High School. Aurora. RCU 00018-B6.

Remedial instruction for slow learners (grades 10-11) for basic skills in a special learning center combined with a work experience within the school with a primary emphasis on reading and computation.

123. Hemp, Paul R. Vocational Horticulture Speciality Programs for Secondary Students. University of Illinois. RCU 32-A8.

A pilot program in landscape and grounds maintenance.

124. Hemp, Paul R. Teachers of Ornamental Horticulture in the Midwestern Section of the U. S. University of Illinois. October, 1966.

Twenty-four teachers agreed to field test certain laboratory exercises.

125. Hemp, Paul; Phipps, Lloyd J.; Warmbrod, Robert; Ehresman, Norman and McMillion, Martin. Illinois Agricultural Education Curriculum Research Project. Final Report. University of Illinois. June, 1966.

Pilot programs in agricultural education.

126. Hempstead, Jean Ellen. A Follow-up Study of the Business Education Graduates of OakLawn Community High School from 1960 through 1964. Northern Illinois University. August, 1966.

127. Henry, John Wesley. Genesis and Growth of Manual Arts Therapy in the Veterans Administration. Illinois Teachers College-Chicago (South). Chicago. 1965.

128. Herrmann, Dennis K. The Development of a Course of Study for In-shop Carpentry on a Pre-vocational Level for High School Students. Northern Illinois University. June, 1965.

The design of a course of study in carpentry to be taught entirely within the school woodworking shop.

129. Herschenson, David. Vocational Development Processes in the Adolescent as Personality Development. Illinois Institute of Technology. Chicago, Illinois.

In progress.

130. Herschenson, David. Counselor Attitude toward Work Goals of the Client. Illinois Institute of Technology. Chicago.

In progress.

131. Hill, Ellsworth J. Decision-making Model for the Advisement of Undergraduate Engineering Students. Southern Illinois University. 1967.

Optimization techniques, operations research.

132. Hill, Betty Jo. Developing the Home Experience Program as an Integral Part of the Curriculum. Southern Illinois University. 1966.

133. Hobart, Lois Hazzard. A Study of the 1960-1964 Business Education Graduates of Byron, Illinois High School with Implications for Improving the Business Curriculum. Northern Illinois University. August, 1965.

134. Horvatich, Walter. Work Experience Research Project - Summer 1965. Thornton Fractional High School. Calumet City. RCU 10-A5.

A study of occupational opportunities and student, parent, faculty, and employer needs as a guide for school program modifications for improved vocational preparation.

135. Howard, Thomas George. Three Methods to Identify the Underachiever and Causes of Underachievement. Northern Illinois University. June, 1967.

136. Hull, Howard P. Job Availability for the Work Study Program Involving Educable Mentally Handicapped Pupils in the Leyden High School Districts. Northern Illinois University. August, 1966.

137. Hunter, Wilma. Vocational Need Study of Saline, Gallatin, Hardin and Pope Counties. Southeastern Junior College. Harrisburg. RCU 12-A5.

A survey to obtain knowledge of employment opportunities and training needs of a four county area around Harrisburg, Illinois.

138. Jacabson, Martha Lucille. Guidelines for a Patient-Oriented Clothing Center in a State Mental Institution. Southern Illinois University. 1966.

139. Jacobsen, Eckardt A. A Survey of Technical Needs of Industry and Implications for Curriculum Development in Higher Education, 1966. Northern Illinois University. Cooperative Research Project No. S-298.

140. Johannsen, James Lee. A Comparison of Graduates and Dropouts from Mt. Morris High School. Northern Illinois University. August, 1966.

141. Johnson, Louise P. Planning a Food and Nutrition Unit for Homemaking Curriculum with Emphasis on Critical Thinking. Southern Illinois University. 1966.

142. Kabanec, Paul Lorry. A Study of Job Opportunities for Graduates and Non-graduates of Willowbrook High School in Thirty Industries within District 88. Northern Illinois University. June, 1965.

This study supports the contention that a high school diploma is necessary in securing a good job. Most positions open to non-graduates are of the low-paying part time variety.

143. Kaelin, Robert L. A Follow-up Study of the Diversified Occupations Graduates of the Elgin Public High Schools, 1961-1965. Northern Illinois University. August, 1966.

The results of this study conclude that graduates should have a broader mathematics background, and that industrial arts should be a required course.

144. Karnes, Lux. Junior Achievement Program. University of Illinois. February, 1965.

Proposal for establishment and evaluation of a junior-achievement type program which emphasizes service occupations rather than manufacturing.

145. Karp, Robert E. An Analysis of Aptitudes, Abilities, and High School Class Rank and their Relation to the Academic Success of First-Year Private Business School Students. Northern Illinois University. June, 1966.

Analyzed the aptitudes, abilities, and high school class rank of private business school students and studied the relationship between selected prognostic measures and academic success of first-year private business school students. Approximately 3/4 of the students in this study were enrolled in a non-business program in high school. Best indicator of success was high school rank.

146. Kenega, Robert and Others. Kishwaukee Community College Study. Kishwaukee Community College. Sycamore. RCU 14-A6.

Kankakee Junior College feasibility study.

147. Kennecke, Larry Jon. Instruction Unit on Printed Circuits for the Senior High School Electronics Laboratory. Northern Illinois University. June, 1965.

Contained the following: (1) Instructor's Technical Resource File, (2) Printed Circuit Board Servicing File, (3) Operation Sheets, and (4) Sources of Materials and Information.

148. Kilcullen, John Jr. A Comparative Study of Industrial Arts Students and Non-Industrial Arts Students at Maine Township High School West, Des Plaines, Illinois. Northern Illinois University. June, 1966.

In the school studied, the non-industrial arts student had a significantly higher mean intelligence quotient. Students in mechanical drawing and electricity ranked higher than students in other industrial arts areas.

149. King, David Lyle. Junior High School Students' Vocational Knowledge and Prestiges Rating of Occupational Choice as Compared to Intelligence and Affected by Vocational Information. Northern Illinois University. August, 1966.

150. Kirk, Albert S. Finishing Materials and Processes in Certain Selected Industries and How They Can Be Utilized in the High School Woodworking Laboratories. Northern Illinois University. August, 1966.

Examines new as well as standard materials and processes in the field of woodfinishing.

151. Koch, Edward Frank. Similarities and Differences in the Opinions of Business Teachers and Businessmen in Regard to the Effect of Automated Data Processing on Teaching Bookkeeping. Northern Illinois University. August, 1965.

152. Kozoman, Ronald Lee. Bookkeeping Objectives Currently Considered to be Most Important by Thirty Bookkeeping Instructors and Twelve School Counselors in Twenty Selected Schools in Northern Illinois. Northern Illinois University. June, 1965.

153. Kuetemeyer, Vincent. Programmed Instruction of Hand Manipulative Technique in Industrial Arts. Eastern Illinois University. 1967.

In progress.

154. Sulemkamp, Alice F. Smith. An Investigation to Determine the Need for Wage-Earning Programs in H. E. in Four Central Illinois Counties. Southern Illinois University. 1967.

155. Lacquet, Thomas L. A Study to Determine the Undergraduate College Preparation of Social Studies Instructors and Business Education Instructors for Teaching Economics at the High School Level in Illinois. Southern Illinois University, Edwardsville. 1966.

156. Langer, Pauline M. A Study of the Production Typing Process. Southern Illinois University, Edwardsville. 1966.

157. Learned, Carolyn Birchard. A Study of Kaneland High School District 302 to Determine the Feasibility of a Cooperative Work Experience Program in Home Economics. Northern Illinois University. August, 1966.

158. Lee, Charlotte Ann. A Study of Cooperative Office Education Programs in the State of Illinois to Determine the Nature and Extent to which such Programs Serve the Needs of Low Achievers. Northern Illinois University. August, 1966.

159. Lehmann, Herbert W. Formal Class and Workshop Methods in Adult High School Credit Programs. University of Chicago. 1965.

160. Lehto, Loraine M. A Study to Determine Employment Opportunities, Entry-Job Requirements, and Student Interest in Secretarial and Kindred Office Occupations, LaSalle-Peru, Illinois. Northern Illinois University. January, 1967.

161. Lewis, J. W. An Experimental Program in Vocational Education. Argo Community High School. Argo. RCU 00057-A6.

An occupational training program for low academic achievers and drop-outs based on the cooperative education technique with job placements in low skilled and service occupations. Related instruction will be provided and in-service staff consultations will be held among all teachers who are working with these particular learners.

162. Limper, Bernadine. In-School Secretarial Work Experience. Southern Illinois University, Edwardsville. 1965.

163. Lindholm, Charles. A Follow-up Study of Former Students of Richmond-Burton Community High School. Northern Illinois University. June, 1965.

164. Linn, Emma June. A Survey to Determine the Reasons for the Typewriting Failures in the AAA Secondary Public Schools of Missouri. Southern Illinois University, Edwardsville. 1965.

165. Loken, Mary. Experimental in Vocational Education. Board of Education. Springfield. RCU 00067-A7.

A summer school program to establish an experimental vocational experience and information enrichment program for handicapped students at junior high school level through inter-disciplinary approach involving basic and shop manipulative experiences.

167. Lund, Donald. Industrial Education Laboratory Eye Protection Programs in Compliance with Illinois Law. Northern Illinois University. January, 1967.

The purpose of this paper was to ascertain the degree of compliance with SB1190. The conclusions drawn include: (1) Teachers are aware of the law, but they feel a need for some clarification, (2) 50% of the programs do not comply with the law, and (3) Eye protection programs do not meet the requirements of santizing eye protection equipment.

168. Lynn, Frank. Training and Skill Requirements of Machinery Maintenance Personnel. Midwest Institute for Education, Research and Training and INTEC. Chicago.

169. Mades, R. B. Feasibility Study to Determine the Need and Justification for Establishing an Area Vocational High School in Kane County. Kane County Public Schools. Geneva. RCU 27-A7.

Establishes the need for an area vocational school emphasizing the need for extensive vocational education.

170. Malone, Gordon Jo. A Follow-up Study of the 1960-1962 Notehand Graduates of Niles Township High School, East Skokie, Illinois. Northern Illinois University. June, 1965.

171. Mangrum, Jane D. Initial Employment Requirements in Selected Businesses that Employ McHenry High School Business Graduates as Secretarial and Clerical Workers. Northern Illinois University. August, 1966.

172. Mann, Patsy Pence. A Study to Determine Tests Used by Selected Business Firms in the St. Louis Area to Evaluate Applicants for Stenographic and Clerical Positions. Southern Illinois University, Edwardsville. 1966.

173. Marshall, Robert T. An Interview of 'Ajudged' Juvenile Delinquents to Obtain Guidance Implications. Northern Illinois University. January, 1967.

174. Martin, Oliver M. Correlated Industrial Arts for the Primary Educable Mentally Retarded. Northern Illinois University. May, 1966.

Study stresses effective communication between the industrial arts teacher and the classroom teacher.

175. Matthew, Charles V. A Curriculum Demonstration for Dropout-Prone Students. Southern Illinois University, Edwardsville.

176. McMillion, Laverne. Integrated Program - Business Education and Industrial Education with Occupational Orientation. Glenbrook South High School. Glenview. RCU 00064-B7.

A co-educational, occupationally oriented program for underachievers and potential dropouts through a cooperative effort by the business education and industrial education departments emphasizing basic skills in occupations related to the graphic arts.

177. McMillion, Martin B. and Phipps, Lloyd J. Semantic Differential Analysis of Teacher and Youth Communication in Vocational Agriculture. University of Illinois. 1967.

178. McMillion, Martin B. A Study in Communication between High School Teachers of Vocational Agriculture and Socio-Economically Disadvantaged Youth by the Use of Semantic Differential. University of Illinois. August, 1966.

179. Mellon, E. G. and Patton, Duane. Program for Wage Earning Classes. Champaign Senior High School. Champaign, Illinois. RCU 00059-B7.

An over-all program combining various vocational subject areas using a teax

180. Menno, Deleberto. Evaluation Short-Term Teacher Updating Programs in Vocational and Technical Education. University of Illinois.

In progress.

181. Meske, Arthur M. A Study of Employer Attitudes in Regard to the Employability and Compensation of Mentally Ill Workers. Northern Illinois University. July, 1965.

This study shows the need for further research into the vocational rehabilitation of mentally ill workers.

182. Metcalf, Marilyn Joan. A Survey to Determine the Status of Professional Growth Policies and Requirements in Forty-two Selected High Schools in the State of Illinois. Eastern Illinois University. 1967.

To determine the current recommendations and requirements regarding professional growth of high school teachers in the superior high schools in the State of Illinois.

183. Michael, Lloyd and Bobkiewicz, W. F. Participation Occupational Experience Program (P.O.E.). Evanston Township High School. Evanston. RCU 00055-B7.

A cooperative program identified as "participating occupational experience" for slow learners and low ability students including an extended related class under the direction of a two-teacher team. Television video tapes will be prepared locally to augment instruction.

184. Morton, Velma and Panzer, Charles. Getting the Teenager Ready for the World of Work. Illinois Teacher's College-Chicago (North). Chicago. August, 1966.

185. Muhich, Dolores Rose. Keystroking vs. Decision-Making Factors in Office Typewriting Tasks. Southern Illinois University. 1966.

An experimental analysis of office typewriting task when performed under three different work conditions.

186. Murphy, Christy. Technician Need Study, Vermilion County, Illinois. University of Illinois. May, 1964.

A study to determine the need of curriculum development for technicians in Vermilian County.

187. Murry, Elmer and Dodd, Byron. Experimental Project. Anna-Jonesboro H.S. Anna. RCU 00061-A6.

Special in-school vocational orientation and job related instruction with selective on-the-job experiences through a combination of work study and other placements at the school and in the community.

188. Murphy, Christy. Engineering Technician Need Study - Lake County. University of Illinois. RCU 01-C7.

A continued study of technician needs, basic economic factors, and educational implications in Lake County, Illinois.

189. Nagle, Edward John. Industrial Designers in Small Manufacturing Firms. Southern Illinois University. 1967.

The possibilities for employment, 350-500 employees.

190. Neathery, Rosemary. A Survey of Business Firms in Highland, Illinois, to Determine the Instruction Needed in the Office Machines Course in the High School. Southern Illinois University, Edwardsville. 1966.

191. Nichols, E. C. Marengo Experimental Vocational Program. Marengo Community High School. Marengo. RCU 00052-A6.

A program designed to encourage low ability students to complete high school utilizing a basic learnings core and a sheltered work shop for preparatory training leading to employment in semi-skilled or single skilled areas.

192. Severinsen, K. Norman. Vocational-Educational Information Workshop for Rural Guidance Workers. Western Illinois University.

193. O'Bryant, David C. Report on Summer Training Program for H. S. Drafting Teachers. 1965.

194. Ohlsen, Merle and Boney, J. Don. An Evaluation of a Counselor Education Program Designed for Prospective Elementary School Counselors Enrolled in 1965-66 NDEA Institute. University of Illinois.

195. Oldham, Mary Jo. Developing a Wage-Earning Program on the Jr. College Level. Southern Illinois University. 1966.

Experimental Curriculum.

196. Palta. Contribution of H.E. in Peace Corps Program. Southern Illinois University. 1966.

197. Paulson, Blanch. Demonstration Project on Occupational Information in Selected Work Areas in Metropolitan Chicago for Use in Guidance and Counseling. Chicago Public Schools. Chicago. RCU 13-A6.

A project to update and coordinate available information about careers, to stimulate industrial cooperation, and to develop materials for group guidance and counselor in-service training.

198. Payne, Judith. Home Economics in Gainful Employment - Strengths and Limitations of Teachers. Southern Illinois University. 1966.

199. Perlberg, Ayre. National Conference on Votec Teacher Education. University of Illinois. 1967.

200. Perdiue, Mary Jane. Reasons for Participation of a Select Group of Low-Income Women in Sewing Classes. Southern Illinois University. 1967.

To discover reasons for attending or not attending offered classes in sewing by interview method.

201. Phelps, Edmund. Follow-up Study of Collinsville High School Students, Classes 1959-1963. University of Illinois. RCU 05-A5.

A study to see if the vocational program meets the occupational needs of Collinsville graduates.

202. Phipps, Lloyd J.; Fuller, Gerald R.; and Russell, Earl B. Education Regarding Credit for Agricultural Production. Report #2. University of Illinois. May, 1967.

Survey of Teachers of Agriculture.

203. Phipps, Lloyd J. Education Regarding Cooperative Organization in Rural Areas. University of Illinois. October, 1965.

Development of human resources of youth through a vocationally oriented Education Program for disadvantaged families in depressed rural areas.

204. Phipps, Lloyd J.; Hemp, Paul; Warmbrod, Robert; and Fuller, Gerald. Illinois Agricultural Education Curriculum Research Project. Interim Report. University of Illinois. June, 1965.

Pilot programs in agricultural education.

205. Phipps, Lloyd J. Pilot Programs in Agricultural Education. University of Illinois. RCU 03-B5.

Continued research and evaluation of pilot programs to determine objective and subjective results and make recommendations to other schools.

206. Phipps, Lloyd and Fuller, Gerald. R.E.D.Y. University of Illinois. February, 1966.

207. Phipps, Lloyd J. A Study in Communication between High School Teachers of Vocational Agriculture and Socio-Economically Disadvantaged Youth by the Use of the Semantic Differential. University of Illinois. Urbana.

208. Phipps, Lloyd J.; Krebs, Alfred H.; Hemp, Paul; Warmbrod, Robert; and Fuller, Gerald. Technical Education in and for Rural Jobs requiring Knowledge and Skill in Agricultural Subjects. University of Illinois. 1965.

209. Piggush, Janice Gould. A Follow-up Study of the Business Education Graduates of Homewood-Flossmoor High School from 1960 through 1964. Northern Illinois University. July, 1965.

The purpose of the study was to determine the effectiveness of Business Education courses offered at Homewood-Flossmoor High School and to determine: (1) Vocational-use values of the business courses taken by graduates. (2) Personal-use values. (3) If the present curriculum meets the specific needs.

210. Pöhlhammer, Donald William. An Inquiry into the Learning Ability Level of the Industrial Arts Students of Thornton Township High School of Harvey, Illinois. Illinois Teachers College-Chicago (South). Chicago. December, 1966.

211. Quigley, Bernard Francis. Evaluation of Behaviour Change of Students since their Enrollment in a Newly Developed Vocational Guidance and Education Program. Illinois Teachers College-Chicago (South). Chicago. September, 1965.

212. Reid, Alban E. Black Hawk College Occupational Survey. Black Hawk College. Moline. RCU 29-A7.

A survey of an occupational needs to provide an opportunity for additional education at a reasonable cost for all citizens residing within the area served by Black Hawk College.

213. Reynolds, William E. Vocational Aerospace Studies Program. Dupo Community High School. Dupo. RCU 00072-A7.

Explore feasibility of offering aerospace instruction for girls and boys at high school level to fill jobs in this field.

214. Rhea, Joseph. Overview and Analysis of Factors Contributing to Present and Future Health Manpower Needs. Health Careers Council of Illinois. Chicago. RCU 24-A7.

A survey to determine the demands on vocational education in the field of health occupations.

215. Rhodes, Opal T. Adjustments in Living High School Graduates Face when Accepting Business Positions away from their Parental Homes. Southern Illinois University. RCU 30-A7.

High school graduates accepting positions away from their parental homes face many problems that might require decisions and adjustments. Recommendations for prevocational and vocational high school curriculum in the area of home living will be based on the findings.

216. Richardson, Gail and Seitsinger, Paul. Vocational Administrative Unit. Community Unit School District No. 1. Charleston. RCU 00073-A8.

A vocational administrative unit to provide an organized attack on the problems encountered by schools of this area in their efforts to provide quality vocational education programs. (In progress.)

217. Richerdson, Joy W. The Feasibility of a Colball Computer for I.B.M. 1620 Data Processing System. Northern Illinois University. 1965.

218. Robertson, John. Urbana Experimental Vocational Program. Urbana High School. Urbana. RCU 00070-A7.

An extension and follow-up of the Urbana J.H.S. project with similar objectives and to channel students into conventional vocational, and occupational oriented classes, as possible with special emphasis on inter-disciplinary curriculum.

219. Rull, Marvin H. Work Experience Program for Dropout-Prone Students. Quincy Public Schools. Quincy.

A summer work experience program for dropout-prone students that offers the possibility of eventual vocational training in some jobs commensurate with the ability of the student.

220. Ryan, Frank Joseph. A Description of Six Work-Study Programs used as a Curriculum Improvement for the Slow Learner. Northern Illinois University. August, 1965.

221. Sallberge, Glenn R. An Evaluative Study of the Part-Time Cooperative Programs in Diversified Occupations at Sycamore, Illinois High School during the period 1953 through 1963. Northern Illinois University. June, 1965.

222. Schill, William J. National Seminars for Research in Vocational Education-1965. University of Illinois.

223. Schill, William J. Career Patterns and Education Requirements of Future Consumer Technologies as Manifest by Current Aerospace Technicians. University of Illinois.

To survey the training sources at aerospace installations in order to develop a Q-sort instrument which reflects the kinds of knowledge that technicians in aerospace endeavors would apply.

224. Schill, William J. Concurrent Work-Education Research. University of Illinois.

225. Schill, William J. Programmed Occupational Information with Voluntary Access. University of Illinois. 1965.

Computer assistance in vocational guidance.

226. Schill, William J. Study of the Efficacy of Using Automated Instruction Devices in Teacher Training. University of Illinois. RCU 04-A5.

A study to evaluate the use of teaching machines in teacher training and an evaluation of results.

227. Schill, William J. Work Study Programs; Conduct and Consequences. University of Illinois. 1966.

A nationwide assessment of work study programs.

228. Schroeder, Carl H. Important Factors in the Choice of a Trade as Described by First Year Trade Apprentices in the State of Illinois. Northern Illinois University. June, 1967.

229. Selvidge, Lewis R. Jr. Selection of Area Vocational-Technical Education School Sites. University of Illinois.

In progress.

230. Semple, Robert J. A Comparison of Achievement in Business Law with Selected Test Scores at the Riverview Gardens High School. Southern Illinois University, Edwardsville. 1965.

231. Serup, Donald K. Program to Reach and Motivate Potential Dropouts. Peoria Public Schools. Peoria. RCU 00069-A7.

A program designed to reach and motivate under-privileged boys who are potential drop-outs, and potential delinquents by attempting to capitalize on the interest in automobiles, and other mobile equipment, involving operation and service.

232. Sievert, Norman W. The Relationship between a Student's Rank in Class and Probable High School Success. Southern Illinois University. 1967.

233. Simpson, Elizabeth. Classification of Educational Objectives, Psychmotor-Domain. University of Illinois. January, 1967.

Motor abilities and skills evaluation with greater precision.

234. Simpson, Elizabeth. Development of Curriculum Guides for Integrated Program of Home Economics at the Secondary Level: Homeamking and Family Life Education, Employment Education, and Preprofessional Education Aspects. University of Illinois. RCU 25-A7.

The curriculum materials to be developed provide for a coordinated home economics program, and for the use of practitioners in the home economics related fields as consultants.

235. Simpson, Elizabeth. Development of Curriculum Guides. University of Illinois. September, 1967.

Development of curriculum guides for integrated programs of home economics at the secondary level, homemaking and family life ed., employment ed., and preprofessional education aspects.

236. Simpson, Elizabeth. Development of Curriculum Guides for Integrated Programs of Home Economics at the Secondary Level. University of Illinois. June, 1967.

Principles for comprehensive curricula in home economics education that can be oriented specifically to training for gainful employment.

237. Simpson, Elizabeth. Development of Taxonomy of Ed. Objectives, Psychomotor-Domain. University of Illinois. October, 1965.

238. Simpson, Elizabeth. For Employed and Potential Home Economics Teachers in Post-High School Programs. University of Illinois. August, 1967.

In response to the pressing need for preparing teachers for rapidly developing programs at the post-high school level.

239. Simpson, Elizabeth and Broome, Julia R. Grocers Manufacturers Association. University of Illinois. 1967.

A study of college food curricula.

240. Simpson, Elizabeth. Pillsbury Project. University of Illinois. September, 1966.

A curricular requirement for those going into home economics in business.

241. Sinee, Diregvathanachai. A Comparative Study of Teaching Methods of Accountancy in Illinois State University and other Universities. Northern Illinois University. 1966.

242. Sorenson, Frank. A Demonstration Training Program for Potential School Dropouts. Quincy Youth Development Commission. Quincy.

243. Spencer, James Sigel. Criteria for the Establishment and Operation of a Statewide System of Comprehensive Regional Junior Colleges. University of Illinois. 1966.

244. Spencer, James Sigel. A Summary of Provisions of Recent Federal Legislation Relating to Education. University of Illinois. January, 1965.

245. Spitze, Hazel. Development of a Curriculum Guide for Functionally Illiterate Adults - - Ed. University of Illinois. November, 1967.

Study literature in pertinent specialized areas to identify basic concepts and relationships to be taught, and prepare curriculum guide.

246. Springmire, Leslie. A Study to Determine the Applicability of the Shell Mold Casting Process in the High School Industrial Arts Program. Northern Illinois University. June, 1965.

The conclusions drawn by this paper are that the equipment needed for shell mold casting can be built by the teacher and the process is easily adapted to students of ranging ability.

247. Spencer, Allan. A Survey of Representative Industries of Coles County with Special Emphasis on the Accumulation of Public Relations Information. Eastern Illinois University. 1965.

This study attempted to give the reader an over-all picture of the availability of speakers located in industry of Coles County.

248. Stark, Robert. Hanover Experimental Vocational Education Program. Hanover Community Unit Schools. Hanover. RCU 00074-A7.

The development of a program designed to provide an effective secondary vocational education program for students in a high school of 152 students.

249. Stitzel, D. E. A Feasibility Study of Junior College Needs in DeKalb County and Neighboring Areas. DeKalb County Schools. DeKalb.

A study to determine the feasibility of establishing a junior college for DeKalb County and surrounding areas and vocational education and occupational needs in the area.

250. Stern, Jacob. Research Project (Ohio State). University of Illinois. July, 1965.

Industrial Arts Curriculum.

251. Stetter, Karl O. A Description of School District - Park District Cooperative Programs in Lombard, Illinois. Northern Illinois University. June, 1965.

252. Stoker, Robert L. Cost Analysis Methods for a Public School Textbook Department. Northern Illinois University. 1963.

253. Suzuki, Warren. Conceptions of Selected Health Occupation by Practical Nursing Students. University of Illinois.

In progress.

254. Swope, Mary Ruth. Facts about Home Economics Personnel in Higher Education, a National Survey. Eastern Illinois University. 1967.

In progress.

255. Taylor, David P. The Market for Unskilled Negro Males in Chicago. University of Chicago. 1966.

256. Terwilligen, John Elmer. An Investigation of Certain Characteristics Associated with Advisory Committees of Lay Citizens in Selected Local School Districts in Illinois. University of Illinois. 1966.

257. Tichenor, H. Duane. The Preparation and Utilization of Manufacturing Technicians in Illinois. University of Illinois. 1966.

The purpose of this investigation was to identify and describe general characteristics of the occupational group of technicians employed in large industry in 1963-1964. The aim was to provide a description of this unique group of workers in order that vocational and technical education programs can more adequately prepare youth for this vital segment of the work force.

258. Tomlinson, Robert. Instructional Media. University of Illinois. February, 1965.

The primary advantages to be gained from such a division.

259. Tomlinson, Robert, and Schill, William. Practical Nurse Study - An Integrated Longitudinal Study of Practical Nursing. University of Illinois. October, 1967.

A study to collect and synthesize information necessary for the development of recruiting procedures, programs, curriculum innovations and improvements necessary for providing the quantity and quality of personnel necessary in practical nursing.

260. Tomlinson, Robert M. Study of the Developments, Trends, and Current Status of Practical Nursing in Illinois. University of Illinois. RCU 18-A6.

262. Trueblood, Robert. Use of Audio-Visual Devices for Teaching Drafting. Eastern Illinois University. 1967.

In progress.

263. Trump, Judith E. A Study of the Effectiveness of Selected Drill Techniques in the Improvement of Transcription Skills. Southern Illinois University, Edwardsville. 1965.

264. Ullery, Jesse Wm. Student Characteristics: Selected States from a National Study of Concurrent-Work Education. University of Illinois.

In progress.

265. Waechter, Innez K. Wage Earning Training in the Anna Jonesboro Community H.S. with Implications for H. E. Related Jobs. Southern Illinois University. 1967.

A survey to determine the interest and need for a [illegible]-earning program.

266. Wales, Hugh C. A Research and Development Program for Training in Micro-Precision Skills. University of Illinois. Urbana.

267. Walker, Robert. Land Lab. Center for Slow Learners. University of Illinois. July, 1967.

To enrich the basic scholastic skills of slow learners and underachievers through vocational centered laboratory learning.

268. Warmbrod, J. Robert. Development of World of Work Instructional Programs. University of Illinois. RCU 08-C7.

A study occupational knowledge of youth, the effect of occupational instructional programs, and an evaluation of a pilot instructional center.

269. Warmbrod, J. Robert. Technical Education in and for Rural Areas. Report #2. University of Illinois. 1966.

Manpower needs and employment opportunities for workers needing knowledge and skill in agriculture.

270. Warmbrod, J. Robert. Vocational and Technical Education Summer Training Program in Agriculture. University of Illinois. March, 1967.

To develop the technical and professional competencies of teachers of agriculture and to provide curriculum materials and instructional aids.

271. Warren, Janelle H. An Experimental Study at Central High School, St. Louis Missouri, to Determine Some Positive Steps that can be Taken to Make General Business More Useful and Interesting. Southern Illinois University-Edwardsville. 1965.

272. Watts, Jack. Vocational and Guidance Information through Television. Sterling High School. Sterling. RCU 00070-B7.

Vocational guidance and occupational information to students via television; closed circuit and video tape, within the school and district (hope to expand on an area basis) for aiding in job choices and for recruitment into vocational classes.

273. Wessels, Philip Leory. Factors Influencing Enrollment in Industrial Education in the Rockford Public High Schools. Northern Illinois University. January, 1965.

Some of the factors having an influence on the enrollment in Industrial Education are: (1) Inadequate vocational guidance in Jr. High. (2) Status of Industrial Education courses. (3) Large proportions of the students are enrolling in college preparatory courses. (4) Lower ability students tend to elect Industrial Education classes.

274. Wharton, Lyndon B. Disaffection, Aleination, and Maladjustment of a Self-Identified Group in a Suburban Secondary School. Northern Illinois University. June, 1965.

275. Whiteford, Emma B. Home Economics Teachers, Educators and Supervisors in Post-High School Programs in Home Economics in the U. S. University of Illinois. February, 1967.

Prepare instructional materials, learning aids, curriculum for 13 and 14 grade levels in technical and post-high school instruction:

276. Whitmarsh, Ruth E. An Exploratory Study of Knowledges on Child Development and Guidance Needed by Mothers and Workers in Occupations Related to Child Care. University of Illinois. Urbana.

A study of the need for guidance of working mothers in child care.

277. Wilson, James. Reduction of Employment Turnover in Industry through Analysis of Characteristics of Unstable Employees. Northern Illinois University. 1967.

278. Windhorst, Lavere. Identification and Follow-up of Special Students of District No. 5-Alexander County, Illinois - Interim Report. Egyptian Community Unit. Olive Branch, Illinois. RCU 00016-C7.

Continuing a cooperative vocational education program for slow learners and school drop-outs in a rural, socio-economic depressed area of racially mixed population.

279. Wolfe, Rolland Carl. The Industrial Education Needs of the Maine West High School Student who is a Potential Dropout. Northern Illinois University. August, 1965.

Some of the conclusions drawn in this study include: (1) Few teachers would entirely isolate the potential dropout. (2) Small homogeneous classes would help. (3) Many teachers thought that English, Math, and Social Science should be taught by Industrial Education instructors in the Industrial Education classrooms. (4) Work-school programs are good. (5) New and diverse methods of creating interest in occupations and means of providing occupational guidance should be employed by Industrial Education teachers.

280. Wood, Eugene S. Evaluation of Illinois Post-High School Educational Programs in Agriculture. University of Illinois. RCU 17-B7.

An evaluative study of five existing post-high school programs in agriculture education in an effort to arrive at recommendations to strengthen present programs and provide guidelines for future programs.

281. Woodward, Wm. R. Feasibility Study for a Public Junior College in Central Illinois. Macon County Schools. Decatur. RCU 11-A5.

A survey to determine vocational and technical education needs for the proposed Macon County and surrounding area Jr. College.

282. Yackley, Thomas J. A Follow-up Study of Naperville Community High School Graduates to Determine the Uses Made of Business Courses and Their Implications for Curriculum Revision. Northern Illinois University. June, 1965.

283. Yonke, Joyce Marie. A Study of the Bookkeeping Occupations in Joliet, Illinois. Northern Illinois University. June, 1965.

A survey to gather information about job titles, educational requirements, personal traits, duties, and the extent to which machines are being used to do bookkeeping.

284. Zachwieja, Albert C. The Die Casting Process and Its Application to Industrial Arts. Northern Illinois University. July, 1966.

This study concludes that it is possible to safely perform cold chamber die casting in the industrial arts laboratory.

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Additional copies of this publication may be requested from the Research Coordinating Unit, State Board of Vocational Education and Rehabilitation by writing or telephoning the following offices:

405 Centennial Building
Springfield, Illinois 62706
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Room 1807—160 N. LaSalle Street
Chicago, Illinois 60601
Phone . . . Area 312—346-2000
Ext. 2338

VT 004 661
Price, Joel; Barnes, Bill
Quarterly Progress Report of the Research Coordinating Unit in New Mexico, June 1, 1967-August 31, 1967.

New Mexico Occupational Research and Development Coordinating Unit, Santa Fe
MF AVAILABLE IN VT-ERIC SET. OEG-4-7-063028-1591
Pub Date - 67 19p.

*RESEARCH COORDINATING UNITS; *EDUCATIONAL RESEARCH; *PROGRAM DESCRIPTIONS; *STATE PROGRAMS; *VOCATIONAL EDUCATION; RESEARCH PROJECTS
NEW MEXICO

The major project of the Unit during the quarter was a Statewide Vocational Manpower Needs Survey. This survey, due to be completed in 1967, will process about 35,000 questionnaires from businesses listed in the telephone directories in the state. Other research projects funded during this period were (1) The Vocational Core Followup Project with Hobbs Municipal Schools, (2) a followup project by the vocational counselor of Northern New Mexico State School, (3) a survey of female vocational-technical education students in cooperation with Eastern New Mexico University, and (4) a survey by the assistant director of the Unit to establish and compare the priority of activities of vocational-agriculture teachers in the state. The Unit has established a library of ERIC documents on microfiche, and equipment includes three readers, one reader printer, and a fiche to fiche reproducer. The appendix contains "Research Activities of the Research Coordinating Unit," published quarterly, which includes descriptions of 10 completed projects, 11 projects underway, 2 proposed projects, 5 publications, and a list of available project summaries. (MM)

VT 004661

ED027441

QUARTERLY PROGRESS REPORT

OF THE

RESEARCH COORDINATING UNIT

IN

NEW MEXICO

Dr. Joel Price, Director
Bill Barnes, Assistant Director

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Period

June 1, 1967 - August 31, 1967

Published by: Research Coordinating Unit
State Department of Education
Capitol Building
Santa Fe, New Mexico 87501

VT004661

FOREWORD

This is the second quarterly report prepared and submitted by the Research Coordinating Unit in New Mexico under the continuing Grant Number OEG 4-7-063028-1591 Project Number 6-3028.

Information included herein pertains to the varied activities of the Research Coordinating Unit in New Mexico. Information as to projects funded, pending and completed, upcoming projects, publications, and activities of the personnel are included in this report.

QUARTERLY REPORT

At the close of this reporting period the New Mexico Research Coordinating Unit, hereafter referred to as the Unit, is engaged in one project that will grow in significance as related to the time and effort of the staff.

Statewide Vocational Manpower Needs Survey

This project, the Statewide Vocational Manpower Needs Survey, has consumed most of the time of the professional staff of the Unit for the past two months. The Unit staff has contacted over forty superintendents in the past three months for the purpose of seeking support and cooperation for the survey. Also, the Unit's professional staff has met and worked with Chambers of Commerce, industrial corporations and various civic organizations for the purpose of coordinating this survey.

This survey, due to begin on October 2, 1967, has necessitated a great amount of coordination because of the short amount of time designed for the survey period. The Unit has been engaged in designing and reproducing questionnaires, introductory letters, coordinators meetings agenda and various other papers for this survey.

Six meetings with local coordinators of this project were conducted in various areas of the state this past month.

The Research Coordinating Unit's secretarial staff is in the process of going through a training manual for the Dictionary of Occupational Titles for the purpose of becoming familiar enough with D.O.T. numbers to be able to code the survey forms as they come into the Unit's office.

This survey, due to be completed in 1967, will necessitate processing approximately 35,000 questionnaires from various businesses listed in the yellow pages of the telephone directories in New Mexico. This one project is estimated to utilize 75 per cent of the time of the professional staff of the Unit for the next quarter.

RESEARCH PROJECTS

Four Research projects have been funded during this reporting period. The Vocational Core Follow-up Project is currently underway with the Hobbs Municipal Schools. A second follow-up project is nearing completion; this survey was conducted by the Vocational Counselor of Northern New Mexico State School in El Rito, New Mexico.

A survey of female Vocational-Technical Education students has been funded by the Unit in cooperation with Eastern New Mexico University. Also, the Assistant Director of the Unit, Mr. Bill Barnes, is conducting a survey to establish and compare the priority of activities of Vocational-Agriculture teachers in New Mexico.

Three other projects were evaluated by the Unit's Project Evaluation Committee and were rejected for funding.

ERIC LIBRARY

The Unit, in cooperation with the Research Division of the State Department of Education, has established a library of ERIC documents on microfiche. This library has a standing order for all microfiche produced by the ERIC System. Equipment for this library includes three readers, one reader printer, and a fiche to fiche reproducer. This library will

be able to provide any ERIC document on fiche or hard copy to interested people in New Mexico. A request for general information or specific microfiche will be answered by the Unit.

The Unit has added a Stenographer I to operate this equipment along with her duties as receptionist.

MEETINGS ATTENDED BY STAFF

In July Mr. Bill Barnes, the Assistant Director, attended the first nationwide two-week institute for Vocational-Technical Education public information people in Atlanta, Georgia. The purposes of this institute were to:

1. Develop specific skills of the basic principles of communication similar to those used by the private sector of the economy to sell their products.
2. Develop an understanding of how vocational educators can more effectively work with the public news media in bridging communication gaps.
3. Develop materials for packages and kits that actually can be used by participants to bridge communication gaps in critical areas of Vocational Education.

Various topics covered in this institute included basic and general communications which included writing, oral communication, basic skills in developing brochures, pamphlets, booklets and manuals, and the area of advertising for Vocational-Technical Education. Also included as topics in this institute were working with newspapers, large and small; working with suburban newspapers; working with radio stations, television

and press associations.

Also in this reporting period, Mr. Gene Schrader, the Director of the Research Coordinating Unit, presented a paper to a teachers' conference on Research in Wyoming. This conference brought together approximately thirty teachers from the state of Wyoming to work on specific Research problems particular to their state.

In addition, the Unit's staff has visited each Vocational Research project underway in New Mexico.

STAFF

Various staff changes have occurred in this reporting period. Mr. Gene Schrader, the Director, has resigned Mr. Schrader has assumed the directorship of the Research Coordinating Unit in Wyoming starting September 5.

Dr. Joel Price, the new Director of the Unit, will start sometime in September. Dr. Price is a recent graduate of Colorado State College at Greeley, Colorado. Dr. Price has served as Superintendent of the Aztec Public Schools in New Mexico and while working on his doctorate, Dr. Price worked on various educational research projects for Colorado State College.

A position of secretary to the assistant director was created and filled. At the time of this report the position of secretary to the Director is vacant.

APPENDIX

RESEARCH ACTIVITIES
OF THE
RESEARCH COORDINATING UNIT

Vocational Education Division

State Department of Education

JUNE 1, 1967 - AUGUST 31, 1967

INTRODUCTION

This publication is revised quarterly as an integral part of the New Mexico Research Coordinating Unit's quarterly report to the United States Office of Education.

Information concerning the projects and publications contained herein is not meant to be complete. It is provided to give an idea and a brief description of the projects and publications in which the Research Coordinating Unit is or has been participating.

Questions concerning any publication or projects should be directed to the Research Coordinating Unit. Copies of the publications listed are available in limited quantities.

Revised Quarterly

by the

Research Coordinating Unit

Dr. Joel Price, Director

Bill Barnes, Assistant Director

State Department of Education
Capitol Building
Santa Fe, New Mexico

COMPLETED PROJECTS

State Vocational Survey 1966

A statewide occupational survey, completed in May, 1966, was conducted by Drs. D. S. Willey and J. D. McComas from New Mexico State University. This survey interviewed more than 11,000 firms in thirty-two different population centers in New Mexico. The survey indicated present and prospective needs exceeded 68,000 people in the various occupations. The budget of $63,000 was from state and federal funds (Vocational Act of 1963). Results of this study may be obtained from the Research Coordinating Unit. The Research Coordinating Unit has disseminated the results of this study to the various population centers throughout the state who participated in the survey.

Locating Area Vocational Schools

A proposal entitled "A Proposed Model and Criteria for Establishing Area Vocational-Technical Schools in New Mexico" has been completed by Dr. John E. Uxer, Instructor in the Department of Education, New Mexico State University. This project was funded through the Research Coordinating Unit, Title V of the Elementary and Secondary Education Act of 1965, and New Mexico State University with a budget of $11,166.

The purpose of the study was to examine pertinent factors relating to the establishment of Vocational and Technical Programs and to develop a model with appropriate variables for locating and establishing area vocational schools in New Mexico. Copies of the study are available from the Research Coordinating Unit.

Roswell Air Force Base Survey

A survey to determine the feasibility of development and use of the facilities and equipment of Walker Air Force Base for Vocational-Technical Programs has been completed with Eastern New Mexico University, the contracting agency. The survey was initiated after the Air Force announced plans to abandon the base.

The Research Coordinating Unit funded this project with a budget of $5,293.79. The purpose of the study was to survey program needs, determine the feasibility of establishing programs, survey the facilities, project the cost of these programs and investigate resources available at the Roswell Air Force Base and the surrounding area.

In March, 1967, the Legislature passed an appropriation of $390,000 for the establishment of a Technical-Vocational School at Walker Air Force Base.

Agricultural Technology Opportunity Study

"Employment Opportunities in Applied Horticulture and Agricultural Machinery" is the title of a publication prepared by Richard A. Cobb, a graduate assistant in Agricultural and Extension Education at New Mexico State University. The study surveyed opportunities in agricultural technology in New Mexico and West Texas. The Research Coordinating Unit provided the data processing for the study. Copies are available from the Agricultural and Extension Education Department, New Mexico State University, University Park, New Mexico.

High School Distributive Education

The Research Coordinating Unit has completed a publication entitled

"Distributive Education at Highlands High School 1956-1966." The information was obtained from a survey conducted by Mr. Lowry Kinzer and Mr. John Stevenoski of the Albuquerque Public Schools. Copies of this study may be obtained from the Research Coordinating Unit.

Survey of Research and Data

A survey of research and data available from various state agencies was conducted by a research team headed by Dr. Patrick Lynch, Director of the Title III Education Services Center in Albuquerque. The survey has been received, edited and printed. This survey was presented to a committee of research people from various state agencies for final review. A limited number of copies are available from the Research Coordinating Unit.

Procedures for Establishing Area Vocational Schools

Dr. John E. Uxer, in cooperation with the Vocational Division of the State Department of Education and the Research Coordinating Unit, prepared the Procedures for Establishing Area Vocational Schools in New Mexico. This project was undertaken under a grant from the Research Coordinating Unit. Publishing and dissemination is being coordinated through the Research Coordinating Unit.

AVC

A survey conducted by AVC, Inc., of Albuquerque, surveyed the capabilities of privately-owned vocational schools in New Mexico. Information concerning the physical plant, management, instructional staff, class capacity and plans for expansion are now available.

Funded under Title V of the Elementary and Secondary Education

Act this survey provided information for both long and short-term planning in the field of Vocational Education. This project, completed in November, 1966, had a total budget of $7,500.

Junior High Vocational Information

A proposal entitled "Pre-Vocational Orientation in Vocational Education for Junior High Schools Students in New Mexico" has been completed. Dr. Richard DeBlassie of New Mexico State University directed the study. The purpose of this study was to compile a source of occupational information materials which is appropriate for use with junior high school students in New Mexico. This seven-month project was awarded $4,913 from the Research Coordinating Unit. Limited editions of the final report will be available from the Research Coordinating Unit.

Trades and Industrial Education Project

A project to develop programs for Trade and Industrial Education has been funded by the Research Coordinating Unit. The project, directed by Lee Palmer, State Supervisor of Trade and Industrial Education, brought together outstanding educators in Trades and Industrial Education on a month-long, brain-storming session in which ideas concerning Trade and Industrial Education were considered and teaching materials developed.

This $3,675 project has been completed and reports will be available from the Research Coordinating Unit.

PROJECTS UNDERWAY

Mobile Laboratories

A proposal by Louis Kleine (Head, Department of Engineering Technology, New Mexico State University), entitled "Development and Testing of an Experimental Mobile Instructional Facility for Applied Courses in Engineering Technology" is underway. Thirty-one thousand dollars of federal funds from Section 4(c) of the Vocational Education Act of 1963 was approved for this project. This 22-month project began April 1, 1966, and will end January 31, 1968.

The purpose of this project is to assess the educational and economic feasibility of providing mobile laboratory facilities for conducting classes in applied electricity at branch colleges of New Mexico State University. The statistical analysis will compare learning and financial aspects of the mobile laboratory against permanent facilities. Preliminary data indicates that there is no significant difference between students in mobile and permanent laboratory facilities.

Statewide Recurring Manpower Survey

The staff of the Research Coordinating Unit has designed a yearly recurring manpower survey of business establishments which are listed in the yellow pages of towns having over 2,000 population in New Mexico The Research Coordinating Unit will serve as the state coordinating agent and will work with a local coordinator from each school district in 44 communities. Vocational students will conduct the survey at the community level. Plans call for the completion of the project by December, 1967. Meetings for orientation purposes have been conducted in six areas of the

state with over 40 coordinators who will work on the study. Also, the Unit is in the process of training its staff in the use of the Dictionary of Occupational Titles.

Tape Recorded Occupational Information

"A Library of Tape Recorded Occupational Information" is the title of a proposal which has been funded by Title III of ESEA. The principal investigator, Dr. William E. Ogden from the College of Santa Fe, has received $20,519 in federal funds.

This study established and will maintain a library of tape recorded interviews with people in New Mexico; i.e., mechanics, salesmen, brick layers, etc. Tapes will be available to high school and vocational school counselors on a postage basis. Approximately 350 tapes have been prepared and are available to counselors in New Mexico. The project duration is June 1, 1967 through June 1, 1968.

High School Curriculum Evaluation

"The Effect of the High School Curriculum Upon College Success" is the title of a proposal which is nearing completion. This study, by Mr. Rock Ashcraft of Alamogordo Branch, New Mexico State University, is investigating the differences between the college success of students who have a large concentration of college preparatory courses and those who have had vocational training in high school. This study would help counselors and curriculum designers in evaluating curricula for college-bound students.

This 12-month project, ending July 31, 1967, has a grant of $5,934 from the Research Coordinating Unit.

Regina School of Nursing Project

The transition from the three-year nursing program to the two-year associate degree program is one that has proven most difficult to many nursing programs. The Research Coordinating Unit, in conjunction with the Regina School of Nursing, is developing guidelines for this transitional period. This project, scheduled for completion in the near future, calls for an expenditure of approximately $5,000 of Research Coordinating Unit funds.

Home Economics Study

The Unit, in collaboration with the State Supervisor of Home Economics, is analyzing data received from over 4,000 questionnaires submitted to all girls in the graduating class of 1961. The data have been punched on cards and are being analyzed by computer. This study, a comprehensive follow-up of high school graduates, will provide valuable data for future program planning.

Waitress and Food Handling Occupational Training Program

A follow-up study of the graduates of an occupational training program in waitress and food handling at Rio Grande High School, in Albuquerque, New Mexico, is underway. Mrs. Jan Dillon, the supervisor of the program at Rio Grande High School, is the principal investigator. The purpose of the project will be to identify areas stressed by employers and determine additional training needed by students for purposes of curriculum evaluation.

El Rito Manpower Follow-up Study

In cooperation with the New Mexico State School at El Rito, and the

Manpower Division of the State Department of Education of Vocational Education, the Research Coordinating Unit is helping to prepare a final report on a follow-up of persons graduating from training programs at Northern New Mexico State School for a three-year period. This project, a comprehensive follow-up, provides such information as salaries, area of mobility, employment in area of training, salary (before and after training), and number of promotions.

Vocational Core Follow-up Research Studies

A project submitted by Hobbs Municipal Schools has been funded by the Research Coordinating Unit. This follow-up study will locate past Vocational Core students by telephone to evaluate the success of the program for purposes of curriculum evaluation and revision. Additional information concerning the Vocational Core Program can be located under publications in this booklet.

Survey of Female Vocational-Technical Education Students in Southeastern New Mexico

This project is designed to survey female junior and senior high school students in southeastern New Mexico. The objectives are to discover the vocational needs and desires of the female vocational students in this area of New Mexico. Also, the survey will attempt to determine the financial problems that these students might have. This survey will be conducted by Mrs. Dolores Fangon, who is an instructor in Home Economics at Eastern New Mexico University, Portales, New Mexico.

A Survey to Determine Priorities of Activities of Vocational-Agriculture Teachers

A survey of the priorities of selected activities of Vocational-Agricultural

teachers in New Mexico and their administrators (principals and superintendents) was conducted in cooperation with Mr. L. C. Dalton, State Supervisor of Vocational Agriculture and the Research Coordinating Unit of the Vocational Division of the State Department of Education. The survey will provide a comparison of selected priorities as seen by Vocational-Agricultural teachers as compared with the priorities as seen by their administrators. This project should be completed some time in the next quarter.

PROJECTS PROPOSED

Effect of Work Experience Upon Dropouts

This project, submitted by the Las Cruces Public Schools, would follow dropouts through work supervised experience in the Neighborhood Youth Core Program. By using pre- and post-tests the project will determine if attitudes and social values have changed. This project is in the process of being redesigned and should be resubmitted in the near future.

Vocational Student Follow-up

The Research Coordinating Unit is in the process of modifying and implementing a computerized follow-up system of Vocational students in New Mexico. This system was designed by the Research Coordinating Unit in Washington State. It will provide a follow-up on IBM cards for ease of manipulation.

PUBLICATIONS

Vocational Education in New Mexico

A publication entitled Vocational Education in New Mexico has been completed by the Research Coordinating Unit. Information included concerns the status of various vocational programs in New Mexico. Additionally, information concerning programs offered by the Vocational and Technical Institutes in New Mexico is included in the publication. Copies are available from the Research Coordinating Unit office.

Supervising Occupational Experience in Business Education is the title of a workshop report published by the Research Coordinating Unit. This workshop, conducted by Dr. Ralph Woodin, was conducted at the Carlsbad branch of New Mexico State University. This publication is a compilation of selected papers presented in the workshop. Copies are available from the Research Coordinating Unit.

Research Activities of the Research Coordinating Unit

This publication is revised and published quarterly as a part of the New Mexico Research Coordinating Unit's quarterly report. Information included concerns the status of projects and information concerning publications available from the Research Coordinating Unit.

Vocational Core Program

Vocational Core Program is the title of a publication prepared by the Research Coordinating Unit concerning a flexible core curriculum at Hobbs, New Mexico. This 12-year old program has been designed to meet the needs, problems and interests of adolescents selected from problem areas. Copies are available from the Research Coordinating Unit.

Small School Distributive Education, a publication prepared by the Research Coordinating Unit in cooperation with the State Supervisor of Distributive Education, is a report on a non-typical Distributive Education pilot program. The two small, rural high schools of Dexter and Hagerman share one teacher in a curriculum integrally related to agriculture and designed to meet the needs of the area. Potential dropouts and economically deprived students who are not college-bound are being given an understanding of job opportunities available. The program has increased the holding power of the small schools participating. Copies are available from the Research Coordinating Unit.

Copies of the following are available from the Research Coordinating Unit:

*Small School Distributive Education
*High School Distributive Education
*Agricultural Technology Opportunity Study
*State Vocational Survey, 1966
*Survey of Research and Data
*Locating Area Vocational Schools
*Procedures for Establishing Area Vocational Schools
*Pre-Vocational Orientation in Vocational Education for Junior High School Students in New Mexico

*Summaries of the above publications can be found under completed projects.

VT 004 670
Anderson, Donald Norris
Resource Materials for Use with an Experimental Evaluation of Two Methods for Developing Creative Problem Solving Abilities in an Industrial Arts Course (Ph.D. Dissertation).

MF AVAILABLE IN VT-ERIC SET.
University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48106 (63-7903, microfilm $3.00, xeroxed copy $9.00).
Pub Date - Jun63 202p.

DOCTORAL THESES; *INDUSTRIAL ARTS; *CREATIVITY RESEARCH; *PROBLEM SOLVING; *INSTRUCTIONAL MATERIALS; RESOURCE MATERIALS; *COLLEGE STUDENTS; *CREATIVITY

Instructional materials utilized in the doctoral dissertation, "An Experimental Evaluation of Two Methods for Developing Creative Problem Solving Abilities in an Industrial Arts Course," (VT 004 669) are included. (EM)

VT 004 670

ED027441

RESOURCE MATERIALS

for use with

AN EXPERIMENTAL EVALUATION OF TWO METHODS FOR DEVELOPING CREATIVE PROBLEM SOLVING ABILITIES IN AN INDUSTRIAL ARTS COURSE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Unpublished Ph.D. Thesis

University of Minnesota

June, 1963

VT004670

VT004670

by

Donnla Norris Anderson

4670

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Ideation Exercises	E_1 and E_2
Imagination exercises	E_2
Laboratory notes	E_2

COURSE OUTLINE AND SCHEDULE
Industrial Arts 120, Industry and the Consumer
Experimental Sections

Week	Period	Lecture or Lab Topic
1	1	Introduction. Industrial Arts in Education.
	2	Pretest--Creative Thinking Tasks.
	3	Field trip to Johnson Reel Co. Groups C, E_1, and E_2 on different days.*
2	4	Mass Production.
	5	Automation.
	6	Field trips to Mankato Area Vocational School. Groups C, E_1, and E_2 on different days.
3	7	Metals Lecture I. Iron and Steel.
	8	Metals Lecture II. Non-ferrous metals.
	9	Metals Lab I.
4	10	Metals Lecture III. Manufacturing Techniques.
	11	Consumer Information Lecture.
	12	Metals Lab II.
5	13	Woods Lecture I. Wood from forest to the mill.
	14	Woods Lecture II. Hard and soft woods.
	15	Woods Lab I.
6	16	Woods Lecture III. Fasteners and finishes.
	17	Abrasives Lecture.
	18	Woods Lab II.
7	19	Electricity Lecture I. Manufacture and Distribution.
	20	Electricity Lecture II. Safety.
	21	Woods Lab III.
8	22	Plastics Lecture I. History and Manufacture.
	23	Plastics Lecture II. Molding Techniques.
	24	Plastics Lab I.
9	25	Graphic Arts Lecture.
	26	Transportation and Power Lecture.
	27	Plastics Lab II.
10	28	Post-test--Creative Thinking Tasks.

*For this, as well as all succeeding laboratory sessions, Groups C, E_1, and E_2 met on separate days.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Johnson Reel Field Trip Group C

Directions

Read the enclosed Preview and note observations to be made during the trip.

Later when you have time, answer the questions on the last page. Turn these sheets in at your next class meeting.

ACTIVITY INSTRUCTION SHEET I

Johnson Reel Field Trip

Groups E_1, E_2, and C

PREVIEW

The Johnson Reel Company got its start through the inventiveness and initiative of two men who had an idea and then worked hard on it. They now sell fishing equipment throughout the world. The new plant which we shall visit is not the largest manufacturing plant in Mankato, but it has been one of the most rapidly growing.

You will notice a variety of manufacturing methods being used. Look for places where cutting is being done. Look for places where drilling, lathe work, threading, etc., are being done. Look for jigs and fixtures--see if you can tell them apart.

Can you find any example of information feed-back--where a machine corrects its own error? Where?

How is assembly facilitated?

Where is testing done?

ACTIVITIES REPORT FORM NO. 1

Group C

Answer the following questions about the Johnson Reel manufacturing operations and hand in at the next class meeting.

1. Where did you observe operations requiring the most skill and training?

2. In the second operation on a reel cover, four slots are punched at intervals around the circumference of the cover. Why are these not all punched at once?

3. What work is performed on parts of the reel by other manufacturing or industrial plants in Mankato?

4. How did Johnson Reel Company get most of the jigs and fixtures used in manufacture and assembly?

5. Define a jig.

6. Define a fixture.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Johnson Reel Field Trip Group E_1

Directions

Read the enclosed Preview and note observations to be made during the trip.

Later when you have more time, read the "Basic Premises of Creative Thinking" which is inside this folder. Then attempt part B, "Exercise in Ideation," and answer the questions on the last page.

Turn this booklet in at your next class meeting.

ACTIVITY INSTRUCTION SHEET I

Johnson Reel Field Trip

Groups E_1, E_2, and C

PREVIEW

The Johnson Reel Company got its start through the inventiveness and initiative of two men who had an idea and then worked hard on it. They now sell fishing equipment throughout the world. The new plant which we shall visit is not the largest manufacturing plant in Mankato, but it has been one of the most rapidly growing.

You will notice a variety of manufacturing methods being used. Look for places where cutting is being done. Look for places where drilling, lathe work, threading, etc., are being done. Look for jigs and fixtures--see if you can tell them apart.

Can you find any example of information feed-back--where a machine corrects its own error? Where?

How is assembly facilitated?

Where is testing done?

ACTIVITIES REPORT FORM NO. 1

Groups E_1 and E_2

A. Basic Premises of Imaginative Thinking.

Basic Premises of Creative Thinking. You are in an experimental section of the course, Industry and the Consumer. You will cover the same materials and perform essentially the same tasks as the control section of this course, but the teaching methods will be somewhat different. Because a large number of educators, research workers, and public-minded leaders have decried the lack of training for imaginative problem-solving in our schools, a specific attempt is being made in this class to acquaint you with some of the principles that research has shown to be effective for this purpose. It is hoped that you will make use of this opportunity and, through study and practice, become more able to make full use of your natural abilities in this class, in other classes, on your job, and in your home.

$ $ $ $ VALUE $ $ $ $

You may have read newspaper or magazine articles extolling the value of creative imagination. Below is a chart showing the monetary value of a ten-hour training period for employees at General Motors' A.C. Spark Plug Division. Group A included persons who had offered the most suggestions over a period of a year before the training, and Group B consisted of persons who had offered very few suggestions during the same period of time. Group C was a control group not given the

training. "Before" means during the year before training, and "After" means the ye following training. The regular voluntary suggestion box system was in use. The figures show the average amount paid for each accepted suggestion from each group

Changes in Value per Suggestion[1]

Group A	Before	$39.53
	After	$83.30
	% change	+110.7%
Group B	Before	$33.33
	After	$79.30
	% change	+137.9%
Group C	Before	$19.94
	After	$23.46
	% change	+17.7%

Money is only one of the values accruing from increased use of your imagina tion. There are others not measurable in dollars and cents, such as greater persona satisfaction, more self-confidence, freedom from inhibition, etc.

You may remember seeing simple devices and wondering, "Why didn't I think of that?" The Hula-hoop, Slinky the spring, Chinese checkers, jig saw puzzles, the paper clip, and the yoyo are examples of ideas that made money for imaginative people. Louis Pasteur said, "Inspiration is the impact of a fact on a well-prepared mind," and Woodrow Wilson said, "Originality is simply a fresh pair of eyes."

In the coming weeks you will be given a series of information sheets, prac- tice exercises, and classroom demonstrations designed to help you--if you so wish- to develop the talent which others have found so valuable. These techniques have

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There are some things you should know and some things you should do if you would succeed. You should KNOW that creative talent is universal and needs only development. It is not dependent upon intelligence or knowledge. Experiments at large universities have shown that if giftedness should be judged by I.Q. alone, about 20 per cent of the most creative people would be missed. Charles F. Kettering, the famous General Motors inventor, stated that "if a person had an engineering or scientific education, the probability of his making an invention was only about half as great as if he did not have that specialized education." A painter by the name of Morse invented the telegraph. A school teacher by the name of Whitney invented the cotton gin and was the first person to apply mass production techniques using jigs and fixtures to manufacturing, in this case to the production of rifles. An artist by the name of Fulton invented the steamboat. You may not be able to patent a million dollar invention, but you can use your ingenuity to make life easier, or more pleasant, or more interesting.

<u>You Should Do Something</u>. This may sound silly, but really it is the key to inventiveness. Ann Roe found that the main difference between famous artists and scientists and average men was that the former were willing to work harder and longer The successful inventor never "flunks out." In your school experiences you have become accustomed to the idea that failure on an exam or a series of exams may mean the end of your formal education. No one counts the failures of an inventor. If he succeeds <u>once</u>, this is sufficient. That is why in training for creativity, fluency is emphasized. You must let your mind work freely and without criticism. In tests

of creativity it has been found that the number of GOOD ideas a person has is directly proportional to the TOTAL number of ideas he has. It has also been shown that when a person lists all his ideas--both good and bad--he produces more good ideas than when he lists only his good ideas. It may be that this is true because a person must concentrate in order to have any ideas. The harder he tries, the more ideas he will have. Over and over again, the principle of fluency will be emphasized. Whatever the problem you are tackling, you should remember: record every idea you have. Often a crazy idea will lead to a new, a sane, and a practical idea. Every invention we now use seemed crazy at one time: v.i.z., the telephone, the airplane, the space capsule.

B. Exercise in Ideation.

Young children are noted for their highly imaginative ideas and questions. As they become older, the constant impact of the cold logical world in which they live causes a deterioration of this ability. Has your imagination atrophied? If so, start exercising it. Limber up on the following problem:

> List below every possible use for a brush the size and kind usually used for painting a house. Now think- - - - -

C. Questions (Report on Johnson Reel Field Trip) Groups E_1 and E_2

Suppose you are a professor of industrial management and have been engaged to pep up the operation of a Mankato plant. Your suggestions will be reviewed later by a management committee and evaluated. Your salary has been paid in advance so you don't care if they throw out all your ideas. They may pay you a bonus, however, if they use some of your ideas.

What suggestions would you make to the Johnson Reel Company to:

A. Improve methods ?

B. Cut costs ?

C. Improve quality ?

D. Speed production ?

E. Prevent accidents ?

F. Reduce material handling ?

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Johnson Reel Field Trip Group E_2

Directions

In addition to observing the items mentioned in the Preview inside this folder, apply yourself to the "Imagination Problem" on the third page.

Later when you have time, read the "Basic Premises of Creative Thinking," and attempt part B, "Exercise in Ideation." Then answer the questions on the last page.

Turn this booklet in at your next class meeting.

ACTIVITY INSTRUCTION SHEET I

Johnson Reel Field Trip

Groups E_1, E_2, and C

PREVIEW

The Johnson Reel Company got its start through the inventiveness and initiative of two men who had an idea and then worked hard on it. They now sell fishing equipment throughout the world. The new plant which we shall visit is not the largest manufacturing plant in Mankato, but it has been one of the most rapidly growing.

You will notice a variety of manufacturing methods being used. Look for places where cutting is being done. Look for places where drilling, lathe work, threading, etc., are being done. Look for jigs and fixtures--see if you can tell them apart.

Can you find any example of information feed-back--where a machine corrects its own error? Where?

How is assembly facilitated?

Where is testing done?

IMAGINATION PROBLEM

Group E_2

While observing the mechanical operation of making fishing reels according to directions received in class, exercise your imagination by looking for a job. Suppose you are destitute, but have just been told that Johnson Reel has no need for more help. What job situation could you create for yourself at the Johnson Reel Company? What arguments could you offer to persuade them to hire you?

ACTIVITIES REPORT FORM NO. 1

Groups E_1 and E_2

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INDUSTRIAL ARTS 120

Vocational School Field Trip

Group C

Directions

Read the enclosed Preview and note observations to be made during the trip.

Afterwards, answer the questions on the last page. Turn these sheets in at your next class meeting.

ACTIVITY INSTRUCTION SHEET 2

Vocational School Field Trip

Groups E_1, E_2 and C

PREVIEW

Since the objective of vocational education is training for a specific job classification, physical facilities are somewhat different from those found in the typical industrial arts shop. Equipment must closely resemble that which the student will find on the job. Since the student is being trained to earn a living, he must develop enough skill and knowledge about his chosen trade to be able to be productive. Therefore classes meet for several hours at a time with no breaks for clean-up. These periods, of course, are much the same as the half-day work periods the student will later put in on the job.



Sometimes industrial arts classes are taught in these shops but during periods when the vocational classes are not meeting. This makes possible more efficient use of space and equipment and provides better facilities than the industrial arts classes might otherwise have.

Although industrial arts teachers are more interested in providing a wide variety of experience than in developing a marketable skill, it often happens that an industrial arts student becomes so much interested in one area of his training that he later enters a vocational class. In other cases, a student may discover in an industrial arts class that he does not like or is not fitted for a certain kind of work and will therefore change his mind about entering a particular trade training course. This is what is known

as the guidance function of industrial arts. It results in a more able and a more highly-motivated student enrollment in the vocational classes.

In visiting the vocational school, you should take notes on the number and type of machines--not necessarily brand names, but size and quantity. Notice the type of work being performed and its relationship to jobs in the field. While we should attempt to interrupt classes as little as possible, you may wish to ask vocational students with whom you come in contact about their future plans--where they intend to seek employment, what kind of jobs they will look for, whether or not they expect difficulty in finding employment, why they chose this area of training, etc.

ACTIVITIES REPORT FORM NO. 2

Group C

After you have taken the Vocation School field trip, answer the following questions:

1. What is the main purpose of vocational education?

2. Students at the school seemed to be mainly of what age group?

3. Name the trades for which students are being trained:

_____ _____ _____

_____ _____ _____

_____ _____ _____

4. In which ways would you say the equipment in use meets (or does not meet) the requirements for vocational education?

5. If you were to walk into a classroom, how would you determine whether a vocational class or an industrial arts class was in progress?

6. In what three areas is electronics training given?

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Vocational School Field Trip

Group E_1

The individual with ability to apply his imagination to the solution of problems is valuable, whatever his station in life. However, recognition of and interest in creativity has been more pronounced in some areas than in others. In the various fields of engineering, for example, a large amount of literature has pertained to the development of this ability. Mr. A. L. Simberg, who has conducted a very successful campaign for creativity at the AC Sparkplug Division of General Motors Corporation, has discussed some of the reasons for lack of creativity among engineers.

> REPRINTED BY PERMISSION on the following pages are two articles from Electronic Design Magazine of November 11, 1959, and November 25, 1959, describing the difficulty of being inventive. You will find Mr. Simberg's logic applicable to areas other than engineering.

Practice overcoming perceptual blocks with the "Exercise in Ideation," Part B.

Complete the questions at the end of this booklet and turn it in at your next class meeting.

ACTIVITY INSTRUCTION SHEET 2

Vocational School Field Trip — Groups E_1, E_2 and C

PREVIEW

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Blocks to CREATIVITY

Perceptions Discernments

A. L. Simberg, AC Spark Plug Div.
General Motors Corp., Flint, Mich.

IT IS NOT surprising today to find at the head of some of our largest industrial corporations men with degrees in engineering. What are the routes by which these men achieved their present position? Traditionally, the young engineer going into a company has one of two routes open to him. The first of these is through his technical know-how, his engineering specialty. In short, he becomes an expert. The other traditional alternate way to the top has been through the path of supervision, accepting higher and higher supervisory responsibilities, until he reached the top of the organization.

In the past few years, especially since the Korean War, a third way to the top has opened. It is by means of creativity.

With the ever increasing competition, especially in the area of electronic development, those companies are successful which find the unusual, the unique new products, processes, manufacturing methods and cost reductions. All positive

Reprinted from ELECTRONIC DESIGN • November 11, 1959

change comes about as a result of someone's ideas, a newer and better way of doing or making something.

Ideas mean creativity. Creativity means being able to develop end results which will satisfy the needs of the organization in a way which they have never been satisfied previously. All engineers have within them the basic capacity to be creative. What prevents many of them from doing so are obstacles which must first be overcome.

The obstacles to creative thinking lie primarily in three areas: perceptual, cultural and emotional. This article will deal with the first of these obstacles, the perceptual blocks to creativity.

The family of perceptual blocks is probably the single most frustrating and damaging one. These are the types of blocks that make us "want to kick ourselves" for not having seen the solution previously. They are caused primarily by not seeing what the problems are or what actaully may be wrong in the situation. These are the types of blocks that cause us to begin our work in problem solving without the proper goal in mind. These have to do primarily with our statement of the problem, our biases toward and preconceived notions about the problem. While we are not talking about attitudes as such, it should be realized that there is very little in our outward behavior that it not colored in some manner or other by our attitudes toward them.

To a great degree, our perceptual blocks may be classified as merely having a mental set or predisposition toward seeing the situation in a certain way, no matter how closely or how thoroughly we look at it. Let us look at a few examples of this type of block:

1. *Difficulty in isolating the problem.*

This is the case where the individual is unable to separate the real problem from related problems, or as we say, he cannot see the forest for the trees.

While this sounds basic and elementary, it is nevertheless extremely important to pinpoint the problem specifically. Too often we are not tackling the real problem at all. This is similar to the physician who treats symptoms rather than curing the disease or to the mechanic who when unable to figure out whether the car has ignition, fuel system or other trouble, will eventually decide on a complete overhaul.

To show just how deadly these little blocks can be, try some of the problems associated with them. You will find the answers to these problems at the end of the article.

TIME FLIES YOU CANNOT THEY FLY TOO FAST

Try to punctuate this sentence so that it makes sense.

2. *Difficulty caused by narrowing the problem too much.*

This block is caused by paying little or no attention to the environment surrounding the problem. It is not unusual to find in scientific endeavors that experiments are sometimes conducted to determine a particular point while the effect of other variables of the total situation is ignored.

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The above block comes about primarily because of our inability to see the problem stated in any other terms than it is. For example, try the little exercise below:

HOW CAN YOU MAKE FOUR NINES EQUAL ONE HUNDRED

3. *Difficulty in not investigating the obvious.*

Once we have become accustomed to looking at certain situations and problems in a particular way, it becomes increasingly difficult not to do this. Everyday we look at the same things, but really cease to "see" them. Pass the same bulletin board every day, and even though the notices change from time to time, unless there is something really different about the new notice (a different color paper, etc.) the chances are that we will not see it. So it is with our design problems. The first reaction to the assignment of designing a new component is to look for components which are similar and provide the same function. Is it not just as easy to sit down and ask yourself what better or simpler or cheaper method could be used to achieve the same end result?

The person who first thought of using a flexible ice cube tray got the idea from noticing that some water in his boots, which had been left outside, had frozen during the night and had flipped out quite readily when the boot was turned inside out. How obvious.

Try this problem:

Two Indians, a big one and a little one, were walking through the woods. They resemble each other and in truth are related. The little Indian is the son of the big Indian, but the big Indian is not the father of the little Indian. What is their relationship?

4. *The failure to distinguish between cause and effect.*

The young engineer, especially one who has his sights set on a career in research, often feels quite confident that he knows the difference between cause and effect. However, these, as he will learn, are not always this clear-cut. Nor do statistics always provide the correct answer.

For example, in a large university, it was recently found that engineering senior students who made poor grades were much heavier smokers than those earning good grades. Did the smoking cause poor grades or did the poor grades cause more tension which led to heavier smoking? Or is it possible that both the poor grades and the heavy smoking were a result of a common cause? Or is it possible that none of these facts was related to one another, except by coincidence?

The person who would be creative must learn not to jump to conclusions regarding causality.

5. *Failure to use all of the senses in observing.*

While we have talked about the five senses for years, and although we know what these are and also know that we can observe through all of them, when we use the word observation the meaning is still for most of us in terms of vision only. A great amount of information can be gained from experiences other than visual. Concept formation, the reaching of conclusions, classification of situations—all of these can be formed through other than visual methods.

We are all familiar with people who have a deficiency in one of the five senses. People who are either blind or deaf are able to compensate by the strengthening of the faculties which they have remaining to them. Try sometime shutting your eyes for awhile and try doing things with your eyes shut. You will find, after the first few frustrations and bumped knees, that you can do quite well really by using the senses of touch, hearing and smell. ▫ ▫

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Blocks to Creativity

II Cultural Barriers

PICTURE OF AUTHOR, A. L. SIMBERG, AND CAPTION OMITTED.

SOCIETY lays down rules of behavior, thought and action. If the individual does not obey these, he is considered a nonconformist. But conformity and creativity do not go hand in hand.

Conformity requires that the young engineer act in a certain way merely because it is customary. Creativity requires that the present way be challenged, investigated and, if necessary, changed.

Cultural blocks to creativity are among the most difficult to eliminate. We have a whole force of blocks to contend with, resulting from years of training in the home and in school. Add to this the difficulty of a new, young engineer in a company challenging the parties in power, perhaps getting off to a wrong start, and it is obvious why engineering changes are not easily brought about.

It requires a certain courage to create, an attitude that enables the engineer to strike off in new directions. Let us investigate more closely some of the blocks we term cultural.

▪ ***The desire to conform to an adopted pattern.***

Most people do not like to be different; it is not a very comfortable feeling. However, many of our routine actions are really not necessary for conformity. They are the patterns of behavior that, for one reason or another, we have developed ourselves. These patterns can be eliminated only by our own effort. The human mind is fascinating in that it is able to develop patterns where none existed. The mind seems able to "correct" our perceptions, to organize them into the meaningful objects we know.

For example, try the problem of the nine dots below (solution at end of article). The task is to join these nine dots by four straight, continuous lines (do not raise pencil from paper).

o o o
o o o
o o o

▪ *We must be practical and economical above all; so often judgment comes into play too quickly.*

Our lives are composed of a series of paradoxes. On the one hand, we are taught to be practical, thrifty, etc., while on the other our teachers are the first to admit that "it takes money to make money."

Our chief engineer gives us the assignment of developing a new product. He tells us that he wants something that is really "practical" but yet it must be startlingly different. Unfortunately what often happens is that at the sound of the word "practical," our imaginations cease to function.



be

Answers to Problems of Preceding Story.

1. Time flies (insects)? You cannot! They fly too fast.
2. 99 + 9/9
3. His mother

Would it not be just as simple to start with the "startlingly different" idea and engineer this back to practicality? Learn to try to shoot for the single great idea at the outset. Take your chance on the "one in a million shot." You can always come back to reality by stages, either because of cost, processing problems, etc.

Our minds seem to function either imaginatively (creatively) or judiciously (using judgment). When we are using judgment—deciding, placing values upon something, etc.—we cannot also be creative. Lest it be thought that judgment is of no value, let me hasten to add that it is of the utmost importance. But it has its place, and this, is after, not during the time when we are trying to find ideas!

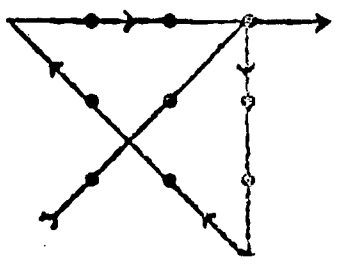
▪ ***It is considered impolite to be too inquisitive and unwise to doubt.***

People who are inquisitive are often considered "nosy." In business language they are often told



It is considered impolite to be too inquisitive.

Solution to problem:



that the matter is "out of the realm of your immediate responsibility."

The engineer who accepts this code literally, who fails to question methods, processes, materials and personnel, will remain noncreative. Usually if a person is properly approached, he is happy to answer any questions. Not many managements expect complete obedience to the established procedures merely because they are "policy."

Harlow Curtice, former president of General Motors, wrote last year:

"Men of science and engineering . . . possess what I have called the inquiring mind. This type of mind is never satisfied with things as they are. It is always seeking ways to make things better and do things better. It assumes that everything and anything can be improved."

To worry about the cultural taboo on asking questions is to deprive yourself of needed information. It could mean the difference between solving a problem and not solving it.

▪ *Over-emphasis on competition or on co-operation.*

One other seeming paradox in our society is that of competition or co-operation. We usually think of these as opposites, while in reality they may be considered in another way. An over-emphasis on co-operation may very well mean that the engineer must temper his creative ideas to fit in with the current thinking of the organization for which he works. This situation may be true in some companies. However, in many others there is no such barrier, except that within the engineer himself.

Competition in itself implies that one is working against someone else. An over-emphasis on competing will lead the engineer to lose sight of his primary goal, that of solving the problem at hand rather than trying to "beat someone else to it."

Emphasis on competition or cooperation tends on the whole to make technical people rely less on their initiative, resources and creativity. They feel they are either in a race against someone else or must co-operate to keep their jobs. Either attitude, on an all-or-nothing basis, leads to stagnation of ideas. ▪ ▪

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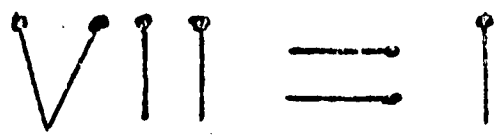
ACTIVITIES REPORT FORM NO. 2

Groups E_1 & E_2

B. Exercise in Ideation. (Overcoming perceptual blocks)

The problems below are simple. They may seem difficult if you apply the usual method of attack. Answers are on the next sheet. Do not peek too soon--really give them a try first.

1. Lay out matches as below. How can you move one match to make the equation true?



2. What do you see below?



3. Can you put 6 and 5 together to make 9?

4. What is the largest number you can make with two 4's?
(Hint: the answer is <u>not</u> 44)

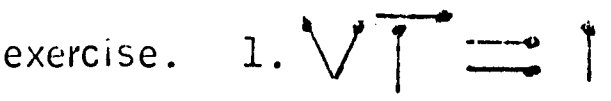
C. Questions (Report on Vocational School Field Trip)--Groups E_1 and E_2

In answering the following questions, apply the principle of fluency as described in last week's brochure. List <u>all</u> your ideas, whether you consider them good or not-so-good.

1. What are some advantages of attending a four-year college rather than a vocational school?
   a.
   b.
   c.

2. Why is vocational education necessary in America?
   a.
   b.
   c.

3. If the Communists should take over the U.S. and force you to go to a vocational school, what trade would you learn?
   Why?
   a.
   b.
   c.

Answers to Ideation exercise. 1.  2. THINK

3.  (Use eleven matches.) 3. $4^4 = 256$

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Vocational School Field Trip

Group E_2

In addition to observing the items mentioned in the Preview which begins on the next page, apply yourself to the "Imagination Problem" which follows the Preview.

The individual with ability to apply his imagination to the solution of problems is valuable, whatever his station in life. However, recognition of and interest in creativity has been more pronounced in some areas than in others. In the various fields of engineering, for example, a large amount of literature has pertained to the development of this ability. Mr. A. L. Simberg, who has conducted a very successful campaign for creativity at the AC Spark Plug Division of General Motors Corporation, has discussed some of the reasons for lack of creativity among engineers.

REPRINTED BY PERMISSION on the enclosed pages are two articles from Electronic Design Magazine of November 11, 1959, and November 25, 1959, describing the difficulty of being inventive. You will find Mr. Simberg's logic applicable to areas other than engineering.

Work Part B, "Ideation Exercise."

Complete the questions at the end of the booklet and turn the entire booklet in at your next class meeting.

ACTIVITY INSTRUCTION SHEET 2

Vocational School Field Trip

Groups E_1, E_2 and C^1

PREVIEW

Since the objective of vocational education is training for a specific job classification, physical facilities are somewhat different from those found in the typical industrial arts shop. Equipment must closely resemble that which the student will find on the job. Since the student is being trained to earn a living, he must develop enough skill and knowledge about his chosen trade to be able to be productive. Therefore classes meet for several hours at a time with no breaks for clean-up. These periods, of course, are much the same as the half-day work periods the student will later put in on the job.

Sometimes industrial arts classes are taught in these shops but during periods when the vocational classes are not meeting. This makes possible more efficient use of space and equipment and provides better facilities than the industrial arts classes might otherwise have.

Although industrial arts teachers are more interested in providing a wide variety of experience than in developing a marketable skill, it often happens that an industrial arts student becomes so much interested in one area of his training that he later enters a vocational class. In other cases, a student may discover in an industrial arts class that he does not like or is not fitted for a certain kind of work and will therefore change his mind about entering a particular trade training course. This is what is known

as the guidance function of industrial arts. It results in a more able and a more highly-motivated student enrollment in the vocational classes.

In visiting the vocational school, you should take notes on the number and type of machines--not necessarily brand names, but size and quantity. Notice the type of work being performed and its relationship to jobs in the field. While we should attempt to interrupt classes as little as possible, you may wish to ask vocational students with whom you come in contact about their future plans--where they intend to seek employment, what kind of jobs they will look for, whether or not they expect difficulty in finding employment, why they chose this area of training, etc.

IMAGINATION PROBLEM

Group E_2

Suppose World War III should start tomorrow and the Government should take over the Mankato Vocational School. Fill in the chart below with appropriate possible uses, as has been done for the photography lab.

	Use in Training	Use for Production
Photo Lab	Training aerial photographers. Training lab technicians for developing and printing army and air force training aids, posters, technical manuals, etc.	Microfilming government records or letters to overseas Servicemen. Printing identification pictures of classified personnel.
Machine Shop		
Auto Mechanics Shop		
Electronics Shop		

Blocks to CREATIVITY

Perceptions Discrepancies

A. L. Simberg, AC Spark Plug Div. General Motors Corp., Flint, Mich.

IT IS NOT surprising today to find at the head of some of our largest industrial corporations men with degrees in engineering. What are the routes by which these men achieved their present position? Traditionally, the young engineer going into a company has one of two routes open to him. The first of these is through his technical know-how, his engineering specialty. In short, he becomes an expert. The other traditional alternate way to the top has been through the path of supervision, accepting higher and higher supervisory responsibilities, until he reached the top of the organization.

In the past few years, especially since the Korean War, a third way to the top has opened. It is by means of creativity.

With the ever increasing competition, especially in the area of electronic development, those companies are successful which find the unusual, the unique new products, processes, manufacturing methods and cost reductions. All positive

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change comes about as a result of someone's ideas, a newer and better way of doing or making something.

Ideas mean creativity. Creativity means being able to develop end results which will satisfy the needs of the organization in a way which they have never been satisfied previously. All engineers have within them the basic capacity to be creative. What prevents many of them from doing so are obstacles which must first be overcome.

The obstacles to creative thinking lie primarily in three areas: perceptual, cultural and emotional. This article will deal with the first of these obstacles, the perceptual blocks to creativity.

The family of perceptual blocks is probably the single most frustrating and damaging one. These are the types of blocks that make us "want to kick ourselves" for not having seen the solution previously. They are caused primarily by not seeing what the problems are or what actually may be wrong in the situation. These are the types of blocks that cause us to begin our work in problem solving without the proper goal in mind. These have to do primarily with our statement of the problem, our biases toward and preconceived notions about the problem. While we are not talking about attitudes as such, it should be realized that there is very little in our outward behavior that it not colored in some manner or other by our attitudes toward them.

To a great degree, our perceptual blocks may be classified as merely having a mental set or predisposition toward seeing the situation in a certain way, no matter how closely or how thoroughly we look at it. Let us look at a few examples of this type of block:

1. *Difficulty in isolating the problem.*

This is the case where the individual is unable to separate the real problem from related problems, or as we say, he cannot see the forest for the trees.

While this sounds basic and elementary, it is nevertheless extremely important to pinpoint the problem specifically. Too often we are not tackling the real problem at all. This is similar to the physician who treats symptoms rather than curing the disease or to the mechanic who when unable to figure out whether the car has ignition, fuel system or other trouble, will eventually decide on a complete overhaul.

To show just how deadly these little blocks can be, try some of the problems associated with them. You will find the answers to these problems at the end of the article.

TIME FLIES YOU CANNOT THEY FLY TOO FAST

Try to punctuate this sentence so that it makes sense.

2. *Difficulty caused by narrowing the problem too much.*

This block is caused by paying little or no attention to the environment surrounding the problem. It is not unusual to find in scientific endeavors that experiments are sometimes conducted to determine a particular point while the effect of other variables of the total situation is ignored.

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The above block comes about primarily because of our inability to see the problem stated in any other terms than it is. For example, try the little exercise below:

HOW CAN YOU MAKE FOUR NINES EQUAL ONE HUNDRED

3. *Difficulty in not investigating the obvious.*

Once we have become accustomed to looking at certain situations and problems in a particular way, it becomes increasingly difficult not to do this. Everyday we look at the same things, but really cease to "see" them. Pass the same bulletin board every day, and even though the notices change from time to time, unless there is something really different about the new notice (a different color paper, etc.) the chances are that we will not see it. So it is with our design problems. The first reaction to the assignment of designing a new component is to look for components which are similar and provide the same function. Is it not just as easy to sit down and ask yourself what better or simpler or cheaper method could be used to achieve the same end result?

The person who first thought of using a flexible ice cube tray got the idea from noticing that some water in his boots, which had been left outside, had frozen during the night and had flipped out quite readily when the boot was turned inside out. How obvious.

Try this problem:

Two Indians, a big one and a little one, were walking through the woods. They resemble each other and in truth are related. The little Indian is the son of the big Indian, but the big Indian is not the father of the little Indian. What is their relationship?

4. *The failure to distinguish between cause and effect.*

The young engineer, especially one who has his sights set on a career in research, often feels quite confident that he knows the difference between cause and effect. However, these, as he will learn, are not always this clear-cut. Nor do statistics always provide the correct answer.

For example, in a large university, it was recently found that engineering senior students who made poor grades were much heavier smokers than those earning good grades. Did the smoking cause poor grades or did the poor grades cause more tension which led to heavier smoking? Or is it possible that both the poor grades and the heavy smoking were a result of a common cause? Or is it possible that none of these facts was related to one another, except by coincidence?

The person who would be creative must learn not to jump to conclusions regarding causality.

5. *Failure to use all of the senses in observing.*

While we have talked about the five senses for years, and although we know what these are and also know that we can observe through all of them, when we use the word observation the meaning is still for most of us in terms of vision only. A great amount of information can be gained from experiences other than visual. Concept formation, the reaching of conclusions, classification of situations—all of these can be formed through other than visual methods.

We are all familiar with people who have a deficiency in one of the five senses. People who are either blind or deaf are able to compensate by the strengthening of the faculties which they have remaining to them. Try sometime shutting your eyes for awhile and try doing things with your eyes shut. You will find, after the first few frustrations and bumped knees, that you can do quite well really by using the senses of touch, hearing and smell. ■ ■

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Blocks to Creativity

II Cultural Barriers

PICTURE OF AUTHOR, A. L. SIMBERG, AND CAPTION OMITTED.

SOCIETY lays down rules of behavior, thought and action. If the individual does not obey these, he is considered a nonconformist. But conformity and creativity do not go hand in hand.

Conformity requires that the young engineer act in a certain way merely because it is customary. Creativity requires that the present way be challenged, investigated and, if necessary, changed.

Cultural blocks to creativity are among the most difficult to eliminate. We have a whole force of blocks to contend with, resulting from years of training in the home and in school. Add to this the difficulty of a new, young engineer in a company challenging the parties in power, perhaps getting off to a wrong start, and it is obvious why engineering changes are not easily brought about.

It requires a certain courage to create, an attitude that enables the engineer to strike off in new directions. Let us investigate more closely some of the blocks we term cultural.

▪ ***The desire to conform to an adopted pattern.***

Most people do not like to be different; it is not a very comfortable feeling. However, many of our routine actions are really not necessary for conformity. They are the patterns of behavior that, for one reason or another, we have developed ourselves. These patterns can be eliminated only by our own effort. The human mind is fascinating in that it is able to develop patterns where none existed. The mind seems able to "correct" our perceptions, to organize them into the meaningful objects we know.

For example, try the problem of the nine dots below (solution at end of article). The task is to join these nine dots by four straight, continuous lines (do not raise pencil from paper).

o o o
o o o
o o o

▪ *We must be practical and economical above all; so often judgment comes into play too quickly.*

Our lives are composed of a series of paradoxes. On the one hand, we are taught to be practical, thrifty, etc., while on the other our teachers are the first to admit that "it takes money to make money."

Our chief engineer gives us the assignment of developing a new product. He tells us that he wants something that is really "practical" but yet it must be startlingly different. Unfortunately what often happens is that at the sound of the word "practical," our imaginations cease to function.



Most people do not like to be different.

Answers to Problems of Preceding Story.

1. Time flies (insects)? You cannot! They fly too fast.
2. 99 + 9/9
3. His mother

Would it not be just as simple to start with the "startlingly different" idea and engineer this back to practicality? Learn to try to shoot for the single great idea at the outset. Take your chance on the "one in a million shot." You can always come back to reality by stages, either because of cost, processing problems, etc.

Our minds seem to function either imaginatively (creatively) or judiciously (using judgment). When we are using judgment—deciding, placing values upon something, etc.—we cannot also be creative.

Lest it be thought that judgment is of no value, let me hasten to add that it is of the utmost importance. But it has its place, and this, is after, not during the time when we are trying to find ideas!

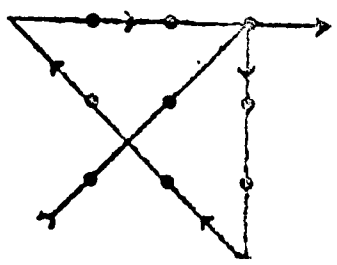
▪ ***It is considered impolite to be too inquisitive and unwise to doubt.***

People who are inquisitive are often considered "nosy." In business language they are often told

It is considered impolite to be too inquisitive.



Solution to problem:



that the matter is "out of the realm of your immediate responsibility."

The engineer who accepts this code literally, who fails to question methods, processes, materials and personnel, will remain noncreative. Usually if a person is properly approached, he is happy to answer any questions. Not many managements expect complete obedience to the established procedures merely because they are "policy."

Harlow Curtice, former president of General Motors, wrote last year:

"Men of science and engineering . . . possess what I have called the inquiring mind. This type of mind is never satisfied with things as they are. It is always seeking ways to make things better and do things better. It assumes that everything and anything can be improved."

To worry about the cultural taboo on asking questions is to deprive yourself of needed information. It could mean the difference between solving a problem and not solving it.

▪ *Over-emphasis on competition or on co-operation.*

One other seeming paradox in our society is that of competition or co-operation. We usually think of these as opposites, while in reality they may be considered in another way. An over-emphasis on co-operation may very well mean that the engineer must temper his creative ideas to fit in with the current thinking of the organization for which he works. This situation may be true in some companies. However, in many others there is no such barrier, except that within the engineer himself.

Competition in itself implies that one is working against someone else. An over-emphasis on competing will lead the engineer to lose sight of his primary goal, that of solving the problem at hand rather than trying to "beat someone else to it."

Emphasis on competition or cooperation tends on the whole to make technical people rely less on their initiative, resources and creativity. They feel they are either in a race against someone else or must co-operate to keep their jobs. Either attitude, on an all-or-nothing basis, leads to stagnation of ideas. ▪ ▪

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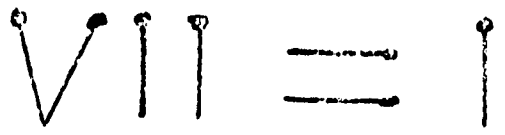
ACTIVITIES REPORT FORM NO. 2

Groups E_1 & E_2

B. Exercise in Ideation. (Overcoming perceptual blocks)

The problems below are simple. They may seem difficult if you apply the usual method of attack. Answers are on the next sheet. Do not peek too soon--really give them a try first.

1. Lay out matches as below. How can you move one match to make the equation true?



2. What do you see below?



3. Can you put 6 and 5 together to make 9?

4. What is the largest number you can make with two 4's? (Hint: the answer is <u>not</u> 44)

C. Questions (Report on Vocational School Field Trip)--Groups E_1 and E_2

In answering the following questions, apply the principle of fluency as described in last week's brochure. List <u>all</u> your ideas, whether you consider them good or not-so-good.

1. What are some advantages of attending a four-year college rather than a vocational school?
   a.

   b.

   c.

2. Why is vocational education necessary in America?
   a.

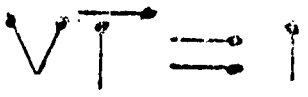
   b.

   c.

3. If the Communists should take over the U.S. and force you to go to a vocational school, what trade would you learn? Why?
   a.

   b.

   c.

Answers to Ideation exercise. 1.  2. THINK

3.  (Use eleven matches.) 3. $4^4 = 256$

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week III, Metals Lab I

State: Before we start the shop work for today, I should like to ask you to concentrate for a few minutes on a problem such as might be encountered by a businessman in the manufacturing industry.

IMAGINATION PROBLEM:

Suppose, then, that you are vice president in charge of plant operations for a multimillion dollar toy manufacturing plant. The president brings in a small cast iron animal such as this little dinosaur.

Do: Show dinosaur made of lead.

State: He tells you he is planning to make several hundred thousand toys in which a little animal something like this is included. He asks you for suggestions on how they can be made. What methods will you think of? He wants <u>many</u> <u>different</u> ideas to consider.

Do: Pause for 15 seconds. Record ideas presented.

State: (If no suggestions are made.) Suppose we start by considering the material. What materials <u>might</u> the animals be made of?

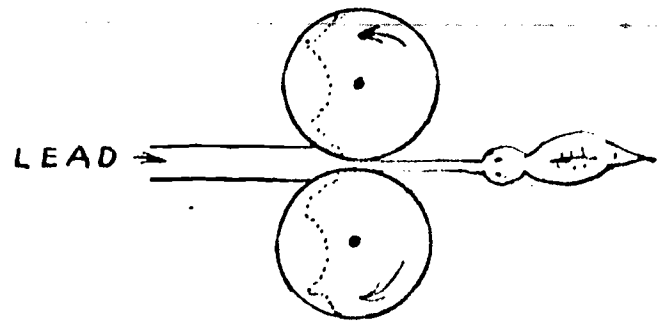
(If only metals are suggested.) The president did not say it had to be of metal.

Do: Show plastic original. Pause for reactions. Record ideas.

Depending upon enthusiasm of class and the number of ideas developed, ask further questions and give a few examples, as follows:

How about making it hollow? Than stamp halves of thin iron. Hold together in a jig; pass through tinning solution which will coat the animal and stick the halves together.

Use a bar of lead. Pass between two iron rollers, each of which has half the impression of the animal in it.



Do: Show flip chart.

State: Or use the same method with a plastic material and heated rollers. A spray of water on the ejecting end will harden the animals.

Do: Pause for reactions.

State: (After 5 to 7 minutes.) One of the possible methods of making metal objects is, of course, that of sand casting. If you will read your instruction sheets, I shall now quickly demonstrate the general procedure to be followed. You may then pick your material up and proceed with the work for today.

Do: Pass out Activity Instruction Sheets. Demonstrate sand casting.

IMAGINATION PROBLEM - - Week III - - Fall Pilot Study

Notes Made After the Laboratory Session

1. The statement of problem was too dry. It seemed compulsory to add a few comments about the failure of our schools to teach for creativity, the basic premises of brainstorming, and the value to be expected from the brief sessions used in this class.

2. At first pause:

   One student (call him A) responses with suggestion of a casting.

3. At second pause:

   Two students, B and C, responded. B suggested die casting of plastics. C suggested stamping of tin and soldering together--but then criticized his own idea by saying that soldering was a very poor method of fastening. Instructor thereupon reiterated the caution to avoid criticism.

4. The idea of a roller brought no further reactions and it was now past the end of the allotted time. Proceeded with the demonstration and the regular lab work.

IMAGINATION PROBLEM - - Week III - - Winter 12:00 Class

Notes Made After the Laboratory Session

1. A two- or three-minute introduction was given. It was explained that persons who became the most successful after leaving school were not always the ones who received the best marks in school or who were the most intelligent. One of the characteristics of the more successful person may be his creativity. Schools have done little to develop this ability. Therefore this class will be given a few exercises in a technique which may help in the development of this ability. The exercise is a modified form of brainstorming and depends upon the production of many ideas.

2. The problem was then explained; several responses were obtained:

   Make a mold--cast.
   Carve it out of wood.
   Use pressure.
   Stamp--use glue--heat--weld, solder, braze.

IMAGINATION PROBLEM - - Week III - - Winter 2:00 Class

Notes Made After the Laboratory Session

1. Because the extra time spent in explanation on Monday seemed to have produced good results, an extra minute or two were taken; and, in addition to the explanation given then, a little explanation of the necessity for evaluation was given. It was stated that because students were normally given practice in evaluation throughout their educational period, no time would be spent on that in this class. It was mentioned that MANY ideas had to be produced if a good choice were to be possible.

2. This session was by far the most successful "brainstorming" session held in any class to date. Students poured out ideas so fast the instructor could not keep up in recording them on the board. In addition there was some "building on," and they seemed not to fear criticism.

   Some of the ideas were:

   Make a lot of molds.
   Use plastic--in mold.
   Use hydraulic press on the mold (using plastic).

   Machine should make several at a time, to avoid having to make too many molds.

   Use plaster of Paris--in a die.
   Use a plastic die--or a metal die.
   Invent a special hardener to make the plaster of Paris harder.
   Add coloring.
   Use a rubber mold.

   Make of rubber--metal--make hollow--of plastic--stamp out of tin.

IMAGINATION PROBLEM - - Week III - - Spring Quarter

Notes Made After the Laboratory Session

1. Because of the experience fall and winter quarters in presenting the first Imagination Problem, it was decided that a little extra time spent in this session would be well worth while. Therefore, the time spent in this first session was increased to ten minutes. Almost eight of these minutes were spent in introductory explanation as described in notes after the lab, Winter 2:00 session. In the remaining two minutes, the following suggestions were made by various students:

   Cast in a sand mold.
   Press or stamp with shaped mold.
   Carve.
   Cut from sheet metal. Set up production line--one cut out, another shape, a third put together, etc.
   Use plastic. Melt and pour into mold.
   Turn on a lathe.

2. Response was fairly good. There was a mixed group of five women and twelve men; the women did not respond.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Metals Lab I

Group C

Directions

Answer the questions on the attached sheets. Turn this booklet in at your next class meeting.

ACTIVITIES REPORT FORM NO. 3

Group C

1. List 10 articles you have seen which may have been made by casting molten metal into a mold.

1. _____	5. _____	8. _____
2. _____	6. _____	9. _____
3. _____	7. _____	10. _____
4. _____		

2. Why are patterns usually made in halves?

3. What is the procedure for making a casting with a hole in it?

4. What is meant by the "lost wax" process of casting metal?

ACTIVITY INSTRUCTION SHEET 3

Metals Lab I

Groups E_1, E_2, and C

Foundry work dates from the distant past when man first allowed molten metal to flow into a cavity in a rock to make a chisel or an axe head. Although present-day practice tends to replace metal casting by stamping methods wherever possible, there are still innumerable products which begin in some sort of foundry. The block of an automobile engine, the frame of an electric motor, the guard you see over the wheels of the grinder, and the buffing head in the back of the room are common examples of castings. The exercise planned for today should help you gain a concrete understanding of how a sand mold can be made so that molten metal can be poured into a cavity to reproduce a pattern. You may also be interested in looking up die casting, casting in a permanent mold, or the "lost wax" process.

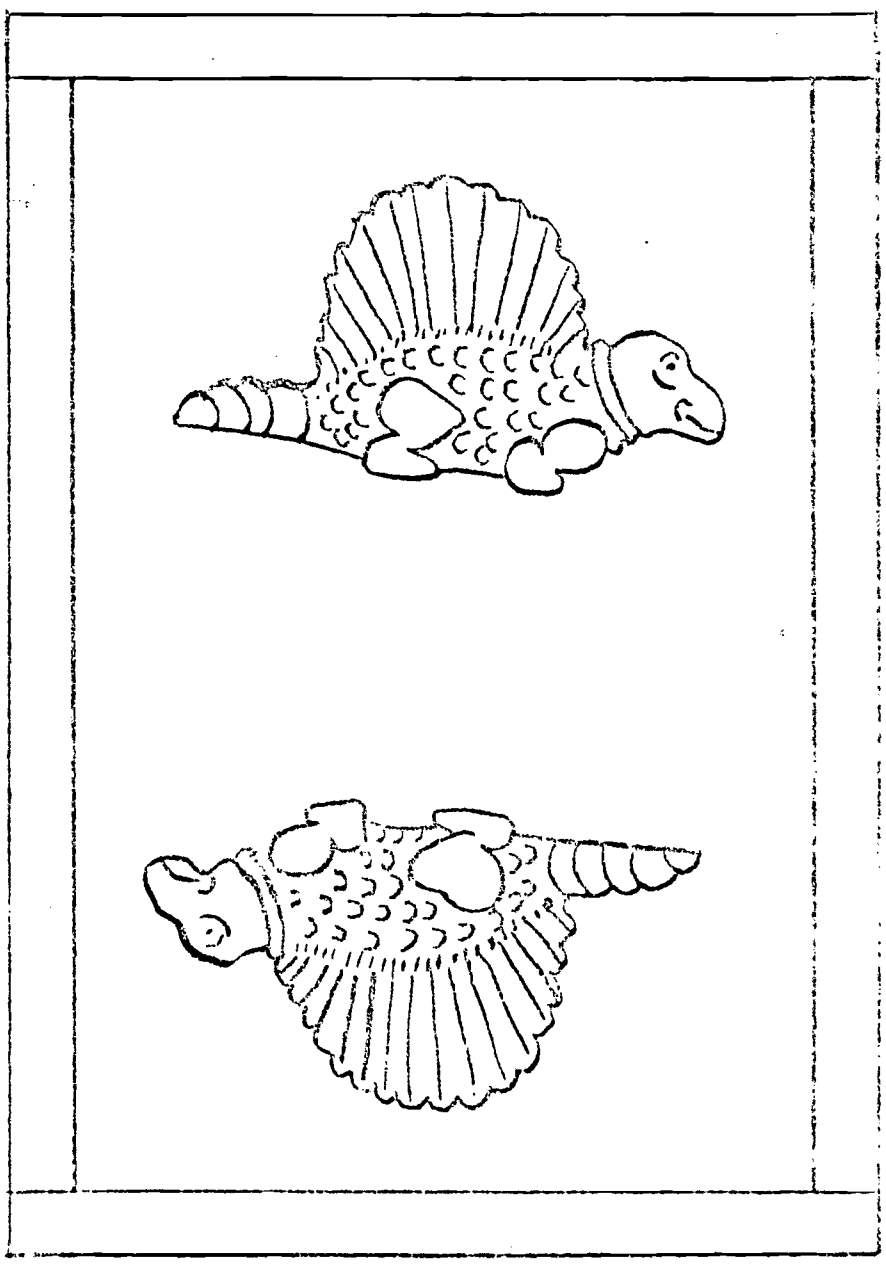
PROCEDURE (Two persons work with each flask)

1. Fill the drag (lower) half of your flask with foundry sand, packing firmly but not too hard. Vapors cannot seep through sand packed solidly.

2. "Strike off" excess sand and trowel smooth.

3. Sprinkle parting compound on bottom side of patterns and on troweled sand.

4. Press patterns firmly into sand in positions shown. Tap lightly with putty knife handle until they are half way submerged. Trowel the sand smooth again. Rap lightly to loosen patterns.



5. Sprinkle parting compound on top surface of patterns. Blow off the excess.

6. Place cope half (upper) of flask in place and riddle sand (through screen) onto patterns.

7. Fill flask with sand, packing as before.

8. Strike off excess sand.

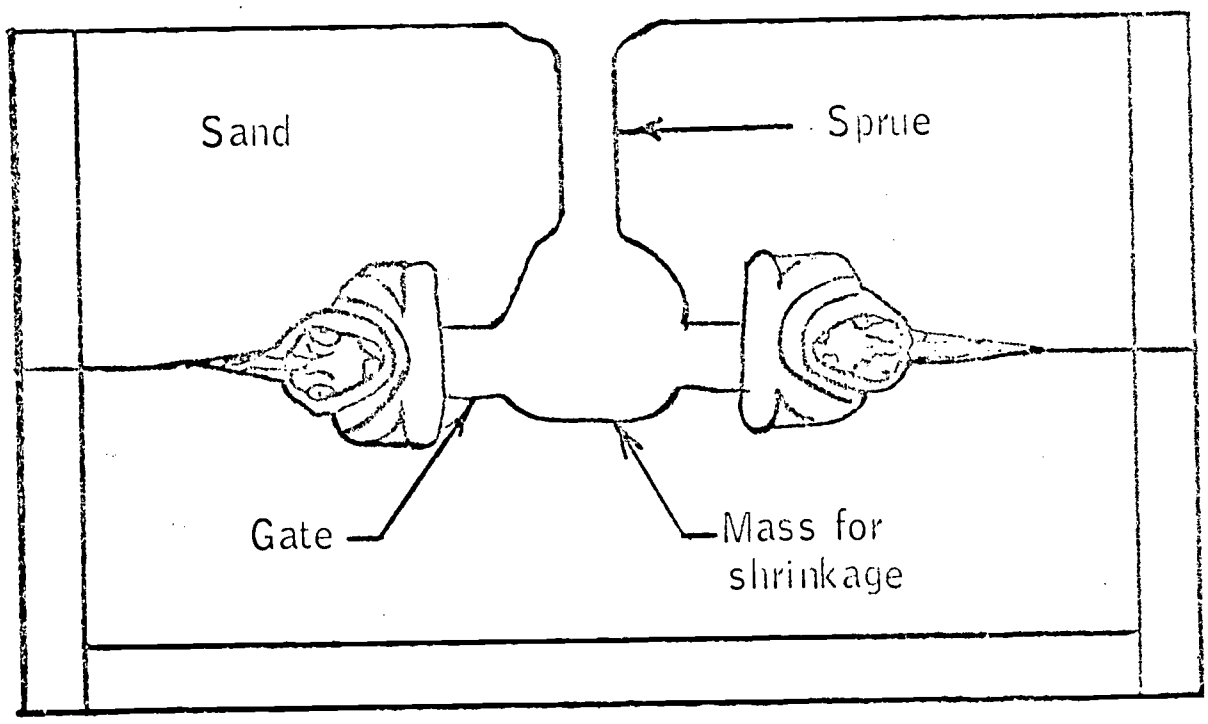
9. Make sprue through sand in cope. With finger, taper the hole into a smooth funnel shape.

10. Turn over and carefully lift drag half off. Patterns will stay in cope half.

11. Slightly dampen the sand around the patterns with a small brush. Rap patterns lightly to loosen.

12. Hold the patterns in place with one hand and turn the cope right side up.

13. Allow the patterns to fall straight out.



14. Carefully cut gates in the cope and drag from cavity to sprue hole. (See sketch.) Enlarge the lower end of the sprue so that the mass of metal in the sprue will cool more slowly than that in the cavity. (Otherwise the dinosaur will have a hole in his tummy.)

15. Blow off excess sand; place flask together and bring it to the pouring bench.

16. While casting is freezing, begin clean-up.

17. Remove casting. Put sand back and break up lumps. Put back all tools and equipment and brush off bench top.

18. Break or saw off gate and place excess metal in melting pot.

19. With an old knife and a piece of sandpaper on a stick, clean off flash (excess metal at the parting line.) This may be done at home.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Metals Lab I Groups E_1 & E_2

Imagination Inhibited?

It is often said that a problem well-defined is half solved. If you sometimes feel prosaic, staid, uninteresting--perhaps you should define the reasons.

Mr. Simberg has, in the following two articles, explained some of the reasons engineers do not always make the best use of their talents. To eliminate some of the pitfalls holding your talents in check, read the advice--

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of

December 9, and December 23, 1959

"Emotional Hazards" and "Advice to Frustrated Creators"

Then practice using your imagination on the "Ideation Exercise" in Part B.

Complete the questions in Part C and turn this entire booklet it at your next class meeting.

Blocks to Creativity

III Emotional Hazards

EMOTIONAL BLOCKS to creativity lie within ourselves, partly determined by the stress of everyday living. To help understand their effect upon our creative thinking processes, picture a balance scale with emotions on the one side and clear thinking, or intellect, on the other. We find that as one side goes up, the other goes down. In other words, when emotion is maximum, the intellect is minimum. Overpowering amounts of emotions—such as fear, love, hate and anger—can be blinding, make us "freeze." They can be completely debilitating.

Probably at the root of most emotional blocks is insecurity, whether on the job or in other areas. Whatever the cause, however, their effects can be just as devastating as the perceptual and cultural blocks.

All individuals feel insecure to some extent. The main thing to keep in mind is that a good deal of insecurity is groundless. Most people are at least a little apprehensive about tackling a new assignment, about trying to adjust to a new situation. But most seem ultimately to meet the challenge fairly successfully.



Fear of making a mistake or making a fool of yourself.

However, the fears and anxieties accompanying new situations are sometimes sufficient to block creativity.

Let us look at some of these emotional blocks and see how they affect our creative behavior.

▪ *Fear of making a mistake or making a fool of yourself.*

Probably more good ideas have been stifled for this reason than for any other. There is a natural reluctance of anyone, particularly the new engineer in an organization, to say anything that might be considered "foolish" by one's fellow workers or supervisors. The sad part of it is that in many cases the idea would not seem foolish at all to others; the individual only thinks that it might.

▪ *Over-motivation to succeed quickly.*

Anyone who takes his job seriously and is intent upon advancement aims to be "the best." It is only natural, therefore, that the young engineer in this situation will find himself very highly motivated. He will not have too much patience. When he does not immediately see a solution to a problem, he may become frustrated and either give it up or continue to butt a stone wall.

Patience is very often required for the solution of complicated problems. We have to learn to allow time for meditation, for the continued mulling over of a problem in our minds (sometimes at a level below awareness). Just as "nothing succeeds like success," so very often lack of progress serves only to block progress.

Reprinted from ELECTRONIC DESIGN • December 9, 1959

■ *Neurotic desire for security.*

Everyone has a natural desire for security. But overconcern with security can be neurotic. Such a person may refuse to take a chance on anything that is new or untried. A young engineer with this attitude is in a severely handicapped position to try to develop new ideas.

Quite often such an attitude is instilled through association with senior company employes who may have had unfortunate experiences many years before. There should be no realistic reason for a young person, starting in an organization—with his entire career ahead of him—to retreat into a foxhole of security.

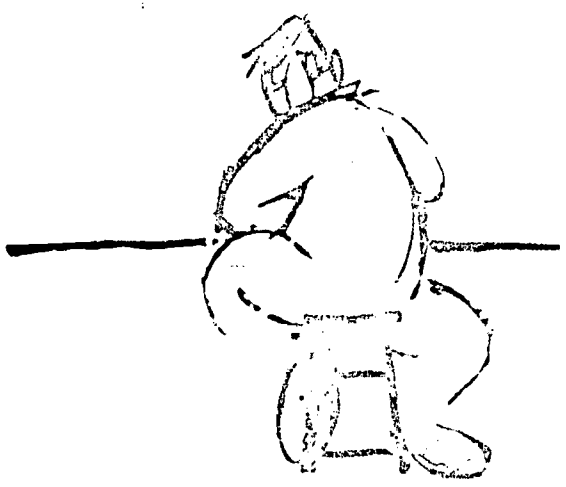
■ ***Fear of supervisors and distrust of colleagues.***

Another example of an emotional block is when the engineer distrusts those with whom he works and fears those for whom he works. In some few cases, of course, these fears may be based on reality. Perhaps, through improper placement, the individual is "over his head," either technically or because of administrative inexperience. Ordinarily these fears are not related to reality. They are primarily a lack of confidence within the individual or a fear of supervisors generally—or any authority, for that matter.

Whatever their basis, they are a definite deterrent to creative activity.

■ ***Grabbing the first idea that comes to mind.***

This emotional block is a failure on the part of many young engineers to reject a workable solution and to continue to search for a better one. A good rule to follow is always to have more than one solution to a problem. You can easily see that this will help your supervisor. With only one idea to judge, he must say either "yes" or "no." With alternatives, you give him a choice. ■ ■



Fear of supervisors and distrust of colleagues.

Blocks to Creativity

A. L. Simberg, Supervisor
Personnel Research & Development
AC Spark Plug Div.
General Motors Corp.
Flint, Mich.

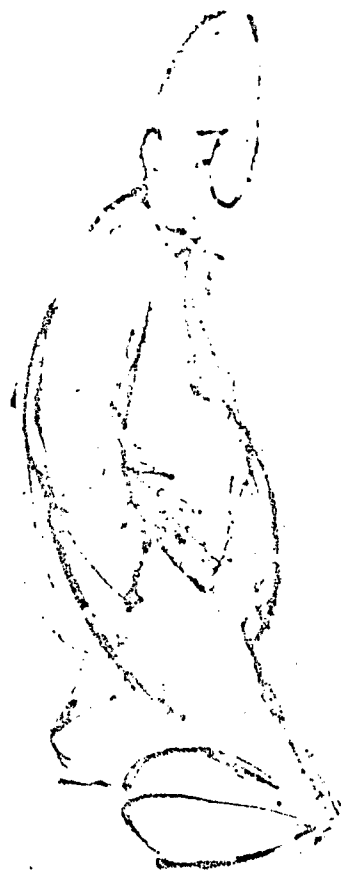
Part IV

Advice to Frustrated Creators

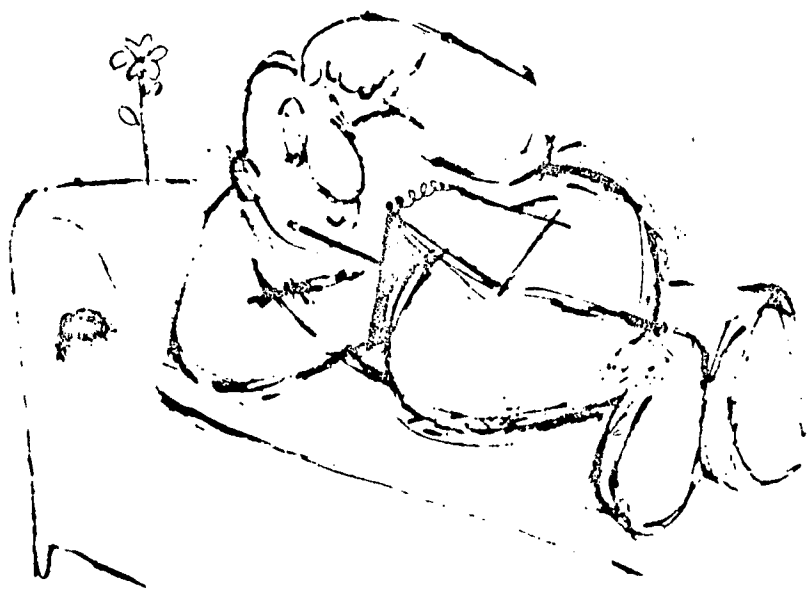
This is the last of a series of articles discussing blocks to creativity.

THERE is no magic in removing the shackles that bind creative thinking. Essential at all times is a positive attitude, rooted in self-analysis and a desire to improve. The person who has been foiled in a creative problem must begin his new attempt by questioning: What caused the block? How can I remedy it?

Bearing in mind that there are three major



What caused the block?



Sit down and analyze yourself

blocks to creativity—perceptual, cultural and emotional—the frustrated innovator can assure himself that no matter what their cause, these blocks lie within his own mind.

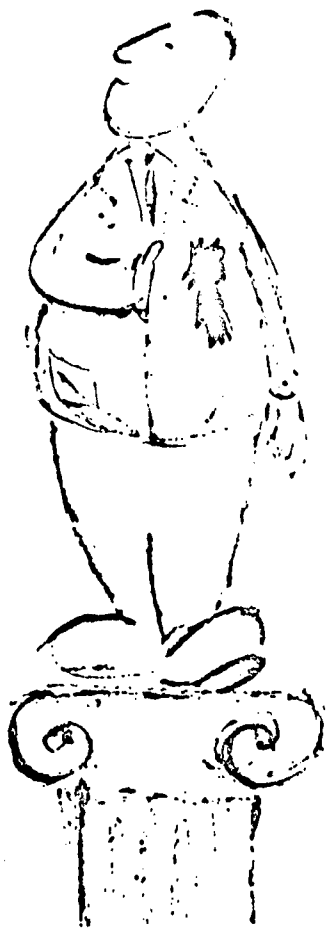
The perceptual blocks obscure the problem as it really is. They frustrate recognition of the "need area." The cultural blocks, instilled by traditional upbringing in the home, teaching in the school and the pressures of society, restrain imagination, inquisitiveness, boldness. The emotional blocks are irrational fears and anxieties that make us reluctant to take appropriate action on our ideas and beliefs.

Recognize the Blocks

The first step toward a remedy therefore is to recognize these blocks. Certainly little can be done about personal shortcomings that you do not recognize and that others cannot or will not point out to you.

Sit down and analyze yourself. Think about the blocks to creativity. To which of these do you feel you are prone? If you are honest with yourself, you can isolate the ones that have been hindering your idea output. If you are having genuine difficulty in recognizing them, ask someone close to you who you respect—but do not ask unless you are willing to be open-minded.

Now that the blocks are out in the open, have been recognized for what they are and their effect upon you, take the next step—admit them. Go back to specific problem situations that were not solved because of blocks like these. Review them and decide how you might have acted had it not been for these blocks. Look for problems that were subsequently solved by someone else. What was it they saw that you missed? Question them



Above all, have confidence

about it. Try to see how you might have reoriented your thinking or synthesized the facts to yield a different, unblocked view. Next look for new situations or problems where you can attempt solutions with your new "frame of mind."

Try a Check List

Many engineers have developed for themselves a little check list that they keep in front of them when they are working on problems. Anyone can devise such a check list. Refer to it regularly when you are stumped on a problem. Do not, however, make the mistake of using it as a crutch. First let yourself go. Use your imagination. Use all of your creative faculties.

When you run into a roadblock—when you can go no further—then refer to your check list. Remember, its only function is to help ensure that you are not failing to solve the problem because of blocks within yourself, which are making you either:

(1) Unable to see the problem.

(2) Not able to take a different approach.

(3) Afraid to come to grips with the situation.

Awareness is the key to overcoming creative obstacles. You must be constantly aware of all the different ways in which your thinking and idea output may be blocked.

Supervisors, Take Note

A word to those who supervise the activities of technical people is not amiss either. Give the innovators a chance! When making an assignment, do not be so overly specific in what you want done that no room is left for imagination on the part of individuals. State the problem in a general manner, ask them how they would go about solving it or what ideas they have about it.

Above all, have confidence. Everyone has within him not only these blocks but also the capacity to rid himself of them. If you think about it this way—that you are not going to become more creative but are going to try to use more of the ability you already have—the task confronting you may not seem so insurmountable after all.

Good luck! ■ ■

Reprinted from ELECTRONIC DESIGN • December 23, 1959

ACTIVITIES REPORT FORM NO. 3

Groups E_1 & E_2

B. Exercise in Ideation.

1. Did you ever refuse to compete in some activity because you were afraid of appearing silly? or of failing? For example:

2. Did you ever smoke or drink just to be one of the group even though you didn't really want to?
Under what circumstances?

3. Have you ever bought or worn clothing you didn't really like just because it was in vogue? Or--worn hair styles--or colors--just to be "one of the bunch"? For instance--

4. Did you ever fail to offer a suggestion because you anticipated your superior's disapproval? When? Did you later regret not making the suggestion?

5. Do you feel you miss out on fun because of the fear of trying something new? For example:

6. Should teachers and students be allowed to wear shorts and loose shirts to school in hot humid weather? Why or why not? Would you be willing to be one of the first to initiate such comfortable attire?

7. Would you be more likely to write a letter to the editor or make a complaint or offer a suggestion if you could do it anonymously? Or would you prefer signing your name?

8. What kinds of situations do you often wish you could (or would) partake in but you refuse to because you are afraid of appearing ridiculous? (E.g.--learning to rock 'n roll in public)

9. Did you ever try to appear dumber than you are? Was it for fear of being called a "sissy" or "egghead"? Elucidate--

10. If you could afford a new car but had an old car which was giving you no trouble, would you be inclined to buy a new one just for "looks" and prestige?

C. Questions (Metals Lab I)

Groups E_1 & E_2

1. Instead of the small animal we cast, can you think of some more interesting or useful articles we could have made in this class by sand casting?

2. If you were in charge of a team of research workers for a large foundry and wanted to develop a new material to replace the sand now used, what characteristics would you list as desirable in the new material?

3. If you were going to make several more of these castings, what changes or improvements would you make in the equipment to be used?

ACTIVITY INSTRUCTION SHEET 3

Metals Lab I

Groups E_1, E_2, and C

Foundry work dates from the distant past when man first allowed molten metal to flow into a cavity in a rock to make a chisel or an axe head. Although present-day practice tends to replace metal casting by stamping methods wherever possible, there are still innumerable products which begin in some sort of foundry. The block of an automobile engine, the frame of an electric motor, the guard you see over the wheels of the grinder, and the buffing head in the back of the room are common examples of castings. The exercise planned for today should help you gain a concrete understanding of how a sand mold can be made so that molten metal can be poured into a cavity to reproduce a pattern. You may also be interested in looking up die casting, casting in a permanent mold, or the "lost wax" process.

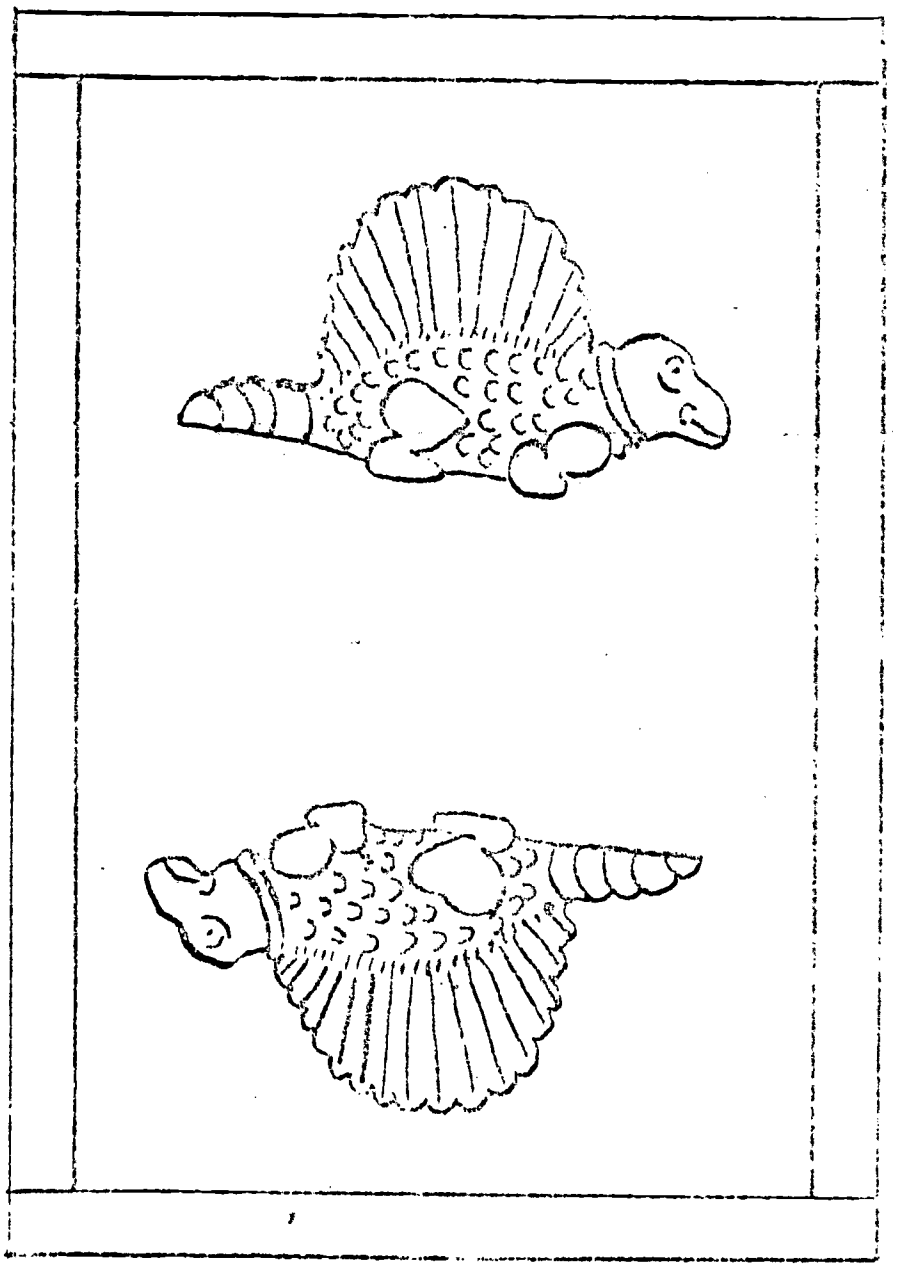
PROCEDURE (Two persons work with each flask)

1. Fill the drag (lower) half of your flask with foundry sand, packing firmly but not too hard. Vapors cannot seep through sand packed solidly.

2. "Strike off" excess sand and trowel smooth.

3. Sprinkle parting compound on bottom side of patterns and on troweled sand.

4. Press patterns firmly into sand in positions shown. Tap lightly with putty knife handle until they are half way submerged. Trowel the sand smooth again. Rap lightly to loosen patterns.



5. Sprinkle parting compound on top surface of patterns. Blow off the excess.

6. Place cope half (upper) of flask in place and riddle sand (through screen) onto patterns.

7. Fill flask with sand, packing as before.

8. Strike off excess sand.

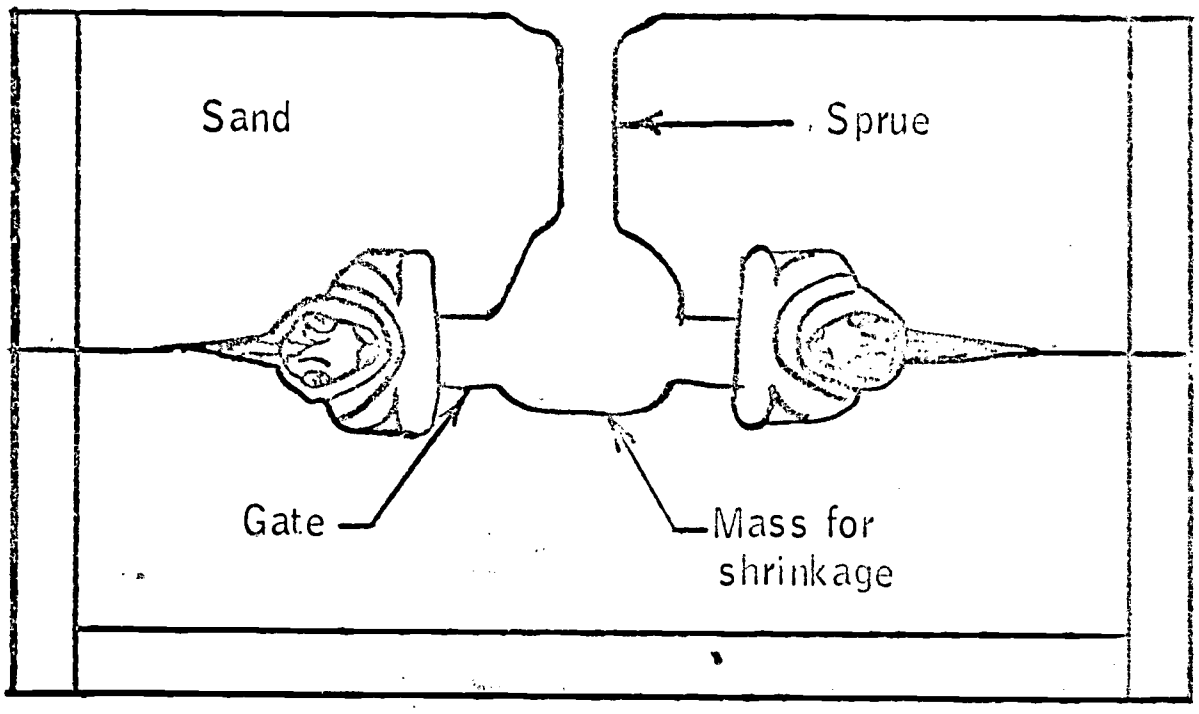
9. Make sprue through sand in cope. With finger, taper the hole into a smooth funnel shape.

10. Turn over and carefully lift drag half off. Patterns will stay in cope half.

11. Slightly dampen the sand around the patterns with a small brush. Rap patterns lightly to loosen.

12. Hold the patterns in place with one hand and turn the cope right side up.

13. Allow the patterns to fall straight out.



14. Carefully cut gates in the cope and drag from cavity to sprue hole. (See sketch.) Enlarge the lower end of the sprue so that the mass of metal in the sprue will cool more slowly than that in the cavity. (Otherwise the dinosaur will have a hole in his tummy.)

15. Blow off excess sand; place flask together and bring it to the pouring bench.

16. While casting is freezing, begin clean-up.

17. Remove casting. Put sand back and break up lumps. Put back all tools and equipment and brush off bench top.

18. Break or saw off gate and place excess metal in melting pot.

19. With an old knife and a piece of sandpaper on a stick, clean off flash (excess metal at the parting line.) This may be done at home.

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week IV, Metals Lab II

State: The problem today is to change a flat, square sheet--

Do: Show pile of sheets of aluminum cut to 4" squares.

State: --into a circular disc with a raised rim.

Do: Show sample disc which has been formed to shape.

State: You all know that operations like this are performed in large manufacturing plants by blanking and drawing on some sort of punch press. Continental Can, for example, punches and shapes can lids in a press with up to six punches and dies moving together. Using a series of these machines, the Mankato plant is able to produce up to five million parts like this in one day.

Do: Show blanked and pressed can lids with scrap remaining.

State: Since we are making only 50 or 60 parts, we certainly cannot use the same methods and machinery as Continental Can Co.

Ask: What ideas do you people have on this problem?

Note: In plain view are items commonly found in an industrial arts shop: aluminum ingots, blocks of various kinds of wood, masonite sheets, and masonite chuck blanks for spinning. A ring and circle shears is in the background. Drill press, spinning lathe, buffers, arbor press, and an assortment of hand tools are visible. Various sizes of pipe including a 6" piece of $3\frac{1}{2}$ I.D. black iron pipe, as well as sheet iron and plate, rod, etc., are in evidence.

State: We could, of course, start by marking all our pieces with a compass and then cutting out circles with a tin snips. How else could this be done?

Do: Record responses if ideas are produced. Discourage any evaluation--this comes later. If no ideas are forthcoming, make some suggestions, as:

Clamp disc in spinning lathe. Make jig for cutting so that all are the same size.
Use a hole cutter in the drill press.
Make a punch and die. Use the arbor press for power to cut discs.
Build on first idea. Make chuck and, after trimming, spin to shape.

Do: After five to seven minutes, stop discussion and state that time does not permit further consideration of these ideas. Hand out Activity Instruction Sheets and point out buffers, arbor press with shaping dies, and demonstrate ring and circle shears.

IMAGINATION PROBLEM - - Week IV - - Fall Pilot Study

Notes Made After the Laboratory Session

After the question, "What ideas do you people have on this problem?" the conversation went about as follows:

Student A: Cut out the discs.

Instr: How? With what?

A: Snips--tin snips.
B: Mark your circles first.
C: Grind them out.
B: Saw them on the band saw.

Instr: (Pointing) We have some equipment around here--drill press, lathe. (Pointing to ring and circle shears) This odd looking piece of apparatus. Does anyone know what it is? (No answer.)

D: Use that to cut the circles. (Chuckles around room.)

Instr: As a matter of face we will. But doesn't the rotation of some of these machines give you an idea?

E: Turn them on the lathe.

Instr: (Holding up a square) You mean to mount this in the lathe so it turns and hold a cutting tool against it?

E: Yes.

Instr: What about some other idea using power rotation?

F: We could use one of these thing-a-ma-jigs that fit in the drill press and has a piece coming out to the side-- (Obviously describing a circle cutter.)

Instr: Have you seen an apparatus like this?

F: Yes.

Instr: You mean a circle cutter?

F: Yes.

Instr: Fine. I believe we have demonstrated ability to think along a variety of lines and also that it is possible to perform this operation in several different ways even in a small shop like this. We will use the ring and circle shears to cut the circles.

Instructor then proceeded to demonstrate the operations described on the Activity Instruction Sheet IV. All persons finished easily in the allotted time. Some had forgotten their castings and had to return on the following day to glue them in place.

Note: This period was introduced with a few complimentary remarks on the fine efforts a number of students had made in answering the questions on the previous Activity Report Forms.

IMAGINATION PROBLEM - - WEEK IV - - Winter 12:00 Class

Notes Made After the Laboratory Session

This group was extremely slow in responding. Only one contribution was volunteered:

> Use a pipe with the lower edge sharpened. Lay the aluminum on a block of wood and cut it by hitting the pipe with a mallet or placing it in an arbor press.

IMAGINATION PROBLEM - - Week IV - - Winter 2:00 Class

Notes Made After the Laboratory Session

About a minute was spent in introduction of the problem and explanation that evaluation is being neglected only temporarily and that seemingly stupid ideas may later turn out to be ingenious.

This group seemed to enjoy the process and contributed rather freely. Ideas were recorded as follows:

A: Use a compass--cut out with tin snips.

B: Sharpen a pipe--place disc under it. Have a solid piece which slides into pipe under the disc. Press down on the pipe to cut.

Form desired shape in the solid piece and put something inside pipe which comes down and shapes tray at the same time.

C: Use cutter as on sheet metal rotary machine. Set on solid circular block and make cutter run around it.

Same, except cutter stands still. Material is clamped to block and turns.

(This is exactly the principle of a ring and circle shears. When the student was asked whether he had ever used a ring and circle shears he replied that he had never heard of one. When the machine standing nearby was pointed out to him, he said he had never seen one before.)

D: Use hole saw--or circle cutter in drill press.

E: Use lathe. Mount disc on chuck and rotate it--hold bit against it.

Use lathe. Hold rotating grinder against it.

F: Drill a hole on circumference of circle and saw around it with coping saw or jeweler's saw.

IMAGINATION PROBLEM - - Week IV - - Spring Quarter

Notes Made After the Laboratory Session

Ideas were rather slow in coming. The girls did not respond at all. After class one girl said she had had a couple of ideas but feared to mention them. Then later someone else suggested them.

These contributions were made:

Cut out the circles with a jig saw.
Cut out the circles with a tin snips.
Press them out by using a punch and die.
Grind off corners.
File down.
Turn in lathe.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Metals Lab II Group C

Directions

In addition to the reading assignment under Me al Work in your course outline, you may find 't necessary to use an er cyclopedia or perhaps some of the books in the library. Look in the area of numbers 621-671 and 745. You will also find some very nteresting reading on the shelves under number 608.

Answer the questions on the attached sheets and turn this booklet in at your next class meeting.

ACTIVITIES REPORT FORM NO. 4

Group C

After you have done some outside reading, answer the following questions:

1. List several common articles or parts of articles which are made commercially by use of a punch press.

2. What is a "forging"? How does forging differ from stamping?

3. In a commercial matched punch and die, what is the stripper plate?

4. Name some article which is now made more economically by the use of punch and die mechanisms.

What was the older and more expensive method?

ACTIVITY INSTRUCTION SHEET 4

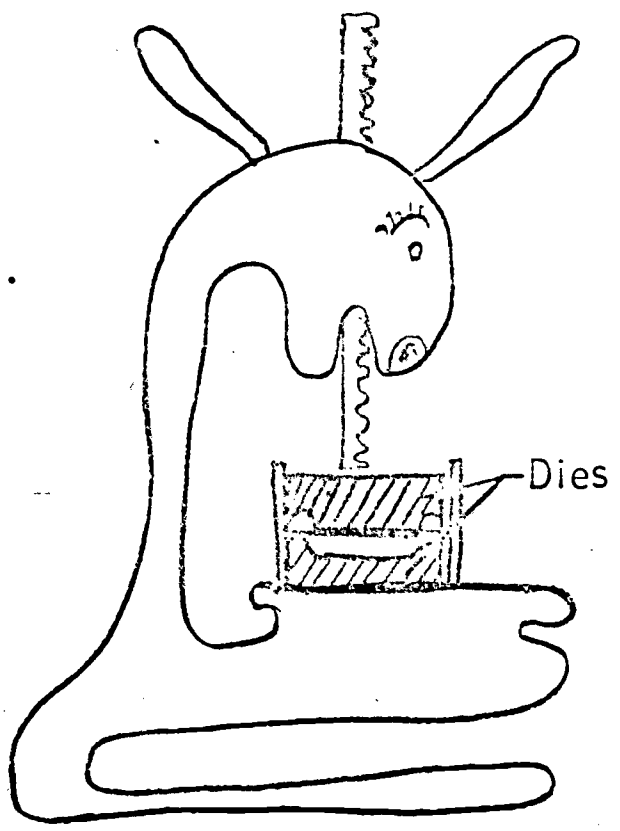
Groups E_1, E_2, and C

Metals Lab II

You may choose a 4" square piece of 20 gauge copper (at 15¢ each) or aluminum (at 5¢ each). Everyone must go through the entire procedure listed below. However, to avoid overcrowding at the ring and circle shears, you may steel wool and buff your metal before cutting it. The following steps are necessary:

1. Cut the square into a 3 1/2" diameter circle on the ring and circle shears.

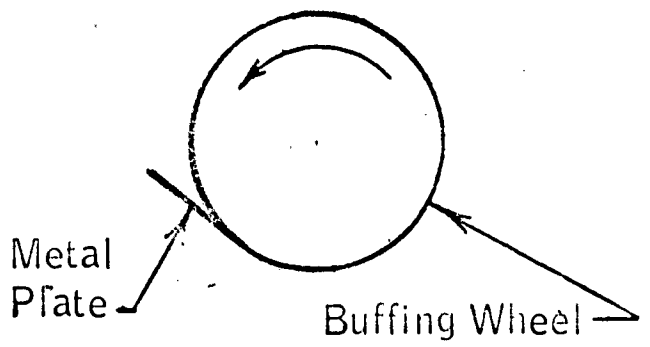
2. At the arbor press, place the disc between the dies and press into shape.



Arbor Press

3. Steel wool both sides of your metal to remove deep scratches and scale. At one of the buffers, polish first on the coarse, then on the fine wheel. Use care to hold metal as shown to prevent its being thrown out of your hand. Spend no more than 2 minutes at each wheel.

4. Finish sanding the dinosaur you made last week. Its base should be quite flat.



5. Clean the polished disc and the dinosaur with a small rag and some lacquer thinner. Print or scratch your name carefully on the bottom of your tray.

6. Place a couple of drops of epoxy resin (from the pre-mixed can) on the bottom of the dinosaur's feet. Set him in the center of your tray and place in the drying rack. If you get any epoxy on your skin, wash with warm water and soap for several minutes. Some people are allergic to this resin.

When the resin has air hardened, it will be given a heat treatment; you may take it with you next week.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Metals Lab II Groups E_1 & E_2

Ideas arise from previous experience--

The wider and more varied your background of experience, the more chance you have for developing new ideas!

Some of the activities which provide background for ideas are:
reading---
travel---
puzzles---
hobbies---
fine arts---
All of you have some background in each of these areas; all should consciously seek more.

There are a number of techniques which will help you make good use of your background of experience. Pages 1 to 15 of Alex Osborn's pamphlet,

THE GOLD MINE BETWEEN YOUR EARS,

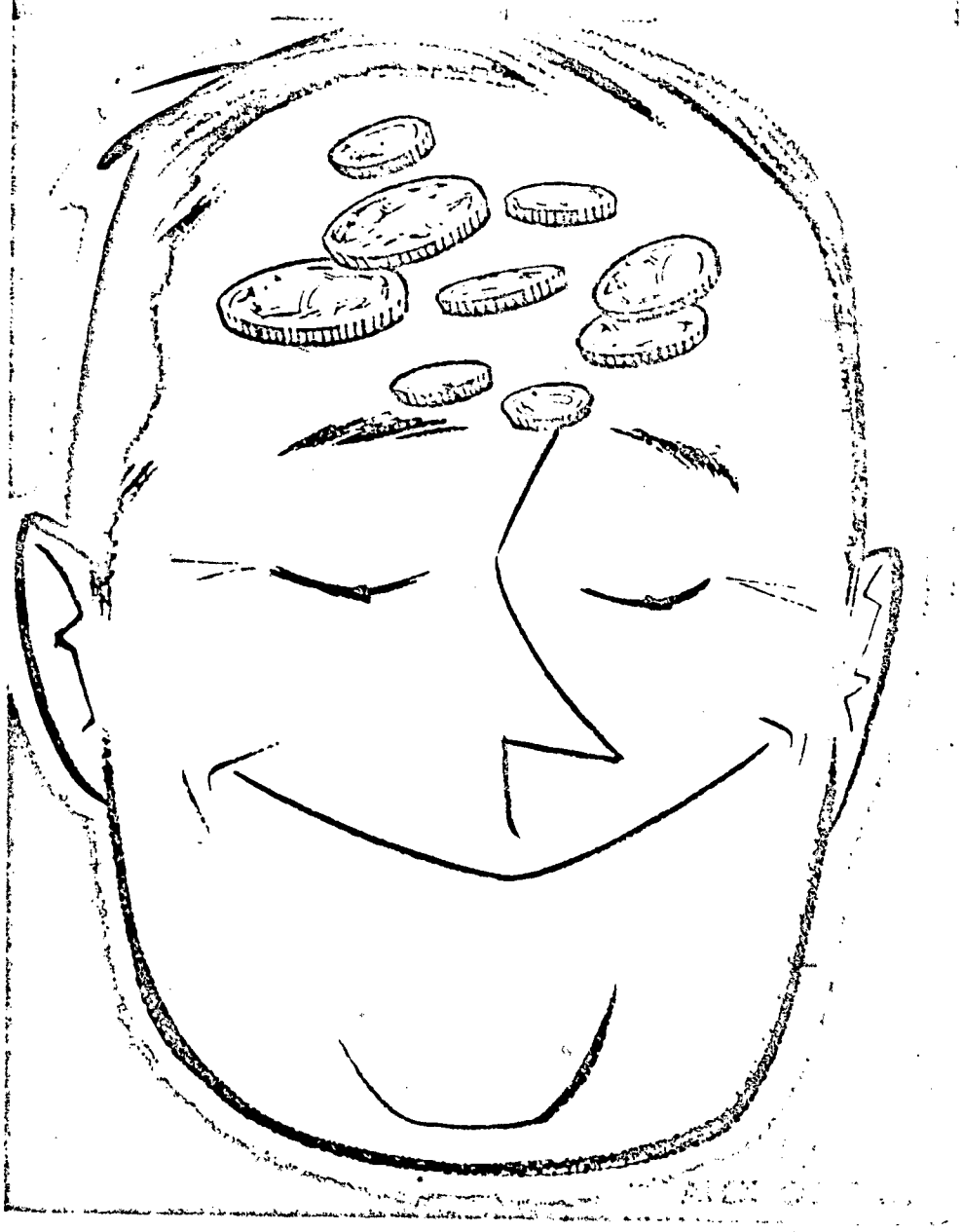
lists some specific methods you can use to increase the fluency of your ideas. Read it. You will find it interesting and stimulating! Incidentally, take good care of the booklet--it will be used again later in this course.

After reading the first part of

THE GOLD MINE BETWEEN YOUR EARS

try the Ideation Exercise, Part B, of this pamphlet. Then proceed to answer the questions on the next page. Turn this booklet in at your next class meeting.

THE GOLD MINE BETWEEN YOUR EARS



THE GOLD MINE BETWEEN YOUR EARS

How to Think up More and More Ideas

by Alex Osborn



ABOUT THE AUTHOR

Born and brought up in the Bronx section of New York City, Alex Osborn helped to earn his way through college by serving as a construction worker, as a bank messenger and as a hotel clerk.

At 21 he became a police reporter on a metropolitan newspaper. Then he took a job as a salesman, and at the same time taught school three nights a week.

During the following years he served as assistant manager of a small plant, where his duties included product design and factory production, as well as marketing.

In 1919 he joined Bruce Barton in founding the firm of Batten, Barton, Durstine and Osborn, an advertising organization which now employs 1800 people in 14 offices.

In the past 10 years Alex Osborn has gained fame as an authority on creative thinking. His four great books on this subject have run into 26 editions.

He is now devoting nearly all of his time and considerable money to the encouragement of a more creative trend in education. His textbook called *Applied Imagination* is already in use on the campuses of about 300 colleges and universities.

According to Osborn, his success grew out of his discovery of ways to make himself better and better able to think up more and more ideas. His principles and procedures (which take up over 300 pages in his textbook) are outlined in this booklet, for quick and easy reading.

As you will see, the author proves that you have a gold mine between your ears—a mine from which you can dig rich rewards, not only in hard cash, but also in the coin of contentment.

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Surely you would like to:

. . . make more money by winning promotions.

. . . think up more cash-winning ideas.

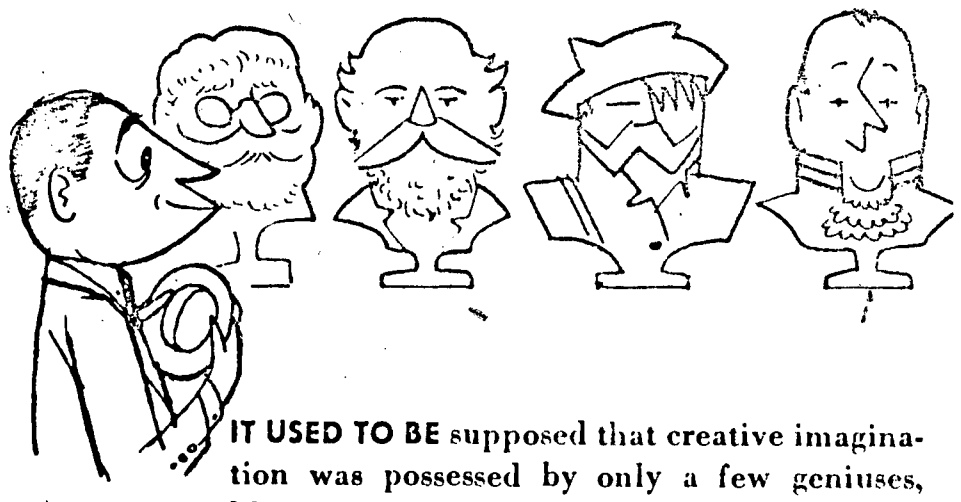
. . . become a better parent and spouse.

. . get more FUN out of life!

Are there ways you can help yourself toward those goals?

Yes there *are* — just as there are knacks to pitching a baseball or tossing a horseshoe.

The key in this case is a gift you were born with — your ability to *think up ideas.* And this is an ability which you can utilize much more intelligently if you read this booklet.



IT USED TO BE supposed that creative imagination was possessed by only a few geniuses, blessed with higher education. But men like Thomas A. Edison proved otherwise.

He was virtually untutored. He started out as a "butcher boy," selling candy and pop and magazines on trains. But by building up his ability to think up ideas, he earned riches and fame.

Creative imagination is no longer the secret of a few happy, successful men and women. Its mysterious workings have been taken apart so that anybody who wants to can now see how ideas are produced.



EVERYBODY IS BORN WITH CREATIVE IMAGINATION!

You were born with it — probably with a greater degree of it than you have ever realized. And you can develop this natural talent of yours. You can make it more and more productive.

THERE'S NOTHING TO HOLD YOU BACK! If you fear that you may be blocked by lack of education, read what a great psychologist has said:

"Students with high intelligence are not the ones who produce the most original ideas. The Quiz Kids are often referred to as geniuses . . . but it is doubtful whether they are also fluent in producing ideas!"

The Human Engineering Laboratories studied the talents of different groups of professional and non-professional people. It was found that mechanics rate well above average in their latent ability to think up ideas.

Dr. Albert Einstein says: "Imagination is more important than knowledge." And it can be more profitable, too. Just look at all of those who have won fortunes with their ideas, regardless of whether they had any diplomas.

AGE NEED NOT MATTER, EITHER—

It's not always true that younger people think up better ideas than older people.

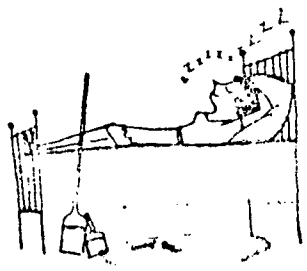
The most creative period of Oliver Wendell Holmes' life was between the ages of 50 and 75. Both Benjamin Franklin and Thomas Jefferson turned out some of their best ideas when they were in their 80's.

The great writer, Somerset Maugham, now in his 80's, says: "Imagination grows by exercise. Contrary to common belief, it is more powerful in the mature than in the young."

WOMEN CAN THINK UP IDEAS WITH THE ABLEST OF MEN!

Women may lack the muscles of men; but they are plenty powerful when it comes to inborn imagination.

They often put it to use to make housework easier—like the woman who found that the average housewife walks four miles and spends 25 hours every year just making one bed. She thought up a way to cut the distance to one mile and the time to 16 hours per year. Here's how:



"Start at the head, smooth and tuck in one corner completely, from bottom sheet to bedspread. Move to the foot on the same side, tuck in that corner and work across the footboard. Now move up the opposite side, from bottom corner to top." (Show this to your wife and see if it won't save time for her!)

Then there was the woman, who saved herself a lot of work, *and* made a fortune — by thinking up an easy way to scour toilet bowls.

It's a mop fitted with a replaceable pad, filled with detergent. Swish it around the bowl, flick off the pad, flush it, and the job's done!

LACK OF EXPERIENCE NEED NOT HOLD YOU BACK

Perhaps you've worked for years on a certain mechanical operation. Or with a special office routine.

Don't think for a minute that this limits your power to think up ideas outside your own field.

History shows that many great ideas came from people who had no special training in the problem involved.

Who worked out the telegraph? Morse — a portrait painter!

Robert Fulton was an artist, too. His invention was the steamboat.

Eli Whitney created the cotton gin. He was a school teacher.

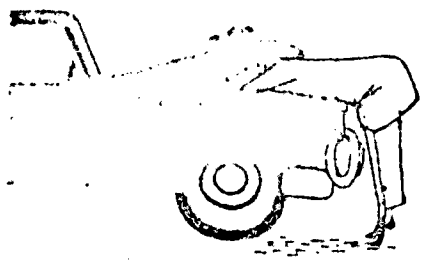


When Alexander Graham Bell started to invent the telephone he had almost no knowledge of electricity.

Many a life was saved in the last war by a shell-fragment detector. It was thought up by an unscientific employee of the New York City transit system!

Yes, you'll be surprised how far-ranging YOUR imagination can become when you limber it up with the help of this booklet.

LET'S GET STARTED



For the ordinary, everyday driving you don't *have* to *know* what goes on in the engine of your car.

But if you were a racing driver, your success would depend on that engine . . . So you'd surely want to know just how it worked!

GET A "RACING-DRIVER ATTITUDE" TOWARDS YOUR CREATIVE IMAGINATION!

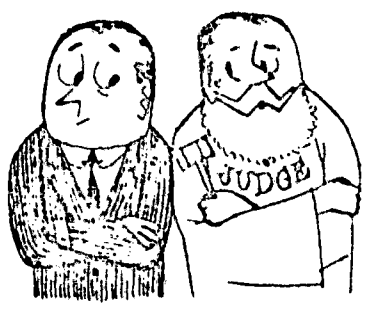
The human imagination — *your* imagination — can be more powerful than anything that ever roared across the Salt Flats of Utah.

To increase your creative power, the *first* step is to understand how your mental engine works.

Let's over-simplify — let's picture your mind as mainly consisting of three servants — your Loader, your Judge, and your Thinker-Upper.

LET'S FIRST CONSIDER YOUR LOADER. He packs your mind by bringing knowledge in through the doors of your eyes, your ears, and your other senses. He stores all this knowledge—especially your experience—in your memory.

SECOND, THERE'S YOUR JUDGE. Your Judge *reasons* — he analyzes, compares and makes decisions. He is indispensable to your mental workings.



But when thinking up ideas, you have to watch out for the Judge. Unless kept in his place, he will too often nip your ideas in the bud.

THIRD, YOUR THINKER-UPPER. Your Thinker-Upper works on material brought in from the storehouse of your memory, plus the new facts you dig up when tackling a problem.



He puts these materials into one fresh combination after another and thus helps produce good ideas.

The ideas you spark may even go beyond what you have stored up in your mind. That's one reason why your knowledge best serves as a guidepost rather than a hitching post. Here are two examples that make this clear:

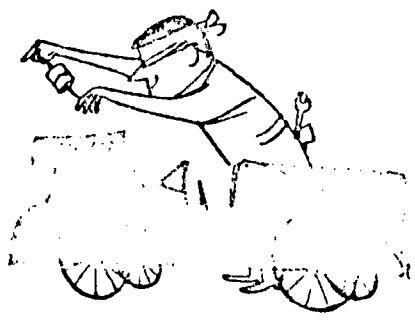
A paper manufacturer was stumped by a production bottleneck in the form of a certain machine. His engineers tried and tried to think up ways to remedy this but they failed.

A new employee was assigned to the problem. He had no engineering degree — just some mechanical aptitude. Never before had he done any work on a paper machine . . .

...but that young man thought up changes that made the balky machine produce more — and at less cost. How those engineers did blush!

What's the *second* way to step up your creative power?

GETTING THE WILL TO WIN!



A racing-car driver might know his engine so well that he could take it apart and put it together again blindfolded. His eyes, his nerves, his reflexes, might be perfect. He might also have a brilliant grasp of the techniques of driving a race.

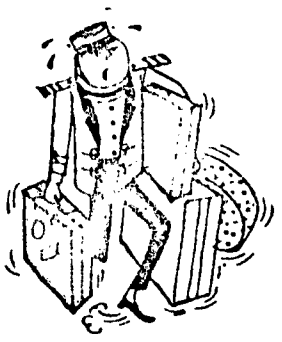
But all that wouldn't add up to a hill of beans unless he had THE WILL TO WIN.

Any realistic, sensible person will put as much *effort* into an endeavor as the *reward* he or she hopes to reap from it.

How much *effort* should you apply?

Well, just take a look at the enormous showcase of rich rewards that are waiting to be won by ideas!

How much effort is your promotion worth? How much driving-force and will-power would an extra cash income be worth to you?



E. M. Statler founded the nation-wide hotel chain which bears his name. He was thought of by outsiders as a *genius*. But his private secretary told me: "I know that every one of his great ideas came from sweating and sweating hard."

Because a man named Lester Pfister kept slugging away at an idea for years, America now has a finer, fuller corn crop. He got the idea of inbreeding stalks of corn in order to kill off weaker strains and build up a hardier species.

He started with 50,000 stalks.

Five years later, he had only four ears of corn left — out of the original 50,000.

But he also had a fortune. Those four ears of corn, untouched by disease after five generations, were the source of seeds for which farmers ever since have gladly paid a premium!

You may never get going on as long a pull as Lester Pfister's. But just remember this advice of a great rowing coach:

"If you hang on two strokes longer than your opponents, you will lick 'em!"

Hanging on a little longer with creative effort can often turn a brassy idea into gold.

SQUARE OFF WITH THE PROBLEM



Did you ever hear about the lucky plumber who dropped a piece of steel pipe into a batch of molten glass — and found a way to make glass tubing?

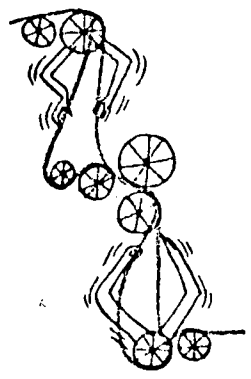
That's the story-book way of solving a problem — by accident.

The surer way is to pick a problem just like you pick a target when you're out hunting.

Draw a bead by stating your problem in its simplest term. Here's an example — the case history of the multi-million-dollar idea called "Sanforizing."

Manufacturers had trouble giving customers as good a fit in shirts as in collars. Collars were washed after being made. But if the shirts were washed, they would lose some of their attractive finish — would look like they weren't quite new.

The problem, Sanford Cluett decided, was to find a way to shrink cloth without putting it in water!



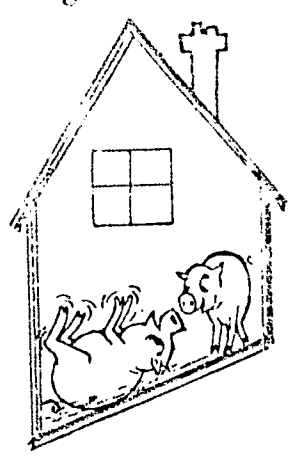
At the cotton mills he studied the finishing process. He saw that the cloth — in strips as long as 14 miles — was being *pulled* through the various processes. Naturally, this pulling distorted the fabric.

Cluett found that if that distortion were taken out, nearly all of the shrinkage would be overcome. So he designed a machine which automatically restored the cloth to balance — in other words, pushed the stretch back in place!

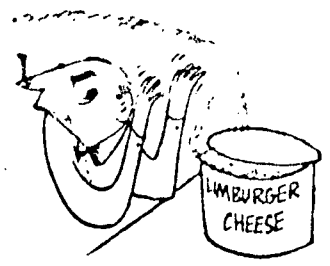
What has a clearly-stated problem got to do with the price of bacon? Plenty, according to the U. S. Department of Agriculture.

A man with a lively creative imagination noted that baby pigs were often crushed by their mothers rolling over on them. So he asked whether this couldn't be stopped by simply tilting the floor in the farrowing house.

Yes, it could. Since mama pigs like to lie with their backs uphill, and piglets like to travel downhill, the tilted floor tends to keep the baby from under the old lady. The Department of Agriculture says that these tilted floors have cut this cause of pig mortality as much as 25%



Once you've got your problem narrowed down, pointed up, and stated, you can then start flying with your imaginative wings.



TRY EVERYTHING!

When Edison was looking for a filament for his first lamp, he tried 6000 varieties of plants before he found the right fibre.

"Try everything," Edison said, "even Limburger cheese!"

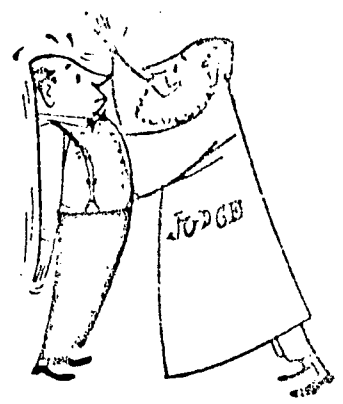
When you look at your problem from every angle, you buckle on one of the sharpest sets of spurs in the thinking-up process. This is the gift which you and everybody else possesses. It is called:

ASSOCIATION OF IDEAS

Whenever you say, "That reminds me of something," you're using association of ideas. One thought leads to another, like a string of popping firecrackers.

LET YOURSELF GO! You certainly couldn't walk very far if you kept "both feet on the ground." But the Judge in your mind tends to scoff: "No, that won't work" . . . "That doesn't sound very good" . . . "That's just plain foolish!"

Send your Judge back into his chambers whenever you set out to think up ideas. When you let him prematurely throw ice water on the wings of your imagination you just can't soar as high and wide as you should.



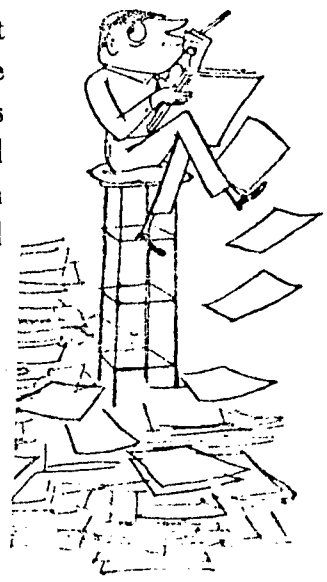
Later you can call in the Judge to evaluate your ideas with all his judicial might.

After you've got the problem narrowed down, you will want to attack it with a barrage of ideas.

TAKE NOTES AND USE CHECK-LISTS

In each of these ways you can gather fuel and can accelerate your power of association of ideas.

Clement Kieffer is in charge of window displays for a big store. He's won more cash awards, more medals and cups, than anybody in that competitive field. He has *33* windows to fill every week. So he thinks up at least one new idea every day of the month. For his "check list" he uses a big box into which he has tossed 3000 idea-starters — clippings from papers and magazines, notes and sketches of his own.

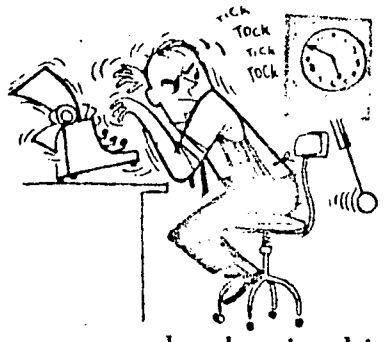


CARRY A PAD AND PENCIL WHEREVER YOU GO

Millions of dollars worth of valuable ideas have been lost because of the want of a stub pencil and a scrap of paper!

Keep your notes. Put them in a cigar box, or in your bureau drawer.

Maybe they may lead to nothing at the time you make them. But it may amaze you how you can pull out a note — a week, or a month, later — and find that your imagination has been chewing on a problem and has found a key to its solution.



SET A DEADLINE! The need for meeting deadlines has turned many an average newsman into an ace reporter. How? By showing him that he *can* work under pressure — by showing him that he *can* produce with the clock ticking away at his ears!

The founder of one of America's biggest fortunes started work as an apprentice in a railroad shop .One day he was asked if he could fix a locomotive in two hours.

"Yes," he said.

And he did.

Here's what he said afterwards:

> "If I hadn't *promised* to fix that locomotive in two hours, I wouldn't have made it — I wouldn't have put in so much mental sweat."

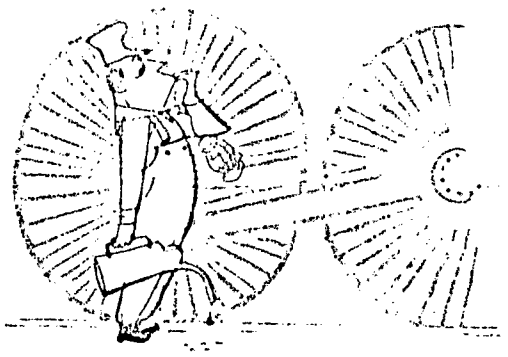
The need to succeed — the fear of failure — can be a powerful prod to your imagination!

Another way to step up your imagination is this:

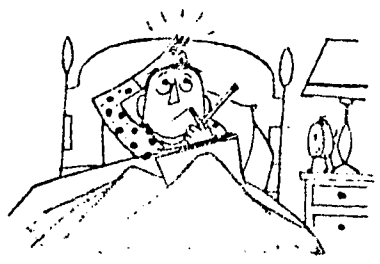
SET YOURSELF A QUOTA!

Bind yourself to think up a minimum number of ideas within a certain time. Start with one idea a day. Soon you'll find you can take on bigger and bigger stints.

To get the best and brightest results try this:



MAKE DATES WITH YOURSELF!



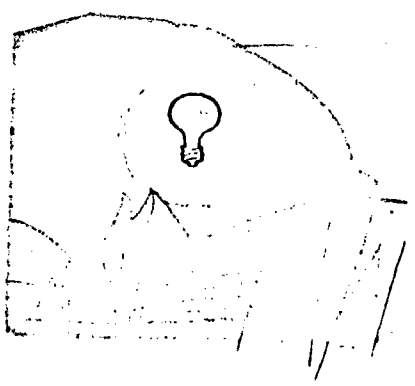
Set certain times for thinking up ideas.

Early in the morning is usually the best, for then your mind is freshest. But it's also a good practice to keep a pad and pencil beside your bed.

By conceiving the idea of landing mats which could be made into airfields overnight, Walter Irving did much to enable our armed forces to win out in the invasion of North Africa. What does Mr. Irving say about the time and the place for thinking up ideas?

"The bed, the bedside pad and pencil," says Walter Irving, "are great aids to thinking up ideas. Only last night, I scrawled over four sheets of paper in the pitch dark — notes that could be solutions to a current problem.

"A few months ago in a Washington hotel I awakened from a dream about 2:30 A.M. Then and there I sketched a simple idea that has since started an important new product. Had I just turned over and gone to sleep, I am sure I never would have thought of it again."



And now we come to a series of machine-guns with which you can pepper your problems—machine-guns in the form of QUESTIONS.

QUIZ YOURSELF

Questions are great unlockers of ideas — especially ideas that are valuable in industry. Questions like these:

IN WHAT NEW WAY COULD THIS PRODUCT BE USED?

Production of Neoprene has been built into great volume through a steady stream of new-use ideas.

A toymaker makes a chocolate-flavored bone out of Neoprene for dogs to chew on!

A doll-maker covers some of his dolls with a skin of Neoprene -- so natural-looking that a child thinks it is a real baby!

The list is endless.

Take Nylon. Because of a "wild" new-use idea, this is now taking the place of catgut on most tennis rackets. It is also being used for fishing lines -- and fishing rods -- as well as for clothes-lines and 1000 other purposes which were unthought of when Dr. Charles Stine first started to create this new material.

In the steel industry, slag used to be costly waste. Now it is used for ballast in railroad beds, for making cement, for processing into building blocks.

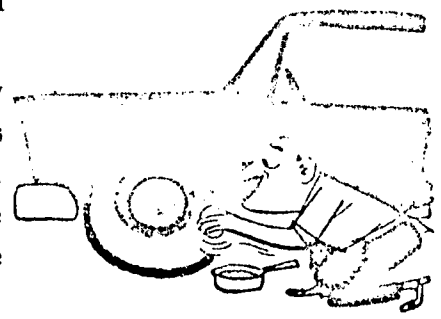


L. A. Conley, a rubber company employee, saw pieces of surgical tubing being thrown into the waste barrel. "Why not cut them into rubber bands of the size and width which are used by the millions to hold small items together?" he asked.

L. A. Conley got a fat check for that new-use idea of his.

TO WHAT OTHER USES COULD THIS BE PUT?

A well-known scouring pad got its start in the kitchen sink. And then somebody thought up the idea of using it to clean white sidewall tires. Result — a great new market in the twelve and a half million cars with white sidewalls!



Could a telephone have a new use? Sure — transcribed records that announce correct time and latest weather reports have brought millions of extra revenue to telephone companies.

A rat-poison that is successful because it kills rats in a *different way*. For some reason, rats like to lick their feet. This poison is sprinkled where the rats walk, Then — when they lick their feet — they seal their doom.

WHY NOT ADAPT OR BORROW?

Here are four samples of questions along that line — questions which could help to flush your ideas:

What else is *like* this?
What ideas does *it* suggest?
Does the *past* offer a *parallel?*
What could I copy *outright?*

This design of the new glassdomed railroad cars was probably borrowed from taxicabs with "sky tops." That's how an idea can be *adapted*. If you reborrow the same idea and turn it upside down, you get glass-bottom boats for under-water sight-seeing.

We can even borrow ideas from Mother Nature — as did the Jap who found that pearls grow because oysters become uncomfortable when sand gets in their shells. So he made sure they were uncomfortable — by *sticking* sand

in their shells. And thus he found a way to produce oodles of natural pearls at low cost and high profit.

HOW ABOUT A NEW TWIST?

Personalized pretzels bent to form your initials? That might sound silly — unless you remember that the sky's the limit when you're piling up possible solutions to a problem.

Here are some questions that could help you think of new twists:

What new *look* could this be given?
What could color do?
How about another form or another shape?

Remember the story of the hardware dealer with a stock of shovels he just couldn't sell? He painted red stripes on the bottoms. This attracted attention — gave the shovels a *different* look — and he sold them out!

How about another *form?*

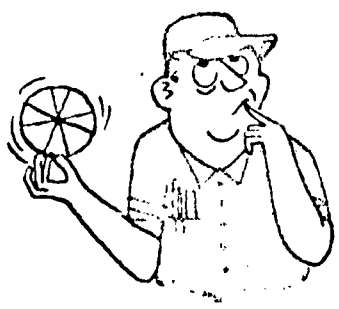
It wasn't so long ago that all soap came in bars — then somebody suggested that it be flaked.

How about other *shapes?* How about *odor?* How about *motion?* We now have Christmas-tree lights which not only shine colorfully, but also bubble with lively movement.

Some stores put odor to work by spraying perfume in the air outside their stores to attract customers!

HOW CAN WE SUBSTITUTE THIS FOR THAT?

What other part instead of *this?*



Driving-gears show the value of such questions. Transmission was improved on trucks by substituting metal worms for conventional cogs.

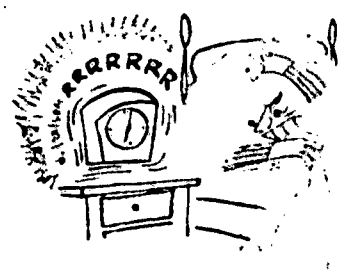
"Why not use a fluid instead of metal gears on automobiles?"

That may have sounded crazy. And yet that was what has made our newest cars so easy to drive!

What other *ingredient?*

"Could we put *glue* in a cleaning compound?" That was the secret of the fabulous success of two Milwaukee men who were paid a fortune for their new product when bought by a great soap company!

MORE-SO . . . AND LESS-SO?

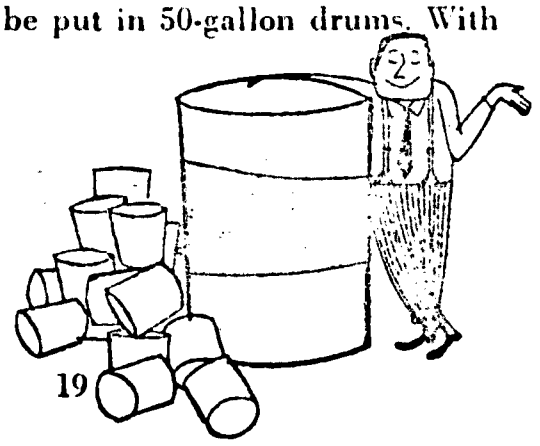


How about a "more-so"?

Westclox went for that idea 20 years ago when Big Ben was given *two* alarms — one a shout, the other a whisper. Now Westclox has added a blinking beam which calls you silently. But if you ignore that kindly light, the bell starts ringing angrily.

HOW ABOUT A BIGGER PACKAGE? A rubber factory formerly had its rubber-cement packed in one-gallon tins — used once and thrown away. Then an employee suggested that the cement be put in 50-gallon drums. With each operator using a refillable can, oodles of waste and tons of tin were thus saved.

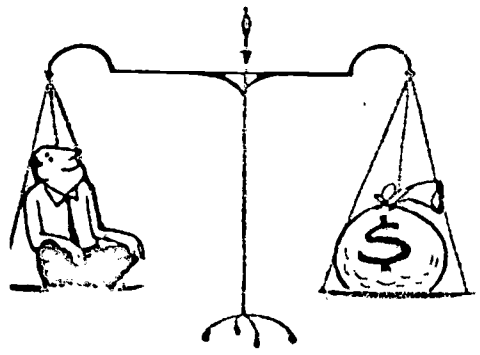
That employee was rewarded royally for his big-package idea!



No longer do you have to bail out your motorboat. Drop a little attachment in the bottom and let your outboard motor do it for you.

LET'S GO

Up to now, lots of new ideas — lots of successful new products — have probably seemed to you like "strokes of genius" or "pure luck."



But now you see how many of them can be traced back to ordinary people who asked their minds question after question — until their imaginations sparked and handed them answers worth their weight in gold.

WHY CAN'T YOU DO IT?

Why can't *you* think up more ways to win the rewards that await you — quicker promotion, more money, more happiness, more fun out of life?

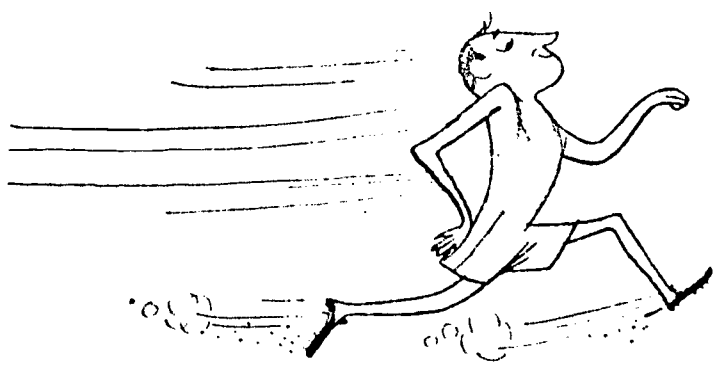


You were born with imagination. Neither your age, nor your experience, nor your education is any excuse for your not trying to make more profitable use of your creative talent. It is the greatest gift you possess — the gift that can do *most* to help you get ahead and to brighten your life in every way.

HOW ABOUT STARTING NOW?

Books by Alex Osborn

HOW TO THINK UP (McGraw-Hill 1942)
YOUR CREATIVE POWER (Scribners 1948)
WAKE UP YOUR MIND (Scribners 1952)
APPLIED IMAGINATION (Scribners 1953)



ACTIVITIES REPORT FORM NO. 4

Groups E_1 & E_2

B. Exercise in Ideation:

Carry a check list and keep your eyes open during the next few days. Then--before your next class meeting--answer the following questions:

1. What inefficient or awkward actions have you noticed?

Think of the time and effort saved by making one corner of a bed completely before going on to the next. How could you--or someone you observed--save time and effort?

2. In the October 1, 1961, issue of THIS WEEK Magazine, Dexter M. Keezer listed a number of things people wanted invented--such as dwarf grass or grass that grows sideways, aluminum foil that will burn, expandable clothes for growing children, and so on. Crazy ideas? Impossible? What were the first reactions to thoughts of building radios? airplanes? of taking a trip to the moon?

What would YOU like to have somebody invent?

C. Questions (Metals Lab II)

Groups E_1 & E_2

List several articles or parts of articles made in some other way which could be made just as strong and serviceable by a stamping process:

Article (or part)	How made now?	Advantage or Disadvantage of producing by stamping

. If you were helping plan a new course outline for Industrial Arts 120, what would you suggest for "different" projects in metal stamping? Show by sketch if possible.

ACTIVITY INSTRUCTION SHEET 4

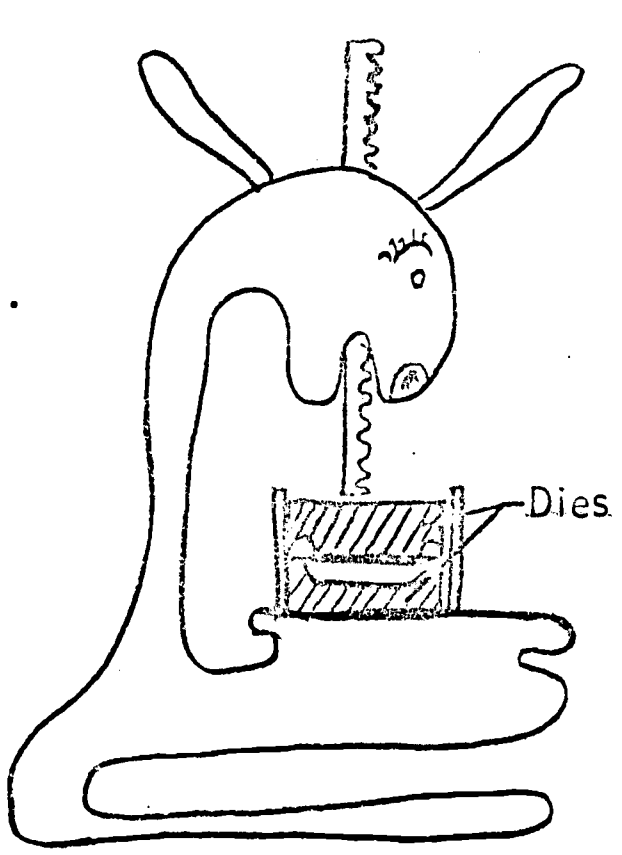
Metals Lab II

Groups E_1, E_2, and C

You may choose a 4" square piece of 20 gauge copper (at 15¢ each) or aluminum (at 5¢ each). Everyone must go through the entire procedure listed below. However, to avoid overcrowding at the ring and circle shears, you may steel wool and buff your metal before cutting it. The following steps are necessary:

1. Cut the square into a 3 1/2" diameter circle on the ring and circle shears.

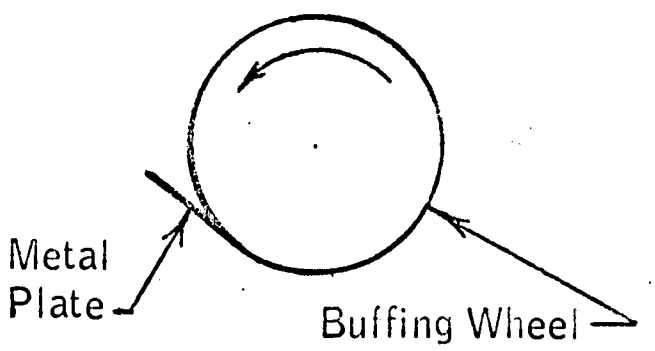
2. At the arbor press, place the disc between the dies and press into shape.



Arbor Press

3. Steel wool both sides of your metal to remove deep scratches and scale. At one of the buffers, polish first on the coarse, then on the fine wheel. Use care to hold metal as shown to prevent its being thrown out of your hand. Spend no more than 2 minutes at each wheel.

4. Finish sanding the dinosaur you made last week. Its base should be quite flat.



5. Clean the polished disc and the dinosaur with a small rag and some lacquer thinner. Print or scratch your name carefully on the bottom of your tray.

6. Place a couple of drops of epoxy resin (from the pre-mixed can) on the bottom of the dinosaur's feet. Set him in the center of your tray and place in the drying rack. If you get any epoxy on your skin, wash with warm water and soap for several minutes. Some people are allergic to this resin.

When the resin has air hardened, it will be given a heat treatment; you may take it with you next week.

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week V, Woods Lab I

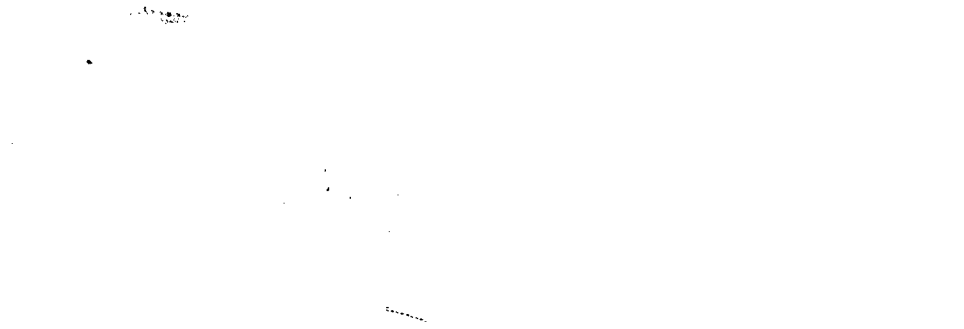
1. Show laminated pencil rack. Explain this will be the wood project. Call attention to the laminations.

2. Ask for ideas on how laminations may be held together while the glue dries. State that shape or size need not be exactly like this.

3. Use flip charts (or slides or overhead projector) to show one or two ideas. Ask again: how else might these have been held tightly together in a curved form?

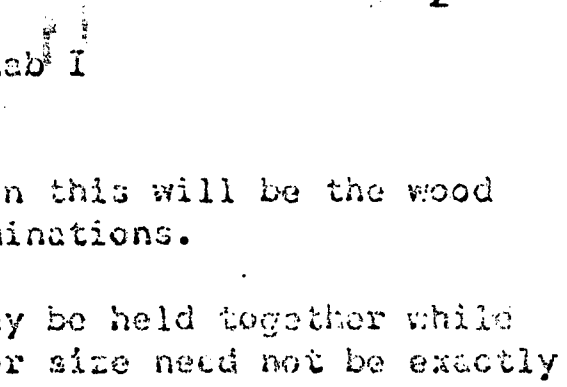
   (Note: If anyone criticizes anyone else's ideas, firmly remind the class that criticisms may be only constructive. Build on the idea or start on a different tangent. Do <u>not</u> pass judgment.)

   Imagination Problem: (Look at laminated pencil rack.) How could these laminations have been held while the glue dried? Shape or size doesn't have to be exactly like this.



<u>Possible solutions</u>

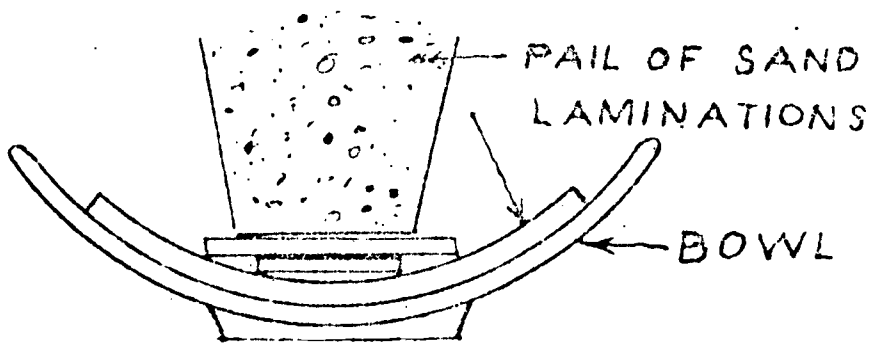
a. Bend a piece of heavy iron and use a series of "C" clamps.



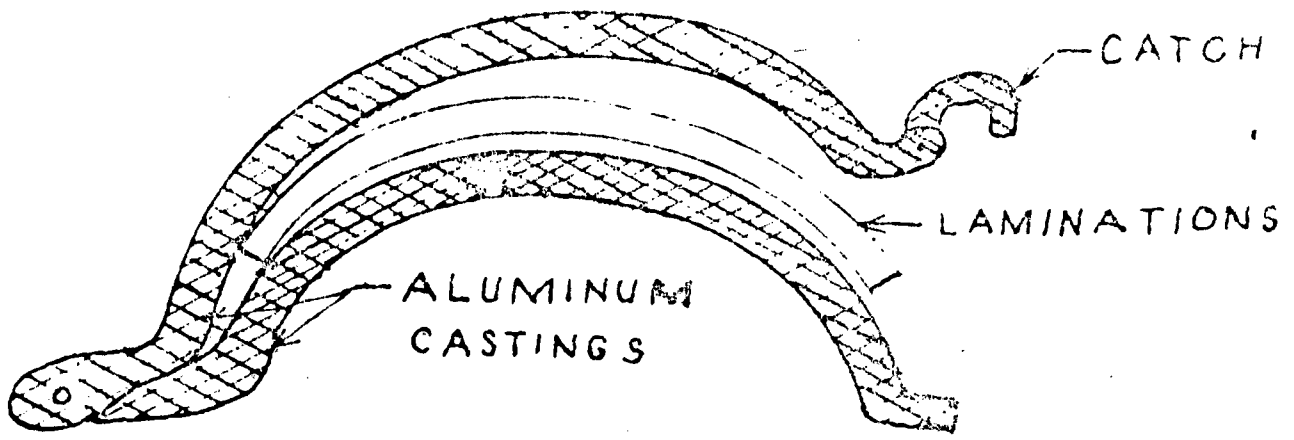
b. Wrap around a large pipe. Tie with a string.

c. Same as <u>b</u>, but substitute for a pipe: kettle, log for the fireplace (bark removed), column on drill press, electric motor housing.

d. Place in a bowl and put a heavy weight on top.



e. Make a wood pattern and a number of aluminum castings. Place glued laminations between castings. Press together with arbor press and flip catch.



4. Record ideas on blackboard--or ask student to sketch his idea. Encourage other students to "build on" or revise or simplify.

5. Show more ideas if they have not been already mentioned by students. (See "Possible solutions" sheet.)

6. After six or eight minutes, cut off discussion and show jig made for this class.

7. Continue as in Groups C and E.

IMAGINATION PROBLEM - - Week V - - Fall Pilot Study

Notes Made After the Laboratory Session

These suggestions were made by students before the showing of the flip charts:

Make form of wood.
Make form of iron or plastic or rock--(after a couple of seconds) or CEMENT!*
Make second form to fit over it; clamp them together and saw both of them at once.

Hold laminations to form with strap of tin.
Tack down with pins.

Cut slot in wood--shape desired--and then push into slot.

Wrap around pipe--hold with string. Make several or many on one pipe.

Push inside pipe. Hold with smaller pipe or wedge in place.

At this point instructor stopped the discussion and showed the sketches of ideas he had prepared to use in keeping the discussion alive. With this group, ideas flowed so rapidly that there was no time to use these sketches. It was also noted that this type of activity is similar to that used in industries where brainstorming is used in developing new ideas. The class was told that the next steps would logically be (1) a delay to allow ideas to incubate, (2) a critical review of all the ideas, and (3) a selection of the best two or three. (This is evaluation.)

*Comment by instructor here: "Note how an apparently stupid idea can lead to a good idea, as stone (impossible) to cement (good--can be molded to desired shape).

IMAGINATION PROBLEM - - Week V - - Winter 12:00 Class

Notes Made After the Laboratory Session

The following ideas were volunteered by students during the course of the discussion:

Use pressure--shape pieces and press together. (When asked by the instructor, this student said he had seen this method used.)

Use weights for pressure.

Make pieces long and nail down the ends.

Use a device like a ring compressor.

The response of this group was very poor. It was seemingly impossible to stimulate many in the class to present ideas freely and without inhibition.

IMAGINATION PROBLEM - - Week V - - Winter 2:00 Class

Notes Made After the Laboratory Session

Conversation and activity diverged from plan about as follows:

Student A, explaining an idea and unable to make himself clear, accepted an invitation to step to the blackboard. Speaking as he sketched, he said:

Form a block of wood like this:

Cover with stainless

Place laminations in here

And another piece of stain-
less over the outside

Clamp down with bolts here

Instr: Good idea. Have you perhaps seen this used?

A: Yes.

Instr: There must be other ways of doing this job.

B: Use a quart can. Have holes in ends of laminations. Tie around can. Use a gallon can.

A: Place in something hollow and put weights on it.

C: Use steam pressure.

Instr: (Showing flip charts) These ideas closely parallel the ones I had. Notice the similarities. This idea--aluminum castings--is a little different.

The demonstration and regular lab work then followed.

IMAGINATION PROBLEM - - Week V - - Spring Quarter

Notes Made After the Laboratory Session

Ideas from students before flip charts were shown:

Use two pieces of wood; clamp together.

Add length to above and use bolts to hold together.

Bend two pieces of iron. Clamp between.

Tie them together.

Use iron pieces with heaters and special quick-setting glue. Apply glue; clamp together (glue sets immediately); take apart. Start over again.

Bend; clamp across ends and in middle. (Response from girl.)

Very good response. Many <u>different</u> students responded, including the first girl to make a suggestion in any class.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Woods Lab I Group C

Directions

Refer to your class notes and the reading assignment listed in your course outline; then answer the questions on the attached sheets.

Turn this booklet in at your next class meeting.

ACTIVITIES REPORT FORM NO. 5

Group C

Answer the following questions:

1. How is wood cut into thin sheets for laminations such as we used?

2. What is meant by rotary sliced veneer?

   flat sliced?

   quarter sliced?

3. What difficulties did you encounter or notice in gluing the laminations together?

4. What type of glue did we use?

5. What type of glue is used in large scale production of laminations?

6. List some articles made at least partly of laminated wood.

ACTIVITY INSTRUCTION SHEET 5

Groups E_1, E_2, and C

Woods Lab I

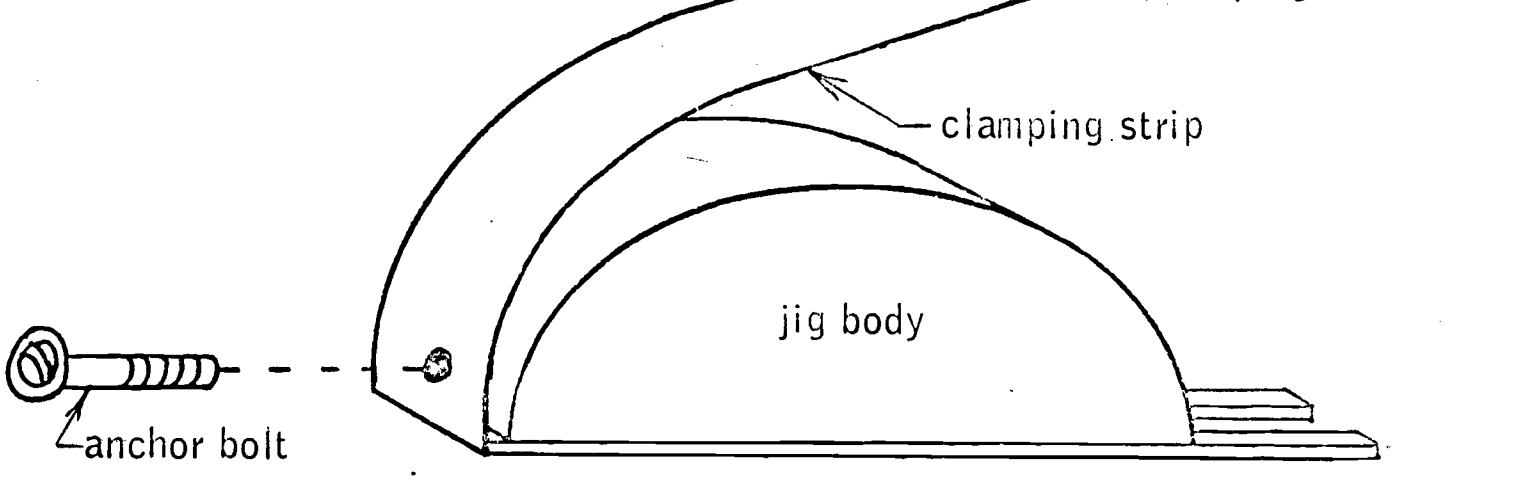
Laminated Pencil Rack

Jig No. _____

Introduction: One of the present day trends in the use of wood as a material of industry is the increased production of articles made from laminated wood. Because this material is stronger for a given weight and more versatile than solid wood and because new glues and new machines are available, modern designers are incorporating more laminated parts into their products.

To give you a chance to gain first-hand, concrete experience in the making of wood laminations, a small project has been planned for you. It is hoped, of course, that you will see this as merely a simple example of the multitude of uses which are now being made of laminated wood.

Procedure: Gluing laminations in a jig. At right above, list the number of the jig you are using.



JIG FOR GLUING LAMINATIONS

1. Take four pieces 1/16 x 1 1/4 x 10 3/4, all with a hole punched 3/8" from one end.

2. Write your name on the piece you decide to use for the outside--lightly, for it must be sanded off later.

3. Thread anchor bolt through clamping strip and holes in veneer strips; tighten with fingers. Clip about 3/16" off the inside piece and about 1/8" off the two middle pieces with a tin snips or shears.

4. Place a strip of paper towel on each side of the laminations to prevent getting glue on the jig.

5. Spread glue between the wood pieces, being careful not to miss any spots. Do not use an excess of glue.

6. Straighten the laminations and tighten the anchor bolt with a screw driver.

7. Bring clamping bolt around and slide in slot in base. Tighten nut securely so that no air spaces show between wood pieces.

8. Wipe off excess glue. Place jig in box to dry. Replace cap on glue bottle.

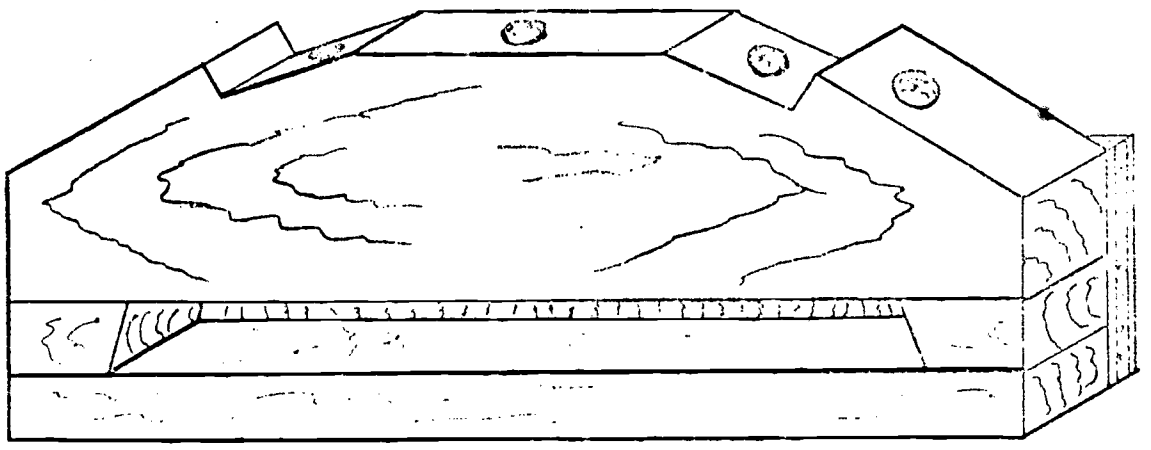
Procedure for preparing the base. List your jig number here:_____

1. Secure a base piece and place it in jig.

2. Mark a 5/16" twist drill with a piece of masking tape as a guide in drilling the holes in the base 1/4" deep. The jig is made so that the same depth guide is satisfactory for all holes. If someone else used the drill and marked it, be sure it is still correctly marked.

3. Place jig and base piece in a vise and drill all holes.

4. Sand only top side of base piece. Clean out holes as necessary.



JIG FOR DRILLING BASE PIECE

5. Put away all tools and equipment. Brush off bench top.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Woods Lab I Groups E_1 & E_2

Directions

Check the reading assignment in your course outline.

Read the attached material and work out the "Ideation Exercise." Answer the questions on the last page.

Hand back the entire booklet at your next class meeting.

ACTIVITIES REPORT FORM NO. 5

Groups E_1 & E_2

A. Preparation for Creative Thinking.

It is generally agreed that there can be no set formula for the production of new ideas. This is an unpredictable process which is not well understood. If a set of rules were formulated for ideation, the restriction would probably reduce the quantity and quality of the ideas produced.

There are, however, things a person can do for stimulation and preparation. Just as an athlete warms up before entering a game, a creative person will find ways of "loosening up" in his thinking as he wrestles with a problem. A highly productive ad writer, Alan Ward, has this to say about his "method":

> I have no sure way of uninhibiting myself for creative thinking, but I have found that one good way to get into a working mood is to close my door and try to forget everything but the job before me. Than I pull my typewriter to me, wrap my legs around it, and start to write. I write down every line that comes into my head--crazy, dull, or however it sounds. I find that if I don't, it may linger there and block others. I write as fast as I can. Then, after a long while, some cogs that haven't worked start to whir, and something striking begins to tap itself out on the yellow sheet before me--like a telegraph message. That's the hard way and about the only way I know.[1]

Persons who make a living by the use of their creative talent know that they must force themselves to make a start. A favorite device of melody writers is to sit down at a piano and go to work. They start by picking out any tune which comes to mind, but the secret seems to be

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1 Quoted in Applied Imagination by Alex F. Osborn, p. 127.

in getting started. No doubt hundreds or thousands of poor tunes are written. When a good one emerges, all failures are forgotten. Clarence Buddington Kelland is reported to have said that he would produce practically nothing unless he forced himself to sit down at his typewriter after breakfast each morning and begin writing--whether he felt in the mood or not.

Check Lists

While brute force is the primary requisite for idea production, there are devices which are of help in some instances. Many, if not most, of the people who come up with the most imaginative ideas make constant use of a check list of some sort. This means that every good idea is saved. Whether the idea strikes in church, while shaving, or in the middle of the night--it is written down. Homer J. Smith, a nationally known and respected teacher in the field of industrial arts, called his check list a "bill of particulars." He constantly carried a note pad on which he recorded ideas whenever they occurred. He was a fluent writer of magazine articles and books.

Attribute Listing

A second device which may be useful in attacking certain kinds of problems is analysis, or breaking down into components. For example, if you were asked to invent a better screw driver you might start by listing the attributes of the usual wooden-handled screw driver such as: (1) round, (2) steel shank, (3) wooden handle riveted

thereon, (4) wedge-shaped end for engaging slot, (5) manually operated, (6) torque provided by twisting action. "To devise a better screw driver, we could then focus on each of these attributes separately. For example: The round shank could be changed to a hexagonal shank, so that a wrench could be used to increase the torque; the wooden handle could become a plastic handle, etc. Many variations could thus be thought up in regard to each of the attributes. As a result some major improvements would be possible."[2]

In attempting to invent a new toy for a young child, we might list characteristics which could be expected to interest a child, such as: (1) it can be pulled, (2) it is bright colored, (3) it makes a noise, (4) it moves--in addition to the pulling movement.

Forced Relationship Technique

By this method the innovator endeavors to combine normally unrelated articles or processes into a new product. Machine manufacturers in the last few years have been producing combination machines which perform sawing, sanding, drilling, turning, and other operations normally performed by individual machines. A manufacturer of office furniture might start his search for a new product by arbitrarily associating any two or more of his present products such as desk and lamp. He would then try to imagine as many novel combinations as he could think of such as a lamp that would recess into the desk at the touch of a button or one what would automatically go

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2 Suggested by Sidney J. Parnes in Instructor's Manual for Semester Courses in Creative Problem Solving, p. 50

on if a person sat down at the desk when illumination was poor. Later he would evaluate his ideas to see which, if any, were worthy of further consideration.

B. Exercise in Ideation.

Between now and your next class meeting, you are to do some creative thinking. Yes--you.

You may be the kind who can take along a slip of paper and jot down ideas that come to you as you go about your everyday activities. You must then have a watchful eye and an open mind. Whenever you see something that pertains to the problems for this lesson, you will make note of it. Sometime before your next class session, you will merely have to transfer your notes to this sheet, perhaps elaborating a bit on the ideas you have already captured.

Or--you may be a person who has to pour that second cup of coffee or make a Dagwood, wrap your legs around the typewriter or your hand around the pencil, and DIG. Have a pile of scratch paper and just start writing. Think through personal items, clothes, equipment used in your hobbies, furniture, tools, etc. Then hand in your entire list, excluding only those ideas which you think are good enough to have patented.

We have a neighbor who comes over about twice a year with several ideas he thinks would make him a fortune if he patented them. He is a carpenter, and most of his ideas pertain to improvements in tools. Thus far he hasn't got around to it, but who knows when he

will? A cousin knows a family who perfected some lengthening-shortening device on water ski bindings. They now fly around in an airplane bought with a part of the profits--while our cousin is keeping his eyes open for an idea which will buy him an airplane!

Now it may be that you'll have to combine the two methods of thinking--the check list and the sit-down -and-dig procedure. Whichever way you do it, here is what you should come up with:

1. List some articles which illustrate the forced relationship technique. Some simple examples are: a bayonet at the end of a gun, all-season coats with zip-out linings, jack knives with one blade which is a can opener.

2. Now list some combination articles not yet invented--

3. Name some articles which have been improved--possibly by breaking down into components and then improving one attribute of the article. Think how hard it must have been for women to sleep on brush-type rollers--and then somebody solved the sleeping problem by making the rollers of sponge rubber! Squeeze bottles are an improvement over ordinary glass bottles for many liquids, and some bottles of detergent are contrived so one squirt puts the correct amount in the sink. What other common articles have been improved by a change in one (or several) attributes?

4. What articles could be improved by a change in one or more attributes? Look around your garage, your kitchen, your room in the dorm, your basement. Look in your medicine cabinet, your closet, your desk drawer. What are your suggestions?

Confidentially--are you the "check list" type ( )
the "digging" type ( )
or a combination of the two? ( )

C. Questions (Woods Lab I) Groups E_1 & E_2

1. List or describe as many ways as possible to make thin pieces of wood such as the veneer used in the pencil rack. (Use supplementary sheet if necessary.)

2. What does laminated wood resemble? (Examples: strata in the Grand Canyon, a cinnamon roll.) List many items, unique or common.

3. Some woods make better veneers than others. What qualities (attributes) of the birch made it good for our purposes?

4. What other woods would probably have worked as well?

5. How would you improve the technique we used for gluing the laminations together?

ACTIVITY INSTRUCTION SHEET 5

Groups E_1, E_2, and C

Woods Lab I

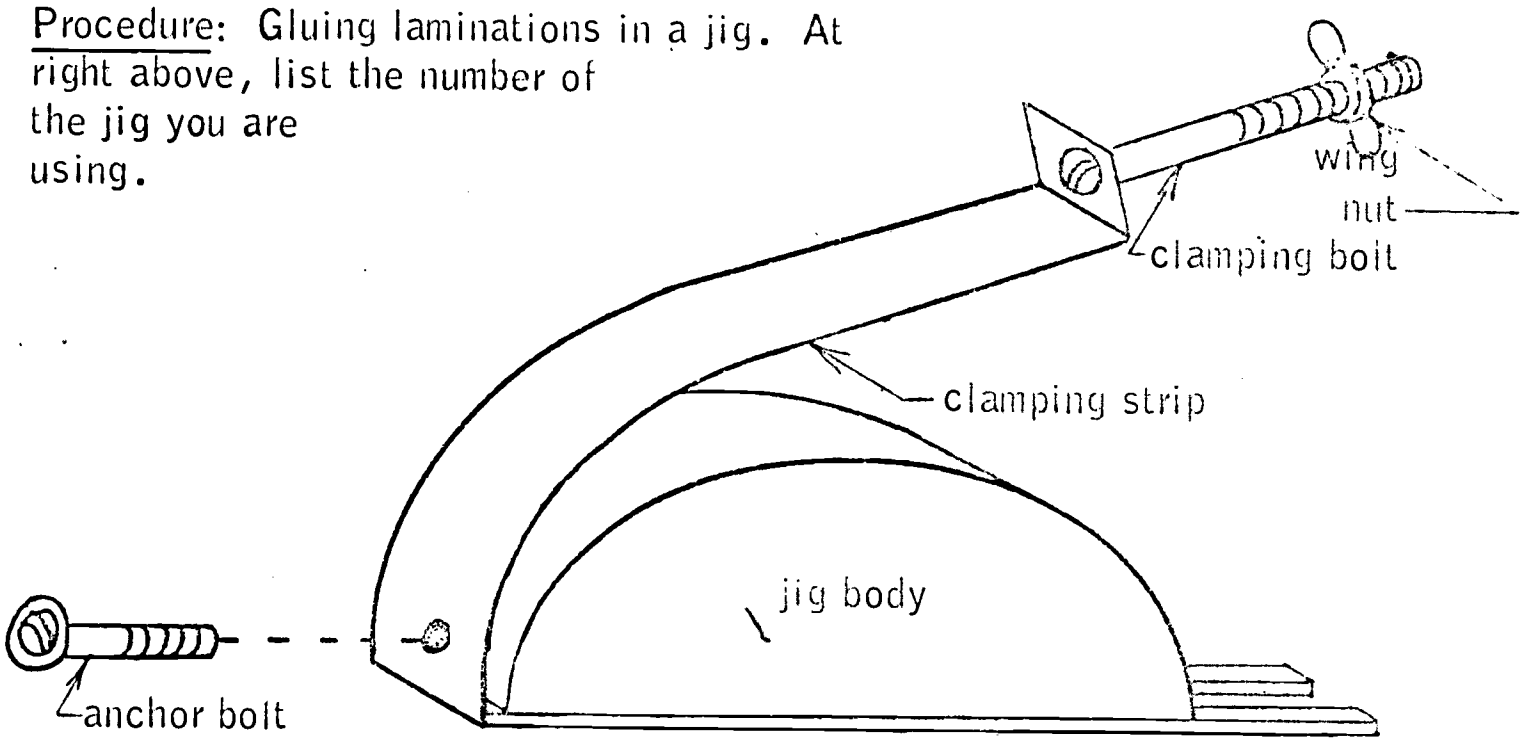
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6. Straighten the laminations and tighten the anchor bolt with a screw driver.

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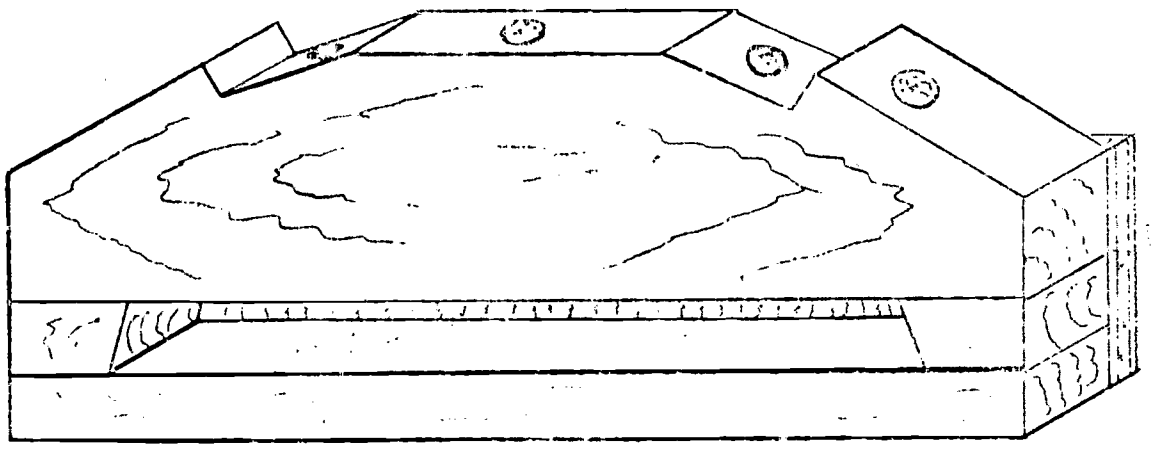
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3. Place jig and base piece in a vise and drill all holes.

4. Sand only top side of base piece. Clean out holes as necessary.



JIG FOR DRILLING BASE PIECE

5. Put away all tools and equipment. Brush off bench top.

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week VI, Woods Lab II

State: The work for today involves fastening the lamination to its base. Do you visualize any difficulties in doing this?

Do: Hold up a sample of the lamination and base completed to the same stage as that of the students.

State: (If no response.) How will you be sure the lamination is exactly centered over the base? Wet glue is slippery.

Do: Pause a few seconds for ideas to develop. If students respond, encourage others to "build on." (Stop any tendency toward destructive criticism!)

State: Allow your imagination free play. Don't discard wild ideas. State them. If, after they are stated they seem too ridiculous, leave them and go on to something else. You will have them out of your system and they may later serve as the starting point for a productive train of thought.

It would, for example, be helpful if you could magnetize these pieces, wouldn't it?

Do: Show flip chart sketch of magnetized pieces.

State: The pieces would then cling tightly together in the correct position. This is obviously absurd--you can't magnetize wood. But does this lead to other ideas?

Do: Pause for reflection. Allow those who wish, to express themselves. After a few seconds, show flip chart of pieces being guided together by a single dowel through the center hole. Encourage students to continue this attack. Two dowel pins are needed; three would be better. The second and third must be put in place after the lamination is down against the base.

Do: Demonstrate by slipping dowel pins in sample pieces. Students will be able to see that this is almost, but not quite, good enough. The pieces will be held in place only loosely, not exactly.

State: It is obviously necessary to do something to make this set-up more rigid. How can we do this?

Do: Allow a minute or so for ideas to jell. Suggest that each person think of his own solution. Then show jig constructed for this purpose.

State: Here are instruction sheets for today's jobs. Take a few minutes to read them; but there is much to do in a short time, so work rapidly and carefully. Let me inspect your sanding before you glue the pieces together.

IMAGINATION PROBLEM - - Week VI - - Fall Pilot Study

Notes Made After the Laboratory Session

A few introductory remarks were made concerning the values of "brainstorming" and also the necessity of refraining from judging ideas until later. It was emphasized that all members of the group must feel free to state all their ideas. Responses made after the first pause:

A: Hold in a clamp.

A: Make a curved piece of wood. Let laminations fit up into it. Place base underneath and press in with a clamp.

B: Bend a piece of iron into a bow the shape of the lamination. Lay the base piece in place and hold.

Instr: (Showing flip charts.) Here are some "wild" ideas.

C: Groove the laminated piece so the base fits into it. (Note new attack.)

D: Groove two pieces of wood lengthwise so the base and top fit into them. Press together.

E: Hold in a vise.

Note: Perhaps some students receive the impression that we are attempting to repudiate the necessity of evaluation. It should be emphasized that evaluation and good judgment are and always will be of primary importance in arriving at a final solution. It is only in the <u>ideation</u> stage that judgment is suspended.

IMAGINATION PROBLEM - - Week VI - - Winter 12:00 Class

Notes Made After the Laboratory Session

Again this group seemed inhibited and slow to react. The ideas mentioned did not show much serious thinking. It seemed as though they feel incompetent to solve this type of problem. These were the suggestions made:

"C" clamp.

Rubber bands.

Use pressure on the sides.

Use the jig from last week. Modify it so nailing can be done.

IMAGINATION PROBLEM - - Week VI - - Winter 2:00 Class

Notes Made After the Laboratory Session

These suggestions were contributed by the students:

Make a jig of wood. Saw out curved pieces to fit inside and outside of laminations. Clamp to base piece with "C" clamp.

Tie with a string.

Make a jig using a "C" clamp across the ends.

At this point the instructor suggested they try a different track.

Make a jig using three "posts" in holes of base as guides in placing the curved piece correctly.

Note: Students today seemed much slower in producing ideas. Perhaps this was because they were thinking of various types of jigs and found it difficult to explain what they were thinking.

IMAGINATION PROBLEM - - Week VI - - Spring Quarter

Notes Made After the Laboratory Session

Ideas presented before the showing of the flip charts.

A: Use a clamp.

Instr: You mean like this? (Making simple sketch on board.)

A: Yes.

B: Pur the clamp the other way--horizontally.

(It is interesting to note at this point that Student B did not simply criticize the idea of Student A for its obvious disadvantage but proceeded directly to a "better" solution.)

C: Use rubber bands. Both ways.

D: Notch laminated pieces to receive base. (Note grasp of problem caused by fact that glue makes wood slippery.)

Students were shown the flip chart of the "magnetized" pieces.

E: Use a quick-drying glue.

Instr: Any other ideas?

F: Use contact cement.

The group did not seem particularly reticent, but seemed to have difficulty producing ideas. Perhaps the problem for this week is more difficult than some of the others.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Woods Lab II

Group C

Directions

After reading the assignment in your course outline, refer to your lecture notes and--if necessary--to a text on woodwork in the library. Other sources of information include catalogs, hardware stores, and lumber yards. Then answer the questions. Do not guess.

Turn in this booklet at your next class meeting.

ACTIVITIES REPORT FORM NO. 6

Group C

1. Name and describe briefly three types of clamps commonly used by woodworkers:

   a.

   b.

   c.

2. Name and describe briefly the properties of three different kinds of glue used in large quantities by woodworkers.

   a.

   b.

   c.

3. List and describe or sketch eight or ten of the more common types of fasteners (common nails, oval head screws, etc.) used by woodworkers.

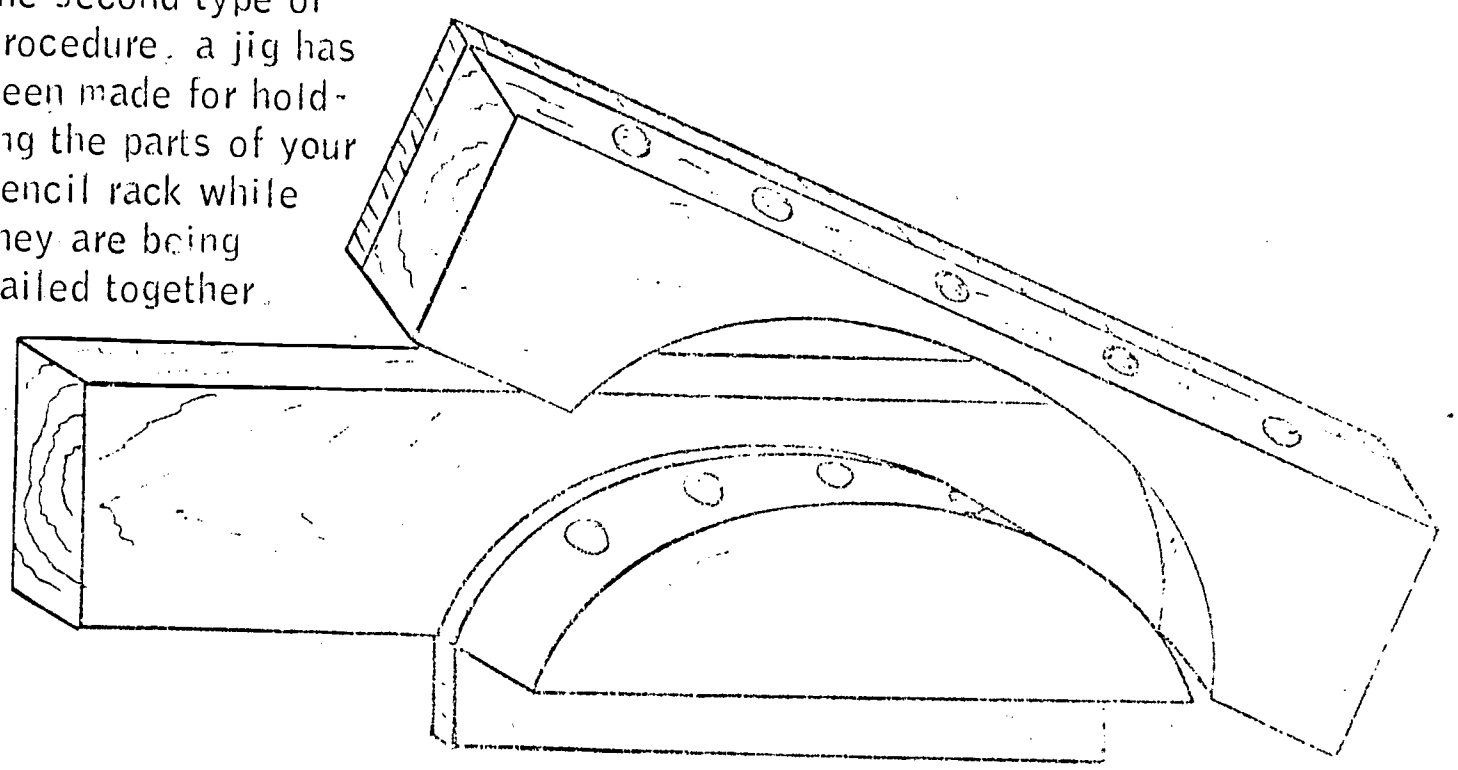
4. Describe the two kinds of sandpaper commonly used in hand woodwork. Give color, hardness, cost, etc.

ACTIVITY INSTRUCTION SHEET 6

Woods Lab II

Groups E_1, E_2 and C

Introduction: In factory assembly of wood products, two methods are in common use. In some cases the individual pieces are cut to shape and drilled in such a manner that they fit together in only one position. The workmen may then quickly assemble the pieces in the correct order. In other cases, especially when large quantities of an object are being produced and the pieces do not naturally fit into their correct positions, various types of jigs are used to hold the parts in place while they are being fastened and while the glue dries. As a simple illustration of the second type of procedure, a jig has been made for holding the parts of your pencil rack while they are being nailed together.



JIG FOR ASSEMBLING PENCIL RACK

Assembly procedure.

1. Sand inside surface of laminated piece.

2. Place this piece into assembly jig and hold the jig shut with a "C" clamp. Drill through the five 5/16" guide holes.

3. Spread a single drop of glue on each end of base piece. Carefully fit a thickness of paper towel around each end of the base piece to prevent getting glue on jig. Fit into place and hold with a vise. Do not allow paper to get into joint.

4. Start two 3/4" No. 18 brads into each end. Space about 5/16" from edges. You may find a pair of pliers helpful in holding the brads while starting them.

5. Remove pencil rack from jig and finish driving brads all the way in. Use a nail set to drive the heads of the brads below surface of wood.

6. Carefully remove all glue from jig with a damp paper towel.

7. Fill nail holes and any other defects with plastic wood.

8. Saw off ends of lamination with fine-toothed back or hack saw.

9. Wipe or scrape all excess glue from pencil rack.

10. Sand smooth and to desired shape on belt or disc sanders.

11. Smooth inside of holes with rat-tail file and sandpaper on dowel.

12. Finish sanding with fine or 2/0 sandpaper.

Name _____
(last) (first)

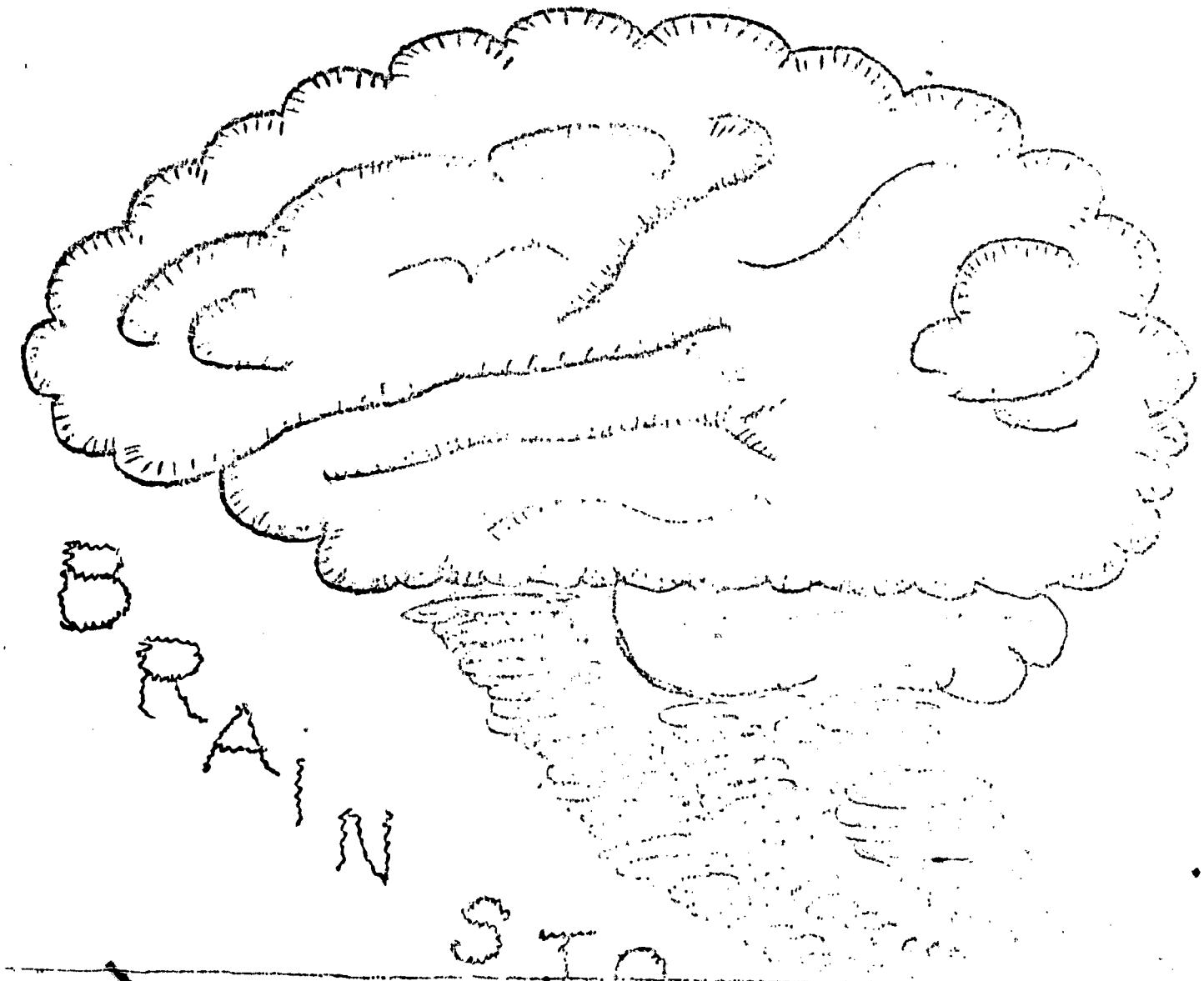
INDUSTRIAL ARTS 120

Woods Lab II Groups E_1 & E_2

Directions

Read the attached material and work out Part B, "Exercise in Ideation." Answer the questions in Part C.

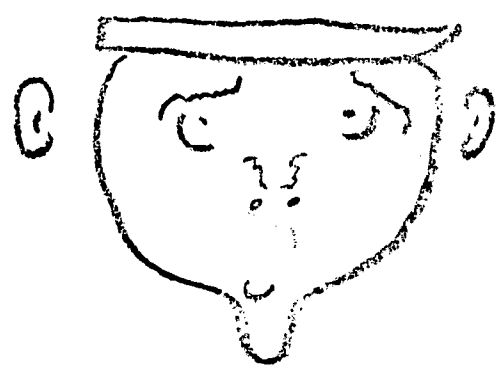
Hand the entire booklet in at your next class meeting.



OSBORN'S PLAN FOR PANNING
THE GOLDEN IDEAS



BETWEEN YOUR



ACTIVITIES REPORT FORM NO. 6

Groups E_1 & E_2

A. Brainstorming.

The term brainstorming, coined by Alex Osborn and popularized in books and magazine articles throughout the nation, seems to imply that the brain goes storming through a problem, overcoming all obstacles by brute force. It should, of course, be recognized that brainstorming is not a miraculous technique. There are many problems not susceptible to attack by the brainstorming method. However--when a new idea, a new approach, or a fresh point of view is necessary, brainstorming seems to be more successful than other methods with which it has been compared. For the practical-minded person, perhaps the most impressive evidence of the value of this method is the growing list of large, successful business corporations which make use of brainstorming sessions. Among these are such impressive names as: Aluminum Company of America, Armstrong Cork, Bristol-Meyers, DuPont, General Electric, International Business Machines, RCA, Union Carbide, U.S.Rubber, and United States Steel.

The technique is not new. Everyone has been in a "bull session" where ideas flowed rapidly and freely and where criticism was absent because of the good-humored atmosphere that prevailed. One person's idea was immediately pounced upon by others and enlarged, revised, extended or imitated. Successful brainstorming is

always fun. The hapless individual who is "ridden" by his cronies in the gym, at a party, or on a fishing trip is the victim of a form of brainstorming. Edison used a kind of brainstorming when he tried out thousands of different materials in looking for a light bulb filament. Research scientists use the technique when they try thousands of chemicals in the search for a miracle drug. What is new about brainstorming is the development of definite principles which tend to make the process more efficient. Alex Osborn, in his book Applied Imagination, explains the principles and gives numerous examples of how they work.

Whether you are in a group under competent leadership or alone in the privacy of your own room, you can develop more worthwhile ideas if you observe the following suggestions:

1. Do Not Be Critical. The success of brainstorming depends to a large extent on how well you can separate the mental processes of judging and ideating. Almost all your school training and most likely all your work experience has emphasized the importance of remembering and making good judgments. These are extremely worthy aims and absolutely necessary for the conduct of everyday life. However, it has been found that when judgment and criticism are temporarily deferred, the ideation process is much more efficient. Relieved of the necessity of producing only ideas that will pass the test of criticism, the mind is free to produce a great quantity of ideas. This relaxation is comparable to the mental state of a star athlete during a tight game. He puts out tremendous effort but is not tense. His coordination is perfect and he

makes the most efficient use possible of his muscles. When you are brainstorming, you must adopt an "I-don't-care" attitude. That is, you must say to yourself, "I don't care if this idea is silly--or wild--or if it won't work."

2. Make Use of "Free-Wheeling." It is expected that many or most of the ideas from a brainstorming session will later be discarded. But an idea which at the time seems impractical, foolish, or even ridiculous may start just the train of thought needed to reach a practical solution. Or it may be that the "crazy" idea will not seem impossible at another time or to someone else. Every idea which is new or really different must seem crazy at its onset. For a compilation of wild ideas which later turned out to be worthwhile or profitable, read Fools and Foolishness by Harry C. McKown which is available in the MSC Library.

3. Look for Combinations or Improvements. Another reason for listing every idea you can think of is that many times the impossible idea will work if it changed or modified or improved. In a brainstorming group, the leader constantly encourages individuals to "hitch-hike" on the ideas of others. Often a train of thought is start[redacted] which leads to a really brilliant or exciting solution. A person working alone can look back over his ideas and quite often follow up some that seem to be promising. This can be done only if ALL ideas are recorded.

4. Work for QUANTITY. In terms of cold statistics--it is evident that the greater the number of ideas from which to pick, the greater the chance there is of getting a really good one. It is also true that in

trying to formulate a great number of ideas, your mind is forced to travel devious and unaccustomed paths. This is an easy way to get your mind to work hard. This is the principle of fluency which is really basic to the process of creativity. Work fast! Don't hesitate! Don't judge!

B. Exercise in Ideation.

To become adept in the use of brainstorming, you must practice. Do the following:

1. You want your father (or guardian or wife) to approve the purchase of a new car. List all the reasons you can think of for buying a new car. Give all your ideas--logical and illogical, reasonable, usual, and unusual.

2. Suppose Mankato State became the University of Southern Minnesota, joined the Big Ten--which thereupon became the Big Eleven --and was to play the University of Minnesota (at Minneapolis) for Homecoming. What could be some Homecoming slogans?

3. Your company has concocted a new candy bar--layers of caramel, nuts, and old fashioned fudge. What suggestions do you have for a name for this new bar?

C. Questions (Woods Lab II) Groups E_1 & E_2

Spend one hour working conscientiously on this assignment. DO NOT SPEND MORE THAN ONE-HOUR ON IT. Force yourself to attempt at least two or three sketches and turn them in no matter how poor--or good--you think they are.

1. Instead of making the pencil rack as we made it, how could it have been made? Sketch 2 or 3 different designs. You will not be graded on neatness or accuracy. Your designs may or may not be improvements--the only requirement is that they be DIFFERENT. With each design lists its advantages, either in use or in construction. (Use additional sheets of paper, as necessary.)

2. You have seen laminated wood used for curved legs on chairs, archery bows, etc. List as many unusual uses for laminated wood as you can. Samples: a curved ruler for measuring around a circle, a form-fitting head support for a person with a broken neck.
   a.
   b.
   c.

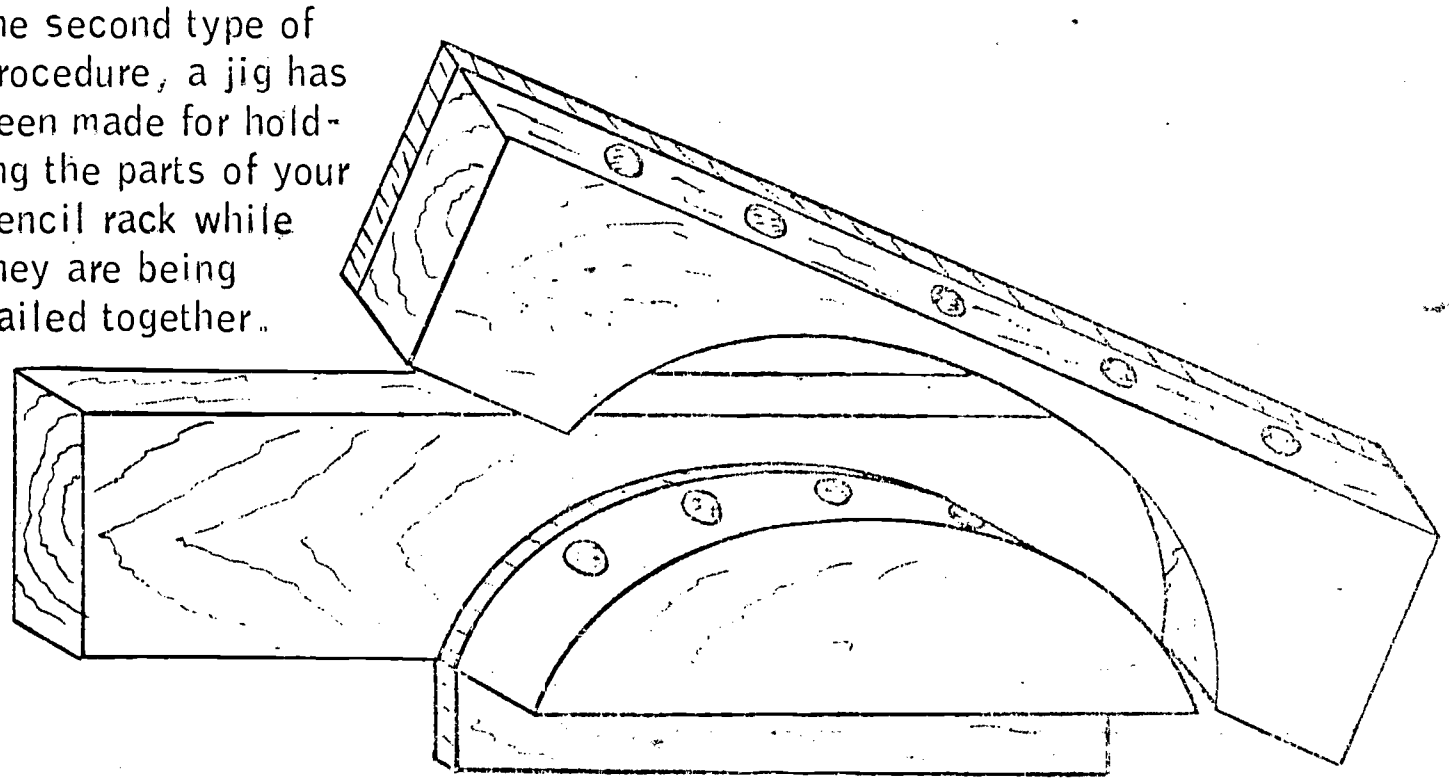
I spent _____ hour(s) on this assignment. Signed: _____

ACTIVITY INSTRUCTION SHEET 6

Groups E_1, E_2 and C

Woods Lab II

Introduction: In factory assembly of wood products, two methods are in common use. In some cases the individual pieces are cut to shape and drilled in such a manner that they fit together in only one position. The workmen may then quickly assemble the pieces in the correct order. In other cases, especially when large quantities of an object are being produced and the pieces do not naturally fit into their correct positions, various types of jigs are used to hold the parts in place while they are being fastened and while the glue dries. As a simple illustration of the second type of procedure, a jig has been made for holding the parts of your pencil rack while they are being nailed together.



JIG FOR ASSEMBLING PENCIL RACK

Assembly procedure.

1. Sand inside surface of laminated piece.

2. Place this piece into assembly jig and hold the jig shut with a "C" clamp. Drill through the five 5/16" guide holes.

3. Spread a single drop of glue on each end of base piece. Carefully fit a thickness of paper towel around each end of the base piece to prevent getting glue on jig. Fit into place and hold with a vise. Do not allow paper to get into joint.

4. Start two 3/4" No. 18 brads into each end. Space about 5/16" from edges. You may find a pair of pliers helpful in holding the brads while starting them.

5. Remove pencil rack from jig and finish driving brads all the way in. Use a nail set to drive the heads of the brads below surface of wood.

6. Carefully remove all glue from jig with a damp paper towel.

7. Fill nail holes and any other defects with plastic wood.

8. Saw off ends of lamination with fine-toothed back or hack saw.

9. Wipe or scrape all excess glue from pencil rack.

10. Sand smooth and to desired shape on belt or disc sanders.

11. Smooth inside of holes with rat-tail file and sandpaper on dowel.

12. Finish sanding with fine or 2/0 sandpaper.

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week VII, Woods Lab III

Lecture to Class: Processing Ideas

In presenting an outline of the creative process, we have until this time passed rather lightly over the process of evaluation. In the final analysis, good judgment is perhaps more important than ideation. If a brainstorming panel comes up with a hundred ideas to improve a product and top management chooses one of the poorer ones, the panel was worthless. It is by no means implied that skillful and critical evaluation is not highly important. The reason for placing so much emphasis on ideation in this class is that most people have had much more training in using good judgment or "common sense" than they have had in thinking up new ideas.

Alex Osborn suggests approximately the following procedure in obtaining the best results from a group of ideas:

1. The culling should be done by a different group than the one which thought up the ideas. If the same people do both, it would be something like a Miss America contest being judged by the mothers of the contestants.

2. The total of all the ideas produced by a group of people on any one day is not the sum total of all the ideas these people could produce. A day or two after a brainstorming session, a list

of all the ideas generated should be passed around with space for persons to enter additional ideas or comments on some of the first ones.

3. The persons doing the screening should look carefully at all the ideas. Sometimes even a silly or foolish idea can be modified or combined to produce the best idea of all. For example, the idea of "hanging copper wire by ropes" made a certain General Electric executive laugh in scorn. However, this idea later led to the method of hanging conduit actually used in many factories. Ropes, of course, were not used; but if the person who first thought of the idea had passed judgment or feared evaluation, he certainly would have remained silent.

4. Put the idea to a practical test. If it is a new name for a product, try it out on a sample of people who make up the potential market. If it is a method of increasing gasoline mileage, try it out in a car on the road. If it is a method of cutting down on assembly time, try it out on an assembly line. If it is a method of feeding a milling machine, try it out on an actual machine.

Individual Ideation

When an individual works alone, Step 1 of the above processes (culling by a different group) is not always convenient. The best that can then be done is to allow the ideas produced to

"age" for a time before judgment. One can then look upon them . . with better perspective.

Problem for Today

We are going to apply lacquer to our projects today by dipping them. Obviously you will not wish to hold the rack in your fingers. On the paper before you, list all the possible methods you can think of for suspending the pencil rack during this operation. The first idea may be to tie a string around it. You can do better than that. O.K., list <u>all</u> the ways you can think of. You have about four minutes.

PAUSE FOUR MINUTES.

Stop! Take this paper along; and, before the next class meeting, add as many more ideas as occur to you. Turn in then with your other work.

Draw a line where you stopped today. Later, circle the idea you think is the best.

IMAGINATION PROBLEM - - Week VII - - Fall Pilot Study

Notes Made After the Laboratory Session

Responses were turned in with the folder for Week VII. The numerator in each fraction represents the number of ideas produced in class. The denominator represents the number of ideas added later.

5/2 3/1 4/2 5/0 4/0 5/7 2/0 4/0 7/0 9 returned

9 not returned

Comment: The discussion of evaluation should, perhaps, have come earlier. A group of three or four men students had begun to withdraw by themselves at about Lab IV. I believe this may have been because they took note only of the "silly" ideas produced and did not catch the significance of fluency during this stage of the thinking. Of eighteen reports returned, nine contained the record of the Imagination Problem; but only four had added ideas after the class.

IMAGINATION PROBLEM - - WEEK VII - - Winter 12:00 Class

Notes Made After the Laboratory Session

Responses turned in:

6/1 3/0 3/0 5/5 4/1 7/1 — 6 turned in

5 not returned

IMAGINATION PROBLEM - - WEEK VII - - Winter 2:00 Class

Responses turned in:

3/1 6/1 7/0 5/0 4/0 7/0 4/0 — 7 turned in

2 not returned

IMAGINATION PROBLEM - - WEEK VII - - Spring Quarter

Responses turned in:

11/9 9/12 6/0 5/0 5/2 3/1 — 6 turned in

11 not returned

Note: The addition of a few comments on evaluation Winter and Spring Quarters in Labs III and V seemed to have no effect on the number or quality of the responses turned in. However, we no longer note any group retreating from the class discussion as happened in the pilot study.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Woods Lab III Group C

Directions

Read the attached material on wood finishes and refer to your class notes, as well as to any other outside material you may find on the subject.

Fill in the chart on the last page as completely as you can. Turn in this entire booklet at your next class meeting.

ACTIVITIES REPORT FORM NO. 7

Group C

Fill in the squares below concerning the finishes listed in the left margin.

	When should one use:	When should one NOT use:
Stain		
Varnish		
Lacquer		
Paint		
Enamel		

ACTIVITY INSTRUCTION SHEET 7

Groups E_1, E_2, and C

Woods Lab III

Laminated Pencil Rack - Finishing

Finishing wood usually involves two processes--first, preparing the surface by sanding, filling blemishes, etc ; second, applying protective and/or decorative coatings. The various types of materials may be classified as:

Stains		Penetrating Finishes	Surface Finishes		
Water	Blonding	Sealers	Paints	Varnishes	Lacquers
Oil		Oils	Enamels	Shellac	
Spirit					

Stains bring out the beauty of the wood and tone it to a desired color. Usually varnish, shellac, or lacquer are applied over the stain. Care must be taken in choosing the correct finish to apply over oil and spirit stain. Shellac is a good sealer to use over oil stain before applying varnish.

Penetrating finishes protect the outside layer of wood and make possible refinishing of marred surfaces with a minimum of skill.

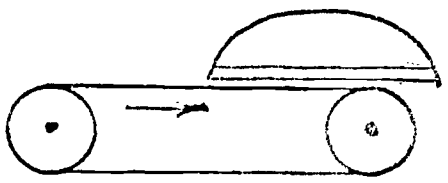
Finishes may be applied by brush, spray, roller, wiping with a lint-free rag, or dipping. Again, care must be used in choosing the method of applying a particular finish. For convenience and speed, it has been decided that the pencil racks will be finished by dipping in lacquer This is not as high quality a finish as could be obtained by some other methods; but it is quite satisfactory for small, inexpensive objects.

Finishing Procedure:

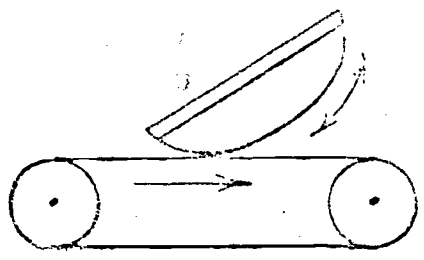
1. Fill all holes with plastic wood. Press it in firmly. After 3 or 4 minutes, these places may be sanded.

The following three steps may be performed in any order, depending on which sanders are not in use

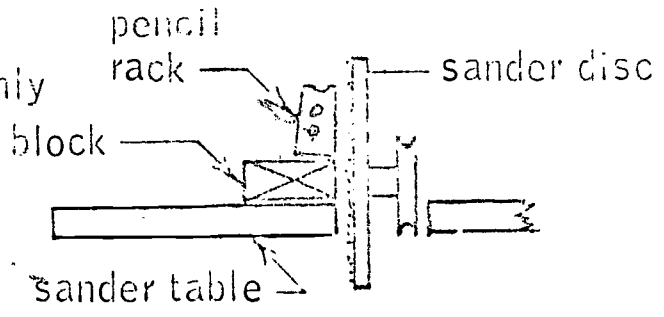
2. Sand the bottom on a belt sander as shown, to bring the lamination ends flush with the bottom. Be sure to hold squarely on the belt, and remove often to examine. Sand the entire bottom just a little so that it is straight.



3. Sand top surface on belt sander. Press very lightly. Keep moving to prevent flat spots. Stop to examine often.

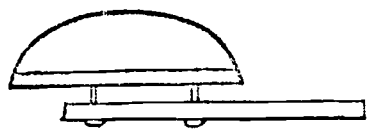


4. Hold the pencil rack against the belt or disc sander to smooth the sides and bring them to the desired angle. Use only top half of the disc sander.



5. Finish sanding inside and holes, as necessary.

6. Nail a cleat to bottom of your pencil rack as in illustration.



7. Wipe off all excess dust and sandpaper grit. Use air hose to blow dust from corners and holes. BE VERY CAREFUL NOT TO BLOW DUST INTO YOUR OWN OR SOMEBODY ELSE'S EYES! Wear goggles. A particle of garnet blown with 60 lb. air pressure can severely damage an eyeball.

8. Print your name and the date on the bottom surface--neatly; this is your "Trade Mark."

9. Dip the pencil rack into the lacquer container in the finishing room. Hold it there for a few seconds to give the solvent a chance to penetrate.

10. Shake off excess lacquer.

11. Place in drying rack.

12. Put all tools and materials back. Brush off bench tops where you worked.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Woods Lab III Groups E_1 & E_2

Directions

Read the enclosed material and try to visualize the process recommended by Parnes for attacking problems in an original way. If you wish, you may write in some of the ideas that occur to you as you read the forms.

Be sure to answer the questions on the last page. Turn this entire booklet in at your next class meeting.

ACTIVITIES REPORT FORM NO. 7

Groups E_1 & E_2

A. Inertia.

The laws of inertia which apply to bodies at rest and bodies in motion also apply to the human mind. It requires some sort of push or force to get the lazy, inert human brain into operation. Psychologists speak of such fundamental drives as hunger, sex, and fear, or social motives such as the gregarious instinct or the desire for prestige.

Sometimes these drives are abnormally strong. Pasteur was terrified of dogs. The memory of friends and neighbors dying in the agony of rabies after being bitten by an infected wolf drove him to spend his last three productive years developing a vaccine to prevent this dread disease.

However the popular concept of the genius as a bearded recluse or a psychological misfit is now disappearing. While it is true that some highly productive individuals such as Van Gogh demonstrated neurotic or even psychotic tendencies, the greater number of inventors are relatively normal people who have simply worked hard. The artist or inventor is usually not driven by abnormal desires or fears.

"But," you may say, "some creators or inventors are just lucky."

This may be true. A hunter in Pennsylvania was amazed to see the rocks under his campfire burst into flames. They were coal!

However when the Merritt brothers found iron in Minnesota, it was the end of a ten year search. Although they started out prospecting for gold, they were alert enough to recognize the value of iron. Had they not looked long and hard, they would not have been "lucky."

Just as a hard-hitting football team is often credited with creating its own lucky breaks, alert and hard working individuals are most often the ones to whom inspiration and chance bring fame and fortune. Alex Osborn, in Chapter XVIII of Applied Imagination, lists specific examples of rewarding discoveries made by individuals of this type. Photography, argon, penicillin, "Masonite Presswood," Duco finishes, and lithography are among the direct results of this sort of endeavor.[1]

To help you gain a better idea of what specialists are doing to help develop creative ability, a few pages are reproduced from the Student Workbook, used by Sidney J. Parnes in his course, Creative Problem-Solving at the University of Buffalo. The complete workbook may be purchased for $1.50 from the University of Buffalo Book Store, University of Buffalo, Buffalo 14, New York.

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1 See also:

"Accidental Discoveries." Mechanical Engineering. August 1926, pp. 865-866.

Cannon, Walter B., "The Role of Chance in Discovery." Scientific Monthly. March 1940, pp. 204-209.

McLean, F. C., "The Happy Accident," Scientific Monthly. July 1941, pp. 61-71.

Montmasson, J. M., Invention and the Unconscious. New York. Harcourt, Brace and Company, 1932.

INTRODUCTION TO WORKSHEETS
(Further Instructions Will Be Provided In Class)

The methodology used in this course was aptly described by Michael Montmore as "do-it-yourself thinking." In our present culture we are provided with detailed instructions on how to do most anything, --- instructions which obviate thinking creatively about problems we face. We are so accustomed to this "spoon feeding" that we become unable to cope with new problems and situations in our changing world. Also, we neglect finding <u>better</u> ways to solve old problems.

Just as "do-it-yourself" manuals provide "how to" instructions, so do the following set of Worksheets; but the latter instructions provide know-how for constructing a kind of "machine tool" rather than an end product. These "how to" procedures concern the basics of <u>how to think creatively</u> about <u>any</u> problem you face. The Worksheets should serve as flexible, not rigid, guidelines to creative problem-solving.

The first time you attempt to use this methodology, you will probably find it advantageous to follow each procedure rather explicitly, just like in learning any new skill. After gaining a thorough understanding, you should then be able to adapt the essence of each procedure to your own problems without necessarily following the outline in all its detail. And in most everyday problems you should find that you will be mentally following the procedures almost subconsciously (see example on page 33). But by following the outline more explicitly in the <u>beginning</u>, you will come to see and understand how creativity can be injected at any step in solving the wide variety of problems you will face in the future.

Thus the following Worksheets are designed to allow you to <u>demonstrate</u> to yourself how you can apply creativity at <u>each</u> stage of a logical, methodical problem attack. The main emphasis is on <u>piling up alternatives</u> at every stage of the process, - during fact-finding, problem-finding, idea finding, solution-finding, and acceptance-finding. And, of course, the Worksheets also provide deliberately for exercise, - practice in using the imagination at every stage. Recent research has demonstrated this practice to have the same kind of beneficial effect on creativity in problem-solving as practice has on other everyday skills we learn.

Students should be aware that the "spirit," not the "letter," of each Worksheet is what is important. You should adapt sheets to suit the special needs of your own particular problem. This is particularly true of certain pages, such as Worksheets 3, 12, and 15. The Worksheets are meant to serve as guides, --- "road-maps," <u>not</u> as restricting boundaries.

Furthermore, one <u>cannot</u> supply a rigid structure for so dynamic a process as creative problem-solving. The textbook emphasizes this in Chapters IX through XIV on the problem-solving "steps." Even though these "steps" can provide a helpful guide, they are not an inflexible "formula" for the solution of a problem. For example, many times the idea-finding step or the problem-finding step may lead to a realization of the need for additional fact-finding. And so with each of the suggested "steps." Therefore there should be continuous review and amplification of earlier Worksheets as the process unfolds.

A suitable solution to a problem may actually be found at any stage of the process. In practice some of the Worksheet steps may become "academic." However, if at least some thought is given to each, refinements are frequently produced that enhance the solution. For obviously there is never a best solution to a creative problem, --- only a "best" solution insofar as we have gone. By spending more effort probing into each of the steps, we are likely to reach a solution closer to the "perfect" one. We obtain much greater insight into our problem in this manner.

Research has shown that extended effort in creative problem-solving leads to a larger percentage of good ideas as more and more alternatives are produced. William J. J. Gordon calls this concept "deferment," or "the capacity to discard the glittering immediate in favor of a shadowy but possibly richer future." Like the person who invests money to obtain greater rewards later, the creative person foregoes the immediate reward of applying his first idea, in expectation of a better solution (greater reward) ultimately.

Throughout all stages of the creative process, incubation can prove as valuable and productive as the more "deliberate" effort expended. Although only one Worksheet (No. 10) specifically mentions incubation, this process should be utilized constantly during the problem attack. Thoughts about the problem should be captured whenever they occur, rather than only during the deliberate listing on the Worksheets. These thoughts should then be studied in relation to those already listed, the next time you are ready to "work" on the problem.

Likewise the stimulation of others" thinking can be introduced in any of the stages even though the Worksheets specifically suggest this only in the idea-finding stage. (See Worksheet 7). Other steps where group stimulation can be especially helpful are Worksheets 3, 4, 11, 13, 14, and 16. A group is not necessary for carrying through the entire creative process outlined. However, the group is an extremely valuable way of enriching our own necessarily limited background of knowledge and experience, just as reading, travel, observation and other means can help us enrich our minds. Many problems you will undoubtedly attack without any formal group assistance; in other you may wish to draw heavily from the results of team or group cross-fertilization.

If you use the Worksheets properly, they should serve to help you make the transition from the habit of conventional problem-solving to the habit of creative problem-solving.

WORKSHEET 1 – "The Mess"

List problems, needs, opportunities for creative problem-solving: To help you think of problems, consider the following: (1) What would you like to do, have, accomplish? (2) What do you wish would happen? (3) What would you like to do better? (4) What do you wish you had more time for?, more money for?, etc.? (5) What more would you like to get out of life? (6) What are your unfilled goals? (7) What angered you recently? (8) What makes you tense, anxious? (9) What have you complained about? (10) What misunderstandings did you have? (11) With whom would you like to get along better? (12) What changes for the worse do you sense in attitudes of others? (13) What would you like to get others to do? (14) What changes will you have to introduce? (15) What takes too long? (16) What is wasted? (17) What is too complicated? (18) What bottlenecks exist? (19) In what ways are you inefficient? (20) What wears you out? (21) What would you like to organize better?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____

Now go back and select one of the above which you would most like to attack.

WORKSHEET 2 - The Particular Situation ("Fuzzy Problem")

Write an explanation of the situation, or "fuzzy problem," that you chose for creative attack from the previous sheet: (Tell as a "news story"--reportorially, not editorially. Give facts. Be cautious in use of adjectives and adverbs. Snap a "verbal picture" of the situation, all that you know about it, etc. Answer questions like: Who is concerned? What is happening? When does this occur? Where does this occur? Why does this occur? How does this occur?)

WORKSHEET 3 - Fact-Finding

The following questions call for information, facts, you would like to have related to the situation described above. (List fact-finding questions, not judicial or creative ones. Don't worry whether or not you can get the information; if you would like it, raise the question).

Questions — Answers (to be obtained from best sources suggested at left)

1. .....

Where might I find the answer (a) .....

(b) ..... (c) .....

(d) ..... (e) ..... etc.

2. .....

Where might I find the answer (a) .....

(b) ..... (c) .....

(d) ..... (e) ..... etc.

3. .....

Where might I find the answer (a) .....

(b) ..... (c) .....

(d) ..... (e) ..... etc.

WORKSHEET 4 - Problem-Finding

List all the creative type problems suggested by the facts of the last sheet. (Problems such as: "How can I...?", "What ways can I...?", "What ideas can I produce to...?", etc. If "fact-finding" or "judicial" type questions occur to you, convert them to "creative" types by stating as, "How can I find out...?", or "How can I decide...?") How many problems of this type are suggested by the "situation" and the additional facts you have been able to gather about it?

1. _____

2. _____

3. _____

4. _____

Stop a moment and ask, "What is the real problem?" "What is my basic objective?" "What do I want to accomplish here?" Ask "Why" of each problem you have listed. ("Why do I want to do this?") As a result of these questions you ask yourself, try to restate and broaden your problem. Try to find problem statements that give you the largest number of possible approaches. Try paraphrasing, finding synonyms in your problem statement, etc.

5. _____

6. _____

7. _____

8. _____

Now that you have broadened the problem, what other aspects or approaches ("sub-problems") can you see that you didn't list earlier (at the top of page)?

9. _____

10. _____

11. _____

12. _____

Now circle the best, most promising problem statement for creative attack (from all listed). Perhaps it is the one that would give you the greatest leeway, the largest number of approaches or areas for exploration,--the one that includes most of the other ones ("sub-problems"). Or it may be one of the narrower statements that is really the crux of the situation. In any event, choose the one which is most significant to you,--the one most in need of creative attack.

Then "star" all others listed that would fit under this selected problem statement (ones that are "sub-problems" or "areas for exploration" under selected problem statement).

Note: You may want to go back and add facts onto Worksheet 2, and questions onto Worksheet 3, now that you have restated your problem. With the new wording, you may be able to list many more facts now.

WORKSHEET 5 - Idea-Finding (deferred judgment)

Problem Statement: (Selected on previous sheet) .....

(Be sure your statement above is clear, concise, as brief as possible, worded as a "telegram"; also, be sure that it starts with words such as "What ways can I...?")

IDEAS (tentative leads to solution) from deliberate idea-finding. (Use starred "sub-problems" of previous sheet as approaches to spur ideas. Also use Osborn's list of Idea-Spurring Questions).

Magnify
Modify
Substitutes
Adapt
Other Uses

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....
9. .....
10. .....
11. .....
12. .....
13. .....
14. .....
15. .....

Minify
Combine
Reverse
Rearrange

Judgment:
Now go back and "star" ideas that are more general in nature--the "approaches,"--through which you might find many more specific ideas.

If your original problem statement was quite broad, you may find that your ideas listed on this sheet are really "sub-problems." In effect, you may have only surveyed the problem for possible "approaches" for attack. (For example, consider the problem, "How can I increase sales in this territory?" You might list ideas such as, "obtain more customers," "step up advertising," etc. In cases like this you would choose one of these "approaches" at a time, and then probe for more specific ideas. ("How can I obtain more customers," "How can I step up advertising," etc.) In such cases you will want to repeat this Worksheet (using one of the more specific "sub-problems" as the problem statement each time), and follow all subsequent Worksheet procedures for each of these approaches, or for the one best approach. (See diagram of Type A and B problems on page 35.) Worksheet 6 is provided for this purpose.

WORKSHEET 6 - Idea Finding (deferred judgment) (cont'd.)

NOTE: Ignore this worksheet if your original problem was relatively narrow or if you prefer to explore entire problem statement more fully. (See explanation at bottom or previous Worksheet).

Sub-Problem Statement: (Derived from previous Worksheet)

Be sure your statement above is clear, concise, as brief as possible, worded as a "telegram"; also, be sure it starts with words such as "What ways can I...?", etc.

Additional copies of Worksheet 6 and all following Worksheets should be prepared for other sub-problems you would like to attack creatively.

IDEAS (tentative leads to solution) from deliberate idea-finding. (Use Osborn's list of Idea-Spurring Questions.)

Magnify
1.
2.
3.
4.

Modify
5.
6.
7.
8.

Substitutes
9.

Adapt
10.
11.

Other Uses
12.
13.
14.
15.

Minify

Combine

Reverse

Rearrange

Judgment:

Now do back and again "star" those ideas that are the more general ones--the "sub-approaches" through which you might now find many more specific ideas.

WORKSHEET 10 - Idea-Finding

Additional ideas from individual after incubation: (deferred judgment)

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

NOTE: You may also look at ideas already listed on previous Worksheets and force "hitch-hikes" from each of them.

WORKSHEET 11 - Solution-Finding

Evaluative criteria: What are the "yardsticks" by which you can mentally test the effectiveness of each of your ideas? These criteria are really a further measure of your sensitivity to problems--problems that might be implicit in changes that would be brought about by each idea. Try to anticipate all the effects, repercussions, consequences that might occur in trying to accomplish a solution to your problem. Ask yourself, "What all might be affected?", "Who all might be affected?" (Look over your facts on Worksheets 2 and 3 for leads as to important criteria. Your ideas should be tested for consistency with the facts.)

1. Effect on
2. Effect on
3. etc.
4.
5.
6.
7.
8.
9.
10.

Now go back and circle the most important criteria.

WORKSHEET 12 - Solution-Finding (Cont'd.)

Evaluation of Ideas: List the most important criteria under "Effect on" headings at top of page. Transfer ideas from Worksheets 5, 6, 9, and 10 to this page. Group ideas by general "approaches." (Do not list the obviously "silly" or "impossible" ideas. Transfer these instead to Worksheet 13.) Indicate a rating in each block, such as G ("good"), F ("fair"), P ("poor"), DP ("doesn't pertain"), etc. Make a decision regarding each idea (based on its ratings under the various criteria) by checking or commenting in one of the boxes at the right hand side of the form. If you have a large number of approaches, evaluate these first, and then evaluate only the ideas under the approaches that seem good.

Ideas grouped by "Approaches"	1. Effect on	2. Effect on	3. Effect on	4. Effect on	Decision: Use Now	Hold	Reject	Modify (How?)
Approach A:								
1.								
2.								
3.								
4.								
5. etc.								
Approach B:								
1.								
2.								
3.								
4.								
5. etc.								
Approach C:								
1.								
2.								
3.								
4.								
5. etc.								

NOTE: As you group your ideas on this Worksheet, look for additional combinations or "hitch-hikes" within each approach.

WORKSHEET 13 - Solution-Finding (cont'd.)

Exercise in creating useful ideas from "silly" or "impossible" ones: List "silly" or "impossible" ideas from Worksheets 5, 6, 9, and 10. After each one, list all conceivable ways the idea might be changed to create useful ideas. What does the idea suggest?, etc? (Some of the rejected ideas from Worksheet 12 might also be treated similarly.)

1.
   a.
   b.
   c.
   d.

2.
   a.
   b.
   c.
   d.

3.
   a.
   b.
   c.
   d.

4.
   a.
   b.
   c.
   d.

Now do back and circle any modifications which look like good possibilities. Rate these according to your criteria used on Worksheet 11. Make decisions accordingly, as on Worksheet 11. NOTE: The same procedure as above may be employed on many of your ideas to be modified (ones which were checked on previous Worksheet).

WORKSHEET 14 - Solution-Finding (cont'd.)

NOTE: Worksheets 14-16 are a suggested pattern for preparing to put an idea into effect. Therefore this pattern should be followed for each idea you select for use.

First idea (or combination of ideas) to be developed: (Select from Worksheets 12 or 13):

Ways of implementing, carrying out, accomplishing, gaining acceptance for, insuring effectiveness of, improving, etc.--the idea (deferred judgment).

1.
2.
3.
4.
5.

Now go back and circle best ones. (Judgment)

WORKSHEET 15 - Solution-Finding (cont'd.)

Selected idea: (same as previous sheet)

FINAL PLAN OF ACTION REGARDING IDEA

What to do (List best ways of implementing idea as selected on Worksheet 14.)	Who might do it?	When might it be done?	Where might it be done?	How might it be done?
1.	a. b c. d.	a. b c. d.	a. b c. d.	a. b c. d.
2.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
3.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
4.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
5.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.
6.	a. b. c. d.	a. b. c. d.	a. b. c. d.	a. b. c. d.

Now go back and circle best alternatives in each block for "who," "when," "where," and "how."

WORKSHEET 16 - Acceptance-Finding

(Selling the Idea--Getting the solution adopted)

Selected idea: (same as previous sheet) .....

Whom do I need to convince of its value? (Maybe yourself!) .....

What do I want him to do about the idea? .....

.....

(For example: authorize its use; buy the piece of equipment; give me time off to develop it for production, etc.)

.....

Advantages to him of accepting the idea: (Refer to Evaluative Criteria on Worksheet 11.) If idea "tested" well, these are some of the advantages.)	How to make this advantage obvious to him: (how to visualize it for him, how to present arguments convincingly, etc.)
1. —	1.a. ..... b. ..... c. ..... etc. .....
2.	2.a. ..... b. ..... c. ..... etc. .....
3.	3.a. ..... b. ..... c. ..... etc. .....

Possible objections he may have to idea:	How to overcome these objections:
1.	1.a. ..... b. ..... c. ..... etc. .....
2.	2.a. ..... b. ..... c. ..... etc. .....

NOTE: Copy here your wording of the problem from top of Worksheet 5 (or of the sub-problem on Worksheet 6 if you chose to attack the latter instead).

WORKSHEET 17

Summary of the problem and how it was solved (or what progress is being made towards its solution):

.....

.....

.....

.....

.....

.....

C. Questions (Woods Lab III) Groups E_1 & E_2

Study the preceding sheets before answering the following questions:

1. What difficulties are experienced in applying lacquer by brushing?
   a.

   b.

   c.

2. How may difficulty "a" above be overcome?

3. How may difficulty "b" above be overcome?

4. What are the disadvantages of applying lacquer by dipping?
   a.

   b.

5. List possible solutions to 4-a.

6. List possible solutions to 4-b.

ACTIVITY INSTRUCTION SHEET 7

Groups E_1, E_2, and C

Woods Lab III

Laminated Pencil Rack - Finishing

Finishing wood usually involves two processes--first, preparing the surface by sanding, filling blemishes, etc ; second, applying protective and/or decorative coatings. The various types of materials may be classified as:

Stains		Penetrating Finishes	Surface Finishes		
Water	Blonding	Sealers	Paints	Varnishes	Lacquers
Oil		Oils	Enamels	Shellac	
Spirit					

Stains bring out the beauty of the wood and tone it to a desired color. Usually varnish, shellac, or lacquer are applied over the stain. Care must be taken in choosing the correct finish to apply over oil and spirit stain. Shellac is a good sealer to use over oil stain before applying varnish.

Penetrating finishes protect the outside layer of wood and make possible refinishing of marred surfaces with a minimum of skill.

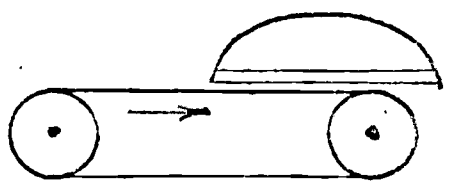
Finishes may be applied by brush, spray, roller, wiping with a lint-free rag, or dipping. Again, care must be used in choosing the method of applying a particular finish. For convenience and speed, it has been decided that the pencil racks will be finished by dipping in lacquer This is not as high quality a finish as could be obtained by some other methods; but it is quite satisfactory for small, inexpensive objects

Finishing Procedure:

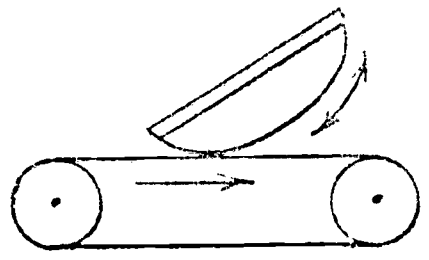
1. Fill all holes with plastic wood Press it in firmly After 3 or 4 minutes, these places may be sanded

The following three steps may be performed in any order, depending on which sanders are not in use

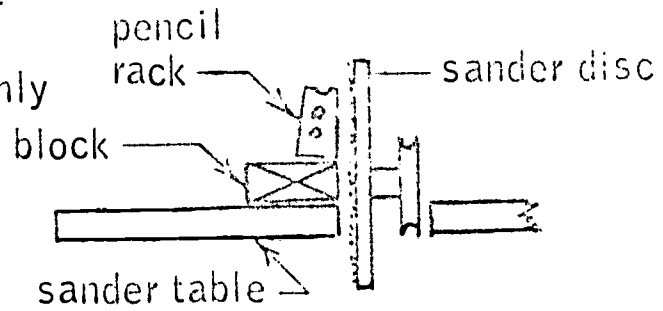
2. Sand the bottom on a belt sander as shown, to bring the lamination ends flush with the bottom. Be sure to hold squarely on the belt, and remove often to examine. Sand the entire bottom just a little so that it is straight.



3. Sand top surface on belt sander. Press very lightly. Keep moving to prevent flat spots. Stop to examine often.

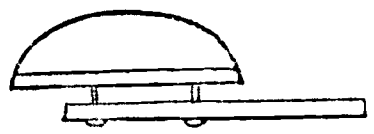


4. Hold the pencil rack against the belt or disc sander to smooth the sides and bring them to the desired angle. Use only top half of the disc sander.



5. Finish sanding inside and holes, as necessary.

6. Nail a cleat to bottom of your pencil rack as in illustration.



7. Wipe off all excess dust and sandpaper grit. Use air hose to blow dust from corners and holes. BE VERY CAREFUL NOT TO BLOW DUST INTO YOUR OWN OR SOMEBODY ELSE'S EYES! Wear goggles. A particle of garnet blown with 60 lb. air pressure can severely damage an eyeball.

8. Print your name and the date on the bottom surface--neatly; this is your "Trade Mark."

9. Dip the pencil rack into the lacquer container in the finishing room. Hold it there for a few seconds to give the solvent a chance to penetrate.

10. Shake off excess lacquer.

11. Place in drying rack.

12. Put all tools and materials back. Brush off bench tops where you worked.

INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week VIII, Plastics Lab I

State: The problem I should like you to consider today is a very real problem, and one for which there are undoubtedly a number of very good answers. We have in the storeroom about fifty or seventy-five of these war surplus plastic windows.

Do: Show sliding plastic window. Move sliding panel back and forth to show how it operates.

State: Notice how one half of the window can be opened or closed, or even removed through one end. The question is--What can we do with them?

We have already cut off a nice little square of plastic about 18" x 20" from each of them and therefore do not need to cut any more windows to obtain more small pieces of plastic. It seems to me there should be some possible uses for these. What can you think of?

Do: Pause 5 or 10 seconds.

State: One possibility might be as a cover for a picnic basket--to keep out the flies.

Do: Pause. Record responses, if any, on blackboard.

State: In what new way could this be used? (Repeat Osborn's questions slowly, pausing after each. Record responses.)

To what other uses could this be put?

Can we adapt or borrow? What else is like this? What ideas does it suggest?

How about a new twist? How about a new look? What could color do?

Idea: Dye black and use for window in a fish house.

How can we substitute? Enlarge? Make smaller, stronger, higher, longer, wider, deeper? Less so?

How about combining? With what?

Idea: Make shelves for rock collection. Fasten sliding window in front to keep out dust.

Do: After five to seven minutes, hand out instruction sheets on making picture holder. Demonstrate sanding, buffing, etc.

IMAGINATION PROBLEM - - Week VIII - - Fall Pilot Study

Notes Made After the Laboratory Session

Enthusiasm seemed very low today. These were the ideas presented:

1st pause: Window for camper that fits on the back of a pick-up.

2nd pause: Fish house window. (At this point instructor suggested the idea of dye to keep out light.)

Other class ideas:

Sewing box top.
Show case.
Guillotine-type cutter.

IMAGINATION PROBLEM - - Week VIII - - Winter 12:00 Class

Notes Made After the Laboratory Session

These contributions were made by students during the pauses:

Fish house window.

Unbreakable garage window.

Child's playhouse window.

Ticket booth window.

Gate or valve in chute.

To ask questions about. (Obviously facetious.)

License plate cover.

IMAGINATION PROBLEM - - Week VIII - - Winter 2:00 Class

Notes Made After the Laboratory Session

The following ideas were produced in such rapid succession that it was difficult to keep up writing them on the board. The class attacked the problem with vigor and enthusiasm.

Doghouse window.
Cover for bread box.
Boat cabin window.
Tent window.
Outhouse window.
Window in canvas cover for sleeping bag.
Sports car body window or ventilator.
Air scoop for sports car.
Window for ticket booth.
Water skiis--shoe style.
Guard on machine--access cover.
Window for ice fish house.
Aquarium window.
Drain or valve in dam.
Feed bin chute valve.
Bird cage.

IMAGINATION PROBLEM - - Week VIII - - Spring Quarter

Notes Made After the Laboratory Session

Students made these contributions during the pauses:

Mailbox opening.
Patent, and use as fish house window.
Tent window.
Flower box cover--hot box in early spring.
Window in cabin cruiser.
Use plastic and mold into utensils, as dishes, etc.
Use sliding action as carrot chopper.
Put box under it and use for fishing tackle.
Seal and use for window on boat bottom for sightseers.
Use as is for shelf for flower pots.

Results were good. The class seemed free of inhibition and made suggestions rapidly.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Plastics Lab I

Group C

Directions

After referring to your class notes and library references as necessary, answer the questions on Page 2.

Return this entire booklet at your next class meeting.

ACTIVITIES REPORT FORM NO. 8

Group C

Answer the following questions:

1. What is meant by a #180 grit wet-or-dry paper?

2. List three types of abrasive paper we have used in lab work and describe the characteristics of each.

   a.

   b.

   c.

3. What are the basic raw materials from which acrylic plastics are made?

   a.

   b.

   c.

4. Why would a Bakelite phenolic resin be a very poor material from which to make this picture holder?

ACTIVITY INSTRUCTION SHEET 8

Plastics Lab I

Groups E_1, E_2 and C

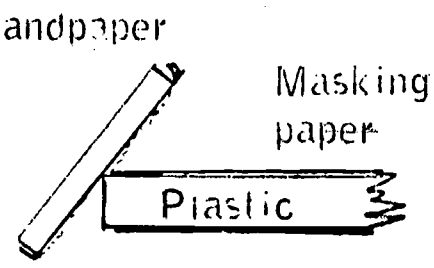
Until fiberglass became popular about ten or fifteen years ago, acrylics were by far the most common plastics to be found in industrial arts shops. Because they are so crystal clear, take such a high polish, and are available in such brilliant colors, Lucite and Plexiglas have appealed to craftsmen and hobbiests throughout the country. They may be formed at about the temperature of boiling water, can be glued, dyed, sawed, and drilled with ease. Acrylic projects have been made by the millions in school shops, camps, YMCA craft classes, and in home workshops.

The acrylics are also used by manufacturers for about the same reasons. As airplane and boat windshields, they provide as clear vision as glass and will not shatter if hit by flying objects. They provide attractive colors in signs and store window displays. They are used for a variety of items ranging from jewelry boxes to drawing instruments. To provide you with a little first-hand experience in working with acrylics, a picture holder has been chosen which you should be able to complete in one class period. The Plexiglas has been cut to size; all that is necessary is to sand and polish the edges and to bend it.

Picture Holder

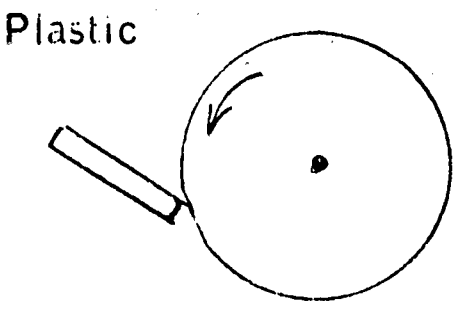
Procedure

1. Slightly round all four corners of plastic piece with a file or coarse sandpaper.



2. With a piece of silicon carbide wet-or-dry paper of approximately #180 grit sand edges of plastic until saw marks disappear. Use water. Do not remove masking paper.

3. Continue sanding with #320 paper. Slightly round each arris by sanding over surface toward edge in direction indicated by arrow.



4. Using gray compound (tripoli) with any wheel, buff all edges briefly (about one minute). Press lightly and keep plastic moving to prevent heat of friction from melting plastic. Note angle of plastic against wheel.

5. Now examine carefully for saw or coarse sandpaper marks. If any remain, remove with appropriate grade wet-or-dry paper.

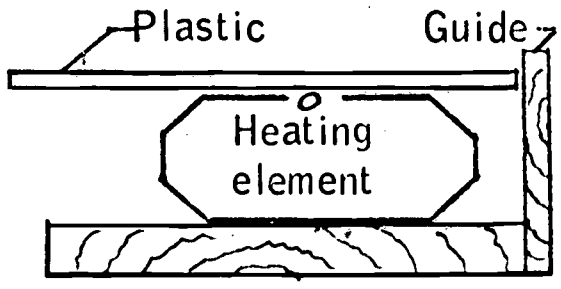
6. Buff again on gray wheel.

7. When NO marks are visible, move to wheel using white compound. Be sure not to mix compounds on wheels.

8. Remove masking paper and determine--by sight and feel--if edges are smooth and shiny.

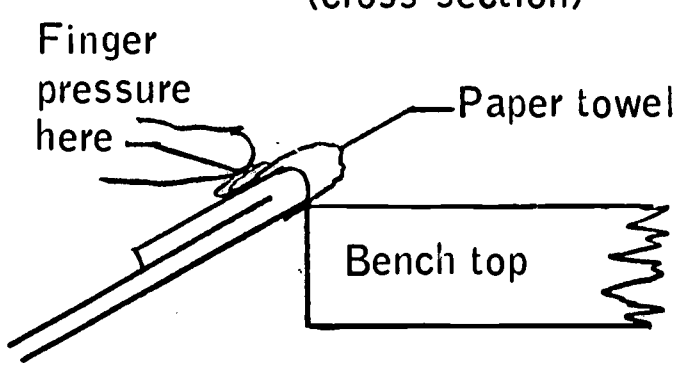
9. When edges are satisfactory, clean plastic with soft rag dampened with El-Kol (denatured alcohol). Do not scratch surface.

10. Get a piece of paper towel for use as a holder to prevent burning your fingers later on. Hold plastic against guide on Strip Bender for one minute or until plastic is thoroughly flexible.



STRIP BENDER
(cross section)

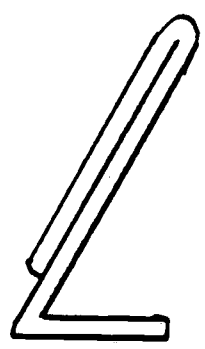
11. Bend plastic 180° and hold tightly against edge of bench until it has cooled enough to stay. Protect your fingers with paper towel.



12. Heat second end by holding properly over Strip Bender heating element.

13. Bend to desired angle and hold until cool.

14. Place your name on a piece of paper slipped into picture holder; turn it in for checking.



Name _____
(last) (first)

INDUSTRIAL ARTS 120

Plastics Lab I Groups E_1 & E_2

Directions

Read the attached material and work out the "Ideation Exercise." Refer to your class notes and to library references as necessary. Apply your imagination in answering the questions on the last page.

Hand back the entire booklet at your next class meeting. Also please return at that time the pamphlet, "The Gold Mine Between Your Ears."

ACTIVITIES REPORT FORM NO. 8

Groups E_1 & E_2

A. Education for Intelligently-directed Effort.

Professor Leslie J. Nason, Ed.D., in an article in the Mankato Free Press of November 7, 1969, declared that our best living scientists, unlike Edison and Einstein, are products of our schools. These people, he said, believe that "creativity demands an ability to direct mental processes toward an end."

The people whose efforts result in "new ideas in science, music, art, gadgets and solutions to human problems.....observe, listen, question, read, collect data, compare, analyze. Their creativity is closely related to continued mental effort."

Thus we are reminded again that the person who would become outstanding must be willing to apply himself vigorously. This is not a new idea." However, effort alone is not sufficient; planning and control are required. Effort without intelligent direction is like horsepower without a steering wheel. The Creative Education Foundation has compiled research to show that schools can teach people to be more creative by showing them how to direct their efforts. One of the most important facets of the directional control of effort is the separation of evaluation from ideation.

This separation, which is the principal of suspended judgment, is entirely in agreement with the scientific method. However, whereas

the scientific method places greatest emphasis on securing, classifying, and evaluating facts, the creative method places greatest emphasis on the development of hypotheses. These two methods are not mutually exclusive, but entirely complementary. Application of the newly-developed creative techniques results in more hypotheses to evaluate and hence in more chances for an exceptionally good one.

How to Develop Ideas. One of the methods used by highly creative people to help themselves "think up" more ideas is the "Quiz Yourself" idea. Turn now to pages 15 to 22 of "The Gold Mine Between Your Ears" and carefully examine Alex Osborn's suggested questions. These or some others that you may think of will certainly help you when you tackle a knotty problem. Perhaps you should write down these questions somewhere so you may refresh your memory if you forget them. Very likely you will wish to add questions of your own.

B. Exercise in Ideation--

The picture holder we made was very simple. It could have been made in a number of other ways. Just for fun, take some paper and cut out patterns for other picture holders (or other projects) which could have been made from a sheet of Plexiglas. If you wish, use crayon or special pencil lines to show color or other materials needed. Use a dotted line -------- to show a fold. Fasten all the patterns to this page EXCEPT the one you consider most appealing. Save that for question No. 5 on the next page.

C. Questions (Plastics Lab I) Groups E_1 & E_2

You cannot apply imagination in a vacuum; when you need facts--look them up! Do not forget to turn in "Gold Mine Between Your Ears."

1. What would you say was the most difficult part of making the picture holder?

2. How might this operation have been performed more easily? List 2 or 3 alternative methods.

3. Why do you think the wet-or-dry paper used was made with a silicon carbide abrasive rather than with flint or garnet?

4. What mistakes might an amateur make in buffing a Plexiglas project?

5. Examine the "most appealing" project design you made for the ideation Exercise on the previous page. List below the difficulties a novice might have in making this project.

ACTIVITY INSTRUCTION SHEET 8

Groups E_1 E_2 and C

Plastics Lab I

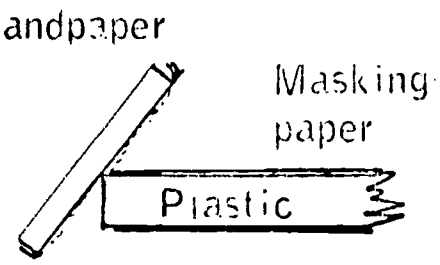
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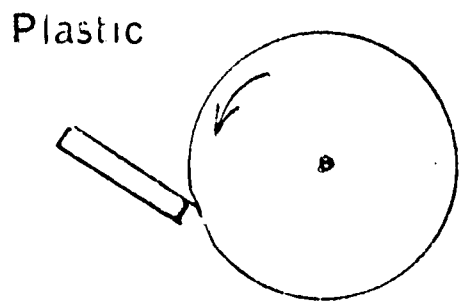
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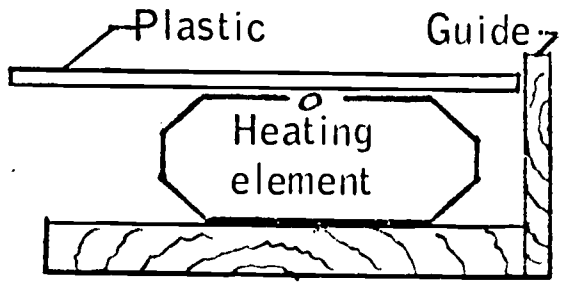
6. Buff again on gray wheel.

7. When NO marks are visible, move to wheel using white compound. Be sure not to mix compounds on wheels.

8. Remove masking paper and determine--by sight and feel--if edges are smooth and shiny.

9. When edges are satisfactory, clean plastic with soft rag dampened with El-Kol (denatured alcohol). Do not scratch surface.

10. Get a piece of paper towel for use as a holder to prevent burning your fingers later on. Hold plastic against guide on Strip Bender for one minute or until plastic is thoroughly flexible.

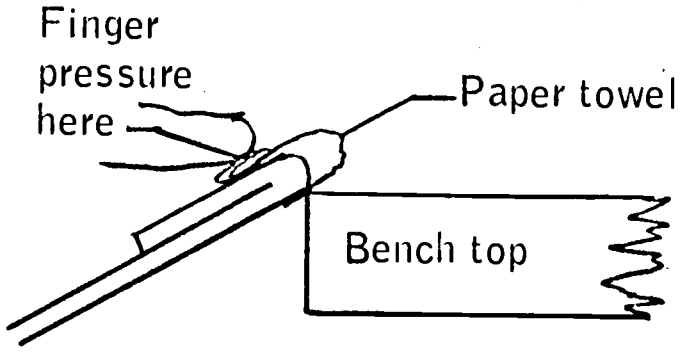


STRIP BENDER
(cross section)

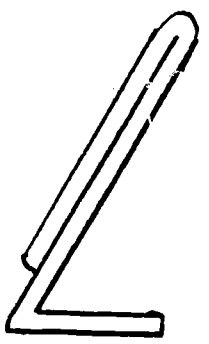
11. Bend plastic 180° and hold tightly against edge of bench until it has cooled enough to stay. Protect your fingers with paper towel.

12. Heat second end by holding properly over Strip Bender heating element.

13. Bend to desired angle and hold until cool.



14. Place your name on a piece of paper slipped into picture holder; turn it in for checking.



INSTRUCTOR'S GUIDE FOR IMAGINATION PROBLEM, GROUP E_2

Week IX, Plastics Lab II

Do: Turn on element in vacuum forming machine for preheating. Pass out blank sheets of paper to students.

State: We have previously talked about some of the industrial techniques in the processing of plastics. This is a small, inexpensive forming machine with vacuum furnished by an ordinary vacuum cleaner. Its operation is very simple. We place the desired mold on the screen and clamp a piece of plastic in the frame.

Do: Demonstrate by performing each step as it is mentioned.

State: We now apply heat to the plastic. You will notice it sags, rather quickly rises in sort of bulges, and in a few seconds sags again as it is heated through. When it is thoroughly flexible, we lower the plastic over the mold and turn on the vacuum.

After allowing the plastic to cool a few seconds, we remove it from the mold and trim the edges. These are some of the molds we have made in our industrial arts classes.

Do: Show sample projects and molds for tidbit tray, fly box, spiral puzzle, etc.

State: This is a mold which did not work because the plastic wrinkled as it was drawn down into the narrow places.

Do: Show drape mold for desk drawer tray and plastic which was tried on it.

Say: This tray can be made by using a cavity mold.

Do: Show successfully molded tray of quite similar construction with cavity-type mold used.

State: These, of course, are only samples of what can be made by vacuum forming. In the next five minutes list as many projects as you can think of that might be interesting and different and which could be made on this machine.

Do: Pause for five minutes. Then proceed with regular lab work.

IMAGINATION PROBLEM - - Week IX

Notes Made After the Laboratory Session

Number of ideas suggested for vacuum-formed projects, listed according to class:

Fall N = 10	Winter, 12 N=10, 2 abs	Winter, 2:00 N=9, 3 abs.	Spring N=17, 1 abs
5	2	5	10
6	9	7	5
6	6	4	10
7	2	5	12
4	3	6	3
14	2	7	5
7	6	9	15
7	3	3	11
14	1	6	6
6	4		5
			10
			3
			7
			9
			6
			8
			10
			10
$\overline{X} = 7.6$	$\overline{X} = 3.8$	$\overline{X} = 5.8$	$\overline{X} = 7.4$

During Fall Quarter the students were asked to turn in this paper the following week with their lab report. Since eight papers were not returned, students in the Winter and Spring classes were asked to turn in the paper before leaving class.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Plastics Lab II Group C

Directions

Look over the questions on page 2 in this booklet; then review class notes and library references as necessary. If you do not remember the principles of fluid pressure, you may have to do some reviewing in a general science textbook before answering question 5.

Turn in this entire booklet at your next class meeting.

ACTIVITIES REPORT FORM NO. 9

Group C

Answer the following questions:

1. Vacuum forming is sometimes used on "short-run" jobs and injection molding for "long-run" jobs of a similar shape. Why?

2. Why is the material used in injection molding always thermoplastic while thermosetting material is used for compression molding and transfer molding?

3. In vacuum forming, what happens if the plastic becomes just a little too warm before being drawn?

4. What differences do you notice between the acrylic plastic used last week and the polystyrene plastic used this week?

5. If the vacuum cleaner we used for forming the plastic draws "5 inches of vacuum," (figure 30 inches of mercury as atmospheric pressure) what was the approximate total downward force on the 10" x 12" sheet of plastic when the vacuum was turned on? (Show your work.)

ACTIVITY INSTRUCTION SHEET 9

Groups E_1, E_2, and C

Plastics Lab II

The industrial methods of processing plastic include injection, compression, and transfer molding. plug and ring molding, blow forming, vacuum forming, vacuum forming with plug assist, and calendaring. While the industrial machinery used in these processes is generally huge and expensive, it is possible to adapt certain of these to miniature machines available to school shops. Thus students who are unable or unwilling actually to work in industrial shops may obtain a little more concrete experience and a little better understanding of the problems involved than if they merely looked at pictures or read books.

In the exercises designed for today's laboratory activity, the problems of mold design and construction have been eliminated. However, you will be shown some molds which did not work because you should recognize some of the limitations involved.

Vacuum Forming and Injection Molding

There are two injection molding machines and three vacuum forming machines in the shop. You will be required to make one good injection molded project and one good vacuum formed project. You may pick the machine and mold of your choice except as you are limited by time or overcrowding at the machines. There is no charge for the injection molded project since only a small quantity of material is used and unsatisfactory projects may be cut up and re-used. The cost of polystyrene for vacuum forming is from 8¢ to 15¢, depending upon the size of the sheet. You must pay for what you use.

Vacuum forming procedure:

1. Place mold in machine on proper platform.

2. Clamp correct size plastic in holder so it is held securely on all four edges.

3. Raise the clamp to the heating element or swing heating element over plastic.

4. Watch plastic carefully. It will sag a little and quickly rise again in bulges. In about 30 seconds (more or less, depending on thickness of plastic and intensity of heat), it will soften and begin to sag. When it is limp bring the plastic down carefully over the mold and turn on the vacuum.

5. Allow plastic to cool for a few seconds. Turn off the vacuum and remove plastic from mold. Trim as desired.

Injection molding procedure:

1. Turn on machine with thermostat set slightly above the halfway mark.

2. Clamp mold firmly under orifice, being sure to line up correctly.

3. Fill cylinder with plastic and turn handle until increased pressure indicates mold is filled.

4. Cool for about 5 seconds in running water.

5. Disassemble mold. Remove project and trim flash.

6. If unsuccessful, repeat until a good project results.

Name _____
(last) (first)

INDUSTRIAL ARTS 120

Plastics Lab II Groups E_1 & E_2

Directions

Read the attached material and work out the "Ideation Exercise." Answer the questions on the last page.

Hand in the entire booklet at your next class meeting. If you have not already done so, please return the pamphlet "The Gold Mine Between Your Ears" at the same time.

ACTIVITIES REPORT FORM NO. 9

Groups E_1 & E_2

A. Creative Imagination--Areas of Application.

This is the last in a series of information sheets designed to help you, IF YOU SO DESIRE, develop some of the unused talent everybody possesses. There is no doubt but that those persons who are very intelligent and who also are highly creative will make the greatest contributions to society. Those who rank lower on the commonly-used intelligence scales but who are highly creative can improve themselves somewhat, but those who can gain most by the study and practice of the principles of ideation are those who rank lower on the tests of originality. Let us review again some of the advice from leaders in the field.

1. Do SOMETHING. Limber up your thinking muscles! Write or draw or list solutions--many of them.

2. Analyze yourself. Decide which of the perceptual, cultural, or emotional blocks are inhibiting you. Then ELIMINATE THE BLOCKS. Isolate the problem and define it. Think of it in wider terms. Investigate the obvious. (Things are not always what they seem--remember the two Indians who were not father and son.) Use ALL your senses. Have the courage to be different. Defer judgment: list all ideas first. Be a doubter; many inventions and improvements have been made by those who wouldn't believe that "It couldn't be done." Free yourself from the desire to compete or cooperate. Concentrate on the problem--not on what others think you should or should not do! Do not be afraid of making a mistake. Many ideas which seem foolish at the moment later lead to undreamed-of success. Exercise patience. Lack of progress tends to be frustrating and discouraging. If you would succeed, you must never quit trying. Even when your first ideas seem "good enough," look for some others. It may be that "the best is yet to come."

3. Understand your mental processes. Remember your "loader," your "judge," and your "thinker-upper." Watch out for your judge when

you are using your thinker-upper. Later you will have good use for him. DEVELOP THE WILL TO WIN! The Statler Hotel chain and Pfister's seed corn were the results of tremendous and extended individual effort.

4. PREPARE YOURSELF FOR CREATIVE THINKING! Get into the mood. Doodling isn't good enough. Allan Ward, Clarence Buddington Kelland, and others have done this by brute force. Use check lists--attribute listing--or the forced relationship technique, whenever applicable.

5. Use the BRAINSTORMING technique. Whether alone or in a group these rules apply.

a. Do not be critical.
b. Make use of "free-wheeling."
c. Let your imagination roam.
d. Work for quantity. The more ideas you have and express, the more good ideas you will have.

6. Make a Plan. A problem is a "MESS." You can begin by describing the mess and picking out exactly what it is you are trying to do. The next step may be to find facts. Perhaps now you are ready for "idea finding." At this stage ask yourself questions: multiply? combine? reverse? rearrange? Your Judge has been dying to get into the act--now put him to work. Force him to look at and really examine ALL the ideas. Finally TRY OUT the solution. This is the climax. Now is the opportunity to TEST it!!

The campaign for increased imaginative ability in science and technology has been carried forward by such individuals as Mr. Kettering of General Motors. Dr. Suits of General Electric, and Mr. A. L. Simberg of AC Spark Plug. The American Society of Mechanical Engineers has conducted seminars to emphasize its importance; The American Society's Committee on Professional Training has deplored the lack of creative ability among highly trained men. The desirability of creative ability in science is well documented. However it is also important in other areas.

Whenever jobs are hard to find--and good jobs always are hard to find and get--the person with imagination has the best chance. Alex Osborn, in his chapter entitled, "Careers Depend Largely Upon Creativity," suggests that a person seeking a job should use imagination: (1) in deciding upon a choice of careers, (2) in looking for an opening, (3) in making an application, and (4) in striving for promotions.

Business leaders must not only attack their own problems with resourcefulness, but they must also encourage their employees to come forth with ideas. The Chrysler Corporation's motto is "Creative Imagination." Six thousand American companies now operate suggestion systems. The Army's suggestion system resulted in over twenty thousand ideas in 18 months, with savings to the U.S. of almost $44,000,000.

Doctors, pastors, lawyers, and other professional people become more useful and more successful when imagination is applied to their daily tasks.

One of the most valuable assets in personal relations is the ability to imagine how the other person feels. We hear a great deal about EMPATHY. In simple terms, this means being able to put yourself in the other guy's boots. Tact and courtesy depend upon how accurately one can predict another person's reactions. In marriage relations--in operating a home--in effective discipline of children--and even in getting along with yourself, creative imagination is often the key to achieving success rather than chaos.

B. Exercise in Ideation.

The exercises below are taken from Chapter XXVI of Alex Osborn's APPLIED IMAGINATION. Work out one of the problems in the space below and on the back of this sheet.

1. List six careers for which you think you might be suited. Check the one for which you think you are best fitted. Tell why.

2. Select the career that appeals to you and list 10 points by way of qualifications which might appeal to a prospective employer.

3. Suggest five "extras" a salesman might work up in order to win favor with a prospective employer.

4. Suggest six ideas to enable your school or college or business to save money.

5. If you were an employer, what three questions would you ask of an applicant in order to evaluate his creative ability?

C. Questions (Plastics Lab II) Groups E_1 & E_2

After reading about areas of application for creative imagination and working the Ideation Exercise, answer the following questions:

1. How could the unsuccessful tray shown in class be redesigned so that it could probably be made on a drape mold? (Use separate sheets of paper and show top and bottom and side views.) Present several ideas.

2. Make a list of objects you have seen which have been or might have been made by vacuum forming.

3. You may have noticed that if the handle of the injection molding machine is turned when there is no mold under the orifice, no plastic comes out. This is to prevent the melted plastic from oozing out and spilling over the base. If you were to design a machine for this purpose, how would you construct the orifice? Show in a sketch below.

ACTIVITY INSTRUCTION SHEET 9

Groups E_1, E_2, and C

Plastics Lab II

The industrial methods of processing plastic include injection, compression, and transfer molding plug and ring molding blow forming, vacuum forming, vacuum forming with plug assist, and calendaring. While the industrial machinery used in these processes is generally huge and expensive, it is possible to adapt certain of these to miniature machines available to school shops Thus students who are unable or unwilling actually to work in industrial shops may obtain a little more concrete experience and a little better understanding of the problems involved than if they merely looked at pictures or read books.

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5. Disassemble mold. Remove project and trim flash.

6. If unsuccessful, repeat until a good project results.

VT 004 673
Kinning, Darrell R.
An Experimental Study of the Relative Effectiveness of Educational Films Versus Industrial Visits in Learning About Industry.

MF AVAILABLE IN VT-ERIC SET.
Pub Date - 65 92p.

*INDUSTRIAL ARTS; MASTERS THESES; *TEACHING TECHNIQUES; *FIELD TRIPS; *INSTRUCTIONAL FILMS; HIGH SCHOOLS; *COMPARATIVE TESTING; EDUCATIONAL EXPERIMENTS; COMPARATIVE ANALYSIS; CONTROL GROUPS; EXPERIMENTAL GROUPS ST. PAUL; MINNESOTA

The major purpose was to compare the effectiveness of a 16mm motion picture film and an industrial trip on learning about industry. The population consisted of 141 boys enrolled in woodshop at Johnson High School, St. Paul, Minnesota during 1964-65. These were ranked by their Otis Gamma Intelligence Test Scores and divided into equal groups of high, average, and low ability. Random assignment was then made to Group A (field trip), Group B (film), and Group C (control). Group A toured an industrial plant, and Group B viewed films covering approximately the same material as the tour. All three groups were given a test of knowledge related to the treatments, and 7 weeks later Groups A and B were given the same test for a retention measurement. A treatment by levels analysis of variance was the statistical design used for the analysis.

Findings based on an objective test immediately following treatments and the same test repeated 7 weeks later includes: (1) The film treatment was superior to the tour treatment, (2) High and average ability groups achieved significantly higher mean scores than did low ability groups, and (3) High ability groups did not achieve significantly higher mean scores than the average ability groups. Interaction did occur between treatment groups and ability levels on the first measure but not on the retention measure. A bibliography, tour and film outlines, an achievement test, and statistical data are included. This MA paper was submitted to the University of Minnesota. (EM)

VT 004 673

ED027441

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94

AN EXPERIMENTAL STUDY OF THE RELATIVE EFFECTIVENESS OF EDUCATIONAL FILMS VERSUS INDUSTRIAL VISITS IN LEARNING ABOUT INDUSTRY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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An Independent Paper
(Nine Quarter Credits)
Ind. 200, Research Problems
Dr. Jerome Moss, Jr., Advisor

Submitted by
Darrell R. Kinning
Candidate for the Degree
Master of Arts
Plan B

VT004673

University of Minnesota
1965

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To my wife, Carol, for her continued encouragement and help.

DRK

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CHAPTER I

ORIENTATION TO THE PROBLEM

I. STATEMENT OF PURPOSE

The main purpose of this study was to determine which method, a 16mm motion picture film or an industrial visit, resulted in greater learning when teaching about industry. A second purpose was to determine which method was more effective for high, average, or low ability students. A third purpose was to determine which method resulted in the greater amount of retained learning.

II. IMPORTANCE OF THE STUDY

Ericson (9, p. 179), taking note of the ever increasing need for everyone in our present culture to know something of the present day developments in industry, stated,

> Understanding of industry and of the industrial society basic to American life has come to be an accepted goal for industrial arts. While this goal is undoubtedly shared by many subject matter areas in our schools, industrial arts should offer unique opportunities for contribution to its attainment. If the teacher is impressed with the value of this goal, he will find many opportunities to do more than give lip service to it.

Derthick (7, p. 26) wrote:

> Specifically, it seems to me that industrial arts can strengthen its position in the high school program by more accurately reflecting our changing technology. Industrial arts should become more closely connected with the major problems of industry. New materials, new processes, new machines, new products should be reflected in the school program. It is in programs where this has not taken place that industrial arts has fallen into disrepute.

Hackett (11, p. 25), in a article entitled, "Study of American Industry is Essential to Liberalizing General Education," stated:

> Work that was formerly carried on in the home or in a village shop is now performed, in many instances, automatically behind factory walls. Today the average boy or girl, to say nothing of adults, knows appallingly little of the technology employed by American industry in producing our material welfare. If we could be somewhat realistic in making statements of the objectives of industrial arts, we might state our purpose to be:
>
> 1. To develop insights and understandings of industry and technology in our culture.
>
> 2. To develop understandings of the opportunities, requirements and working conditions in the technical fields.

> 3. To develop the ability to use tools, materials and processes to solve technical problems involving the applications of science, mathematics and mechanics.

Streichler and Duff (19, p. 26), wrote, "Industrial education not only implies a development of the concept of industry but demands that this be done." Many other industrial education leaders could be quoted here, but it was felt that the importance of learning about industry was accepted, if not promoted, by most teachers of industrial arts throughout the nation.

Our own Minnesota Curriculum Guide (1, p. 22 and 23) had the following to say about this goal,

> Industrial arts concerns itself with providing and fostering understandings, attitudes and skills, which will enable youth to better understand automation, technological problems, modern industry, and industrial processes.

One of the specific objectives read, "To develop active interests in industry and in the methods and problems of production and exchange."

The investigator consulted his own local curriculum guide (15, p. 1) and found the following statement,

> Industrial arts is the subject matter area which provides an opportunity to understand and appreciate our industrial society with its problems of labor and management, its processes and materials of production and its job opportunities.

If we can agree that learning about industry holds an important place in the teaching of industrial arts, then the next question is, "How can we interpret industry in the industrial arts laboratory?" Streichler and Duffy (19, p. 27) said,

> There are three general methods which the teacher can use to broaden industry-student contact. First, the laboratory or shop could be organized to reflect industrial practices and procedures. Second, the students and teacher may go out to visit and observe industrial enterprise. Third, and finally, many industrial resources and sources can be brought into the classroom.

It was the last two methods with which this paper was concerned.

Most industrial arts teachers believe there is value in taking a class on a field trip, but sometimes making plans and arrangements, as well as providing transportation, getting parents' permission, clearing with school officials, etc., can be a trying situation and often discourages field trips.

An alternative to an actual visit could be an industry-sponsored film. These are available, generally, for the cost of postage. Many companies provide catalogues of the films they supply, film indexes in the school library or audio-visual centers contain many additional free or inexpensive sources, and government agencies list films on various topics. Chosen discreetly, films can bring much of the industrial story into the school. In fact, some films tell more than can be obtained on an actual visit because the camera can frequently penetrate where the human eye cannot. Further, the attention of the student is directed to a much greater extent.

Regardless of which method is used, the industrial visit or the film, they both bring the student and the instructor in touch with many of the same enterprises that they study in school. Not only are they able to see processes, workers in action, materials being handled, and the various facets of industrial organization, but they may discern the problems which grow out of the interaction of these facets of industry. If one method can result in more effective learning than the other, than it

is important that we know which method it is so that in future planning this can be taken into consideration.

III. STATEMENT OF HYPOTHESES

Six major hypotheses, in the null form, have been formulated for the purpose of investigating the problem.

1. There are no significant differences between field trips, film, and control populations as measured by their average scores on an objective test given immediately after the treatments.

2. There are no significant differences between the high, average, and low ability populations, as measured by their average scores on an objective test given immediately after the field trip, film and control treatments.

3. There is no interaction between the three treatment groups and the three ability levels as measured by their average scores on an objective test given immediately after the treatment.

4. There is no significant differences between field trip and film populations as measured by their average scores on an objective test given seven weeks after the treatment.

5. There are no significant differences between the high, average and low ability populations, as measured by their average scores on an objective test given seven weeks after the field trip, film and control treatments.

6. There is no interaction between the three treatment groups and the three ability levels as measured by their average scores on an objective test given seven weeks after the treatments.

CHAPTER II

REVIEW OF THE LITERATURE

The researcher was unable to locate any studies which compared field trips with motion picture films. Hundreds of experimental and survey studies have been made in the past sixty years on the educational influences and effectiveness of motion pictures. Much of this work had been done comparing the amount of learning gained from films with the amount of learning attained from other methods of instruction. The other methods of instruction included special illustrative and printed materials, lectures, demonstrations, readings, filmstrips and slides, etc., but did not include the use of field trips. Because some of the findings in these studies did relate to this study, it was felt that a review of the pertinent literature should be included in this report. Also, to be included in this chapter, is a synopsis detailing the proper use of both field trips and films.

I. RELATED RESEARCH

Dale, Finn and Hoban (6) wrote an account of the research literature on audio-visual materials. The bibliography contains 163 items and the authors included the following research findings pertinent to utilization of educational films.

1. Using direct questions was the best preparatory technique for film showing.

2. A film followed by verbal discussion was more effective than a discussion before a film.

3. Oral commentary on a film was more effective than presentation without oral commentary or with written titles.

4. Showing films in a classroom produced higher test results than showing films in a large auditorium.

Concerning the relative effectiveness of motion pictures with "dull" and "bright" students, the authors drew these conclusions:

> The effectiveness of films with children of a given level of intelligence must be expected to vary with the subject taught and with the learning outcomes measured. Where effectiveness is considered in terms of verbal responses to information tests,

> films seem to be relatively more effective for dull than for bright pupils. Where effectiveness is considered in terms of ability to make verbal generalizations, films are not as effective for dull as for bright pupils.

In a report by Hoban (13), he summarized and interpreted the result of a five-year study of motion pictures in the schools. No bibliography was included, but the author drew from his previous works. In discussing the role of the teacher, he suggested these pre-film presentation activities:

1. View the film before presenting it to a group and plan pre-showing and post-showing activities.

2. Relate the film content to the pupils' previous knowledge.

3. Before presentation, give an oral preview of the film and point out which features the students should particularly attend to.

After the film presentation, the teacher should review the film and conduct a class discussion in order to clarify misunderstandings. The teacher should determine whether a second showing is justified, and if so, indication should be made as to what it is necessary to observe.

In another section the author, Hoban, attacked the generalization that films are better for "dull" than for "bright" students because they are less abstract than verbal instruction. In this regard, the author stated that dull students needed specially designed films that moved at a slower pace, had more detail, had clearer transitions, and used simpler vocabulary and sentence structure.

From more than 200 research studies reviewed by Hoban and Van Ormer (14), several principles of film design were evolved. One of these principles stated that familiarity with the subject matter of a film, level of intelligence, formal education, and reading ability correlated positively with amount learned from films. The authors maintained that instructional techniques substantially increased the instructional effectiveness of a film. Some of these techniques were:

1. Orienting an audience on what it was going to see or summarizing what it had seen.

2. Announcing that a test would be given after the film.

3. Repeating the important points within a film with variation.

4. Conducting audience participation during or after a film.

5. Informing the learner of how much he has learned by giving test results and correct answers as soon as possible after testing.

The purpose of a study by McTavish (18) was to determine the increment in learning that may be attributed to one, two and three repetitions of a film over and above a single showing. Four, ten minute general science films were shown to each of four groups of college students in such a way that each group saw one of the films once, a second film twice, a third film three times and a fourth film four times. No two groups saw the same film the same number of times in one class period. All subjects were pretested two weeks before the film and post-tested two days after the film presentation. The difference between the mean pretest and post-test scores was significant in all cases at better than the .01 level. Moreover, two showings resulted in a significant increase in all scores for all four films. Three showings, however, did not add significantly to learning over two showings, and

four showings resulted in an even smaller increment for two films and a decrement in the other two. Within the limits of the experiment, the optimal number of immediately successive film showings for student learning was two.

Dichter (8) suggested the following sequence for teaching with audio-visual aids:

1. Evaluation of aid by teacher as to its technical adequacy and relevance to the current teaching program.

2. Teacher prepares himself by previewing the aid, deciding how to use it, and determining what to tell the pupils to look for.

3. Teacher prepares class by giving advance assignment on the material of the aid, relating the material to the groups' previous experience and interests, drilling on the novel vocabulary, and directing the students' attention to aspects of the aid.

4. Presentation of the aid.

5. Follow up as soon as possible after showing the aid with discussion on items they were to attend to, answering questions, testing. When total or partial review of the aid is necessary, the instructor should repeat what features must be attended to.

Dichter also cited the following common errors in the instructor's use of aids: Failing to state the purpose for viewing, asking questions concerning the aid that are too general, showing the aid before the group is motivated or when viewing time is insufficient, failing to give repeated showings of the aid, and using aids only tangentially related to the work at hand.

II. FILM AND FIELD TRIP SYNOPSIS

There is no one way to use films or take a field trip. Teachers who understand he value and use of films and field trips will find many ways of using them, and they will learn that no one way is best under all conditions. The following procedures contain suggestions from many authorities, and is only meant to be a helpful guide for using the two mediums.

Procedure for Film Presentation

I. Preliminary planning

1. Preview film and note the specific points of special interest and the frames where they occur

2. Decide on the necessary or desirable supplementary information to be used.
3. Decide how to correlate the film with your pre-arranged course of study.
4. Indicate how the film may be connected with the students' previous experience
5. Select the specific applications to be made within the students' experience
6. Determine how many times the film should be shown and the purpose of each showing - appreciation, information viewpoint or entertainment - again for study - once more for review or summary
7. Decide the procedure of presentation - with or without the sound track - teaching reading the captions - or students - or both
8. Choose the best time to show the film - before or after an explanation or demonstration - or before and also after.
9. Formulate questions and assignments to be used as a follow up of the showing.

II. Prepare class.

1. Give students some reasons for viewing the film.

2. Tell students what to look for.

3. Students should be able to correlate film learning with learning that has already taken place.

4. Alert students to strange or new words and symbols which occur in the film

5. Inform class that a test will follow.

III. Present Film

1. Multiple showings often are needed.

2. Discussion should be guided by

A. the questions from the class.

B. the objectives sought

C. the difficulty of the concepts

D. other pertinent considerations

3. Equipment should be ready

A. projector

B. speaker

C. screen

D. power cord

E. film

F. extra reel

G. projection stand

4. Make sure room darkening facilities and other facilities are adequate.

5. Use other teaching aids which may be co-ordinated with the film, such as models, charts, and slide films.

IV. Follow-up and application can be accomplished in many ways

1. Demonstration
2. Summary discussion
3. Reshowing
4. Evaluation of the film
5. Test
6. Individual and committee assignments or projects
7. Research

Procedure for Taking a Field Trip

I. Preliminary planning

1. Make arrangements with the place to be visited
2. If possible, take advance tour
3. Make final arrangements with the school principal about details of the trip
   A. time schedule
   B. transportation arrangements
   C. finances
   D. permission slips from parents

4. Make tentative route plan

5. Try to work out mutually satisfactory arrangements with other teachers if the trip will conflict with their classes

6. Prepare preliminary lists of questions or other materials which will be helpful in planning with the students

7. Discuss the objectives of the trip and write them down. Include the main objectives on the permit slip which goes home to the parents telling them about the trip

8. Prepare a list of questions and send it ahead to the guide

9. Work out safety and behavior standards for the trip and at the visiting place

10. Discuss and work out ways to document the trip. Everyone should take notes

11. Distribute to students a list of things to look for on the trip, especially at the place to be visited.

12. Discuss appropriate dress

13. Pre-plan with adult helpers going on the trip.

14. Announce to students that they will be tested after the trip.

15. Alert students to new or strange words which might be encountered.

16. Avoid "schoolish" attitude - permit students to relax.

II. Destination Arrival

1. Check group and introduce guide

2. Insure that the group keeps to the time schedule.

3. Give students an opportunity to obtain answers to questions.

4. Make sure the guide holds fairly close to the itinerary agreed upon.

5. Gather students, check the roll again, and make sure everyone returns to school to be excused.

III. Follow-up activities are numerous

1. Discussion.

2. Evaluation of trip.

3. Test.

4. Individual and committee assignments or projects.

CHAPTER III

THE EXPERIMENT

The study was conducted at Johnson Senior High School, St. Paul, Minnesota, during the winter and spring of 1965. Johnson Senior High School has a student population of about 2,050 students in grades 10-12. The aptitude and achievement levels of the student body, as measured by standardized tests, is close to the national norms.

I. PILOT STUDY

During the month of February, 1965, a pilot study for this experiment was conducted at Johnson High School, St. Paul, Minnesota. A class of twenty-four students from the Johnson High School machine shop volunteered to take part in a complete lesson utilizing the 16mm film method for presentation. The lesson was designed to present various facets of industrial knowledge related to the woodworking industry, and consisted of (1) preparation of the students, (2) introduction, (3) first film showing, (4) discussion, (5) second film showing, and (6) achievement testing. All but the second film showing

and achievement testing were completed the first day. A second day was necessary to complete the lesson.

Through observation, group discussion after the lesson was completed, and test item analysis, some very valuable information was obtained about (1) time requirements, (2) rate of delivery, (3) clarity of expression, (4) motivation of students and (5) explicitness, discriminating power, and difficulty of test items.

As a result of this experience a time schedule for the actual experiment was set and final arrangements for administering the treatments were made. Some changes in the delivery were made, as a direct result of student discussion at the end of the lesson.

The most dramatic change was made as a result of the pilot study in the criterion test. Some items were reworded and a few were dropped completely. The arrangement of test items in sequence, pairing off the items according to difficulty, was also accomplished at this time.

II. POPULATION AND SAMPLING

The population for this study consisted of all students (141 boys) enrolled in woodshop at the time of the experiment. These students were placed in rank order according to their scholastic aptitude as measured by the Otis Gamma Intelligence test (which is administered to all students enrolled in the St. Paul Public Schools at the beginning of the ninth grade), and then divided into three equal numbered groups. These groups were labeled high, average and low ability and consisted of forty-seven students each. Individuals within each ability group were then randomly assigned to one of three treatment groups: Treatment A Group (field trip), Treatment B Group (film), and Treatment C Group (control). Treatment Groups A and B were assigned 16 students from each ability level and Treatment C Group was assigned 15 students. Since all students would probably not be present on the day of the experiment or tests, only fourteen students in each of the nine cells were used for statistical purposes. The remaining students were randomly selected to act as alternates in case of absence. See Table I.

TABLE I

ASSIGNMENT OF POPULATION TO TREATMENT
AND ABILITY GROUPS
(N = 141)

	Group A Film	Group B Trip	Group C Control	Totals
High	14 plus 2	14 plus 2	14 plus 1	42 plus 5
Average	14 plus 2	14 plus 2	14 plus 1	42 plus 5
Low	14 plus 2	14 plus 2	14 plus 1	42 plus 5
TOTALS	42 plus 6	42 plus 6	42 plus 3	126 plus 15 equals 141

Table II presents a breakdown of the number of years of previous experience in industrial arts of the students in each cell. It was felt that differences in amount of prior industrial arts experience might prejudice the results of the experiment.

Another variable which might bias the results of the experiment was grade level. An analysis of the students by grade level placement within each cell is shown in Table III.

Table IV desciibes the sample further by designating the means and standard deviations of the Otis Gamma I.Q.'s of the sample.

Table V shows the means and standard deviations of reading scores for the entire sample. The mean reading score was obtained by averaging each student's three standard reading scores on the Iowa Test of Educational Development given in the ninth grade.

A treatment by levels analysis of variance was performed on the variables described in Tables II, IV and V. The results showed that there were no significant differences between the mean scores of treatment groups but, as expected, there was significant differences among ability levels on each of the variables. Inspection of Table III indicates similar equality. Appendix A contains the analysis of variance tables.

TABLE II

PREVIOUS YEARS OF INDUSTRIAL ARTS
EXPERIENCE OF THE SAMPLE
(14 students in each cell)

		Group A	Group B	Group C	Totals
HIGH		7th - 11 8th - 11 9th - 7 10th - 5 11th - 2	7th - 10 8th - 11 9th - 11 10th - 3 11th - 3	7th - 10 8th - 11 9th - 7 10th - - 11th - 5	
	Totals	37	36	38	111
AVERAGE		7th - 12 8th - 11 9th - 11 10th - 2 11th - 3	7th - 12 8th - 10 9th - 6 10th - 3 11th - 3	7th - 11 8th - 11 9th - 13 10th - 4 11th - 1	
	Totals	40	34	40	114
LOW		7th - 9 8th - 11 9th - 9 10th - 5 11th - 2	7th - 10 8th - 10 9th - 12 10th - 4 11th - 4	7th - 11 8th - 9 9th - 12 10th - 4 11th - 3	
	Totals	36	40	39	115
TOTALS		113	110	117	340

TABLE III

GRADE LEVEL PLACEMENT OF SAMPLE

	Group A		Group B		Group C		Totals
HIGH	Senior	5	Senior	5	Senior	6	16
	Junior	6	Junior	6	Junior	6	18
	Sophomore	3	Sophomore	3	Sophomore	2	8
AVERAGE	Senior	3	Senior	4	Senior	3	10
	Junior	6	Junior	6	Junior	6	18
	Sophomore	5	Sophomore	4	Sophomore	5	14
LOW	Senior	5	Senior	5	Senior	5	15
	Junior	6	Junior	6	Junior	6	18
	Sophomore	3	Sophomore	3	Sophomore	3	9
TOTALS	Senior	13	Senior	14	Senior	14	41
	Junior	18	Junior	18	Junior	18	54
	Sophomore	11	Sophomore	10	Sophomore	10	31

TABLE IV

MEANS AND STANDARD DEVIATIONS OF OTIS GAMMA INTELLIGENCE QUOTIENTS

	Group A	Group B	Group C	Totals
HIGH	X = 107.2	X = 107.1	X = 105.8	X = 106.7
	S = 6.9	S = 4.6	S = 4.4	S = 5.5
AVERAGE	X = 95.8	X = 96.5	X = 96.2	X = 96.2
	S = 6.2	S = 9.7	S = 4.5	S = 7.1
LOW	X = 84.3	X = 82.9	X = 84.9	X = 84.0
	S = 4.0	S = 7.4	S = 5.9	S = 6.0
TOTALS	X = 95.8	X = 95.5	X = 95.6	X = 95.6
	S = 11.4	S = 12.4	S = 9.9	S = 11.2

TABLE V

MEANS AND STANDARD DEVIATIONS OF IOWA TESTS OF EDUCATIONAL DEVELOPMENT MEAN STANDARD READING SCORES

	Group A	Group B	Group C	Totals
HIGH	X = 13.6 S = 3.1	X = 13.3 S = 5.3	X = 13.3 S = 2.9	X = 13.4 S = 3.9
AVERAGE	X = 10.3 S = 2.2	X = 9.9 S = 2.5	X = 9.7 S = 3.4	X = 10.0 S = 2.7
LOW	X = 8.6 S = 2.0	X = 8.8 S = 3.7	X = 9.0 S = 3.8	X = 8.8 S = 3.3
TOTALS	X = 10.8 S = 3.2	X = 10.7 S = 4.4	X = 10.7 S = 3.9	X = 10.7 S = 3.8

III. EXPERIMENTAL DESIGN

The subjects in this experiment were divided, on the basis of IQ scores, into three ability levels (high, average and low). Within each of these ability levels, they were randomly assigned to one of three treatment groups. Treatment A Group was oriented and conducted through an industrial plant; Treatment B Group was oriented and shown a 16mm film presenting the same information experienced on the industrial tour; Treatment C Group (control) received no instruction.

On the day of the experiment all woodshop students were excused from their regular school routine. Treatment Group A visited the Andersen Corporation, Bayport, Minnesota, in the morning, and was administered the initial learning criterion test immediately following the completion of the tour treatment. Treatment Group B viewed a 16mm film on the Andersen Corporation at Johnson High School in the afternoon, and was administered the initial learning criterion test immediately following the completion of the film treatment. The Control Group, which did not experience the tour or the film, reported to

school in the afternoon only to be administered the initial learning criterion test.

Approximately seven weeks after the initial learning task, the initial learning criterion test was re-administered to Treatment Groups A and B. The students were given no previous indication that the test would be repeated. They were told to report to one of Johnson's large team teaching rooms two days in advance, but were not given a reason for reporting there.

Although the primary concern of this study was to test for significant differences between the two teaching methods (Treatments A and B) on the basis of criterion test scores, the use of the ability levels made it possible to determine if high, average or low ability students achieved significantly more from one method or the other. Retesting for retention of learned content several weeks later was yet another concern of this study.

Differences in criterion test scores between the film and tour groups could be attributed to the method of instruction provided it could be demonstrated that the groups differed systematically in no respect other than the treatments employed. A treatments by levels analysis

of variance design was employed to test for significant differences between treatment groups, between ability levels and for interactions.

The independent variables were (1) instruction methods and (2) ability levels. The dependent variables were (1) initial learning as measured by an objective test administered immediately after instruction, and (2) retention as measured by the same test seven weeks later. The controlled variables included (1) consistency of presentation of each method, (2) content of instruction, and (3) test and testing conditions.

IV. LEARNING TASK

"To learn about industry" is an ambiguous and all-inclusive objective which by itself can take on many meanings. To define and limit this objective somewhat this experiment included in the learning task the following areas of concentration: (1) Tools, machinery and equipment, (2) materials, (3) organization, (4) processes, (5) production, and (6) opportunities as each related to the work of the Andersen Corporation,.Bayport, Minnesota.

A complete unit on industry could not possibly be presented during the time it takes to view a film or make an industrial visit, so it must be pointed out that the learning task for this experiment must necessarily be but one lesson of many included to reach the generic objective. The problem at hand was to determine if differences in the method of presentation resulted in significant differences in learning.

Both the tour and the film treatments included approximately the same information and only that information which was included in both treatments was used in the criterion test. Because the film could not be changed, the tour was designed to parallel the film. Some items of information that were included in the film could not be included in the tour and some items usually covered on the tour could not be added to the film. The film was carefully analyzed to derive test items and then these items were screened in light of the content covered on the tour.

As many as possible of the instructional techniques (synopsis in Chapter II) for obtaining the best results in showing a film or taking a field trip were incorporated into the treatments. The content for both

treatments, in order of presentation, included: (1) Preparation of students, (2) introduction, (3) tour or first showing of the film, (4) discussion, (5) second showing of film for Treatment Group B, and (6) criterion test.

The St. Paul area sales representative from Andersen Corporation presented both treatments to the students to ensure that both groups received the same learning content. It was also felt that having a single instructor present the lesson to both treatment groups would also lessen the chances for differences in criterion scores being caused by reasons other than the learning task itself. Outlines for both Treatments A and B were authored jointly by the Andersen representative and the investigator.

Appendix B contains the content of the tour treatment and Appendix C contains the content of the film treatment.

V. CRITERION TEST OF ACHIEVEMENT

In the absence of standardized tests dealing with the lesson content, it was necessary to construct an achievement test to be used as a criterion measure. The

achievement test contained forty-four multiple choice items measuring achievement in the following selected areas of industry:

1. Tools, machinery and equipment
2. Materials
3. Organization
4. Processes
5. Production
6. Opportunities

An attempt to check the content validity of the criterion test was made by discussing each test item with the Andersen representative who administered the film and tour treatments to ascertain whether or not each test item would be answered by the content of both treatments. Fellow staff members at Johnson High School, as well as the machine shop students involved in the pilot study, also answered the questions on the test after viewing the film.

A test reliability correlation of .73 was obtained by applying the Kuder-Richardson formula, $r = \frac{n}{n-1} \times \frac{S_2^t - pg}{S_2^t}$ to the scores of students in the combined

Treatments A and B Groups on the initial learning test. This formula is normally used for estimating the reliability of tests which contain items of equal difficulty. A test item analysis revealed that items on this test were not of equal difficulty, and it was therefore safe to assume that the .73 estimate was conservative. The test is contained in Appendix D.

VI. ADMINISTRATIVE PROCEDURES

Because the investigator had viewed the Andersen Corporation 16mm film, "Windows From the Friendly Valley," and toured the plant at Bayport, Minnesota, in previous years, he was well aware of the willingness of the Andersen Corporation to co-operate with the public schools in providing a better knowledge of their company and its products. As one of the largest window manufacturers in the world, the Andersen plant represented a realistic though limited, picture of modern-day industry.

One of the first things necessary to begin this study was to acquire the 16mm film used in the film treatment ("Windows From the Friendly Valley"). After conferring with the sales manager at Andersens, and explaining the

proposed study, it was possible to obtain the film for as long as necessary. To briefly describe the film, its contents included the following major parts:

1. Functions of a window with many scenes showing different types in various settings.

2. Description of the wood used and where it came from.

3. Description of the Andersen plant.

4. Handling of material as it arrived at the plant.

5. Ripping and crosscutting operations.

6. Lineal and cross milling of window parts.

7. Quality control at various steps in window manufacture.

8. Machine shop where sharpening and special setups and modifications were made.

9. Other machines such as routing, mortising, automatic nailing and screwing machines.

10. Other machines such as those used for installing hardware, sanding the wood, and pneumatic guns.

11. Treating of the window parts to prevent decay and repel insects.

12. Testing laboratory where tests were conducted to determine nail holding strength, strength of glue joints, air and moisture leakage, plating thickness of hardware, etc.

13. Window assembly including glazing and nailing.

14. Packing and shipping of windows.

Because seven guides conducted the actual tour through the plant, it was felt that even though all seven were very familiar with all phases of the plant, some necessary information might be excluded unless these people had outlines to follow as well as a briefing before the tour. See Appendix E for tour guide outline. Every attempt was made to insure that all of the content included in the test items was covered in the tour. To overcome the problem of not being able to hear the guide, only six or seven students were assigned to a guide and portable public address systems were used.

Tentative arrangements for the day of the experiment had previously been made with the Andersen Corporation and the administration at Johnson High School. These arrangements were finalized upon completion of the pilot study. An agenda sheet for the day of the experiment was made. (See Appendix F) The Johnson High School staff was

briefed on the experiment at a faculty meeting and a list of all woodshop students to be excused for the experiment was given to each teacher.

The students were not told why they were being excused from a day's classes until three school days before the experiment. At this time each woodshop class was told about the experiment, what it was, the importance of it, how it was going to be done, and the necessity for obtaining their complete cooperation. A letter explaining the experiment was given to each student for their parents to read. (See Appendix G) This letter contained the student's assignment or designated treatment group and included a parental permission slip to be returned by the students going on the tour.

On the day of the experiment Treatment Group A met at 7:45 A.M. in front of Johnson High School at the bus which was to take them to the Andersen Corporation, Bayport, Minnesota. Roll call was taken and student guide sheets were distributed. (See Appendix H) These sheets were explained to the students and directions were given to study the items on them during the trip to Bayport. It was also recommended that the sheets should be used to take

notes or write down any questions that might arise during the tour. Conduct and safety precautions were discussed briefly, and it was announced that a test would be given following the tour.

At 8:45 A.M. Treatment Group A toured the plant and at 10:15 A.M. thirty minutes was allocated for discussion. The time allotted for discussion was ample, and the students' attention and interest seemed excellent. At approximately 10:45 A.M. the initial learning criterion test was administered. Directions at this time were brief because all students were familiar with the traditional multiple choice item type of test.

Every member of Treatment Group A completed the achievement test before 11:30 A.M., at which time the bus was boarded and the group departed. Because the students were excused from classes for the remainder of the day, most of them were released from the bus at various locations near their homes on the way back to Johnson High School. Those that did stay on the bus were dismissed about 12:00 noon and were not allowed to enter the school. Students were directed to go home immediately, to prevent interaction between the treatment groups.

Treatment Group B reported to Room 108, one of Johnson High School's large team-teaching rooms at about 12:30 p.m. It was announced that a test would be given after the film; the first film showing took place about 1:00 p.m., and the after-film discussion began at 1:20 p.m. The discussion was lively and questions numerous. At approximately 1:50 p.m. the film was shown a second time, and at 2:10 p.m. the criterion test was administered. The same directions were given to Treatment Group B as had been given to Treatment Group A. Also, the same visual aids used in the discussion at the Andersen plant were brought to Johnson High School to use in Treatment B. These visual aids included a model window, plastic divider strip, safety glass, weather stripping, and friction hinges. By 3:00 p.m. Treatment Group B had completed the criterion test and were excused at the school dismissal bell.

Treatment Group C reported to Room 13, a large classroom at Johnson High School, at 1:00 p.m. where a Johnson High School counselor administered the criterion test to the group. It was reported that students worked dilligently. Room 13 was chosen because of its proximity to a building exit. All students were excused at 1:50 p.m. and left the building to go home.

Seven weeks later, without prior notice, Treatment Groups A and B were re-administered the criterion test to check for retention. These students were excused during the second class hour of the day and assembled in a large team-teaching room. Students were well behaved and completed the test easily in the time allotted.

CHAPTER IV

FINDINGS

The purpose of this chapter is to report the findings and the results of tests of hypotheses.

Table VI presents the means and standard deviations of the scores on the initial criterion test by treatment and ability groups.

TABLE VI

MEANS AND STANDARD DEVIATIONS OF SCORES ON THE CRITERION TEST ADMINISTERED IMMEDIATELY AFTER INSTRUCTION

	Treatment A	Treatment B	Treatment C	Totals
HIGH	X = 25.5 S = 5.5	X = 32.5 S = 3.6	X = 14.8 S = 7.5	X = 24.3 S = 9.3
AVERAGE	X = 26.5 S = 2.6	X = 28.6 S = 4.1	X = 14.9 S = 3.6	X = 23.3 S = 7.0
LOW	X = 21.1 S = 3.8	X = 23.3 S = 8.3	X = 15.0 S = 4.4	X = 19.8 S = 6.8
TOTALS	X = 24.5 S = 4.7	X = 28.1 S = 6.9	X = 14.9 S = 5.4	X = 22.5 S = 8.0

To determine if the mean column and row scores were significantly different, a treatment by levels analysis of variance was performed on the initial learning criterion test scores. This analysis has been presented in Table VII, below. Hartley's Fmax test showed that the variances at the .01 level were unequal (Fmax. = 10.4). However, according to Hayes (12), a test of means is not affected by unequal variances when cell frequencies are the same.

TABLE VII

ANALYSIS OF VARIANCE OF INITIAL LEARNING TEST SCORES FOR TREATMENTS A, B AND C

Source	df	Sum of Squares	Mean Square	F
Treatments	2	3897	1949	75.0*
Levels	2	463	232	9.0*
Treatments x Levels	4	363	91	3.5*
Within	117	3098	26	
Total	125	7821		

*Significant F at .05 = 3.08 for column and row means, and 2.45 for interaction.

The results showed that the F values obtained were significant in every case. In order to locate where the significant differences lay, the Sheffe' Test was performed on (1) treatments, (2) levels, and (3) interaction.

1. Treatments. The Sheffe' test showed that all treatment means were significantly different from each other at the .05 level.

2. Levels. The Sheffe' test showed that the high and average ability means were not significantly different, but that both means were significantly different from the mean of the low ability group.

3. Interaction. The Sheffe' test results showed no significant interaction among means in the Treatment A and B Groups. However, it should be pointed out that, of those students in Treatment A Group, the average ability had slightly higher scores than the high ability group.

Table VIII, page 45, presents the means and standard deviations of the scores by treatment and level for the criterion test re-administered seven weeks after instruction.

TABLE VIII

MEANS AND STANDARD DEVIATIONS OF SCORES ON THE CRITERION TEST ADMINISTERED SEVEN WEEKS AFTER INSTRUCTION

Level	Treatment A	Treatment B	Totals
High	X = 22.1 S = 6.3	X = 26.1 S = 4.5	X = 24.1 S = 5.8
Average	X = 22.8 S = 4.0	X = 24.8 S = 4.0	X = 23.8 S = 4.1
Low	X = 17.3 S = 3.5	X = 21.4 S = 6.9	X = 19.3 S = 5.8
Totals	X = 20.7 S = 5.3	X = 24.1 S = 5.7	X = 22.4 S = 5.8

To determine if the resulting mean scores were significant, a treatment by levels analysis of variance was performed on the retention test scores. This analysis has been presented in Table IX, page 46. Hartley's Fmax test showed that the cell variances were not significantly different.

TABLE IX

ANALYSIS OF VARIANCE OF RETENTION TEST SCORES FOR TREATMENTS A AND B

Source	df	Sum of Squares	Mean Square	F
Treatments	1	233	233.0	9.2*
Levels	2	401	200.5	7.9*
Treatments X Levels	2	19	9.5	.37
Within	78	1973	25.4	
Totals	83	2626		

*Significant F at .05 = 3.08.

The results showed that there was a significant difference between treatments and among levels. In order to locate where the significant differences were, the Sheffe' test was used.

1. Treatments. The Sheffe' test results showed that Treatment B Group achieved significantly greater than Treatment A Group.

2. Levels. The Sheffe' test results showed a significant difference favoring the high and average ability students over the low ability students, however,

the high ability students did not differ significantly from the average ability students.

Shortly before the administration of the treatments it occurred to the investigator that an interesting addition to the study would be to obtain students' reactions to the field trip and film treatments. A tally of these reactions revealed that all of the students in both treatments responded with favorable opinions about the type of learning experience they were provided.

CHAPTER V

SUMMARY, CONCLUSIONS AND DISCUSSION

I. SUMMARY

The major purpose of the study was to determine which was more effective in learning about selected aspects of industry, a film or a field trip. Other purposes were to determine if students of varying abilities benefited differentially and whether any interaction resulted between the treatments and the ability levels.

The sample consisted of all students at Johnson High School, St. Paul, Minnesota who were enrolled in woodshop for the school year 1964-65. The students were first placed in rank order according to scholastic aptitude and then divided into three equal numbered groups. Individuals from within each ability group were then randomly assigned to one of three treatment groups; field trip, film or control. On the day of the experiment the sample was excused from the regular school routine. The field trip group toured the Andersen Corporation, Bayport, Minnesota, in the morning, and, immediately after the tour treatment, completed an initial learning criterion test. In the

afternoon, the film group viewed a film covering the same selected aspects of industry and completed the criterion test immediately after the film treatment. The control group, which neither went on the tour or viewed the film, was administered the criterion test in the same afternoon. Seven weeks after the experiment, the criterion test was re-administered to the field trip and film students to test for retention. Variables such as IQ, reading ability, grade level and previous woodshop experience were used to describe the population and determine whether the randomization procedure resulted in forming treatment groups which were not significantly different. A treatment by levels analysis of variance design was used in the statistical treatment of the data.

II. CONCLUSIONS

Before drawing any conclusions it was felt that certain limitations inherent in the design should be mentioned. The Andersen Corporation representative who presented the film and tour treatments did not represent a random sample of industrial representatives nor did the film and tour represent a random sample of industrial films and tours.

Also, the subjects cannot be assumed to be a random sample of high school woodshop students. Therefore, any attempt to generalize beyond woodshop students attending Johnson Senior High School or to other tours and films must be done with great caution.

Concerted effort was made to present the two treatments equally well but it was found that not only was it difficult to provide the same learning content in each treatment, it was equally difficult to administer the learning content in the two treatments with equal emphasis. The criterion test which was so important in determining the results of this study was designed to give results which would be as valid and reliable as possible, but represent a limited interpretation of "understanding industry."

With the foregoing considerations in mind, the investigator drew the following conclusions:

Hypothesis 1. There were significant differences (.05 level) between the field trip, film and control populations as measured by their average scores on an objective test given immediately after the treatments.

Evidence indicated that the film treatment was significantly superior to the tour treatment, and that the

mean scores produced by the tour and film treatment populations were significantly greater than those produced by the control treatment population.

Hypothesis 2. There were significant differences (.05 level) among the high, average and low ability populations as measured by their average scores on an objective test given immediately after the field trip, film and control treatments. Evidence indicated that high and average ability students achieved significantly higher mean scores than low ability students. Evidence did not indicate, however, that high ability students did significantly better than average ability students.

Hypothesis 3. There was an interaction between the three treatment groups and the three ability levels as measured by their average scores on an objective test given immediately after the treatments. This was probably due to the fact that, for the tour treatment, the average ability students had slightly higher mean scores than the high ability students.

Hypothesis 4. There were significant differences (.05 level) between field trip and film populations as

measured by their average scores on an objective test given seven weeks after the treatments. Evidence presented indicated that the film treatment produced significantly higher mean scores than the tour treatment.

Hypothesis 5. There were significant differences (.05 level) between the high, average and low ability populations as measured by their average scores on an objective test given seven weeks after the field trip, film and control treatments. Evidence presented indicated that both the high and average ability groups had higher mean scores than the low ability group. However, the high ability students did not score significantly higher than the average ability students.

Hypothesis 6. Evidence presented indicated there was no interaction (.05 level) between the field trip and film treatments and the three ability levels as measured by their average scores on an objective test given seven weeks after the treatments.

III. DISCUSSION

On the basis of evidence presented in this study, it was concluded that a 16mm motion picture film was a more effective learning device than an industrial tour when teaching about certain aspects of industry. This does not mean that all films produce greater learning than all industrial visits, but it does indicate that if a good film is available about a certain industry the chances are good that the students can learn just as much factual information, if not more, from the film than if the students were actually able to visit the industry.

Much depends on the method of presenting both the films and industrial visits. Many textbooks and other written materials are available to guide the teacher in their use of these audio visual tools and should be consulted to give direction to the techniques of presentation. The synopsis presented in Chapter II is but one source that suggests many procedural techniques teachers can incorporate, either wholly or in part, into their lessons when using films or field trips. Needless to say, tools are only as good as those who use them.

It must be remembered that there may be other advantages to using the tour method. Freeman (10) makes the statement, "The film's value lies in its ability to furnish a peculiar kind of content or experience rather than its stimulating effect." Field trips, without doubt, do provide a welcome break in the daily routine of the student's school day and it is quite likely that the motivation induced by such a trip may offset other advantages of a film.

Because both the film and tour treatments in this study constituted a break in the usual school routine, this "stimulating effect" was probably nearly equal for both treatments. This may explain why student reaction was 100 per cent favorable for both the film and tour when asked to write on the back of their tests whether they did or did not like the particular presentation. Three of the forty-two students present for the film presentation did reply that they would rather go on a field trip, but even these students replied favorably when asked for their reaction to the film presentation.

A replication of the study using different criterion, such as change in attitudes, might be an interesting and enlightening research project.

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A P P E N D I C E S

APPENDIX A

ANALYSIS OF VARIANCE OF OTIS GAMMA INTELLIGENCE QUOTIENTS OF THE SAMPLE

Source	df	Sum of Squares	Mean Square	F
Treatments	2	1	.5	.02
Levels	2	10807	5404.0	211.00**
Treatments x Levels	4	48	12.0	.47
Within	117	2991	25.6	
TOTALS	125	13847		

**Significant at the .01 level.

ANALYSIS OF VARIANCE OF IOWA TESTS OF EDUCATIONAL DEVELOPMENT MEAN STANDARD READING SCORES OF THE SAMPLE

Source	df	Sum of Squares	Mean Square	F
Treatments	2	1	.5	.05
Levels	2	479	240.0	23.1 **
Treatments x Levels	4	5	1.2	.87
Within	117	1216	10.4	
TOTALS	125	1701		

**Significant at the .01 level.

APPENDIX A (continued)

ANALYSIS OF VARIANCE OF PREVIOUS NUMBER OF YEARS OF INDUSTRIAL ARTS EXPERIENCE OF THE SAMPLE

Source	df	Sum of Squares	Mean Square	F
Treatments	2	.34	.17	.15
Levels	2	1.72	.86	.78
Treatments x Levels	4	.94	2.35	.214
Within	117	128.36	1.10	
TOTALS	125	132.0		

APPENDIX B

TOUR OUTLINE

I. Preparation of students

A. Purpose: learn relationships of shop work to industry

1. Education prepares for living

a. Industrial arts is education

b. Andersen Corporation is real life industry

2. Live in industrial society

a. One industry is woodworking

b. Andersen Corporation is a woodworking industry

3. Unique position of industrial arts in learning about industry

a. Use similar

(1) Tools

(2) Machinery

(3) Materials

b. Not enough - need more - therefore tour to point out

(1) Processes

(2) New tools and machinery

(3) Organization

(4) Production

(5) Opportunities

B. Method: tell how

1. Introduction

a. New words

b. Study items

2. Tour

3. Discussion

a. Clarify misunderstandings

b. Answer questions

c. Introduce related information

4. Achievement test

a. Multiple choice

b. Over forty items

II. Introduction

A. History of Andersen Corporation

1. Origin of Andersens'

2. Present - day operations

a. Floor space - 12 acres

b. Number windows produced annually

B. New words - important to window manufacturing

1. Frames

2. Sill

3. Jamb

4. Sash

5. Glazing

6. Weatherstripping

7. Strikeplate

8. Friction hinge

9. Milling

C. Study items

1. Tools, machinery and equipment

2. Materials

3. Organization

4. Processes

5. Production

6. Opportunities

III. Tour

IV. Discussion

A. Ask for questions

B. Introduce related information

1. Use of plastic in window manufacture

2. Quality control necessary for

a. Proper assembly

b. Ease of operation

c. Beauty

d. Weathertightness

e. Ease of upkeep

3. Mass production - parts uniform size

4. Importance of speed in industry

5. Investment per employee

6. Wages

7. Profit sharing program

8. Rest breaks

9. Where to apply for job

10. Types of jobs available

11. Reasons for industry providing tours

APPENDIX C

FILM OUTLINE

I. Preparation of students

A. Purpose: learn relationships of shop work to industry

1. Education prepares for living

a. Industrial arts is education

b. Andersen Corporation is real life industry

2. Live in industrial society

a. One industry is woodworking

b. Andersen Corporation is a woodworking industry

3. Unique position of industrial arts in learning about industry

a. Use similar

(1) Tools

(2) Machinery

(3) Materials

b. Not enough - need more - therefore film to show

(1) Processes

(2) New tools and machinery

(3) Organization

(4) Production

(5) Opportunities

B. Method: tell how

1. Introduction

a. New words

b. Study items

2. First showing

a. General overview of Andersen Corporation

b. Relate industry to shop

c. Show need for detail analysis

3. Discussion

a. Clarify misunderstandings

b. Answer questions

c. Introduce related information

4. Second showing

a. Look for details

b. Look for study items

5. Achievement test

a. Multiple choice

b. Over forty items

II. Introduction

A. New words - important to window manufacturing

1. Frames
2. Sill
3. Jamb
4. Sash
5. Glazing
6. Weatherstripping
7. Strikeplate
8. Friction hinges
9. Milling

B. Study items

1. Tools, machinery and equipment
2. Materials
3. Organization
4. Processes
5. Production
6. Opportunities

III. First film showing - imagine you are there

IV. Discussion

A. Ask for questions

B. Introduce related information

1. Use of plastic in window manufacture
2. Sawdust and scrap wood - what happens to it

3. Investment per employee
4. Importance of speed in industry
5. Mass production - parts uniform size
6. Rest breaks
7. Methods for determining wages
8. Profit sharing plan
9. Where to apply for job
10. Types of jobs available
11. Reasons for industry providing films

V. Second film showing

VI. Achievement test

APPENDIX D

ACHIEVEMENT TEST

NAME_____

Learning About Industry
Andersen Corporation
Bayport, Minnesota

DATE_____

GROUP_____

Directions: All items are multiple choice. Choose the best answer and indicate your response in the blank space to the left of each item--letters A, B, C, etc.

_____ 1. The lower most part of a window unit is called the
A. sash
B. jamb
C. sill.
D. strike plate
E. template

_____ 2. How many window units does Andersen produce each year?
A. 10,000
B. 100,000
C. 1,000,000
D. 2,000,000
E. 10,000,000

_____ 3. How much floor space does the Andersen plant have?
A. 2 acres
B. 6 acres
C. 12 acres
D. 18 acres
E. 24 acres

_____ 4. What kind of wood is used to make Andersen windows?
A. Douglas Fir
B. Balsam Pine
C. Blue Spruce
D. Ponderosa Pine

_____ 5. Where does the wood for Andersen windows come from?
A. West Coast
B. East Coast
C. Southern United States
D. Central United States
E. Minnesota

_____ 6. One of the advantages of choosing the particular wood that Andersen uses is low thermal conductivity, this means
A. resistance to weather conditions
B. fire resistance
C. hold paint and color well
D. easily milled
E. low cost

_____ 7. Sawdust and scrap wood at the Andersen plant is
A. thrown away
B. sold to other businesses
C. used to heat the plant in wintertime
D. used to heat the wood-drying ovens
E. three of the above

_____ 8. Moisture content of the wood Andersen uses is checked by
A. weighing it
B. heating it
C. sawing it
D. squeezing or compressing it
E. none of the above

_____ 9. What is done to dry the wood if it has too high a moisture content?
A. stacking it outdoors
B. heating it in large ovens
C. stacking it in storage buildings
D. compressing it in large machines
E. send it back

_____10. Lumber for Andersen windows must be dried to what moisture content?
A. 5%
B. 11%
C. 17%
D. 24%
E. 30%

_____ 11. How are large quantities of rough lumber moved from storage yards to the point where production begins?
A. caterpillers
B. straddlebugs
C. by hand
D. cranes
E. trucks

_____ 12. How does the ripper know where to feed the board into the saw?
A. saw has fingers
B. carefully estimating
C. electric eye
D. movable fence
E. all cuts are the same

_____ 13. Why are rough cut pieces marked with colored ink?
A. to show who cut it
B. to designate the quality of the pieces
C. to identify what it is to be used for
D. to tell when it was cut
E. to give the size of the piece

_____ 14. How is lumber fed into the rip saw?
A. conveyor belt
B. pushed by hand
C. rubber rollers
D. pulled in by helper
E. saw fingers

_____ 15. Conveyor belts are used to
A. keep machines from getting too hot
B. hold windows securely while being shipped
C. deliver the mail to various locations in the plant
D. convey messages from one department to another
E. keep the parts moving on the assembly line

_____ 16. What is lineal milling?
A. grooving
B. cutting to thickness
C. cutting to width
D. rabbeting
E. all of the above

_____ 17. What is crossmilling?
A. dado cuts
B. cutting to length
C. cutting to width
D. A and B
E. A and C

_____ 18. How many sides of a board can be shaped at one time on milling machines?
A. 1
B. 2
C. 3
D. 4
E. 6

_____ 19. Pieces are checked for accuracy by measuring with a
A. template
B. ruler
C. pattern
D. pre-cut piece
E. micrometer

_____ 20. What is done to the wood to preserve it?
A. sprayed with sealer
B. dipped in solution
C. painted by hand
D. stained
E. dipped in paint

_____ 21. Sanding of Andersen windows is done by
A. hand sanding with course, medium and fine sandpaper
B. three different machines using a course, medium, or fine sandpaper
C. sandblasting process using different size grits
D. one machine which sands course, medium and fine all at one time
E. portable electric sanders using fine, medium and rough sandpaper

_____ 22. Automatic screwing machines
A. require the operator to place each screw in the proper slot
B. feed the screw in an upright position to the operator so that he can put the screw into the wood without wasting time
C. fasten the pieces together without the operator even touching the screw or a screwdriver
D. fasten the pieces together loosely so the operator only has to tighten the assembly
E. are used only for packing the windows in crates

_____ 23. Nailing machines
A. are commonly used at Andersens'
B. cannot be used because the windows break so easily
C. do not exist
D. are usually held in a worker's hand
E. can only drive one nail at a time

_____ 24. Application of glazing compound to bed glass into sash frames is done with a
A. gun
B. knife
C. roller
D. glazing tool
E. window scraper

_____ 25. Face glazing is usually done with a
A. knife
B. gun
C. machine
D. window scraper
E. roller

_____ 26. To assist sales on a national level, Andersen windows are usually shipped from the factory directly to
A. retail stores
B. distributors
C. contractors
D. lumber yards
E. customers

_____ 27. Quality control throughout the production of Andersen windows is necessary for
A. proper assembly
B. ease of operation
C. beauty
D. weather tightness
E. ease of upkeep
F. all of the above

_____ 28. Amount of wages paid to Andersen employees depends upon
A. number of hours worked
B. amount of production
C. type of work done
D. two of the above
E. three of the above

_____ 29. The Andersen Profit Sharing Program
A. allows employees to invest part of their earnings in company stock
B. is a substitute for high wages
C. is a partnership between the stockholders and all employees
D. was initiated by the labor unions
E. provides income for retired employees

_____ 30. Production bonuses are paid to Andersen employees for
A. working overtime
B. working nights
C. producing good windows
D. producing at a greater rate than expected
E. not being absent or late for work

_____ 31. Rest breaks are provided by the Andersen Corporation because
A. workers would be physically exhausted without them
B. unions demand them
C. cafeteria sales provide more profit for the company
D. they are deductible from income tax payments
E. workers produce more when rest breaks are provided

_____ 32. If you wanted to apply for a machinist job at Andersen's, where would you report?
A. personnel department
B. guidance department
C. payroll department
D. machine shop
E. accounting department

_____ 33. The amount of money invested in the Andersen Corporation is equal to how much per employee?
A. $100.00
B. $1,000.00
C. $5,000.00
D. $25,000.00
E. $50,000.00

____ 34. Which of the following workers would be <u>least</u> likely to be employed in an industry such as Andersens'?
A. engineers
B. machinists
C. carpenters
D. machine operators
E. salesmen

____ 35. In the production of Andersen windows, treating of the wood comes just after
A. cross-milling
B. drying of the wood
C. lineal milling
D. crosscutting
E. glazing of the sash

____ 36. Why are window parts made by machine rather than hand?
A. hand tools are usually too dull to do a good job
A. there are not enough skilled craftsmen available to make parts by hand
C. mass production requires all pieces to be uniform in size
D. workers would get too tired without machines
E. probably because machines are in style today

____ 37. In the production of Andersen windows, cross-milling comes before
A. crosscutting
B. ripping
C. attaching of hardware
D. lineal milling
E. sorting of window parts

____ 38. Plastic is now being used in Andersen windows for
A. weatherstripping
B. glass divider strips
C. guide strips for glider units
D. two of the above
E. all of the above

_____ 39. Where is almost all of the tool sharpening done?
A. on the machines by the operators
B. in the plant machine shop
C. sent out to tool sharpening businesses
D. on the machines by expert craftsmen
E. Andersen Corporation hires someone to periodically come in and do it

_____ 40. All window sash are shipped in
A. wooden boxes
B. crates
C. banded bundles
D. cartons
E. plastic bags

_____ 41. Sash is always assembly by
A. pneumatic gun
B. hand
C. glaziers
D. machines
E. experienced cabinetmakers

_____ 42. Speed is important to the success of an industry because
A. orders tend to stack up
B. working fast makes the time go quickly
C. time is money
D. people are happier when they work fast
E. a fast worker is a safe worker

_____ 43. Machines are used to
A. attach hardware
B. insert weatherstripping
C. nail parts together
D. two of the above
E. all of the above

_____ 44. What is the most important reason for an industry to provide films and/or tours regarding their product and the production of it?
A. attract future employees
B. to promote sales
C. to show how their product is made
D. to tell about the uses of their product
E. to explain mass production

APPENDIX E

TOUR GUIDE OUTLINE

I. Starting point

A. Kind of wood - Ponderosa Pine

1. Where from - West Coast

a. California

b. Oregon

c. Washington

2. Explain thermal conductivity

a. Resistance to heat

b. Resistance to cold

B. Moisture content

1. How tested

2. What should be - 11%

3. How accomplished - ovens

a. Fuel is waste wood and sawdust

b. Also heat plant

C. Moving lumber

1. Fork lifts

2. Straddlebugs

II. Production

A. Ripping

1. Fingers to determine proper widths

2. Board fed into blades by rubber rollers

B. Crosscutting

1. Pieces marked with colored ink

2. Code

3. Identify what piece is to be used for

C. Conveyor belts keep parts moving on assembly line

D. Lineal milling

1. Cuts with grain

a. Grooving

b. Cutting to thickness

c. Cutting to width

d. Rabbets

2. Four sides can be shaped at one time

3. Pieces checked for accuracy with template

E. Cross milling

1. Cuts across grain

a. Cutting to length

b. Dado cuts

2. Show combination lineal and cross milling machine

F. Wood dipped in soution to prevent decay

III. Machine shop - tool sharpening

IV. Assembly

A. Automatic machines used to

1. Attach hardware

2. Insert weatherstripping

3. Nail parts together

B. Sanding frames

1. One machine

2. One operation

3. Three sandings

C. Sash always assembled by hand

D. Bedding of glass

1. In sash frame

2. With pneumatic gun

E. Face glazing

1. Hand operation

2. Putty knife

V. Shipping

A. Sawdust

1. Shipping point

2. Sold to other businesses

B. All sash in cardboard cartons

C. Windows

1. Shipping point

2. To distributors

a. Throughout country

b. Assist sales on a national level

APPENDIX F

AGENDA

MARCH 23, 1965

TOUR

8:00 A.M.	Leave Johnson
8:30 A.M.	Andersen arrival--Introduction
8:45 A.M.	Tour
10:15 A.M.	Discussion
10:45 A.M.	Test
11:30 A.M.	Leave Andersen
12:00 P.M.	Arrive at Johnson

FILM

12:40 P.M.	Introduction--Room 108
1:00 P.M.	First showing
1:20 P.M.	Discussion
1:50 P.M.	2nd showing
2:10 P.M.	Test
3:00 P.M.	Excused

CONTROL

1:05 P.M.	Test--Room 13
1:50-2:00 P.M.	Excused

APPENDIX G

THE SAINT PAUL PUBLIC SCHOOLS
615 City Hall
Saint Paul 2, Minnesota

Johnson High School
1349 Arcade Street

March 15, 1965

Dear Parents and Guardians:

On Tuesday, March 23, 1965, all woodshop students at Johnson High School will be taking part in an important educational study to determine the effectiveness of films and field trips in industrial arts. This letter is written to inform you more about the study.

More and more, teachers of industrial arts are being called upon to include in their curriculum, ways and means for their students to develop a realistic concept of modern-day industry. The question, "How can we interpret industry in the industrial arts laboratory?", becomes paramount.

There are two widely used methods which the teacher can use to broaden industry-student contact: First, have students visit and observe industrial enterprise; secondly, bring the many industrial sources and resources into the classroom. These two methods are most often implemented by a field trip and by a 16 mm motion picture film. The film is used more often because of the ease of presentation.

A problem unveils itself however, when one ponders the question, "Which is more effective in learning about industry, a film or a field trip?" Because educators must be concerned with the effectiveness of learning and not always the ease of presentation, it is important that this study be made.

To further enhance the value of the study an attempt will be made to determine which method, if any, will be most

beneficial for high, average, or low ability students. The importance is magnified by the fact that no research can be found comparing educational films with field trips.

In this study, three separate groups have been formed and will be compared. Group A students will be introduced to and conducted through an industrial plant in groups of five or six by industrial guides. Then, the tour group will assemble, a discussion will be held, and an achievement test will be given.

Group B students will be oriented and shown a 16 mm motion picture film which depicts the same material experienced on the industrial tour. After the film, a discussion period will follow. Then the film will be shown a second time and the same achievement test will follow.

Group C students, a control group, will not experience the film or field trip but will be given the achievement test to determine if significant learning actually does result from the film and field trip treatments.

Students are being excused from all regular classes to insure that there will be no interaction between the three groups. This is very important to prevent previous knowledge of the test items. It is hoped that you will encourage your child to be very prompt in both his arrival and departure from school. Student assignments are given below.

Group A - 8:00 a.m. - Report to bus at main entrance in front of school. Bring parental permission note (see below) and 50c to partially cover transportation.

12:00 noon - Excused.

Group B - 12:40 p.m. - Report to school, room 108.

3:00 p.m. - Excused.

Group C - 1:05 p.m. - Report to school, room 13.

2:00 p.m. - Excused.

- -

PARENTAL PERMISSION NOTE

"We understand the arrangements for taking the Group A woodshop students of Johnson High School to Andersen Corporation, Bayport, Minnesota. We believe that necessary precautions and plans for the care and supervision of the students during the trip will be taken. Beyond this we will not hold the school or those supervising the trip responsible. We give our consent for our child to go on the trip.

Signed_____

Date_____

APPENDIX H

STUDENT GUIDE

Tour of Andersen Corporation, Bayport, Minnesota

I. Tools, machinery and equipment.

A. How do they differ from those in our shop?
B. What is meant by automatic machines?

II. Materials.

A. What materials are used?
B. How are they handled?
C. What is done to wood before production?

III. Organization.

A. How is it determined what type of window is in production?
B. What happens to windows when they are completed?
C. Why is a "chain of command" necessary?

IV. Processes.

A. What is done to wood to prevent decay?
B. Why is some of the glazing done by hand?
C. How are windows assembled?
D. How are windows prepared for shipping?

V. Production.

A. How important is speed?
B. Why do pieces have to be checked for accuracy?
C. How are pieces on assembly line moved?

VI. Opportunities.

A. Why types of jobs are available?
B. How do you go about getting a job?
C. What determines wages?

V. Summary.

A. What is the most impressive phase of window manufacturing?
B. Are most workers skilled tradesmen?
C. What improvement in the operations could you make?

ABSTRACTS OF STUDIES IN INDUSTRIAL EDUCATION

(To be filled out, preferably by person making study, at time study is completed and checked by adviser; otherwise by adviser.)

Author KINNING, DARRELL, RONALD
(Last name) (First name) (Middle name)

Title AN EXPERIMENTAL STUDY OF THE REALTIVE EFFECTIVENESS OF
(Give exact title from title page -- also subtitle)

EDUCATIONAL FILMS VERSUS INDUSTRIAL VISITS IN LEARNING ABOUT INDUSTRY

Degree granted M.A. Date 1965 No. pages in report 88

Granted by University of Minnesota
(Name of institution)

Where available* Department of Industrial Education
(Source and address)

Purpose of study: The main purpose of this study was to determine which method, a 16mm motion picture film or an industrial visit, resulted in greater learning when teaching about industry. A second purpose was to determine which method was more effective for high, average, or low ability students. A third purpose was to determine which method resulted in the greater amount of retained learning.

Source of data and method of study: The sample consisted of all students at Johnson High School, St. Paul, Minnesota, who were enrolled in woodshop for the school year 1964-65. The students were divided into three ability groups and then randomly assigned to one of three treatment groups, field trip, film or control. Variables such as I.Q., reading ability, grade level and previous woodshop experience were used to determine whether the randomization procedure resulted in forming groups which were not significantly different. A treatment by levels analysis of variance design was used in the statistical treatment of the data.

Findings and conclusions: It was concluded that a 16mm motion picture film was a more effective learning device than an industrial tour when teaching about certain aspects of industry. The film treatment was significantly superior to the tour treatment as measured by mean scores on both the initial learning and retention criterion tests. Mean scores were in general directly related to the students' ability.

* Check here ( ) if available on microfilm.
(Use additional page if necessary and staple to this one; do not write on back of sheet.)

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Collins, Charlie J.
Study of Industrial Arts Education in Public Secondary Schools of the Southern Appalachian Region. Summary Report.

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SOUTHERN APPALACHIAN REGION

"Study of Industrial Arts Education in the Public Secondary Schools of the Southern Appalachian Region" is summarized. See abstract of VT 004 836 which is the complete study. (EM)

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Summary Report

Project No. S-091
Grant No. OE-5-10-101

STUDY OF INDUSTRIAL ARTS EDUCATION IN PUBLIC SECONDARY SCHOOLS OF THE SOUTHERN APPALACHIAN REGION

Chief Investigator
CHARLIE J. COLLINS

WEST VIRGINIA UNIVERSITY
Morgantown, W. Va. 26506

January 1, 1968

The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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VT004703

A Survey of Industrial Arts in the
Southern Appalachian Region 1964-65

SUMMARY

1. Problem

In recent years the Southern Appalachian Region has received considerable attention concerning its lack of socio-economic and educational development. The Southern Appalachian Region lags behind the nation in the development of human resources. In 1962 Ford[1] said that the percentage of school dropouts and young high school graduates without salable skills was high.

Industrial arts, as a part of general education, is an exploratory and developmental curriculum area dealing with technology, its tools, materials, machines, processes, and with technological changes. This key curricular area has the potential to impart to our youth the nature of our industrial culture as well as to develop pre-vocational knowledge and technical skills.

Although the status of industrial arts programs had not been determined in the Southern Appalachian Region, this subject area was believed to lag behind the national industrial arts programs. This lag, it was felt, might be a contributing factor in the retarded economics growth of the region. It was important to determine the status of industrial arts programs in the Southern Appalachian Region so that adjustment might be made.

---

[1]Ford, Thomas, ed. The Southern Appalachian Region: A Survey. Lexington: University of Kentucky, 1962, frontispiece.

2. Procedure

A survey of public secondary schools with industrial arts programs in the Southern Appalachian Region was made by mail using the same instruments that were used by Schmitt[1] in his national survey. This consisted of two forms mailed to the principal. The principal was asked to give the teacher's form to the industrial arts teacher. Incomplete forms were returned for completion. The Southern Appalachian Region for this study included the region as defined by Ford.[2] It includes parts of Alabama, Georgia, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia. The eleven remaining counties in West Virginia were also surveyed and reported. As no industrial arts programs were reported in the five counties in Alabama, no schools from Alabama are included in the report.

One follow-up letter was mailed in 20 days and a second letter in 30 days after the original mailing. Personal visits were made to 6.8 percent of the respondents to validate the response. Information collected in this manner was found to be reliable at the 99.0 percent level of confidence.

In order to facilitate comparison with the national study the same editing procedure, data organization (tables), and reporting procedure as were used in the national study.

---

[1]Schmitt, Marshall L. and Albert L. Pelley, Industrial Arts Education. Department of Health, Education, and Welfare, U. S. Government Printing Office, Washington, D. C., 1966.

[2]Ford, Op. cit.

Basically, the data were controlled by 10 enrollment sizes and 4 types of school organization. The 10 sizes were:

1 - 99	500 - 749
100 - 199	750 - 999
200 - 299	1000 - 1499
300 - 399	1500 - 2499
400 - 499	2500 and over

The 4 types were: (1) junior-senior high schools; (2) junior high schools; (3) traditional high schools which includes four-year schools preceeded by eight years of elementary school; and (4) senior high schools which include three and four-year high schools preceded by junior high school.

The data were recorded and analyzed at the West Virginia University Computer Center. The computer output was mostly in counts and percents by item. The tables were organized and computed manually in many instances.

3. Number of Programs

In the Southern Appalachian Region, of 848 schools listed, 48.1 percent had industrial arts programs. Two conditions appeared to be a determining factor as to whether schools had programs. One, the larger the school the more likely it was to have a program. Two, the type of school organization had some influence. Traditional high schools had the highest ratio with 86.2 percent having programs.

Schmitt reported that 73.8 percent of the nation's schools had programs. This was 26.0 percent more schools with programs than in the Southern Appalachian Region.

Schools in the region averaged 1.4 teachers per school compared to 2.2 teachers per school for the nation.

4. Purposes for Teaching Industrial Arts

Teachers in the Southern Appalachian Region ranked the following five purposes as highest from a list of ten purposes for teaching industrial arts.

1. To develop skill in the use of tools and machines.
2. To discover and develop creative technical talent.
3. To develop problem-solving skills related to materials and processes.
4. To develop an understanding of our technical culture.
5. To provide general all-around technical knowledge and skills.

The nation's teachers ranked the same purposes as the five highest but not in the same order.

Principals in the Southern Appalachian Region generally agreed except they would place third the purpose to provide vocational training for those students who would not otherwise have this opportunity.

5. Industrial Arts in Elementary Schools

Feeder elementary schools in the Southern Appalachian Region do not have industrial arts programs in a significant amount. The nation's schools report that 5.8 percent of the elementary feeder schools required industrial arts.

6. Compulsory Industrial Arts

Most of the required industrial arts was in grades 7, 8, and 9 with 23.1, 27.4, and 14.4 percent of the schools respectively requiring industrial arts. In grades 10, 11, and 12 only 4.0, 3.2, and 2.9 percent of the schools required industrial arts. The number of

schools requiring industrial arts has increased steadily but slowly since 1954-55.

7. Expenditures for Supplies and Equipment

Southern Appalachian Region schools spent an average of $574 for equipment and $592 for supplies. Schools with an enrollment of under 400 spent an average of $392 less for equipment and supplies annually than the nation's schools. As the size of the school increased the difference in expenditures also increased. This difference is probably due the fact that the nation's schools have more teachers in the larger schools.

8. Industrial Arts Teacher Preparation

Bachelor's degrees were held by 65.8 percent and the master's degrees by 28.3 percent of the teachers in the region. This was about 5.3 percent more bachelor's and 6.6 percent fewer master's degrees than were held by the nation's teachers.

About 83.0 percent of the teachers held a standard certificate, 5.9 percent had substandard certificates, and nearly 12.0 percent did not reply. Two-fifths of the teachers in the Southern Appalachian Region have 30 or fewer credit hours in technical courses. Nearly 40 percent have 41 or more credits in technical courses. At least 40 credits are recommended for adequate preparation.

9. Salaries and Other Income

Southern Appalachian Region teachers average $5,161 annually for nine or ten months of teaching. This averaged $1,050 less than the salary of the nation's teachers. Low salaries may have been a factor in or encouraged 11.0 percent of the teachers to hold an

additional teaching job for which they earned $659, and 51.2 percent to hold non-teaching jobs for an average of $903 per teacher. This is about the same as extra-job earnings on the national level.

10. Teachers' Age and Experience

Mean teacher's age was 34.7 in the Southern Appalachian Region with 25.6 percent under 24 years of age. As in the nation, Southern Appalachian Region teachers averaged about 9.6 years of teaching experience, and they had had about 2 years less industrial experience than the nation's teachers. The mean years industrial experience for the region's teachers was 3.4 years.

11. Other Responsibilities

Industrial arts teachers had a variety of non-teaching responsibilities such as: coaching, sponsoring clubs and contests, running the bookstore, and others. It would appear to be more economical for administrative aids to conduct the non-teaching chores. This would free teachers for professional duty.

12. Ability of the Students

In rating the ability of their students, teachers placed 9.0 percent above average, 65.9 percent average, and 25.4 percent below average. Comparing these ratings to the national averages, one finds, according to the teachers' rating that the nation has about 1.0 percent more above average, 7.7 percent fewer average, and 6.5 percent more below average students in industrial arts courses. This would seem to have some implications for teacher training institutions.

13. Teaching Practices

Almost 40.0 percent of the teachers prepared their own curriculum guides. The use of textbooks and local district guides accounted for nearly 26.0 percent of the remainder on equal basis.

To start instruction in classes in general industrial arts, woodworking, and general metals teachers most often used the methods: assign one project to the whole class and students select a beginning project from a limited number.

Classes in electricity, power mechanics, and graphic arts were started most often by assigning the student a series of sequential projects and by allowing free selection of projects.

Classes were started by the nation's teachers generally by the same methods except they used the method divide the class into groups and assign different projects to each group 10.0 percent more often. This method should be especially useful in courses in general industrial arts which is the course most often taught in the nation and the Southern Appalachian Region.

14. Supplies

About 95 percent of the students paid for the supplies they used, though the method of collecting for the supplies varied. Eighty-nine percent of the nation's students paid for their supplies in some manner. Almost 5.0 percent of the region's students and 11.0 percent of the nation's students received their supplies free. Many teachers in the region gather industrial waste to supplement the students' supplies.

15. Changes in Courses

Almost two-fifths of the industrial arts teachers reported that they had made changes in their courses. The changes were: new courses for high ability students, general courses, and courses for slow learners. The percent of teachers making changes was equal to the percent of the nation's teachers. However the nation's teachers reported more changes per teacher.

16. Teaching Problems

In indicating their problems in teaching, Southern Appalachian Region teachers ranked the following 5 as first from a list of 20 problems:

1. Arranging and conducting field trips.
2. Finding adequate preparation time for experiments and demonstrations.
3. Keeping up with advances in technology.
4. Keeping equipment in good repair.
5. Securing an efficient text book.

The first 3 ranked positions agreed with the nation's teachers' ranking. In the place of numbers 4 and 5, the nation's teachers placed finding time for helping individual students and providing for the slow learner respectively. Teaching problems for teachers in the Southern Appalachian Region are about the same as the problems for the nation, but the region's teachers placed greater emphasis on the highest ranked problems.

17. Industrial Arts Courses

Nine course titles identify the industrial arts classes taught in the region. They are (in rank order with the percent

that each class was reported): general industrial arts (40.5 percent) drafting(25.5 percent), woodworking (19.9 percent), metalworking (4.4 percent), crafts (2.9 percent), graphic arts (2.1 percent), electricity/electronics (1.9 percent), power mechanics (1.6 percent), and others (0.7 percent).

It may be noted that three courses, general industrial arts, drafting, and woodworking, accounted for 85.9 percent of all classes taught. General industrial arts accounted for almost half of the 85.9 percent of these classes.

At the national level Schmitt identified 16 courses which is 7 more than is taught in the region. The first 8 courses in the nation were also the first 8 in the region. One minor difference in rank order was that drafting was the second most popular course in the region with woodworking third. In the nation's schools the order was reversed. Some major industries were not represented to a significant degree in the courses reported. They are metals, communications, transportation, and electricity/electronics.

18. Instruction

Class time was usually divided into theoretical (related) and laboratory (experimental and developmental) instruction. Generally theory consumed 20.0 to 30.0 percent of the class time, and the remainder was devoted to laboratory. There was some variation; graphic arts students spent 80.0 to 90.0 percent of their time in the laboratory, and students in power mechanics and

electricity/electronics spent about 50.0 percent of their time in the laboratory.

The nation's teachers used their instruction time about the same as did the region's teachers except that the nation's teachers who taught graphic arts used about 10.0 percent less instruction-time for laboratory.

19. Class Schedules

Most classes (94.3 percent) were scheduled for one period per day, 84.1 percent were scheduled for 5 days per week, 5.2 percent for 2 days per week, and 6.2 percent were scheduled for 3 days per week. Eighty-four percent of the classes were held 36 weeks or more, 10.4 percent for 18 to 35 weeks, and 5.5 for 13 to 17 weeks.

About two-thirds of the classes in the nation's schools were scheduled for one period per day, 5 days per week, and 36 or more weeks. The major portion of the remaining third of the classes met about equally, one or two periods per day, 5 days per week, and for 13 to 20 weeks.

20. Enrollment

Boys accounted for 98.8 percent of the enrollment in industrial arts courses. The total enrollment was 32,879. Most girls (40 percent) were enrolled grade 12. The average enrollment per teacher was about 18 students. Enrollment was about evenly distributed among all courses. About 48 percent of the students enrolled in industrial arts were in the upper three grades. This indicates the popularity of industrial arts since few students in the upper grades are required to take industrial arts.

21. Course Content

Major areas of instruction are usually identifiable by the course title. However, instruction in industrial arts courses was not limited to the area suggested by the title. In all courses except graphic arts, content was drawn from other subject areas. In the course general woods, for example, the content consisted of 75.0 percent woodworking, the remaining 25.0 percent was divided among drafting, leather, metalworking, electricity/electronics, power mechanics, and others.

22. Observations and Implications

a. While teachers were sincere in responding that they held a first class certificate, almost one-fifth of the teachers observed on the follow-up were teaching out of their field of certification.

b. Many of the laboratories were in a poor condition and ill equipped.

c. Professional assistance was generally not available to the teacher.

d. Students, in some cases, spent too much time hand shaping materials.

e. Instructional materials were not adequate in most programs.

f. Articulation from one level of instruction to the next higher level is usually not well organized or easily identified.

g. In general, teachers of industrial arts have not been able to communicate the ideals of industrial arts education to other professional teachers.

h. The narrowness of industrial arts programs which exist as well as the need for additional programs reflects the poverty of the region.

i. Teachers need assistance for advanced studies and for updating their training. This may be a factor in students failing to elect teaching as a profession.

j. Aid for advanceddegrees should not be limited to a few of the better prepared teachers. Teachers who made lower achievement grades in college may need more aid and training than teachers who were more successful in college.

k. More funds are needed for teachers, salaries, professional assistance, laboratories, equipment, and supplies.

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Success Factors in Retaining Potential Dropouts, A Research Report; Experimental and Demonstration Project Extending from June 1964 to December 31, 1967.

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EXPERIMENTAL PROGRAMS; *OCCUPATIONAL GUIDANCE; *COOPERATIVE EDUCATION; *OCCUPATIONAL INFORMATION; *HIGH SCHOOL STUDENTS; CONTROL GROUPS; VOCATIONAL EDUCATION; *DROPOUT PREVENTION; EXPERIMENTAL GROUPS; DROPOUT IDENTIFICATION; REMEDIAL PROGRAMS; POTENTIAL DROPOUTS
ALEXANDER COUNTY; ILLINOIS

This study was to ascertain whether two remedial programs would have any effect on the retention of high school students. Potential dropouts and potential graduates in two high schools in Alexander County, Illinois, were identified by objective and subjective measures, and experimental and control groups were established in grades 9,10, 11, and 12 with potential dropouts and graduates in all eight groups. In grades 9 and 10 the program consisted of occupational information and vocational counseling for Tamms High School students and in grades 11 and 12 it consisted of cooperative vocational education for both Tamms and Thebes High School students. The programs were studied for three years with the students passing from one grade to another but maintaining membership in the original experimental or control group. The results indicated that both programs prevented significant numbers of potential dropouts from leaving school. (EM)

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success factors retaining the potential dropout

gallington

a research report

SOUTHERN ILLINOIS UNIVERSITY

1967

VT004743

SUCCESS FACTORS IN RETAINING POTENTIAL DROPOUTS

A Research Report

EXPERIMENTAL AND DEMONSTRATION PROJECT
-VOCATIONAL EDUCATION-

Project Extending From June, 1964 to December 31, 1967

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by

Ralph O. Gallington
Director

Southern Illinois University
Carbondale, Illinois
January, 1968

Note: This project was funded partially as project 06-C7 from ancillary research (4a) funds through the Research Coordinating Unit for Vocational Education in Illinois.

The research reported herewith is a culmination of a three-year study conducted under the direction of Ralph O. Gallington, Professor of Industrial Education, School of Technology, and Professor of Guidance and Educational Psychology, College of Education. It was conducted cooperatively in accordance with a contract between the Research Coordinating Unit, Illinois Board of Vocational Education and Rehabilitation, and the Research and Projects Office of Southern Illinois University. Approvals were given by Vernon E. Burgener, Coordinator of Research, and John A. Beaumont, Director, Vocational and Technical Education for the State of Illinois and by Robert L. Gallegly, Treasurer, Southern Illinois University. The project was conducted by one quarter released time of the director from the School of Technology, Southern Illinois University.

PREFACE

This is the third and final report to be given on the three-year Experimental and Demonstration Project in vocational education. The research was planned and developed in Unit School District No. 5 of Alexander County, Illinois. The study was longitudinal in nature and began with the fall semester in 1964. Earlier in 1964, "Basic Criteria" for identifying high school dropouts were developed for Unit School District No. 5, Alexander County, Illinois. Another research project in the same geographic area began in 1965 and culminated in a report on "High School Dropouts, Fate - Future - Identification". These two studies described later in this report set the stage for continuing with a study of the dropout problem in Alexander County, Illinois.

The "Experimental and Demonstration Project" set up two remedial programs in the Tamms and Thebes High Schools. The first remedial program was for freshmen and sophomores and the second one was for juniors and seniors. The program for freshmen and sophomores was one which provided for occupational information and guidance, and vocational counseling. This was accomplished by making use of classroom instruction for groups and vocational counseling for individuals. For juniors and seniors, the second remedial program, cooperative vocational education was established. The cooperative vocational education program was actually an interrelated vocational program whereby students in the junior and senior years spent half-time in the schools and half-time on jobs in vocational training. The cooperative vocational education program was conducted in both Tamms and Thebes High Schools whereas the occupational information and guidance program was established in the Tamms High School only.

The first report "An Interim Report" (March 1966) was one in which progress was reported on the setting up of the two programs, and the design of the research which was to be conducted around the programs. The research sought to experiment with the two factors mentioned above which were thought to have influence on the retention of potential high school dropouts. The first report also dealt with the presentation of statistical methods used for establishing experimental and control groups for both of the remedial factors. Further, it included the beginnings of data as collected during the scholastic year 1964-65. Since the research was to be longitudinal in nature, it would eventually establish trends and show the effects of the remedial practices. The first report did not show trends, therefore.

The second report, "A Second Interim Report", (March 1967) began to show the effect that experimental programs were beginning to have on potential dropouts. It was of inestimable value because it began to establish a pattern for this, the final report. It presented a follow-up of students who had been in the program during the previous year (1964-65). The grades by graduating years (1965, 1966, 1967, 1968, 1969, and 1970) were set up for study purposes. The second interim report began to show trends and to present what was described as "successful" and "unsuccessful" students. The successful students were all students who were retained in school irrespective of the records which indicated that some were potential dropouts. The unsuccessful were those who, in spite of all, dropped from the schools participating.

This final report which is presented in the following pages continues with the presentation of data showing "successful" and "unsuccessful" students. In addition to the effects of the two programs on retention, there is in this report an evaluation showing the significance of the data collected on the two remedial programs. It is hoped that this research might provide guidance for other studies of remedial practices in the retention of potential high school dropouts.

Ralph O. Gallington
Director of the Research Project

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"The beginning is the most important
part of work"

- - - - - - -

"The direction in which education starts a man will
determine his future life"

- - - - - - - -Plato (430-367 B.C.)

CHAPTER I

INTRODUCTION

Background

For a number of years the dropout rate in Alexander County, Illinois has been very high. Over the past few years there have been slight improvements. The fact remains that when this study was started, over 38 per cent of all children entering their freshmen year the Fall of 1959 had dropped out before graduation in June, 1963. During the summer of 1964, a research project was sponsored by Southern Illinois University to investigate "Basic Criteria For Identifying Potential High School Dropouts"[1] in the Unit District No. 5 of Alexander County, Illinois. Later, the U. S. Office of Education gave support to a study "High School Dropouts, Fate - Future - Identification".[2] Upon the completion of these two studies it was possible to identify, to a very high degree, the potential dropouts among students in the Tamms and Thebes high school of Unit District No. 5. At the beginning of this (the present) study all students of both schools were identified according to the instruments and classified so that they could be studied with demonstration remedial practices.

---

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The Problem

The problem was to determine whether two levels of remedial practices in occupational information, vocational counseling, and vocational education would retain potential high school dropouts in the high schools of District No. 5, Alexander County, Illinois. The remedial practices were proposed to be studied at two different levels in the four-year high schools at Tamms, Illinois and Thebes, Illinois. Regarding students in the freshman and sophomore classes at Tamms high school, the question was raised: "Will occupational information and vocational counseling instruction have any effect on the potential dropout who often leaves school in this geographic area at about age sixteen?" Another question was raised: "Would cooperative vocational education provide a stimulus for juniors and seniors to continue in the high schools of this geographic area?" To answer these questions, two remedial practices were provided. A study over a three-year period to determine whether these questions could be answered in the affirmative was the main problem.

The problem involved a study of the two experimental factors on two separate student groups, each having a control group in the schools involved or surrounding schools. It was deducted that if among the experimental groups retention was pronounced (better than among the control groups), the experimental factors were valuable in retaining students in high school.

Hypotheses

It was hypothesized that an interrelated vocational cooperative program would have considerable effect in retaining students at the junior and senior level in the Tamms and Thebes high school. Many of the potential

dropouts had previously indicated that the schools held no great interest for them and that the curriculum for college preparation was not of sufficient interest to motivate them to finish high school. And many of the actual dropouts had mentioned previously that if vocational education of some kind had been provided in the schools, they would have stayed in school longer.

Another hypothesis was that when special attention is given to younger children especially those in the freshman and sophomore years of high school, retention will be increased. The main hypotheses to be tested were: (1) if potential dropouts, under 16 years of age, were taught about occupations and given individual vocational counseling periodically, they would stay in school longer than they would otherwise, and (2) if potential dropouts, over 16 years of age, were provided vocational counseling and cooperative vocational education, they would stay in school longer than they would otherwise.

The Importance

In recent years it has been stated repeatedly that all children should be retained in school as long as they can profit from the experience. Many outstanding educators in the United States have emphasized that the college preparatory high school curricula do not appeal to all students, especially those who have no ambition to continue beyond high school. Students with special needs for vocational education have often been over-looked in the high school curricula of our nation. The special needs of students should be made known to public school administrators, to parents of the children and to the citizens of the community. Without a preparation for the transition from school to work, students often have found difficulty finding employment and getting adjusted to occupations after leaving school.

Even if retention would not have been affected by these remedial practices, a significant advantage may have been accomplished in that some students in this particular study, after leaving school, might have been able to find employment better and might have been able to make the transition from school to work more satisfying. The latter purposes were not especially emphasized nor studied fully, but they do have considerable importance.

This study was of special importance to Unit District No. 5, where very little vocational education had been provided in the past. Although general business, home economics, and agriculture had been a part of the high schools' curricula, the opportunities for industrial education were completely lacking. The new program initiated by this study, provided for a wide variety of occupational interests. It was an interrelated cooperative program which provided opportunities for students to try a wide variety of occupations. One might sum up by saying that this experimental and demonstration project provided a much wider variety of vocational opportunities than had been known previously in Alexander County.

Limiting Factors

Limiting factors were recorded in the first interim report and the second interim report. Since the completion of these reports, a few have been added, however, the list that follows was taken largely from the first two interim reports.

1. Both the experimental programs were limited by the number of students who could be included each year of the study. There were potential dropouts and potential graduates among all classes involved. In a class of say thirty (30) students, there might have been fifteen (15) of the class who were potential graduates. These numbers were rather small in each of the classes as they progressed in the various grade levels of the high school.

2. The coordinator could handle only one class of thirty (30) students, and this class was made up of juniors and seniors. Each class of students should have been taught as two groups actually, one group of which should have been juniors and one group of which should have been seniors.

3. Further, the class of 30, more or less, were actually taught in two different schools, Tamms, Illinois and Thebes, Illinois.

4. Scheduling was a particular difficult problem and limited somewhat all of the classes involved.

5. The number of on-the-job training stations were limited because of the sparcely settled community in which the program was initiated and developed.

6. Incomplete and inconsistent student records were available to the researchers.

7. Initially, the community acceptance of a cooperative work study program was a limiting factor. This factor diminished as the program evolved.

8. Facilities and supplies for the occupational information and vocational counseling class were a limiting factor.

9. Facilities and supplies for the cooperative vocational education class were also limiting.

10. Beginning with the fall 1967, the cooperative vocational education students were transported from the Tamms high school to the Thebes high school to combine the instruction and cut costs. This was considered advisable since both schools were to be combined by consolidation during the mid-year, 1967-68.

Delimitations

In addition to the above limiting factors, there were certain delimitations placed on the project which the researchers felt were necessary to control certain variables and give more definition to the research.

1. The area of study was limited to Unit School District No. 5 in Alexander County, Illinois. This district is also known as the Egyptian District.

2. The cooperative vocational education classes for the eleventh and twelfth graders was programmed in both the Thebes and the Tamms high schools.

3. The control groups for the eleventh and twelfth graders were scattered among the same schools from which the experimental groups were selected.

4. The occupational information and vocational counseling was established in the Tamms high school only.

5. The control groups for the occupational information and vocational counseling class were selected from among the students of the Thebes high school.

6. The period of study was limited, from the beginning of the fall semester, 1964, to the middle of the fall semester of 1967.

7. The students involved in the study were those originally included in the grades graduating in 1965, 1966, 1967, 1968, 1969, and 1970.

Rationale

If present-day high schools are not providing programs which appeal to students and cause them to remain in school, certain experimental factors should be investigated to determine whether they could have an effect on the retention factor. Many experimental factors should be tried. Students should be interviewed frequently to find out what the lacking elements are in the public-school programs and what might be added to make the programs in the high school more satisfying to students. Special needs should be studied to find out what might be done to meet the specific needs of children.

Approximately 25 per cent of all the people in Alexander County are on relief rolls and need employment. Many are unemployed because they do not have the preparation and background to do the types of work which exists in the neighborhood, state and nation. The public schools should provide them with certain skills which would allow them to become employed after leaving high school, either by graduation or dropout.

Practical remedial practices of many kinds should be evaluated and measured to determine what effect they have among the students in the present-day school curricula. Perhaps the more narrow the remedial practice the more practical one might measure it. It is realized that programs such as a cooperative vocational education program, taking one-half of the school's day, will develop variables many of which cannot be measured accurately.

If students will have been prepared for work in the high school programs involved in this research and if they will have been able to find employment as a result of the program, some worthwhile benefits will have been achieved. The most significant factor in this study is the retention itself. If students will have been retained longer as a result of the program, the programs will have been successful. Students will have become more mature and able to cope with the work-a-day world if and when they leave school.

Procedure

Early in 1964 all the potential dropouts and graduates were identified in the Unit District No. 5 of Alexander County. This identification was made possible through previous development of criteria for identifying such students. The criteria were based on case studies of paired groups of students who had either graduated or dropped out of the public schools. Correlates were developed and these weighed in terms of influence they might have had on students who had actually left the school system or remained until graduation. With the start of the fall semester, 1964, every high school student enrolled in this district was identified by these criteria as a potential graduate or potential dropout.[1]

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[1] R. O. Gallington, "Basic Criteria · · · · · ·", op. cit.

Students were selected at random for two programs: (1) The program of occupational information and vocational counseling for students in the ninth and tenth grades, and (2) The program of cooperative vocational education for students in the eleventh and twelfth grades.

In the ninth - and tenth - grade program students selected were rather equally divided between those who were expected to dropout and those who were expected to graduate. During the first year of the study this group was taught as one large class. In other words, the freshmen and sophomores met in the same classroom twice a week for occupational information instruction. Approximately once each month each student in this class was counseled individually for one hour throughout the first year period. Although freshmen and sophomores were taught in one group the first year, the records of each grade were kept separately so that each graduating grade by year could be studied later as the longitudinal research continued. This program was established in the Tamms High School only.

The second group of students (juniors and seniors), somewhat divided between potential graduates and potential dropouts, were selected for the cooperative vocational education program. Here again the two grades were taught as one class in each high school (Tamms, Illinois and Thebes, Illinois) for one class period each day. In each school a class met five days per week. The teacher-coordinator of the cooperative vocational education program provided the instructional program. These students were taught occupational information and given instruction about how to get and hold a job and how to work. Later, each member of the class was actually placed on a job, more or less of his choosing, based upon an employer's willingness to hire him. As mentioned above, the students were taught at the junior and senior levels as

one class, a section each in the two separate high schools. However, the records for each grade were kept separately so that for research purposes an accurate comparison could be maintained among those at the various grade levels.

During the second year (1965-66) of the program, the freshmen and sophomores of the Tamms high school were separated for two levels of instruction. One class was made up of sophomores who had been in the program the first year (1964-65) as freshmen. A new class was formed for the occupational information group at the ninth grade (1968) freshmen level. Again, the instruction continued as before, students in the freshmen groups receiving approximately the same instruction which had been given to the freshmen and sophomore groups the year before. But, the sophomores were offered a more advanced program in occupational planning. This planning course consisted of further instruction of one class period per week followed by individual counseling of about one hour per month per student.

The second year (1965-66) of the research the juniors and seniors were again organized into a class for the coordinator's instruction. Those who had been in the senior class the year before (1964-65) most of whom had graduated, were out of school, unemployed, or working. Follow-up records were kept on them. Those who had been juniors the year before (1964-65) were seniors during the second year (1965-66) of the program and a new group of juniors were brought into the program during the second year (1965-66) of the research.

The instructional program brought into the classroom, ideas for holding and getting a job. During the early part of the course at the beginning of each fall semester, students were taken through this rather thoroughly so that they could get placed on the job as soon as possible. During the second year of the program, after the preliminary lessons, new instruction was introduced. The coordinator became involved in the process of developing two programs of

instruction one each for alternate years. This prevented considerable duplication for students who had been in the program before. However, the courses each year continued to present ideas on how to advance in one's occupation and how to locate new positions when one is terminated.

Throughout the three-year study the juniors and seniors, while in the cooperative vocational education program, were in the classroom one class period five days a week. In addition to getting occupational information and employment instruction these students spent part of the time learning about the occupation in which they were placed. The teacher-coordinator provided considerable literature of all kinds on jobs and families of occupations in which the students were engaged. This allowed each student individually to gain considerable information about the work he was doing in order to progress much faster than he could have done otherwise. Working more or less as apprentices with the help of related technical instruction of an organized nature these students had considerable guidance. Each student was charged with the responsibility of gaining a great deal of related technical information, and was constantly brought in contact with this kind of information. An organized study was made of the kinds and uses of many types of material and tools involved in the specific occupation held by the individual student.

During the entire study, the records of the students were kept up to date for comparative presentations. Each year a comparison of the enrollment by years was kept. This was done for the entire District No. 5 to show the trends in respective grade level enrollments. Records of dropouts and transfers were kept. Attention was given constantly to the students who were in the program and the change in the enrollment of these groups of people. Of course, the number of dropouts and the number of graduates and the number who transferred to other programs or to other schools were kept very accurately during the three years of the study.

During the third year of the study, classes were established in about the same manner as they were during the second year of the study. This involved two classes each for the freshmen and sophomore groups and one class for the cooperative vocational education group in each of the two high schools. Again there were both juniors and seniors in the cooperative vocational education class in each school. It must be kept in mind that there were actually two sections of the cooperative vocational education students, one located in the Tamms high school and the other located in the Thebes high school. For simplification of the study, however, these students were treated as one class representative of the entire Unit District No. 5, Alexander County.

It should be kept in mind that the purpose of this study was to find out whether two separate remedial practices would have any effect on the retention of high school students in Unit District No. 5. As has been mentioned before, these students were paired with other students in the school system who were not involved in the program. For each year of the study, there were four groups of students in the experimental group and four groups of students in the control groups. This is interpreted to say that at each grade level (9th, 10th, 11th, and 12th) there was (1) an experimental group and, (2) a control group. Further, it must be kept in mind that potential graduates and potential dropouts were scattered through all eight groups.

The experimental and control groups were selected on the basis of the scores on the two instruments developed for the identification of potential graduates and potential dropouts. Students were paired by scores and correlations were made of the scores to find out what degree of correlation existed between the scores of the control groups and the scores of the experimental groups. The statistical computation was made in two ways. The pairs were tested by the objective instrument scores and again by the subjective instrument

scores. The correlation coefficient in the former was approximately .974 for the groups studied and for the subjective instrument scores the correlation coefiicient was .978.

Another test was conducted to make sure that the students paired in the study were actually of the same character according to the scores on the two instruments. To make this study the sign test was used and the null hypothesis was tested. Again the two sets of scores were compared and it was accepted that there was no significant difference in the total scores of the X group when compared with the total scores of the Y group. The X scores represented the experimental group and the Y scores represented the control groups. The scores on both the objective and subjective instrument proved that there was no significant difference in the total scores of the X group when compared with the total scores of the Y group. Thus, the null hypothesis was accepted by both instruments used to measure the students in the program. The first interim report (March 1966) set up the details of the pairing procedure which was used in choosing the control and experimental groups for the study. See Appendixes A,B,C, and D for data on comparative scores on the control and experimental groups for the first year's study. These appendixes represents the method used for equating each subsequent class with a control group.

In this the final report, the comparison of the experimental classes and control groups are set up. Comparisons have been made of groups according to actual class and control group enrollments, giving special attention to potential graduates and potential dropouts in the program. In this way it was possible to show the relative success of the two experimental factors as they were applied to experimental groups of students.

To accept the hypotheses of this research study, students in the two programs would be more successful than those who were not in the programs.

"Success" in this study refers to the student who either continued in the program or graduated. An "Unsuccessful" student was one who dropped out of school and did not continue his education. The total number who were successful as compared to the total who were unsuccessful is the basis of the proof needed in this study to show whether one or both of the experimental factors would have any effect on the retention of students. The procedure was to show whether the predicted successful students were actually successful, more successful or less successful than the prediction. Another step in the procedure was to show whether students who were potential dropouts were actually unsuccessful as predicted or more successful or less successful than predicted.

Thus, the final report sets forth the comparison of all experimental groups and the control groups, being made up of both potential dropouts and potential graduates. The data contained information with respect to the number who transferred to another curriculum, the number who transferred to another school, the number who dropped from the program, and the number who continued in the program.

Definitions

Class (es)	- An organized group(s) of students for instructional purposes
Grade, Grade level	- The typical chronological year in school
Grade year	- A particular calander year representing a prospective or actual June graduation date of a group of students
Freshmen	- 9th grader
Sophomore	- 10th grader

Junior	- 11th grader
Senior	- 12th grader
Success, Successful Students, etc.	- Students who continued or graduated from high school
Unsuccessful, Unsuccessful Students, etc.	- Students who dropped out during the study
Egyptian District	- Unit District No. 5, Alexander County, Illinois

Related Studies

Passow, Goldberg and Tannenbaunm report on a number of studies conducted among disadvantaged pupils in the United States. They dealt with both theoretical issues such as causes and more objective issues such as learning deficits as shown by tests. They dealt with widespread retardation in depressed areas and underscore the need for testing and evaluating new procedures. Particularly they have dealt with the urban youth, more especially those in slum areas. They present views regarding the need for more practical tests described as "culture fair" or "culture free". And they refer to observed patterns of difficulties of underpriviliged children trying to cope with school learning.[1]

Bernard Goldstein reports on urban areas. He raises the question: "Is unemployment basically a result of inadequate demand for goods and services, or the lack of appropriate skills - - - - - -". It is quite clear that among the low income youth there is a great need for providing appropriate skills. To do this it becomes necessary to provide motivating programs to raise skills as a means of improving the self-image. One could say also that the self-image

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[1] Passow, Goldberg, and Tannenbaunm, Education of the Disadvantaged, New York: Holdt, Rinehart and Winston, Inc., 1967, viii + 503.

could be improved by creating confidence through developing saleable skills. In the search of identity, the adolescent needs to develop self-esteem, and among low-income families the motivations are not as great as among middle-or high-income families. To pull up the motivation level of children from low-income level families their aspiration to learn skills which will upgrade their situation in life must be met. The gap between aspirations and parental achievement must be realized and raised since this gap is somewhat low among disadvantaged youth.[1]

A National Education Association project, "Guidance and the School Dropout" cited reports which indicated that dropouts produce dropouts from one generation to the next. There were dropouts discovered among all types of high school curricula but the main characteristics of the dropout were: (a) reading retardation, (b) grade retardation, (c) low intelligence, (d) negative self-image, and (e) family attitudes. New approaches were suggested to retain in-school youth.

1. School-related adult education programs.
2. Job up-grading programs for workers.
3. Work-study programs.
4. "Return and graduate for dropouts" programs.
5. Compensatory education.
6. Kindergarten and early childhood programs.

Many suggestions were given for the identification of potential dropouts before they enter high school. These led to the consideration of many facets of the guidance program in meeting the potential dropout's needs. Outside resources and counseling were among these considerations as well as group procedures, testing, occupational information, placement and follow-up.[2]

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[1]Bernard Goldstein, Low Income Youth in Urban Areas, New York: Holt, Rinehart and Winston, Inc., 1965, viii + 280.

[2]National Education Association, Guidance and The School Dropout, Washington, D.C., 20036, 1964, (Daniel Schreiber and Bernard A. Kapplan, Coeditors) viii + 267.

Another project, "School Dropouts", by the National Education Association identified four types of low-income dropouts: (a) school-inadequate, (b) school-rejecting, (c) school-perplexed, and (d) school irrelevant. "Contrary to common beliefs, dropouts are not exclusively from working class and lower class or low income families." Another significant contribution was that the middle-class dropout is often overlooked in needs studies. Similarly, the socially and economically deprived graduate is often overlooked. Neither of the latter groups have been identified in categories or classified into "types". This report recommends that studies be made of all economic levels of dropouts. It further underlines the fact that dropouts are a heterogeneous group and represent a rather normal sample.[1]

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Lichter, Solomon O., et al, The Dropouts, New York, The Free Press of Glencoe, 1962.

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[1]National Education Association, The School Dropout, Washington, D.C., 20036, 1964, (Daniel Schreiber, Editor), viii + 214.

CHAPTER II

THE INSTRUMENTS

In order to determine whether they were potential graduates or potential dropouts, all students in the program were measured by the two instruments mentioned in Chapter I. These instruments were developed earlier by a study during the summer of 1964 in which the instruments were validated and proved reliable to a very high degree. Figure 1 sets forth the objective instrument used to collect data for our records. The reliability correlation coefficient for this instrument was .815. In other words, the correlation between the students who graduated and the students who dropped out of school measured by the objective instrument with scores which proved a very high degree of reliability in predicting the graduate or potential dropout. Table 1 shows the objective scores on this instrument and its relative degree of predictiveness. For this study it may be noted that a score of plus 7 or higher would identify the dropouts rather satisfactorily. It identified 98.4 per cent of the dropouts while falsely identifying only 11.1 per cent of graduates. A score of plus 7 or higher on the objective instrument selected to identify the potential dropout by this instrument.

Figure 2 presents the subjective instrument. It was designed for studying the potential dropout and the potential graduate also. The reliability correlation for this instrument was .845. A score of 16 or higher correctly identified 92.9 per cent of the potential dropouts, whereas this score identified falsely 7.1 per cent of the graduates. The score of 16 or higher was used, therefore, to identify by this instrument the potential dropouts.

FIGURE 1

Name_____

Status: Fr. Soph. Jr. Sr. Drop

Sex M F

Class last attended_____

OBJECTIVE INSTRUMENT

Weight	3	1	0	-1	-3	Total
1. Grade Retardation	-2	-1	0	+1		
2. Days Absent (seventh and eighth grade)	26 or more	16-25	6-15	0-5		
3. Correctness of Expression (3) or Reading Placement (eighth grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
4. Gen. Voc. (8) or Achievement Placement (8th grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
5. Extracurricular Activities (8th grade)	0	1			2	
6. Quantitative Thinking (4) or Arithmetic Placement (8th grade)	0-9 Below 7.5	10-39 7.5-8.4	40-59 8.5-9.4	60-79 9.5-10.5	80-99 Above 10.6	
7. No. of older siblings	7 or more	2-6	1 or less			
8. No. of younger siblings	7 or more	2-6	1 or less			
9. Economic status	Poor	Fair	Average	Good		
10. Father's occupation		Unskilled	Semi-skilled Skilled Clerical Service	Agriculture	Sales Managerial Technical Professional	
11. No. of Feeder Schools	3 or more	2				
12. Living with whom	Neither Parent	One Parent				

Fig. 1--Form used to collect data for records

Total_____

TABLE 1

OBJECTIVE SCORES AND THEIR MEANING

	Dropouts Correctly Identified	Graduates Falsely Identified
Score of 7 or higher	98.4%	11.1%
Score of 5 or higher	100%	27.9%
Score of 3 or higher	100%	41.3%
Score of 0 or higher	100%	51.1%

Potential graduates for this study were identified by a score of 15 or under. Table 2 shows relative scores and their identification potentials. Each instrument was developed in the local district where the research took place. In order to use them, researchers had to be taught how to use the instruments, particularly the subjective instrument. Appendix E is a description of the manual which was used in applying the objective instrument. Appendix F sets

TABLE 2

SUBJECTIVE SCORES AND THEIR MEANING
(Per Cent)

	Dropouts Correctly Identified	Graduates Falsely Identified
Score of 16 or higher	92.9%	7.1%
Score of 13 or higher	96.4%	14.3%
Score of 10 or higher	96.4%	28.6%
Score of 7 or higher	96.4%	57.1%
Score of 5 or higher	100%	89.3%

forth a specific set of directions for rating students by the subjective instrument. In addition to the use of these manuals for administrating the instruments, it was necessary for the researchers to memorize a considerable amount of interview questions which could be used to get at the information

FIGURE 2

Name_____ SUBJECTIVE INSTRUMENT School_____

	Outstanding, Very favorable or Excellent	Favorable, Good Above average	Average Fairly acceptable, Not especially Good	Unfavorable but not poorest, inferior	Very Unsatisfactory, Very poor to poorest
	0	1	2	3	4
A. The Home - Living Conditions					
B. Attitudes towards education - school					
C. Attitude towards school authority, rules and adherence to disciplinary standards					
D. Attitude towards work, earning a living, training for a job, etc.					
E. Ability to communicate with others					
F. Poise					
G. Attitude towards peers					
H. Apparent capacities					
I. Apparent vocational choice					
J. Knowledge of occupations					

Fig. 2--Form used to collect data by interview

sought by the subjective instrument's application. The researchers reviewed very frequently the use of instructions and practiced frequently, with subjects, in administering them.

The objective data were much easier to collect than the subjective data because in most cases they were located in the principals' offices of the schools involved. Some students could not be identified as potential dropouts or potential graduates by the objective instruments because their records were incomplete or not available in the principals' offices. In such cases the subjective instrument was used. Whenever this had to be done, the student was visited in his home by a researcher who was fortified to get the information specified in the subjective instrument by talking with the subject and his parents.

CHAPTER III

THE PRESENTATION OF DATA

For The Egyptian District

Table 3 gives a comparison of the dropout and the graduate data for the entire school district. It will be noted that among the 1966 graduating class the number of dropouts was greater than any on the record kept for this study. Since all students in the school had been identified according to dropouts and potential graduates, it was possible to show the dropout rate among the potential graduates as well as the potential dropouts. Table 3 shows very definitely that the predicted potential dropout group, did in fact, loose more students than the potential graduate group did.

Figure No. 3 shows the relationship between the dropouts, graduates, and transfers according to years in which the study was made. Actual graduates and actual dropouts as well as transfers are indicated for the grade year 1965, 1966, and 1967. For the potential scholastic graduates and dropouts for grade years 1968, 1969, and 1970, the numbers are projected on the basis of the records on hand at the time the study was completed. It will be noted that there was a slight improvement in the number of students who graduated from Egyptian Unit School District No. 5, in Alexander County. This may have been due partially to the fact that the cooperative vocational education program was initiated and vocational counseling and occupational information was provided beginning with the fall semester of 1964 and extending through the spring semester of 1967.

A comparison by years of respective grade enrollments of potential graduates and potential dropouts for Egyptian District is presented in Figure 4. Figure 4 is based partially on the predictability of the instruments for the

TABLE 3

COMPARISON OF ENROLLMENTS BY GRADE YEARS

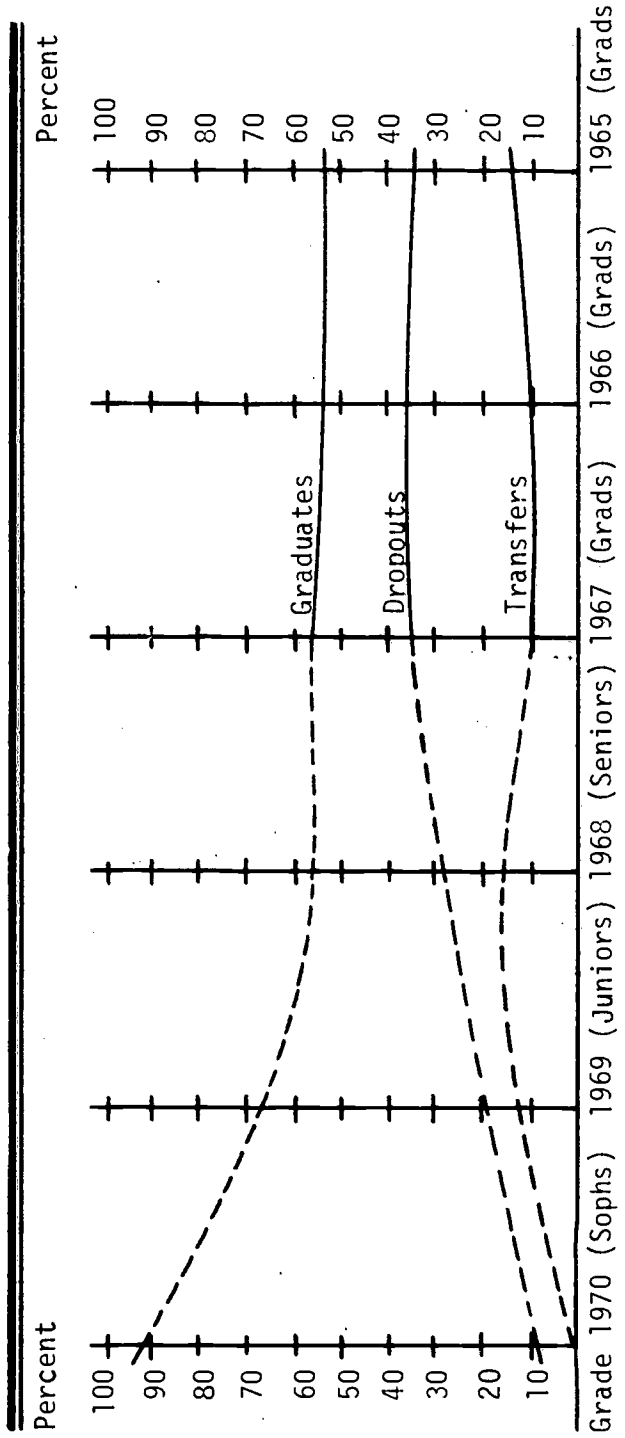
FOR THE ENTIRE EGYPTIAN UNIT DISTRICT, NO. 5

School Year	1970 Sophs.		1969 Jrs.		1968 Srs.		1967 Grads.		1966 Grads.		1965 Grads.	
Where Total District Numbers = 100%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
Transferred	0		12	14	14	15	10	9	12	10	13	14
Dropped	7	9	16	19	26	28	36	34	40	35	31	33
Graduated or Continuing	73	91	58	67	54	57	61	57	63	55	51	53
Total	80	100	86	100	94	100	107	100	115	100	95	100
Where P/G's = 100% and P/D's = 100%												
Potential Graduates												
Transferred	0		4	10	5	12	6	9	5	10	10	21
Dropped	0		2	5	5	12	9	14	2	4	2	4
Graduated or Continuing	40	100	35	85	33	76	51	77	45	86	36	75
Total	40	100	41	100	43	100	66	100	52	100	48	100
Potential Dropouts												
Transferred	0		8	18	9	18	4	10	7	11	3	6
Dropped	7	18	14	31	21	41	27	66	38	60	29	62
Graduated or Continuing	33	82	23	51	21	41	10	24	18	29	15	32
Total	40	100	45	100	51	100	41	100	63	100	47	100

FIGURE 3

COMPARISON OF ACTUAL GRADE YEAR ENROLLMENTS

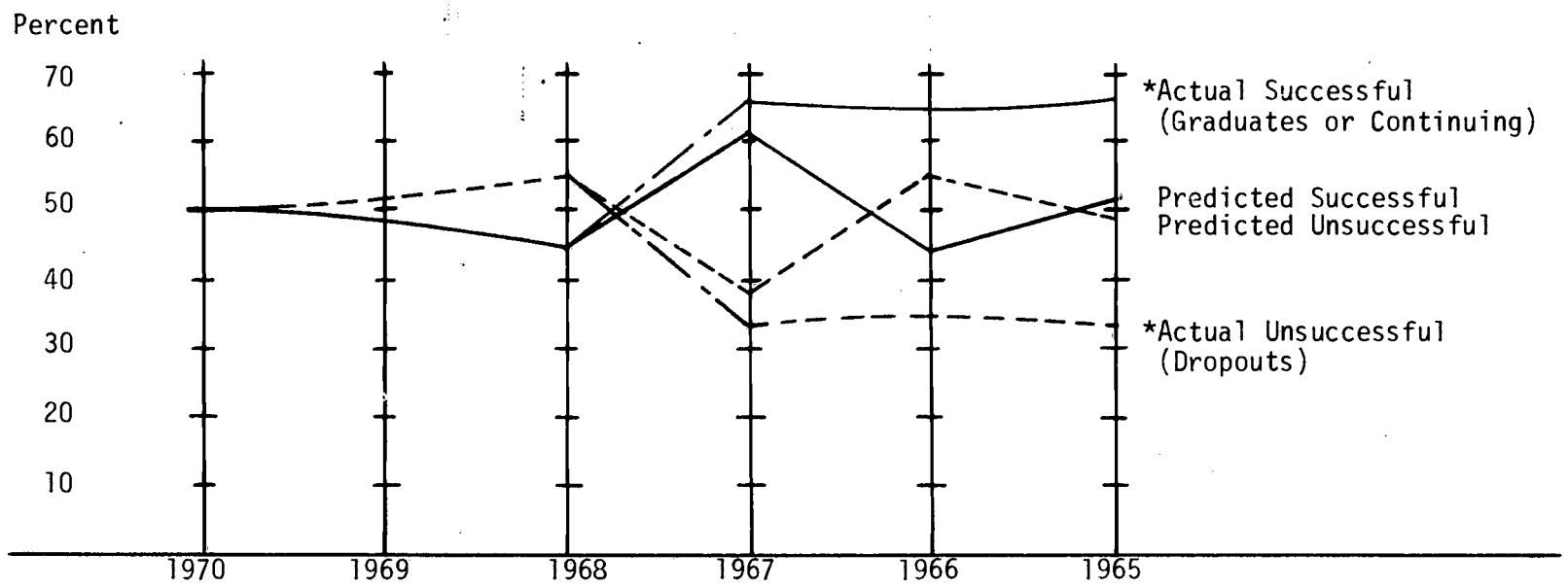
FOR EGYPTIAN UNIT, NO. 5



NOTE: Data for grade years 1965, 1966, and 1967 are complete. All other grade years show actual dropouts and transfers but are subject to change as they move toward graduation.

FIGURE 4

COMPARISON BY YEARS OF RESPECTIVE GRADE-YEAR ENROLLMENTS OF POTENTIAL GRADUATES AND POTENTIAL DROPOUTS FOR EGYPTIAN UNIT, NO. 5



NOTE: Solid Lines represent predicted graduates.
A Dotted Line represents predicted dropouts.
Data for classes of 1965 and 1966 are complete and show the actual success of the total group was greater than predicted. It may be assumed that this was due to part to the introduction of the experimental programs.
Students identified by the objective instruments.
(*) Actual data includes both potential graduates and potential dropouts.

years 1970, 1969, and 1968. It has been pointed out earlier that in identifying some 98 per cent of the potential dropouts, one would misidentify 10 per cent or less of the potential graduates. Figure 4, therefore, shows the graduate group somewhat lower than it actually turned out to be in the grade years 1965, 1966, and 1967. It might be repeated that perhaps the "Experimental and Demonstration Project" did have an effect on the retention of students in Unit District No. 5.

Figure 4 indicates that the 1970 grade year enrollments include 50 per cent potential graduates and 50 per cent potential dropouts. It is required that this group show an increase in actual and potential graduates when a corresponding decrease is shown in the actual and potential dropouts. Hence, the corresponding graphs are distributed-equi-distance from the 50 per cent position. There is no special significance to the fact that 1970 grade-year group of students were distributed about equally. The 1970, 1969, and 1968 groups are predictions made according to the measurement of the objective and/or subjective instruments of identification. There has been found some misidentification in both instruments, and the numbers of graduates and dropouts have varied considerably within past years among the grade years. However, it should be observed that considerable improvement was affected within the grade years of 1965, 1966, and 1967.

Since both instruments measured fairly well both the potential dropouts and the potential graduates, it was interesting to see what the large or more important differences were. It was noted that the families of the potential dropouts were much larger, often having twice as many children per family as compared to families of the potential graduates. The days absent per academic year were about twice as great among the potential dropouts as compared to those

TABLE 4

COMBINED TOTAL ENROLLMENTS FOR FRESHMEN IN THE 1964-1965, 1965-1966 AND 1966-1967 OCCUPATIONAL INFORMATION AND VOCATIONAL COUNSELING CLASS I BY GROUPS

WHERE P/G's = 100% AND P/D's = 100%

	Experimental Group		Control Group	
	Number	Percent	Number	Percent
Potential Graduates				
Continued in Program	11	41		
Transferred to Another Curriculum	7	26		
Total Continuing	18	67	15	58
Transferred to Another School	2	7	3	12
Graduated	6	22	4	15
Total Transfers and Graduates	8	29	7	27
Total Successful	26	96	22	85
Dropped	1	4	4	15
Total Unsuccessful	1	4	4	15
Total Potential Graduates	27	100	26	100
Potential Dropouts				
Continued in Program	19	35		
Transferred to Another Curriculum	17	31		
Total Continuing	36	68	27	49
Transferred to Another School	8	15	4	7
Graduated	2	4	3	5
Total Transfers and Graduates	10	19	7	12
Total Successful	47	87	34	61
Dropped	8	15	21	39
Total Unsuccessful	8	15	21	39
Total Potential Dropouts	54	100	55	100

among the potential graduates. Among the potential graduates, high school grade-point averages were about twice as great as the grade-point averages among the potential dropouts. The potential dropouts participated in about half as many extra-curricular activities as the potential graduates.

For The Project

Appendixes G and H illustrate the distribution of the scores of the experimental and control groups in the two remedial programs by items on the objective instrument only. Similar score distributions were produced for students who had been identified only by the subjective instrument. This group was small, however.

Table 4 sets up a study of potential graduates and potential dropouts among the total of both the experimental and control groups of freshmen. Table 4 contains all of the students in the 1964-1965, 1965-1966 and 1966-1967 program of occupational information and vocational counseling for freshmen. From the data presented in this table it may be observed that the control group began to perform according to prediction. In other words, a large percentage of the students in the potential dropout group were actually leaving school before the completion of the tenth grade. This grade period represents the chronological approach of the sixteenth birthday. Also significant in Table 4 is the fact that among the total in the experimental group of potential dropouts, a higher percentage were successful than among the control group. In other words, among the potential dropouts the retention was higher in the experimental group which received occupational information and vocational counseling. To a lesser degree, potential graduates in the experimental group had fewer unsuccessful students than those in the control group. Percentage wise this was a comparison between 96 per cent who were successful in the experimental

group and 85 per cent who were successful in the control group. Another significant thing which should be noted is that the students who were listed as potential dropouts were not all through the four-year program at the point of this presentation. Consequently, many of the potential dropouts will, in fact, drop out later as they progress into the sophomore, junior, and senior years of high school. The information gathered in Table 4 refers only to the freshmen class by groups and does not involve the sophomore class in occupational information and vocational counseling.

For the Occupational Information and Vocational Counseling Class I (freshmen) a study of significance was made. Blocking in the successful and unsuccessful with the experimental and control groups, a Chi Square study was made as follows:

OCCUPATIONAL INFORMATION AND VOCATIONAL COUNSELING CLASS I (Freshmen)
Chi Square

	Successful	Unsuccessful	Total
Experimental Group	A = 73	B = 8	81
Control Group	C = 56	D = 25	81
	129	33	162 = N

$$x^2 = \frac{N\,(AD - BC) - \frac{N^2}{2}}{(A+B)\,(C+D)\,(A+C)\,(B+D)}$$

$$x^2 = \frac{162\,(73)\,(25) - (8)\,(56) - \frac{162^2}{2}}{(73+8)\,(56+25)\,(73+56)\,(8+25)}$$

$$x^2 = 9.74$$

These data are significant to the one per cent level or better and accept the hypothesis: If potential dropouts under 16 years of age, were taught about

TABLE 5

COMBINED TOTAL ENROLLMENTS FOR SOPHOMORES IN THE 1965-1966 AND 1966-1967 OCCUPATIONAL INFORMATION AND VOCATIONAL COUNSELING CLASS II (SOPHOMORES) BY GROUPS

WHERE P/Gs = 100% AND P/D = 100%

	Experimental Group		Control Group	
	Number	Percent	Number	Percent
Continued in Program	5	29		
Transferred to Another Curriculum	9	53		
Total Continuing	14	82	9	53
Transferred to Another School	2	12	3	18
Graduated	1	6	1	6
Total Transfers and Graduates	3	18	4	24
Total Successful	17	100	13	77
Dropped	0		4	23
Total Unsuccessful	0		4	23
Total Students	17	100	17	100

occupations and given individual vocational counseling periodically, they would stay in school longer.

For Occupational Information and Vocational Guidance Class II, (sophomores), a similar study was made. Table 5 shows the data which was collected on this group. Although the numbers are much smaller here, the same procedure was followed as in the Occupational Information and Vocational Counseling Class 1 (freshmen). Again, Table 5 substantiates the hypothesis that this kind of instruction was good to retain students. A study of the significance was made for this group of data also. The presentation of the Chi Square study follows:

OCCUPATIONAL INFORMATION AND VOCATIONAL COUNSELING CLASS II (Sophomores)
Chi Square

	Successful	Unsuccessful	Totals
Experimental Group	A = 17	B = 0	17
Control Group	C = 13	D = 4	17
	30	4	34 = N

$$x^2 = \frac{N\ (AD - BC) - \frac{N^2}{2}}{(A+B)\ (C+D)\ (A+C)\ (B+D)}$$

$$x^2 = \frac{34\ (17)\ (4) - (0)\ (13) - \frac{32^2}{2}}{(17+0)\ (13+4)\ (17+13)\ (0+4)}$$

$$x^2 = 2.55$$

Again the significance of this study was found to be reliable to the one per cent level of significance. It should be noted that the occupational information and vocational counseling class for sophomores was not organized as such for the first year of the study. Hence, the total numbers are smaller.

TABLE 6

COMBINED TOTAL ENROLLMENTS FOR JUNIORS AND SENIORS IN THE 1964-1965, 1965-1966 AND 1966-1967 GRADUATING GRADES

COOPERATIVE VOCATIONAL EDUCATION CLASS BY GROUPS

WHERE P/G's = 100% AND P/D's = 100%

	Experimental Group		Control Group	
	Number	Percent	Number	Percent
POTENTIAL GRADUATES				
Continued in Program	6	12		
Transferred to Another Curriculum	3	5		
Total Continuing	9	17	2	4
Transferred to Another School	2	4	2	4
Graduated	40	77	35	72
Total Transfers and Graduates	42	81	37	76
Total Successful	51	98	39	80
Dropped	1	2	10	20
Total Unsuccessful	1	2	10	20
Total Potential Graduates	52	100	49	100
POTENTIAL DROPOUTS				
Continued in Program	4	9		
Transferred to Another Curriculum	2	4		
Total Continuing	6	13	4	8
Transferred to Another School	2	5	1	2
Graduated	31	69	9	19
Total Transfers and Graduates	33	74	10	21
Total Successful	39	87	14	29
Dropped	6	13	34	71
Total Unsuccessful	6	13	34	71
Total Potential Dropouts	45	100	48	100

[illegible] among the few studied.

Table 5 presents data for the 1966-68 scholastic years of [illegible] groups where the potential graduates did not drop out of the school [illegible] graduates equal 100 per cent. Table 5 also presents the control group [illegible] enrollments for the scholastic years ending 1966, 1967, and 1968. Again, it may be observed that the potential graduates were quite successful in the program. However, among the control group of potential graduates there was not as much success as was shown among the experimental group of the potential graduates. More significantly, among the potential graduates, the total success was much greater in the experimental group than among the control group. The effect of moving the Tarrs cooperative vocational education program from the Tarrs high school to the Trebes high school accounted for only one student transferring out of the program so that he could stay at the Tarrs high school during the 1967-68 scholastic year.

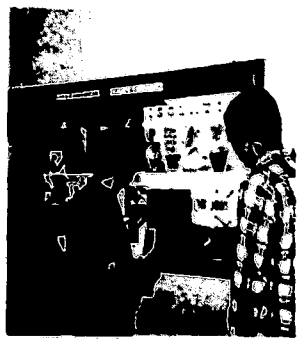
Again the Chi Square study of reliability was made of the data on Table 6. The presentation follows:

COOPERATIVE VOCATIONAL EDUCATION GROUP

Chi Square

	Successful		Unsuccessful		Totals
Experimental Group	A	90	B -	7	97
Control Group	C	53	D -	44	97
		143		51	194 - N







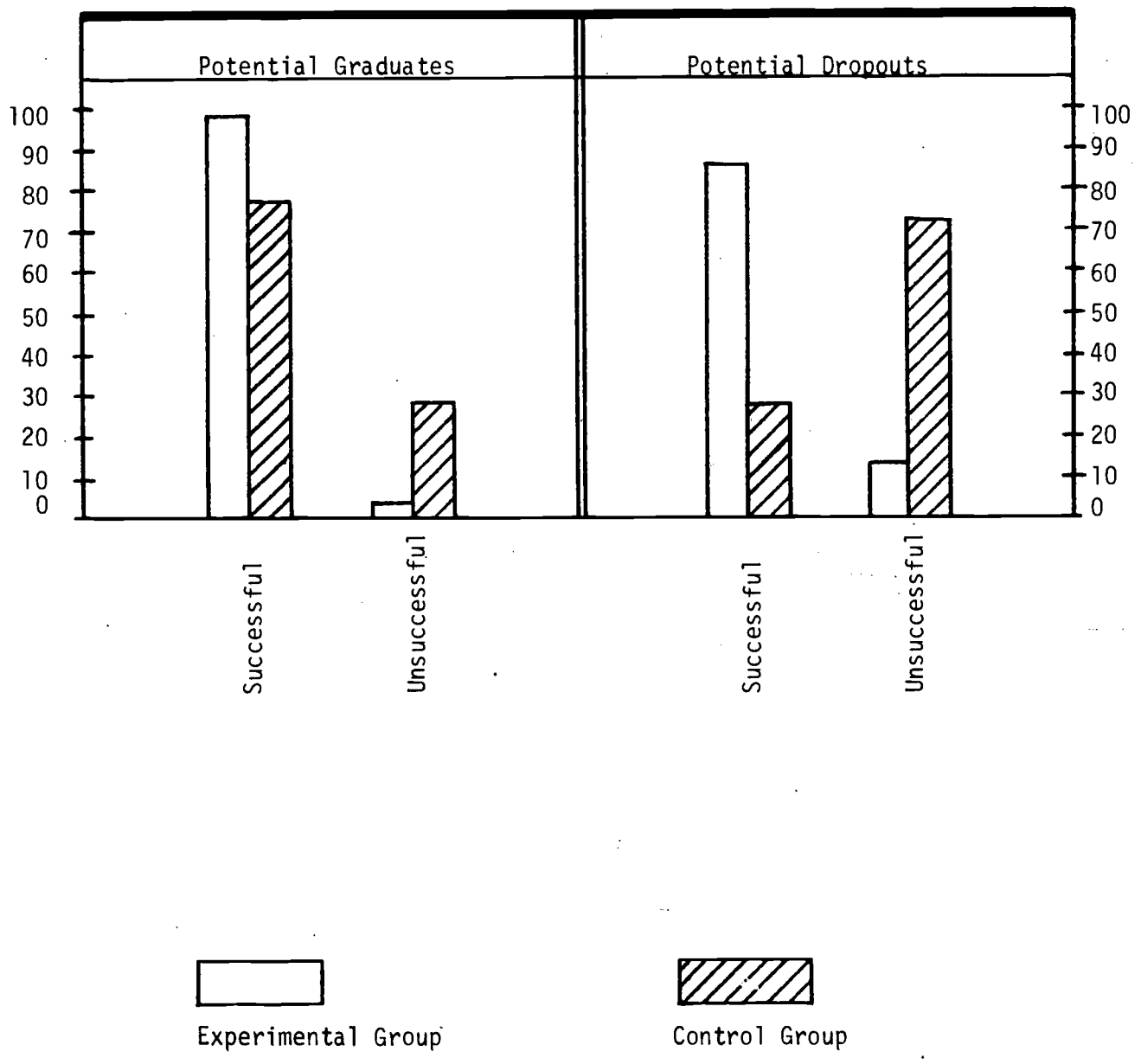
Students Study the Job Inside School and Practice It Outside



FIGURE 5

THE RETENATIVE VALUES OF THE

COOPERATIVE VOCATIONAL EDUCATION PROGRAM



$$x^2 = \frac{N\ (AD - BC) - \frac{N^2}{2}}{(A+B)\ (C+D)\ (A+C)\ (B+D)}$$

$$x^2 = \frac{194\ (90)\ (44) - (7)\ (53) - \frac{194}{2}}{(90+7)\ (53+44)\ (90+53)\ (7+44)}$$

$$x^2 = 34.3$$

Reliability to the one per cent (or lower) level of significance was maintained again. It must be accepted that: <u>If potential dropouts, over 16 years of age, were provided vocational counseling and cooperative vocational education they would stay in school longer</u>.

The data seemed to be very effective in exposing that the successful students were by and large in the experimental group. Among this group there was a considerable number of potential dropouts. In the "Second Interim Report", it had become apparent that students progressing through the experimental programs from the freshmen through the senior years had a tendancy to stay in school longer. This became more obvious as the study continued through the third year. The potential dropouts in the programs had a tendancy to continue in occupational information, vocational counseling, and cooperative vocational education classes. Even among the potential graduates the number of transfers to other curricula in the schools was zero. Among the potential graduates the number of successes were greater in the experimental group than in the control group. It was significant that one potential graduate did drop out of the experimental group. Overbalancing this was the fact that among the experimental group the successes were exceedingly high when compared to the successes in the control group.

Figure 5 represents the graphic illustration of comparative groups and the success factor as proven by the above data.

Follow-up Data on the Cooperative Vocational Education Groups

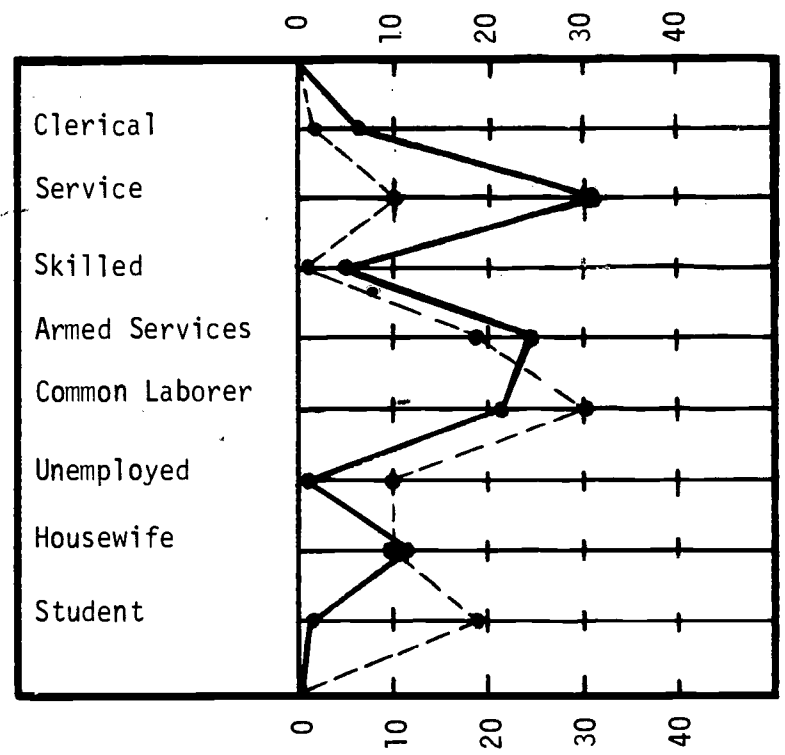
During the time the cooperative vocational education students were in school, they held various types of vocational occupations on the job part-time while attending school. A list of the occupations held by the cooperative vocational education students is as follows:

Farm Machinery Repairman
Beauty Operator Assistant
Secretary
Wood Chopper
Farm Mechanic
Building Service Worker
Switch Board Operator
Funeral Attendent
General Farm Hand
Auto Body Repairman
Auto Mechanic Helper
Meat Cutter Apprentice
General Office Clerk
Laundry Hand

FIGURE 6

REALM OF EMPLOYMENT IN FOLLOW-UP STUDY

(Percentages)



Solid Line Represents Experimental Group

Dotted Line Represents Control Group



Typical
On-the-Job
Stations



Porter	Ward Clerk
Medical Secretary	Farm Manager
Lumberyard Man	Auto Partsman
Cosmetologist Apprentice	Electrical Appliance Repairman
Park Worker	Salesperson, Parts Counterman
Nurse's Aid	Maintenance, Hospital
Groceryman	Lab Assistant
Salesman, Building and Construction Equipment and Supplies	Janitor
	Cook, School Cafeteria

After graduation from high school or leaving high school, the experimental students held better jobs generally than the students in the control group. Figure 6 illustrated the various types of positions held by the two groups after leaving school. It may be observed that no student among the experimental group was unemployed; that positions held were of higher rank generally than those held by the control group. Very few of the experimental group continued into other programs of learning. This points up the fact that a need was met by the experimental program.

Figure 7 gives more follow-up data on the cooperative vocational education students. It may be noted that all groups predominately locate in Illinois. The "area" of Figure 7 refers to the immediate county in which the students were schooled, this being Alexander County. The designation "Illinois" represents other parts of Illinois in which the students found employment. Consequently, the "area" and "Illinois" claimed most of the graduates and the dropouts. Very few moved out of state to find employment. Both experimental and control groups were employed in cities rather small in size. A very few were employed in metropolitan areas and a few in the rural areas.

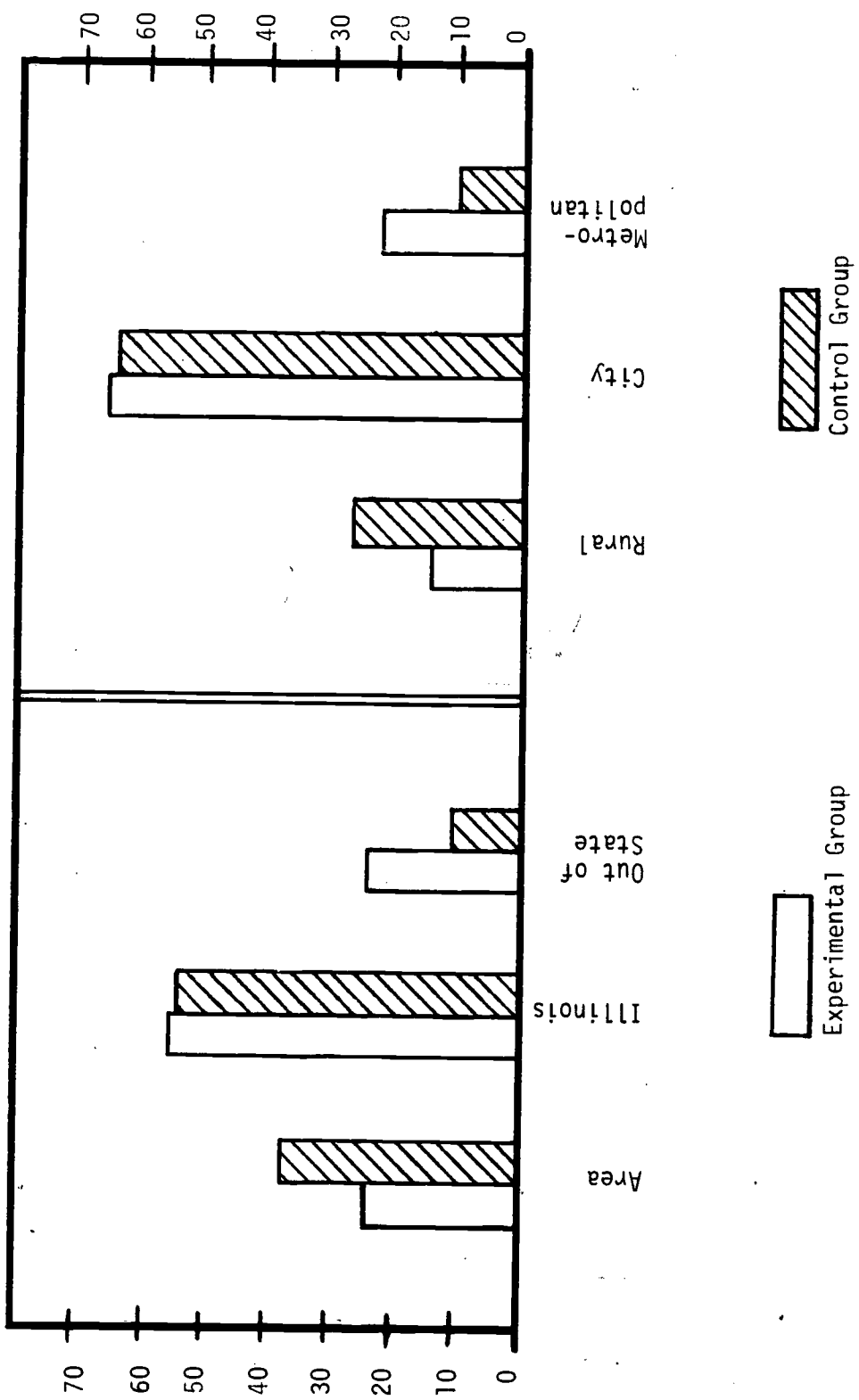
Some Observations

The researchers were in constant contact with the teacher-coordinator in the program. During the first year much recruiting was needed to get a sizeable class of cooperative vocational education students. During the

FIGURE 7

FOLLOW-UP OF THE EMPLOYER LOCATION — TYPE OF COMMUNITY OF THE COOPERATIVE VOCATIONAL EDUCATION STUDENTS

(Percentages)



second year not much recruiting was needed. During the third year no recruiting at all was made among students in the school and community. By that time the program was well known and students were clamoring to get into it. As the study neared completion, more students were applying to get in the cooperative vocational education program than could be accomodated. This applied to both the Tamms, Illinois high school and the Thebes, Illinois high school.

Students were not very disturbed at having to take a work station in fields of second or third choice. Such placement did not cause frustrations. Some seemed highly satisfied after being placed and requested a continuation in the second-choice work training. Most students looked upon the coop program as an opportunity to learn responsibilities and dependable traits rather than specific skills.

In each of the high schools there were clubs formed in connection with the cooperative vocational education programs. This club arrangement was affiliated with the Vocational Industrial Clubs of America. Generally speaking, the club meetings were well attended and much discussion took place. In some instances, the time was given largely to more activity, program planning, and the establishment of extra-curricular programs. The extra-curricular programs included parties, banquets, field trips, and the like.

The programs of cooperative vocational education became rather selective during the last two years, because there were more students available and willing to sign up for the programs. Selections had to be made. The selections were based on the need rather than on the basis of likely success. As a result, the best students for the program may have not been selected, but rather those who may have needed it most were selected. The philosophy here was based on the thought that it was better to do the most for those who needed it most.

Attitude was one of the greatest problems to overcome in the cooperative vocational education classes. Attitudes were hard to evaluate because of the students inability to express himself and his unwillingness to enter into discussions where personal problems were involved. Many students showed embarrasment about their background and home living conditions. Poverty and the lack of good clothes often kept students from having good attitudes. Many in the program had very poor abilities when it came to speaking before the group. This was noted particularly in an affair when the students were suppose to introduce their employer at a local cooperative vocational education banquet. Some students stayed away from the banquet merely because they knew they were expected to introduce their supervisor or employer. Another very significant observation was that when students left school in the afternoon to work on the job, transportation time often interferred with many things. For example, a student was unable to get to work very early in the afternoon, and his transportation from work to home oftentimes caused him to be very late in the evening. Evening activities were, therefore, curtailed considerably. This probably accounted for some of the students not being able to do a great deal of homework assigned by the high school teachers. This brought complaints from the teachers.

In the selection of students, it was the policy in one school to prohibit students with an average grade of above a "C" to enter the program. This requirement expressed a philosophy of this particular school or the school administration in denying many of the students with higher abilities the freedom to enter the program. It seemed that the philosophy expressed was: "Students who are earning a "C" or above should be considered college bound and, therefore, discouraged from entering a terminal program such as the cooperative vocational education program." Scheduling conflicts made it impossible for some needy students to get in the program.

The teacher coordinator reported that it was much easier to find employers willing to provide training stations than it was to get the same employers to hire some students interested in the job involved. None-the-less, it was noted that all students who were outgoing and friendly, usually made the correct approach and were hired early in the scholastic year. Each had some difficulty in the interview convincing the employer that he was a willing worker. The retiring and reticent students had more difficulty in this regard.

The general occupational related information teaching in the related subjects class was probably held behind the ability of some students in the program. This was due to the fact that many students had very low reading ability and were unable to absorb the instruction as fast as might have been expected. The coordinating teacher reported that supervisors records were not entirely reliable, because in many instances the supervisors on the job did not understand the grading system or rating system which is normally understood by teachers. Hence, the coordinator had to develop a five point evaluation scale rather than a letter grade or percentage grade to be used in evaluating students progress. Finally, the five point scale instrument allowed the coordinators and on-the-job supervisors to prepare a profile chart from time to time showing the student's progress. (See Appendix I)

Among the students in the program, it was generally recognized that there would be no opportunity to go on to college. This may have been caused in one school by the administration not allowing students who had a "C" average or above to enter the program. After entering the cooperative vocational education program over 15 per cent of the students made the honor roll for the first time in their careers. This should indicate that the program met certain needs undiscovered heretofore.

One of the problems of the teacher-coordinator was finding openings or training stations to meet the interest needs of students in his classes. Very few of the students, once they were placed, requested to be moved because of disastisfaction on the job or with the program at school as it affected their progress in education. Most of the students were very pleased to be in the program and would not transfer out of it regardless of the disastisfactions which often occured on the job. Very few of the students were found unreliable. Some unreliability was discovered. However, almost all of the students made adjustments to their problems and overcame some of the temptations and difficulties which they had in dealing with their employer, his associates and customers.

A follow-up of persons who transferred to another curriculum disclosed several causes for the transfers. There were five such students and the reasons given were also five. They follow:

1. Athletic participation.
2. Could not be trusted as a reliable worker.
3. Poor attitude and could not hold a job.
4. Parents objected because of late return home from work.
5. Would not change schools to follow program (1967-68).

CHAPTER IV

GENERALIZATIONS

Although this three-year study has involved a relatively small group of cases, it appears that a great deal of significance should be attributed to it. One might contend that a larger group of students might have given more reliable results or that the study should have been applied over a longer period of time in order to get further proof of reliability. However, the study has shown definitely that the experimental factors were successful in the retaining of students in the schools of Tamms, Illinois and Thebes, Illinois.

The selection of students for the study was done rather scientifically. The relationships between the control and experimental groups as shown by statistics were very convincing. The experimental groups were not significantly different from the control groups. Consequently, the experimental factors seem to be the only justified influence in the performance of experimental and control groups.

A longer longitudinal study would probably show even still better performance among experimental groups of the future. It is believed that this would be especially true if the programs could be continued over a longer period of time in the high schools of Tamms, Illinois and Thebes, Illinois.

When this program was initiated, students had to be "sold" on the idea, but as the program progressed, less and less contacts had to be made in order to achieve the required or necessary enrollments to produce sizeable classes.

One cannot overlook the fact that the two experimental programs did have effect on the number of actual dropouts. Much progress has been shown in this program over the past three-years. The values of the two experimental programs were quite apparent.

In the considerate judgements of the researchers, it is believed that the hypotheses stated in Chapter I have been proved. Occupational information and vocational counseling of students under 16 years of age had retentative values for students in the Tamms, Illinois high school, 1964 to 1968. To a much higher degree, cooperative vocational education of the interrelated type had a considerable effect in the retention of students at the junior and senior levels of the high schools at Tamms, Illinois and Thebes, Illinois. Students have developed better habits and attitudes; better personalities have been developed; and the placement of students who satisfactorily complete a cooperative vocational education program terminating with high school graduation is almost assured. Almost all graduates of the cooperative vocational education program were prepared for work and seemed successful.

One thing which has not been done in this study is to determine whether a student who took training in a given occupation actually followed that occupation after high school graduation. In the beginning, it was not the purpose of cooperative vocational education to develop people for specific skills and employment but rather to give general vocational experience working on the job to see if this would retain students. This was justified because it was thought students could make adjustments and get prepared for families of jobs as an incentive to complete high school. The purpose of the program was to provide general occupational information and general occupational experience rather than specific trade and industrial or other vocational and technical education. The program was exploratory in the sense that it was vocational exploration rather than any other type of exploration. It cannot be overlooked

that the selected students were able to explore many facets of the work-a-day world. Similarily, it cannot be overlooked that general education as well as vocational education was provided.

Any cooperative vocational education program should be supported by a program of vocational counseling. This should include general occupational information, general related technical education and specific technical related information. Individual vocational counseling should give particular attention to the socio-economical level of the student involved. The vocational counselor and the coordinator (if different personalities) should be highly competent people. The success of this research has been due largely to the careful selection of such personnel for the assignment of these tasks.

Hypotheses Accepted

1. If potential dropouts under 16 years of age were taught about occupations and given industrial vocational counseling periodically, they would stay in school longer than they would otherwise.
2. If potential dropouts over 16 years of age were provided vocational counseling and a cooperative vocational education (interrelated programs) they would stay in school longer than they would otherwise.

APPENDIXES

APPENDIX A

Note: Pairs Tested By Objective Instrument Scores

(See Appendix A)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp.-Cont.					
1	322-T338	4	4	16	16	16
2	420-T422	10	10	100	100	100
3	413-T401	7	5	35	49	25
4	404-T415	12	11	132	144	121
5	425-T411	7	9	63	49	81
6	325-T304	5	5	25	25	25
7	426-T417	4	3	12	16	9
8	310-T303	12	11	132	144	121
9	407-T416	12	12	144	144	144
10	405-T413	2	4	8	4	16
11	401- 411	18	18	324	324	324
12	318-T345	10	8	80	100	64
13	T311-307	8	8	64	64	64
14	T334-316	17	18	306	289	324
15	T302-305	5	6	30	25	36
16	T337-309	7	6	42	49	36
17	T318-327	9	8	72	81	64
18	T312-301	8	10	80	64	100
19	T402-410	5	5	25	25	25
20	T324-319	10	9	90	100	81
21	T316-302	11	11	121	121	121
22	T427-402	7	6	42	49	36
23	T301-T342	8	8	64	64	64
24	T328-T319	11	11	121	121	121
25	T235-T226	15	15	225	225	225
26	419- 406	11	12	132	121	144
27	314-T308	10	8	80	100	64
28		—	—	—	—	—
	No. =27	245	241	2565	2613	2551

[1] Exp. = Experimental Group

[2] Cont.= Control Group

Note: Above data arranged for use in the Pearson Product-Moment formula.

Statistical Computation From Above Data:

$$\text{Formula} = r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The value for substitution are:

$$N\Sigma XY = (27)(2565) = 69255$$

$$(\Sigma X)(\Sigma Y) = (245)(241) = 59045$$

$$N\Sigma X^2 = (27)(2613) = 70551$$

$$(\Sigma X)^2 = (245)^2 = 60025$$

$$N\Sigma Y^2 = (27)(2551) = 68877$$

$$(\Sigma Y)^2 = (241)^2 = 58081$$

Substituting in the formula:

$$r_{xy} = \frac{69255 - 59045}{\sqrt{(70551 - 60025)(68877 - 58081)}}$$

$$r_{xy} = \frac{10210}{\sqrt{(10526)(10796)}}$$

$$r_{xy} = \frac{10210}{24380.4} = .958$$

The correlation coefficient of r = .958 is extremely high and shows a very slight difference between the matched pairs according to the objective instrument scores. (See Appendix A)

APPENDIX B

Note: Pairs Tested By Subjective Instrument Scores

(See Appendix B)

No.	Indv. Nos.	Exp.[1] X	Cont.[2] Y	XY	X^2	Y^2
	Exp.-Cont.					
1	322-T338	14	14	196	196	196
2	420-T422	16	16	256	256	256
3	413-T401	7	7	49	49	49
4	404-T415	22	22	484	484	484
5	425-T411	17	19	323	289	361
6	325-T304	17	17	289	289	289
7	426-T417	14	14	196	196	196
8	310-T303	22	23	506	484	529
9	407-T416	26	26	676	676	676
10	405-T413	14	14	196	196	196
11	401- 411	27	27	729	729	729
12	318-T345	19	17	323	361	289
13	T311-307	22	21	462	484	441
14	T334-316	28	29	812	784	841
15	T302-305	11	12	132	121	144
16	T337-309	21	20	420	441	400
17	T318-327	19	19	361	361	361
18	T312-301	20	20	400	400	400
19	T402-410	11	11	121	121	121
20	T324-319	18	18	324	324	324
21	T316-302	23	23	529	529	529
22	T427-402	22	19	418	484	361
23	T301-T342	28	25	700	784	625
24	T328-T319	28	30	840	784	900
25	T235-T226	18	21	378	324	441
26	419- 406	19	20	380	361	400
27	314-T308	32	30	960	1024	900
	Total	535	534	11460	11531	11438

[1] Exp. = Experimental Group

[2] Cont. = Control Group

Note: Above data arranged for use in the Pearson Product-Moment formula.

Statistical Computations From Above Data:

$$\text{Formula} = r_{xy} = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The value for substitutions are:

$$N\Sigma XY = (27)(11460) = 309420$$
$$(\Sigma X)(\Sigma Y) = (535)(534) = 285690$$
$$N\Sigma X^2 = (27)(11531) = 311337$$
$$(\Sigma X)^2 = (535)^2 = 286225$$
$$N\Sigma Y^2 = (27)(11438) = 308826$$
$$(\Sigma Y)^2 = (534)^2 = 285156$$

Substituting in the formula:

$$r_{xy} = \frac{309420 - 285690}{\sqrt{(311337 - 286225)(308826 - 285156)}}$$

$$r_{xy} = \frac{23730}{\sqrt{(25112)(23670)}}$$

$$r_{xy} = \frac{23730}{24380.4} = .973$$

Again the high correlation indicates very little difference between matched paris according to the subjective instrument scores. (See Appendix B)

APPENDIX C

Note: Pairs Tested By Objective Instrument Scores

(Sign Test)

No.	Pairs	X	Y	Sign
1	322-T338	4	4	0
2	420-T422	10	10	0
3	413-T401	7	5	+
4	404-T415	12	11	+
5	425-T411	7	9	-
6	325-T304	5	5	0
7	426-T417	4	3	+
8	310-T303	12	11	+
9	407-T416	12	12	0
10	405-T413	2	4	-
11	401- 411	18	18	0
12	318-T345	10	8	+
13	311- 307	8	8	0
14	T334-316	17	18	-
15	T302-305	5	6	-
16	T337-309	7	6	+
17	T318-327	9	8	+
18	T312-301	8	10	-
19	T402-410	5	5	0
20	T324-319	10	9	+
21	T316-302	11	11	0
22	T427-402	7	6	+
23	T301-342	8	8	0
24	T328-319	11	11	0
25	T235-226	15	15	0
26	419-406	11	12	-
27	314-T308	10	8	+

Lowest No. differing = X = Number of pluses = 10, Number of minuses = 6 } 16 = N (having differences)
Number of ties = 11

The significant numbers here are 16 (N = 10 + 6 the number of pairs with differences) and 6 (X = the lowest No. differing).

In this case, N equals 16 and X equals six. Statistical tables shows probabilities of .22 for a one-tailed test, and .44 for a two-tailed test for N equals 16 and X equals six. Since the value .44 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis.

Accepted: *There is no significant difference in the total scores of "X" group when compared with the total scores of the "Y" group.*

APPENDIX D

Pairs Tested By Subjective Instrument Scores

(Sign Test)

No.	Pairs	X	Y	Sign
1	322-T338	14	14	0
2	420-T422	16	16	0
3	413-T401	7	7	0
4	404-T415	22	22	0
5	425-T411	17	19	-
6	325-T304	17	17	0
7	426-T417	14	14	0
8	310-T303	22	23	-
9	407-T416	26	26	0
10	405-T413	14	14	0
11	401- 411	27	27	0
12	318-T345	19	17	+
13	T311-307	22	21	+
14	T334-316	28	29	-
15	T302-305	11	12	-
16	T337-309	21	20	+
17	T318-327	19	19	0
18	T312-301	20	20	0
19	T402-410	11	11	0
20	T324-319	18	18	0
21	T316-302	23	23	0
22	T427-402	22	19	+
23	T301-342	28	25	+
24	T328-319	28	30	-
25	T235-T226	18	21	-
26	419-406	19	20	-
27	314-T308	32	30	+

Lowest No. differing = X = Number of pluses, Number of minuses, Number of ties } 13 = N (having differences)

The significant numbers here are 13 (N = 6 + 7 the number of pairs with differences) and 6 (X = the lowest No. differing).

In this case, N equals 13 and X equals six. Statistical tables show probabilities of .50 for a one-tailed test, and 1.-- for a two-tailed test for N equals 13 and X equals six. Since the value 1.00 exceeds .05 (the level of significance established for this study) one must accept the null hypothesis again.

APPENDIX E

GENERAL INSTRUCTIONS FOR USE OF THE OBJECTIVE INSTRUMENT

Before adapting this instrument to a specific locality, it must be validated for the particular school and community. The validation of the instrument is easily accomplished by selecting at random previous graduates and dropouts and testing them with the instrument. Final validation of the instrument is determined by the individual and total biserial correlations.

Use state or national norms for test data in Items 3, 4, and 6.

Items 7-12 might require personal interviews with child or parents.

The student's total score is determined by adding the numerical weights assigned to each item at the right of the form.

Item Content Instructions

Item 1

Grade Retardation - (If the records for grade retardation are incomplete, use the following method)

a. List the calendar year in which last grade was completed.

b. Subtract calendar year of birth.

c. Subtract age in year started first grade.

d. Subtract last grade completed.

Example:

1960	year last grade completed
1948	date of birth (year)
12	age at last grade completed
-6	age started first grade
6	intended grade placement
-5	last grade completed
-1	grade retardation

Item 2

Circle the total number of days absent during the 7th and 8th grades.

Items 3, 4, and 6

Circle either the California Achievement Test score or the Iowa Test Score Percentile Rank.

Item 5

Circle the number of extracurricular activities in which the student participated.

Item 7

Circle the number of older brothers and sisters.

Item 8

Circle the number of younger brothers and sisters.

Item 9

Circle the economic status.

Item 10

Classify the father's occupation by the categories listed in the Dictionary of Occupational Titles.

Occupations,	D. O. T. Classifications	Rating
Sales	1-5 through 1-9	
Managerial	0-7 through 0-9	
Technical	0-4 through 0-6	Score -3
Professional	0-0 through 0-3	
Agriculture	3-0 through 3-9	Score -1
Semi-skilled	6 and 7	
Skilled	4 and 5	
Clerical	1-0 through 1-4	Score 0
Service	2-0 through 2-9	
Unskilled	8 and 9	Score +2

Item 11

Circle the number of feeder schools attended.

Item 12

Circle with whom the child is living. If living with both parents leave blank.

Place the numerical weights for each item under the "Total" column and add.

APPENDIX F

SPECIFIED RATINGS
FOR THE SUBJECTIVE INSTRUMENT

A. The Home-Living Conditions

0 - Large. Evidence of constant and expert maintenance. Very modern fixtures and/or in very correct taste with respect to its style. Clean. Expertly landscaped.

1 - Moderately sized. Well kept. Modern fixtures. Good taste in style. Well furnished. Attractive grounds and exterior.

2 - Medium size. Neat and clean. Needs some maintenance. Fairly well furnished. Modern facilities. No special exterior care or grounds improvement.

3 - Unfavorable housing. Might have inside toilet. Serviceable but run down. Inadequately furnished. Generally neglected inside and out.

4 - Almost unliveable. Unserviceable. Outside toilets. Junky furniture. Poorly kept and unclean.

B. Attitude Towards Education - School

0 - Very favorable towards school. Seems to be apologetic about school's shortcomings. Is a booster.

1 - Generally favorable. Inclined to be critical of some facets, and points a finger at others who are to blame. Is generally pleased with experiences at school.

2 - No comment, generally. Stays out of or doesn't actually become a part of school life.

3 - Does not like school generally. Feels that there are several more worthwhile things than an education. Looks forward to dropping formal education.

4 - Feels that school is a complete waste of time. Wants to drop. Hates school.

C. Attitude Towards School Authority

0 - Accepts authority without question. Believes in authority and that it has a purpose. Wants to act in accordance with authority.

1 - Accepts authority for authority. Has resentments but keeps out of trouble by following authority. Would violate authority at times for the thrill of it or to gain recognition. Respects authority.

2 - Generally accepts authority but has no high regard for it. Wants to be left alone. Knows authority is a need in our society.

3 - Generally rejects authority. Seems to have fears of authority even though he recognizes its purpose.

4 - Hates all authority. Tries to "outsmart" those in authority. Rejects authority anywhere anytime because it is authority.

D. Attitude Towards Work, Earning a Living, Training for a Job, etc.

0 - Respects those who work and earn a living. Wants to prepare for his share of responsibilities in the world-of-work society. Is eager to work and earn. Wants to train or prepare himself for responsible work. Wants to be given a chance to prove himself.

1 - Has most of the above characteristics without the eagerness. Wants to become informed as to the requirements for work.

2 - Wants a job but is apprehensive about getting and holding one. Seems to question his aptitude or capacity for responsible work. Is anxious to find out. Will seek help.

3 - Would take a job if it is offered him. Not too willing to enter a long-term training program. Would take a "blind alley" job without a question as to the future. Lack of responsibility in his workmanship.

4 - Sees no need for work. "The welfare check will supply my needs."

E. Ability to Communicate with Others

0 - Excellent use of English. Expresses self very well. Asks intelligent questions. Enjoys discussions.

1 - Good use of English. Expresses self well. Is not especially responsive to questions or in raising questions. Has no trouble in expressing his opinions when issues are raised by others. Speaks freely and easily.

2 - Fair use of English. Talks freely and is able to express himself even though somewhat awkardly at times. Is not strong in an argument.

3 - Poor use of English but is able to communicate with others. Has difficulty in expressing himself clearly and is sometimes misunderstood. Generally avoids intelligent conversations.

4 - Poor use of English. Unable to communicate well with others. Limited use of words. Avoids discussions because he is frequently misunderstood.

F. Poise

0 - Very much at ease and relaxed. Seems unshaken and composed in almost any situation. Speaks well under stress. Actions and words seem deliberate and well planned.

1 - Looks composed and at ease and is generally in control of his emotions. In speaking under strain his voice may indicate stresses. Is able to recover and make a good showing regardless.

2 - Apparently at ease and composed most of the time. When shaken by stress or emotional disturbances, his voice and actions may change. More noticeable than in #0 & 1.

3 - Useless actions occasionally. Occasional uneasy or strained look on face. Outbursts in discussions occasionally. Doesn't work well or talk well under strain. Very quiet and shy.

4 - More frequent or violent manifestations listed in No. 3 above. Avoids all types of situations where poise is an asset. Is very introverted - withdrawn most of the time.

G. Attitude Towards Peers

0 - Has many friends and speaks a good word for almost all he knows. Has several close friends. He is accepted by many and is sympathetic and understanding of tragedy or misfortune of friends and peers.

1 - Seems to have many friends and to have been accepted by many others. Has at least one very close friend.

2 - Has several friends and speaks highly of them. Seems to avoid some and is not accepted by others.

3 - Seems to have some friends. Avoids or is not accepted by quite a few. Has some definite dissatisfactions with a few peers.

4 - Seems to have few friends. Is not accepted by many. Is quite dissatisfied with many of his peers.

H. Apparent Capacities

0 - Very intelligent.
1 - Above average.
2 - Average ability.
3 - Below average.
4 - Very low capacity.

I. Apparent Vocational Choice

0 - Strong choices. Fluent justification of choices.

1 - Choices evident. Justification evident. Objectives not clear but being contemplated.

2 - Several choices being considered. Comparisons being made. No objectives being planned.

3 - None definite or clear. Very few have been considered.

4 - No vocational choices have been considered.

J. Knowledge of Vocations

0 - Has investigated many vocations and has kept a file or record of interesting vocations which he might pursue.

1 - Has investigated many vocations but has not become extremely interested in the study. Is interested in reading about occupations.

2 - Seems to be interested in several occupations and has gained considerable information regarding them. Not interested in an extensive study.

3 - Has received limited information about occupations seems to have some interest in learning about them.

4 - Seems to have little or no information about vocations or occupations aside from those in his immediate neighborhood. Has very little information about the details of those.

APPENDIX G

DISTRIBUTION OF SCORES ON OBJECTIVE INSTRUMENT

Occupational Information Classes (102 Subjects)
(Percentages)

	Experimental					Control				
	3	1	0	-1	-3	3	1	0	-1	-3
1	8	24	67	1		2	12	83	3	
2	2	27	41	30		1	17	56	26	
3	31	46	16	4	3	26	51	14	7	2
4	29	44	13	7	7	27	47	18	6	2
5	51	28			21	45	37			18
6	17	49	23	6	5	11	57	18	13	1
7	11	39	50			17	44	39		
8	7	48	45			6	41	53		
9	7	70	16	7		12	53	33	2	
10		46	43	10	1		42	33	21	4
11		21	79			3	10	87		
12	8	27	65			3	17	80		

Subjective

	Experimental					Control				
	0	1	2	3	4	0	1	2	3	4
A	6	7	44	16	27	2	25	41	17	15
B	9	27	39	18	7	3	25	53	8	11
C	12	51	20	15	2	15	48	25	7	5
D	15	33	27	25		7	42	33	5	13
E	6	30	26	38		9	26	41	12	12
F	2	17	36	39	6	3	15	36	42	4
G	5	11	61	16	7	7	11	63	13	6
H	1	16	46	31	6	4	13	51	29	3
I		17	43	33	7	1	21	40	20	18
J		7	20	63	10	1	12	19	62	6

APPENDIX H

DISTRIBUTION OF SCORES ON OBJECTIVE INSTRUMENT

Cooperative Vocational Education Classes (97 Subjects)
(Percentages)

	Experimental					Control				
	3	1	0	-1	-3	3	1	0	-1	-2
1	6	25	69			6	12	82		
2		17	61	22		6	15	53	26	
3	33	50	11	6		32	26	29	13	
4	39	42	11	8		32	41	24	3	
5	39	28			33	44	35			21
6	19	53	19	6	3	12	59	15	12	2
7	6	41	53			12	47	41		
8	14	33	53			6	53	41		
9	11	33	56			15	35	47	3	
10		44	47	9			59	38	3	
11		17	83				6	94		
12		25	75			3	18	79		

Subjective Instrument

	Experimental					Control				
	0	1	2	3	4	0	1	2	3	4
A	3	9	42	19	27		22	29	39	10
B	6	33	47	11	3	3	53	25	11	8
C	14	51	18	17		14	44	25	5	12
D	19	28	31	22		6	39	36	16	3
E	3	26	38	30	3	6	31	43	17	3
F		17	39	36	8	5	22	34	39	
G	5	17	64	11	3	3	41	48	8	
H	3	8	33	53	3		17	49	34	
I	6	11	39	37	7	3	19	19	54	5
J		7	53	36	4		2	25	66	7

APPENDIX I

TRAINER'S EVALUATION OF STUDENT

Rate Qualities by Checking Appropriate Column to Right	Excellent	Above Average	Average	Below Average	Poor
ATTENDANCE: Regular (or notifies you, and gives reason, when he cannot be at work)					
PERSONAL TRAITS: Dependability					
Initiative (keeping busy)					
Appearance (suitable to work)					
Ability to get along with customers and fellow workers					
Habits of honesty (speech, time, and money)					
Cheerfulness					
Courteous					
Accepts Responsibility					
Accepts Criticism					
Interest in his work					
SKILLS ON THE JOB: Knowledge of the occupation and jobs performed					
Takes care of equipment					
Practices safety					
Ability to learn new work					
PRODUCTION: Volume of work					
Quality of work					
Steadiness					
EMPLOYABILITY: Contributes toward the welfare of your organization					
Favorably represents the school on the job					

VT 004 788
Pickard, Robert F.
A Report, Vocational and Technical Education in Rhode Island, 1967-1973.

Rhode Island State Dept. of Education, Providence. Div. of Vocational Education
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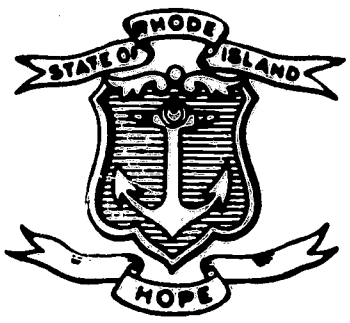
*ANNUAL REPORTS; *VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; *EDUCATIONAL OPPORTUNITIES; AREA VOCATIONAL SCHOOLS; *EDUCATIONAL NEEDS; POST SECONDARY EDUCATION; ADULT VOCATIONAL EDUCATION; STUDENT ENROLLMENT; CAREER CHOICE; EMPLOYMENT OPPORTUNITIES; EMPLOYMENT TRENDS; ECONOMIC FACTORS; EDUCATIONAL FINANCE
RHODE ISLAND

Selected information and recommendation concerning further implementation of Rhode Island's plan to strengthen and expand economic growth, low unemployment rates, and industry-wide employment gains indicated the necessity for a program of vocational and technical education geared to sustain and promote a healthy economy. A considerable disparity between student educational choices and available job opportunities was evident in that while 57 percent of high school students prepared for college entrance and presumably professional careers, only 10 percent of the State's work force was in the profession. Inplant training will provide preparation for workers to fill less than 10 percent of the approximately 85,000 job openings projected for 1971. Recommendations concerned (1) expanding vocational and technical education programs to serve 17 percent of the secondary school enrollment by 1970 and 20 percent by 1971, (2) expanding distributive and business cooperative programs, (3) increasing aid to local communities for operating area programs, including adult training, (4) developing facilities to serve an additional 625 post-secondary students in 1973 and 400 in 1975, and (5) Increasing the State vocational education staff as program activity increases. Also included are (1) data on 1966 enrollments by communities in area vocational school districts, area school programs and budgets, and finances, and (2) a bibliography. (HC)

VT 004 788

ED027441

A REPORT
VOCATIONAL AND TECHNICAL EDUCATION
IN
RHODE ISLAND
1967 – 1973



VT004788

RHODE ISLAND DEPARTMENT OF EDUCATION

DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION

ERIC

A REPORT

VOCATIONAL AND TECHNICAL EDUCATION IN RHODE ISLAND - 1967 - 1973

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREPARED BY

DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION STAFF

NOVEMBER, 1967

State of Rhode Island
Department of Education

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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
STATE BOARD OF EDUCATION
ROGER WILLIAMS BUILDING
HAYES STREET, PROVIDENCE R. I. 02908

January, 1968

TO: The Honorable John H. Chafee, Governor
The Honorable Members of the General Assembly

FROM: Robert F. Pickard, Chairman
State Board of Education

In compliance with the provisions of 16-45-3 of the General Laws, 1956 as amended, the State Board of Education respectfully submits its annual report on the status of vocational and technical education in Rhode Island. This year's report, in addition to summarizing activities to date, presents for your consideration a proposal for expanding and improving vocational and technical education opportunities through 1973. Specific recommendations pertaining to state-wide program development and a plan for financing this proposal are outlined.

The Board, in its desire to provide vocational and technical education for all in the State who need and desire it, urges favorable action by the Administration and the Legislature.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF EDUCATION
ROGER WILLIAMS BUILDING
HAYES STREET, PROVIDENCE, R. I. 02908

WILLIAM P. ROBINSON, JR.
COMMISSIONER

January, 1968

TO: State Board of Education

FROM: William P. Robinson, Jr., Commissioner of Education

The attached report is submitted in answer to your request for recommendations concerning vocational and technical education in Rhode Island through 1973. Major findings and recommendations are summarized in the front of the report and in Chapter VI.

This comprehensive study reviews the adequacy of existing and currently planned programs and facilities in relation to existing and anticipated need for occupational training. It proposes an expanded state-wide program of vocational and technical education designed to provide career guidance and training for a greater proportion of our State's youth and adults at both the secondary and post-secondary levels.

Recommendations are consistent with the Board's objectives of developing increasingly broadened educational opportunities for the citizens of Rhode Island and also include a reasonable approach to financing the improvements.

I am confident that implementation of the vocational and technical education program expansion as recommended in this report represents a forthright and logical approach to an educational issue.

PREFACE

This report contains selected information relating to the development of Rhode Island vocational and technical education from 1967 to 1973. It was prepared in response to a request by the State Board of Education for facts and recommendations concerning further implementation of the State's plan to strengthen and expand occupational education and training throughout Rhode Island.

Separate chapters analyze the scope of our growing economy, increasing population and school enrollments, curriculum and career choices of high school students, projected job opportunities and present training programs. From this data have been drawn conclusions and recommendations for developing additional programs of vocational and technical education to satisfy individual as well as increasingly urgent economic needs.

The report was compiled by the State Staff of the Division of Vocational and Technical Education, assisted by many other persons and agencies. Special acknowledgement is made of the help and cooperation rendered by:

Walter M. Arnold, Ed.D. - Technical Education Consultant

Winsor L. Chase - Peat, Marwick, Mitchell & Company

Rhode Island Department of Employment Security

Department of Natural Resources, Division of Agriculture

Rhode Island Business and Industrial Firms

Rhode Island Department of Labor

Rhode Island Development Council

Rhode Island Special Commission to Study the Entire Field of Education

Local School Personnel

Thomas H. Sandham, Jr.
Associate Commissioner
Vocational and Technical Education

CONCLUSIONS AND RECOMMENDATIONS

1. Rhode Island Economy: The Rhode Island economy has enjoyed increased prosperity since 1963. Low unemployment rates and industry-wide employment gains have characterized the expansion. Since the general outlook is for a continuation of the State's economic advancement, Rhode Island's vocational and technical education program must be geared to sustain and promote a healthy economy.

2. Population and Enrollment: The overall population and secondary school enrollment in Rhode Island will continue to increase during the next five years in seven of the eight area vocational and technical school districts. Population growth figures by age group suggest various types of training needs. The State vocational and technical education program must adapt to the training and education needs of all citizens regardless of their personal or employment status.

3. High School Curriculum and Post-Secondary Career Choices: There is a great disparity between curriculum choices of high school students and employment level distribution in the labor force. Also, a serious disproportion exists between the number of students enrolled in a high school college preparatory curriculum and the number who actually enter and complete the four-year college program.

4. Employment Needs: Results of the recent skill survey conducted by the Department of Employment Security indicate that there will be a demand for 84,907 workers to meet expansion and replacement labor needs through 1971. In-plant training programs will provide only ,600 workers leaving a training need in more than 79,000 positions.

At the completion of the present building program in 1969, vocational and technical education programs will be capable of enrolling 6,248 students and capable of graduating 2,493 trained students annually. When business education program graduates are added to this figure, a total of 6,275 trained students will be entering the labor force each year. Despite this substantial contribution to the skilled labor market, existing and presently planned vocational and technical programs will continue to fall far short of meeting the needs of students and industry.

5. Recommended Percentages of Secondary Students to be Served: It is recommended that Rhode Island's program of vocational and technical education be expanded to serve 17% of the secondary enrollment by 1970 and 20% by 1973. Such an objective is demanded by the State's projected economic and population growth, the diminishing need for unskilled workers and the personal needs of students. When compared with national data and studies from other States, the above percentages represent a realistic objective for Rhode Island.

6. Aid to Local Communities: Rhode Island has traditionally aided vocational and technical education in local communities through the reimbursement of operating expenses incurred by the vocational and technical program. As the number of programs increase and the demand on the property tax base also increases, it becomes more and more apparent that local communities will find it more and more difficult to financially sustain the quality programs envisioned for Rhode Island's area vocational and technical facilities. It is therefore recommended that aid to local communities for the operation of area vocational and technical programs be increased.

7. Distributive and Office Occupations Programs: Data from surveys and interviews with various Rhode Island business establishments indicate that one of the State's most rapidly growing occupational areas is in the field of product distribution. The surveys further suggest that we can anticipate a large increase in clerical and office related occupations.

It is therefore recommended that distributive and business cooperative education programs continue to be expanded in comprehensive high schools and that such expansion of local programs be encouraged by providing school districts with reimbursement from Federal and State funds.

8. Post-Secondary Programs: Data in Chapter III indicate that while 4,689 secondary students or 57.1% of the 1967 graduating class was enrolled in the college preparation curriculum, only 3,728 or 35.7% of these actually entered a four-year college. In addition to assisting the large percentage of students who prepare for a four-year college but do not attend, post-secondary vocational and technical education must be prepared to serve those students that will drop out of the four-year college (national figures show 50%) and those graduates of business, general and vocational and technical curriculums who desire a post-secondary education.

It is therefore recommended that facilities be developed to serve an additional 625 post-secondary students in 1973 and an additional 400 in 1975, and that the temporary campus in Providence be maintained until the proposed 625 student facility opens in 1973.

9. Adult Education Programs: Population data indicate that adults ages 23 to 44, the State's most productive working group, and the older working group, ages 45-64, will increase substantially. In view of rapidly changing technology, there will be a constant need for retraining and upgrading of the specialized skills and competencies of both of these groups if they are to remain competent and productive workers.

It is therefore recommended that aid to local communities for the operation of adult vocational and technical programs in area facilities be increased.

10. State Staff: During school year 1966-1967 a total of 2,007 students were enrolled in secondary and 220 in post-secondary vocational and technical education. With completion of the present building program and expansion of existing programs, a total of 5,684 students may be enrolled at the secondary level and 564 at the post-secondary level. Assuming expansion to the extent recommended, a total of 9,000 students at the secondary level, 1,589 at the post-secondary level, and 10,272 at the adult level can be accommodated.

It is therefore recommended that as program activity increases, the State vocational and technical staff be increased accordingly. Three professional staff members and two clerical assistants will be required by 1971.

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CHAPTER I

ECONOMIC OVERVIEW AND EMPLOYMENT TRENDS

The design of a program of vocational and technical education for Rhode Island over the 1967-1973 period must consider the economic climate in which such a program will operate. A summary of the economic background of the State is presented as a basis for the recommendations to be made later in the report.

Manufacturing

Rhode Island has depended heavily over the years on its manufacturing activities which in the 1940's provided 50% of the State's wage and salary jobs. Since that time, manufacturing has declined to approximately 40% due to the loss of much of the textile industry.

The number of workers employed in manufacturing industries declined from 154,700 in 1947 to 115,200 in 1964. However, Rhode Island's manufacturing employment has been increasing since that year. As of June, 1967, manufacturing employment totaled 126,000 (Table 1, Page 2). These gains have been the result of a national economic upswing and a concerted effort within the State to attract new industry and to hold existing plants. Considerable success has been achieved particularly in the strengthening of the metals and machine industry group. This industry showed an irregular pattern over the years, but since 1964 employment has been steadily rising with a new high of 41,600 persons employed as of December, 1966. A similar chronological pattern of decline and growth has been noted in the jewelry and silverware industry.

In the field of rubber and plastics, there has been some growth in the number of workers employed over the years. Between 1947-1967 there has been

TABLE 1

EMPLOYMENT IN MANUFACTURING AND NON-MANUFACTURING OTHER THAN AGRICULTURE IN RHODE ISLAND 1947-1967

MAJOR INDUSTRY GROUP	1947	1964	1967[1]
TOTAL EMPLOYMENT	296,900	302,200	329,600
MANUFACTURING	154,700	115,200	126,700
Textile	66,700	23,300	23,100
Metals & Machinery	36,700	33,500	40,500
Jewelry/Silverware	18,600	16,600	17,700
Rubber/Miscellaneous Plastics	7,400	8,500	9,000
Apparel	2,600	3,800	4,000
NON-MANUFACTURING	142,200	187,000	202,900
Trade	48,300	56,300	60,700
Construction	10,600	14,200	13,600
Government	28,900	42,800	49,600
Service	28,300	45,600	50,600
TOTAL LABOR FORCE	359,900	359,000	378,700
UNEMPLOYMENT	7.8%	6.4%	3.9%

Source: Department of Employment Security

1 1967 figures are preliminary and represent an average for the first six months of the year.

an increase of 1,600 workers from 7,400 to 9,000. The apparel field, also, has shown considerable growth during the same period. In June, 1967 employment averaged 4,000 contrasted with 2,600 employed in 1947.

Non-Manufacturing

Employment in the non-manufacturing activities, chiefly in trade, government and service establishments, has advanced steadily with the number of jobs increasing from 142,000 in 1947 to 208,000 in June, 1967. In the non-manufacturing trade field there has been an increase of 12,000 jobs - - 4,000 of these occurring during the last three years.

In the construction industry a growth of 3,600 workers has been noted between 1947 and 1964 with a leveling off taking place recently. The service occupations have shown consistant growth since 1947 with an increase of 22,300 jobs.

Rhode Island is following the national trend with its farms increasing in size but declining in number. Approximately 1% of the State's work force is engaged in agricultural jobs. Economically, dairying continues to be the leading agricultural industry. Nursery and greenhouse businesses place second and poultry third. Other agriculture-related activities are continuing to develop in such fields as horticulture, landscaping, golf course groundskeeping, conservation and recreation.

In spite of the long-term swing towards non-manufacturing fields, the economic well-being of Rhode Island is still heavily dependent upon its manufacturing industry. It is this segment that largely determines the level of business and employment in the rest of the economy. The history and geography of Rhode Island commits the State's economy to a heavy dependence upon manufacturing payrolls. Evidence of this is found in the value of manufactured

products which was $1,830,000,000 in 1964. Other values of products and services of most recent record are shown in Table 2.

TABLE 2

No. of Establishments and Annual Value of Products and Services

	No. of Establishments	Value of Physical Products	Value of Trade & Service
Manufacturing	2,865	$1,830,000,000	
Wholesale	1,436		$1,198,773,000
Retail	8,821		$1,125,878,000
Service	5,246		$ 158,292,000
Tourist & Resort Business			$ 30,000,000
Farms	1,115	$ 21,472,000	

Source: Rhode Island Development Council (latest figures available)
Research Division Revised
September, 1966

The net result of these improvements has been to change appreciably the composition of Rhode Island's manufacturing industries. Table 3, Page 5, illustrates these changes.

The result of this recovery in manufacturing, bolstered by the rapid expansion in non-manufacturing, has been to push up total non-agricultural employment in the State to new heights. This past year non-farm jobs averaged 328,800 up nearly 32,000 over the 1947 average of 296,900. As of June, 1967, the total employment in Rhode Island was 334,000. There is no available information to suggest any sustained interruption in recent tendencies toward further growth in the employment of the State.

TABLE 3

RHODE ISLAND LABOR FORCE - ESTIMATED EMPLOYMENT AND UNEMPLOYMENT 1963-1966

(IN THOUSANDS)

Employment	Year			
	1963	1964	1965	1966
MANUFACTURING EMPLOYMENT	115.5	115.2	121.3	126.9
Textiles	24.3	23.3	23.5	23.5
Broadwoven	5.7	5.5	5.7	5.6
Narrow Fabrics	5.2	5.2	5.4	5.5
Dyeing & Finishing (exc. wool)	4.7	4.0	3.7	3.9
Yarn - Thread	3.9	3.9	3.6	3.3
Miscellaneous Textiles	4.8	4.7	5.1	5.2
Metals & Machinery	33.6	33.5	35.9	39.5
Primary Metal Industries	8.2	7.7	7.6	8.2
Fabricated Metal Products	8.9	9.1	9.4	9.8
Machinery	9.3	9.5	10.2	11.0
Electrical Machinery	7.2	7.2	8.7	10.5
Jewelry - Silverware	16.3	16.6	17.8	18.3
Rubber & Miscellaneous Plastics	8.7	8.5	8.8	9.1
Apparel	3.8	3.8	3.8	3.9
Food	5.8	5.7	5.8	5.8
Instruments - Optical Goods	4.1	4.2	4.2	4.5
Miscellaneous (exc. jewelry)	4.5	4.7	5.2	5.2
All Other Manufacturing	14.4	14.9	16.3	17.1
NON-MANUFACTURING EMPLOYMENT	182.0	187.0	195.5	201.9
Trade	55.8	56.3	58.3	60.3
Construction	12.5	14.2	14.3	14.4
Government	42.6	42.8	46.1	48.4
Service & Other	43.2	45.6	48.3	50.3
Transportation & Public Utilities	14.6	14.6	14.7	14.8
Finance, Insurance & Real Estate	13.3	13.5	13.8	13.7
TOTAL WAGE & SALARIED EMPLOYMENT	297.5	302.2	316.8	328.8
Self-employed, Farm & Other	33.8	33.8	33.8	34.3
Unemployed	25.3	22.8	18.0	14.0
Labor Dispute	0.3	0.2	0.3	0.1
TOTAL LABOR FORCE	356.9	359.0	368.9	377.2
Ratio of Unemployed to Labor Force	7.1	6.4	4.9	3.7

The Labor Force

The State's labor force has continued to grow over recent years. From an average of 353,200 in the active labor force in 1960, the figure increased to an average of 377,200 in 1966. This rise of 24,000 (6.8%) in the past six years compares very favorably with the growth of 3.9% in the overall State population in the five year period from 1960-1965.

Along with progress in the employment economy, there has been a corresponding decline in the State's unemployed. The average of 14,000 jobless in 1966 was the lowest in over twenty years (3.7% of the labor force). Unemployment rate for the first six months in 1967 averaged 3.9%.

Summary

The Rhode Island economy has been enjoying unparalleled vigor and prosperity in the past several years. Employment gains in the State have been practically industry-wide and almost all segments of the economy have shared in them to varying degrees.

From this favorable situation, the outlook is for a continuation of the State's economic advance to 1973 and probably beyond. The projections of future employment trends as indicated in Table 4 present bright prospects for the economic future of Rhode Island.

It is readily apparent that Rhode Island is in an excellent position to move forward with its program of vocational and technical education. From all available information regarding both the manufacturing and the non-manufacturing aspects of the State's economy, it would appear a necessity to further expand the vocational program to help meet the manpower requirements of industry as well as the training needs of youth and adults. As a result of effective planning and implementation, vocational and technical education will become an economic asset to Rhode Island as has been the case in several other states.

TABLE 4

TOTAL RHODE ISLAND EMPLOYMENT FOR EACH OF TWENTY-SIX INDUSTRIES FOR 1964 AND PROJECTED EMPLOYMENT FOR 1970 AND 1980[1]

Industry	1964	1970	1980
Food Products	5,700	6,114	6,717
Textile Mill Products	23,300	21,450	14,386
Apparel	3,800	4,531	4,978
Lumber & Wood	NA	322	200
Furniture	NA	536	589
Paper & Allied Products	2,000	2,291	2,136
Printing & Publishing	4,200	4,730	5,196
Chemical & Allied	1,700	2,172	2,201
Petroleum Refining	NA	107	118
Rubber Plaster Products	8,500	10,095	10,101
Leather	NA	1,287	1,300
Stone, Glass & Clay	2,400	2,789	3,064
Primary Metals	7,700	8,514	7,308
Fabricated Metals	9,100	10,702	11,326
Machinery	9,500	12,323	12,598
Electric Machinery & Equipment	7,200	9,595	10,934
Trans. Equipment	NA	1,072	1,000
Instruments	4,200	5,041	5,538
Miscellaneous Manufacturing	25,900	30,569	33,583
Agriculture	1,318	3,800	3,500
Construction	14,200	19,589	23,158
Trans., Comm., & Public Util.	14,600	16,965	20,056
Trade	56,300	61,749	73,000
Finance & Real Estate	13,500	14,357	16,973
Services & Mining	45,600	58,711	69,408
Public Administration	42,800	45,584	53,889
TOTAL	302,200	354,995	393,257

Source: Population and Employment Projections for Rhode Island
Rhode Island Special Commission to Study the Entire Field of Education April, 1967

1 The projections for industrial employment were synthesized from the projections presented in two studies: Arthur D. Little, Inc. Projective Economic Studies of New England, (Cambridge, Mass., mimeographed, 1964-65). (Department of Economics), Brown University. Foundation Study, (Providence, R. I.: mimeographed, 1964)

CHAPTER II

POPULATION CHARACTERISTICS AND SCHOOL ENROLLMENTS

Population Characteristics

As will be shown in this section, reference to the changing population characteristics of Rhode Island is necessary if vocational and technical programs are to be developed to meet the needs of all citizens who may profit from training.

During the last decade the population of Rhode Island has been on the increase creating greater need for expanded public facilities of all types including those required for occupational education. The State's population grew from 791,896 in 1950 to 859,488 in 1960, an increase of 8.54%. Growth continued from 1961 to 1965 with a five year increase of 33,312 for a total population of 892,700. This represents a 3.89% increase over the 1960 population. It is estimated that the population will continue to increase substantially during the next eight years and that Rhode Island will have a population in excess of 970,000 by 1973. Table 5 illustrates this rise.

TABLE 5

Population for Rhode Island 1880-1973

1880	276,531
1890	345,506
1900	428,556
1910	542,610
1920	604,397
1930	687,497
1940	713,346
1950	791,896
1960	859,488
1965	892,709
1970	942,000
1973[1]	953,800

[1]Figures for 1973 interpolated from 1975 projections

Source: Population Projections for the State of Rhode Island and its Municipalities, Rhode Island Statewide Comprehensive Transportation and Land Use Planning Program, December, 1966

Together with increasing population, migration from the urban areas to the suburbs is expected to continue during the next fifteen years. While Providence may anticipate losing some of its residents, the suburban cities and towns such as Cranston, Warwick, East Greenwich and Coventry are expected to realize a large percentage of increase in their present populations.

In-state shifting of population must be considered in determining which geographical areas of the State should receive priority in future vocational and technical facilities and/or program development (See Table 6, Page 10).

Age and sex distribution of the present and projected population are additional factors to be considered, since such information aids planners in determining not only the level at which certain programs may be more effectively offered but also in providing a guide to establishment of suitable proportions between programs for males and for females. Table 7 shows projected population increases by age, group, and sex.

TABLE 7

Rhode Island Population Projections by Age and Sex Groups - 1965-1973

Year	Age Group	Male	Female	Total	Percent of Total Pop.
1965	15-18	31,880	30,676	62,556	7.01
	19-22	28,532	25,738	54,270	6.08
	23-44	116,081	118,344	234,425	26.26
	45-64	90,653	101,650	192,303	21.54
	65+	39,211	55,435	94,646	10.60
1970	15-18	36,221	33,355	69,576	7.39
	19-22	37,486	31,494	68,980	7.32
	23-44	118,170	117,128	235,298	24.98
	45-64	96,760	108,563	205,323	21.80
	65+	40,565	58,718	99,283	10.54
1973	15-18	38,090	35,520	73,610	7.56
	19-22	40,276	33,972	74,248	7.62
	23-44	128,017	125,123	253,140	25.99
	45-64	96,823	109,424	206,247	21.18
	65+	42,227	62,501	104,728	10.75

Source: Population Projections for the State of Rhode Island and its Municipalities, Rhode Island Statewide Comprehensive Transportation and Land Use Planning Program, December, 1966

TABLE 6

1965 CENSUS POPULATION FIGURES AND PROJECTIONS FOR RHODE ISLAND BY AREA VOCATIONAL-TECHNICAL SCHOOL DISTRICTS FOR 1970 AND 1973

	1965	1970	1973	% Change 1965-1973
Blackstone Valley Area School				
TOTAL	202,000	206,300	208,760	+ 3.35%
Central Falls	18,700	17,900	17,660	
Cumberland	23,800	28,300	30,400	
Lincoln	14,600	15,300	15,600	
North Smithfield	8,700	9,700	10,180	
Pawtucket	77,500	74,900	74,360	
Smithfield	12,000	14,300	15,320	
Woonsocket	46,700	45,900	45,240	
Chariho Regional Area School				
TOTAL	45,100	50,000	52,340	+16.05%
Charlestown	2,600	3,200	3,440	
Hopkinton	4,700	5,100	5,340	
Narragansett	5,000	6,200	6,680	
New Shoreham	500	500	500	
Richmond	2,200	2,400	2,460	
South Kingstown	14,400	15,300	15,840	
Westerly	15,700	17,300	18,080	
Coventry Area School				
TOTAL	55,300	64,200	67,800	+22.60%
Coventry	19,600	23,200	24,700	
East Greenwich	8,200	10,200	11,220	
Exeter	3,000	3,500	3,740	
North Kingstown	23,000	25,500	26,220	
West Greenwich	1,500	1,800	1,920	
East Providence Area School				
TOTAL	86,600	92,900	95,600	+10.39%
Barrington	16,400	18,200	18,800	
Bristol	15,700	16,600	16,960	
East Providence	44,800	47,600	48,980	
Warren	9,700	10,500	10,860	

TABLE 6 (continued)

1965 CENSUS POPULATION FIGURES AND PROJECTIONS FOR RHODE ISLAND
BY AREA VOCATIONAL-TECHNICAL SCHOOL DISTRICTS
FOR 1970 AND 1973

	1965	1970	1973	% Change 1965-1973
Newport Area School				
TOTAL	81,800	94,200	97,200	+18.83%
Jamestown	2,600	2,800	2,920	
Little Compton	2,600	2,200	2,200	
Middletown	19,600	24,300	25,500	
Newport	35,900	39,400	39,520	
Portsmouth	10,700	12,900	13,680	
Tiverton	11,000	12,600	13,380	
Ponaganset Area School				
TOTAL	22,500	24,600	25,560	+13.60%
Burrillville	9,700	10,100	10,280	
Foster	2,500	2,800	2,980	
Glocester	4,100	4,900	5,260	
Scituate	6,200	6,800	7,040	
Providence Area School				
TOTAL	227,800	216,300	214,800	- 5.71%
Johnston	19,500	21,700	22,780	
North Providence	21,200	23,900	25,100	
Providence	187,100	170,700	166,920	
Warwick Area School				
TOTAL	171,400	185,400	191,700	+11.84%
Cranston	71,900	75,700	77,320	
Warwick	77,600	87,400	91,900	
West Warwick	21,900	22,300	22,480	
STATE TOTALS[1]	892,700	933,900	953,760[2]	+ 6.84%

Source: Population Projections for the State of R. I. and its Municipalities, R. I. Statewide Comprehensive Transportation and Land Use Planning Program, December, 1966

[1]Totals may not add due to independent rounding

[2]Figures for 1973 interpolated from 1975 projections

The secondary school group, ages 15 to 18 inclusive, will grow from 62,556 in 1965 to 73,610 in 1973; an increase of 11,054 or 17.67% in eight years. Vocational and technical facilities and programs on the secondary level must be geared to meet the needs of this group.

The post-secondary group, ages 19-22 inclusive, will grow from 54,270 to 74,248 in 1973, an increase of 19,978 or 36.81% in eight years. Expanded facilities will also be required to serve this large group.

Growth is also projected for the most productive working group, ages 23 to 44; from 234,425 in 1965 to 253,140 in 1973, an increase of 18,705 or 7.98% in eight years. Increases are similarly expected in the older working group, ages 45 to 64; from 192,303 in 1965 to 206,247 in 1973, an increase of 13,944 or 7.25%.

In tomorrow's rapidly changing technological society each of these groups will be in constant need of retraining and/or upgrading in their specialized skills if they are to remain competent and productive workers.

School Enrollments

In projecting the extent of occupational program expansion required in Rhode Island during the coming years, it is essential to not only review the general population characteristics but, also, to analyze the more particular data relating to high school enrollment.

The Rhode Island Commission to Study the Entire Field of Education has recently completed a study which shows the actual and estimated number of students enrolled in all Rhode Island schools through the year 1990. As indicated in Table 8, Page 13 an increase of 7,213 grade 10-12 students is projected for the period 1966-1973. Vocational and technical facilities must be constructed and new programs developed to meet this emerging need.

TABLE 8

Actual and Estimated[1] Number of Persons Enrolled in Rhode Island Schools - Grades 10-12

1966	37,787
1967	38,100
1968	39,900
1969	41,500
1970	42,400
1971	43,500
1972	44,400
1973	45,000

[1]The base data and projections are for students enrolled at a specific grade level; students in special, ungraded or post-graduate classes are not included.

Source: 1966 figures (actual) - Rhode Island Department of Education
1967-1973 (estimated) - Rhode Island Commission to Study the Entire Field of Education

Actual enrollment by area vocational school district for 1966 in grades 10-12 is shown in Table 9, Page 14, (Appendix A contains a breakdown of enrollments for each community).

It should be pointed out that while area school enrollment is a primary factor in determining the scope of program offerings suitable for a given region, several other critical factors must be considered. These include the extent of present local commitments to vocational education, the percentage of the State's industry which is located in the regional school district, the degree of individual community interest in supporting programs of vocational and technical education, and the adaptability of local educational facilities to comprehensive program development.

Actual geographic location for facility development as recommended in this report is also heavily dependent on the State's recent proposal concerning Rhode Island school district reorganization.

Summary

Population statistics presented in this chapter emphasize the need for additional vocational and technical facilities. Such facilities must meet

TABLE 9

ACTUAL 1966 ENROLLMENTS AND PERCENTAGES OF THE TOTAL STATE ENROLLMENT
BY AREA VOCATIONAL SCHOOL DISTRICTS - GRADES 10-12

Area School District	1966 Enrollment	Percentages of Total State Enrollment
Blackstone Valley	8,048	21.3%
Chariho	2,002	5.3%
Coventry	2,298	6.1%
East Providence	4,208	11.1%
Newport	3,233	8.6%
Ponaganset	1,133	3.0%
Providence	8,538	22.5%
Warwick	8,327	22.1%
	37,787	100.0%

Source: Rhode Island Department of Education, November, 1967

the needs of an enlarged population, must be adequate to train both secondary and post-secondary students, and must prepare our working citizens for adaptation to the complex technical positions which are rapidly developing in the industrial and business community.

Assuming an increased future school population and a greater precentage of secondary and post-secondary students enrolled in vocational and technical education programs, present planning must anticipate an increasing need for training facilities. Vocational and technical programs must be capable of meeting the future needs of all citizens regardless of their age or type of training required. Data in this chapter will be used later in the report as a basis for estimating the number of training stations which will be required.

CHAPTER III

EDUCATION CHOICES AND EMPLOYMENT OPPORTUNITIES

It is essential that a balance be achieved between the type of program followed by secondary school students and the employment opportunities available in the State if vocational and technical education is to help individuals and support the economy of Rhode Island.

This chapter discusses the paradox of large numbers of high school students following educational programs which are not in line with the State's employment structure and the following related issues:

1. students continuing their education beyond the secondary level
2. students graduating from vocational and technical programs
3. students who fail to graduate from high school

Program Choices of High School Students

Information concerning 75.4% of the State's 1967 public school seniors was obtained from all geographical areas of the State to determine student distribution according to program. The results are as follows:

Program	Percent	Number
College Preparatory	50.7	3,457
Office Occupations	28.8	1,963
Vocational	5.3	361
General	14.9	1,012
Unaccounted	0.3	23
Total	100.0	6,816

Since the vast majority of parochial school students are enrolled in college preparatory programs (over 80%), no separate tabulation is presented in this report. However, combined public and parochial school data indicate that 4,689 students or 57.1% of the enrollment prepared for college.

Chart I, Page 18, contrasts high school enrollment by program with employment by occupational area. The figures illustrate broad discrepancies between the programs that youngsters enroll in and actual employment opportunities in Rhode Island.

Table 10 below indicates that professional occupations alone, which currently make up 10.1% of the employment market require a four-year college degree; whereas, 50.7% of the State's public high school students are enrolled in college preparatory programs.

TABLE 10

MEDIAN YEARS OF SCHOOL COMPLETED BY THE CIVILIAN LABOR FORCE 18 YEARS AND OVER

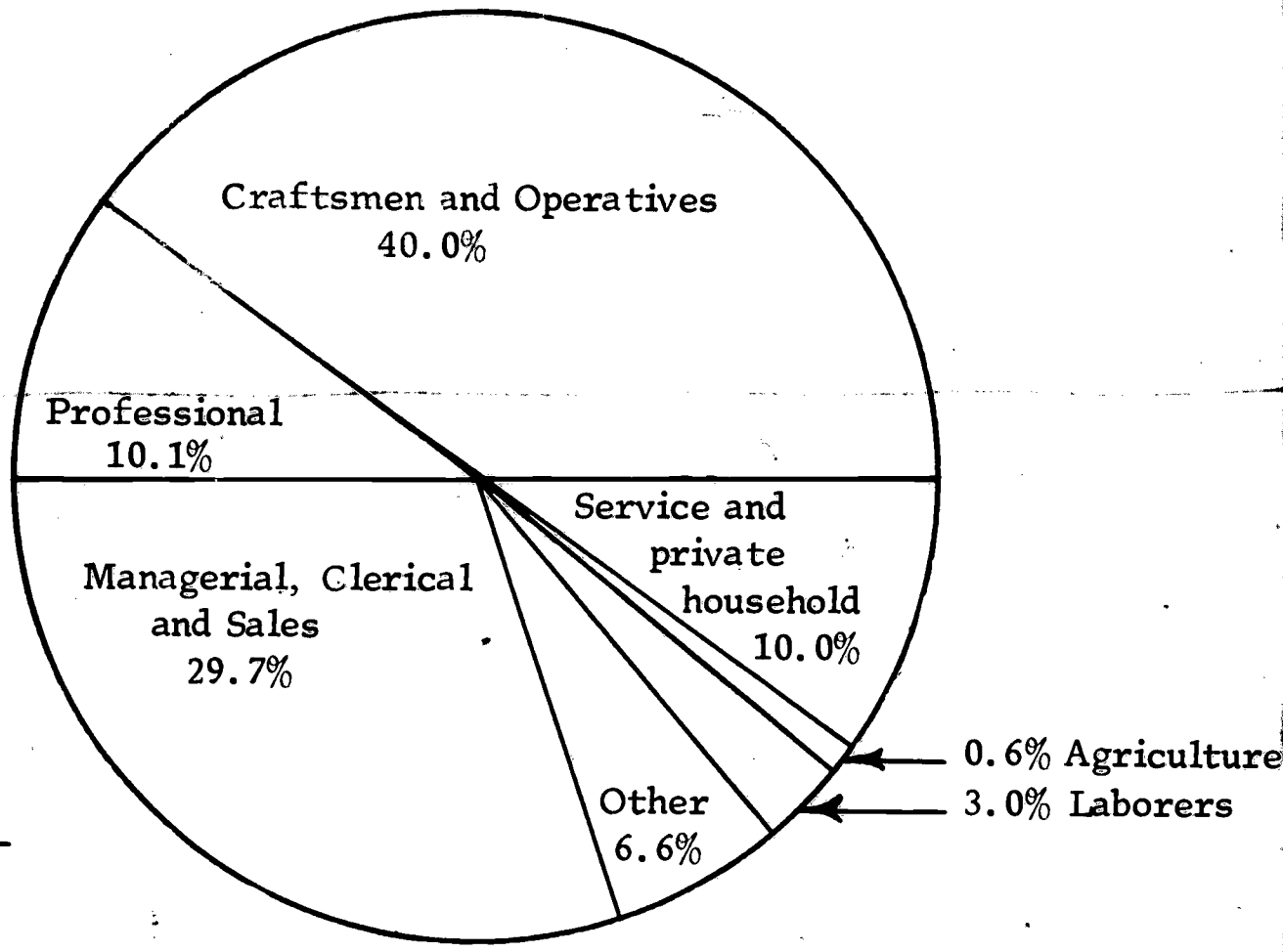
March, 1966

Occupational Category	Years of School
Professional	16.3
Managerial (non form)	12.6
Clerical	12.5
Sales	12.5
Craftsmen and Foremen	11.9
Operatives	10.7
Service, Including Private Household	10.9
Farmers, Farm Managers, Laborers, Foremen	8.8
Laborers, except Farm and Mine	9.5

Source: Manpower Report of the President, April, 1967, Page 240

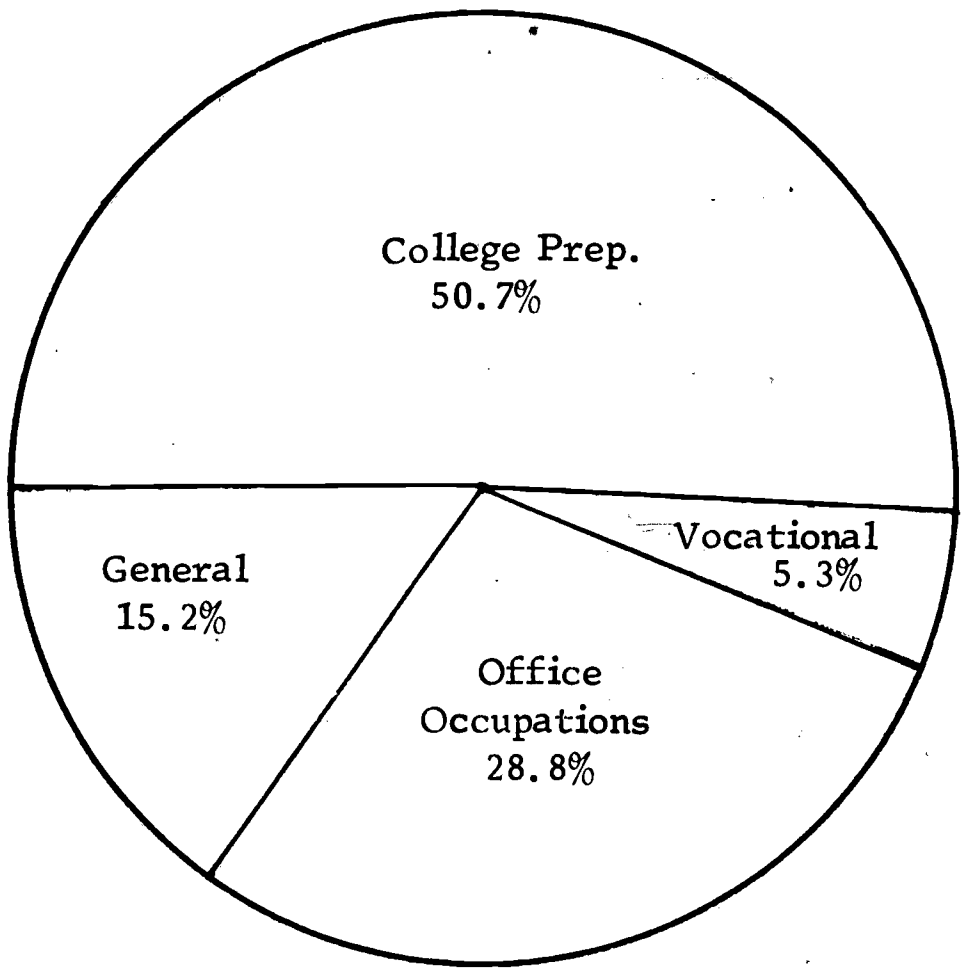
CHART I

EMPLOYMENT BY OCCUPATIONAL AREAS



Source: U. S. Bureau of the Census 1960

HIGH SCHOOL ENROLLMENT BY PROGRAMS



Source: R. I. Dept. of Education

While many of the positions requiring some post-secondary preparation (29.7%) will presumably be filled by college preparatory program graduates, the remaining 60.2% of Rhode Island employment is found in areas which currently require no post-secondary education. It would appear that since all employers are continuing to demand a higher and higher degree of technical competency of their workers, a larger proportion of Rhode Island's high school students should be gaining preparation for such occupations while they are still in school.

Career Choices of High School Seniors

Post high school career choice data were obtained for June, 1967 Rhode Island public and parochial high school graduates. All public high schools and twelve parochial high schools representing 76.4% of the State's parochial high school graduates were used as the sample for Table 11.

TABLE 11

Post High School Educational Choices of Public and Parochial Rhode Island High School Graduates-1967

School	Graduates	Entered 4 Yr. College	Entered Other Post-Secondary School	Combined College & Other Post-Secondary
Public	9,044	2,970 (32.8%)	2,207 (24.4%)	5,177 (57.2%)
Parochial	1,385	758 (54.7%)	315 (22.7%)	1,073 (77.4%)
TOTAL	10,429	3,728 (35.7%)	2,522 (24.2%)	6,250 (59.9%)

Source: Rhode Island Department of Education

Table 11 shows that 35.7% of the State's current graduates entered four-year colleges and 24.2% enrolled in other types of post-secondary institutions such as trade schools, technical schools, or junior colleges. Thus, a total of 59.9% of the students continued their education beyond high school.

Information provided by the United States Office of Education indicates that approximately one-half of those students entering a four-year college do not complete the degree requirements. These statistics offer further evidence of the lack of realism currently underlying program choice by high school students.

Graduate Follow-Up of 1966 Vocational-Technical Students

Table 12, Page 21, provides information relating to career pursuits of students graduating from present vocational and technical programs in Rhode Island.

Of the 600 graduates in June, 1966, 52% or 313 were available for employment, 27% entered the armed forces and 18% continued full-time schooling at the post-secondary level. Eighty-one per cent of those available for placement were employed in an occupation related to their school training, and 14% were employed in non-training-related occupations. At the time of the follow-up, 4% of the graduates were employed part-time and only 1% were unemployed.

The placement percentage of Rhode Island's vocational and technical program graduates closely parallels the national average. Fifty-two per cent of the 1966 Rhode Island vocational and technical graduates were available for placement, and 58% were available for placement nationally. In Rhode Island 81% of those available for employment were placed in training related occupations, whereas nationally the figure was 80%.

School Dropouts and Retention

In estimating retention rates from fifth grade through college graduation for the years 1957 to 1969, the 1966 Digest of Educational Statistics shows that of every 100 pupils in the fifth grade, 94 entered the ninth grade,

TABLE 12

FOLLOW-UP OF THE JUNE, 1966 GRADUATES
VOCATIONAL-TECHNICAL EDUCATION

Graduates	Agriculture	Distribution	Health	Home Economics Wage Earning	Technical	Trade & Industry	Total No.	Total Percent
Completed Program	138	47	104	5	50	256	600	100%
Not Available for Placement	78	23	14	-	27	145	287	48%
Status Unknown	-	2	4	-	-	3	9	2%
Entered Armed Forces	44	9	2	-	12	96	163	27%
Continued Full-Time School	30	11	6	-	15	45	107	18%
Other Reasons not in Labor Force	4	1	2	-	-	1	8	1%
Available for Placement	60	24	90	5	23	111	313	52%
PLACEMENT DATA								
Total Available	60	24	90	5	23	111	313	100%
Employed Training Related	45	18	77	3	20	90	253	81%
Employed Other	15	4	4	2	3	17	45	14%
Employed Part-Time	-	2	9	-	-	-	11	4%
Unemployed	-	-	-	-	-	4	4	1%

Source: Rhode Island Department of Education, December, 1966

81 entered the eleventh grade, 71 graduated from high school, 38 entered college and only 19 are likely to earn a four-year college degree in 1969.

Such data clearly indicate that something more must be done for the 29 out of every 100 youngsters who fail to graduate from high school, and also for the 52 out of every 100 who will graduate from high school but not from a four-year college. One means of preparing these students for more productive lives is to provide more secondary and post-secondary vocational and technical education opportunities.

Among the several major reasons given as to why Rhode Island students drop out of school are need for earnings, lack of an appropriate curriculum and academic difficulty. The most recent statistics compiled by the Rhode Island Department of Education reveal that 60% of the dropouts left school because of a lack of interest in their programs or to seek employment. This percentage involves almost 2,000 students and it can be assumed that many of these left school because the limited program offerings in their schools were not suited to their needs.

One approach to the solution of this problem is an effective program of vocational guidance which will identify the potential dropout while he is still in school and advise him of the benefits which will be derived from an occupational curriculum.

Vocational education provides these benefits in at least three ways:

1. It helps keep the potential dropout in school by offering a program more meaningful to him.
2. It permits some students to enroll in cooperative type programs in which they can "earn while they learn."
3. It helps prepare students more adequately for initial employment if dropping out is inevitable.

Summary

There is considerable disparity between the educational choices of students and available job opportunities in the Rhode Island economy. Whereas 57.1% of high school students prepare for college entrance and presumably professional careers, only 10.1% of the Rhode Island work force is in the professions. To compound this problem, only 35.7% of the students in college preparatory courses actually enroll in a four-year college and only 50% of these finally acquire the baccalaureate degree. Added to this lack of realism is the tragic record of students leaving high school before graduation.

The major conclusions which can be drawn from the foregoing data are:

1. While it is not intended that vocational and technical education should attract students away from college preparation it is recognized that for some college preparatory students enrollment in technical courses will serve as an integrating factor making their academic subjects more meaningful.
2. Potential school dropouts must be identified as early as possible and appropriate occupational programs established for them.
3. The capacity and range of vocational and technical education offerings must be expanded at both the secondary and post-secondary levels so as to prepare for productive employment:
    a. students in high school
    b. high school graduates
    c. out of school youth
    d. employed or unemployed adults

CHAPTER IV

JOB OPPORTUNITIES AND TRAINING NEEDS

As has been stated in preceding chapters, any attempt to estimate the extent to which education should provide youth with occupational training during the years ahead must be based on a number of factors. Especially significant are the number and type of job opportunities which are expected to occur in Rhode Island during the next five years, recommendations of employers and new and emerging occupations.

The Rhode Island Skill Survey - 1968 and 1971

A skill survey conducted this past year by the Rhode Island Department of Employment Security represents the most comprehensive source of statewide data concerning employment and expected skill shortages and is a valuable indicator of the direction toward which occupational training programs should move. This study covers the period from 1968 through 1971 and is based on manpower need estimates secured from over 1300 Rhode Island employers. Supplementary assistance in the conduct of the survey was provided by many civic, commercial, trade, industrial and labor organizations to produce a picture of the expected labor supply and demand developing in Rhode Island in 1968 and 1971.

General findings of the study reflect a strong confidence for a continuance of the economic prosperity which began gathering momentum in Rhode Island during 1963. Employers predict an overall increase in the number of persons employed by the surveyed industries at 46,000 jobs exclusive of replacement requirements by 1971 - - a prediction 3.4 times higher than that forecast in a 1960 Department of Employment Security study.

Expansion and replacement needs of employers will require filling 84,907 jobs over the five-year period. Since in-plant instructional programs are estimated by the study to satisfy only 7% of these requirements, it is clear that an extensive program of vocational and technical education must be implemented if the State's labor market is to keep pace with the increasing demand for skilled workers.

Table 13, Page 26, shows the estimated number of workers which will be required by Rhode Island industry during the years immediately ahead for jobs created by replacement and expansion. Especially relevant is the column at the far right which shows thousands of job opportunities occurring - - jobs for which Rhode Island workers will not be prepared without pre-employment training.

The table also shows clearly that the training plans of employers will fall far short of producing the number of workers needed by 1971. A total of 84,907 jobs will open. Only 5,602 of these will be filled by in-plant training. Thus, 79,305 jobs must be filled by persons trained through other sources.

While Manpower Development Training Programs and Area Redevelopment Act Courses have made some impact by producing 2,042 trained workers in certain hard-to-fill occupations, such as machinist, office workers, automobile mechanics and draftsmen, during the past five and one-half years, emphasis of these programs has been shifted recently by the sponsoring federal agency to programs for the disadvantaged.

With the exception of office education, the number of students completing occupational training programs in privately operated schools throughout Rhode Island is insignificant; nor is expansion anticipated in this area of potential training.

TABLE 13

ANTICIPATED WORKER DEMAND IN SELECTED OCCUPATIONS - 1971

Occupation	Survey Employment Oct., 1966	Expansion & Replacement Needs 1971	In-Plant Training Output 1971	Unmet Worker Demand 1971
Professional, Technical & Managerial Occupations				
Computer Programmer	346	355	100	255
Draftsman, Civil	376	167	22	145
Draftsman, Electrical	263	179	11	168
Draftsman, Mechanical	464	324	35	289
Electrical & Electronic Technician	524	503	124	379
Industrial Engineering Technician	423	239	100	139
Medical Laboratory Technician	255	234	26	208
Nurse, Licensed, Practical	1,370	1,128	26	1,102
Nurse, Professional	2,028	1,559	304	1,255
Clerical & Sales Occupations				
Bookkeeper	1,907	730	63	667
Clerk-Typist (Clerical)	7,873	6,937	185	6,752
Digital-Computor Operator	234	284	56	228
Duplicating-Machine Operator	217	217	10	207
Key Punch Operator	96	155	-	155
Salesman (Except Sales Clerk)	3,390	1,629	46	1,583
Secretary	4,720	2,771	145	2,626
Stenographer	5,205	3,335	203	3,132
Teller (Banking)	825	808	13	795
Service Occupations				
Chef, Cook & Baker (H & R)	1,884	1,791	31	1,760
Dry Cleaner (Clean, Dye & Press)	575	535	-	535
Meat Cutter & Butcher	756	214	52	162
Nurse Aide	1,938	1,248	30	1,218
Processing Occupations				
Baker	610	522	52	470
Coremaker & Molder (Foundry)	761	636	25	611
Furnace Operator (Nonfer. Metal Alloys)	169	133	12	121
Heat Treater II	253	337	138	199
Injection-Molding Machine Operator	543	515	-	515
Machine Trades Occupations				
Automobile Mechanic	2,306	2,710	218	2,492
Beamer (Warper)	1,271	291	17	274
Cloth Winder	1,569	703	26	677
Engine Lathe Set-Up Operator	344	485	25	460
Grinder Operator	650	779	87	692
Loomfixer	549	684	45	639

TABLE 13 (continued)

ANTICIPATED WORKER DEMAND IN SELECTED OCCUPATIONS - 1971

Occupations	Survey Employment Oct., 1966	Expansion & Replacement Needs 1971	In-Plant Training Output 1971	Unmet Worker Demand 1971
Machine Trades Occupations				
Knitting Machine Operator	386	588	-	588
Machine Builder	666	620	35	585
Machinist	2,472	2,119	161	1,958
Maintenance Mechanic II	2,706	1,082	107	975
Milling Machine Set-Up Operator	375	447	73	374
Offset Pressman	485	207	12	195
Patternmaker	231	66	10	56
Production Machine Operator	3,777	4,616	215	4,401
Screw Machine Operator, Production	449	563	75	488
Set-Up Man, Screw Machine & Turret Lathe	318	627	76	551
Tool & Die Maker	1,661	1,318	134	1,184
Weaver	1,644	916	66	850
Bench Work Occupations				
Bead Maker	189	209	-	209
Cloth Examiner	590	607	17	590
Sewing Machine Operator (Reg. Equip.)	1,932	1,464	56	1,408
Solderer, Jewelry	795	1,053	10	1,043
Structural Work Occupations				
Automobile Body Repairman	812	1,015	99	916
Electrician	1,747	483	72	411
Electronic Mechanic	108	113	46	67
Sheet Metal Worker	487	151	5	146
Welder	378	185	-	185
Miscellaneous Occupations				
Compositor	393	175	22	153
Foreman, All Industries	6,852	1,319	201	1,118
Photoengraver	274	52	4	48
Truck Driver, Heavy	1,841	1,083	-	1,083

Source: Rhode Island Department of Employment Security

Existing vocational and technical programs cannot satisfy the requirements of industry and commerce as outlined above. Even with the addition of eight new secondary facilities and the expanded post-secondary program, the number of graduates will be insufficient to meet the growing need. Ways and means must be found to substantially increase the number of skilled persons in our economy.

Interview Survey

A series of interviews with employers was conducted by the Vocational and Technical Division staff to determine the views of employers concerning the role of vocational and technical education in Rhode Island. A representative sampling of employers was chosen to obtain a wide range of products and/or services, geographic locations, and numbers of persons employed. Considerable information was derived from the reactions and advice offered by the employers.

Interviewers presented a brief report of the statewide program of vocational and technical education to the employers, and then questioned them concerning the following:

1. What is the reaction of the employer to the Rhode Island plan for developing vocational and technical education?
2. What training plans and/or problems does the employer have?
3. What is the employers attitude toward training, in-plant and in-school?
4. Does the employer have problems hiring trained help?
5. Does the employer have a need for supplementary or upgrading training?
6. Does the employer have new types of equipment or does he have plans for the purchase of such in his plant?

Major findings were:

1. Employers are interested and concerned about the Rhode Island program of vocational and technical education.
2. Employers made it clear that they are willing to cooperate and assist in further development and improvement of the State's program.
3. There is a persistent shortage of skilled workers in many occupations throughout the State. Recruitment of young trained workers is extremely difficult.
4. Employers generally agree on the merits of a combination of in-school and in-plant training including cooperative education.
5. Quality basic or general education for vocational and technical students is needed.
6. Vocational guidance and counseling services should be offered to younger students in order to familiarize them with the world of work.
7. There is a need for more supplementary and upgrading type of extension courses to increase the skills and technical knowledge of employed workers.
8. There is a continuous demand for higher technical skills because of new sophisticated equipment and higher quality standards.

Nationally Emerging Occupations

There are many evidences that continued scientific break-through and rapid technological development will not only bring sharp changes in existing job requirements but also will create many new kinds of work.

The computer is entering every aspect of American life including schools, medicine and business. Nuclear facilities will be expanded greatly to meet

the surging power demand of the space age. Approximately three times the energy presently used will be required by the year 2,000. Airplanes capable of traveling 4,000 miles per hour will require new materials. Anti-pollution and safety measures will force major changes in design and production of automobiles. Electronic aids and computers will help to make education a life-long process. Medical gains, particularly new drugs, will reduce heart and cancer deaths as well as birth defects. Capability for both nuclear war and smaller size conflicts will require orbiting weapons and greater mobility of ground forces.

Requirement for Technicians

All of these predicted developments indicate that most new jobs will require that workers attain a more technological background. The requirement for technically skilled workers in the United States will reach nearly one and a half million by 1975 representing an increase of over 77% from the 1963 employment level.

Kinds of Technicians Needed

The following are examples of new kinds of technicians needed to meet the challenge of technological development but for which training programs are not well developed:

New Types of Technicians	Present Demand
Bio-medical Hospital	50,000
Electromechanical	100,000
Electronic Computer Service	20,000
Communications and Telementry	10,000
Computerized Drafting	5,000

Numerically Controlled Machine Tool		10,000
Chemical Manufacturing Process Control		5,000
Agricultural Production and Service		75,000
Water Pollution Control Technicians		10,000
	Total	285,000

Various descriptive names are given to the different kinds of technicians but almost all of them may be placed within the following general classification:

Physical Science and Related Engineering Technologies

Aeronautical and Aerospace
Architectural and Building Construction
Civil (Highway and Structural)
Chemical
Electrical and/or Electronic
Electro-mechanical
Instrumentation
Mechanical, Design or Production (Includes Heating, Air-Conditioning and Refrigeration, Plastics, and Welding)
Metallurgical (Including Ceramics)
Mining (Including Earth Sciences)
Nuclear
Oceanographic (Physical)
Printing (Including Photography - Graphic Arts)
Radiological (Physical)

Biological Science Technologies

Health and Related Technologies

Dental Hygienist
Dental Laboratory
Inhallation Therapist
Occupational and Rehabilitation Therapist
Medical Laboratory
Nursing (2-year Diploma or Certificate)
Radiological (Including X-ray)

Agricultural and Related Technologies

Livestock Production (Cattle, Sheep, Swine, Horses)
Dairy Production
Poultry
Other Specialized Animal Science
Diversified Farm Production

Farm Crop Production
(Field Crops, Forage, Orchards and Vineyards, Intensive Vegetable Culture)
Ornamental Horticulture
(Nursery, Floriculture, Turf Management, Arboraculture, Landscape Development)
Other Specialized Plant Science
Grain, Feed, Seed and Farm Supply Service
Forestry
Conservation, Recreation, and Wildlife
Soil Science, Reclamation, and Conservation

Combined Physical and Biological Science Technologies

Agricultural Equipment
(Farm Machines and Mechanization Systems)
Dairy Products Processing
Food Processing
(Canning, Drying, Freezing, Freeze Drying, etc.)
Bio-medical (Hospital and Research) Mechanisms
Oceanographic
(Fishing, Mariculture, and Other Biological)
Water and Environmental Control (Water and Waste Water; Solid Waste, Atmosphere)
Scientific Data Processing

The foregoing is only a partial list. It could well include Oceanographic, Radiological, Nuclear, Electro Optical, Urban Planning, Police Science, Fire Protection, and Air Pollution Technicians - all needed, with relatively few or virtually none being trained.

Special Needs

In planning future vocational and technical education programs, it becomes increasingly important to consider the special training needs of many of Rhode Island's youth and adults. One of the major provisions of the Vocational Educatio Act of 1963 pertains to the responsibility of the State and local communities to provide vocational education for the disadvantaged and handicapped. These include people who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education programs. While the Manpower Development and Training Program, the Vocational Rehabilitation Program, and the Adult Basic Education Program should continue to provide training for some of

those with special training needs, vocational education should be prepared to meet their occupational training requirements.

Summary

Employment projections made by the Department of Employment Security indicates that Rhode Island can anticipate approximately 85,000 job openings by 1971. Since in-plant training will provide preparation for workers to fill less than 10% of the openings, it can readily be seen that a means of increasing occupational training must be found. The results of the employer interview survey conducted by the Vocational Division staff substantiate the fact that programs and facilities must be expanded if job needs are to be met.

A projection of emerging occupations indicates that training for the future will also involve more technological skills. As new occupations emerge, Rhode Island's program of vocational and technical education must be capable of providing the necessary training.

CHAPTER V

THE RHODE ISLAND PROGRAM OF VOCATIONAL AND TECHNICAL EDUCATION

Philosophy and Rationale of the Rhode Island Program for Vocational and Technical Education

The Administrative Plan for Vocational and Technical Education in Rhode Island as adopted by the State Board of Education points the way to an overall philosophy of an effective program. It is the belief of the Board that schools should provide the kind of education which will produce students able to make a meaningful contribution to society, to sustain and improve both the State's and the nation's economy, to adapt to change as change is demanded of them, to support themselves and their families, to develop their own greatest potential, and to lead full and rewarding personal lives.

In order to appreciate the importance of the relationships of economic factors and trends to occupational training needs, it is important to define some of the overall purposes and aims of vocational education. Very basically the controlling purpose of vocational education is to fit persons for gainful employment. The vocational education program, however, does not take the place of general academic education; it supplements and enhances it to assist those students who want preparation for a chosen occupation. Vocational education is a part of a well-rounded program of studies aimed at developing competent workers and recognizing that the American worker should also be comptent economically, socially, emotionally, physically, intellectually, and in a civic sense.

Vocational education helps to give definite purpose and meaning to education by relating training to specific occupational goals.

It is more inclusive than training for job skills; it develops abilities understandings, attitudes, work habits, and appreciations which contribute to a satisfying and productive life.

Vocational education for adults plays an essential role in maintaining efficiency in production, distribution and consumption, and, as a consequence, a high standard of living. Adult workers in any field through training in skills and knowledge related to their occupation can adapt themselves to technological advances and other developments in their field of endeavor, become more productive, prepare themselves for advancement, and increase their earning capacity.

The Vocational Education Act of 1963 was passed by the 88th Congress for the purpose of maintaining, extending, and improving existing programs of vocational education, and developing new programs, so that persons of all ages in all communities will have ready access to vocational training or retraining. The 1963 Act, which provides about $1,000,000 annually for program development in the State of Rhode Island, states that:

1. Programs need to be geared to immediate and projected labor market needs - local, State, regional and national.

2. Programs are to be developed for all non-professional occupations - low skill to high skill.

3. Programs are to be developed for persons of all ability levels - appropriate to their capacities, interests, and needs.

4. Programs can and do operate in all kinds of institutions - public and private.

The Vocational Education Act of 1963 lists the following groups of persons to be served:

1. Vocational education for persons attending high school

2. Vocational education for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market

3. Vocational education for persons who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment

4. Specialized vocational education for persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program

The Design of the Rhode Island Program for Vocational and Technical Education

A central concept underlying the design of the Rhode Island program is that appropriate vocational and technical educational opportunities of high quality should be readily accessible to both youth and adults in all communities of the State who want and need training for a chosen occupation. Extensive vocational and technical program development is under way in Rhode Island at both the secondary and post-secondary levels.

Secondary Level

Recognizing that all schools cannot justify initiation of a full range of occupational programs in terms of either numbers of students to be served or cost, the Vocational Education Act of 1963 makes provision for area vocational schools which serve a number of communities. In order to make diversified occupational offerings of high quality available to all secondary school students in Rhode Island, the State Board of Education has designated certain comprehensive or vocational and technical high schools as area schools to serve the geographic areas in which they are located. A total of eight area vocational and technical schools are planned; seven of these schools are additions to comprehensive high schools and the eight is a self-contained vocational and technical high school. It is the intention of the State Board of Education that maximum use of the area school facilities be made by the communities for the educational needs of adults as well as youth.

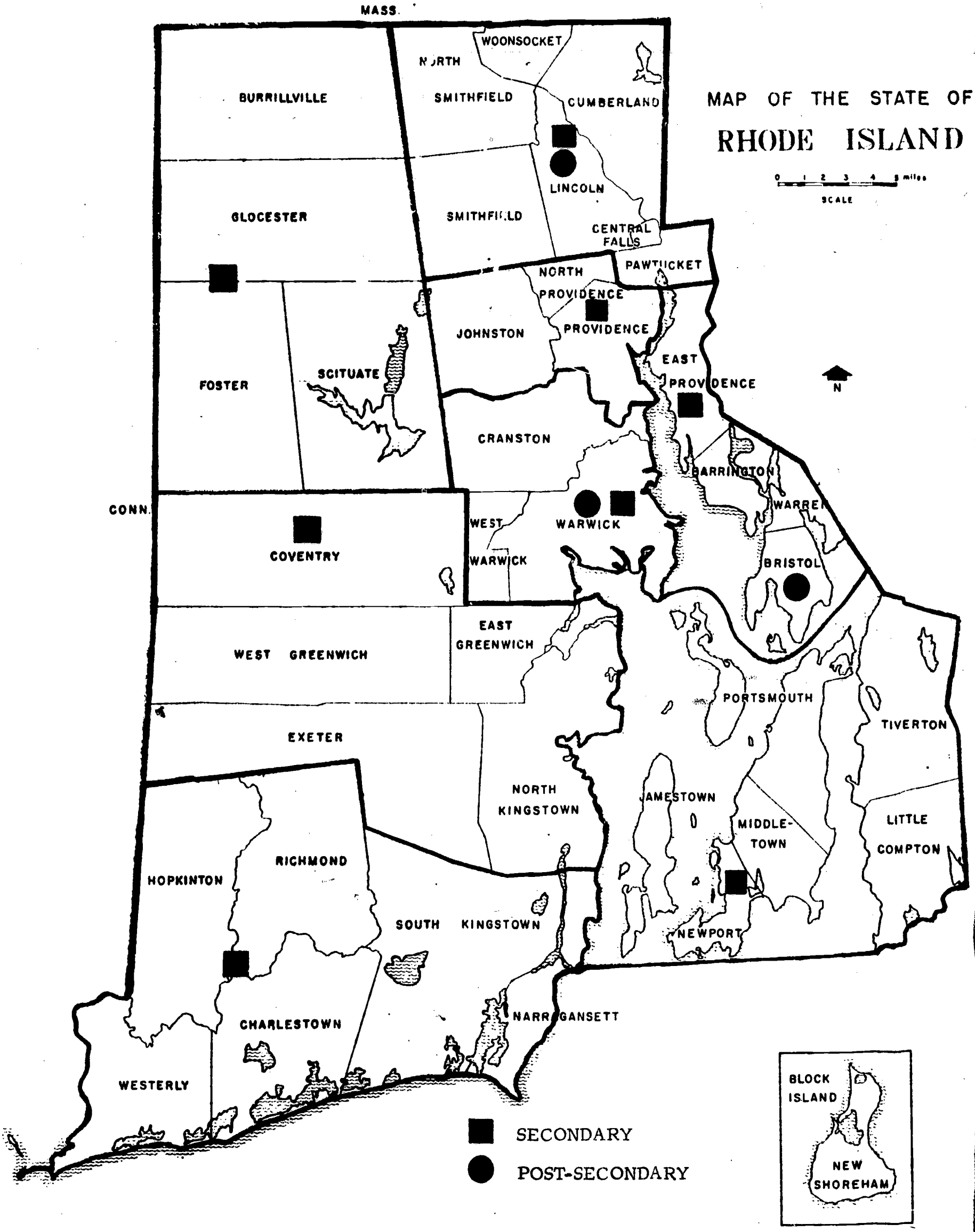
Through agreement between the State Board of Education and the school committee of the community in which the comprehensive area high school is located, the school committee will be responsible for the operation of the program and the State Board will provide certain construction, renovation, equipment and administrative and guidance staffing. The self-contained area vocational and technical school in the Blackstone Valley will be state-operated.

Tuition is to be charged by the area school to the sending school in an amount not to exceed the per capita cost of operation. Transportation of pupils to the area schools is the responsibility of the school committee sending the pupil to the area school. Map 1 indicates the proposed vocational and technical facilities and the communities they will serve.

Post-Secondary Level

The Board of Trustees of State Colleges and the Board of Education are committed to the principle of jointly planned, constructed and operated facilities for the junior college and post-secondary vocational and technical programs. Such cooperative effort, it is felt, is essential to their task of providing the highest quality comprehensive education at the lowest possible cost. In the opinion of both Boards joint operation of the facilities would ensure the broadest and most effective educational programs of the youth and adults of Rhode Island, would provide maximum service to business and industrial establishments, and would be more economical than separate development of facilities, since the partnership would achieve maximum use of available funds and resources and would avoid duplication of essential facilities. Tentative location of the three junior college vocational and technical facilities is presented on Map 1.

LOCATIONS OF PROPOSED SECONDARY AND POST-SECONDARY VOCATIONAL-TECHNICAL FACILITIES



MAP OF THE STATE OF

RHODE ISLAND

0 1 2 3 4 5 miles

SCALE

Present Enrollment in Vocational and Technical Education Programs

During the 1966-1967 school year, 2,007 Rhode Island students were enrolled in secondary vocational education and 220 students were enrolled full-time at the post-secondary level. Secondary vocational and technical enrollment figures do not include office education which is generally a part of all high school curriculums; nor is non-occupational home economics education enrollment included. Table 14 indicates student enrollment by occupational area.

TABLE 14

Student Enrollment by Occupation Area
1966-1967

Occupational Area	Secondary 10-12	Post Secondary
Agriculture	435	0
Distributive Education	60	0
Health Occupations	19	114
Home Economics (Wage Earning Only)	54	0
Technical	65	96
Trade and Industry	1,374	15
TOTALS	2,007	220

Source: Rhode Island Department of Education, Vocational Division Annual Report - 1967

A survey recently completed by the Board of Public Education in Pittsburgh, which city is in many ways statistically comparable to Rhode Island, indicates that at least 60% of the current and future high school population should be given some occupational, vocational, or technical training, other than the four-year college preparatory-program. In another study conducted in Howard County Maryland, also similar to Rhode Island, it was recommended that 25% of the total school population in grades 10-12 should be enrolled in vocational training

other than business education. Nationally, the United States Office of Education is projecting vocational and technical enrollments at 30% to 50% by 1975.

It is also significant to note that a National Committee Paper by the National Association of Secondary School Principals, Educating for Work, recommends that vocational and technical education should be serving between 40% and 50% of the nation's secondary school students.

When such data are compared with Rhode Island's present secondary vocational and technical education enrollment of 2,007 or 5.3% of the present total enrollment, it can be readily seen that the Rhode Island Program must grow considerably if it is to meet the needs of the State's youth and industry.

The projected enrollment of 5,684 or 13.7% in 1969, which includes agriculture, distributive education, home economics wage earning and cooperative business education programs in comprehensive high schools, is listed below. An attempt to serve more than 5,684 at the secondary level in vocational and technical education in 1969 will require additional construction and financing as outlined in Chapter VI.

Projected Enrollment by Districts (1969)

Area School District	Capacity 1969
Blackstone Valley	1,152
Chariho	405
Coventry	438
East Providence	482
Newport	592
Ponaganset	315
Providence	1,397
Warwick	903
TOTAL	5,684

Table 15, Page 42, indicates projected fiscal 1969 capacity by occupational area in both the existing and committed facilities (Appendix B contains detailed

information regarding the new facilities). All new facilities are being planned and constructed to provide maximum flexibility in order to accommodate any change in occupational demands. Table 16, Page 43, shows the projected number of graduates of secondary vocational and technical programs through 1973.

Committed Programs - Post-Secondary Level

The temporary laboratory and classroom space located at Capitol Industrial Center in Providence will serve a total of 352 vocational and technical students each year through fiscal year 1970. The Knight Campus, scheduled to open in Warwick in September, 1971, will accommodate 450 students per year. The increase of 98 students served at the Warwick facility is made possible through the use of additional classroom space not available at the temporary facility. The 450 vocational and technical students to be served at the Knight Campus represents 15% of the entire institution's enrollment of 3,000 students.

TABLE 15

PROJECTED STUDENT CAPACITY BY OCCUPATIONAL AREA IN SECONDARY FACILITIES - 1969

Occupational Area	Present Facilities	Committed Facilities	Total
Air Conditioning & Heating		36	36
Aircraft Mechanics		36	36
Auto Body		144	144
Auto Mechanics	60	308	368
Barbering		36	36
Business Occupations	650	84	734
Carpentry	81	216	297
Commercial Art		184	184
Cosmetology		108	108
Data Processing		164	164
Distributive Education	780	144	924
Drafting		468	468
Electric - Electronics		216	216
Electrical	56	36	92
Electronics	42	72	114
Electro-Mech. Maintenance		36	36
Fashion Design		36	36
Food Service		108	108
Graphic Arts		108	108
Health Occupations		192	192
Home Economics (Wage Earning)	204		204
Horticulture - Agriculture	210	144	354
Industrial Chemistry		40	40
Instrumentation		36	36
Industrial Finishing		36	36
Machine Process	84	324	408
Metal Fabrication	29	108	137
Painting	32	36	68
TOTAL	2,228	3,456	5,684

Source: Rhode Island Department of Education

TABLE 16

PROJECTED NUMBER OF GRADUATES OF SECONDARY VOCATIONAL AND TECHNICAL PROGRAMS IN RHODE ISLAND
1968 - 1973

OCCUPATIONAL AREA	'68	'69	'70	'71	'72	'73	TOTAL
Agriculture and Related	141	141	141	141	141	141	846
Air Conditioning & Heating	-	-	-	12	12	12	36
Aircraft Mechanics	-	-	-	18	18	18	54
Auto Body	12	12	30	54	54	54	216
Auto Mechanics	57	75	113	143	143	143	674
Barbering	-	-	12	12	12	12	48
Carpentry/Cabinetmaking/Boatbuilding	59	77	89	119	119	119	582
Commercial Art	13	13	29	53	53	53	214
Cooperative Business Program	-	290	380	470	560	650	2350
Cosmetology	12	12	24	36	36	36	156
Data Processing	11	29	41	67	67	67	282
Distributive Education	140	290	315	340	365	390	1840
Drafting	19	31	54	98	98	98	398
Electric - Electronics	78	96	132	174	174	174	828
Electro - Mechanical Maintenance	-	-	-	12	12	12	36
Fashion Design	-	-	12	12	12	12	48
Graphic Arts	25	25	25	37	37	37	186
Food Service	-	18	30	42	42	42	174
Health Occupations	12	30	30	78	78	78	306
Home Economics (Wage Earning)	18	18	28	41	55	68	228
Industrial Chemistry	-	-	13	26	26	26	91
Industrial Finishing	12	12	12	12	12	12	72
Instrumentation	-	-	-	18	18	18	54
Machine Processes	54	72	114	156	156	156	708
Metal Fabrication	11	11	23	53	53	53	204
Painting	6	6	12	12	12	12	60

Source: Rhode Island Department of Education

Facility Funding

Table 17, Page 45, shows total funds available for construction and expenditures through 1969. Of the $15,439,315 available for the building program, the State provided $12,000,000 and the Federal government provided $3,439,315. Table 18, Page 46, indicates the distribution of federal funds by fiscal year and construction project.

Summary

Rhode Island's program of vocational and technical education served 2,007 secondary students and 220 post-secondary students during the 1966-1967 school year. When the presently planned building program is completed, a total of 5,684 secondary students and 564 post-secondary students will be served by vocational and technical education. This expansion will require expenditure of all currently available Federal and State funds ($15,439,315 through June 30, 1969).

As indicated above, Rhode Island's vocational and technical education facilities served 2,007 students or 5.3% of the grade 10-12 enrollment during the school year 1966-1967. Upon completion of the present building program, Rhode Island will have the capability of serving 5,684 students or 13.7% in secondary vocational and technical education. While this increase appears substantial, it should be noted that a decreasing percentage of students will be served as the grade 10-12 population increases.

When one compares the projected number of graduates from the existing and presently planned facilities with the projected number of skilled workers needed as shown in Chapter IV, it can be readily seen that vocational and technical education needs further expansion. Chapter VI outlines a recommended expansion program and shows projected costs for such expansion.

TABLE 17

FUNDING OF RHODE ISLAND'S COMMITTED
PROGRAM OF VOCATIONAL AND TECHNICAL FACILITIES
THROUGH JUNE 30, 1969

Source of Funds	
Vocational Education Expansion and Development Program of 1963 (CH. 78, P.L. 1964)	$ 8,000,000
Appropriation - Regional Vocational Schools (CH. 8, P.L. 1964)	2,000,000
Act Authorizing Additional Funds for Blackstone Valley School	2,000,000
Vocational Education Act of 1963 Estimated Federal Funds	3,439,315
Total Available to Fund Committed Program	15,439,315
Proposed Expenditures	
Planning Studies	$ 68,000
Corliss Park Vocational School	110,000
Post-Secondary Facility - Warwick	3,000,000
Post-Secondary Facility - Blackstone Valley	280,000
Providence Area School	2,125,000
Newport Area School	875,000
Chariho Area School	775,000
Coventry Area School	814,066
Warwick Area School	1,500,000
East Providence Area School	750,000
Ponaganset Area School	749,300
Blackstone Valley Area School	4,000,000
Contingency	392,949
Total Cost of Committed Program	15,439,315

Source: Rhode Island Department of Education

TABLE 18

FEDERAL FUNDS ENCUMBERED FOR CONSTRUCTION THROUGH JUNE 30, 1969

1965	Jr. College Vocational and Technical Program	$ 577,800
1966	Chariho Regional	250,000
	Rogers High (Newport)	250,000
	Central High (Hanley Education Center, Providence)	283,382
		$ 783,382
1967	Coventry High	$ 376,066
	Central High (Hanley Education Center, Providence)	300,000
	East Providence High	173,575
		$ 849,641
1968	(Estimated)	
	East Providence High	$ 176,425
	Warwick High	495,575
		$ 672,000
1969	(Estimated)	
	Warwick High	$ 250,000
	Ponaganset Regional	306,492
		$ 556,492
	TOTAL FEDERAL FUNDS	$3,439,315

Source: Rhode Island Department of Education

CHAPTER VI

CONCLUSIONS, RECOMMENDATIONS, FINANCING

Conclusions and Recommendations

1. Rhode Island Economy: The Rhode Island economy has enjoyed increased prosperity since 1963. Low unemployment rates and industry-wide employment gains have characterized the expansion. Since the general outlook is for a continuation of the State's economic advancement, Rhode Island's vocational and technical education program must be geared to sustain and promote a healthy economy.

2. Population and Enrollment: The overall population and secondary school enrollment in Rhode Island will continue to increase during the next five years in seven of the eight area vocational and technical school districts. Population growth figures by age group suggest various types of training needs. The State vocational and technical education program must adapt to the training and education needs of all citizens regardless of their personal or employment status.

3. High School Curriculum and Post-Secondary Career Choices: There is a great disparity between curriculum choices of high school students and employment level distribution in the labor force. Also, a serious disproportion exists between the number of students enrolled in a high school college preparatory curriculum and the number who actually enter and complete the four-year college program.

4. Employment Needs: Results of the recent skill survey conducted by the Department of Employment Security indicate that there will be a demand for 84,907 workers to meet expansion and replacement labor needs through 1971. In-plant training programs will provide only 5,600 workers leaving a training need in more than 79,000 positions.

At the completion of the present building program in 1969, vocational and technical education programs will be capable of enrolling 6,248 students and capable of graduating 2,493 trained students annually. When business education program graduates are added to this figure, a total of 6,275 trained students will be entering the labor force each year. Despite this substantial contribution to the skilled labor market, existing and presently planned vocational and technical programs will continue to fall far short of meeting the needs of students and industry.

5. Recommended Percentages of Secondary Students to be Served: It is recommended that Rhode Island's program of vocational and technical education be expanded to serve 17% of the secondary enrollment by 1970 and 20% by 1973. Such an objective is demanded by the State's projected economic and population growth, the diminishing need for unskilled workers and the personal needs of students. When compared with national data and studies from other States, the above percentages represent a realistic objective for Rhode Island.

6. Aid to Local Communities: Rhode Island has traditionally aided vocational and technical education in local communities through the reimbursement of operating expenses incurred by the vocational and technical program. As the number of programs increase and the demand on the property tax base also increases, it becomes more and more apparent that local communities will find it more and more difficult to financially sustain the quality programs envisioned for Rhode Island's area vocational and technical facilities. It is, therefore, recommended that aid to local communities for the operation of area vocational and technical programs be increased.

7. Distributive and Office Occupations Programs: Data from surveys and interviews with various Rhode Island business establishments indicate that one of the State's most rapidly growing occupational areas is in the field of product distribution. The surveys further suggest that we can anticipate a large increase in clerical and office related occupations.

It is therefore recommended that distributive and business cooperative education programs continue to be expanded in comprehensive high schools and that such expansion of local programs be encouraged by providing school districts with reimbursement from Federal and State funds.

8. Post-Secondary Programs: Data in Chapter III indicate that while 4,689 secondary students or 57.1% of the 1967 graduating class was enrolled in the college preparation curriculum, only 3,728 or 35.7% of these actually entered a four-year college. In addition to assisting the large percentage of students who prepare for a four-year college but do not attend, post-secondary vocational and technical education must be prepared to serve those students that will drop out of the four-year college (national figures show 50%) and those graduates of business, general and vocational and technical curriculums who desire a post-secondary education.

It is therefore recommended that facilities be developed to serve an additional 625 post-secondary students in 1973 and an additional 400 in 1975, and that the temporary campus in Providence be maintained until the proposed 625-student facility opens in 1973.

9. Adult Education Programs: Population data indicate that adults ages 23 to 44, the State's most productive working group, and the older working group, ages 45-64, will increase substantially. In view of rapidly changing technology, there will be a constant need for retraining and upgrading of the specialized skills and competencies of both of these groups if they are to remain competent and productive workers.

It is therefore recommended that aid to local communities for the operation of adult vocational and technical programs in area facilities be increased.

10. State Staff: During school year 1966-1967 a total of 2,007 students were enrolled in secondary and 220 in post-secondary vocational and technical education. With completion of the present building program and expansion of existing programs, a total of 5,684 students will be enrolled at the secondary level and 564 at the post-secondary level. Assuming expansion to the extent recommended, a total of 9,000 students at the secondary level, 1,589 at the post-secondary level, and 10,272 at the adult level can be accommodated.

It is therefore recommended that as program activity increases, the State vocational and technical staff be increased accordingly. Three professional staff members and two clerical assistants will be required by 1971.

Financing the Recommended Program

The following assumptions were made in developing the financial projections contained in Tables 19-21:

1. Construction and equipment costs will increase at an annually compounded rate of 5.7%.
2. Operating costs will increase at an annually compounded rate of 5%.
3. Debt service will include an interest rate of 4 1/8% on outstanding indebtedness and principal amortized at the rate of 5% per year.

Table 19, Page 51, indicates projected capital expenditures necessary to implement recommendations 5 and 8 above. Recommendation #8 does not reflect the extent of need for all post-secondary education but, rather, indicates the capacity of facilities recommended for vocational and technical programs in accordance with the agreement between the Board of Education and Board of Trustees.

TABLE 19

PROJECTED CAPITAL EXPENDITURES
SECONDARY AND POST-SECONDARY VOCATIONAL-TECHNICAL EDUCATION

Secondary-Appendix C-1

Stage II	1970-71 School Year 1524 Additional Students	$ 5,862,188
Stage III	1973-74 School Year 1792 Additional Students	7,389,358
		$13,251,546

Post-Secondary-Appendix C-2

Stage II	1972-73 School Year 625 Additional Students	$ 5,138,779
Stage III	1975-76 School Year 400 Additional Students	3,713,850
		$ 8,852,629
Projected Capital Expenditures	TOTAL	$22,104,175

The above funds can be provided as follows:

Bond Issue November 1968:

Secondary	$ 5,862,188
Post-Secondary	5,138,779
	$11,000,967

Bond Issue November 1970:

Secondary	$ 7,389,358
Post-Secondary	3,713,850
	$11,103,208

Projections of capital expenditures are based on recent estimates and actual expenditures for the constructing and equipping of facilities in Rhode Island's present building program and have been verified as far as possible by comparison with similar construction experiences in other States.

Stage II at the secondary level refers to providing facilities to serve 17% of the total enrollment by 1970. Stage III at the secondary level refers to providing facilities for 20% of the enrollment by 1973.

Stage II at the post-secondary level refers to accommodating an additional 625 students by 1973 and Stage III refers to serving another 400 students by 1975.

Table 20, Page 53, illustrates projected operating costs by type of expenditure and fiscal year through 1973. Projections are based on recent budget estimates and/or actual expenditures for operations.

It should be noted that while projected expenditures increase to a total of $7,732,546 in 1973, 35% of that amount or $2,731,210 represents debt service.

Table 21, Page 54, provides an indication of projected expenditure by fiscal year and source of funding. Federal funds have been conservatively estimated to remain constant because of the absence of any reasonable method of projecting an increase in such funding.

Details of computations used in arriving at amounts in Tables 19-21 can be found in Appendix C.

TABLE 20

PROJECTED OPERATING EXPENDITURES BY FISCAL YEAR AND EXPENDITURE

Item		Appendix	1969	1970	1971	1972	1973
Administration & Guidance-Area Schools	Stage I	C-3	$ 233,610	$ 316,638	$ 332,621	$ 349,206	$ 366,697
" " " " "	Stage II	C-4	-	85,300	127,562	133,923	140,630
" " " " "	Stage III	C-5	-	-	-	-	134,432
Administration & Guidance-B.V. School	Stage I	C-6	56,535	219,335	66,456	69,770	73,264
" " " " "	Stage II	C-7	-	29,298	158,342	48,252	50,668
" " " " "	Stage III	C-8	-	-	-	-	33,930
Adult Education		C-9	38,100	116,122	175,774	184,539	193,782
Corliss Park Vocational-Technical School		C-10	304,811	278,157	292,197	306,767	322,132
Firemen Training		C-11	12,495	13,120	13,782	14,469	15,194
Post-Secondary Vocational-Technical Education		C-12	349,816	472,349	1,128,700	1,647,139	2,145,389
Reimbursement To Communities							
Agriculture - Non-Area Schools		C-13	20,183	20,183	20,183	20,183	20,183
Area School Reimbursement		C-14	135,192	379,080	652,774	742,020	781,860
Co-operative Business Education		C-15	26,100	35,910	46,657	58,363	71,136
Distributive Education		C-16	52,200	59,535	67,504	76,081	85,363
Existing Programs - Non-Area Schools		C-17	32,336	-	-	-	-
Home Economics - Homemaking		C-18	33,400	33,400	33,400	33,400	33,400
Wage Earning Home Economics		C-19	2,376	3,881	6,018	8,356	10,915
Rhode Island School for Practical Nursing		C-20	134,114	140,820	147,928	155,304	163,083
State Staff & Office		C-21	246,869	290,655	325,891	342,142	359,278
Sub Total			$1,678,137	$2,493,783	$3,595,789	$4,189,914	$5,001,336
Debt Service		C-22	573,058	1,167,627	1,675,879	2,093,287	2,731,210
TOTAL PROJECTED OPERATING EXPENDITURES			$2,251,195	$3,661,410	$5,271,668	$6,283,201	$7,732,546

TABLE 21

PROJECTED OPERATING EXPENDITURES
BY FISCAL YEAR AND SOURCE OF REVENUE

FISCAL YEAR	TOTAL	STATE FUNDS	FEDERAL FUNDS
1969	$2,251,195	$1,649,764	$ 601,431
1970	3,661,410	2,896,436	764,974
1971	5,271,668	4,113,745	1,157,923
1972	6,283,201	5,125,278	1,157,923
1973	$7,732,546	$6,574,623	$1,157,923

APPENDIX A

APPENDIX A

1966 ACTUAL ENROLLMENT TOTALS BY COMMUNITIES IN AREA VOCATIONAL SCHOOL DISTRICTS - GRADES 10-12

Area School District	Public	Non-Public	State Operated	Total
Blackstone Valley Area School				
Central Falls	429	232	1	662
Cumberland	1,015	83	2	1,100
Lincoln	624	124	12	760
North Smithfield	242	128	3	373
Pawtucket	2,388	612	2	3,002
Smithfield	338	135	11	484
Woonsocket	1,207	433	27	1,667
TOTAL	6,243	1,747	58	8,048
Chariho Regional Area School				
**Charlestown	--	4	0	4
**Hopkinton	--	1	0	1
*Narragansett	--	24	5	29
New Shoreham	20	0	0	20
**Richmond	--	2	1	3
South Kingstown	721	60	7	788
Westerly	674	27	19	720
Chariho Regional	437	--	--	437
TOTAL	1,852	118	32	2,002
Coventry Area School				
Coventry	845	76	15	936
East Greenwich	429	45	1	475
*Exeter	--	3	3	6
North Kingstown	838	42	0	880
*West Greenwich	--	1	0	1
TOTAL	2,112	167	19	2,298

*Attend South Kingstown High School

**Attend Chariho Regional

*No High School

APPENDIX A (continued)

1966 ACTUAL ENROLLMENT TOTALS BY COMMUNITIES IN AREA VOCATIONAL SCHOOL DISTRICTS - GRADES 10-12

Area School District	Public	Non-Public	State Operated	Total
East Providence Area School				
Barrington	882	110	14	1,006
Bristol	648	93	11	752
East Providence	1,751	250	15	2,016
Warren	379	54	1	434
TOTAL	3,660	507	41	4,208
Newport Area School				
*Jamestown	--	51	0	51
*Little Compton	--	2	0	2
Middletown	640	88	0	728
Newport	1,219	285	1	1,505
Portsmouth	504	189	0	693
Tiverton	196	54	4	254
TOTAL	2,559	669	5	3,233

*No High School

Ponaganset Area School				
Burrillville	363	26	5	394
*Foster	--	2	2	4
*Glocester	--	6	1	7
Scituate	346	20	2	368
Ponaganset Regional	360	--	-	360
TOTAL	1,069	54	10	1,133

*Attend Ponaganset Regional High School

Providence Area School				
Johnston	688	203	27	918
North Providence	713	270	12	995
Providence	5,196	1,426	3	6,625
TOTAL	6,597	1,899	42	8,538

APPENDIX A (continued)

1966 ACTUAL ENROLLMENT TOTALS BY COMMUNITIES IN AREA VOCATIONAL SCHOOL DISTRICTS - GRADES 10-12

Area School District	Public	Non-Public	State Operated	Total
Warwick Area School				
Cranston	2,893	463	33	3,389
Warwick	3,447	480	33	3,960
West Warwick	836	120	22	978
TOTAL	7,176	1,063	88	8,327
GRAND TOTAL	31,268	6,224	295	37,787

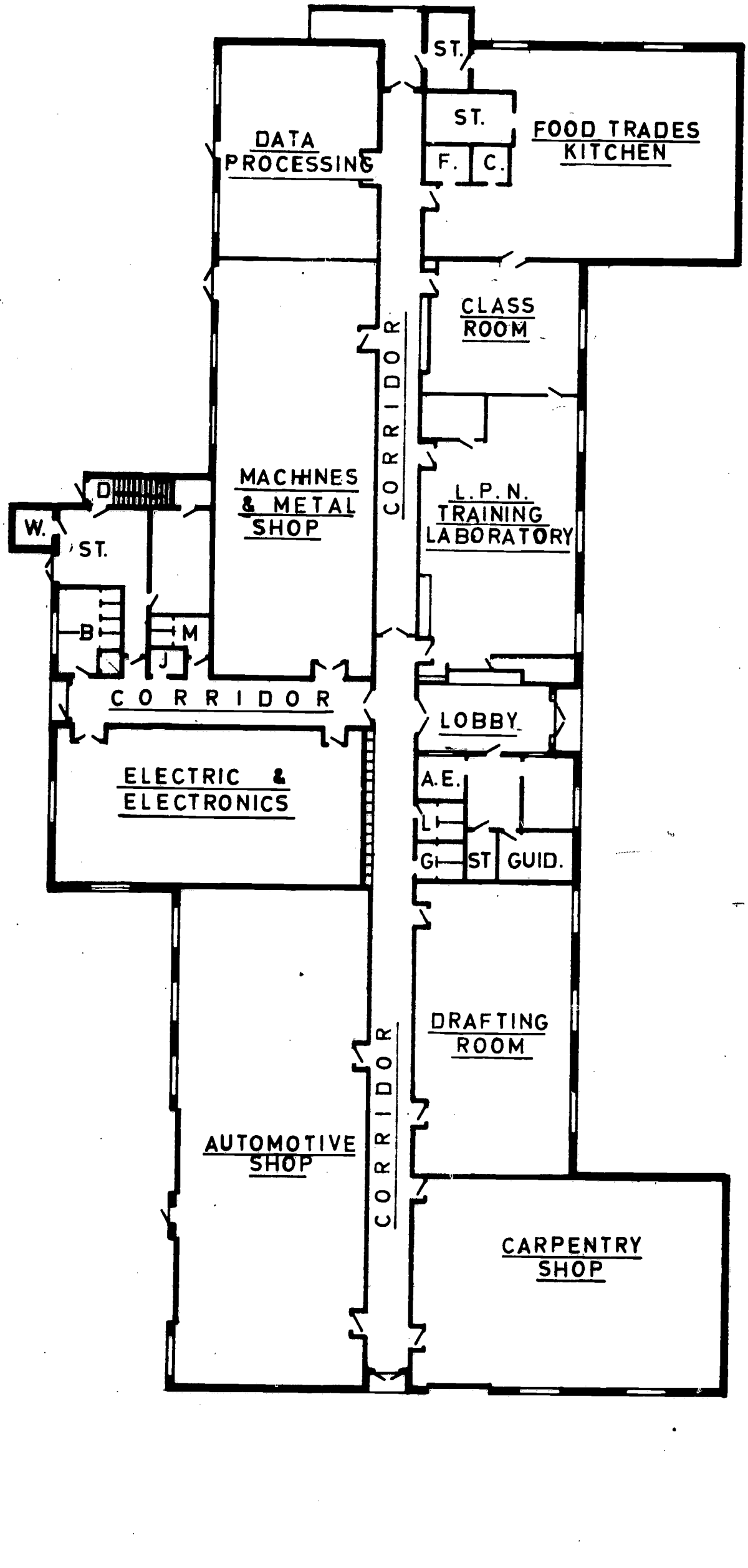
A P P E N D I X B



Chariho Regional High School

Vocational and Technical Facility

Michael Traficante - Architect

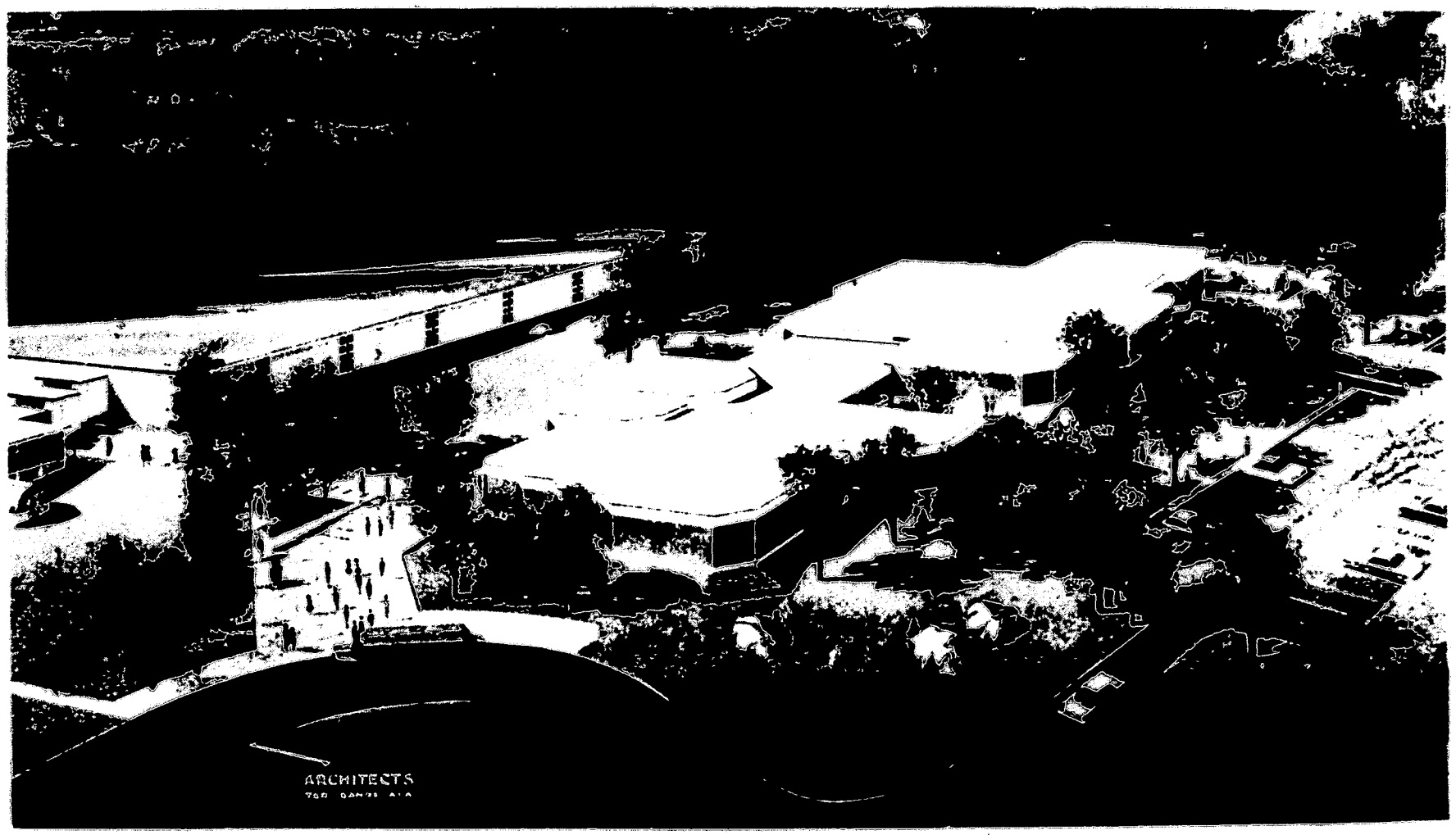

ST.
ST.
F.
C.
DATA PROCESSING
FOOD TRADES KITCHEN
CLASS ROOM
CORRIDOR
MACHINES & METAL SHOP
L.P.N. TRAINING LABORATORY
D
W.
ST.
B
M
J
CORRIDOR
LOBBY
ELECTRIC & ELECTRONICS
A.E.
L
G
ST
GUID.
DRAFTING ROOM
AUTOMOTIVE SHOP
CORRIDOR
CARPENTRY SHOP

CHARIHO AREA VOCATIONAL-TECHNICAL FACILITY

	Program Area	Sq. Ft. Area	Student Capacity	Movable Equipment
1.	Electrical - Electronics	1,800	18	$ 20,000
2.	Carpentry	2,500	18	20,000
3.	Machine Processes	2,400	18	50,000
4.	Automotive	3,400	18	20,000
5.	Food Service	2,500	18	35,000
6.	Health Occupation	1,600	18	10,000
7.	Drafting	1,600	24	7,500
8.	Data Processing	1,250	18	4,500
	Classroom	750	30	1,800
	Administration	600		1,400
	Service	7,000		
	TOTALS	25,400	180	$ 170,200

Budget

Construction; Site Development; Utilities; Fixed Equipment; (Totals)	$ 525,000
Architectural Fee	46,000
Equipment	170,200
Contingency	33,800
Project Cost	$ 775,000



Coventry High School

Vocational and Technical Facility

Turoff Associates - Architects